



**ACADEMY OF GLOBAL BUSINESS
RESEARCH AND PRACTICE, USA**

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18TH INTERNATIONAL CONFERENCE OF THE AGBRP

**Leading Sustainability Transitions:
Risk, Collaboration, and Technology**

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PROCEEDINGS

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Editors

Gouher Ahmed, C. Jayachandran and Naseem Abidi

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PREFACE

The 18th International Conference of the AGBRP Editors

Gouher Ahmed¹, C. Jayachandran², Naseem Abidi³

The AGBRP (Academy of Global Business Research and Practice) organized its 18th Academy of Global Business Research and Practice, hosted by Newcastle Australia Institute of Higher Education (Singapore)/University of Newcastle Australia at PSB Academy City-Centre Campus, Marina Square, Singapore, during January 4-6, 2024.

We extend our heartfelt gratitude to **Prof. Tony Travaglione**, who was then the Chief Executive Officer and Board Director, Newcastle Australia Institute of Higher Education, Singapore.

This year's conference, the "Leading Sustainability Transitions: Risk, Collaboration, and Technology," attracted outstanding participation from over 40 countries, with 150 innovative papers exploring various dimensions of sustainability in business practice and education. The conference underscored the Academy's commitment to advancing global economic development through scholarly research, education, and practical application. The proceedings capture a broad spectrum of topics organized into 13 tracks, ranging from Business Strategy and Sustainability to International Business, Regional Development, and Geopolitics, reflecting the complex and dynamic nature of global business environments. Highlights include discussions on digital disruptions, sustainability management, corporate social responsibility, and innovative entrepreneurship, among others.

Track 1: Practitioner Track

Papers that are relevant to any of the below Tracks, but with a Practitioner focus

Track 2: Business Strategy and Sustainability

- Business Transition Strategies
- Sustainability Management
- Social and Ethical Issues in Business and Management
- Corporate Social Responsibility and ESG
- Gender, Diversity, and Inter-Generational Management
- Business Management, Regulation and Public Policy
- Organizational Behaviour and Industrial-Organizational Psychology
- Decarbonisation: Managing Energy Transitions
- Food Security and Sustainability

Track 3: Operations, Supply Chains & Logistics

- Operations, Project, and Quality Management
- Supply Chain and Logistics Management
- Supply Chain Disruption, Resilience and Risk Management
- Closed-loop/ Sustainable Supply Chains

Track 4: Innovation Management & Technological Change

- Digital Disruptions and Technology Management
- Industry 4.0, Artificial Intelligence and Machine Learning
- Cybersecurity Risks and Solutions

- Innovation, Technology and Development
- AI (ChatGPT) Challenges and Opportunities
- New Business and Innovation Models
- Design Thinking and Innovation Management
- Innovation Spaces and Places

Track 5: Entrepreneurship

- SMEs and Sustainability
- Small Business Management
- Entrepreneurship and Intrapreneurship
- Social Entrepreneurship
- SME Internationalisation

Track 6: Talent, Skills and the World of Work

- Human Resources and Talent Management
- Skills Development and Training
- Leadership and Conflict Management
- Workers and Job Satisfaction
- Boardroom and Workplace Equality
- Labour and Migration

Track 7: Information Management

- Data and Business Analytics
- Information Systems Management
- Cybersecurity and Information Security Management
- Digital Commerce and Social Media

Track 8: International Business, Regional Development and Geopolitics

- Internationalisation Strategies
- Sanctions and Geopolitics
- De-globalisation, Decoupling and Diversification
- Trade and Investment Regulation and Business Strategy
- Carbon Border Adjustment: Policy Design and Impact
- Trade, FDI and Regional Development

Track 9: Accounting & Finance

- Ownership and Corporate Governance
- IFRS Sustainability Reporting and Disclosure
- Ethical and Green Finance
- Carbon Taxes and Investment Decisions
- Start-up/ Venture Capital
- Accounting and Audit Standards
- Triple-Bottom Line Accounting

Track 10: Marketing & Sales

- Consumer Behaviour
- Green marketing and ‘green-washing’
- Sustainability and Branding
- Inclusion and Underserved Markets

Track 11: Sector Specific Management

Papers that are relevant to any of the above Tracks, but with a focus on a specific sector. Sectors include, but are not limited to,

- Arts, Entertainment, and Media Management
- Sports and Event Management, Health Care Management
- Higher Education Management
- Public Sector Management, Not-for-Profit Management
- The Space Economy and Innovation

Track 12: Local Track: Singapore

Papers that are relevant to any of the above Tracks, but with a Singapore focus

Track 13: At Large

Papers that do not fall into any of the above tracks but contribute to the advancement of business research and practice.

The AGBRP continues to serve academia with the following objectives: to sponsor/co-sponsor symposia and conferences various themes on opportunities and challenges in global economic development; to provide opportunities to researchers, educators, and students in the global economic development space to network with others with common interests; and to facilitate an interface between publication media and authors in the global economic development field for the dissemination of research and further thought development. The AGBRP has so far organized seven international research symposiums and 18 major International Business conferences around the world. As we reflect on the insights and knowledge shared, we look forward to continuing these important conversations and collaborations at our next 19th AGBRP International Business conference scheduled in Dubai from January 8-10, 2024.

We hope the proceedings from the 18th International Conference inspire and influence further research and development in the pertinent fields of global business. We sincerely appreciate the 18th International Conference of the Academy of Global Business Research and Practice organizing committee and all sponsors and volunteers for making this a memorable event.

¹**Prof. Gouher Ahmed**, Vice President, AGBRP, USA, Conference Co-Chair and from Skyline University College, UAE.

²**Prof. C. Jayachandran**, President AGBRP, USA and from Montclair State University, USA.

³**Naseem Abidi**, AGBRP Board Member, Dean, School of Business, Skyline University College, UAE

AWARDS

The following research papers from the 18th AGBRP International Conference were judged and given the best paper awards in different domains.

TONY TRAVAGLIONE BEST PAPER AWARD

Analyzing Carbon Credit Price Determinants in the Indian Market: Insights from the Clean Development Mechanism

Neha Arora, International School of Business & Media, Pune, India

MARTIN RAHE BEST PAPER AWARD

Sustainable Business Models in Green Start-ups: Analysis of Relationship Between Profitability and Impact

Joo-Seng Tan, Nanyang Business School, Nanyang Technological University, Singapore

George Bunjamin Gregorius, Nanyang Business School, Nanyang Technological University, Singapore

Trade Fragmentation, Geopolitics and the Energy Transition: Evidence from Energy and Critical Minerals

Neil McGregor, NAIHE, University of Newcastle Australia, Singapore

Anne Chong, NAIHE, University of Newcastle Australia, Singapore

Adapting the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) to the Acceptance of Public Policies.

Alessandro Lampo, University of Saint Joseph, Macao

Ansoumane Douty Diakite, University of Saint Joseph, Macao

Emil Chi Hang Ip, University of Saint Joseph, Macao

Achieving Sustainable Development Goals (SDGs) through Collaboration in Rural Communities in India

Sivakumar Venkataramany, Ashland University, USA

C. Jayachandran, Montclair State University, USA

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Expanding the Global B2B Market through Relationship-Based Strategies – The Empowering Influence of People Currency

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Track 1: Practitioner Track

[ID: 53]

Discovering New Business Solutions in a Post-Covid World: Insights from a Cancer Research Lab

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Abstract

The Covid years brought about seismic shifts affecting almost every aspect of business. Global supply chains were halted, affecting manufacturing, construction, healthcare, tourism and education - all aspects of life had to be re-imagined, to make the change and adapt to the new world order. In today's fast paced business world, due to the need for speed, many businesses opt for innovation in their business service. More so than ever now, in a post-Covid era where new challenges and conditions have arisen, and old concepts challenged. Innovation, by means of discovery, is much needed for Businesses to survive, and to support the discovery of fresh solutions to these problems.

From this perspective this paper aims to share, insights from a practitioner (a Cancer researcher - working on an Oncogenic virus) that the process of discovery, as applied in a research lab, may well be adopted for businesses today. Transferable analysis and practices could range from attempts to answer complex questions, to formulating a series of experiments to get insightful data, and finally to lessons learned from the entire process, in order to apply them for future projects, products, services and business offerings. For this presentation, the researcher will share how the scientific discovery process could assist businesses with improving their innovative processes.

Keywords: Post-Covid, Practitioner Perspective, Transferable Analysis

Track 2: Business Strategy and Sustainability

[ID:36]

Skill Shortages in Singapore: assessing the impact on Sustainability Goals

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Abstract

As an innovative, modern small-state, Singapore has embraced the United Nations Sustainable Development Goals (SDGs) and the concept of sustainability in general. The city-state strongly contributes to the SDG ASEAN working group. In 2018, the Singapore Government undertook a Voluntary National Review of the country's progress against the 17 SDGs with a second voluntary review published in July 2023. While Singapore's active commitment to the 2030 agenda is commendable, shortages of the critical skills required to make progress on key indicators threaten the realisation of aspirations. In particular, Singapore faces significant demographic and labour market problems which left unaddressed, will make it very difficult for them to lead the region in SDG progress. Consequently, this paper will report on the challenge of critical skill shortages concerning two SDGs of primary importance to the city state – Decent Work (SDG 8) and Climate Action (13).

'Skill shortages' are generally assessed through industry or national level surveys of employers to identify current skills deficits or skills that employers predict will be in demand in future (National Skills Commission, 2023). In the context of this paper, 'Critical Skill Shortages' are defined as a current or future skills deficit that is critical to achieving progress against the SDGs. The methodology used comprises a systematic review of relevant literature, including published and 'grey' literature.

Our contribution focuses on identifying the sustainability challenges facing Singapore and the steps policymakers have made towards addressing them with reference to jobs and critical skill shortages. Our analysis seeks to explain how these challenges are impacted by structural

features of the Singapore economy, including its high dependence on foreign labour, the impact of demographic change and its exposure to global supply chains. Analysis will also focus on the skills Singapore needs to meet the UN 's SDG targets as well as recommendations to address the challenges identified.

Keyword: Singapore, Green Plan, Critical Skill Shortages, UN Sustainable Development Goals, Future Economy, Sustainability

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[108]

Trade Fragmentation, Geopolitics and the Energy Transition: Evidence from Energy and Critical Minerals

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The progress of globalization and its associated processes of multi-lateral trade integration are increasingly under pressure. Rather than integration many observers suggest that we are entering an era of fragmentation in global trade and investment associated with a variety of factors such as the effects of the Covid-19 pandemic on supply chains, the Russia-Ukraine conflict, US-China decoupling, the Belt and Road Initiative, a rise in protectionism and economic nationalism. This fragmentation thesis is generally associated with emerging patterns of trade (and investment) that involve friend-shoring, near-shoring, on-shoring and re-shoring. Moreover, we are most likely to observe fragmentation in strategic (or critical) industries, products and technologies. Fragmentation in global trade in critical energy and mineral products, coupled with the implications for security of supply, is likely to impact on energy transition strategies.

This paper explores the evolving patterns in global trade for a sample of critical products in order to test this fragmentation thesis and evaluate the validity of friend-shoring, near-shoring and on/re-shoring arguments. Specifically, we undertake an analysis of trade patterns- over the 2011-2022 period – between individual countries and groupings – across a sample of critical energy and mineral products including crude oil, (piped and liquefied) natural gas, hydrogen and ammonia, aluminium, cobalt, lithium and vanadium. We synthesise our quantitative analysis with data on tariff and non-tariff measures, trade disputes, bilateral trade agreements, sanctions, FDI screening and other relevant policy developments.

Our results indicate that, to date, there is limited evidence to support the trade fragmentation argument. The evolving patterns of trade in energy and critical mineral products reflect underlying supply-demand and market structure dynamics rather than the geopolitics of

energy and national security. However, the qualitative evidence points to an increasing risk of fragmentation in trade and investment, with (actual or perceived) security risks shaping technology selection in energy transition strategies.

Keywords: energy transitions, trade fragmentation, friend-shoring, geopolitics, critical minerals

[ID:8]

Development of a Valid and Reliable Scale for Enablers of Organizational Healing

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ABSTRACT

Organizational Healing refers to the process of repairing and restoring the social relationships of an organization after any external trauma. In the present work, we develop a psychometrically valid scale for enablers of organizational healing. For this purpose, inputs were drawn from two previous studies conducted by the authors – first was a qualitative study wherein healing enablers were identified and second was a theoretical work where conceptual analysis and expansion of the construct of Organizational Healing was done. From these sources, individual items were developed and then the face validity of these items was established with the subject experts. The items remaining after face-validity exercise were empirically examined in the second stage and factor structure was proposed through Exploratory and Confirmatory Factor Analysis. After establishing convergent and discriminant validity, a reliable and psychometrically valid scale for Organizational Healing was developed. This development fulfils an existing gap because at present there is no psychometrically operationalized construct that could ascertain healing efficacy in varied organizational situations.

Keywords: Organizational Healing, Psychometric Analysis, Exploratory Factor Analysis, Confirmatory Factor Analysis, Face Validity, Convergent Validity, Discriminant Validity, Inter-item correlation.

[ID:22]

Employees' Experience of Meaningfulness at work due to Internal Organizational Corporate Social Responsibility

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While research about the effect of organizational Corporate Social Responsibility (CSR) activities on customers, shareholders, society, and environment is extensive, research regarding its effect on employees is limited. Hence, this research explores the impact of internal organizational CSR activities on individual employees in the context of the food and beverage industry in Myanmar. A quantitative research method using survey questionnaires is employed to examine the relationship between internal organizational CSR and employee outcomes such as employee engagement and organizational citizenship behavior of employees through the mediation of meaningfulness. The research findings indicate that there are relationships among internal organizational CSR, employee engagement, organizational citizenship behavior, and meaningfulness. However, a weak positive relationship is found out between internal organizational CSR and organizational citizenship behavior. Thus, involvement of the mediator 'meaningfulness' is essential. When employees are targeted as part of their organizational CSR, their experience meaningfulness at work is more likely to reciprocate care towards their coworkers beyond their job requirements. These research findings propose an original empirical insight into the CSR literature by offering a conceptual framework that explains the integration between micro and macro level: how individual employee makes sense of their internal organizational CSR activities. The CSR knowledge of Asian countries is also considered to some extent by focusing on Myanmar as a contextual research background. These findings are likely to help managers in organizational design to embed a framework of CSR activities for their internal employees.

Keywords: meaningfulness, internal CSR activities, employee outcomes, integrating level analysis

[ID:42]

ERP implementation towards digital transformation: insights from change management perspective

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Organizations are rapidly implementing digital transformation initiatives to improve their processes to gain competitive advantage. Enterprise re-source planning (ERP) deployment is a preliminary step in the digital transformation journey of an organisation. Though organisational change management is assessed to be a critical success factor in ERP implementation, it is always given lower priority in actual setting. The first author from his 18years of experience in ERP consulting observed that change management is almost always an afterthought in digital transformation journeys. Organizational leaders treat change management as a reactive measure rather than proactively planning and managing the people aspects in ERP implementations. Hence, this study examines the organisational change management initiatives and its impact on the success of digital transformation. A review of literature in the area of organisation change and digital transformation was conducted to set the theoretical background. Further in-depth interviews of 10 organisation leaders and industry practitioners involved in digital transformation were conducted. Analysis of the data shows that organisations need to plan for continuous evaluation of the need for managing change for a successful digital transformation. A structured approach to the assessment of benefits before and after the change is essential. Implications for change practitioners and ERP implementation managers are discussed.

Keywords: ERP Implementation, Digital Transformation, Change Management, Project Management

[ID:50]

Analyzing behavioral aspects of women executives in analytical decision-making in investment decisions

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Abstract

Purpose

Investment decisions are vital for any dynamic organizations to stay competitive amidst global challenges. Globally corporate investment field have been male dominated, though more women top level executives are entering the fiefdom. This article explores behavioral aspects of financial investment decision-making. This article also covers men's and women's analytical behavior regarding investment decisions. Many literatures highlight the aspect of women executives bringing unique perspectives, rationale thinking and strengths in investment decision making that can lead to better outcomes. This research aims to build an analytical investment decision-making framework based on behavioral aspects.

Design/methodology/approach

The study has adopted a mixed methodology approach wherein the research began with exploratory work and a structured literature review (SLR). Qualitative interviews with top-level executives from corporate finance and SLR identified key factors. Further, the authors identified base theories and scale development articles for the identified constructs. The research has used a simple random method as its sampling strategy. Further, exploratory factor analysis resulted in the identification of key grouping variables. The scale's composite reliability, convergent validity, and discriminant validity were tested. Later, the SEM model (structured equation model) was built using IBM AMOS. The authors validated CR, CV, DV, goodness fit index, CMIN/DF, RMSEA, and other parameters to test whether the model is fitting.

Findings

This empirical study identified key concepts and constructs that impact behaviour based analytical investment decision making. Some of the key concepts which emerged from SLR, expert interviews and focus group discussions are gender diversity and decision-making, risk perception and risk management, long-term perspective, communication and collaboration, overcoming gender bias, leadership and representation, individual differences, intersectionality, diversity of thought, emotional intelligence, risk management, analytical skills, long-term focus, ethical investing, client relations, collaborative decision-making, addressing biases. The role of women employees in investment decisions using analytics can be highly significant and beneficial to the financial industry. Women bring diverse perspectives, skills, and experiences to the table, which can enhance the decision-making process and lead to more effective investment strategies. Analyzing the behavioral aspects of women executives in analytical decision-making in investment decisions can provide valuable insights into how gender diversity may influence investment strategies and outcomes. It is essential to approach this analysis with sensitivity and avoid broad generalizations, as individual differences play a significant role in decision-making. In conclusion, analyzing the behavioral aspects of women executives in analytical decision-making in investment decisions can offer valuable insights into the potential impact of gender diversity in investment strategies. However, it is crucial to avoid stereotypes and recognize the influence of individual differences and societal biases in decision-making processes. The goal should be to create a more inclusive and diverse investment industry that benefits from a broader range of perspectives and experiences.

Keywords: Behavior, Women Executive, Analytical Decision-making, Investment Decisions, Gender bias.

[ID:60]

**The influence of the forced work from home amid the COVID-19
pandemic on employees' organizational commitment:
A conceptual model**

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Abstract

The world has witnessed an unprecedented time in the wake of the Coronavirus (COVID-19) pandemic. While its ramifications on human life and health are unfortunate and heart-wrenching, its impact on their professional lives is also difficult to ignore. Particularly, individuals were forced to resort to the practice of work from home to ensure the continuity and survival of their employers' business. This forced work from home practice induced by the pandemic is inconsistent with the existing nature of this practice, which has till now been considered voluntary and available only to a limited proportion of any organization's workforce. In this article, we attempt to explain the implications of this anomaly. Particularly, we propose a conceptual model to describe the impact of this forced work from home arrangement on a crucial job attitude, i.e., the employees' organizational commitment. In doing so, this article contributes significantly to the existing literature and practice.

Keywords: COVID-19 pandemic, forced work from home, affective commitment, normative commitment, continuance commitment.

Introduction

The COVID-19 pandemic first originated in Wuhan, China, towards the end of 2019 as viral pneumonia, and over the time, it emerged as the greatest challenge of our time. The high pace and ease of its transmission, coupled with the unavailability of a cure or vaccine, made it extremely difficult to control or put an end to this disease (Horesh and Brown, 2020). Until the time scientists came up with a vaccine, the only widely accepted way to prevent COVID-19 from spreading was to ensure social

distancing. So, nations across the globe resorted to the use of lockdown measures to minimize the impact of this virus. According to Sandford (2020), at its peak, approximately 90 countries, accounting for half of the global human population, had called for a lockdown, forcing people to stay in their homes and wait for the situation to normalize. The COVID-19 pandemic posed a threat not only to the existence of human beings but also to the survival of organizations. To ensure the continuity of their business, organizations opted to rely on the practice of work from home (WFH; Mani and Tomar, 2020).

Even before the COVID-19 pandemic, organizations used to make use of the WFH arrangement. However, earlier it was perceived to be a social exchange between the employees and their employers (Hornung and Glaser, 2010) and was typically provided as a result of voluntary decisions on the part of the employees and/or the employers such that only a limited proportion of the total workforce got the option to or opted for WFH (Spreitzer, Cameron, and Garrett, 2017; Mani and Tomar, 2020). Consequently, during the lockdown, organizations across industries, faced myriad issues, including the lack of infrastructural support, logistical issues, and so on, as they were forced to move to the WFH arrangement for almost all of their workforce.

Despite these initial hiccups, organizations found the WFH option to be efficient as well as cost-effective and many even plan to continue with this practice in the post-pandemic world (Lavelle, 2020). While this forced WFH arrangement induced by the COVID-19 pandemic may appear to be a blessing in disguise for the organizations, it is essential to understand the implications of this forced arrangement for the employees, particularly as the organizations plan a permanent shift to this practice (Mani and Tomar, 2020). Firstly, it is necessary to consider how the forced nature of this arrangement has influenced the inherent understanding of this arrangement between the employees and their organizations. Secondly, it is relevant to describe the effect of the forced WFH practice on the organizational members' job attitudes as these attitudes play a crucial role in determining valuable behaviors, such as task performance, creative performance, extra-role behavior, and withdrawal (Judge and Kammeyer-Mueller, 2012). In this article, we focus on one of the most extensively researched job-attitudes, i.e., organizational commitment.

Scholars have described organizational commitment as a psychological state, which portrays the bond that exists between organizational members and their organization and impacts their decision to continue to work with it (Meyer and Allen, 1997). Organizational commitment has significant impact on consequential work-related behaviors, such as employee turnover, absenteeism, organizational citizenship behavior, and employee performance (Larson and Fukami, 1985; Gellatly, 1995; Somers, 1995; Meyer, Stanley, Herscovitch, and Topolnytsky, 2002; Park and Rainey, 2007; Sungu et al., 2020). Given its importance, scholars have also attempted to understand the factors that facilitate employees' organizational commitment (Avolio, Zhu, Koh, and Bhatia, 2004; Erdheim, Wang, and Zickar, 2006; Loi, Hang-Yue, and

Foley, 2006; Cohen, 2007).

While this work has significantly advanced our understanding of how organizational commitment can be fostered, most of these studies have been conducted in the traditional work context, wherein employees are expected to work from their organization's premises. Consequently, there is an impending need to understand how employees' organizational commitment gets influenced when they WFH (Spreitzer, Cameron, and Garrett, 2017). This need gets further accentuated in the COVID-19 context wherein organizations had to adopt the practice of WFH due to the lockdown measures imposed by the governments to prevent the spread of the virus. So, the objective of this article is twofold. One, accounting for the forced nature of WFH practice during the COVID-19 pandemic, we aim to explain how this coercion changes the existing understanding of WFH as a social exchange between the organizations and their members. Two, to develop a conceptual model that describes the impact of this forced WFH practice on the three dimensions of employees' organizational commitment.

The present article makes following contributions to the literature. The existing studies in the literature follow the assumption that utilizing WFH is a volitional decision for the employers and/or the employees. However, the current context defies this underlying assumption as organizations are forced to shift to WFH arrangement for their survival, and the employees have to WFH for their own safety and continued employment. So, this article extends the scholars' understanding by shedding light on how the employees' view about WFH changes when it is forced and not volitional and by explaining how this forced WFH practice has a negative influence on employees' organizational commitment. This article also contributes to the literature by addressing the research call made by Spreitzer, Cameron, and Garrett (2017) for conducting more studies to explain the linkage between WFH and organizational commitment. Furthermore, the model proposed in this article not only provides other researchers with the conceptual ground for conducting future research but also extends the scholarly discussion regarding the impact of COVID-19 pandemic on organizational members' attitudes and behaviors (Pass and Ridgway, 2022). This article also has significant implications for practice. First, as the organizations plan to move to the WFH arrangement on a permanent basis for their employees, they should not only look at cost-effectiveness and efficiency but also include other aspects pertaining to their members' attitudes. Second, the proposed model illustrates that perceived organizational support reduces the negative impact of forced WFH on organizational commitment. So, the organizations can alleviate these effects by supporting their employees as they try to adapt to a practice that has been forced upon them due to the COVID-19 pandemic.

Literature Review

Work from Home

Traditionally, jobs have been considered to be full-time, regular, and require employees to be on-site, i.e., at the premises of their organizations. Such a model of employment has been defined by Kalleberg (2000) as “jobs where work is performed on a fixed schedule, at the firm’s place of business under the firm’s control, and with mutual expectation of continued employment” (p. 257). However, over the last few years, jobs have increasingly become erratic at the will of employers and/or employees. According to Boudreau, Jesuthasan, and Creelman (2015), at present, work occurs in an “organization with a more permeable boundary, where work – and people – move inside and outside more freely” (p. 11). So, organizations are moving towards alternative or flexible work Forced Work from Home and Organizational Commitment arrangements to cater to the changing needs of their businesses as well as their employees.

According to Spreitzer, Cameron, and Garrett (2017), alternative work arrangements can be classified into three categories. The first category includes individuals who have flexible employment relationships with their employers. These individuals, such as part-time and contractual employees, work on specific and time- bound assignments with their organizations (Johnson and Ashforth, 2008). The second category consists of individuals who have flexibility with respect to the work schedule. Their work involves high levels of uncertainty or fluctuations in demand (Wood, 2016), and so, these individuals may have to work at odd hours or during weekends, which is in contrast to the traditional employment practices (Hamermesh and Stancaelli, 2015). The third category comprises of individuals who have the freedom to determine the location from which they work, and typically, these locations (such as, their homes, coffee shops, cafes) are away from their employers as well as their clients. The present article focuses on the last category since organizations have been forced to resort to WFH as an alternative form of work arrangement amid the COVID-19 pandemic.

As noted earlier, WFH has, over the years, been widely utilized by employees and their companies even before the COVID-19 pandemic. For instance, in the United States alone, the number of employees who engage in WFH has tripled within a span of three decades, i.e., from 1980 to 2010 (Mateyka, Rapino, and Landivar, 2012). With the growing reliance of employees and employers on WFH, the scholarly interest in this topic has also grown over the years. Scholars have focused on examining the implications of this practice for organizations as well as their members. They have found that WFH reduces stress and work-family conflict among the employees (Raghuram and Wiesenfeld, 2004) and provides them with greater autonomy (Kelliher and Anderson, 2008). It also enhances their job satisfaction (Virick, DaSilva, and Arrington, 2010) and performance (Gajendran, Harrison, and Delaney-Klinger, 2015). Researchers have also reported numerous negative consequences of WFH, including an increased feeling of loneliness, lesser engagement, hampered potential for building relationships, reduced chances of knowledge sharing, more negative work experiences, and weaker organizational identification (Golden, 2007; Golden and Raghuram, 2010; Golden and Fromen, 2011; Bartel, Wrzesniewski, and Wiesenfeld, 2012; Bloom et al., 2015; Rockman and Pratt, 2015).

Forced Work from Home and Organizational Commitment

The studies in the extant literature follow the assumption that WFH is provided as a result of voluntary decisions on the part of the employees and/or the employers such that only a limited proportion of the total workforce works from home at any given point in time (Spreitzer, Cameron, and Garrett, 2017; Mani and Tomar, 2020). Furthermore, employees perceive it as a social exchange between their organizations and themselves (Hornung and Glaser, 2010). However, in the context of the COVID-19 pandemic, organizations, as well as the employees, are left with no other option but to turn towards WFH and this forced nature defies the existing assumption in the WFH literature, and so, we try to understand the implications of WFH when it is forced and not volitional.

Organizational Commitment

As conceptualized by Meyer and colleague (Allen and Meyer, 1990, 1996; Meyer and Allen, 1991, 1997), organizational commitment is further divided into three components, namely affective commitment, normative commitment, and continuance commitment.

Affective commitment is the bond that the individuals have with their organizations and is characterized by the level of enjoyment, identification, and involvement that individuals experience in being a part of their organizations (Mowday, Porter, and Steers, 1982; O'Reilly and Chatman, 1986; Allen and Meyer, 1990; Meyer and Allen, 1997). In essence, it is considered as the extent to which an individual is emotionally attached to his/her organization. Normative commitment reflects "employees' feelings of obligation to remain with the organization" (Allen and Meyer, 1990, p. 1). Meyer, Becker, and Vandenberghe (2004) suggest that individuals with high normative commitment feel responsible for fulfilling their organizational obligations so that they can meet others' expectations or avoid feeling guilty and anxious. Normative commitment has received the least scholarly attention among the three dimensions of organizational commitment (Bergman, 2006). Continuance commitment is described as "a tendency to 'engage in consistent lines of activity' (Becker, 1960, p. 33) based on the individual's recognition of the 'costs' (or lost side bets) associated with discontinuing the activity" (Allen and Meyer, 1990, p. 3). The key factor which differentiates the threetypes of organizational commitment from each other is the force that binds the employees to their organizations.

When it comes to the affective commitment, it is the employees' desire to stay on, for normative commitment, Forced Work from Home and Organizational Commitment it is their obligation to perform, and for continuance commitment, it is the perceived cost of leaving.

It has been found that organizational commitment's three components are connected with critical organizational outcomes. For example, through a meta-analytic study, Meyer et al. (2002) have concluded that affective, normative, and continuance

commitment are negatively associated with employees' withdrawal cognition, their intent to leave the organization, and actual turnover. Their results also suggest that the three components of organizational commitment influence desirable work-related behaviors (such as job performance, extra-role behavior, and attendance). While affective and normative commitment affects these outcomes positively, continuance commitment's influence on these outcomes is negative. Moreover, in the same study,

Meyer et al. (2002) have also identified the antecedents to the three components of organizational commitment. They have suggested that the employees' experiences related to their work and the investment made by the organizations in their employees are the key predictors of affective commitment and normative commitment, respectively. They also concluded that the availability of job opportunities outside the organization and investment made by the employees in their current organization are the critical antecedents to their continuance commitment. Over the years, scholars have identified other factors that facilitate the three forms of organizational commitment. For instance, organizational trust, satisfaction, transformational leadership, and relational norms are associated with the employees' affective and normative commitment (Park and Rainey, 2007; Martin, 2008; McCormick and Donohue, 2019). Scholars have also suggested that continuance commitment can be driven by economic and social factors, e.g., being considered as a valuable organizational member (Panaccio and Vandenberghe, 2009).

The majority of the prior studies have been conducted in traditional work settings, wherein employees are expected to work from the organization's place of business. So, the scholars' understanding of how employees' organizational commitment gets influenced when they WFH is limited (Spreitzer, Cameron, and Garrett, 2017). Moreover, studies examining the effects of WFH on employees' organizational commitment have either utilized the composite measure of organizational commitment (e.g., Chen and Fulmer, 2018) or focused on a single form of the organizational commitment (e.g., Hornung and Glaser, 2010). So, there is an impending need to understand the influence of WFH on all three dimensions of employees' organizational commitment. Moreover, existing studies have examined how WFH positively influences the organizational commitment of employees. The present article not only explains the linkage between WFH and all the three dimensions of organizational commitment but also highlights a context in which WFH has an adverse impact on organizational commitment.

Theoretical Background and Propositions

Cognitive Dissonance Theory: An Overview

Cognitive dissonance theory (Festinger, 1957) suggests that when the cognitions (i.e., any mental representations, including knowledge, attitudes, and beliefs, that drive an individual's behavior) held by an individual are conflicting or inconsistent with each other, then the individual experiences dissonance or an unpleasant affective state. This dissonance persists until the individual is able to alter his/her cognitions to resolve the

conflict, i.e., reduce or remove the unpleasantness. While the cognitive dissonance theory originated in the social psychology literature, it has been widely utilized by management researchers (e.g., Westphal and Bednar, 2008; Ambos and Birkinshaw, 2010; Shipp, Furst-Holloway, Harris, and Rosen, 2014; Bhavé and Glomb, 2016). Notably, within organizational behavior and human resource management literature, scholars have employed this theory to explain outcomes, including employee well-being (Pugh, Groth, and Hennig-Thurau, 2011), job satisfaction (Grandey, Chi, and Diamond, 2013; Bhavé and Glomb, 2016), organizational attractiveness (Dineen, Ash, and Noe, 2002), team cohesiveness (Stoverink, Umphress, Gardner, and Miner, 2014), team performance (Bashshur, Hernandez, and Gonzalez-Roma, 2011) and turnover intentions (Lai, Chan, and Lam, 2013), which are considered to be of great significance for organizations and their members.

There are primarily two reasons due to which we have chosen to draw on cognitive dissonance theory. Firstly, the WFH arrangement adopted by the organizations amid the COVID-19 pandemic is forced in nature. However, prior to this pandemic, WFH was believed to be a voluntary arrangement. In its essence, cognitive dissonance theory describes the implications of inconsistent cognitions, so we consider it to be suitable theory for explaining the effects of the inconsistency between employees' existing understanding of WFH as a volitional arrangement and the forced form in which it has been adopted in the current context. Secondly, in the extant literature, management scholars have utilized this theory to explain the adverse effects of dissonance in situations that make its resolution impossible for the employees (e.g., Forced Work from Home and Organizational Commitment Kammeyer-Mueller, Simon, and Rich, 2012 and Grandey, Chi, and Diamond, 2013). Consequently, in the current context, the employees have no option but to WFH even if they find its forced nature to be in contradiction to their existing understanding of WFH. Hence, we believe that cognitive dissonance theory will be helpful in illuminating the negative effects of the unresolved dissonance that the employees would be experiencing in the COVID-19 context.

The Proposed Model

The model proposed in this article is presented in Figure 1. We posit that the forced nature of the WFH practice adopted by the organizations amid the COVID-19 pandemic will make the employees experience cognitive dissonance primarily in two ways. First, as noted earlier, prior to the COVID-19 pandemic, WFH was usually provided as a result of voluntary decisions on the part of the employers and/or the employees such that only a limited proportion of the total workforce got the option to or opted for WFH (Spreitzer, Cameron, and Garrett, 2017; Mani and Tomar, 2020). So, the nature of this practice was inherently considered to be voluntary by the employees, and its scope used to be limited to a selected lot of organizational members before the pandemic. However, in the current context, organizations across the globe have shifted to this practice for almost all of their workforce due to the lockdown measures enforced by the governments to control the spread of this viral disease. This new way of WFH

being implemented as a forced practice for the whole workforce amid the COVID-19 pandemic is contradictory to the employees' prior understanding of this practice being voluntary and available to only some of the employees. As explained by the cognitive dissonance theory (Festinger, 1957), when individuals have cognitions that are obverse to each other, it creates cognitive dissonance. Based on these arguments, we suggest that

PI: The forced nature of the WFH arrangement induced by the COVID-19 pandemic will be positively related to the cognitive dissonance experienced by the employees as they WFH amid the pandemic.

Second, scholars have proposed that when individuals' cognitions are obverse to each other, they lead to the experience of dissonance not only directly but also indirectly by giving rise to a cognitive discrepancy (e.g., Harmon-Jones, Amodio, and Harmon-Jones, 2009 and Hinojosa et al., 2017). Accordingly, we propose that the forced WFH practice induced by the COVID-19 also creates a discrepancy in the form of the contradiction between the earlier perspective of employees regarding WFH being a Forced Work from Home and Organizational Commitment social exchange and their current view of WFH as an economic exchange as it has become the new norm in the current situation. Before explaining how the forced nature of WFH affects the existing understanding of WFH as a social exchange, we first discuss the distinction between the two types of employment relationships, namely, social exchange and economic exchange.

Insert Figure-1 About Here

Mowday, Porter, and Steers (1982) have suggested that the relationship between organizations and their members is an exchange relationship. Over the years, it has been recognized that the employees relate with their organizations to satiate their economic needs and socio-emotional needs. Accordingly, the employment relationship between the employees and employer develops as an economic exchange and a social exchange. Blau (1964) describes a social exchange as a relationship in which one party offers another party a favor and anticipates that the other party will return this favor in the future. Even so, how, when, and in what form the beneficiary will reciprocate the favor depends upon its discretion. So, "feelings of personal obligation, gratitude, and trust" (Blau, 1964, p. 94) are at the center of social exchange. On the contrary, there is no involvement of "obligations, trust, interpersonal attachment, or commitment to specific exchange partners" (Emerson, 1981, p. 35) in economic exchange. Instead, economic exchange relationships rely on short-term, financially oriented transitions. So, the two types of exchange relationships can be distinguished based on four parameters, as explained by Shore, Tetrick, Lynch, and Barksdale (2006) and

summarized in Table 1 by us.

Typically, organizations base the foundation of the employment relationship in economic exchange, but some of them build on this foundation to develop a relationship based on social exchange with their employees (Tsui, Pearce, Porter, and Tripoli, 1997). Organizations can do so using numerous mechanisms, including their culture, the leadership style of their executives, and their policies and practices, such as providing WFH to their employees (Song, Tsui, and Law, 2009; Hornung and Glaser, 2010; Kelliher and Anderson, 2010). Given that the focus of this paper is on WFH, so going forward, we describe how, prior to the COVID-19 pandemic, this practice was Forced Work from Home and Organizational Commitment perceived as a social exchange by the employees and how the forced nature of this practice amid the COVID-19 pandemic has changed these perceptions.

Insert Table-1 About Here

In the extant literature, scholars have argued that employees perceive WFH as a supportive work practice of high personal value as it provides them with the flexibility to adjust their working conditions based on their preferences and needs (Raghuram and Wiesenfeld, 2004; Kelliher and Anderson, 2008). Also, since WFH is provided to only a limited number of organizational members upon the discretion of the organization, so it conveys to them that their organization considers them to be valuable and cares about them (Kurland and Egan, 1999). Moreover, as employees experience reduced stress and work-family conflict while working from home (Raghuram and Wiesenfeld, 2004), so when organizations provide WFH, it also indicates that they are interested in making a long-term investment in the employees by satisfying their socio-emotional needs, such as caring for their and their family's well-being. Furthermore, as providing WFH reduces the organization's control over the employees, it demonstrates that the organization believes that the employees will not behave opportunistically or that the organization considers the employees to be trustworthy (Hornung and Glaser, 2010). Consequently, researchers have suggested the employees perceive WFH as a social exchange and not an economic exchange between themselves and their organizations (Broadfoot, 2001; Hornung and Glaser, 2010; Kelliher and Anderson, 2010; Putnam, Myers, and Gailliard, 2014).

However, amid the COVID-19 pandemic, organizations have been forced to adopt the practice of WFH for their workforce to ensure the continuity of their business. Scholars have suggested that when WFH is a job requirement or when it is involuntary, employees may no longer perceive it to be a social exchange (Hornung and Glaser, 2010 and Spreitzer, Cameron, and Garrett, 2017). Building upon this work, we propose that the forced WFH will be perceived as an economic exchange instead of a social

exchange by the employees due to the following reasons. Firstly, in the present scenario, organizations have to provide WFH for their survival, and even though it reduces their control over their members, it does not imply that they consider the employees to be worthy of their trust. Thus, the forced WFH arrangement is not based on trust, which is the essence of a social exchange relationship. Moreover, as employees have to work from home if they wish to remain employed, so they are likely to perceive WFH as a job requirement, i.e., a means to satisfy their financial needs, and not as a work-life benefit, i.e., a means to satiate their socio-emotional need. Consequently, it will also no longer be perceived as a long-term investment by the organizations in the well-being of their employees and their families. Thus, the forced WFH arrangement induced by the COVID-19 pandemic will no longer be considered as a social exchange by the employees; instead, they will perceive it as an economic exchange.

Based on the recommendations given by Harmon-Jones, Amodio, and Harmon-Jones (2009) and Hinojosa et al. (2017), individuals face cognitive discrepancy as a result of a conflict between a new cognition and one or more of their existing cognitions. The scholars further suggest that this cognitive discrepancy leads to the individuals' experience of cognitive dissonance. Accordingly, we suggest that due to the forced nature of WFH in the current context, employees will experience a cognitive discrepancy in the form of the contradiction between their prior understanding of WFH being a social exchange and their current understanding of it being an economic exchange. Furthermore, this cognitive discrepancy will create a state of cognitive dissonance among the employees. So,

P2: The forced nature of the WFH arrangement induced by the COVID-19 pandemic will be positively related to the cognitive discrepancy faced by the employees as they WFH amid this pandemic.

P3: As the employees WFH amid the COVID-19 pandemic, the cognitive discrepancy faced by them will be positively related to the cognitive dissonance that they will experience.

Cognitive dissonance theory (Festinger, 1957) also suggests that when individuals experience cognitive dissonance, they attempt to reduce it through different means, such as by resolving the inconsistency between the obverse cognitions, trivializing the significance of the original cognition, or selectively processing the information to gain support for their original cognition. While the social psychology literature has been interested in examining the factors that can reduce cognitive dissonance (Hinojosa et al., 2017), management scholarship has also explored the adverse consequences of dissonance when it remains unresolved. For instance, Kammeyer-Mueller, Simon, and Rich (2012) have noted that when an organization uses divestiture socialization to impose a strong ethical code on the early career lawyers, these lawyers experience cognitive dissonance. This dissonance remains unresolved as

the socialization process followed by the organization is beyond their control, and this unresolved dissonance leads to their emotional exhaustion. Grandey, Chi, and Diamond (2013) have also reported that unresolved dissonance reduces the job satisfaction of insurance employees. Based on these arguments, we posit that the dissonance experienced by the employees while working from home during the COVID-19 pandemic will also remain unresolved as they will have to WFH if they wish to remain employed and they cannot go to their organizational premises due to the lockdown measures. Next, we explain how this dissonance will impact the three components of employees' organizational commitment.

The experiences of employees at work play a crucial role in the development of their affective commitment, i.e., the first dimension of organizational commitment (Meyer et al., 2002). Research suggests that pleasurable work experiences enhance the affective commitment of organizational members (Bergman, 2006; Morrow, 2011). On the other hand, unpleasant and/or negative work experiences have a negative impact on employees' affective commitment (Herrbach, 2006). As explained, in the forced WFH context, employees are likely to experience cognitive dissonance. Cognitive dissonance is nothing but an unpleasant negative affective state, and undergoing this negative affective state as they WFH amid the COVID-19 pandemic will make it difficult for the employees to enjoy their work and experience a positive affective state towards their organization. Furthermore, the benefits of working in a social environment, as was the case before the COVID-19 pandemic, will be missing, further impacting the affective state of the employees adversely. Consequently,

P4: The cognitive dissonance experienced by the employees as they WFH amid the COVID-19 pandemic will negatively influence employees' affective commitment.

The investment that organizations make on their employees is considered to be the most significant contributor to the development of employees' normative commitment, i.e., the second dimension of organizational commitment (Meyer and Allen, 1991). Prior to the COVID-19 pandemic, WFH was considered as a work-life benefit by the employees (Hornung and Glaser, 2010), and it was treated as an indicator of an organization's discretionary effort to improve the working conditions of its employees and showcase its concern for them. As a consequence, the employees used to feel obligated when their organizations provided them with the opportunity of utilizing WFH (Kelliher and Anderson, 2010). So, WFH has been positively associated with employees' normative commitment (Hornung and Glaser, 2010). However, the cognitive dissonance, which the employees will experience as they are forced to WFH amid the COVID-19 pandemic, stems from the changed understanding of employees of this practice no longer being a work-life benefit. Therefore, the employees will no longer have a feeling of obligation towards their organizations in lieu of the latter, allowing them to WFH. Furthermore, Bergman (2006) argues that normative

commitment also gets strengthened when employees have positive work experiences as these experiences also imbibe the feeling of indebtedness among the employees by depicting that their organization is making efforts so that they get to experience their work positively. However, going through the cognitive dissonance state as they WFH amid the COVID-19 pandemic will be a negative experience for them and reduce the obligatory feeling among the employees. So,

P5: The cognitive dissonance experienced by the employees as they WFH amid the COVID-19 pandemic will negatively influence employees' normative commitment.

The third and final dimension of organizational commitment is continuance commitment, which is described as the employees' need to remain with their organization due to the costs involved with leaving it. These costs could be associated with economic factors, such as the pension plan and development of skills specific to an organization (Powell and Meyer, 2004) or social factors, such as being considered valuable by the organization (Panaccio and Vandenberghe, 2009). Continuance commitment has been further divided into two components, namely 'perceived high sacrifice' or the perceptions of employees regarding the valuable resources that they will have to forgo if they leave their organization and the 'perceived lack of employment alternatives' or the perception of employees regarding the employment opportunities available for them outside the organization (Bentein, Vandenberghe, Vandenberg, and Stinglhamber, 2005). The former aspect is considered to be the essence of continuance commitment (Lapointe, Vandenberghe, and Panaccio, 2011). Panaccio and Vandenberghe (2009) suggest that employees' perception of being considered valuable in the organization is positively related to perceived high sacrifice as it is in itself an advantage that would be lost if they decide to leave the organization. As argued earlier, giving the option of WFH and facilitating positive work experiences are two ways in which an organization showcases to its employees that they consider them to be worthy and, in turn, should increase their perceived high sacrifice. So, consistent with the reasoning for P5, we propose that experiencing cognitive dissonance while working from home amid the COVID-19 pandemic will decrease the level of sacrifice that employees will have to make if they decide to leave their current employer. On the other hand, we posit that the experience of cognitive dissonance will have no impact on the perceived lack of external alternatives as it is majorly determined by opportunities available in the job market and not employees' work experiences (Lapointe, Vandenberghe, and Panaccio, 2011). So,

P6: The cognitive dissonance experienced by the employees as they WFH amid the COVID-19 pandemic will negatively influence employees' continuance commitment.

So far, we have proposed that the forced nature of the WFH practice in the current context leads to dissonance directly, i.e., by going against the employees' belief of this practice as voluntary and available for only a limited set of employees, and indirectly,

i.e., by giving rise to a cognitive discrepancy that is manifested in the form of the contradiction between their prior understanding of WFH being a social exchange and their current understanding of it being an economic exchange. Moreover, this cognitive dissonance has an adverse impact on the three dimensions of employees' organizational commitment. Now, we steer the discussion towards how organizations can prevent this cognitive dissonance to arise even as their employees WFH. Understandably, organizations cannot defy the government-imposed lockdown measures and negate the direct effect of the forced nature of this policy, but they can try to mitigate its indirect effect by making their employees believe that despite being forced, WFH remains a social exchange. Based on the organizational support theory, we argue that they can do so by supporting their employees as they WFH amid the COVID-19 pandemic.

Organizational support theory (Eisenberger, Huntington, Hutchison, and Sowa, 1986) suggests that employees form perceptions regarding how valuable they are considered by their organization and how much their organization is concerned about their well-being. These perceptions are termed as perceived organizational support. We suggest that perceived organizational support will be beneficial for the organization in the current context of forced WFH as it develops trust for the organization among the employees, makes the employees believe that the organization is willing to make a long-term investment in their well-being even in the situation of a crisis, and satiates their need for being cared for in such unprecedented times (Kurtessis et al., 2017). In other words, perceived organizational support is expected to off-set the forced nature of the WFH from influencing the employees' prior understanding of this practice as a social exchange relationship between them and their employers. The supportive practices that organizations can adopt to facilitate the perceptions of support among their employees are discussed in the practical implications section. Based on the above mentioned arguments, we propose that

P7: The relationship between the forced nature of the WFH arrangement induced by the COVID-19 pandemic and the cognitive discrepancy faced by the employees as they WFH amid this pandemic will be moderated by their perceptions of organizational support. So, the employees will face less discrepancy during the present scenario when they perceive their organizations to be supportive.

Therefore, less discrepancy, in turn, will lead to lesser dissonance. As a consequence, the degree of impact on dimensions of organizational commitment because of the forced WFH-discrepancy-dissonance link would be lesser.

Discussion and Conclusion

We have summarized the arguments presented in this article in Table-2. This article makes several contributions to the extant literature, which are as follows. The existing studies on WFH follow the underlying assumption that it is typically provided

as a result of voluntary decisions on the part of the employers and/or employees such that only a limited proportion of the total workforce got the option to or opted for WFH (Spreitzer, Cameron, and Garrett, 2017; Mani and Tomar, 2020). However, in the current context, the employers have no other option but to utilize the practice of WFH, due to the lockdown measures enforced in the countries across the globe to prevent the transmission of COVID-19. In other words, the current situation goes against the fundamental assumption, which has been followed in the extant WFH literature. So, the first contribution of this article is that it sheds light on how the employees' understanding of WFH changes in circumstances when it is forced and not voluntary.

Insert Table-2 About Here

Furthermore, in their review article, Spreitzer, Cameron, and Garrett (2017) have suggested that when WFH is forced, it could lead to negative consequences, and they have encouraged the scholars to explore these consequences in the future studies. So, the second contribution of this article is that it addresses the call made by Spreitzer, Cameron, and Garrett (2017) by explaining the negative influence of the forced WFH practice induced by the COVID-19 pandemic on employees' organizational commitment. Also, the existing studies that examine the relationship between WFH and organizational commitment are limited not only in number but also in the sense that scholars have either utilized a composite measure of the organizational commitment construct or they have focused on only a single dimension of this construct. So, the third contribution of this article is that it describes the impact of WFH on the three forms of organizational commitment, i.e., affective commitment, normative commitment, and continuance commitment. In doing so, we address another call made by Spreitzer, Cameron, and Garrett (2017) in their review article to explain the linkage between WFH and organizational commitment. The last theoretical contribution of this article is that the proposed model not only provides other researchers with the conceptual ground for conducting empirical research in the future but also extends the scholarly discussion regarding the impact of COVID-19 pandemic on organizational members' attitudes and behaviors (Pass and Ridgway, 2022).

The model proposed in this article also has significant implications for practice. Firstly, considering the benefits of WFH practice in terms of efficiency and cost-effectiveness, many organizations plan to continue with this practice even in the post-pandemic world (Lavelle, 2020). However, we suggest that it is imperative to also look from the perspective of the employees before bringing in a permanent policy change. Particularly, since scholars have recommended that when companies coerce their employees to WFH, it is likely to have adverse consequences (Spreitzer, Cameron, and

Garrett, 2017). Considering the adverse effects of forced WFH, we emphasize that organizations should provide their employees the choice to decide whether they wish to continue working from home post the COVID-19 pandemic or not. Secondly, we also explain that the perceived organizational support reduces the negative impact of forced WFH on organizational commitment. So, we suggest that organizations can off-set the negative effects of the forced WFH arrangement by invoking these perceptions among their employees, which can be done with the help of their human resource practices and policies. For instance, while organizations cannot provide the flexibility of choosing the Forced Work from Home and Organizational Commitment location of work to their employees, they can still provide their employees' flexibility in scheduling (i.e., when they work) and the number of work hours (i.e., how much they work). This recommendation is based on the findings of a recent study by Chen and Fumer (2018), which suggest that a flexible schedule and a flexible number of hours are positively linked to employees' organizational commitment. The organizations could also utilize the practices such as assisting their members in setting up their workspace at their homes, providing technical support to them by organizing training sessions, arranging virtual meetings to discuss success stories wherein they describe the challenges that they faced and how they overcame the same, having informal video calls among the team members so that they do not feel socially isolated, and providing them counselling to deal with the psychological stress that they are facing due to the current situation (Adams, 2020; Bhattacharyya, Verma, and Basu, 2020; Hasan, 2020; Taj, 2020).

This article has several limitations as well. In the proposed model, we have taken into consideration the moderation effect of perceived organizational support with the aim of explaining the ways in which the negative influence of the forced WFH could be mitigated by the organizations. However, there could be other factors which can impact the level of the cognitive dissonance experienced by the employees as they WFH during the COVID-19 pandemic. One such factor is the gender of the employees. According to the social role theory (Eagly, 1987), in society, the roles occupied by men and women are different. Men are primarily considered to be the providers, whereas women are typically viewed as caregivers. As a result, men and women are expected to behave in congruence to the normative expectations of these societal roles. Notably, men are expected to demonstrate agentic behaviors, such as being independent, controlling, and assertive. In contrast, women are expected to engage in more communal behaviors, such as being emotionally expressive, taking care of others, and focusing on maintaining interpersonal relationships. Scholars, such as Morgan (1992) and Connell (1995), argue that home and work environments are typically associated with femininity and masculinity, respectively. So, working from home is likely to confirm women's traditional gender identity, but it threatens men's traditional gender identity (Huws, 1996). In the current scenario, Safdar and Alvi (2020) conclude that while working from home during the lockdown, women are indeed adhering to their traditional gender roles. Following these arguments, we believe that the gender of the employees will influence the level of the cognitive dissonance experienced by the Forced Work from Home and Organizational Commitment employees as they WFH amid the COVID-19 pandemic and thus, its

moderation effect could be considered in the future studies. Another factor, which could influence the level of the cognitive dissonance experienced by employees in the current scenario, is whether or not the organization provided them with the option to WFH prior to the pandemic. We opine that the employees, who used to regularly WFH for long hours to perform the tasks that are central to their job prior to the pandemic, are likely to believe that home is their place of work. WFH, instead of going to the office, is their usual way of work. So, we propose that for such employees working from home in the present times will not create any discrepancy. Hence, they are less likely to experience any dissonance due to their current work arrangements. On the other hand, employees, who did not use to WFH and even when they did, they did so only for a short duration of the day, and that too to complete some tasks that are peripheral to their job, are more likely to experience discrepancy. The reason being that for such employees the belief is that work is to be performed at the organizational premises and thus, they are more likely to experience dissonance as their present work arrangement is counter-attitudinal for them. So, based on this line of theorizing, we believe that the studies in the future could include the effect of this variable to extend the proposed model.

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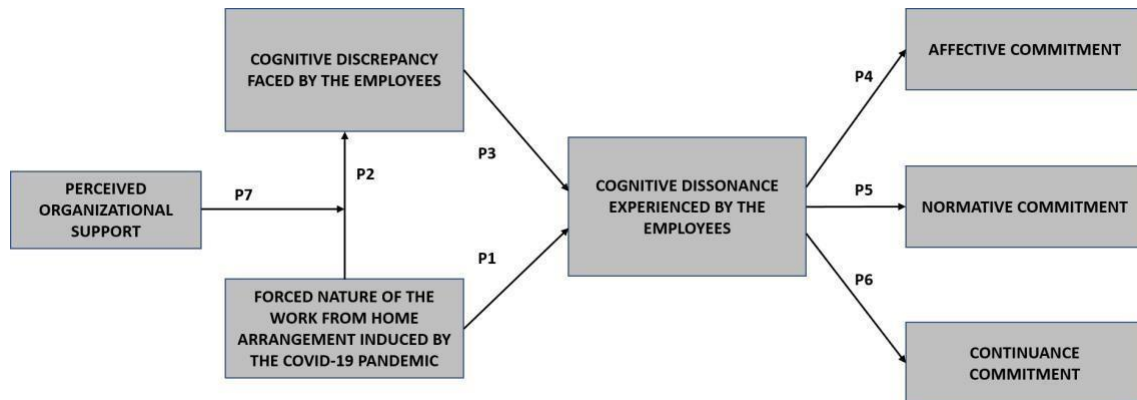
Table 1. Summary of the differences between economic and social exchange relationships as explained by Shore et al. (2006)

Distinction Parameter	Type of Exchange	
	<i>Economic</i>	<i>Social</i>
<i>Trust</i>	Low	High
<i>Investment</i>	Low	High
<i>Duration</i>	Short-term	Long-term
<i>Emphasis of the relationship</i>	Financial	Socio-emotional

Table 2. Summary of the Article

Understanding of Work from Home (WFH) in the extant literature
<ol style="list-style-type: none"> 1. WFH is provided as a result of voluntary decisions on the part of the employees and/or the employers such that only a limited proportion of the total workforce get the option to or opted for WFH 2. Employees perceive it as a social exchange between their organization and themselves
The changes due to COVID-19 pandemic
<ol style="list-style-type: none"> 1. WFH is forced and not volitional 2. It is not limited to only a selected pool of employees
Research Objectives of the Present Article
<ol style="list-style-type: none"> 1. To explain how the forced nature of WFH arrangement adopted by the organizations amid the COVID-19 pandemic changes the existing understanding of WFH as a social exchange between employees and their organization 2. To develop a conceptual model that describes the impact of this forced WFH practice on the three dimensions of employees' organizational commitment, i.e., affective commitment, normative commitment, and continuance commitment
The Proposed Model
<ol style="list-style-type: none"> 1. The forced nature of the WFH arrangement induced by the COVID-19 pandemic will create cognitive dissonance among employees directly (i.e., by contradicting their existing belief of WFH being voluntary and available only to a limited number of employees) and indirectly (i.e., by creating a cognitive discrepancy as it will be perceived as an economic exchange in the current context and not as a social exchange by the employees) 2. The cognitive dissonance experienced by the employees due to the forced nature of the WFH arrangement induced by the COVID-19 pandemic will negatively influence their affective commitment, normative commitment, and continuance commitment. 3. The organizations can reduce the cognitive discrepancy experienced by the employees due to the forced nature of the WFH arrangement induced by the COVID-19 pandemic by invoking the perceptions of organizational support among their employees
Theoretical Background for the Proposed Model
<ol style="list-style-type: none"> 1. Cognitive dissonance theory 2. Organizational support theory (for explaining the moderation effects)

Figure-1. The Proposed Model



[ID:61]

Equity Market Response to Carbon Neutrality: Evidence from China

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Abstract

Climate change and carbon dioxide emissions reduction are attracting an increasing attention among policymakers globally. Many developed and emerging economies have committed to reducing carbon dioxide emissions and have implemented climate change policies in recent years. The relationship between environmental regulations and market performance has been widely discussed in existing literature. However, limited research has been undertaken to examine the market response to the environmental protection initiatives. In September 2020, China announced its carbon neutrality initiative that the country, which is the second largest economy in the world, will peak its carbon dioxide emissions before 2030 and achieve carbon neutrality by 2060. Our study investigates the impact of this event on China's stock market by using both the constituent stocks of the CSI 300 index and those of the later established SEEE Carbon Neutral Index. Results indicate that stocks with a carbon-neutral concept respond positively to the Government's climate change commitment.

Keywords: Carbon Neutrality, trading behaviour, stock performance

[ID:62]

Individual Investor ESG Preference Under Stress

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Abstract

We investigate retail investor reactions to securities with high and low ESG/sustainability scores during the COVID 19 pandemic using data from Robinhood. We find that COVID reduces the number of retail investors holding securities with low ESG/sustainability scores, but not securities with high ESG/sustainability scores. We also find heterogeneity in investors' COVID reaction towards different subcategory scores. The equal-weighted buy-and-hold portfolio of high-score securities does not outperform the portfolio of low-score securities in volatility or return during the studied period, suggesting the observed retail preference for high-score securities is not financial return driven.

Keywords: ESG, Investment, Stock, Stress

[74]

Managing Decarbonisation Transition Rates

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Abstract

Globally, there is a growing awareness among stakeholders, ranging from policymakers to investors, about the inherent risks posed by fossil fuel energy. Renewable energy, particularly

solar power, has already proven to be a more cost-effective and increasingly affordable alternative to fossil fuels. Decarbonisation strategy therefore appears to exhibit a paradoxical approach by continuing to invest in new fossil fuel capacity alongside efforts to promote renewable energy sources. Unless this dual-track approach is used to overcome barriers to decarbonisation it is counter-productive.

So, what is impeding a more rapid transition to cleaner energy sources? The primary obstacles include infrastructure limitations, social costs associated with transitioning, revenue dependence on fossil fuels, and the vested interests of investors in the existing energy paradigm. To accelerate the transition towards a net-zero carbon future, it is imperative to adopt and finance a comprehensive approach that addresses all these factors. This approach should encompass technological advancements, investor metrics aligned with societal objectives, and governance reforms aimed at rebalancing existing systems. Consequently, the transition challenge shifts towards determining a sustainable rate of funds transfers for decarbonisation to overcome these barriers.

To tackle this issue, the paper proposes a financial model that harmonizes the growth rate of clean energy consumption with decarbonisation, while linking the rates to financial ratios. This approach yields a Transition Rate Balance Equation. This rate can be seamlessly integrated into transition financial statements. In order to illustrate the feasibility of this proposal, the paper provides a pro-forma analysis of the Indian industrial sector. The paper discusses implications of the model for management of decarbonisation. It concludes with further research directions.

Keywords: decarbonization, transition finance, mitigation pathway, rate balance, industrial emissions

[ID:78]

Role of multinational enterprises' financials in their Sustainable Development Goals engagement in relation to their core business

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Multinational enterprises (MNEs) play a key role in advancing the United Nations' (UN's) global agenda of Sustainable Development Goals (SDGs). Previous studies outlined several factors that affected MNE engagement with SDGs, including female representation on the board. One of these factors, namely, the financial situation, clearly plays an essential role in MNE engagement. Focusing on the energy-intensive industry, this study quantitatively measures MNE engagement in specific SDGs and their revenues, using text mining.

Unlike the previous approach of treating the seven-teen SDGs as a whole when measuring SDG engagement, this study first identifies the specific SDGs that the energy-intensive industry mostly focuses on, using around 3000 keywords obtained from the University of Auckland (UoA) SDG Keywords Dictionary Project. Using text mining, we counted the keyword occurrence of each SDG in the MNEs' annual reports.

Results indicated that the occurrence of SDG 12 was slightly more frequent than the other SDGs, indicating that MNEs emphasised responsible consumption through energy saving and other such methods. Further, MNEs usually adopt those SDGs that complement their core business. Next, we proceed to examine the effect of SDG engagement on MNEs' revenue. To do so, we merge keyword frequency data with sentiment data collected from Bloomberg and the environmental, social, and governance (ESG) scores by Refinitiv, with SDG engagement as the independent variable. This combined dataset will provide a novel data-driven method

for assessing a firm's dedication to the 2030 Agenda. We also explore to what extent SDG engagement and MNEs' revenue are related and the potential moderating effects of this relationship. We predict that SDG engagement is positively related to MNEs' revenue. This paper will advance our understanding of SDG practices in MNEs, and to what level and how this engagement can be profitable.

Keywords: Multinational enterprise / SDGs / annual reports / text mining

[ID: 92]

The Moderating Effect of Food Neophilia on Consumers' Intention to Use Insects as Food.

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ABSTRACT

In a world where sustainable food choices are becoming increasingly important, this study explores the connection between food neophilia — the desire to experiment with new foods — and people's willingness to include insects in their diets. Using the Theory of Planned Behavior (TPB), our research delves into how neophilia (NP) moderates respondents' attitude (ATT), social norms (SN), and perceived behavioral control (PBC) concerning the adoption of insects as

a food source. The analysis draws from 160 self-administered surveys and employs structural equation modeling. Conducted in the context of Macau SAR (China), our study reveals the pivotal role that neophilia plays in shaping consumer attitudes and intentions. Notably, respondents generally expressed a willingness to explore novel culinary experiences. A positive moderating effect of neophilia on attitudes toward insect consumption is observed, suggesting that individuals with higher neophilia scores are more inclined to hold favorable intentions regarding insects as food. However, neophilia's influence on moderating SN and PBC exhibits contrasting effects, implying that a strong inclination for food neophilia may not necessarily lead to increased social pressure or perceived control in adopting insect-based diets. In light of these findings, this study recommends that practitioners and policymakers promote insect consumption as an innovative and adventurous means of achieving sustainable nutrition. While the primary focus is on the impact of food neophilia on people's intention to consume insects as food, the study underscores the urgent need for diversified and sustainable dietary choices to address escalating environmental concerns and secure a resilient food supply for future generations.

Key Words: Entomophagy, Insects as food, Attitude, Food neophilia, Theory of planned behavior, Macau.

1. INTRODUCTION

The world population is projected to reach 9.8 billion by 2050, and 11.2 billion in 2100 (United Nations, 2023). As the population grows, intensive production and consumption of food will have an increasingly detrimental environmental impact in the form of greenhouse gas emissions, land degradation, water scarcity, and loss of biodiversity, among others. Today's food supply chain is already responsible for approximately 13.7 billion metric tons of carbon dioxide, which is 26% of anthropogenic GHG (Green House Gases) emissions (Poore & Nemecek, 2018). Therefore, there is an urgent need to explore alternative sources of protein that are more efficient, nutritious, and environmentally friendly. One of the potential solutions is the use of insects as food (FAO, 2013).

Insects are abundant and fast-reproducing animals that provide high-quality protein and other nutrients with minimal environmental impact (Lampo & Sun, 2023). Today, more than 2,000 insect species are considered edible (Mariod, 2020), and some are even delicacies in certain cultures. They account for 80% of the world's species (Chantawannakul, 2020) and are considered a potential alternative source of protein that reaches up to 76% of dry matter, (Kouřimská & Adámková, 2016). Some insects also have functional properties, such as antioxidant, anti-inflammatory, antimicrobial, antidiabetic, antihypertensive, and immunomodulatory effects. Insects can also have anti-inflammatory, antimicrobial, antidiabetic, antihypertensive, and immunomodulatory properties (Tang et al. 2019). Past studies have demonstrated the environmental benefits of substituting meat protein with edible insects (Bao & Song, 2022), as they require less feed to produce the same amount of biomass (Liceaga, 2022) and emit fewer greenhouse gases and ammonia than conventional livestock (Oonincx & De Boer 2012). However, the major barrier to the acceptance and adoption of insects as food is their perception of being disgusting, unpalatable, and unsafe (Kouřimská & Adámková, 2016; Bao & Song, 2022).

Consumers' willingness to consume insects as food may be affected by *food neophilia*, from the Greek words *neos* (new) and *philia* (affection), which means the tendency to seek out new foods and enjoy them. Food innovation, consumer behavior, and dietary choices are all impacted by this concept. For instance, Chen et al. (2021) found that neophilia plays a significant role in the acceptance of pig blood cake (a mix of pig's blood and steamed sticky rice), while Baah et al. (2020) discussed how neophilia drives international tourists' acceptance of gastronomic or food tourism. Accordingly, food neophiles are more open to trying novel and unfamiliar foods than food neophobes, who are reluctant to do so (Hussain et al., 2023).

Despite increasing interest in edible insects, the context still needs to be developed (Tang et al., 2019). Thus, in this paper, we examine the effect of food neophilia on the intention to use insects as food using a sample of 160 consumers in Macau SAR (China). Based on the Theory of Planned Behavior (TPB) (Fishbein & Ajzen, 2009), our study hypothesizes that food neophilia has a positive moderating effect on consumers' attitudes, subjective norms, and perceived behavioral control. It is our understanding that this is the first study that examines the relationship between neophobia and the consumption of insects as food in Macau. Considering the city's commitment to a sustainable food image, this study will appeal to policymakers and practitioners seeking to promote sustainable eating habits among local consumers.

2. LITERATURE REVIEW

Food neophilia, the overt willingness to try new and unfamiliar foods (Wortmann et al., 2023), has

garnered increasing attention in the field of food studies. This concept holds significant implications for understanding consumer behavior, dietary choices, and food innovation. Food neophilia, the overt willingness to try new and unfamiliar foods (Wortmann et al., 2023), has garnered increasing attention in food studies. This concept holds significant implications for understanding consumer behavior, dietary choices, and food innovation. For instance, research from Chen et al. (2021) has found that neophilia plays a significant role in the acceptance of pig blood cake (a mix of pig's blood and steamed sticky rice) in Taiwan. Around the world street foods containing entomic components are commonly sold, which are generally made of a mixture of crushed mealworms and flour (Tang et al., 2019). Research shows that curiosity drives people to try edible insects, while disgust and negative opinions from family and friends prevent them from doing so (Sogari, 2015).

Food neophilia has its roots in evolutionary psychology, as it is believed to have conferred survival advantages by promoting dietary diversity. Researchers have explored the cognitive and emotional aspects of this phenomenon. For instance, Köster (2009) discussed the role of sensory perception in food neophilia, highlighting how individuals' openness to novel sensory experiences drives their willingness to try new foods. Additionally, Ranjan and Mehta (2020) delved into the emotional factors behind food neophilia, exploring how positive emotions like curiosity and excitement are linked to the acceptance of unfamiliar foods.

Cultural and social factors play a crucial role in shaping food neophilia. In many Western societies, insects are associated with disgust and are considered taboo (Hartmann et al., 2015). This cultural bias against insects as a source of food can be a challenging barrier to developing preferences for new foods. Psychological factors, including the sensory attributes of insects, further complicate this issue. The visual appearance, taste, and texture of insects can evoke negative reactions, intensifying reluctance to incorporate them into the diet (Van Huis et al., 2013), however, many would be pleasantly surprised by their taste (Sjögren, 2017).

Food neophilia has implications for health and well-being as well. Several studies discuss the potential risks of excessive neophilia, such as the adoption of unhealthy or unsafe food choices (Köster, 2012). Indeed, there is the possibility that some insects may produce or contain toxic compounds, or residues of pesticides (Kouřimská & Adámková, 2016). Studies on food neophilia in the context of nutritional research are very scarce (Wortmann et al., 2023). While the West has been reluctant to adopt edible insects as a new source of food (Bao & Song, 2022), studies suggest that Chinese consumers are more accepting of consuming insects due to their familiarity with the idea (Liu, Li, & Gomez, 2020). For instance, insects are used as ingredients for traditional Chinese medicine (Xie, Zhang, Liu, & Wang, 2021) and they play a significant role in enhancing health and well-being (Hong & Lampo, 2022). However, a study in Macau found that people were, on average, relatively unwilling to use insects as a new dietary habit, despite insects being consumed in traditional Chinese medicine (Lampo & Sun, 2023). As such, more research needs to be done to better understand the characteristics of consumers about the potential of insects as a source of nutrition.

3. FRAMEWORK FOR ANALYSIS

To assess the effect of food neophilia on the intention to consume edible insects, we conducted an exploratory study based on the Theory of Planned Behavior (TPB) (Fishbein & Ajzen, 2009). The TPB has been used in a variety of contexts to predict and explain virtually any human behavior (Lampo, 2022). At its core, the theory poses that the performance of a behavior (in our case using

edible insects as food) is the consequence of the behavioral intention to perform that behavior. The intention is influenced by three predictors: attitude, subjective norm, and perceived behavioral control concerning a specific behavior. More specifically, *attitude* comprises those positive or negative feelings about engaging in a particular behavior; *subjective norm* describes the expectations of relevant others (e.g., family members, friends, etc.) regarding a specific behavior, and *perceived behavioral control* refers to how easy or difficult it is to perform a particular behavior. Individuals are more likely to perform a specific behavior when they perceive a stronger attitude, a stronger norm, and a stronger behavioral control. To assess the possible moderating role of neophilia, we added a construct with items adapted from Pliner and Hobden (1992). If an effect does exist, the relationship between two constructs is not constant but depends on the values of a moderator variable (SmartPLS, 2023). Thus, we propose that individuals who are less sensitive to the effects of neophobia, show greater positive relationships between the predictor of the TPB and the behavioral intention to use insects as food, compared to those who are not. Our conceptual model is depicted in Figure 1, accompanied by six proposed hypotheses in Table 1.

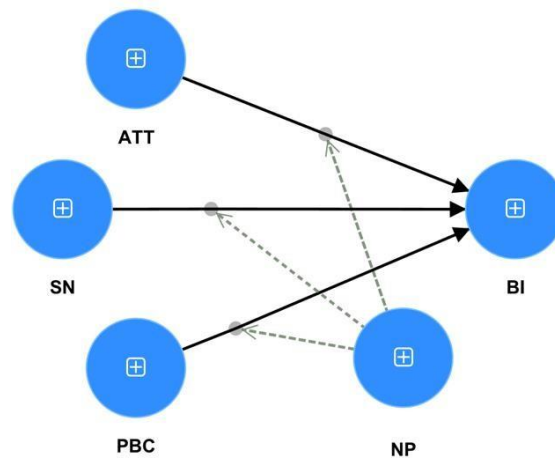


Figure 1. Analytical Framework (SmartPLS output)

Table 1: Summary of Hypothesis

H1	There is a positive and significant relationship between attitude (ATT) and behavioral intention (BI) to use insects as food.
H2	There is a positive and significant relationship between subjective norm (SN) and behavioral intention (BI) to use insects as food.
H3	There is a positive and significant relationship between perceived behavioral control (PBC) and behavioral intention (BI) to use insects as food.
H4	Individuals who are sensitive to food neophilia (NP) show a greater positive relationship between attitude (ATT) and behavioral intention (BI) to use insects as food.
H5	Individuals who are sensitive to food neophilia (NP) show a greater positive relationship between subjective norms (SN) and behavioral intention (BI) to use insects as food.
H6	Individuals who are sensitive to food neophilia (NP) show a greater positive relationship between perceived behavioral control (PBC) and behavioral intention (BI) to use insects as food.

Authors' table.

4. METHODOLOGY

To test our hypotheses about the moderating role of neophobia, a cross-sectional approach was adopted. The study utilized a self-administered survey based on the TPB framework and included neophilia as one of the constructs. More precisely, to assess neophilia (NP), we used items adapted from Pliner and Hobden (1992). Accordingly, in addition to questions related to behavioral intention (BI), attitude (ATT), subjective norm (SN), and perceived behavioral control (PBC), respondents had to answer items for neophilia (NP) such as “NP1. I am constantly sampling new and different foods”, “NP2. I like foods from different countries”, “NP3. I will try new food on different occasions”, “NP4. I would eat almost anything. “NP5. I like to try new ethnic restaurants”. Each item in the survey was rated on a 5-point Likert scale, with anchors ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

The back-translation technique (Son, 2018) was used to translate items from English into traditional Chinese for a better understanding of the survey. We recruited participants using convenience sampling and the snowball method (Flick, 2009). A pilot test with 8 respondents was conducted to identify problematic items and improve the flow of the survey. To determine the minimum sample size, we used the application G*Power (Erdfelder, Faul, & Buchner, 1996). A minimum sample size of 119 cases was returned by the software (with settings of .15 effect size, .05 probability error, and .95 power). A total of 160 valid and useable responses were collected during the fieldwork and deemed sufficient for this exploratory study. Respondents were not remunerated for their contribution, which was voluntary. Besides ensuring anonymity, respondents were informed about the research's purpose and that aggregated results would be published. Our results are presented in the next section.

5. DISCUSSION OF RESULTS

5.1 Details of the Participants

The respondents were respectively males (56.25%; n=85) and females (43.75%; n=75). The majority of participants were below 34 of age (62.50%; n=100). Most respondents reported having either a bachelor's degree (35%; n=56) or a master's degree (18.75% n=30). In 25% of the sample

(n=40), it was found that insects were already consumed in some form, such as in traditional Chinese medicine (TCM) decoctions.

5.2 Evaluation of PLS-SEM Results

The data was analyzed using SmartPLS version 3 (Ringle, Wende, & Becker, 2022). Several factors were examined before running the algorithm, including missing data, outliers, non-normality, and multicollinearity. Initial results show that the model explains 60.9% ($R^2 = 0.609$) of BI's variance. To determine whether each construct indicator measured the same underlying concept and was different from the other constructs in our model, our first step was to test our data for reliability, internal consistency, convergent validity, and discriminant validity. In our case, all model measurements fell within the recommended thresholds (Shmueli, et al., 2019). More precisely, the loadings exceeded the critical value of 0.70, the construct measures (i.e., Cronbach's alpha, rho_a, and rho_c) had values above 0.70, and the average variance extracted (AVE) was higher than the threshold value of 0.50. The reliability and validity of the measurements are shown in Table 2.

Table 2: Constructs reliability and validity

Construct	Items	Loadings	Cronbach's Alpha	rho_a	rho_c	AVE
Behavioral Intention (BI)	BI1	0.916	0.906	0.909	0.941	0.842
	BI2	0.943				
	BI3	0.893				
Attitude (ATT)	ATT1	0.830	0.847	0.857	0.897	0.842
	ATT2	0.806				
	ATT3	0.734				
	ATT4	0.812				
Subjective	SN1	0.898	0.886	0.891	0.929	0.735
	SN2	0.901				
	SN3	0.875				
Perceived Behavioral Control (PBC)	PBC1	0.761	0.711	0.791	0.763	0.661
	PBC2	0.782				
	PBC3	0.862				
Neophobia	NP1	0.843	0.080	0.817	0.874	0.635
	NP2	0.824				
	NP3	0.771				
	NP4	0.768				
	NP5	0.765				

Evaluation criteria: Loadings >0.70; Cronbach's Alpha: >0.70; rho_a: >0.70; rho_c: >0.70; AVE: >0.50.

Hair et al. (2021) recommend testing that a construct does not relate to any other constructs in the model using the heterotrait-monotrait (HTMT) criterion. We found that none of the values were above the threshold of 0.85 and, as a result, we had conceptually different constructs. HTMT results are reported in Table 3.

Table 3: Constructs Discriminant Validity

	BI	ATT	SN	PBC	NP
BI	-				
ATT	0.721				
SN	0.838	0.861			
PBC	0.769	0.566	0.601		
NP	0.681	0.583	0.508	0.461	-

Evaluating criterion: HTMT <0.85

Since all measurements were within the suggested values, the measurement model was evaluated successfully. Next, we reviewed the structural (or inner) model. We examined the VIF values of the constructs to ensure that collinearity did not affect regression results. In our case, VIF values reached a maximum of 3.197 and, therefore, were below the recommended value of 3.3. Our model explained 60.9% ($R^2 = 0.609$) of the dependent variable BI; this is regarded as a substantial explanatory power (Hair et al., 2021). A closer examination of the structural paths indicated that ATT ($\beta = 0.346$) and PBC ($\beta = 0.290$) had the strongest effect on BI. The bootstrap routine validated that these results were significant at the 5% level. It was also observed that the relationship SN→BI ($\beta = 0.095$) although positive, was not supported as a determinant of intention. To test the moderating relationship, we assessed the effect of the interaction term (i.e., the product of the moderator and predictor variable). This indicates whether changes in the moderator increase or decrease the strength of the focal relationships in the TPB. A significant and positive moderating relationship was found for NPxATT ($\beta = 0.228$), NPxSN ($\beta = -0.69$), and NPxPBC ($\beta = -0.110$) showed negative signs and were not significant at the 5% level.

We calculated f^2 effect sizes to determine whether an omitted construct impacted behavioral intention. An effect size of approximately 0.02, 0.15, and 0.35 is considered small, medium, and large, respectively (Hair et al., 2021). The analysis reported a small to medium effect in removing ATT (0.12), NP(0.11), and PBC (0.10). Conversely, SN (0.01) may be excluded from the model as it has no significant impact on the dependent variable.

In the final step of our structural analysis, the approximate model fit was evaluated. The standardized root mean square residual (SRMR) is the metric used in SmartPLS, despite reservations (Hair, Hult, Ringle, & Sarstedt, 2021). Our model scored an SRMR value of 0.79, below the conservative threshold of 0.80 (Garson, 2016). The structural results are reported in

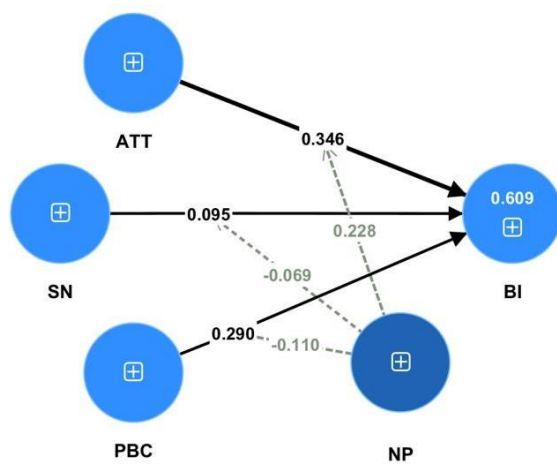


Figure 2.

Figure 2. PLS-SEM structural results.

5.3 Analysis of the Constructs

Our study found that 25% of participants consumed insects in some form. Nevertheless, based on the values of the construct ($M=2.40$, $SD=1.06$), respondents were, on average, somewhat resistant to the idea of consuming edible insects soon. The analysis indicated the importance of attitude (ATT) as a predictor of behavior. However, the results ($M=2.51$, $SD=0.86$) suggested an unclear attitude concerning intentions to use insects as food. A significant moderating effect of food neophilia (NP) ($M=3.60$, $SD=0.80$) was observed on attitude. The score indicated that respondents tend to agree about being open to new food experiences. Thus, those respondents with higher NP scores were more likely to have stronger behavioral intentions toward insects as food. Subjective norm (SN) ($M=2.66$, $SD=1.11$) did not make a significant contribution to intentions, while the result of perceived behavioral control (PBC) ($M=2.76$, $SD=0.92$) indicated that respondents perceived having some degree of control over the situation.

5.4 Assessment of the Hypotheses

Our assessment found that three of the six proposed hypotheses were supported. The relationship of ATT, PBC, and NPxATT with BI had significant path relationships at the 0.05 level. On the other hand, SN, NPxSN, and NPxPBC displayed a non-significant correlation with BI, and therefore the associated hypotheses H2, H5, and H6 were rejected. The following Table 5 summarizes these results.

Table 5: Assessment of hypotheses.

Hypothesis	Relationship	Coefficient	t-Value	p-Value	Supported
H1	ATT→BI	0.346	3.190	0.001	YES
H2	SN→BI	0.095	0.957	0.339	NO
H3	PBC→BI	0.290	2.867	0.004	YES
H4	NPxATT→BI	0.228	2.600	0.009	YES
H5	NPxSN→BI	-0.069	0.958	0.338	NO
H6	NPxPBC→BI	-0.110	1.257	0.209	NO

Hypotheses evaluation criteria: $t\text{-Value} > 1.96$; $p\text{-Value} < 0.05$

6. CONCLUSION

Our analysis revealed that neophilia plays a pivotal role in shaping consumers' attitudes toward the consumption of insects as food. According to the results of the survey, respondents tended to agree that they would be willing to try new foods in the future, however when it comes to edible insects they were somewhat resistant to the idea. We found a significant and positive moderating relationship between neophilia and attitudes toward the behavior. This result implies that individuals with a higher degree of neophilia are more likely to view insects as a viable and attractive food source and are more likely to incorporate them into their diets.

This finding underscores the importance of considering neophilia as a critical factor when designing interventions to promote entomophagy. Surprisingly, our study uncovered contrasting results for the moderating effects of neophilia on subjective norm and perceived behavioral control. The negative and non-significant relationships with these two constructs suggest that the potential enthusiasm for novel food experiences might not necessarily extend to social or perceived control factors. This finding implies that while individuals scoring high in neophilia may be willing to explore adventurous culinary horizons, they may not necessarily feel socially pressured or have a heightened sense of control in adopting insect-based diets. As individuals become accustomed to eating insects, neophilia's impact on subjective norm may be more significant. This is because social factors typically influence the adoption of novel ideas (Lampo, et al. 2022). Also, the effect of neophilia on the perception of control may be influenced by the fact that our respondents did not know where to find insect-based food products locally. Thus, as the market grows, it is also expected that the effect will increase over time.

The paper contributes to theoretical research. Neophilia is regarded as a significant moderator of attitudes toward insect consumption that adds another dimension to the TPB, and suggests that personality traits related to openness to new experiences play a critical role in shaping attitudes about behaviors. There are managerial contributions as well. This work suggests that targeting individuals with high neophilia traits could be an effective strategy for promoting the introduction of insect-based products in the market. For instance, tailoring marketing messages and campaigns to emphasize the novelty and adventurous aspect of insect consumption can resonate with this specific group. Thus, emphasizing unique flavors, textures, and culinary experiences may lead to consumer acceptance of these products. However, overcoming the fear associated with insect consumption presents several challenges. Psychological aversions and cultural biases must be addressed to promote acceptance. Educating people about entomophagy is vital to dispelling misconceptions and promoting its environmental and nutritional benefits. Innovations in the culinary world also play a crucial role. By bridging the sensory gap, chefs and food entrepreneurs can transform insects into palatable dishes that resonate with “early adopters” of these products. Furthermore, gradual exposure, starting with less intimidating insect-based products (such as snacks) may help individuals to become more comfortable with the idea of insects as food.

7. LIMITATIONS AND FUTURE RESEARCH

While this study has shed light on the moderating influence of neophilia on consumers' intentions to embrace insects as food, it is essential to acknowledge some limitations. Firstly, the generalizability of our findings may be constrained by the specific cultural and geographical context of our research. Moreover, the reliance on self-reported measures for the constructs raises questions about measurement validity. Also, a temporal limitation exists as our study captures intentions at a singular point in time. Therefore, future research should consider longitudinal approaches to track the impact of neophilia over time. Furthermore, this study leaves room for other potential moderator variables to be included in the model. Future research could delve into cross-cultural variations, employ qualitative observations, and incorporate neuroscientific methodologies. Future studies are needed not only to deepen our understanding of this topic but also to accelerate the transition toward sustainable dietary options, which our planet needs with increasing urgency.

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Multi-Stakeholder Approach to Foster Sustainability in Footwear Industry

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Graphical
Abstract

INTRODUCTION

Background:

In the contemporary world, multi-stakeholder initiatives (MSIs) are fundamental to engage in translational research, especially to develop strategies that would foster the cause of sustainability in footwear industry. With the importance of the footwear industry in mind, it is necessary to mention that global footwear production increased by 8.6 %, exceeding 22 billion pairs in 2021 even though the epidemic nevertheless had an impact on some countries' ability to manufacture⁷. The footwear industry's environmental impact is also enormous due to dumping of about 90% of the footwear in landfills which might take hundreds of years to become biodegradable. Though it is imperative to transform the footwear industry as more sustainability oriented, the challenges of doing so cannot be handled by the industry alone. It is a complex process and requires Multi-Stakeholder Initiatives¹ (MSIs) that involve public policy, science and technology, global supply chain and value chains that facilitate product design, sourcing of materials and production, transportation & logistics, non-governmental organizations (NGOs) and the society. Though the product design and branding continue to dominate in Europe and the USA, the large scale migration of footwear manufacturing to developing countries had produced changes in the use of materials, production and distribution systems in footwear industry. What used to be clusters of local production system catering to local markets had transitioned into a global industry by involving multiple stakeholders at different phases of the global supply chain.

Given the dynamics of the footwear industry, the paper explores the role of EU funded program in enabling MSIs in developing environment-friendly, sustainable and renewable biomaterial's application in the footwear industry. Though, the *EU multi-stakeholder dialogue* is a unique approach to engage multiple stakeholders it did not receive researchers' appreciation. But

currently, the EU multi-stakeholder innovation platform is gaining its prominence in the EU's socio-economic policy discourse in the novel program of Horizon 2020^{2, 3}. The EU Innovation program supports multi-stakeholder collaboration among the public, private and civil society stakeholders in a best possible way to comprehensively promote healthy living life-style⁴.

Purpose:

The purpose of this research is to assess how the footwear industry can get the benefit of implementing the multi-stakeholders approach/ initiatives and tactics, with the goal of improving environmental impact and producing healthy footwear to maintain sustainability. This study examines the role of multi-stakeholder collaboration in footwear industry, and presents a conceptual model to assess how collaborative efforts in footwear design and usage address the challenges of healthy living; to identify the priority areas for joint activity. To protect ourselves from any adverse conditions, footwear is a basic requirement, along with food, shelter, and clothes. In this sense, footwear is considered a fashion and adornment garment that protects the feet from the adverse environment and prevents injuries. More specifically, the urge for medicated healthy footwear is necessary, because the percentage of elderly people has increased with the increase in life expectancy, with age chronic diseases especially for prevention of diabetic foot and Parkinson disease that affecting their mobility. Thus the need for multi-stakeholder attitude, (i.e. *through the amalgamation of different groups (medical practitioners, patients and service providers, levels and type of collaborations)*) to foster sustainability in the footwear industry for customized healthy footwear.

This study elaborates if the collaborative strategy of MSIs in footwear industry will meet the societal challenges and also strengthen the national and international community programs. By collaborating with business, civil society organizations (CSOs), and non-governmental organizations (NGOs), and other entities, MSIs have the potential to raise awareness, enhance prevention, and improve effective management systems to develop footwear for medical applications. Quality and healthy footwear production are important in producing footwear with distinctive features, capability and comfort of users; development of commercially exploitable and innovative biodegradable biomaterials, i.e. (polymers) require collaborative approach to develop and deliver improved biodegradable material for producing high-performance athletic footwear and specialty medicated footwear. Recently, the emergence of new products, i.e. (vegan leather, bio-based materials) and new technologies, i.e. (New fibre 'welding' techniques can make natural fibres as strong and durable as synthetic alternatives) and its application in global footwear production demonstrates the diffusion of innovations taking place in material science. On the other hand, natural fibre welding (NFW) technology is using plants to create sustainable materials and anecdotes such as plant based leather as an alternative to traditional leather.

This study emphasized that lately, shoe consumption as a fashion and protective outfit has grown continuously and brings with it environmental impacts during production, usage and

disposal. But the bio-based, biodegradable and recycled footwear can help the global community by reducing environmental footprint.

METHODOLOGY/APPROACH

The present study is primarily conceptual in nature and the analysis and inferences are drawn based on secondary sources and a literature survey. The authors will reach out to expert input and collect examples of stakeholder involvement in priority areas that creates the necessary balance of healthy footwear & healthy living challenges; And the study will also address the organizational ability to execute actions that are likely to add greater value and impact. Relating to the issue of MSIs in footwear application, this study also examines biodegradable and renewable biomaterials used in footwear manufacturing. Accordingly, R&D and innovative product development in the footwear industry will be discussed. The study will also assess the so called “third generation biomaterials” i.e. the materials which have the properties of both bioactivity and biodegradability and then combined with bio-absorbable materials to become more bioactive and vice versa.

RESULTS AND DISCUSSION

Relating to the issue of the role and significance of multi-stakeholder platform (MSP), this study analyses and revealed that four important research assumptions were predictive of both MSIs and innovative biomaterials’ application in the footwear industry. The study highlights the importance of MSIs as a crucial factor in facilitating collaboration across transdisciplinary discourse. Equally, it deliberately inspires public, private entities and civil society’s knowledge of the changes in the production system (strengthening stakeholders’ skills). It indicates that people, firms as well as the government's role in facilitating different groups (government officials, sustainable business initiators, producers, medical practitioners, common people and service providers, i.e. large shoe brands and retailers) to collaborate for a common good. The MSIs foster entrepreneurial learning and strengthen the entrepreneurial spirit of specialized technical and administrative skills, which can have an impact on footwear research. Furthermore, the study noted how MSIs (CSOs, NGOs, and government initiatives) influence and generate opportunities to improve stakeholders’ skills and attitude towards collaboration across scientific, industrial, commercial and medical spheres (See Graphical Abstract by Authors)

CONCLUSION

As far as the value for practitioners are concerned, the study demonstrates the impact of multi-stakeholder initiatives that support corporate responsibility towards sustainability and the value

of a collaborative strategy. The results provide important insights into the notion of involving multiple stakeholder groups in footwear research and resource management to cope up with the dynamics of the socio-economic and technological challenges of the Horizon 2020's. The authors believe that multi-stakeholder initiatives (MSIs) would be able to promote: (i) a multi-level (local, regional, national and EU) biomaterials innovation in footwear and demonstrate the significance of building European Knowledge Based Bio-Economy (KBBE) innovative

platform; (ii) exploit new and emerging research opportunities on biomaterials' application in footwear that address social, environmental, economic challenges and committed innovation partnerships.; and (iii) identify how different business leaders and diffusion of knowledge of national and international, making civil society organizations (CSOs), non-governmental organizations (NGOs), and institutions energize more innovation and competitiveness. Finally, the study mainly explores role of multi-stakeholder in footwear research application and how it enables researchers to develop new designs in the healthy footwear ecosystem by exploring smart application of innovative biodegradable biomaterials and new technologies.

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[ID:101]

A comparative study of Coca Cola Company with Respect to Environment, Social and Governance (ESG) and the Corporate Social Responsibility (CSR)- with special reference to India

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Abstract

Over the period of time after globalization almost all the business entities are facing challenges of competition. To reach the top of the ladder business leaders are struggling to be champion globally. They can be leader by climbing two ladders / pyramids. One is of Environment, Social, Governance (ESG) and the second one is of the Corporate Social Responsibility (CSR).

The first one, that is ESG is comprising of three pillars which are most significance to attract the investors. The sustainability has become an essential aspect of business operations. In the present time of competitive business environment most of the companies are increasingly embracing ESG practices which will ensure greener, responsible and sustainable future. The auditing agencies such PwC etc. are rating all the business companies on the basis of these three criteria.

The greater score achieved by the companies will attract the most investors. The auditing agencies are using various measurement tools to map the performance of the companies on these three criteria.

While measuring the performance of the companies, the rating agencies will measure the performance based on the comprehensive measure with respect to environmental conservation, social responsibility and the ethical governance. The rating agencies will further evaluates them on the basis of various criteria such as carbon emissions, water usage, waste management, employee diversity, community engagement, and board diversity.

Corporate Social Responsibility (CSR): The concepts and the theories of CSR were developed after the recognition and understanding that the corporate sector cannot survive and sustain as a business entity. The pyramid of CSR comprises of four major components. These are: (a) Philanthropic, (b) Ethical (c) Legal and (d) Economic. The CSR as a multi-dimensional concept which encompasses all of a company's economic, social, ethical and philanthropic responsibilities. The sustainability of the companies are examined by adherence of the businesses to the ethics which will enhance the value of the companies and the sustainability. Therefore, this is considered as the core philosophy of the companies and unavoidable. For the purpose of retaining the customers, avoiding business risks and getting the support from the community and the last level of governance (local bodies) the companies ensure better social, economic and environment. This will enhance the brand level and profits of the companies. While keeping apart the benefits, social

welfare with moral and ethical value system must be the main aim of CSR, to be delivered by the business entities.

The ESG is optional for the companies but for the purpose of sustainability / survival, most of the companies are embarrassing on the ESG. The CSR which was optional earlier, is now made compulsory in most of the countries, in particular India, for all the business entities (except some of the countries where this is still optional).

The Coca Cola Company considered as a global leader in the beverage industry, has been considered as champion with respect to sustainability efforts, will be examined as a case. In this research paper, it is delved in depth, into the Coca Cola Company (with reference to India) ESG score and will assess the extensive sustainability efforts with respect to CSR undertaken by this beverage champion. The case of Coca Cola Company in India will be examined on these two counts, ESG and the CSR.

Key Words: CSR, ESG, Sustainability, Rating Agency, Coca Cola



1. Introduction

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Corporate Social Responsibility (CSR): The concepts and the theories of CSR were developed after the recognition and understanding that the corporate sector cannot survive and sustain as a business entity. The pyramid of CSR comprises of four major components. These are: Philanthropic, Ethical Legal and Economic. The CSR as a multi-dimensional concept which encompasses all of a company's economic, social, ethical and philanthropic responsibilities. The sustainability of the companies are examined by adherence of the businesses to the ethics which will enhance the value of the companies and the sustainability. Therefore, this is considered as the core philosophy of the companies and unavoidable. For the purpose of retaining the customers, avoiding business risks and getting the support from the community and the last level of governance (local bodies) the companies ensure better social, economic and environment. This will enhance the brand level and profits of the companies. While keeping apart the benefits, social welfare with moral and ethical value system must be the main aim of CSR, to be delivered by the business entities.

The ESG is optional for the companies but for the purpose of sustainability / survival, most of the companies are embarrassing on the ESG. The CSR which was optional earlier, is now made compulsory in most of the countries for all the business entities (except some of the countries where this is still optional).

The Coca Cola Company considered as a global leader in the beverage industry, has been considered as champion with respect to sustainability efforts, will be examined as a case. In this research paper, it is delved in depth, into the Coca Cola Company (with reference to India) ESG score and will assess the extensive sustainability efforts with respect to CSR undertaken by this beverage champion. The case of Coca Cola Company in India will be examined on these two counts, ESG and the CSR.

2. Coca Cola ESG score: A closer look at sustainability efforts

In today's corporate landscape, sustainability has become an essential aspect of business operations. Companies are increasingly embracing ESG practices to ensure a greener and more

responsible future. As a global leader in the beverage industry, the Coca Cola Company has been at the forefront of sustainability efforts. The present research paper endeavor deep into the Coca Cola ESG score and examine the extensive sustainability endeavors undertaken by the beverage giant.

3. Understanding the Coca Cola ESG Score

The Coca Cola ESG score is a comprehensive measure of its performance in environmental conservation, social responsibility, and ethical governance. The ESG score evaluates various criteria such as carbon emissions, water usage, waste management, employee diversity, community engagement, and board diversity. It provides an overall assessment of the company's commitment to sustainable practices and its impact on society and the environment.

The Coca Cola ESG score reflects the company's dedication to sustainable operations and its efforts to minimize its ecological footprint. The Coca Cola ESG score will give an insight which is essential for investors, consumers, and other stakeholders. Based on these score they will prioritize sustainability. By analyzing Coca Cola's ESG score, it is assumed that it will give and can gain insights into the company's sustainability efforts and the initiatives and their impact on the environment and society. The CSR will one of the pillar which will further strengthened the sustainability of the Coca Cola Company. The ESG Ratings of Coca Cola Company is presented in the figure-1 below.

Figure-1. ESG Ratings and status of UN Sustainability Goals of Coca Cola Company.



A closer look into the above figure indicates that the company has achieved higher score in the case of two pillars of environment and the social. The governance was not achieved suitability. The UN Sustainability Goals have been achieved successfully and reached to the level of more than 88 percent.

4. Environmental Sustainability Initiatives

Coca Cola has implemented several initiatives to reduce its environmental impact:

Such as:

We are working towards improving local recycling systems where post-consumer cartons, cans, and bottles are efficiently recycled.

Project Prithvi making a difference to plastic circular economy

Through a wide range of initiatives we are repurposing used plastic, reducing litter and improving lives of waste workers.

Clean shores, clean seas

We are engaging citizen groups to champion the cause of clean shores and habitable marine environment.

We're working with waste management experts and NGOs to sensitize people, residential welfare societies, teachers, and school students among others on importance of waste segregation and recycling.

(a) **Water stewardship**

(b) Water Stewardship

Our first water goal was to become water-balanced by 2020. We exceeded that goal by giving back more water to nature and communities as we use in our products. We will keep going.

100% of water used by our operations is replenished

Created a replenishment potential equivalent to 124.5% of water used by our operations in 2018.

1.78 litres of water used to produce one litre of beverage

By adopting new technologies and optimizing processes, we are always looking for newer ways to reduce our water consumption.

11.7 billion litres of water replenishment potential created

Our bottling partners have created close to 300 water replenishment projects which are successfully nourishing communities with this vital resource.

Benefitted 8,00,000+ villagers across 600+ villages through Anandana

More than 200 structures have created 13 billion litres of replenishment potential.

We collaborate with NGO partners and local communities to create sustainable water solutions and improve water security where it is needed most.

C. Fruit Circular Economy

C. Fruit Circular Economy

Imagine waking up in the morning and sipping on your favourite fruit beverage as you relish the perfect harmony of taste, nutrition, and love. Now, picture that refreshing drink as part of an inspiring story of hope, empowerment, and transformation. That's precisely what the Unnati pProject Unnati's impact isn't just limited to enhancing farm-level productivity. It also creates waves of positive change across many other sustainability focus areas such as women's empowerment, community well-being, and water stewardship. By believing in and supporting farmers, Unnati has become a catalyst for transformative change in rural India. The Unnati program represents – an inspiring journey.

D. Responsible Business

D. Responsible Business

Make 100% of our packaging recyclable globally by 2025— and use at least 50% recycled material in our packaging by 2030.

"Our beverages are offered in returnable glass bottles and are 100% recyclable. Our Affordable Small Sparkling Package (ASSP) is the world's lightest-weight best-performing bottle."

"Created a water replenishment potential equivalent to 159.9% of water used by our operations in 2020"

- Foundation, Anandana, has set up 300+ water replenishment structures with a potential of replenishing 14 billion liters of water which has further benefitted more than 1 Million community members.

- Committed investments of USD 1.7 Billion to India's agri-ecosystem along with partners to create a healthy local juice and concentrate supply chain with successful and thriving farming communities and ecosystems.

- The health and safety of our associates have always been our priority. We have realigned our focus on 3 strategic pillars of our operations – People, Community and Business Continuity.

E. Value Chain Transformation

E. Value Chain Transformation

We invest to improve people's lives, from our employees to all those who touch our business system, to our investors, to the broad communities we call home.

Through Parivartan, a retailer-capability development, over 3.5 lakh retailers have been trained so far.

Parivartan training is imparted through classrooms as well as mobile buses. Retailers are trained on shop, stock, customer and financial management.

Mentoring women entrepreneurs on product and start-up knowledge

With the launch of Pragati in 2013, we initiated training for women retailers, positively impacting over 51,000 women since the project's inception.

Street food to neat food

10,000+ street food vendors have been trained on personal hygiene, food safety, contamination prevention, water cleanliness and solid waste management with an objective to improve their livelihoods as well as health of consumers and environment.

Creating a diverse workforce and inclusive workplace that fosters greater creativity, innovation and connection to the communities we serve.

Our HCCB factory in Gujarat has over 40% of the workforce as women. From operating heavy machinery like forklifts to working in labs, their presence spans multiple functions.

We are working with our supply chain to continuously improve sustainable and ethical sourcing practices, including a continued commitment to human rights. Meetha Sona Unnati in partnership with DCM Shriram, Solidaridad, and International Finance Corporation is promoting sustainable agriculture practices in sugarcane production in Uttar Pradesh

Our Planet Matters

Our Planet Matters

We aim to create a more sustainable and better shared future. To make a difference in people's lives, communities and our planet by doing business the right way. By becoming better ourselves, we can help build a stronger, more sustainable future for us all.

We're taking a holistic approach to sustainability focused on social, environmental and economic stewardship. Only through a comprehensive approach can we make transformational and enduring change. Our sustainability strategy guides how we support and engage the remarkable people behind our brands, from farmers and employees to the communities we call home, and delivers on our commitments to safeguard the health of the environment.

and promote sustainability. One of its notable efforts is the replenishment of water resources. The company aims to replenish the water it uses in its beverages and production processes by 2020. Through partnerships with local communities and organizations, Coca Cola has successfully replenished billions of liters of water worldwide.

Additionally, Coca Cola has made significant strides in reducing its carbon emissions. *[Coca-Cola European Partners sets ambition to reach Net Zero emissions by 2040. Coca-Cola's largest independent bottling company pledges to spend €250m over the next three years in order to achieve a 30% emissions cut across its value chain by end of the decade.]*

The company has set ambitious targets to reduce its carbon footprint throughout its value chain, from manufacturing to distribution. By investing in renewable energy sources and implementing energy-efficient technologies, Coca Cola is working towards its goal of becoming a carbon-neutral company.

Moreover, waste management is a crucial aspect of Coca Cola's sustainability efforts. *[Global beverage company, The Coca-Cola Company is committed to sustainability and responsible business practices, exemplified through its World Without Waste strategy, which focuses on creating a circular economy for packaging materials by "designing out" waste and using recyclable materials effectively.]*

The company employs various packaging formats, such as glass, polyethylene terephthalate (PET) bottles, aluminium cans, and refillable options, offering consumers diverse choices to enjoy their favourite brands.

The company has implemented recycling programs and initiatives to promote responsible waste disposal. Through innovative packaging designs and increased use of recycled materials, Coca Cola aims to minimize waste generation and promote a circular economy.

5. Social Sustainability Initiatives

Coca Cola recognizes the importance of social sustainability and is committed to making a positive impact on communities worldwide. The company actively engages in various initiatives to uplift local communities, focusing on education, clean water access, and women empowerment.

One of Coca Cola's flagship programs is the Coca Cola Foundation, which supports numerous community development projects. Through partnerships with NGOs and local organizations, the foundation provides financial assistance and resources to improve education, health, and access to clean water in underserved areas.

Furthermore, Coca Cola is dedicated to promoting diversity and inclusion within its workforce. The company believes in fostering an inclusive culture that celebrates differences and embraces diverse perspectives. Through initiatives and programs, Coca Cola strives to create equal opportunities for employees of all backgrounds and identities.

6. Governance and Ethical Practices

Governance and ethical practices are crucial for any company aiming to achieve sustainability. Coca Cola has implemented robust governance measures to ensure transparency, accountability, and ethical conduct. The company maintains a strong code of business conduct that outlines its commitment to integrity, fair competition, and compliance with legal and regulatory requirements.

Coca Cola's board of directors is responsible for overseeing the company's governance practices and ensuring ethical behavior at all levels. The board comprises experienced professionals from diverse backgrounds, bringing valuable perspectives and expertise to decision-making processes. Furthermore, Coca Cola actively engages with stakeholders to gather feedback, address concerns, and incorporate their perspectives into its sustainability strategies. The company believes in open and transparent communication, fostering trust and long-term relationships with its stakeholders.

7. Impact of Sustainability Efforts on Coca Cola's Brand Image and Reputation

Coca Cola's sustainability efforts have had a significant impact on its brand image and reputation. By prioritizing sustainability, the company has positioned itself as a responsible corporate citizen, appealing to conscious consumers who value environmentally and socially responsible brands.

The Coca Cola brand has become synonymous with sustainability, and its commitment to environmental and social causes resonates with consumers worldwide. This positive perception not only enhances customer loyalty but also attracts new consumers who align with Coca Cola's values.

Moreover, Coca Cola's sustainability initiatives have garnered recognition and accolades from

various organizations and industry bodies. These accolades not only validate the company's efforts but also contribute to its positive brand reputation.

8. Challenges Faced by Coca Cola in Achieving Sustainable Goals

Despite its significant sustainability efforts, Coca Cola faces several challenges in achieving its sustainable goals. One of the primary challenges is the complex and global nature of its supply chain. Coca Cola relies on a vast network of suppliers, distributors, and bottlers, making it challenging to monitor and ensure sustainable practices throughout the value chain.

Another challenge is the increasing competition and changing consumer preferences. As consumer awareness about sustainability grows, companies across industries are adopting sustainable practices. Coca Cola needs to continuously innovate and evolve its sustainability initiatives to stay ahead of the competition and meet the ever-changing demands of its consumers.

Additionally, engaging diverse stakeholders and addressing their concerns can be a complex task. Balancing the interests of shareholders, employees, consumers, communities, and the environment requires careful planning and effective communication.

9. Future Plans and Goals for Sustainability

Looking ahead, Coca Cola aims to strengthen its sustainability efforts and set new benchmarks for the industry. The company has set ambitious goals for 2030, focusing on four key areas: water, women, well-being, and waste.

Coca Cola plans to continue replenishing water resources in communities where it operates, aiming to achieve a water-neutral status. The company also aims to empower five million women entrepreneurs through its initiatives, promoting gender equality and economic empowerment.

Furthermore, Coca Cola will focus on promoting well-being by offering a diverse range of beverage options and providing transparent nutritional information. The company aims to reduce the sugar content in its products and offer more low- or no-sugar alternatives.

Lastly, Coca Cola aims to achieve a world without waste by promoting recycling, investing in sustainable packaging solutions, and reducing the environmental impact of its packaging.

10. Coca Cola ESG Score: Competitor Comparison

To assess Coca Cola's sustainability performance, it is essential to compare its ESG score with that of its competitors. While each company's ESG score may vary based on their industry and specific sustainability initiatives, such comparisons provide valuable insights into their relative positions.

ESG RATINGS-(A Comparison)

Company	Business	Environmental	Governance	Social	UN Sustainability Goals
Pepsico	92/100	95/100	66/100	84/100	15/17
Nestlé S.A	91	93	62	73	15/17
Kraft Heinz Company	74	93	47	69	12/17
Monster Beverage Corporation	92	57	42	64	0/17
Unilever PLC	74	95	52	87	16/17
Danone S.A	99	93	79	93	14/17

Topic	Subtopic
Business	mergers and acquisitions Investment Trading financial operations
Environmental	pollution and waste climate change natural resources environmental opportunities
Governance	corporate governance corporate behaviour
Social	human capital social opportunities product liability

11. Coca Cola ESG Score: Conclusion

The Coca Cola ESG score highlights its dedication to sustainability and responsible business practices. Through its environmental, social, and governance initiatives, Coca Cola has established itself as a leader in the beverage industry.

ESG scores serve as a vital tool for stakeholders to evaluate a company's sustainability efforts and its impact on society and the environment. As consumers increasingly prioritize sustainability, companies that embrace ESG practices are better positioned to meet customer expectations and remain competitive in the long run.

Coca Cola's sustainability efforts not only contribute to a greener and more socially responsible future but also enhance its brand image and reputation. By setting ambitious goals, addressing challenges, and collaborating with stakeholders, Coca Cola is paving the way for a more sustainable corporate world.

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[ID:105]

A Human Ecology study on the Impact of Ecological Identity on the Use of Sustainable Technology

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Abstract

Research has demonstrated that a person's behavior, including their usage of sustainable technology, is significantly influenced by their sense of connection. Environmental sustainability was more likely to be prioritized by those with strong ecological identities in their behavior and decision-making. They had demonstrated a greater propensity to embrace environmentally friendly technology since they are consistent with their values and views regarding the significance of preserving the environment, such as solar panels, electric cars, and energy- efficient appliances. Furthermore, those who had a strong sense of ecological identity were also more likely to engage in sustainable technology-supporting activities like energy conservation, recycling, and composting. This resulted from their belief that these actions aligned with their sense of environmental accountability. However, those with weaker ecological identities can be less inclined to prioritize environmental sustainability in their decisions and behaviors. In conclusion, it had been shown that an individual's usage of sustainable technology was significantly influenced by their ecological identity. Individuals with a greater ecological identity are those that place a high value on environmental sustainability and take steps to promote the use of sustainable technology.

Keywords- Ecological Identity, Ecological Development, Sustainable Technologies, Deep ecology, Frontier economics and Eco-development

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Sustainable Business Models in Green Start-ups: Analysis of Relationship Between Profitability and Impact

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Abstract

The global market for green technology and sustainability has been rapidly growing as companies emerge to adopt environmental, social and governance (ESG) measures, and transition to net zero in addressing climate change. The market is estimated to be worth USD 44.4 billion by 2028 with a CAGR of 26.4% from 2022 to 2028. This has given rise to an increasing number of green and sustainability startups. Entrepreneurs of these startups would be expected to have sustainable business models (SBM) as they would relate their business and economic success to achieving positive impact for the environment and society and creating value for a diverse range of stakeholders. However, business models remain a challenge for green and sustainability startups as not many are able to achieve both business outcomes as well as environmental and social impact. This study is anchored on one key research question, “How do the business models of green start-ups influence the relationship between profitability and impact?” A qualitative research method was employed with structured interviews conducted with green start-up CEOs in Singapore. Questions asked at the interviews relate to three main areas: 1) Challenges and opportunities faced by green start-ups, 2) How green start-ups capture value, and 3) How green start-ups create impact while still achieving profitability. Three key findings were identified: 1) Design for Recycling (DFR) business model reduces material costs, 2) Scalability is an important factor which determines the trade-off between impact and profitability, 3) Product-driven start-ups focus more on impact than profitability in contrast with Bunjamin, Gregorious George, School of Social Sciences, Nanyang Technological University customer-driven start-ups. The research concludes with the limitations of the study and suggestions for future research.

Keywords - Sustainable business models; green start-ups; circular economy; profitability; sustainability impact.

Introduction

The global market for green technology and sustainability has been rapidly growing as companies emerge to adopt environmental, social and governance (ESG) measures. The market is estimated to be worth USD 44.4 billion by 2028 with a CAGR of 26.4% from 2022 to 2028 (Vantage Market Research, 2022). Particularly, green start-ups view sustainability as a critical value driver in their business models (BM) to achieve the United Nation's (UN) net zero emissions goal by 2050 (Bowcott et al., 2022). In line with the UN's climate aspirations,

Singapore also announced their "Singapore Green Plan 2030" which encourages the establishment of green start-ups. However, only a few succeed as many green start-ups face financial challenges despite achieving strong sustainable impact (Pillai, 2023). Therefore, this paper aims to understand sustainable business models (SBM) of these green start-ups and to study how SBM impacts the relationship between profitability and sustainability impact.

Literature Review

SBM is an imperative element of green start-ups as it acts as a blueprint of the business to explain the company's value proposition, value creation, and value capture (Konietzko et al., 2020). It differs with the original concept of business model as it entails extended green value creation while the original business model purely focuses on the commercial logic of an organisation to earn profit from its customer value proposition (Glinik et al., 2020). Green start-ups often use the circular business model of Retain Product Ownership (RPO), Product Life Extension (PLE), and Design for Recycling (DFR) to create supply chains which uses recycled resources for their products (Atasu, 2021). These sustainable business model-driven strategies aim to align with the circular economy by reducing environmental footprint while also reducing their cost of production. Due to the ability of SBM to offer green value creation as well as to reduce production costs, SBM has been attractive to entrepreneurs of green start-ups.

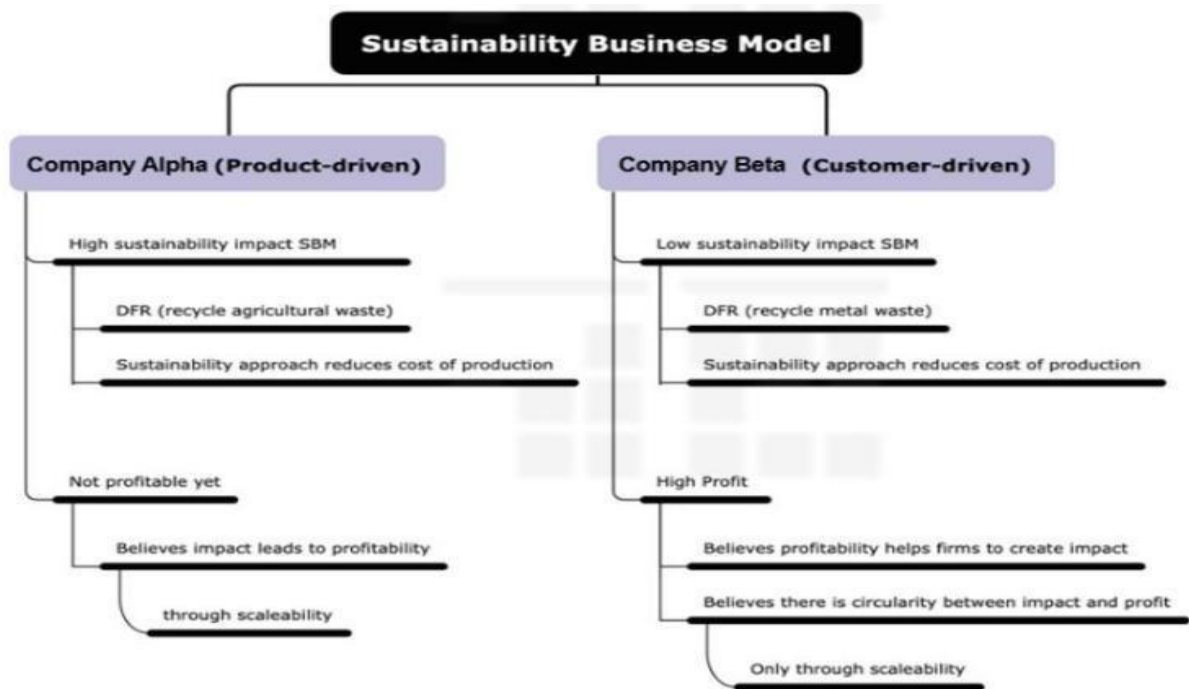
Yet, Grunewald & Henriksson (2020) believe that an effective SBM needs to follow a "Sustainability Leadership Model" where the core of the business does not need to be profit oriented. They asserted that green start-ups need to "measure impact beyond profit" where they need to focus on achieving UN's Sustainable

Development Goals (SDG). The "Sustainability Leadership Model" relies on the philanthropic nature of green start-ups to build trust and legitimacy in generating real sustainability impact, avoiding suspicions of green washing. They believe this model of impact-focused will naturally lead to profit.

In the early stage of the start-up, cash generation and value creation are essential factors for a business to operate, thus, identifying key partners and investors are crucial in the seed or foundation period. However, it appears to also be the weaknesses of green start-ups as they often lack financial planning, have poor profitability and low scalability in their SBM, as well as weak commercialization due to them being too product focused (Slávik, 2021). These start-ups struggle to find key partners and investors who can trust them with capital for them to operate and grow. Therefore, focusing on sustainability alone may not allow start-ups to reach profitability.

Methodology

Given that SBMs of all start-ups are unique to each other and focuses on different green value creation, a quantitative research method alone may not be effective. Thus, this study uses a qualitative research method of a structured interviews which consists of both quantitative and open-ended questions. Two interviews were conducted with the CEOs of a seed-stage green start-up (named Company Alpha – producer of pellets made from recycled agricultural food waste) and a late-stage green start-up (named Company Beta – recycler and processor of scrap metals) to understand and evaluate the SBM they have adopted for their ventures.



Interview Questions

The interview had a total of 29 questions, and it is divided into two sections: (1) SBM on Profitability, and (2) SBM on Impact. Section 1 consists of 17 questions while section 2 consists of 12 questions. The interviewees were not made aware of this division of the sections to avoid any bias.

The interview questions were formulated in a mix of quantitative and open-ended questions to collect both precise data of their company as well as their personal insights on three main questions. 1) Challenges and opportunities faced by green start-ups, 2) How green start-ups capture value, and 3) How green start-ups create impact while still achieving profitability.

1) SBM on Profitability

This section focuses on understanding the financial viability of the company through asking open-ended question on the SBM, strategies and challenges while asking quantitative question on the company's financial performance to observe their operation. It also incorporates one-to-ten rating scale questions to gain insights on the CEO's confidence of the company's SBM as well as the metrics on how the CEO defined "effectiveness" in the company's SBM.

2) SBM on Impact

This section focuses on understanding the company's sustainable goals, strategies, and central focus. It has similar question types with the first section with additional rank order scale questions to directly assess the company's goal and stakeholder priorities.

Thematic Analysis of Interviews

A deductive coding or top-down approach was utilised in the thematic analysis of the interview responses relating to the theme of circular relationship between profitability and impact identified from the literature review. Braun and Clarke's 6-steps thematic analysis was conducted on the data collected: 1) Familiarisation of data, 2) Development of codes, 3) Development of themes, 4) Review of themes, 5) Defining themes, and 6) Reporting of findings (Mihás, 2023).

Results & Discussion

Finding 1: Design for Recycling (DFR) Business Model Reduces Material Costs

Both green start-ups use the circular business model of Design for Recycling (DFR). Company Alpha uses agricultural food waste such as wheat powder and recycled plastics to create a substitute for wooden pellet which can be used as raw materials for furniture and

logistics. Company Beta recycles scrap metals into different types of reusable metals. Both companies believe that adopting this DFR business model is financially viable in the long run in a “cost” perspective as it is very cheap to acquire waste resources. Moreover, being sustainable also help them to cut on “water bills, carbon tax, and energy cost”. However, Company Alpha highlighted that the operational cost to recycle the waste is high, thus, this SBM will only be profitable with scalability.

Finding 2: Scalability Determines the Trade-off Between Impact and Profitability

Both companies also mentioned the critical factor of “scalability” when asked whether there was a trade-off between impact and profitability. Yet, despite the concurrence on scalability, Company Alpha believed that there was no circularity, and it was a one-dimensional pathway where sustainability impact will lead to profitability through scalability. Company Beta on the other hand, believed that there was a circular relationship between profitability and impact where scalability is the glue between the two and they are interdependent.

Finding 3: Product-driven Green start-ups Focus More on Impact Than Profitability in Contrast with Customer-Driven Green Start-ups

Both companies were asked to measure the effectiveness of their SBM on a scale of 1 to 10. In Company Alpha, the effectiveness of the SBM was scored 9.99/10 where the founder used the metrics of sustainability impact according to the UN’s SDGs as critical measures although the business has not earned any revenue yet. The founder focused on ensuring that the company’s product had an extensive value proposition to support the UN’s SDGs to reduce carbon footprint. In Company Beta, two metrics were articulated in evaluating the effectiveness of SBM - in terms of profitability, the score was 8/10 while for the impact on environment, the score was only 3/10. The founder focused the company’s product on the customers’ needs which created an incentivized system (price of metal scraps depends on the quality) to find suppliers which can provide the company with the resources. This allows the company to have high revenue growth with low costs.

Discussion

Creating value from recycling waste is an effective SBM to promote the circular economy. With effective operations and technological innovation to recycle the waste resources, these companies will be able to cut down on resources costs. However, this does not mean that this model is financially viable as it only ensures a lower cost which is one side of the profit function.

Moreover, profitability is critical for businesses as it attracts investors and key partners to help start-ups to scale up. Both companies also believe that scalability is the key factor to their success, similar to the study by Grunewald and Henriksson (2020) that green start-ups need a “Leap” through exponentiality to create “significant positive sustainability impact”. Therefore, it is important for green start-ups to focus on both sustainability impact and profitability in tandem as they complement each other.

Most often, as mentioned in the study by Slávik (2021), product-driven companies tend to have weak commercialisation and financial planning as with Company Alpha that was purely focused on its aim to promote positive sustainability impact towards achieving UN’s SDGs.

Therefore, it is important for a product-driven green start-ups to build the product's value proposition which focuses on the target customer's needs.

As this research is at a preliminary stage, it has three limitations. Firstly, as only two companies were interviewed, the sample size is very small. Secondly, the scope of the interviews conducted with CEOs of start-ups focused on a certain SBM. While the findings provide valuable insights into these start-ups, other SBMs such as RPO and PLE could also be analysed, as they may differ in their challenges and how they view the relationship between profitability and impact. Thirdly, some financial data were confidential, restricting the comprehensiveness of the data collection and analysis.

Thus, future research may need to be conducted on a larger sample size. Furthermore, a more diverse set of green start-ups with different SBMs such as DFR, RPO, and PLE, could be valuable for comparative analysis.

Conclusion

The research has found that green start-ups which focus more on impact than profitability often tend to be product driven. Despite having a high potential sustainability impact, this may be a challenge for these green start-ups to reach profitability without strong commercialisation and clear revenue streams. Only by having a customer-driven approach which has high profitability potential will investors trust these green start-ups with a capital to operate, grow and scale up. Therefore, strong financial planning and performance is required for green start-ups to attract investors who can help them to scale up to have a more extensive sustainability impact on the environment, society, and economy.

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Ethical Values for Corporate Governance

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Abstract

During the last decade, corporate world has witnessed reforms with the goal of enabling better corporate governance practices through legal and regulatory norms. Today, business world is increasingly facing the challenges of incorporating sustainability and technology adaptation for its growth. At the same time, business are experiencing tremendous risks from global economic recession, geo-political issues. The purpose of our study is to provide a theoretical argument about the need to codify ethical values as enablers for corporate governance in these challenging times. Study reports that corporate governance based on ethical values and standards can provide the ideal platform for effective business management and at the same time meet the dynamics of competitive market environment and protecting stakeholder's interests.

Key words: Stakeholders, Governance, Ethical Values, Corporate responsibility.

Introduction

“In law a man is guilty when he violates the rights of others, In ethics, he is guilty if he only thinks of doing so.” German Philosopher – Immanuel Kant.

Ethical conduct by corporates involves combination of moral percepts and principles applied in a manner which benefits the vast majority and acceptable by all. It incorporate value system that is institutionalized by the corporates and which is rigorously put to practice. In fact, some ethical issues were adequately addressed by way of legislations, codes of conduct etc., but many corporates are falling short of standards expected from them when it comes to implementation.

Objective

Our study to an attempt to provide a theoretical argument on ethical norms which becomes the basis for excellence in internal corporate governance practices and which can play an important role in ensuring corporate responsibility towards various stakeholders. But the fundamental question is: When does a business problem involves ethics? Most of the business decisions involves judgments to be taken of what is right and what is not. It is in this context we find the relevance of including ethical value system into business decision making. We observe that business decisions based on sound ethical reasoning becomes strategic asset for business in the long run and it prepares business to withstand any extreme negative outcomes. It is on ethical front that business world has make a radical change in the form of: *Ethics first* as a principle in any business decision making (Pandey, A. (2023).

Findings & Conclusion

Ethical norms can provide answers to many of corporate governance problems faced by the business. Based on Indian ethos, our study observes that incorporating Discipline and Principles as a mechanism for internal corporate governance can help achieve an atmosphere towards excellence in corporate governance practices (Rangarajan, L. N. (Ed.). (1992).

Discipline: In a strict sense, discipline means – doing exactly what one ought to do all times and every time. It therefore starts from the individual highest in the hierarchy to the lowest. Discipline in the long run breeds freedom and accountability on the part of individuals working in the organization. This enables personnel to be active and report any impropriety transactions or events.

Self-Discipline: Corporates are mobilizes resources primarily from investors for their business activities. This imposes special duties and responsibilities in protecting and safeguarding the interest of the investors in their pursuit. Therefore, while marshalling massive financial resources a lack of self-discipline on the part of the company leads to destruction of economic the interest of the nation as a whole and the various stakeholders connected with the company in general. It is incumbent upon every corporate to have *a just and fair* use of financial and material resources in serving the interest of various stakeholders more so primarily the investors. In fact, self-discipline on the part of company in their financial transactions is the best internal discipline mechanism, which will insulate the company from external environment. **Market-Discipline:** Any weakness on

the part of the company in dealing with their finances will trigger market participants to discipline the company (It thus becomes the target for acquisition by a strong company). In this way the market discipline is a great enabler for effective governance of companies.

Regulatory-Discipline: In the event of lack of self-discipline on the part of the company and also where market is unable to discipline the company because of information gaps among the market participants, regulatory discipline is the way forward for fixing the governance environment. We therefore, suggest for a healthy interplay of market discipline and regulatory discipline in ensuring effective corporate governance.

Principles: Indian Ethos have listed various principles concerning individual and organizational behavior. They are practiced since time immemorial and are as old as hills. Our study is an attempt to link these timeless ethos to the present day corporate environment.

Dharma (Duty) In a strict sense Dharma means Duty above the self, in the corporate context dharma encapsulates honoring the expectations of various stakeholders connected with the company.

Satya (Truthfulness) In the context of company environment, the practice of satya implies honoring the laws of land wherever the company is doing business in letter and spirit.

Tyaga (Sacrifice) Deferring or delaying financial gratification on the part of promoter individuals and entities is the *sine qua non* for the organization's growth. In the initial growth phase sacrificing financial interest for the sake of public goodness and stakeholder interest acts as a citadel in the company's future growth prospects.

Nyaya (Justice) A just and fair treatment to all employees and not discriminating on the basis of class, race, religion, region, and gender forms the basis for employee loyalty and commitment which in turn rewards meritorious performance.

Samriddhi (Prosperity) Financial viability and sustainability are the pre-requisites both for-profit as well as not for-profit organizations. Therefore, prioritizing financial resources and rationalization when it comes to meeting the stakeholder's expectations is a prime requirement for business prosperity.

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The Role of the Country-of-Origin Effect in Driving Chinese EV Adoption: The Case of Portugal

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Abstract

As environmental awareness grows, sustainable modes of transportation have garnered increasing importance. With the rising popularity of electric vehicles (EVs), a broader community now acknowledges their numerous advantages, such as lower noise levels, enhanced efficiency, and cost-effectiveness in comparison to traditional internal combustion engine vehicles. Furthermore, EVs significantly contribute to a more sustainable future by emitting fewer pollutants and reducing overall environmental impact. However, consumers' perceptions and expectations about the vehicle's country of origin - the nation where the vehicle is manufactured - remain unclear, particularly in the case of Chinese-manufactured EVs due to China's reputation for pollution and product safety concerns. This study employs a qualitative framework based on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) to assess the acceptance of Chinese electric vehicles, and the influence of the Country-of-Origin Effect (COE) on a sample of Portuguese residents. Data was gathered through semi-structured interviews and analyzed using qualitative methods. The study's results shed light on the significance of the country of origin in shaping consumers' behavioral intentions to purchase Chinese electric vehicles, indicating a positive influence. This suggests that country of origin is a crucial factor when considering an individual's intention to adopt electric vehicles. Additionally, the research highlights the importance of various other factors such as performance expectancy, effort expectancy, social influence, facilitating conditions, price value, hedonic motivation, and habit in shaping consumers' attitudes and intentions. Our results underscore the complexity of consumer behavior toward electric vehicles, suggesting the need for a multifaceted approach to understanding and promoting EV adoption. Research is needed to examine the COE in different cultural and geographic contexts to develop effective strategies to enhance the global adoption of electric vehicles, particularly from countries with varying environmental reputations.

Key Words: Country-of-Origin Effect, Electric Vehicles, Consumer Behavior, UTAUT-2, Portugal.

1 Introduction

With the urgency of environmental protection and awareness, electric vehicles (EVs) have attracted more and more attention in the past few years. To achieve greenhouse gas emission reduction goals and mitigate climate change, electric vehicles are considered one of the important means to reduce vehicle emissions, as they can help reduce emissions, reduce reliance on fossil fuels, and reduce greenhouse gas emissions (Lampo et al., 2023). Since internal combustion engines (ICEs) are one of the largest contributors to carbon emissions, their replacement with new energy vehicles is a promising step toward sustainable urban

development (Kumar & Alok, 2020). In recent years, EV sales in Portugal have steadily increased. Data from IEA (2023) shows that around 8000 electric vehicles were sold in Portugal in 2018, while in 2022 their number increased to about 34,000 units. Thus, the market for electric vehicles in Portugal is expanding, many of which are imported from China. In 2022, China's electric vehicle sales accounted for 59% of the world's total, an increase of 82% year-on-year (EV-Volumes, 2023). As Chinese electric vehicle brands are keen to enter the European market, there is a potential for electric vehicles in Portugal. Therefore, it is crucial to evaluate the perceptions of Chinese electric vehicles from the point of view of Portuguese residents. This study, therefore, seeks to answer the following questions: 1) What are the key factors behind the Portuguese consumers' intention to use electric vehicles? 2) To what extent does the origin of the vehicles affect the customers' perception of the vehicles? To answer these questions, a qualitative methodology modeled on the UTATUT-2 framework is used in this paper. Few studies have investigated EV acceptance using the UTAUT-2 framework (Lampo et al., 2023). However, no relevant research has been conducted related to the Portuguese market. Additionally, there is a lack of research combining this framework and the investigation of the country-of-origin effect - the impact that a product's country of origin has on consumer perceptions and attitudes. Therefore, this study aims to fill the gap in research and assess the Portuguese context by deepening the knowledge of the country-of-origin effect in relation to the acceptance of Chinese electric vehicles.

2 Literature Review

Electric vehicles (EVs) have gradually gained public acceptance due to the advantages of environmental protection, low energy consumption, and great cost performance. EVs have several advantages over traditional Internal Combustion Engine (ICE) vehicles, such as lower energy usage during their lifetime, fewer operating costs, and a decreased impact on air and noise pollution (Lampo et al., 2023; Prata et al., 2015). When it comes to consumers' adoption of new technologies, it is recognized that behavior is not solely influenced by the traditional marketing mix, but also by external factors such as the individuals' perception of the country of origin. The country-of-origin effect (COE) is a well-researched phenomenon studied extensively in marketing. An analysis of articles on the country of origin of products across various industries found that consumers appreciate this information, and consider the origin of products in their decision-making and product evaluation process (Stolz, 2021).

Thus, the COE plays a pivotal role in shaping consumers' attitudes and purchasing decisions, influencing their perceptions of products based on the products' origins (Bilkey & Nes, 1982).

In the context of Portugal, the perception of products originating from China is an interesting aspect to explore, given the global rise of Chinese exports and Portugal's commitment to embracing electric vehicles (Environment and Energy Transition, 2019). The reputation of a product's country of origin can significantly impact consumer perceptions. China has undergone a significant transformation over the years. Historically, products from China were often associated with low cost and potentially lower quality, which might have led to negative consumer perceptions (Baker et al., 1986). However, recent developments in the Chinese manufacturing industry, especially in the field of EVs, have given rise to a new narrative. For instance, Winton (2023) suggests that China's electric vehicle industry is getting cheaper and more competitive than its Western counterparts. The average retail price of an electric vehicle available in China is now less than half the price seen in Europe. In the first half of 2023, an electric car cost US\$33,000 in China, and US\$70,700 in Europe (Winton, 2023). This trend is likely to change the perception of Chinese products in the automotive industry and beyond. Chinese EV manufacturers have expanded their presence into international markets, including Europe, with competitive pricing and product advantages (Vries, 2023). This move may have altered the perception of China as a source of innovation and quality in certain sectors. On the other hand, Portugal has set ambitious targets to fully adopt electric vehicles by 2050, gradually phasing out petrol and diesel vehicles (Environment and Energy Transition, 2019). This aligns with China's strong presence in the EV market, which may positively influence Portuguese consumers' perceptions of Chinese-made EVs as innovative products. While the COE effect is instrumental, it is important to acknowledge that consumers' perceptions are influenced by a multitude of factors. Thus, Portugal's specific cultural, economic, and political dynamics play a role in shaping how consumers perceive products from China. Therefore, while China's reputation may be evolving, it is essential to consider several factors when assessing how Portuguese consumers view Chinese products.

3 Framework for Analysis

This study utilizes a qualitative framework built on UTAUT-2 (Venkatesh et al., 2012) for our analysis. Research shows that this framework is considered a comprehensive instrument for assessing new technologies' acceptance by consumers (Lampo, 2023; Tamilmani et al., 2021; Venkatesh et al., 2016). The UTAUT-2 consists of seven primary constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit. These constructs influence the behavioral intention to accept a new technology (Venkatesh et al., 2012). Additionally, questions related to the country-of-origin effect have been included in our qualitative framework. Those questions were designed to gain an understanding of Portuguese residents' opinions concerning Chinese electric vehicles.

4 Methodology

This study is exploratory in nature and seeks to investigate the impact of Chinese EVs on the adoption intentions of a sample of sixteen interviewees through semi-structured in-depth interviews. Participants were chosen through purposeful sampling to maximize diversity. Respondents were all residents of Portugal who possessed a valid driver's license. Questions were designed within the Unified Theory of Acceptance and Use of Technology 2 (UTUAT-2) framework. For instance, interviewees had to answer questions such as *“How do you perceive*

the performance and functionality of Chinese electric vehicles compared to those from other countries?” or “What level of effort do you anticipate when it comes to using and maintaining a Chinese-made electric vehicle”. Similarly, interviewees had to answer questions focusing on the country of origin of electric vehicles such as “How do you perceive the quality and reliability of electric vehicles manufactured in China compared to those from other countries?” or “Do you believe that the Made-in-China label affects consumer perceptions of electric cars? If so, how?”. Fifteen interviews were conducted online meetings in English and one in Portuguese via email. The interviews took approximately 45 minutes and were recorded with the interviewees’ consent. The results were then transcribed for further analysis. To make the sample more diverse, interviewees come from a variety of backgrounds, including different ages, genders, types of vehicles, and occupations. Ethical guidelines were strictly adhered to throughout the study. Participants provided informed consent, and their identities were protected. Anonymity and confidentiality were maintained. The next section reports on the results.

5 Discussion of Results

Description of the Participants

The study involved a diverse group of participants, including 6 females and 10 males ranging in age from 23 to 73 years of age, with an average age of 47.5 years. Participants owned a variety of vehicles, including EVs. Among them were lawyers, students, journalists, photographers, physical educators, doctors, designers, teachers, bankers, and managers. The following sections will highlight the findings related to the perceptions of Portuguese residents about their behavioral intention to adopt Chinese EVs.

Behavioral Intention

This article assesses interviewees' behavioral intentions toward electric vehicles. Most of the interviewees agreed that battery-powered cars offer environmental protection and that this is the trend of the future. Additionally, they wish for EV prices to be lowered to make them more affordable. Further, they would be more inclined to purchase EVs if there were more charging stations available. Two interviewees were not very clear about their intentions. According to one informant, it still is not the right time for him to buy an electric vehicle since he lacks technical knowledge.

“I believe that EVs are better than traditional ICEs, so there is no doubt that I will buy an electric one” (Informant 5).

Performance Expectancy

Interviewees generally expressed positive views about EVs, emphasizing their environmental benefits, future potential, and superior performance compared to ICE vehicles. Eleven interviewees believed that EVs would perform above expectations. They highlighted the economic advantages of EVs, particularly in terms of reduced consumption and maintenance costs.

“An EV is much more economical than a normal car, both in terms of consumption and maintenance, given the reduction of emissions, we must give priority to EVs” (Informant 16).

“I think Portuguese people like innovative technology, and the EV market is growing. People will like the EV because it is very silent when the EV starts going and it is very

comfortable” (Informant 4).

Regarding the impact of the country of origin on the performance of the vehicles, the interviewees reported the following:

“I think people are optimistic [about Chinese EVs] because they are familiar with Chinese high-tech products” (Informant 13).

“Because we have been using products from China, they [EVs] won't make any difference to me” (Informant 2).

Some interviewees had higher perceptions of the performance of Chinese EVs.

“Chinese brands not only improved their cars but also their batteries. I think it is a good thing to continuously improve the core competitiveness” (Informant 6).

Effort Expectancy

In general, interviewees agreed that owning and driving an electric vehicle would be easy because EVs are quieter, smarter, and have many assistance features.

“EVs are very silent, and the driving experience is like a normal car. The engine I think starts even faster” (Informant 3).

However, many interviewees also expressed concerns about the lack of charging stations in Portugal, which makes owning an EV challenging.

“It depends on the place where you intend to charge. The number of charging stations in major cities in Portugal has grown relatively rapidly, whereas charging stations in rural towns are limited” (Informant 2).

Their opinion is that Chinese-made EVs will not affect their ease of owning or driving EVs.

“China is most definitely the country where EVs are getting better, I'm persuaded about Chinese brands. Chinese brands do not copy, they improve and develop. So, China is improving” (Informant 6).

Social Influence

All interviewees believe that social influence has a positive impact on behavioral intention to purchase electric vehicles. In particular, one informant mentioned:

“If you own an EV, people around are curious about it, they want more information, and ask to try the car” (Informant 5).

Many interviewees answered positively regarding the country of origin, as they, their family, and friends are familiar with Chinese products and feel confident about Chinese EVs.

“People would have no judgment because they all use Chinese products, so buying a Chinese EV would not make any difference” (Informant 2).

Facilitating Conditions

Interviewees' perceptions are divided. About half of the interviewees have a positive attitude because they believe charging facilities are relatively available and the government provides relevant subsidies.

“There is no problem with owning an EV in Portugal because there are many charging stations within the cities” (Informant 14).

“Many buildings are now equipped with charging facilities. Some are provided by the government, and some are provided by EV companies. The charging fee is very cheap in public charging stations” (Informant 5).

Others feel that their cities do not have enough charging stations, so charging is still a problem.

“The supporting facilities for EVs are not enough in small towns, because there are

few charging places, so people worry about battery life" (Informant 8).

As for the country-of-origin effect, all interviewees believe that there is no impact on the decision to adopt EVs.

Hedonic Motivation

Most of the interviewees find owning and driving an electric vehicle to be a happy and enjoyable experience.

"If I owned an EV, I think it would feel very different. I'll show it off to my friends. This is why I think so many young people are keen on Tesla despite its high price" (Informant 1).

"From my understanding, there are currently a lot of electric vehicles that have cruise control autopilot, which makes it an enjoyable experience for long trips. I think that's COEI" (Informant 13).

Regarding the country-of-origin effect, almost all interviewees felt confident about Chinese EVs.

"If I owned a Chinese EV one day, I would be proud to introduce it to my colleagues" (Informant 11).

Price Value

Most of the interviews reported that the purchase price of EVs in Portugal is still high. Some interviewees said that people would buy an EV to show their financial stability.

"Imported EVs are very expensive. The current price is unaffordable not only for young people but even for many families" (Informant 11).

Even though the Portuguese government has implemented incentives to encourage people to buy electric vehicles, many people still feel that the cost of electric vehicles in Portugal is high.

"The Portuguese government has provided many benefits to stimulate consumption of EVs, such as tax incentives, or cash rebates, but EVs are still more expensive than buying normal cars" (Informant 7).

Interviewees expect Chinese EVs to enter the Portuguese market at a more competitive price.

"If Chinese companies managed to get that quality at a lower price, they would win the battle of this competition" (Informant 5).

Some interviewees also considered the relationship between price and quality. Chinese EVs need to be less expensive than their counterparts, but they shouldn't be substantially cheaper to prevent customers from associating low prices with poor quality.

"If it's too cheap people will think that the quality will be not very good so they will still keep this mindset" (Informant 3).

Habits

Nine interviewees believe habits influence their behavioral intention to purchase EVs. Nonetheless, their biggest concern is charging, especially in the case of long-distance destinations.

"Finding nearby available charging stations will become a lifestyle habit" (Informant 11).

"I will have to plan carefully before long-distance trips. But other than that, I don't think it would change that much in terms of the adjustments that I would have to make"

(Informant 13).

“It is a matter of habit and changing the traditional way of thinking. It is not normal in everyday life to do more than 150 km per day” (Informant 16).

Owning an EV, according to one interviewee, is like owning a phone, you get used to charging it when necessary.

“The habit will be the same as you would have with your phone. Will anyone refuse to have a mobile phone just because they are concerned about running out of power? So, finding a charging station is a mindset that you need to establish” (Informant 11).

As for the impact of the country of origin on habits, interviewees believed that the COE would not change their attitudes.

Country of Origin Effect

After discussing the factors contributing to EV acceptance among Portuguese residents, we discuss the findings related to the country of origin. According to many interviewees, Portuguese people are using electronic products from China, and they are impressed with the quality and price of Chinese electronic products.

“I would say nowadays we have many electrical devices like Xiaomi’s TVs and phones, Huawei’s computers and so on, they are made in China and this doesn’t affect the consumers’ perceptions. Considering that what people care about is price and quality, I think there won’t be any bias” (Informant 1).

Furthermore, the importance of Chinese electronics was also emphasized:

“We all use Chinese products. What would remain if you removed those products from our lives? Electric vehicles from China are no different” (Informant 2).

According to some interviewees, using Chinese products would make them feel more confident:

“Made-in-China products are undoubtedly a guarantee of quality for me. Chinese are putting increasing efforts into developing new technologies” (Informant 6).

They also believe that people's perception of things made in China has changed significantly over the years.

“In the past, people thought that China’s products were not good. However, with the rise of Chinese products in Portugal and the growth of Chinese culture, they no longer believe that Chinese products are of inferior quality” (Informant 4).

And they also think that some people do not care about which country the EV comes from. What they care most about is quality and price.

“The price is the most important factor for Portuguese people. And in Portugal, we have a lot of products that come from China, we are very open and have a very high expectation to buying products from China” (Informant 9).

6 CONCLUSION

Over the years, a significant shift in the perception of the quality of made-in-China products has become evident, particularly within the context of electric vehicles. This qualitative study, drawing from the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2),

provides insights into the acceptance of Chinese electric vehicles (EVs) among Portuguese residents. The result showed that consumers do have the intention to adopt EVs and that this intention is influenced by several key factors including perceived superior performance and economic benefits, ease of use, positive social influence, and price considerations among the most relevant. The evolving acceptance of Chinese EVs in Portugal reflects changing consumer preferences and underscores the importance of these factors in shaping adoption intentions. Chinese EVs appear to be well-suited for the Portuguese market, with positive opinions among consumers. Thus, the country-of-origin effect, traditionally associated with concerns about product quality and reputation, seems to have shifted. Portuguese consumers express confidence in Chinese products, viewing them favorably, from electric appliances such as phones and TVs to electric vehicles. The results of this study reveal that the Country of origin plays a crucial role in shaping consumers' behavioral intentions to purchase Chinese electric vehicles, indicating a positive influence. It also suggests that the perception of the country of origin is a significant factor when individuals consider adopting electric vehicles, highlighting the evolving acceptance of Chinese products in Portugal.

The implications of this research have significant contributions for both managers and policymakers. For industry managers in the EV sector, these findings underscore the importance of considering the COE in their marketing and branding strategies, which can lead to an increased adoption rate. Policymakers should take note of the changing perceptions and embrace the promotion of sustainable modes of transportation. Fostering positive perceptions of products from specific countries can have far-reaching economic and environmental implications.

It is also important to acknowledge the limitations of this study. The research is specific to Chinese electric vehicles in Portugal, and its findings may not necessarily apply to vehicles from other countries. The focus of the interviews on the general public's perceptions may have overlooked the technical aspects of EV technology. Also, the relatively small sample size limits the generalizability of the results, necessitating caution in extrapolating them to the broader population.

To further enhance our understanding of consumer behavior and the country-of-origin effect, future research avenues are recommended. Firstly, expanding the scope to examine different cultural and geographical contexts is essential to validate the universality of the findings. Longitudinal studies can offer insights into how perceptions evolve. Additionally, examining the effectiveness of marketing strategies and interventions to promote the global adoption of electric vehicles, especially those from countries with varying environmental reputations, is crucial for advancing sustainable transportation.

In conclusion, the changing perceptions of Chinese products, as demonstrated by Chinese electric vehicles in Portugal, represent a dynamic shift with implications for both industry and environmental policy. This study underscores the evolving importance of the country-of-origin effect and its intersection with various determinants of consumer behavior. While this study has made valuable strides in understanding Portuguese consumers' perceptions, it also points to areas for further exploration, possibly a quantitative model, to gain deeper insights into the flourishing market for EVs and consumer behavior in Portugal. Consumers are now embracing

electric vehicle technology, signaling a profound change in perceptions and a bright future for sustainable transportation.

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Multinational enterprises' SDG engagement in relation to their core business

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Abstract:

Multinational enterprises (MNEs) play a key role in advancing the United Nations' Sustainable Development Goals (SDGs). Previous studies have examined MNEs' SDG engagement, by either focusing on the 17 SDGs as a whole or only targeting a specific SDG. In this study, MNEs' SDG engagement is measured using text mining. With the energy-intensive industry as the subject, the analysis shows that the industry mostly emphasises responsible consumption through energy saving and other methods. Our results show that MNEs adopt SDGs that complement their core business, while paying less attention to those that do not. This study highlights the characteristics of MNEs' SDG practices and advances the understanding of the factors that drive the implementation of the global agenda.

Introduction

The Sustainable Development Goals (SDGs) announced by the United Nations in 2015 are a set of goals for sustainable development. They cover a wide range of spectra, from individual well-being to the global environment. Achieving these goals requires collaborative efforts from both the public and private sectors and is considered a key challenge for the new era (Buckley et al., 2017; Kolk et al., 2017; Van Zanten and Van Tulder, 2021; Montiel et al., 2021). Owing to the global nature of the SDGs, multinational enterprises (MNEs) play a vital role in their realisation. Studies have mainly focused on how MNEs can contribute to the achievement of the SDGs. For instance, Zanten *et al.* (2021) described 59 goals related to the SDGs for MNEs in the private-sector regarding actionability and ethical duty that cover almost all the SDGs. Eden and Wagstaff (2021) proposed a design step on how to select SDGs and implement them, and these results were characterised by a material matrix (Eden and Wagstaff, 2021). While some studies have treated SDGs as a whole, others have examined how MNEs contribute to the achievement of specific SDGs because most MNEs only operate in a few specific areas (such as trading and banking) and cannot cover the entire spectrum of goals. For instance, Eden and Wagstaff (2021) described MNEs' contributions to gender equality in SDG 5.

Although these studies focused on how to implement the SDGs, they did not consider the MNEs' core business activities. Understanding the characteristics of MNEs' core business and the SDGs they are engaged with is necessary not only to measure MNEs' SDG performance but also to advance public-private cooperation for the effective implementation of the SDGs.

In this study, instead of focusing on the SDGs we focused on MNEs and measured their engagement with the SDGs. Refraining from theoretical approaches used in prior studies, the phenomenon approach was employed. The investigation was performed based on a keyword analysis of companies' annual reports using the SDG lexicon provided by the University of Auckland (UoA) SDG Keywords Dictionary Project. Using text mining, the keyword occurrence of each SDG was counted based on the annual reports of MNEs in the energy-intensive industry. The analysis showed that the occurrence of SDG 12 was more frequent than that of other SDGs, indicating that MNEs emphasised responsible consumption through energy saving and other methods. This indicates that MNEs adopt SDGs that complement their core businesses.

Methodology

Companies in different industries undertake different activities to meet their SDG targets. For instance, the transportation industry focuses on developing technologies to reduce CO₂ emissions for several reasons (both for its own economic benefit and as an ethical duty towards society). These activities are commonly highlighted in annual reports. An effective way to assess SDG engagement is to examine these reports. In this study, engagement was evaluated by text mining. The analysis was performed using the following four steps.

□ Taking the two-digit North American Industry Classification System (NAICS) categorisation, we studied NAICS 21: Mining, quarrying, and oil and gas extraction. NAICS 21 is commonly referred to as the 'mining' sector, which includes the extraction of naturally occurring minerals, including solids such as coal and ores, liquids such as crude petroleum, and gases such as natural gas. Companies operating in the mining sector were identified from the 2021 Fortune Global 500. Fortune Global 500 consists of the largest MNEs in the world, providing a comprehensive representation of the global business landscape and is, hence, a suitable foundation for investigating firms' contributions to improving sustainable development. Sixteen companies were selected: Sinopec Group (China), Saudi Aramco (Saudi Arabia), Gazprom (Russia), Mitsui (Japan), Lukoil (Russia), Rosneft Oil (Russia), Indian Oil (India), Shaanxi Yanchang Petroleum (China), Oil & Natural Gas (India),

Equinor (Norway), China National Coal Group (China), Glencore (China), BHP Group (Australia), Vale (Brazil), Anglo American (United Kingdom), Rio Tinto Group (United Kingdom).

□ The annual reports of these companies were collected from 2015 to 2021, mainly via official websites. Some of the older annual reports were also gathered through the Refinitiv

Eikon database or third-party reporting sites.

□ The SDG keywords provided by the UoA SDG Keywords Dictionary Project (<https://www.sdgmapping.auckland.ac.nz/>) were adopted and applied to the annual reports of these 16 companies.

□ We used text mining to match and count the keywords that appear in the annual reports (Ghauri et al., 2022). The higher the occurrence (or frequency) of a certain keyword, the greater the emphasis that a company places on it because the keyword is important to the company (Te Liew et al., 2014).

For consistency in the text mining process and to enhance the quality of the resulting data, the following criteria were established: While selecting target companies, some companies were listed as holding groups, while others were listed as conglomerate companies. Holding groups do not engage in direct production or operations but own and control other companies through investment in companies' shares to gain the power to appoint the majority of their board members. The annual reports of these holding companies commonly focus on financial activities rather than SDG initiatives. Additionally, the companies controlled by holding companies often operate in diverse industries, thereby adding a significant level of heterogeneity. Therefore, holding companies were excluded from the analysis. For example, Shandong Energy Group (China), Shaanxi Coal & Chemical Industry (China), Shanxi Coking Coal Group (China), Huayang New Material Technology Group (China), TongLing Nonferrous Metals Group (China), and Jingye Group (China) companies were classified as holding companies.

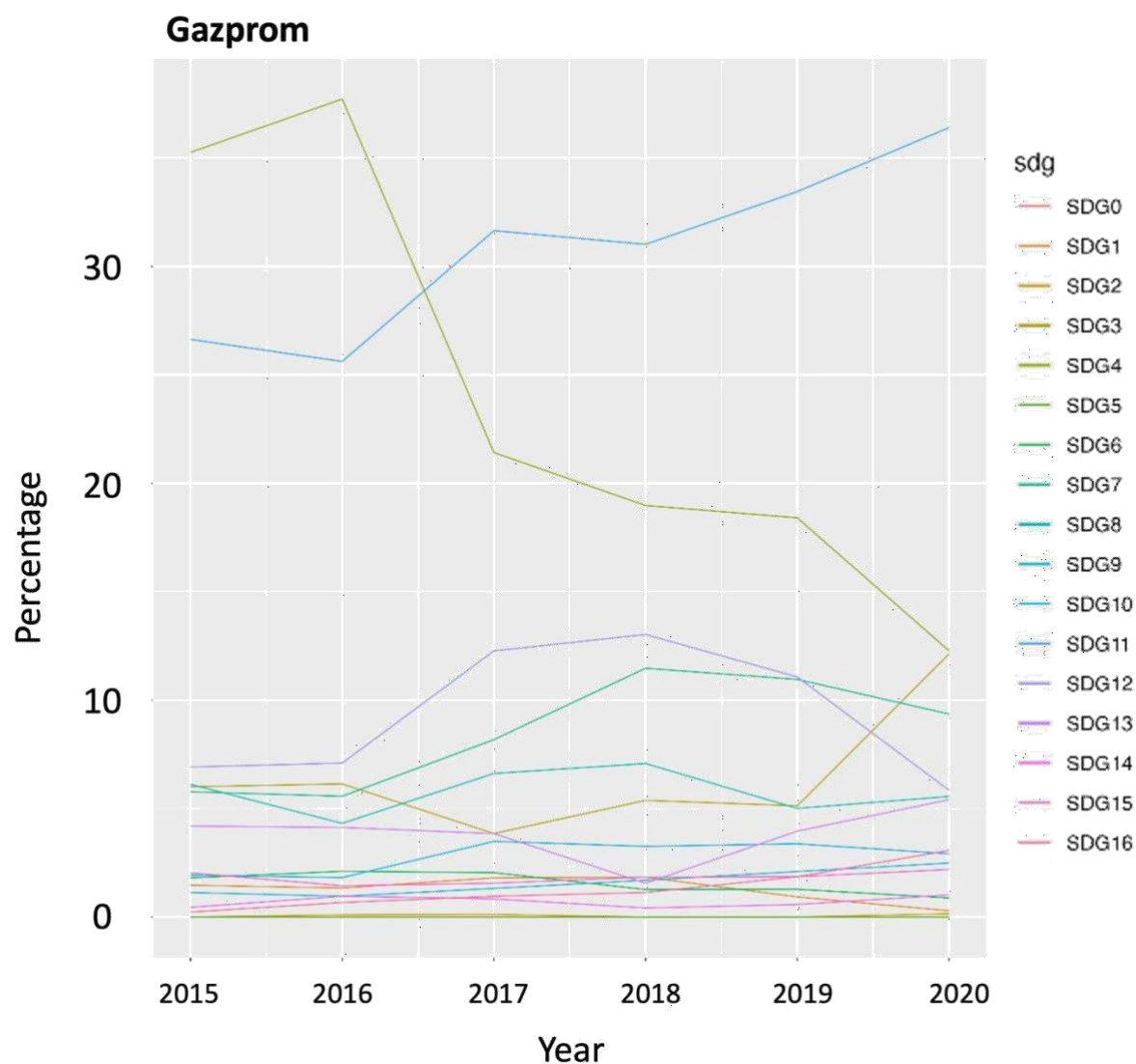
After the company was chosen and its annual report downloaded, we examined the annual report to comprehend its format and language. Some annual reports that were originally written in Chinese and translated to English had inconsistencies in translation or length between the original reports and the corresponding English reports. Therefore, these annual reports were excluded from the analysis.

Results and Discussion

The top five SDG-related phrases by term occurrence in the sector were governance (SDG 11), COVID (SDG 3), GHG emissions (SDG 11), climate change (SDG 13), and transportation (SDG 11). This shows that besides the COVID-19 pandemic, priority is given to carbon emissions that give rise to climate change, which has been the focus in recent years, or responsible consumption is emphasised through energy savings. This attention is mostly attributed to the increasingly stringent regulations imposed by governments, as the reduction of carbon emissions has a significant impact on global climate change. (The regulations mainly refer to taxes on carbon emissions. For example, in Europe, taxes range from less than €1 per metric ton of carbon emissions to more than €110 per metric ton.

In addition to revealing the most frequent keywords, a time trend analysis of all SDGs was

performed, and a typical trace is plotted in Figure 1. In this figure, the SDG engagement of a company, Gazprom, ranked 41 in the Fortune Global 500 in 2021, and a major Russian energy company renowned for its prominent role in natural gas extraction, production, and global distribution, is depicted.



[https://taxfoundation.org/data/all/eu/carbon-taxes-in-europe-2022.\)](https://taxfoundation.org/data/all/eu/carbon-taxes-in-europe-2022.)

Figure 1 Time trend analysis of Gazprom from 2015 to 2020

The time trend analysis (Figure 1) depicts the percentage (y-axis) for each SDG plotted as a function of the years from 2015 to 2020. The percentage count of the keywords for each of the 17 SDGs was calculated as follows:

$$\text{Percentage} = \times 100\%$$

This shows that (i) the percentage count of SDG 11 (sustainable cities and communities) increased annually, from 26.64 percent in 2015 to 36.4 percent in 2020, this is due to the keyword ‘governance’ is mentioned more frequently by year. We suggest that this behaviour is associated with the increase in carbon tax; (ii) engagement for SDG 4 (quality education) decreased dramatically (from 35.26 percent to 12.28 percent), which is evident from the decreasing occurrence of the keywords ‘official development assistance’, ‘scholarship’ and ‘education’ in annual reports by year. This could be associated with less attention to education; (iii) engagement for some of the SDGs (with percentages ranging from 5% to 10%) slightly fluctuated over time; (iv) for some SDGs, the percentage count was low (less than 5%) and for a few of the goals it was even nearly zero, such as in the case of SDG 5 gender equality. These results highlight the characteristics of Gazprom’s engagement, in which the goals it emphasises are complementary to its core business and other goals tend to be ignored by the company.

Similar results are also found for the other companies. Because of limitations in the length of the paper, we are unable to include all the time trend figures (these data are available upon request). Sixteen companies showed commonalities in their time-trend analysis. For most companies, there was a sudden increase in SDG 3 engagement associated with the COVID-19 pandemic in 2019, and reactions to it were described in the annual reports. Another observation is that most lines fluctuate regardless of the company.

NAICS 21: Mining, quarrying, and oil and gas extraction

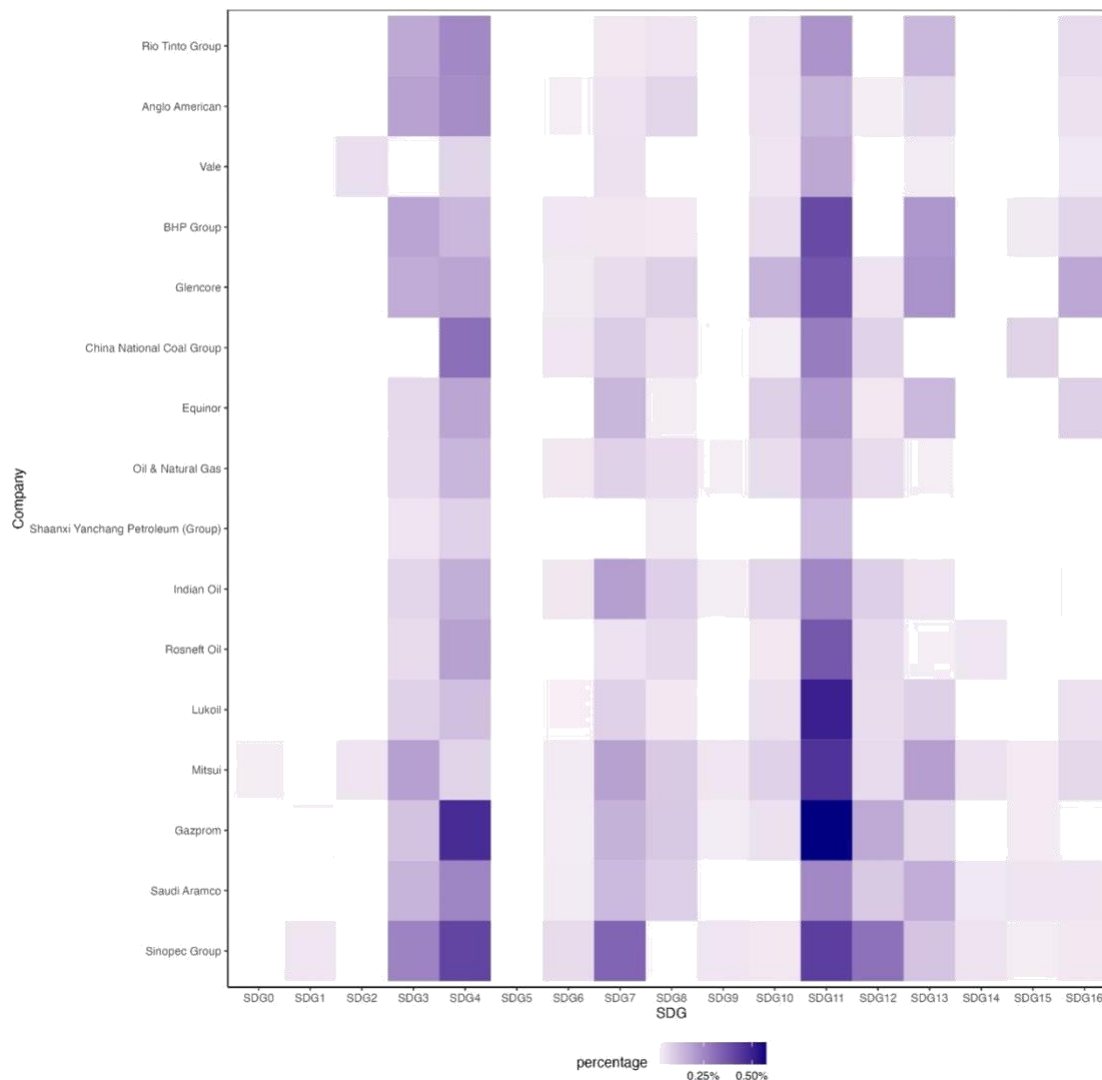


Figure 2 Distribution of the SDGs for 16 mining companies.

To observe the overall trend of companies' SDG engagement, a further analysis of the SDG distribution of all 16 companies is depicted in the heatmap in Figure 2. This shows that (i) not only the abovementioned company (Gazprom) focuses on SDG 11, but most companies in the mining sector focus on it, as indicated by the dark purple column. This result strengthens the interpretation that companies adopt SDGs related to their core business. (ii) Most companies pay less attention to the SDGs that are not directly related to their core business, such as SDG 2 (zero hunger) and SDG 5 (gender equality), which is consistent with the above analysis. This data provides insights into the mining sector's behaviour related to the SDGs, leading to an understanding of the characteristics of SDG practices in this sector.

In demonstrating the complementary characteristics of MNEs' engagement with the SDGs, we note that some MNEs do engage with SDGs that are less related to their core businesses, such as the partnership between TNT (a global logistics giant) and the World Food Programme (WFP). The TNT provides both financial and capacity support aimed at eradicating hunger (SDGs 1 and 2) and WFP provides expertise. TNT's support of this program in lifting hunger requires independent business activities (logistics), and the investment is made for several reasons, such as gaining legitimacy for its local operations and fulfilling its philanthropic duties. But the returns on this engagement are not apparent.

Nevertheless, this activity was terminated in 2015, and no reason was provided. Moreover, other case studies have reported that this type of engagement may not last long. Furthermore, our results show that engagement with the core business-related SDGs last long (see Figure 1 and 2). This indicates that MNEs should be encouraged to develop sustainability based on their specialty.

Thus, given the characteristics of MNEs' engagement with the SDGs, we would like to emphasise that in public-private or private-private partnerships, instead of asking companies to implement all the SDGs, it is necessary to emphasise how companies could avoid issues, such as green washing, due to the target SDG being outside the company's core activity. This could help advance the implementation of the SDGs.

Summary

We present an investigation of the characteristics of MNEs' long-term engagement in achieving the SDGs. We investigate the mining sector and find that a complement to the core business has been established. Our results provide evidence of the type of SDGs that MNE engage in; thus, in future studies, the development of public-private partnerships could be examined.

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[ID:153]

Expanding the Global B2B Market through Relationship-Based Strategies – The Empowering Influence of People Currency

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The Case company experienced an exponential growth rate, similar to that of a supernova. Realistically, ambitious growth goals can only be accomplished on a global scale thanks to the limitless prospects available without borders. Although the idea of expanding globally may be enticing, it remains undeniably challenging. Given these ominous signs, it is necessary to have a comprehensive guide on how to influence growth tactics to achieve achievement. The significance of human-to-human social capital and interpersonal competency in achieving success in expanding B2B global markets is being overlooked while being the driving force behind this activity. The objective of this research is to support an example company's ambitions for worldwide expansion by utilizing the findings to develop effective expansion plans. The goal is to gather field data from experienced individuals in global expansion, which will be studied, compared, and presented in a document that includes clear and precise recommendations.

An ensemble of literary sources was used to examine the problem from many perspectives with a particular focus on social science. The literature was employed to examine global growth from a social science perspective, which deviates from traditional beliefs. Specifically, the significance of social capital and interpersonal ability in achieving success in global expansion is highlighted. Subsequently, an examination was conducted on the function of 'locals' and how these two factors combine to become significant determinants of success in global expansion.

The research approach was based on an interpretative research philosophy. Within the framework of the abductive technique, prior scholarly works were utilized with the intention of maintaining an open-minded perspective and allowing empirical facts from the field to guide the analysis. The data collection methods employed were qualitative, specifically semi-structured interviews and cross-sectional qualitative email interviews. The sample size comprised individuals with extensive experience in global expansion, either through their work in the field or senior

positions within a global environment. The study included eight interviews and eight email interviews, which were conducted with participants from various nations, demographics, and sectors.

These results suggest that achieving success in expanding into the global B2B market is based on the presence of social capital and interpersonal skills. By using innate human tendencies for collaboration and social interaction, B2B expansion plans can be designed to favor success while avoiding frequent pitfalls.

Keywords: Global B2B expansion, social capital, interpersonal

[ID: 154]

Geopolitics of Big Techs and Global Value Chains: Global Shift in Governance and Sustainability under the Cold War 2.0

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This exploratory study brings a critical perspective of international business seen through the evaluation of topical cases, that is, global *big tech* and *global value chains* (GVC) under Cold War 2.0, redefining political economy and governance as determinants for international businesses. Alternative capitalism and *rule of law* vs. *rule-by-law* political governance will be discussed through the paradigm of an *iceberg* as an ontology of the multilayered reality of the international business environment. A selection of theoretical examples of current intentional business scholarship will be discussed as a way of considering informed supplements in the field of international business and strategy. With *big techs* as influential cases and their divergent business models explored, *risk management* as a new emergent and indispensable discipline is discussed for macro- and micro-management. This exploratory perspective study concludes with a cross-disciplinary outlook on the way forward in the field of international business, including the essential role of critical perspective in an age of uncertainty.

Keywords:

International business, critical reflection, global value chains, new political economy, instruments of statecraft, variant capitalism, big techs, techno-nationalism, multi-layers, iceberg, new governance, rule of law, rule by law.

1. Introduction

This perspective essay covers significant changes in the political economy, global value chains, and trade-that affect the governance of firms operating internationally. The underlining changes are more fundamental and determinant, as business has come under what has been termed *Cold War 2.0*. We will draw on cases of *big tech*, as they are at the forefront of global realignment, and the concurrent intensification of geopolitical competition with the emergence of variant capitalism, such as state capitalism. Leading

technologies, business, industry, and trade are becoming more prevalent than social and business infrastructures. They are increasingly becoming instruments of statecraft under such alternative forms of capitalism, in which states play central roles.

International business reality, its scholarship, and practices call for fundamental rethinking of basic assumptions, as the norms and principles of the global business environment, governance, and institutions undergo drastic changes. Assumptions of business environments characterized by peace, cooperation, and competition with relatively clear or transparent rules no longer apply. Rethinking is inevitable in international business scholarship based on the assumptions of free market economy, global free market economy, global value chains, global sourcing, open innovation, international talent market, knowledge sharing, and a shared economic system in the face of the escalating antagonistic rivalry in the world economy and the emerging *Cold War 2.0*.

With the decoupling of leading economies, such as the US and China, including their political allies, the global economy may undergo devolution into two distinct spheres. Large or small international businesses may have to develop different international value chain networks, technical infrastructures, and other supporting business ecosystems to maintain effective competitive advantages. As business, industry, and trade increasingly become instruments of statecraft, the global governance system is also reshaping. International business scholarship can be nourished from an understanding of other branches of social sciences, such as political science, sociology, history, and philosophy.

Statist economic players are from divergent political systems, such as ‘one party systems,’ alternative societal norms such as ‘collectivist behaviors’ which are deeply embedded in history such as colonial humiliation in the past and/or other philosophical traditions such as Confucianism. Underlying such major shifts and changes are the development of digital technologies and digitalization in business processes and communication. Such technical shifts constitute the core of the *Fourth Industrial Revolution*. Industry and business have gained critical strategic benefits from this revolution. This advance in key technologies has also brought about major changes in international market reality, business landscapes, and corporate strategies. Leading digital technology firms, also known as *Big Techs*, have grown into positions of oligopoly with dominance in both market and societal influence through critical technologies such as Big Data, AI, and 5G.

In their respective domestic markets, such dominance by technology firms resulted in a growing fear of potentially interfering with state sovereignty. Globally, such uncontrollable techno-power leverage is also feared as a potential geo-strategic tool or a security risk. Both internally and externally, we are witnessing a rise in techno-nationalism, whereby firms are no longer entirely independent of states in the exercise of intellectual property rights and in their choice of with whom to trade. This study examines the multi-layers of emerging reality and the shift in governance through trans-disciplinary discussions to critically reflect on these developments in the interest of international business scholarship and practices better aligned with such emergent

realities.

2. GVC (Global Value Chains) under New Political Economy

- *De-globalization*

2.1 De-globalizing and the Undoing of The Post-World War II Order

The global system of governance largely formulated in the post-World War II era was intended to safeguard the world from entering another catastrophic global war. Liberal democracy and the market economy have been the underlying themes in the last seven decades. Economic governance was framed around The Bretton Woods' regime of governance (Markwell, 2006)¹.

The last seventy years saw the world economically integrated into more interconnected global communities of nation-states and economic groupings. The rise of Asia, in particular, the ascendancy of China to a significant and challenging global position, both economically and militarily, brought a fundamental change to the hitherto maintained balance of power, both strategically and economically.

This change took place with the decay of the existing global governance system and descending confidence about the system, combined with a new rising confidence coming from unprecedented rapid growth in economic strength within the reach of rivalry to the hitherto unchallenged global hegemon. However, this change may only be the beginning.

2.2 The Cold War 2.0

On the matters of governance, China, having reached an unprecedented global economic pre-eminence, is re-visiting the ancient regime of Confucian governance and statecraft as complementary state ideology (Markwell, 2006). Her governance is also attuned to the hybridity of socialist and market economies (Rutten & Brødsgaard, 2017).

We see the emergence of a newly created self-contained major regional market with more than 80 percent domestic reliance (McKinsey Global Institute 2019). It is also large enough for survival without external reliance, with internal trade only. They may welcome like-minded or friendly economic groups. They appear to have finally reached the point where their destiny may no longer be tied to others, in particular, hostile or hegemonic. Such a potential reversal, in part or to a significant degree, of the global governance system can accelerate both as a result of a geopolitical strategy and through economic self-reliance.

The international trade regime under World Trade Organization governance undergoes substantial undoing, potentially replacing or juxtaposing with the Bretton Woods regime of global and regional trade. New global competition is happening in diverse areas and at different levels. The competition covers the physical spaces² of politics and

¹ *The Bretton Woods Conference*, formally known as *the United Nations Monetary and Financial Conference*: the gathering of 730 delegates from all 44 Allied nations at the Mount Washington Hotel, situated in Bretton Woods, New Hampshire, United States, to regulate the international monetary and financial order after the conclusion of World War.

² Land, sea air and outer space and cyber world

economics as well as rivalry for philosophical legitimacy of major governance systems and statecraft. This new global competition is for a short, mid-to long-term in time, and small, mid-to large-scale by any historic measure.

We are facing a realistic prospect of decades of competition and instability that may bring us to Year 2050 in a new world order under an entirely different system of governance and geo-strategic reality

2.3 Vulnerability, Uncertainty, Complexity, and intensification of ambiguity (VUCA).

Olga Petricevic¹ and David J Teece writing in *Journal of International Business Studies* (2019) 50, characterize this new environment in which international businesses must navigate as encompassing VUCA conditions: Volatility, the proliferation of Uncertainty, the rise of Complexity and intensification of Ambiguity. To successfully operate under these conditions of VUCA, international businesses are compelled to adapt an approach of Dynamic Capability (DC), which further explores the nature of and the ways in which MNC's are applying DC to the business environment characterized by VUCA conditions.

"The view of a frictionless, homogeneous, rule-of-law, borderless world, and global, levelled playing field is now clearly an illusion. " ... The roles of nation-states with respect to international business are not fading but strengthening. "...sovereignty is not challenged by MNEs. Rather, the MNEs are constrained by strategic interventions of nation states, coupled with a decline in the rule-of-law and a corresponding advance in the 'rule of rulers.' The authors perceive a bifurcated world arising from an increase in the conscious decoupling of firms' and nations' objectives as well as economic and innovation trajectories. In this bifurcated world, the rule of law reflects a default predisposition toward transparency and arm's length relationships between firms and their home-country governments, even if political preferences may be expressed in favor of domestically owned and controlled companies, domestic employment, domestic value creation, domestic taxation income, and domestic firms voicing allegiance to their home base. By contrast, in autocratic regimes where rule-of-rulers prevail, default predisposition is a systematic discrimination against foreign firms and championing domestic incumbents. MNEs thus must adapt to the sudden changes in governance of the global system, as the governance 'ecosystem ' has evolved into an unpredictable variable from a reliable constant. The authors opine that this demands the adoption of *dynamic capabilities* by MNCs.

2.4 State-owned enterprises as a New Norm

China's rapid growth, its hybrid economic structure, and its arguably opportunistic approach to norms and rules that guide international commerce have created tension in the existing power constellation and revealed an alternative model. The global financial crisis of 2007–2008 represented a profound climacteric crisis, serving as a catalyst for the erosion of the prevailing rule-based system of international commerce.

China's unique combination of market size and accelerated growth, particularly emphasis on tapping into advanced innovation and technology development through outward FDI activities, and the distinctive government's role in systematically drawing upon its bargaining power to support technological upgrading depart from the prevailing traditional theoretical frameworks of international trade and finance.

China Foreign Direct Investment policies provide a platform that facilitates Chinese firms' international expansion with the goal of capturing the fruits of innovation and knowledge from foreign entities to serve Chinese objectives as a nation-state. The pursuit of national objectives is especially pronounced in the case of state-owned enterprises (SOEs), which China is increasingly mobilizing in its quest for technological superiority. China's systematic and coordinated actions towards technological dominance are particularly noticeable with the announcement of the "One Belt-One Road Initiative"¹⁴ (also known as Belt and Road, or OBOR) initiative in 2013, followed by a launch of the Made in China 2025 (MIC 2025) plan in May 2015, and its associated, state-led technological industrial policy that focuses on 'winning at all costs' to facilitate China's rise and dominance in key technological domains and enable Chinese self-sufficiency.

2.5 Authoritarianism, Consumerism, Global ambitions, and Technology (ACGT) as a New Platform

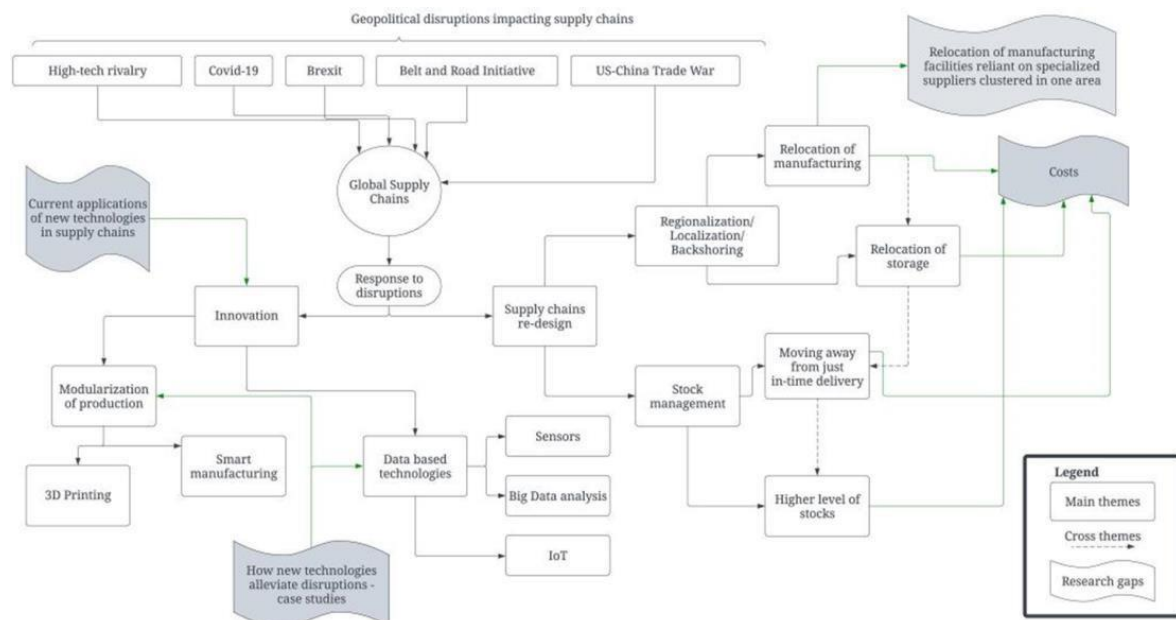
Writing in Foreign Affairs, January-February 2021, Rana Mitter, Professor of Professor of the History and Politics of Modern China, Oxford, characterized Chinese power today as still "a protean, dynamic force formed by the nexus of authoritarianism, consumerism, global ambitions, and technology." He terms this "the ACGT model" noting that it has the same initials as the nucleotides in DNA, and he sees these strands of Chinese power "combining and recombining to form China's modern political identity and approach to the rest of the world." The Chinese Communist Party (CCP) intention is to firm up its grip on Chinese society, encourage consumerism at home and abroad, expand its global influence, and develop and export China's own advanced technology. In his view, China's current standing and future prospects cannot be understood without seeing all four of these goals together in the context of the ACGT model and its inherent dynamics and contradictions.

Rana questions, "Does China want to transform the global order to advance its own interests and to reflect its own image?" and suggests that this may be the most important question in geopolitics today. The answers it elicits, he holds, may reveal more about modern biases than what a future Chinese superpower would look like. Those who want to project forward to a malevolent, expansionist China point to evidence of aggression in Beijing's current posture. This led many observers to see an evolving Cold War, with China serving as a twenty-first-century version of the Soviet Union. Those with a less apocalyptic view highlight more accommodating features in Chinese policy and also hold that China will face many challenges that will keep it from reshaping the world even if it wants to. Such projections are far too rigid and sweeping to usefully describe the complexity of China's rise, either to capture the inherent uncertainty in China's

future aims or to recognize the essential elements that have shaped its aspirations. It is clear that Mitter perceived that China's ACGT may not lead to a fixed outcome.

2.6 Diagrammatic View: Geopolitics of Global Value Chains in Shift³ :

A qualitative analysis of the literature was conducted to identify the themes, starting with an iterative analysis of the selected papers to familiarize them with their content. Following the conventional methodology, coding categories were derived directly from the text data. After content analysis, discussions were conducted among the co-authors, where the emerging theme categories and sub-categories of descriptions were confronted and validated. Geopolitical disruptions in supply chains justify this new subfield of research. Most of the articles included in this review treat geopolitical disruptions to supply chains as a peripheral concept, while their key focus lies somewhere else—be it the event triggering the disruption or a well-discussed concept from the operations management literature. The frequency, complexity, and impact of geopolitical disruptions to supply chains on a broader economy justify the establishment of a new research subfield with its own theoretical grounding and broad research agenda. The reviewed articles situate the issue of geopolitical disruptions in a variety of contexts, starting from the design of more resilient supply chains (Kull & Closs, 2008; Scholten & Bosman, 2016; Yildiz et al., 2015) and ending with the bullwhip effect (Croson et al. 2013). Three main themes were identified from this discourse and are explained in detail.



³ Figure 2: Lukasz Bednarski, Samuel Roscoe, Constantin Blome & Martin C. Schleper (2023): *Geopolitical disruptions in global supply chains*:

3. New Governance:

- *Governance in shift: Sovereignty and Oligopoly* (Bartlett, 2018)
- *Rule of law vs. Rule by law*

3.1 Oligopoly and Sovereignty

The leading digital firms or big tech companies are becoming monopolies or oligopolies in the largest economies, such as China and the US. They are also becoming anti-monopoly targets in their respective markets and, at times, are seen as interfering with matters falling in the domain of national sovereignty. Such interference with sovereignty occurs with dominance in technology and what it brings in reach and depth in communication with the majority of the populace and unrivalled market position. Legislative branches of government, both of the US by Congress and China through the National People's Congress (NPC), are already taking action to stem over-extension of the oligopolistic influence of big techs under anti-monopoly governance as well as prevention of potential interference with national sovereignty (Smyth, 2019). Both Alibaba and Facebook publicly announced anti-monopoly scrutiny.

3.2 States and Big Techs in an implicit Contest for Legitimacy

Big technology offers a wide range of services (Securities and Exchange Commission, 2021) covering day-to-day purchases, banking, messaging services, retail or wholesale e-commerce, advertising, including that of political campaigns (Buettner & Buettner, 2016), and basic business communication, such as email, as well as a platform for individual social communications, which has evolved into a significant, highly influential socio-political-cultural factor.

The market dominance and social influence of *big tech* oligopolies rise to implicit challenges to the leading political actors in mega-economies, such as China, with its Communist Party of China at the helm, and in the US with the two major political parties. Such fear arising from societal dominance by big tech engenders an implicit contest for political legitimacy by apprehensive national leaders. Such a contest for legitimacy may interfere with the existing modality of balance between the market and the state hierarchy, affecting the system of governance. The first response from state actors may be a way of correcting market distortions and monopolies, mobilizing anti-monopoly laws and regulatory institutions. The US Congress is taking preliminary anti-monopoly actions (Isaak & Hanna, 2018), while in China, leading firms are disciplined by the central financial bureaucracy (The New York Times, 2020). Once found culpable of a monopoly, big tech companies could face the breakup of their holding companies into smaller non-monopolistic units, concurrently eliminating the possible political influence of national eminence. In the U.S., the issue is also whether social media platforms such as Facebook and Twitter should continue to be treated as neutral communication providers or should be considered as communication media held accountable for their content.

3.3 New Governance

Major players and their partners weigh between strategic engagement and all-out strategic competition, including leading to Cold War II right on the centennial eve of World War I concluded a century before. The seventy years of relative peace and prosperity since the end of WW II, the global community of thinking persons, and policymakers are back to the tasks of finding ways of creative imaginations about rescuing global governance systems that sustained the world, including the UN, IMF, WTO (GAAT), Marshall Plan, and others that overcame the fundamental divides. These divides include choices between reciprocity of mutual engagement and cooperation under an agreed framework of governance through peaceful competition and coexistence, and conversely, uncompromising the primacy of the leading hegemon and mutual separation from each other.

3.4 Governance: 'Rule of law' Countries vs. Rule by law (Man) Countries

International business and trade have been operating under broad assumptions and practices based on governance under the "rule of law" (The World Bank, 2020). Many countries continue to follow such guidelines. In recent years, an increasing number of major economies, including China, and at times the US are also behavior-wise, becoming more of countries under the *rule by law* or the *Rule of Power (Man)*, whereby commonly accepted governance and norms are over-ruled or rejected.

Multi-lateral trading governance under World Trade Organization (WTO) treaties is often side-lined or disputed. The International Criminal Court (ICC) is not a dependable means to adjudicate a final court on criminality when in dispute internationally. Many nation-states with domestic dependency on the *rule by law (Man)* tend to overrule or ignore the globally accepted *rule of law* with impunity. Since 1996, the World Bank has reported on the Worldwide Governance Indicators with six key dimensions of governance: *voice and accountability, political stability with a lack of violence, government effectiveness, regulatory quality, rule of law, and control of corruption*. Therefore, businesses must significantly moderate their strategies to determine their decisions on the right footings.

4. An Iceberg of Multilayered Reality of International Business

- *Reality on the Common Plane of Market versus on the Iceberg*⁴

4.1 Ontological Shift: Beyond the Common Plane of the Market to the Multi-layered Planes

Market reality has been perceived, and business strategies have affected the broad assumption of governance workable on the common plane of the market within regulatory frameworks agreed on under the global system, before active de-globalizing conditions emerged. These newly emerging conditions are often characterized (U.S. Army Heritage and Education Centre, 2021) by *volatility, uncertainty, complexity, and ambiguity* or VUCA (van Tulder, Verbeke, & Jankowska, 2020) and are aptly applicable

⁴ Ontological Hierarchies of Multi-layered Planes

to the operations of big tech. State capitalism is on the rise, and state-owned enterprises are dominant players in China and Post-Communist Russia, where businesses are effectively used as economic tools of statecraft in what might be termed a neo-mercantilist (Hamilton & Webster, 2018). This has also been characteristic of other countries included in the grouping called BRICS. Under such circumstances, primary stakeholders are no longer shareholders, but state interests in terms of nation building or other economic or geopolitical objectives. The entity of the relevant reality reaches beyond the hitherto accepted common plane of the market to the multi-layered planes of reality as an ontological shift occurs.

The metaphor of an iceberg⁵ can be applied to the trans-disciplinary approaches⁶ as related to governance and geo-governance. In the ‘*rule of power*’ countries such as the BRICS⁷, key stakeholders and their reality or circumstances can be on different layers of reality again, using an iceberg as an ontological metaphor and re-alignment.

4.2 Iceberg Multilayers

The example of China can be illustrated on the levels of an iceberg, with notations on the iceberg graphics,

1) Visible levels of: L1-3:

- L3: Prosperity Goal of ‘moderate prosperity (*xiaokang*)’ (Economist, 2020)
- L2: *China Dream*
- L1: Pursuit of National Economic Drive

2) Invisible levels: B1-5:

- B1: Political Domain:
 - Chinese Communist Party (CCP) as a primary stakeholder
- B2: Historical Domains
 - Recovery of greatness from the shame of Opium War (1842-3) (Beeching, 1975)
- B3: Civilization domain
 - Recovery of Middle Kingdom governance of two millennia
- B4: Common Humanity:
 - Universal needs of humanity, survival, and its common DNA

⁵ Iceberg: a Freudian metaphor, modified by the author

⁶ Stakeholders on different layers of reality: ontological re-alignments

⁷ Brazil, Russia, China, South Africa and now added with Turkey.

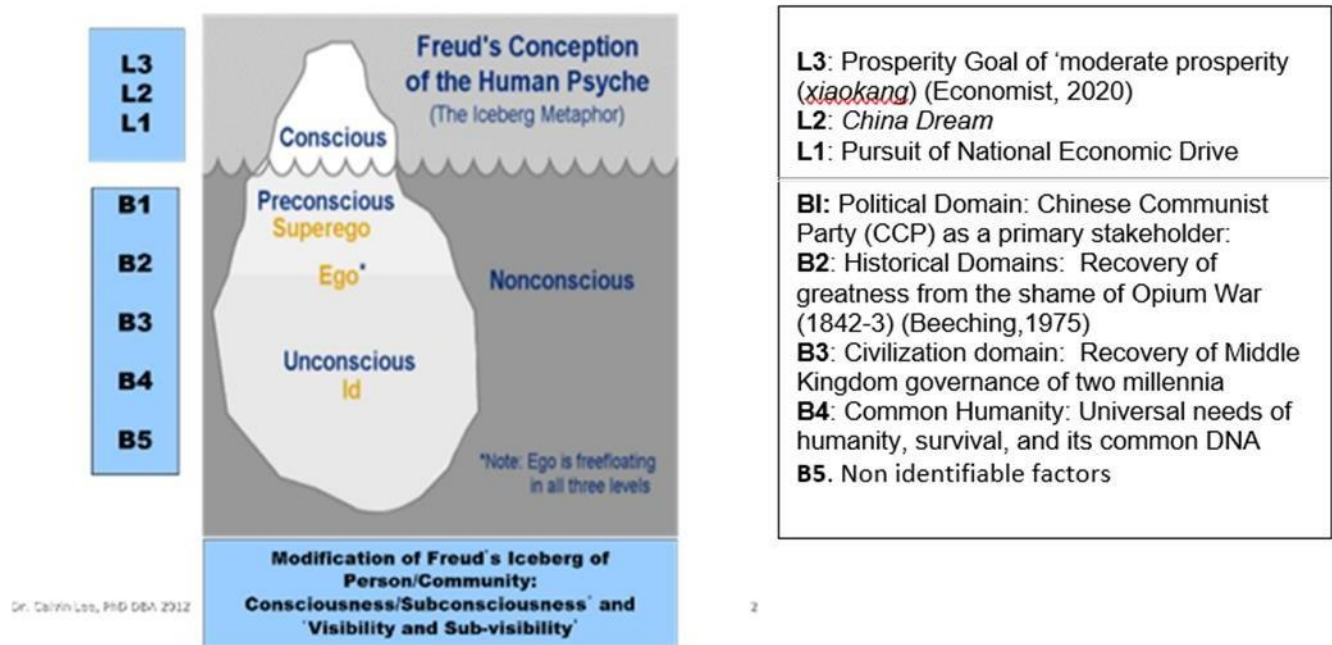


Figure 1: Iceberg: a Freudian metaphor, modified by the author.

5. Informed Supplements to Intentional Business Scholarship: Examples in IB and Strategy

In this section, we explore some of the scholarly thinking about the changing international business environment and examine representative cases of the business impact and resulting corporate adaptations to such shifting business considerations.

5.1 Dunning's Insight with a proviso

The eclectic paradigm, or OLI Framework (Ownership, Location, and Internalization), as guided by John Dunning (Dunning, 2013), is current and has proven valid under liberal international governance and as applied to and by *rule-of-law* countries. Moving to the '*rule of power*' countries, key considerations need to be almost overturned, giving priority to the governance system as the core consideration in the choice of location, partnership, and technical property rights. TSMC (Nikkei, 2020), as the leading foundry of semiconductors, willingly accepted in 2020, not to supply to their largest client Huawei, as an act of accepting the strategic conditionality of their business. Conversely, Cisco fought through legal and diplomatic processes their case of intellectual property rights against the total copy-cat of the then-dominant Internet system by Huawei in 2000. Cisco lost two-thirds of its company value in 2002 (Yahoo Finance, 2020), without reining infringement.

5.2 Uppsala Insight with a proviso

The *Uppsala internationalization model* (Glowik, 2020) identifies four business steps. Internationalization, comprising

- *Step 1: There are no regular export activities (sporadic exports).*
- *Step 2: Export via an independent representative (export mode).*
- *Step 3: Establishment of a foreign sales subsidiary.*
- *Step 4: Foreign production/manufacturing.*

This model is also current and has proven valid under liberal international governance and as applied to and by *rule-of-law* countries. Moving to the '*rule of power*' countries, key considerations need to be almost flipped and moderated by the governance system as the core consideration with regard to Step 3 (*establishment of a foreign sales subsidiary*) and Step 4 (*foreign production and manufacturing*). The establishment of a foreign sales subsidiary or foreign production would be risky without the assurance of governance. Samsung Electronics (Global Times, 2012), the largest producer of memory chips, built a factory in Xian, China, the hometown of the current national leader's family. This move was considered a significant political move. Steps 3 and 4 executed by Samsung are now of serious political risk vis-à-vis US trade policy. Insights into the governance and *rules of powerful countries* must be heeded.

5.3 Mintzberg' Insight with a proviso

Henry Mintzberg advocated learning by multi-role managers in determining the balance best suited to their specific, unique situation, primarily through experience and rooted in context (Mintzberg, 2021). Tesla Giga Shanghai (Tesla, 2020) adapted to the governance regime of China by adjusting to demands for transfer of sophisticated electric vehicle technology in a 50/50 joint venture, the potentially largest electric car market, with the prospect of incurring security fears of the US government, particularly with regard to the digital attributes of self-driving vehicles. Not much of the necessary skills were learned through experience in other joint ventures under the *rule of power* countries such as BRICS. In place of a professional corporate bureaucracy, the founder's personal drive was driving the agenda, as decision-making was made as an internal entrepreneur, thereby bypassing professional managers. Governance and *the rule of power* as a proviso were overruled in an enthusiastic speedy overdrive (Fortune, 2020).

5.4 Porter's Insight with a proviso

Michael Porter's *Five Forces* (Porter, 2008) have become one of the most highly regarded business strategy tools since 1979. In managing *competitive rivalry*, he advocates the following key attention:

1. *supplier power*
2. *buyer power*
3. *threat of substitution*
4. *threat of new entry*

This popular strategic guideline assumes a level-playing field and a liberal governance system in which to operate. ASML Holding NV of the Netherlands (ASML Holding N.V., 2020) with dominant market leadership in the semiconductor manufacturing equipment industry, with extremely high supplier power, low level of threat of substitution, and the threat of new entry chose to differ from Porter's view. In this case, considering different governance under "*rule of power*" such as the potential disadvantages arising from the factor of China at loggerheads with the US in trade, ASML chose to stop supply of their equipment to the large market of China.

On level L1 of the *iceberg*, it does not make sense, but on levels B1 and B2, where the politics and history of different long-term domains rise to consideration, such a contrarian strategy makes sense. Public policies are frequently reversible. State heads may promote free trade on the one hand (Wall Street Journal, 2021) while restricting trade with politically less pliant countries, such as Australia (South China Morning Post, 2020).

5.5 Teece and Dynamic Innovation Insight with a proviso

Dynamic capability for ongoing innovation (Teece, Pisano, & Shuen, 1997) is *a firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments*. In strategic practice, we are encouraged to have the following:

1. *Deep Uncertainties*
2. *Framing the Problem through Sensing*
3. *Globalization: "Why It is a Brave New World"?*
4. *Beating Back "Short-Termism"*
5. *Stewardship of Intangible Assets through Dynamic Capabilities Processes*

Despite extreme caution and erudition exercised by strategic leaders, such as the Ant Group of Alibaba, their views on China's capital market and governance were considered inappropriate in the eyes of state leadership, or even effrontery to popular confidence and public legitimacy only reserved for the ultimate leader alone. The public offering of the Ant Group was disallowed (CNBC, 2020) because of a lack of unconditional compliance. Dynamic capability can have a better chance of ongoing innovation if it is more acutely moderated to the B1, B2, and B3 levels of the *iceberg*.

8. Big Techs: Cases and Divergent Business Models

- Digitalization, Big Techs and Responses

Digital empowerment has grown exponentially in recent decades, and its benefits are diverse and deep in both industry and the public sector.

8.1 Digital business model and four dimensions

The digital business model presents four strategic dimensions (Meyer, 2021) of the innovation process. Innovators can hunt for more possibilities through the digitality of products and services in being less physical or *digital intangibility*, less disconnected or *digital interactivity*, more intelligent, *digital intelligence*, and reshuffle-readiness or *digital reconfigurability*. Such digitalization attributes allow for value proposition innovation. The ongoing development and dispersion of digital technologies facilitates the introduction of new value propositions into the market. The biggest potential impact is on the nature of the core product and/or service being offered, the way the product is offered to the customers, and the manner in which it is paid for in the revenue stream.

8.2 Big Data and the four attributes of volume, variety, velocity, veracity, and fear for strategic risks:

Such digitalization attributes as volume, variety, velocity and veracity, and fear for strategic risks readily apply to how Big Data stands out in its exponential growth to fifty-fold from 2010 to 2020 (Gantz and Reinsel: 2012), invoking fear for strategic risks (McNamee, 2019) (McNamee, 2019), domestically and internationally in particular on the part of leading powers.

As an example, Facebook had only 250 billion images stored on its website in 2017, and while this number appears without question enormous to us, it will seem small by 2027. The driving factors behind the explosion in big data are the Internet, its children, and social media. Until the Worldwide Web became popular, data not stored in filing cabinets were stored on individual computers that were not in contact with each other. While the early Internet began to generate much greater quantities of data, it was only with the rise of social media that billions of people started to add to the general pool of data, typically by sharing status updates and images, particularly on their smartphones. With the gradual but implacable rise of the internet of things (Acharjya & Geetha, 2017), with its smart homes and smart cities, we can expect to see a much higher volume of data appearing very shortly (Gantz & Reinsel, 2012. *ibid*). *Variety* stands out. Given that big data (Leskovec, Rajaraman, & Ullman, 2014) is so enormous, it should be no surprise that they are also, and inevitably, hugely varied. Indeed, a part of what makes a simple data big is their astonishing variety. Social media and other Internet activities, such as online shopping, mean that most of us leave massive data trails behind us every day in our lives, and these footprints are all different types of data. This aspect contributes to the fear of unintended manipulation for political or economic purposes. (Zuboff, 2015).

To process such vast quantities of variable big data, they use Artificial Intelligence, simply because no human would be capable of processing such big data with the quick turnover modern business requires (Helbing et al., 2018).

Velocity is the next most important attribute. Velocity is becoming ever more essential in our 21st Century society and is unquestionably one of the defining features of any useful as opposed to useless big data. While volume and variety define big data,

velocity defines a useful feature of big data to the point where we can characterize big data without velocity as useless.

Veracity is a critical attribute of Big Data. Big data without veracity are, like big data without velocity, truly worse than no big data at all, because the damage they can do when they contain rogue data greatly outweighs any advantage they may offer (Cappa, Oriani, Peruffo, & McCarthy, 2020). If the data does not have veracity, they may be misinformed.

8.3 5G, *Manufacture 2025* (Cheung Kong Graduate School of Business, 2020), and *Techno-nationalism*

5G, the fifth generation of digital mobile technology, is at the forefront of the transition to the next generation of mobile digital communication services for both the private sector and public services, including governmental organizations. This transition is spearheaded by major players in the leading countries also known as Big Techs⁸. The coverage and digital applications of 5G are ubiquitous and have reached the depths of private and public lives and organizations. *Manufacture 2025*, as China's official drive, has ignited international tension arising from the fear of domination coming from possible digital techno-nationalism and additional concerns about national security domains of major competing nations in the geo-strategic rivalry.

The article 14 of China's *National Intelligence Law*⁹ requires that all the information in the hands of citizens or organizations are subject to compulsory reporting on government's request. This legal framework intensifies the fear of techno-nationalism. The so-called Fourth Industrial Revolution is happening on the 5G platform, including in the fields of cloud computing, Internet of Things (IoT), biochips, 3D printing, robotics, and blockchain.

9: Risk Management as a new emergent discipline

9.1 Digital Big Techs, Conditionality of Reality, and Strategic Risk Management Enterprise, National and Global Levels

Digital big tech, as discussed thus far, has evolved into the conditionality of reality from the intrinsic nature of digitality, multilayered markets, and macro conditions within evolving governance frameworks. A strategic understanding of reality and outlooks should be reexamined at multiple levels. Risks (Hopkin, 2012), when perceived, identified, or arising, need to be managed proactively and systematically.

⁸ Big Techs in the US and China refer to FAAMG or FAANG (Facebook, Amazon, Alphabet, Microsoft, Netflix & Google) and BATX (Baidu, Alibaba, Tencent and Xiaomi, and, sometimes including, Huawei)

⁹ China's *National Intelligence Law*: Article 14: *National intelligence work institutions, when carrying out intelligence work according to laws, may ask relevant institutions, organizations and citizens to provide necessary support, assistance and cooperation.*: <https://qz.com/1016531/what-you-need-to-know-about-chinas-intelligence-law-that-takes-effect-today/> : retrieved Jan. 2021.

Neglect or non-action would entail unacceptable opportunity costs. Such strategic risk management can best occur at the enterprise, national, and global levels. Given the conditionality of reality, risks arguably constitute the basic attributes of reality, not as exceptions. Beyond a descriptive understanding of strategic risks as fundamental attributes, some prescriptive examples of risk management applicable to enterprise, national, and global levels are explored and discussed below.

9.2 Risk Management: enterprise risk management (ERM)

Enterprises use and rely heavily on digital technologies, much more so in the case of big tech. The benefits are great, diverse, and well-known. On the other hand, risks are diverse but are often less well known. Unless risks are understood and managed, they would result in uncertain outcomes.

The areas of risk management are often difficult to identify but ubiquitous in common enterprise activities such as project management, clinical medicine, energy management, financial services, and ICT services.

Commonly practiced enterprise risk management or *ERM* (Airmic, Alarm, and IRM, 2010) can be a good starting point for the lack of any better alternatives. Digital tech firms are at their own forefront of unique risk management, such as is applied to political misinformation as exemplified by Twitter's '*civic integrity policy*' (Twitter, 2020). ISO 31000 (2018) is a family of standards related to risk management codified by the International Organization for Standardization. It provides principles and generic guidelines for managing the risks faced by organizations.

9.3 Risk Management: National and Global

Risks have arisen on national and global fronts in diverse and serious ways for *big tech* to the point of threatening survival for some, making imperative strategic responses and prudent management. Anti-monopoly scrutiny has been on the Congressional agenda in the U.S. for some time due to fears that big tech services have been used as political misinformation tools, especially in national election campaigns, employed by both domestic and foreign parties (Washington Post, 2020). If found accountable for negative impacts on national or public interests, *Big Techs* may face dire consequences such as the break-up of companies and other measures under anti-monopoly laws and other legislation, such as the Sarbanes-Oxley Act of 2002.

In the case of foreign firms suspected of ulterior motivation-threatening harms such as disguised commercial arms for foreign political interests, consequences can be more serious, including de-listing from capital markets, de-licensing of business permits, and negation of entry visas (U.S. Department of Commerce, 2020). Ambitious powers are feared to seek spheres of influence for four basic reasons (Brands, 2021), namely, *protection* (as a strategic buffer against rivals), *projection* (as a secure base from which to exert global influence), *profit* (as a way of extracting resources, accessing markets, and harnessing smaller economies to its own), and *prestige* (as a symbol of status vis-à-vis lesser powers and major powers alike).

Such fears have given rise to strong countermeasures and public justification. Hence, if you were responsible for charting your firm's strategy operating in such circumstances, you would need to proceed with a sound sense of reality and strategic understanding of accountability and consequences on multiple layers of circumstantial domains. Sound understanding of the current legal and legislative frameworks for risk awareness and management such as of '*strategies for efficient SOX 404 assessment*' (U.S. The Securities and Exchange Commission (2020)) is an obligatory practice.

9.4 Voluntary Restraints as Strategies

At the insistence of the United States, in 1986, Japan agreed to limit its exports of semiconductors, mainly the "*dynamic random-access memory*" (DRAM) chips, to the American market. These chips are used in high-demand consumer electronics and computer applications. Through this prior arrangement, both countries avoided trade wars and firms continued business with adjusted trade volumes (Kaufman, 1994). This measure can be construed as a successful strategy of voluntary, perceived, and executed restraint on multiple levels of the iceberg of reality. Both nations accepted such voluntary export restraints (VER) as serving the mutual interests of US consumer welfare, firm profits, and forgone tariff revenue from its initiation through 1990.

9.5 Involuntary Restraints as strategies: 'Comecon 2.0', 'Entity Listing, ' and 'Rule of Power.'

*The Council for Mutual Economic Assistance (Comecon)*¹⁰ was an economic organization from 1949 to 1991 under the hegemonic leadership of the Soviet Union that comprised the countries of the Eastern Bloc along with other socialist states in the world. Those countries in free-market economies exercised *involuntary restraints* as an adoptable strategy when they traded with Comecon nations through prior export or import licensing or voluntary reporting of their trades to their own state authorities. Through such prior caution, one can help avoid penalties for non-compliance.

In any attempt to trade with the so-called *rule of power* countries, strategists can consider exercising involuntary restraints, or Comecon 2.0 strategy, as the *modus operandi* remains largely the same. Some authorities maintain open guidelines, whereas others inform applications.

The US Department of Commerce carries on its website the *entity list* ('*unreliable entities list*') (U.S. Department of Commerce, 2020). It identifies those firms and business items mostly from the '*rule of power*' countries already under active scrutiny. These are some examples of *involuntary restraint* possibility, whereby prudent strategies need to be confirmed and deployed on multiple levels, that is, those of enterprise, national, and global levels.

9.6 Treaty-based Deterrence Frameworks: Wassenaar and NDAA: Security and Defence

¹⁰ The Council for Mutual Economic Assistance

National and global treaty-based institutional deterrence frameworks are in force for the selection of security and defence-related products and services or designated as *dual-purpose* items, that is, both for civilian and defense uses. The Wassenaar arrangement (Wassenaar Arrangement, 2021) or the Wassenaar Arrangement on export controls for conventional arms and dual-use goods and technologies lists 42 participating states as a multilateral export control regime (MECR) that includes many former Comecon (Warsaw Pact) countries. Regional and international transparency and responsibility are aimed at transferring conventional arms and dual-use goods and technologies, thus preventing destabilizing accumulations. Likewise, the National Defense Authorization Act (NDAA), as a series of US federal laws, also specifies firms and items under scrutiny.

High visibility is given to some cases of sensitive digital technologies under the arms of *big techs* such as¹¹:

- 2018: semiconductors: JHICC¹² and others
- 2019: 5G: Huawei and its 68 subsidiaries
- 2019: Supercomputers: Sugon, Higon, etc.
- 2020: AI: Hikvision¹³ and others
- 2020: internet security: Qihoo 360

10. Conclusion

The preceding section has been an exploratory critical evaluation of international business, with emphasis on the cases of global big tech. New emergent determinants are political economy, global value chains, and governance under uncertainties, as exemplified in *Cold War 2.0*. New governance is divided between the camps upholding *rule of law* and *rule by law*. Business, industry, and trade are increasingly becoming the instruments of statecraft, whereas the global governance system is also being reshaped. An iceberg of multilayered reality indicates that international business cross-disciplinary understanding and business strategies are essential for business survival and success. Some examples of insightful scholarship have been examined to better understand the change in intentional business scholarship and practices. *Big technologies*, as cases, have their own unique divergent business models as industry and societal infrastructure. They are also becoming potent political tools, whereby sovereignty over digital power challenges both the business and public interests. Increasing vulnerability and uncertainties make *risk management* a critical new emergent discipline, and examples have been discussed.

Global businesses can no longer assume that they can enjoy environments of peace, cooperation, and competition. Nor can they expect transparent governance under *rule of law*. The decoupling of leading economies such as the US and China can proceed further, with divergent political allies undergoing devolution into two distinct spheres.

¹¹ Prof. Kim, Jeong-Ho of Sogang University Korea listed summary: <https://www.youtube.com/watch?v=mWrjJL-0k-Q>, viewed Jan.2021.

¹² Fujian Jinhua Integrated Circuit Co. Ltd. or JHICC

¹³ Global leader in *facial recognition* and tools for social crediting system

Large or small international businesses may have to develop different international value chain networks, technical infrastructures, and other supporting business ecosystems to maintain effective competitive advantages.

International business scholarship and practices can benefit from survival and profitability through the understanding and application of social sciences such as political science, sociology, history, and philosophy. Statist economic players are from divergent political systems, such as 'one party systems,' alternative societal norms such as 'collectivist behaviors' which are deeply embedded in history, such as colonial humiliation in the past and/or other philosophical traditions such as Confucianism.

This study examined the multi-layers of emerging reality and concluded that the shift in governance necessitates trans-disciplinary assessment to critically understand these developments in the interest of international business scholarship and practices better aligned with such emergent realities.

11. Limitations

This exploratory study had several limitations. Examples quoted as cases are mostly secondary sources and limited in numbers. The major economies of the US, the EU, and China are not at all monolithic in their internal mix of thoughts and policy support with great divergence, in need of further articulation. Overarching themes have been discussed with the support of some examples, but the literature and evidence remain vastly unexplored.

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Track 3: Operations, Supply Chains & Logistics

[ID:4]

A Gravity Model for Analyzing African Nation's Trade with India

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ABSTRACT

Among the escalating trade tensions and protectionism, it is interesting to observe the growing South - South trade, specifically between India and African countries. Bilateral trade between India and African countries registered a significant increase from \$7.2 billion in 2001 to \$62.66 billion in 2017 (48% CAGR). Share of India in total African trade has risen from 2.7% in 2001 to 6.4% in 2017. This study attempts to analyze trade linkages between India and African countries using Gravity Model of trade. Certain policy initiatives by India has benefitted import from African countries. India has bilateral investment treaties with 13 African countries and has FTAs with 19 African countries. Through a very parsimonious model, we show that these PTAs have resulted in higher trade volumes than the countries without any such integration. Additionally, India shares deep social, cultural, economic, and colonial past based relations with Africa dating back to centuries, which were found to be significant factors affecting trade volumes between India and African countries. The Gravity model suggests that actual trade between the African nations and India shall be much higher than it is at present. Therefore, we conclude a huge untapped trade potential.

Keywords

India, Africa, Bilateral Trade, Free Trade Agreements, Ex-Colonies, Gravity Model

[ID:10]

Unshackling Labor in Corporate Supply Chains

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Trafficking in human beings for the purpose of labor exploitation has been increasing seen as a pressing policy issue impacting global trade around the world. The landmark adoption of Palermo Protocol offered the three Ps: Prevention, Protection, and Prosecution. Subsequently, a fourth P—Partnership—was added to this paradigm, in order to reflect the multidisciplinary nature of the issue (Council of the European Union, 2009). We posit that these four Ps focus on desired end states of anti- trafficking initiatives without offering much guidance as to how arrive there. The contribution of this paper is to augment the existing anti-trafficking of labor paradigm by proposing additional factors to reach those end states, and discuss tools and implications for global supply chain practitioners.

Keywords: sustainability, transparency, global supply chain, labor abuse, labor trafficking

[ID:83]

Impact of Education on Green Fintech Adoption in a Smart City: Evidence from the Newly Developed Sub-city Center of Beijing

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Abstract

Integrating financial technologies with green initiatives is critical to the sustainable development agenda. This is particularly true for newly developed smart cities like Tongzhou, the sub-city center of Beijing. To assess the adoption of green fintech in Tongzhou, this paper extends the Energy-Augmented Technology Acceptance Model (EA-TAM) to incorporate two green factors – environmental awareness and green knowledge. This paper applies structural equation modeling techniques to analyze data from 403 respondents who live, work, or study in Tongzhou and finds all hypothesized constructs significant. Since green knowledge is significant to the adoption of green fintech, this paper further divides the sample into a high-education group (162 respondents with university-or-above degrees) and a low-education group (251 respondents with post-secondary-or-lower degrees) to evaluate the impact of education. All the hypothesized factors are significant to the high-education group, but environmental awareness and perceived usefulness are insignificant to the low-education group. Hence, the results provide evidence that people in the newly developed smart city adopt green fintech due to their environmental sensitivity. The adoption of green fintech is more environmentally sensitive for people with high education levels.

Key Words: EA-TAM, economic development, financial technology, fintech, green consumption, green products, technology acceptance.

[ID:114]

Understanding Supply Chain Resilience Through Social Capital

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Abstract

This study aims to investigate network structure and the social capital it may nurture in building supply chain resilience. Specifically, this study explores how different dimensions of social capital facilitate the three major components of supply chain resilience: agility, adaptability, and alignment. A multiple case study approach has been adopted to investigate the role of network structure and social capital in facilitating supply chain resilience within food supply chains of two different South Asian regions. This context was selected as these regions are prone to regular natural disruptions, and these food supply chains also play a crucial role in the humanitarian relief process. Data suggests that social capital and the network structure play a key role in facilitating supply chain resilience against the vulnerabilities originating from natural disasters. This study provides the theoretical and practical insights that have been developed in social capital and network structure disciplines and their positive contribution to food supply chain resilience.

Keywords – Supply chain resilience, Social Capital, Network Structure, Vulnerabilities

[ID:117]

Strategies for managing supply chain management information systems in South African municipalities.

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Abstract

An important and unique framework for driving the implementation of government programs is supply chain management. It was announced by the South African government in 2003 that to achieve the objectives of ethics, fairness, cost-effectiveness, equity, and transparency while facilitating service delivery to communities, significant changes needed to be made to people, processes, and procurement management frameworks to ensure compliance with SCM processes, especially SCM rules and policies. Furthermore, municipalities were required to evaluate their supply chain management systems and procedures to comply with the Treasury's stringent requirements. In this study, a framework for managing supply chain management information systems in South African municipalities was developed. An approach based on mixed methods was applied. For quantitative data collection, structured questionnaires were distributed using the random sampling method which covered supply chain management, procurement, finance, and information technology departments. Microsoft Excel and SPSS were utilized. The research discovered that there were good supply chain practices in the municipalities. It was established that municipalities had good supply chain management systems and practices and excellent strategies for managing information systems. Furthermore, municipal supply chain management practices and strategies for managing information systems were found to be positively correlated. Semi-structured interviews were conducted with 12 senior managers to gauge their understanding. Data was analyzed using Nvivo Pro 12. Grounded theory, open, axial, and advanced coding were applied. Data analysis identified five main themes. According to the findings, supply chain management training for employees and compliance with legislative regulations are critical.

Key Words: South African municipalities, Supply chain management, Supply chain management practices, Supply chain management information systems, Strategies for managing information systems.

Introduction and background

As a critical component of the current commerce environment, supply chain management plays an essential role in all major areas (Agus & Shukri Hajinoor, 2012, p. 92). Supply chain administration has of late been broadly acknowledged due to expanding client demands for quality, conveyance, and speed (Arlbjørn, Freytag, & De Haas, 2012, p. 279). Lower costs

together with greater provider autonomy and an intensified move towards supplier-customer connectivity have accelerated supply chain alignment. Therefore, the esteem for SCM is raised by interfacing and planning items, prerequisites, and communications that satisfy clients productively and compellingly.

According to the National Treasury (2005), in 2003, the SCM received information about deficiencies in the municipal procurement process (the bid fee system as above). The public sector in South Africa has transformed its procurement system to facilitate good governance standards and the implementation of lean structures to achieve social and economic objectives (Ngobeni, 2012, p. 29).

The supply chain management information system (SCMIS) is a framework for interatomic computing and produces information and information software functions for technical support, models, management research, and administrative tasks in the company (Tarokh & Soroor, 2016, p. 452). According to the National Treasury (2016b), supply chain management in South Africa's public sector is fragmented. Persistent complaints of deterioration, inefficiency, and challenges in service delivery indicate that people do not seem to benefit from basic management. Financial and smart supply chain administration frameworks will offer assistance with these issues within the metropolitan division.

As reported by the National Treasury (2016b), there are known issues with SCM processes, policies, and systems from 2018/19 due to non-compliance. To improve control environments in supply chains, it is necessary to conduct a gap analysis, identify weaknesses, and provide recommendations for improvement by analysing relevant practices, policies, procedures, and information regarding the management of the environment within supply chains within the sector.

Conceptual model

A literature review provided the basis for the conceptual framework illustrated in Figure 1. As a predictor variable, supply chain management is identified, as are supply chain management practices and information systems, as mediating variables, and as an outcome variable, supply chain management information systems are identified.

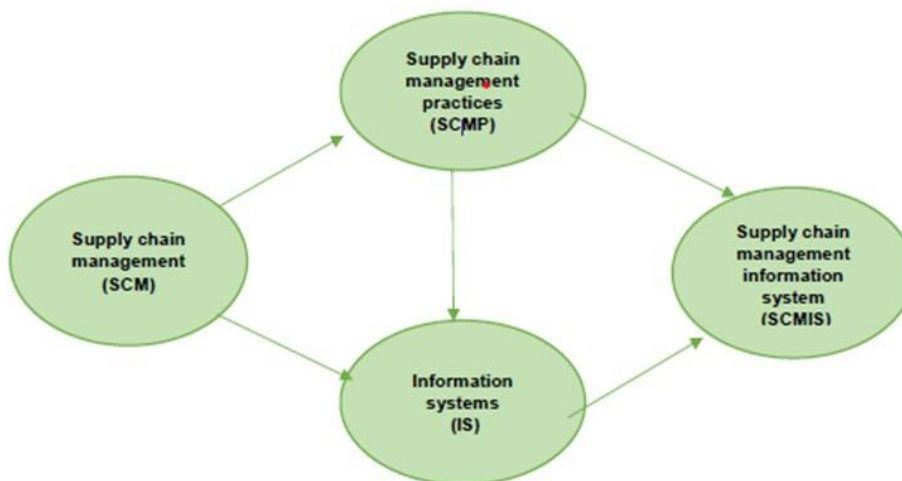
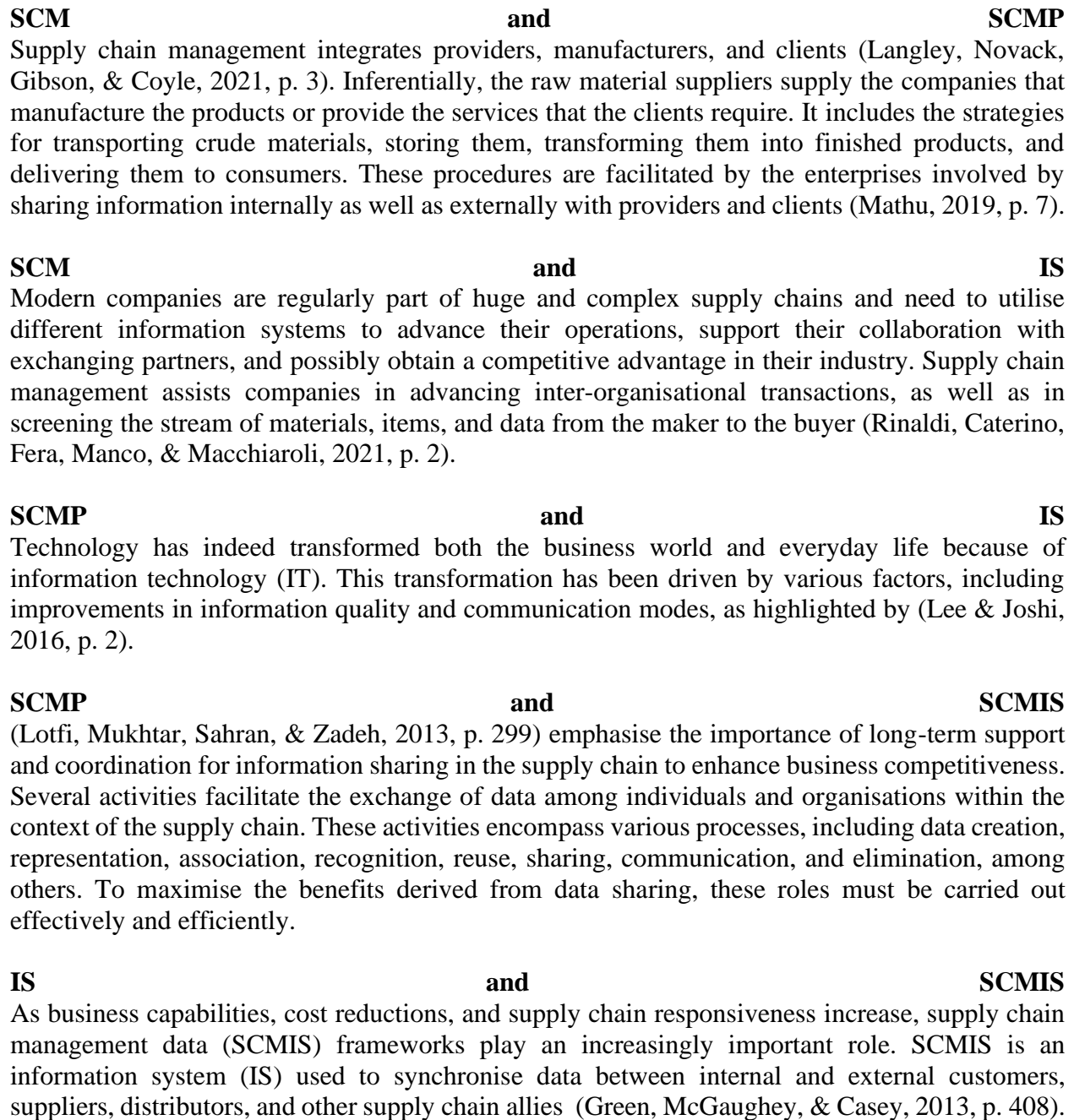


Figure 1: Conceptual framework



Problem Statement

The problem addressed in this study revolves around the absence of a structured framework for assessing the effectiveness of campaigns that result from mobilization methods, such as facades, and nine cities (32%) have no monitoring and evaluation regulations. There are inadequate IT frameworks, insufficient implementation of user access and IT security policies and procedures

(44%), uncertainty and a lack of transparency in the IT environment as well as inadequately managed IT service level agreements with IT service providers. Finally, nine cities (36%) have public auditors who lack qualified staff and their disaster preparedness plans either do not exist or have not been approved (Auditor-General, 2019). National Treasury and the Department of Trade and Industry jointly maintain a unified national supplier database. Many municipalities also have databases that do not match automatically (National Treasury, 2016b).

Research objectives

This paper aims to fulfil the following objectives:

- To identify supply chain management practices in South African municipalities.
- To identify the strategies for managing information systems in South African municipalities.
- To determine the relationship between municipality supply chain management practices and the strategies for managing information systems.
- To make recommendations to South African municipalities based on the research findings.

Literature Review

Supply chain management

The term Supply Chain Management (SCM) has been around for over 30 years and first appeared in the literature in 1982 (Ellaram & Cooper, 2014, p. 8). This usually refers to the provision of materials in the manufacture of goods. For supply chain management to be viable and professional, it must be viewed as a strategic corporate function that contributes to the achievement of a company's strategic goals and policy outcomes.

A supply chain is an organization's system for moving materials and data between its manufacturing and service capacities (Jacobs & Chase 2018, p. 351). The Worldwide Center for Competitive Excellence defined SCM in 1994 as the integration of commercial procedures from end-users to unique providers that provide products, services, and data that add value to customers (Ata, 2015, p. 355). Supply chain management integrates providers, manufacturers, and clients (Langley et al., 2021, p. 3).

It is undeniable that supply chain management is an integral part of both the private and public sectors. However, the private sector is revenue-driven, whereas the public sector is committed to providing quality services to society; they share the same objective of providing quality goods and services at a reasonable cost, which directly results in corporate profit (Matolong, 2015, p. 9).

Supply chain management practices

Ambe (2016, p. 21) looks at supply chain management practices from an urban South African perspective. The previous network failed nationwide due to inadequacies, errors in investigation results, enforcement of acquisition rules, and jurisdiction. The study highlights the position, problems, and implementation of SCM in the civilian environment. Green et al. (2013, p. 408) argue that it is acknowledged that SCM has firm-level penalties, and therefore, it is essential to measure the result of SCMPs on firm performance. Li, Ragu-Nathan, Ragu-Nathan, and Subba

Rao (2006, p. 108) note that SCMP incorporates provider collaboration, client correlation, and data exchange.

Li, Ragu-Nathan, Ragu-Nathan, and Rao (2005, p. 619) established and authenticated a measurement tool for reviewing SCMPs with six dimensions, namely: strategic supplier partnership, customer relationship, information systems, information quality, internal lean practices, and postponement. According to Singh, Sandhu, Metri, and Kaur (2010, p. 174), supply chain practices can be characterized as the use of technology, supply chain speediness, client fulfillment, supply chain incorporation, and register administration, which have an impact on the performance of an organization. Chow et al. (2008, p. 665) list SCMPs as client and provider supervision, supply chain structures, communication, and speediness, data structures, incorporation and client service administration, quality and service, dissemination, and design effectiveness.

Supply chain management information systems

Information systems serve as accurate and dependable sources of data to support resolution-making and data stream control. The role of information systems (IS) in supply chain management has been broadly examined. The contention is that it is impossible to attain a compelling supply chain without information technology (IT) since it is the backbone of supply chain management. Additionally, information systems have been recognized as key to accomplishing natural maintainability. IS can be an enabler of sustainable processes, services, and products. The data capabilities of an information system help improve communication and sharing of information among different parts of it (Dubey et al., 2017, p. 1120).

Information technology is vital for an effective and responsive supply chain (Shi & Chan, 2015, p. 3). The supply chain providers, companies, and clients are connected by data, material, and capital streams (Hofmann, 2013). Furthermore, Hofmann (2013, p. 212) describes information as the adhesive that permits supply chain drivers to work in conjunction to achieve an incorporated, synchronized supply chain. Information facilitates supply chain responsiveness to requests and it is a vital enabler of effective supply chain management, according to Mangan et al. and Simchi-Levi et al. cited by Hofmann (2013, p. 213). Chopra & Meindl cited by Hofmann (2013, p. 213) regard information as potentially the major driver of performance within the supply chain and state that it affords the base on which supply chain procedures are executed and executives make informed choices.

Benefits of Supply Chain Management Information Systems

SCMIS delivers great quality, pertinent, and appropriate information flow that effectively wires decision-making for inventory renewal, volume enhancement, and synchronizing material flows at all levels in the supply (Soroor, Tarokh, & Keshtgary, 2016, p. 6544). Additionally, its qualities, consistency, and responsiveness to the current SCM procedures prevent supply chain actions from being hard to execute. Developing and implementing SCMIS without being affected by the high related costs, requires increasing SCM performance and facilitating all the procedures essential to flawlessly achieve supply network tasks (Soroor et al., 2016, p. 6544).

Challenges of Supply Chain Management Information Systems

In technology, the main difficulty in the manufacturing sector is the management of product recalls (Hora, Bapuji, & Roth, 2011, p. 766). Product recalls can influence a firm's reputation, sales, and financial value. Some factors affect recall pronouncements, as well as the recall strategy (either proactive or reactive), the type of flaw, and the proximity of the recalling company to consumers (Hora et al., 2011, p. 766; Maruchek, Greis, Mena, & Cai, 2011, p. 708).

Soroor et al. (2016, p. 6545) found that SCMIS was unsuccessful if any of the following circumstances prevailed:

- The entire system does not function as anticipated, and its total execution is sub-optimal.
- It does not function as initially anticipated or it is found to be user-hostile.
- The cost of the growth surpasses any benefits the system may bring during its viable life.
- There are difficulties with the intricacy of the system or the managing of the project.

Strategies for managing supply chain information systems

According to Sadraoui and Mchirgui (2014, p. 60), a company's strategy must be aligned with information technology for accomplishing the optimisation of supply chain management; businesses rely on the strategic relationship with their clients and providers for making esteem frameworks that will convey a competitive advantage within the market. This necessitates actual automation of business procedures among business associates utilising a diversity of data systems in the corporation as well as between supply chain associates and the organisation. Organisations have to integrate their information systems with those of their suppliers and customers for them to receive notifications of activities (Sadraoui & Mchirgui, 2014, p. 61).

To improve supply chain activities, information systems need to be enabled by growing productivity, rationalising materials flow across the supply chain, and managing information and variables (Sadraoui & Mchirgui, 2014, p. 61). The supply chain management system is a data system that automates the stream of data among a firm and its providers to enhance the planning, sourcing, manufacturing, and delivery of products and services (Laudon & Laudon, 2018, p. 77). According to Laudon and Laudon (2018, p. 78), management information systems are a precise category of data systems providing reports on organizational performance to assist middle management in monitoring and managing the corporation.

The relationship between municipality supply chain management practices and strategies for managing supply chain information systems.

Bizana, Naude, and Ambe (2015, p. 664) state that "in section 76(4) (C) of the Public Finance Management Act (PFMA) and the Preferential Procurement Policy Framework Act (No. 5 of 2000) (PPPFA), the procurement reform processes are embedded". In 2001, the National Treasury's supply chain management division concluded a combined Country Procurement Assessment Review (CPAR) with the World Bank to assess procurement practices in the public sector and introduce reforms. Certain deficiencies in practices related to governance, clarification, and execution of the PPPFA and its associated regulations were identified by the CPAR (Van Zyl, 2006).

Bizana et al. (2015, p. 664) refer to "the following challenges impacting the quality of services by the municipalities and including insufficient specifications, inadequate internal controls,

prejudiced irregular practices, and the problematic nature of documents and their submission”:

- Inadequate specifications: inadequate specifications because of the inadequate quality of specifications received.
- Inadequate internal controls: misrepresentation because some service providers distort their historically disadvantaged individual (HDI) status to secure a contract; manipulation of the successful bid by covering the quoting and presenting tenders to government officials.
- Prejudiced uneven practices: divulging of confidential information on prices to manipulate the system; questionable objectivity of bid evaluation committee members who sometimes agree to matters that should be interrogated and confronted; tampering with supplier submissions because a bidder submitting uncompleted documents will be ineligible.
- Challenging document submission: incomplete documents because of the difficulty in understanding tender documents; late submission of bids because these cannot be accepted.

Research Methodology

The research objective of this study was the development of a framework for managing the SCM information systems in South African municipalities, which lent itself to exploratory research. Therefore, the research question of this study was consistent with qualitative research methods (Ugur, 2020, p. 19). The study adopted a quantitative and qualitative approach, collecting data with predefined tools that provided statistical data. Additionally, the advantage of qualitative interpretation is that the results provide greater reliability and realism, and the method allows researchers to develop a detailed understanding of concepts and issues. The questionnaire used the five-point Likert scale responses. The items of the instrument were also tested for reliability and all the items under review had Cronbach Alpha values above 0.07 which indicate high levelsof consistency. Reliability was established using measures of Cronbach’s alpha instrument including all the items above 0.07.

For quantitative data collection, the Raosoft sample size calculator was used to determine the recommended sample size for the study, which was 184. For qualitative data collection Guest, Bunce, and Johnson (2006, p. 60) suggest that a sample size of 12 is adequate to ensuresaturation of individual or group inquiries in qualitative research. In terms of methodology, both the qualitative and quantitative approaches were used to elicit data during the processing and analysis phase. Each. Thus, the generalization of the findings is based on the data collected only from respondents who participated. The research targeted employees from supply chain management, procurement, finance, and information technology. Participation patterns were either poor or characterized by reluctance to participate or lack of participation due to the communication gap about the survey. Most respondents were not aware of the survey and therefore lacked willingness to participate whilst some refused to participate on the grounds of not having enough information about the survey and its objectives. This situation impacted negatively on the respondent targets of the survey. Another issue was the poor participation ofthe senior management within the organization and the time frame allocated to complete the questionnaire seemed hard to other participants.

Results and Findings

The study set out to develop a framework for managing the SCM information systems in South African municipalities. The proposed framework aimed to assist city managers in understanding the factors that influence supply chain management information systems and carry out the

mandate of the authorities to provide excellent services to society. Quantitative and qualitative data were collected through an online survey strategy. The study was conducted in the context of South African municipalities, including metropolitan and local municipalities. The population of the study comprised management/senior managers, operational staff/practitioners, and specialists within the SCM and Information Technology (IT) departments. The results are presented in part A and the findings in part B.

Part A Quantitative

The results of the research are presented in this section. Most of the respondents were female (n=100) and accounted for 64%, and the male respondents (n=100) came to 36%. The respondents between the ages of 30-39 were in the majority (46%) and those between 40-49 years accounted for 35% and those between 20-29 years accounted for 15% and those between 50-59 years old (4%) were in the minority. The majority of responders (55%) were from the metropolitan municipality, while the minority (45%) were from the local municipality. The majority of respondents (39%) were still in their early years at the municipality (between 5 and 10 years), with 36% having less than 5 years' experience, 23% having 11 to 15 years' experience, and only 2% having been at the municipality for 16 to 20 years. 41% of respondents held national certificates or diplomas with NQF 6, while 25% held bachelor's degrees, advanced diplomas, or B-Tech with NQF 7. Furthermore, 13% had N6 certificates with NQF 5, 12% had grade 12 or matric certificates with NQF 4, 7% had honours degrees or post-graduate diplomas with NQF 8, and only 2% had a master's degree. 50% were specialists, 48% were operational workers, and only 2% were managers. 41% were from the Supply Chain department, while 28% were from the Procurement department. The findings also show that 25% of respondents were from the Information Technology department, 5% from Finance, and 1% from the Internal Audit department. The demographics of the respondents are indicated below in Figure 2.

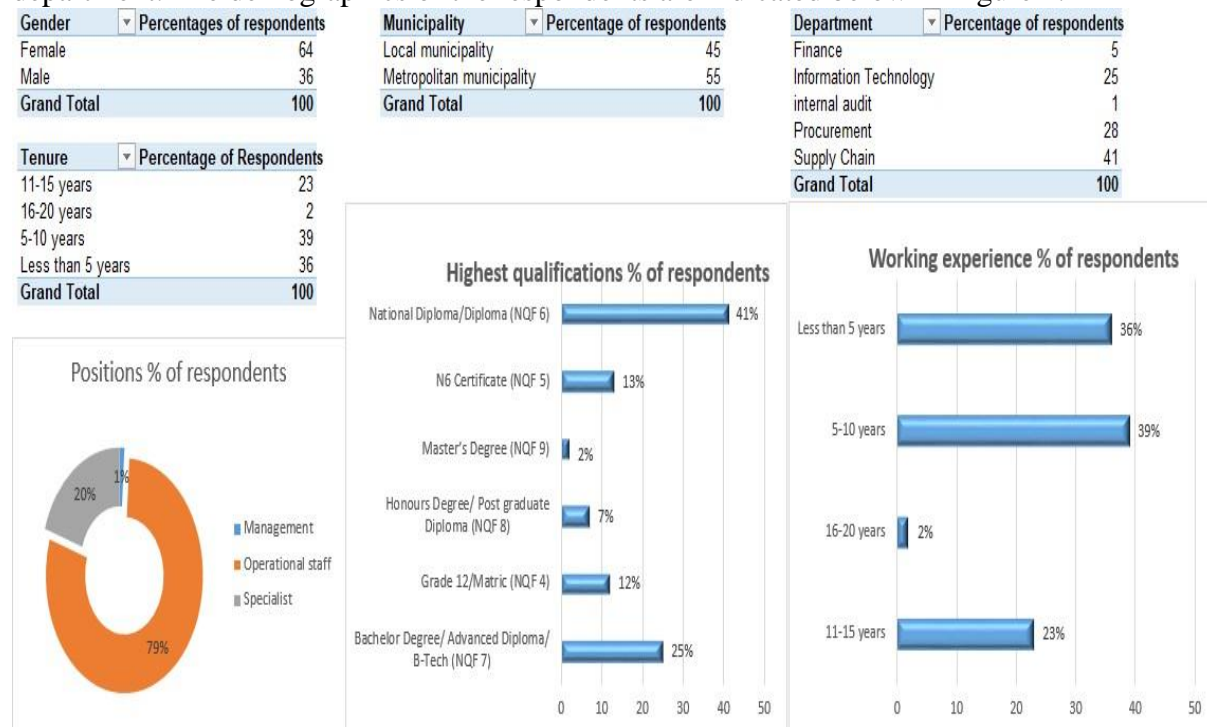


Figure 2: Demographics

Discussion of the results

Presentation of respondents' perceptions regarding the supply chain practices: strategic supplier partnership, customer relationship, information sharing, technical strategy, and people-focused strategy.

Supply chain practices: Strategic supplier partnership

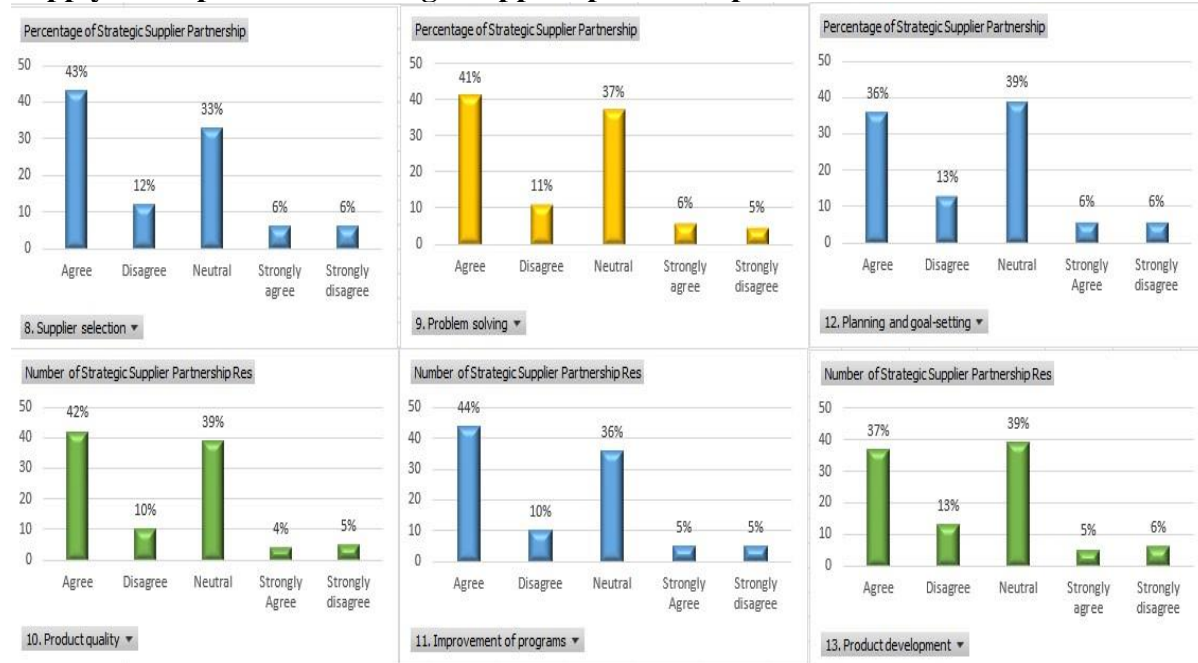


Figure 3: Strategic supplier partnership dashboard

Respondents' perceptions of whether the municipality considered quality to be the most important consideration in selecting suppliers; 43% agreed, while 33% were neutral to the assertion. In contrast, 12% of respondents disagreed, 6% strongly disagreed, and 6% strongly agreed with the notion that the municipality prioritized quality when selecting suppliers.

The response of respondents on whether the municipality usually handled problems jointly with customers; 41% agreed, while 37% were neutral on whether the municipality regularly solved problems jointly with suppliers. This remark was disagreed by 11% of respondents, with 6% strongly disagreeing. Only 5% strongly disagreed that the municipality managed difficulties together with suppliers regularly.

Respondents' perceptions of how the municipality helped suppliers improve their product quality; 42% agreed that the municipality helped suppliers improve their product quality, while 39% were neutral to the assertion. Furthermore, only 4% of respondents agreed with the assertion, while 10% disagreed, 5% strongly disagreed, and 4% strongly agreed that the municipality had assisted suppliers in improving product quality.

The respondents' impressions of whether the municipality had continuous improvement programs that involved important suppliers; 41% agreed that the municipality had continuous

improvement programs, while 37% were neutral and 11% disagreed. Furthermore, 6% strongly agreed with the assertion, while just 5% strongly disagreed.

Respondents' assessment of whether the municipality involved important suppliers in planning and goal-setting processes. 36% of respondents agreed that the municipality involved major suppliers in planning and goal-setting processes, 39% were neutral, and 13% disagreed. Furthermore, 6% of respondents strongly agreed with the statement, while 6% strongly disagreed.

The respondents' views on whether the municipality actively involved important suppliers in the creation of new products. On whether the municipality actively involved important suppliers in new product development processes, 39% were neutral, 37% agreed with the assertion, and 13% disagreed. Furthermore, 6% strongly disagreed with this remark, while just 5% strongly agreed with it.

Supply chain practices: Customer relationship

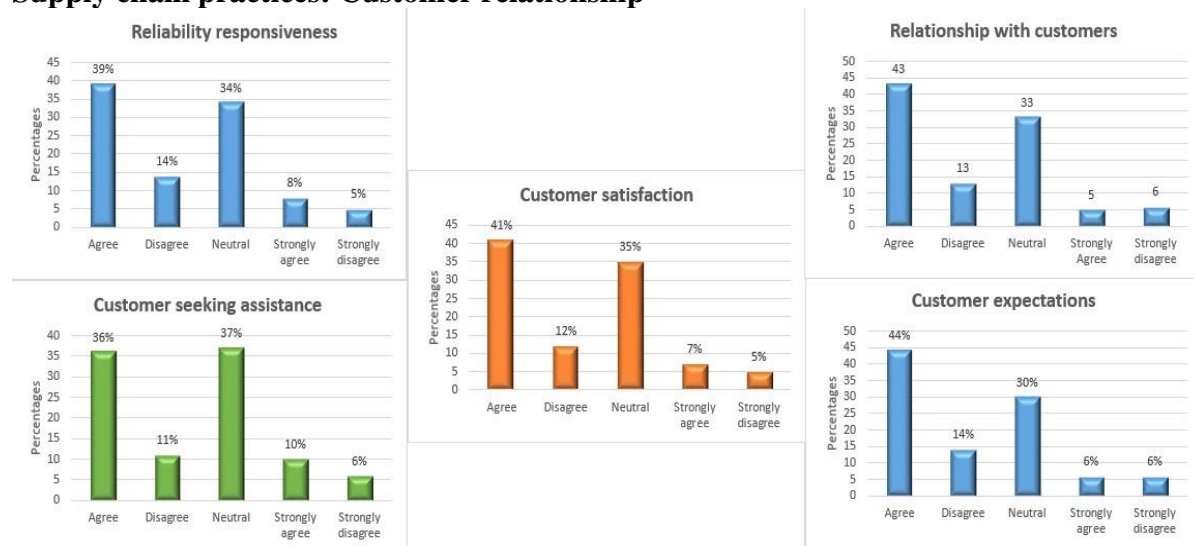


Figure 4: Customer relationship dashboard

The dashboard presents respondents' reactions to whether the municipality frequently interacted with customers to set standards such as reliability responsiveness. Of the respondents, 39% agreed that the municipality frequently interacted with customers to set standards such as reliability responsiveness, while 34% were neutral and 14% disagreed. In addition, 8% strongly disagreed and only 5% strongly agreed with this statement.

The dashboard presents respondents' reactions to whether the municipality frequently measured and evaluated customer satisfaction. Of the respondents, 41% agreed with the statement that the municipality frequently measured and evaluated customer satisfaction, while 35% of respondents were neutral, 12% disagreed with the statement and 7% strongly agreed with the statement. In addition, only 5% strongly disagreed with the statement.

The dashboard presents respondents' reactions to whether the municipality frequently determines future customer expectations. Of the respondents, 44% agreed with the statement that the

municipality frequently determined future customer expectations. While 30% of respondents were neutral, 14% disagreed, 7% strongly agreed and 5% strongly disagreed with the statement.

The dashboard presents respondents' reactions to whether the municipality facilitated customers' ability to seek assistance from its employees. Of the respondents, 36% agreed and 10% strongly agreed with the statement that the municipality facilitated customers' ability to seek assistance from its employees, while 11% disagreed, 5% strongly disagreed and 37% of respondents were neutral.

The dashboard presents respondents' reactions to whether the municipality regularly evaluated the importance of relationships with customers. Of the respondents, 43% agreed and 5% strongly agreed with the statement that the municipality regularly evaluated the importance of relationships with customers, while 13% disagreed, 6% strongly disagreed and 33% of respondents were neutral.

Supply chain practices: Information Sharing

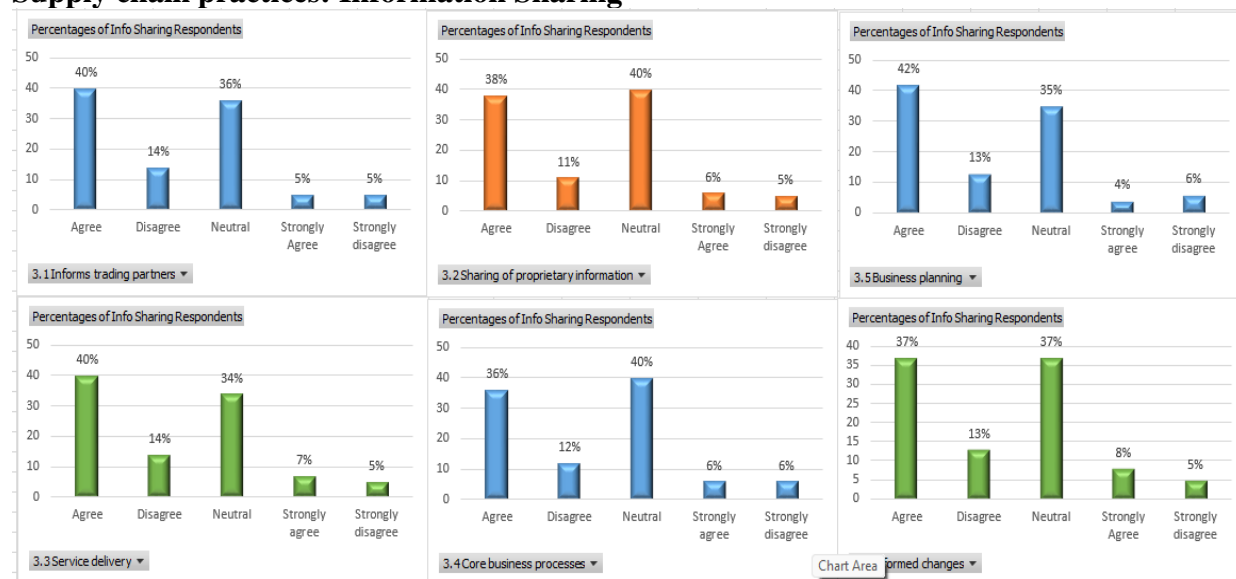


Figure 5: Information sharing dashboard

The dashboard presents the perceptions of respondents of whether trading partners were informed in advance of changing needs. Of the respondents, 40% agreed and only 5% strongly agreed that trading partners were informed in advance of changing needs, while 14% disagreed, 5% strongly disagreed and 36% of the respondents were neutral.

The dashboard presents the perceptions of respondents of whether trading partners shared proprietary information with the municipality. Of the respondents, 38% agreed and only 6% strongly agreed that trading partners shared proprietary information with the municipality, while 11% disagreed, 5% strongly disagreed and 40% of the respondents were neutral.

The dashboard presents the perceptions of respondents regarding whether the municipality informed the employees about the major concerns of service delivery. Of the respondents, 40% agreed and only 7% strongly agreed that the municipality informed the employees about the

major concerns of service delivery, while 14% disagreed, 5% strongly disagreed and 34% of the respondents were neutral.

The dashboard presents the perceptions of respondents of whether in the municipality sharing of business knowledge of core business processes was common. Of the respondents, 36% agreed and only 6% strongly agreed that sharing business knowledge of core business processes was common, while 12% disagreed, 6% strongly disagreed and 40% of the respondents were neutral.

The dashboard presents the perceptions of respondents of whether at the municipality there was an exchange of information that facilitated business planning. Of the respondents, 42% agreed and only 4% strongly agreed that at the municipality there was an exchange of information that helped with business planning, while 13% disagreed, 6% strongly disagreed and only 35% of the respondents were neutral.

Strategies for managing information systems: Technical strategy

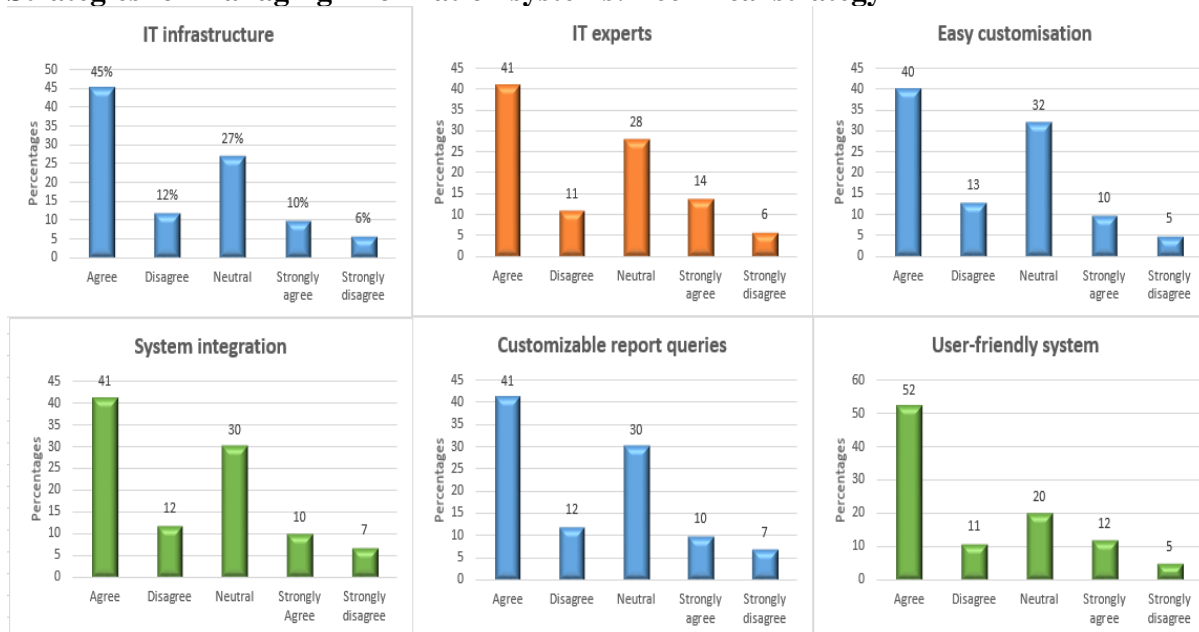


Figure 6: Technical Strategy dashboard

The dashboard presents the perceptions of respondents on whether the municipal management ensured that there was adequate IT infrastructure. Of the respondents, 45% agreed and only 10% strongly agreed that the municipality's management ensured that there was adequate IT infrastructure, while 12% disagreed, 10% strongly disagreed and 27% of the respondents were neutral.

The dashboard presents the perceptions of respondents regarding whether the municipal management ensured that the organisation had adequate IT experts to provide system support. Of the respondents, 41% agreed and only 14% strongly agreed that the municipal management ensured that the organisation had adequate IT experts to provide system support. On the other hand, 6% strongly disagreed and 11% disagreed. Only 28% were neutral.

The dashboard presents the reaction of respondents to whether the municipality's information system is integrated with other systems easily to ensure organisational synergy. Of the respondents, 41% agreed and only 10% strongly agreed that the municipality's information system integrated with other systems easily to ensure organisational synergy. However, 30% of the respondents were neutral, whereas 12% disagreed and only 7% strongly disagreed with the statement.

The dashboard depicts the perceptions of respondents regarding whether the municipality's information system had customisable report queries to meet diverse internal customer requirements. Of the respondents, 41% agreed, 10% strongly agreed and only 30% of the respondents were neutral, whereas 12% disagreed and only 7% strongly disagreed with the statement.

The dashboard shows the perceptions of respondents regarding whether the municipality's information system was easy to customise to meet the ever-changing organization's business requirements. Of the respondents, 40% agreed and 10% strongly agreed that the municipality's information system was easy to customize to meet the ever-changing organization's business requirements, while 32% were neutral and only 13% disagreed with the statement. Additionally, 5% of the respondents strongly disagreed with the statement.

The dashboard presents the perceptions of respondents of whether the municipality's information system was easy to use. Of the respondents, 52% agreed and 12% strongly agreed that the municipality's information system was easy to use. However, 20% were neutral and only 11% disagreed with the statement, whereas 5% strongly disagreed with the statement.

The dashboard shows the perceptions of respondents of whether the municipality's information system was easy to maintain. Of the respondents, 46% agreed and 12% strongly agreed that the municipality's information system was easy to maintain. However, 27% were neutral, 5% strongly disagreed and only 10% disagreed with the statement.

The dashboard presents the perceptions of respondents of whether the municipality's information system was cost-effective and efficient. Of the respondents, 36% agreed and 12% strongly agreed that the municipality's information system was cost-effective and efficient, whereas 33% were neutral, 12% disagreed with the statement and only 7% strongly disagreed with the statement.

Strategies for managing information systems: People-focused strategy

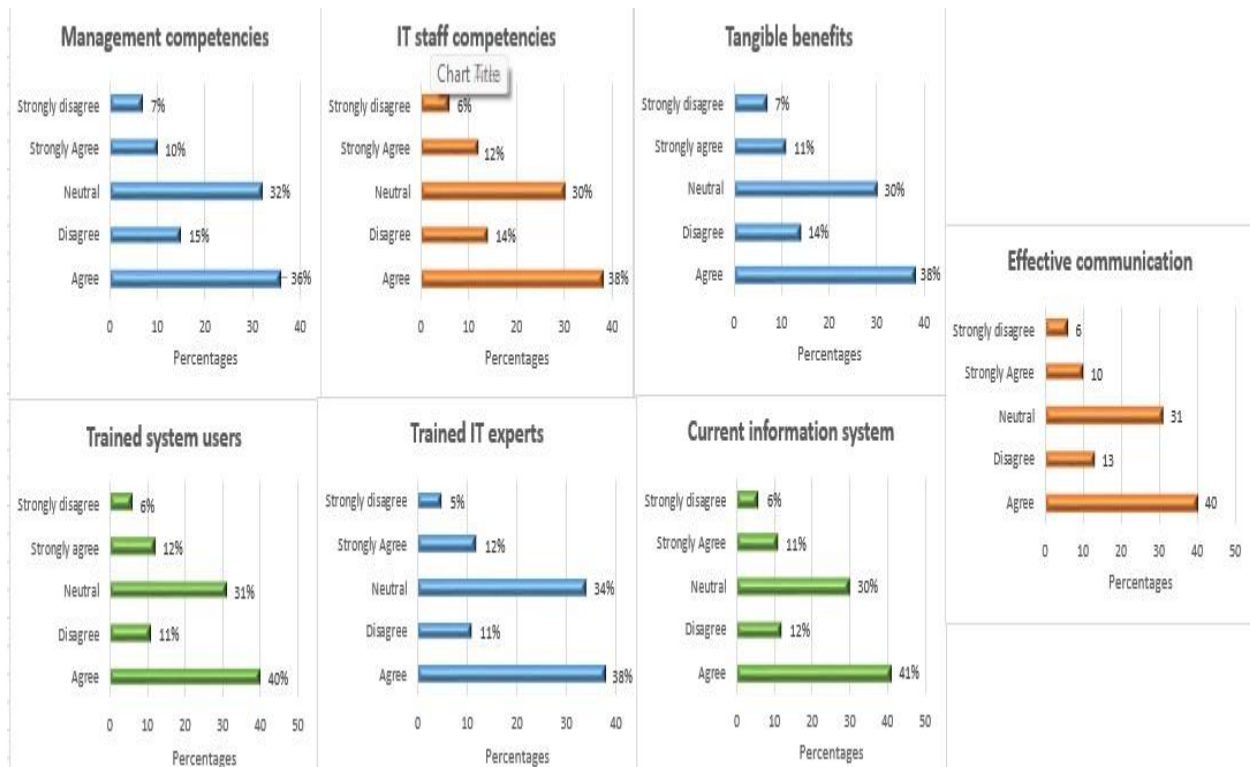


Figure 7: People-focused strategy dashboard

The dashboard presents the perceptions of respondents of whether the municipal leadership had good management competencies that were needed to build and deploy information systems to successfully meet the unique requirements of the organisation. Of the respondents, 36% agreed and 10% strongly agreed that the municipal leadership had good management competencies that were needed to build and deploy information systems to successfully meet the unique requirements of the organisation, whereas 32% were neutral, 15% disagreed with the statement and only 7% strongly disagreed with the statement.

The dashboard presents the perceptions of respondents of whether the municipality's IT staff had adequate competencies to ensure quality service delivery. Of the respondents, 38% agreed and 12% strongly agreed that the municipality's IT staff had adequate competencies to ensure quality service delivery, whereas 30% were neutral, 14% disagreed with the statement and only 6% strongly disagreed with the statement.

The dashboard presents the perceptions of respondents regarding whether the system users were continuously trained to improve their knowledge and ensure easy navigation. Of the respondents, 40% agreed and 12% strongly agreed that the municipality's system users were continuously trained to improve their knowledge and ensure easy navigation, whereas 31% were neutral, 11% disagreed with the statement and only 6% strongly disagreed with the statement.

The dashboard presents the perceptions of respondents of whether the municipality's IT experts were continuously trained to ensure good system support. Of the respondents, 38% agreed and 12% strongly agreed that the municipality's IT experts were continuously trained to ensure good

system support, whereas 34% were neutral, 11% disagreed with the statement and only 5% strongly disagreed with the statement.

The dashboard presents the perceptions of respondents of the awareness of tangible benefits of the information system that was in use within the municipality. Of the respondents, 38% agreed and 11% strongly agreed that there was awareness of tangible benefits of the information system that was in use within the municipality, whereas 30% were neutral, 14% disagreed with the statement and only 7% strongly disagreed with the statement.

The dashboard presents the perceptions of respondents of whether the municipality's management was in support of the information system that was in operation. Of the respondents, 41% agreed and 11% strongly agreed that the municipality's management was in support of the current information system, whereas 30% were neutral, 12% disagreed with the statement and only 6% strongly disagreed with the statement.

The dashboard presents the perceptions of respondents regarding whether there was effective communication to all concerned within the municipality on any changes that were made to the information system. Of the respondents, 40% agreed and 10% strongly agreed that there was effective communication to all concerned within the municipality on any changes that were made to the information system, whereas 31% were neutral, 13% disagreed with the statement and only 6% strongly disagreed with the statement.

Part B Qualitative

Presentation of findings from primary data

Table 1: Descriptive statistics results of the demographics profile

Demographic profile	Frequency	Percentage
Gender		
Female	7	58.33%
Male	5	41.67%
Age group		
40-49	8	66.67%
50-59	4	33.33%
Municipality		
Local	7	58.33%
Metropolitan	5	41.67%
Tenure		
0- 4 years	4	33.33%
5-10 years	4	33.33%
11-15 years	1	8.33%
16-20 years	3	25.00%
Highest qualification		
Bachelor's degree (NQF 7)	6	50.00%
Honours degree (NQF 8)	5	41.67%
National Diploma (NQF 6)	1	8.33%
Position		

Management	12	100.00%
Department		
Finance	2	16.67%
Information Technology	3	25.00%
Procurement	4	33.33%
Supply chain	2	16.67%
Capacity Development	1	8.33%

Supply chain practices: Strategic supplier partnership

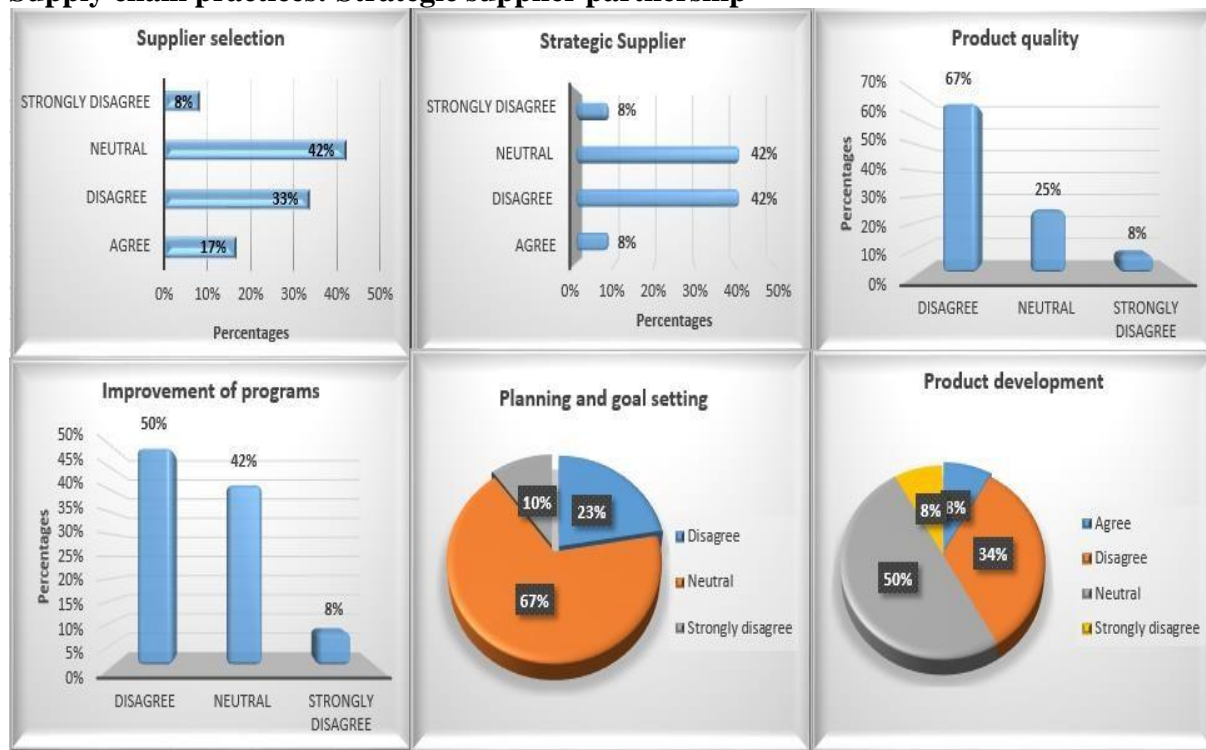


Figure 8: Strategic supplier partnership

The dashboard depicts the perceptions of respondents regarding whether the municipality considered quality as the number one criterion in selecting suppliers; 42% of the respondents were neutral whereas 33% disagreed with the statement. On the other hand, 17% of the respondents agreed, and 8% strongly disagreed with the statement that the municipality considered quality as the number one criterion in selecting suppliers.

The dashboard shows the reaction of the respondents to whether the municipality regularly solved problems jointly with customers; 42% of the respondents disagreed whereas 42% of the respondents were neutral on whether the municipality regularly solved problems jointly with suppliers. Of the respondents, 8% strongly disagreed and 8% agreed that the municipality regularly solves problems jointly with suppliers.

The dashboard presents the perceptions of the respondents regarding how the municipality had helped suppliers to improve their product quality; 67% of respondents disagreed that the

municipality had helped suppliers to improve their product quality and 25% were neutral to the statement. Furthermore, only 4% strongly disagreed that the municipality had helped suppliers improve their product quality.

The dashboard displays the perceptions of the respondents regarding whether the municipality had continuous improvement programs that included key suppliers; 50% of the respondents disagreed that the municipality had continuous improvement programs, though 42% were neutral and 8% of respondents strongly disagreed with the statement.

The dashboard indicates the perceptions of respondents of whether the municipality included key suppliers in planning and goal-setting activities. Of the respondents, 50% disagreed that the municipality included key suppliers in planning and goal-setting activities, 42% were neutral and 8% strongly disagreed with the statement.

The dashboard presents respondents' reactions to whether the municipality actively involved key suppliers in new product development processes. Of the respondents, 50% were neutral on whether the municipality actively involved key suppliers in new product development processes, while 34% disagreed with the statement and 8% agreed. In addition, 8% strongly disagreed with this statement.

Supply chain practices: Customer relationship

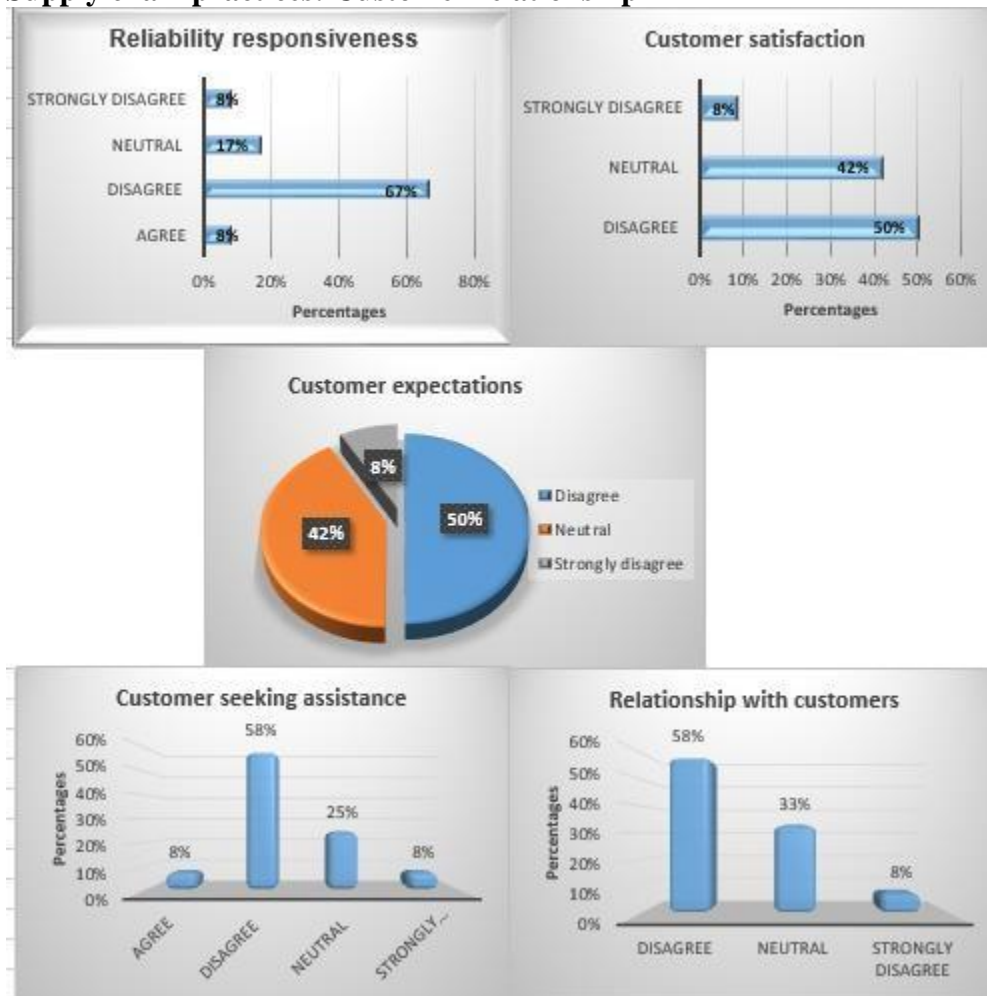


Figure 9: Customer relationship

The dashboard presents respondents' reactions to whether the municipality frequently interacted with customers to set standards such as reliability responsiveness. Of the respondents, 67% disagreed that the municipality frequently interacted with customers to set standards such as reliability responsiveness, while 17% were neutral and 8% strongly disagreed. In addition, 8% of the respondents agreed with this statement.

The dashboard presents respondents' reactions to whether the municipality frequently measured and evaluated customer satisfaction. Of the respondents, 50% disagreed with the statement that the municipality frequently measured and evaluated customer satisfaction, while 42% of respondents were neutral, and 8% strongly agreed with the statement.

The dashboard presents respondents' reactions to whether the municipality frequently determines future customer expectations. Of the respondents, 50% disagreed with the statement that the municipality frequently determined future customer expectations, while 42% of respondents were neutral, and 8% strongly disagreed with the statement.

The dashboard presents respondents' reactions to whether the municipality facilitated customers' ability to seek assistance from its employees. Of the respondents, 58% disagreed, 25% were neutral that the municipality facilitated customers' ability to seek assistance from its employees, 8% agreed, and 8% strongly disagreed with the statement.

The dashboard presents respondents' reactions to whether the municipality regularly evaluated the importance of relationships with customers. Of the respondents, 58% disagreed and 33% were neutral to the statement that the municipality regularly evaluated the importance of relationships with customers, while 8% of the respondents strongly disagreed.

Supply chain practices: Information Sharing

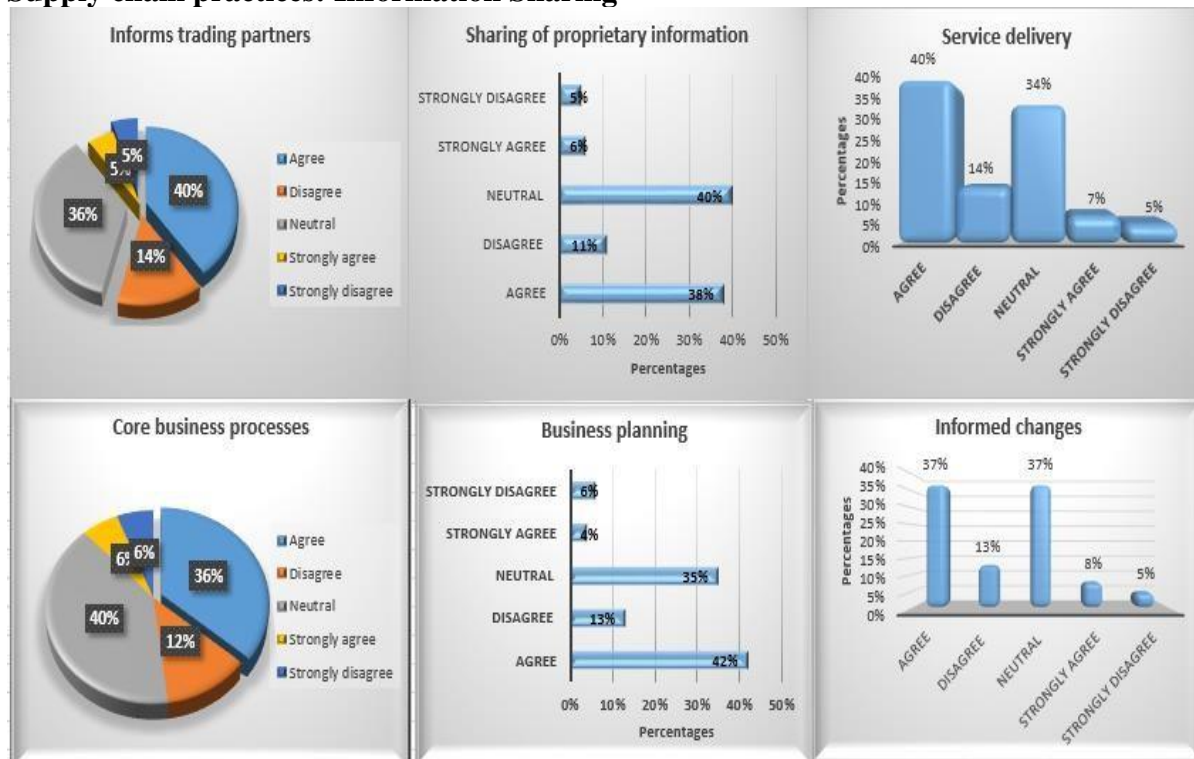


Figure 10: Information sharing

The dashboard presents the perceptions of respondents of whether trading partners were informed in advance of changing needs. Of the respondents, 42% were neutral and only 25% strongly agreed that trading partners were informed in advance of changing needs, while 25% agreed, and 8% of the respondents strongly disagreed.

The dashboard presents the perceptions of respondents of whether trading partners shared proprietary information with the municipality. Of the respondents, 50% agreed and only 33% were neutral that trading partners shared proprietary information with the municipality, while 8% disagreed, and 8% strongly disagreed.

The dashboard presents the perceptions of respondents regarding whether the municipality informed the employees about the major concerns of service delivery. Of the respondents, 42% agreed and only 25% disagreed that the municipality informed the employees about the major

concerns of service delivery, while 25% were neutral, and 8% of the respondents strongly disagreed.

The dashboard presents the perceptions of respondents of whether in the municipality sharing of business knowledge of core business processes was common. Of the respondents, 42% agreed and only 33% were neutral that sharing business knowledge of core business processes was common, while 17% disagreed, and 8% of the respondents strongly disagreed.

The dashboard presents the perceptions of respondents of whether at the municipality there was an exchange of information that facilitated business planning. Of the respondents, 42% were neutral and only 33% agreed that at the municipality there was an exchange of information that helped with business planning, while 17% disagreed, and only 8% strongly disagreed.

The dashboard presents the perceptions of respondents about the municipality ensuring that everyone was informed about events or changes that might affect stakeholders. Of the respondents, 67% agreed and only 17% were neutral that the municipality ensured that everyone was informed about events or changes that might affect stakeholders, while 8% disagreed, and 8% of the respondents strongly disagreed.

Strategies for managing information systems: Technical strategy

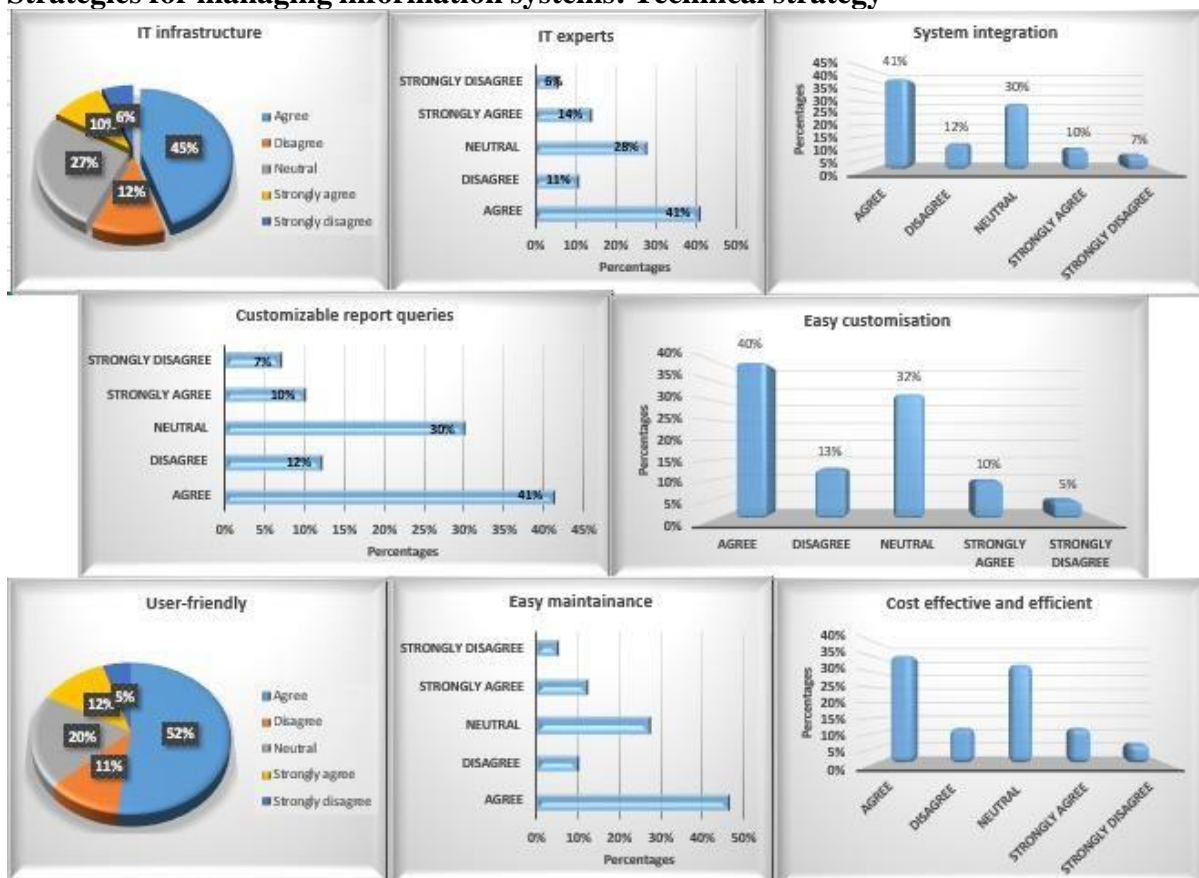


Figure 11: Technical strategy

The dashboard presents the perceptions of respondents on whether the municipal management ensured that there was adequate IT infrastructure. Of the respondents, 42% were neutral and only 34% agreed that the municipality's management ensured that there was adequate IT infrastructure, while 8% disagreed, 8% strongly disagreed and 8% of the respondents strongly agreed.

The dashboard presents the perceptions of respondents regarding whether the municipal management ensured that the organization had adequate IT experts to provide system support. Of the respondents, 50% were neutral and only 25% agreed that the municipal management ensured that the organization had adequate IT experts to provide system support. On the other hand, 8% strongly disagreed and 8% disagreed. Only 8% strongly agreed.

The dashboard presents the reaction of respondents to whether the municipality's information system is integrated with other systems easily to ensure organisational synergy. Of the respondents, 50% were neutral and only 25% agreed that the municipality's information system integrated with other systems easily to ensure organisational synergy. However, 8% of the respondents strongly agreed, whereas 8% disagreed and only 8% strongly disagreed with the statement.

The dashboard depicts the perceptions of respondents regarding whether the municipality's information system had customisable report queries to meet diverse internal customer requirements. Of the respondents, 50% were neutral, 25% agreed and only 8% of the respondents strongly agreed, whereas 8% disagreed and only 8% strongly disagreed with the statement.

The dashboard shows the perceptions of respondents of whether the municipality's information system was easy to customize to meet the ever-changing organization's business requirements. Of the respondents, 50% were neutral, 25% agreed and only 8% of the respondents strongly agreed, whereas 8% disagreed and only 8% strongly disagreed with the statement.

The dashboard presents the perceptions of respondents of whether the municipality's information system was easy to use. Of the respondents, 42% agreed and 33% were neutral that the municipality's information system was easy to use. However, 17% disagreed and only 8% strongly agreed with the statement.

The dashboard shows the perceptions of respondents of whether the municipality's information system was easy to maintain. Of the respondents, 58% were neutral and 17% agreed that the municipality's information system was easy to maintain. However, 17% disagreed, and only 8% strongly agreed with the statement.

The dashboard presents the perceptions of respondents of whether the municipality's information system was cost-effective and efficient. Of the respondents, 58% were neutral and 17% agreed that the municipality's information system was cost-effective and efficient, whereas 8% disagreed, 8% strongly disagreed with the statement and only 8% strongly agreed with the statement.

Strategies for managing information systems: People-focused strategy

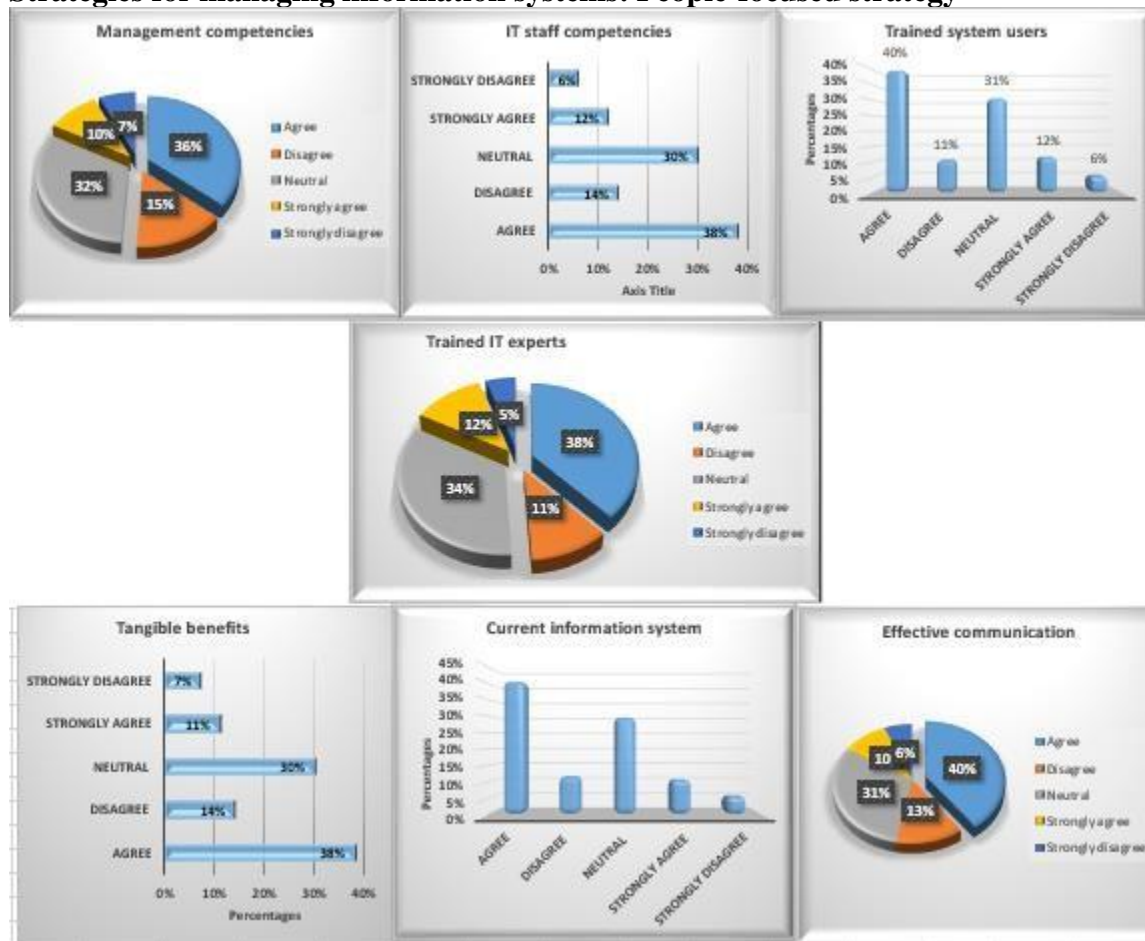


Figure 12: People-focused strategy

The dashboard presents the perceptions of respondents of whether the municipal leadership had good management competencies that were needed to build and deploy information systems to successfully meet the unique requirements of the organization. Of the respondents, 50% were neutral and 25% agreed that the municipal leadership had good management competencies that were needed to build and deploy information systems to successfully meet the unique requirements of the organization, whereas 9% disagreed, 8% strongly disagreed with the statement and only 8% strongly agreed with the statement.

The dashboard presents the perceptions of respondents of whether the municipality's IT staff had adequate competencies to ensure quality service delivery. Of the respondents, 42% were neutral and 33% agreed that the municipality's IT staff had adequate competencies to ensure quality service delivery, whereas 8% disagreed, 8% strongly disagreed with the statement and only 8% strongly agreed with the statement.

The dashboard presents the perceptions of respondents regarding whether the system users were continuously trained to improve their knowledge and ensure easy navigation. Of the respondents, 58% were neutral and 17% agreed that the municipality's system users were continuously trained

to improve their knowledge and ensure easy navigation, whereas 8% disagreed, 8% strongly disagreed with the statement and only 8% strongly agreed with the statement.

The dashboard presents the perceptions of respondents of whether the municipality's IT experts were continuously trained to ensure good system support. Of the respondents, 59% were neutral and 17% agreed that the municipality's IT experts were continuously trained to ensure good system support, whereas 8% disagreed, 8% strongly disagreed with the statement and only 8% strongly agreed with the statement.

The dashboard presents the perceptions of respondents regarding whether there was effective communication to all concerned within the municipality on any changes that were made to the information system. Of the respondents, 50% were neutral, 25% agreed that there was effective communication to all concerned within the municipality on any changes that were made to the information system, whereas 17% disagreed, and only 8% strongly agreed with the statement.

The dashboard presents the perceptions of respondents of the awareness of tangible benefits of the information system that was in use within the municipality. Of the respondents, 58% were neutral and 17% agreed that there was awareness of tangible benefits of the information system that was in use within the municipality, whereas 8% disagreed, 8% strongly disagreed with the statement and only 8% strongly agreed with the statement.

The dashboard presents the perceptions of respondents of whether the municipality's management was in support of the information system that was in operation. Of the respondents, 58% were neutral and 17% agreed that there was awareness of tangible benefits of the information system that was in use within the municipality, whereas 8% disagreed, 8% strongly disagreed with the statement and only 8% strongly agreed with the statement.

Research findings from primary data collection

Table 2: High-level themes aligned to the research questions

Research questions	Themes (5)	Total subthemes (25)	Total codes (83)
RQ1: What are the supply chain management practices in South African municipalities?	1. Strategic supplier partnership	4	16
	2. Customer relationship	6	18
	3. Information sharing	5	15
RQ2: What are the strategies for managing information systems in South African municipalities?	4. Technical strategies	5	19
	5. People-focused strategy	5	15

FIVE OVERARCHING THEMES: SYNOPSES

Supply chain management information system in South African municipalities				
1. Strategic supplier partnership	2. Customer relationship	3. Information sharing	4. Technical strategies	5. People-focused strategy
<ul style="list-style-type: none"> • Lack of engagement • Lack of knowledge • Lack of relationship • Lack of quality 	<ul style="list-style-type: none"> • Lack of customer expectations • Lack of evaluation of customer satisfaction • Lack of knowledge • Lack of relationship • Lack of supplier assistance • Lack of quality 	<ul style="list-style-type: none"> • Communication opportunities • Lack of communication • Lack of engagement • Lack of knowledge • Unsynchronized systems 	<ul style="list-style-type: none"> • Effective system • Guidance or training needed. • Ineffective system • Lack of knowledge • User-friendly system 	<ul style="list-style-type: none"> • Lack of communication • Lack of knowledge • No training offered. • Skilled employees • Unskilled employees

As a result of the analysis of the data, five main themes were identified. The findings implied a critical need for continuous supply chain management training for employees and for ensuring that there was no violation of the legislative regulations. Employees should be knowledgeable about the functioning of the municipality. Moreover, municipalities should prioritize quality, as poor quality negatively impacts their reputation and services. As part of the planning and goal-setting activities, key suppliers should also be included to stay informed about the new product development process. There should also be frequent use of communication platforms, effective and efficient supply chain management systems within the municipality, and capacity building for those involved in supply chain management. The municipality should improve its engagement with key suppliers and nurture this relationship. It should anticipate its customers' future expectations and evaluate their satisfaction to create an environment that supports and encourages customers to seek assistance when needed. Lastly, systems need to be synchronized for the smooth operation of the municipality.

Limitations

Some limitations are worth noting. The first limitation is the rate at which people respond. The first restriction is the response rate. The desired sample size for a quantitative study was 184 and only 100 questionnaires were returned; for qualitative research, the desired sample size was 15

and only 12 participants were interviewed. Another issue entails the grey literature and other unpublished materials. In the end, the picture would have been clearer if more than 60% of the sample had been reached. This study was also cross-sectional, meaning it was limited in terms of time. This study focused on how things are managed in the supply chain management and used a mixed methods approach to gather information. It was difficult to access information and people were reluctant to participate in the study because they thought they were being investigated. In South Africa, there are issues of corruption, favouritism, fraud, unfair and irregular practices, tenders, and flawed procurement processes.

Recommendations

Based on the results of the study, recommendations inform the development of a structure or framework for managing SCM information systems in South African municipalities. They included the following:

- To ensure compliance with the legislative regulations and that employees are knowledgeable about the functioning of the municipality, continuous supply chain management training is imperative for employees.
- As a municipality, it is of paramount importance to consider and prioritize quality, as poor quality negatively influences the municipality's reputation and services.
- The municipality should include key suppliers in their planning and goal-setting processes. This will keep them informed of new product development processes.
- To ensure effective and efficient supply chain management systems within a municipality, it is essential to utilize communication platforms frequently and maintain the supply chain management division, create awareness of supply chain management, and capacitate supply chain management role players.
- The municipality should improve its engagement with the key suppliers and nurture the relationship with the suppliers.
- The municipality needs to consider regular surveys to anticipate the customers' future expectations and evaluate their satisfaction.
- The municipality should create an environment that supports customers and encourages them to seek assistance when needed.
- The municipality's systems need to be synchronized for the smooth operation of functions.

Conclusion

Throughout this study, we recognised the need to develop a framework for managing supply chain management information systems in South African municipalities to address the challenges experienced by supply chain management practitioners, IT staff members, and specialists. The purpose of this study was to critically assess and analyze the SCM information systems in South African municipalities to develop a framework that could assist authorities in providing excellent services to the public.

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Track 4: Innovation Management & Technological Change

[ID:18]

Innovation as a Catalyst for Organizational Performance: A Survey-based Study on Ethiopian Civil Service Organizations

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Abstract

Innovation in the public sector has become mandatory in the current globalized economy and turbulent environment. Using the cross-section sample of 743 employees and management officials of public sector organizations at the Federal and Addis Ababa City Administration in Ethiopia, the study explores the level of innovativeness and the barriers and driving factors of innovation. A mixed methods research design emphasizes quantitative data using a structural equation model (SEM). The findings reveal evidence of the adoption and implementation of innovative practices in the civil service sectors of Ethiopia. The results confirm that innovation significantly and positively affected organizational performance. Government expectation, customer demand, and globalization are the major driving forces of innovation in the civil service sector. Lack of incentives and protection and inappropriate organizational culture and structure are the major barriers to innovation in the public sector. The policy implications are that the government should design innovation policy and strategy, and the civil service organizations should create appropriate organizational culture and structure to nurture faster innovation.

Key Words: Innovation adoption, Implementation, Performance, SEM modeling, public sector
Introduction

[ID:39]

Executing Smart Metering Projects: Drift or Deliberate

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Metering is a crucial operation in the electricity distribution business that accounts to both revenue generation as well as energy accounting. Technological innovations in metering, can

considerably enhance efficiency of metering operations, thus improve financial and operational performance of distribution utilities (discom). To facilitate this shift, the GoI provides financial support through programs such as Integrated Power Development Scheme, Deen Dayal Upadhaya Gramin Joyti Yojana and alike since 2001. To this end, 100% metering is yet to be achieved, while implementation remains slow. Recently, there have been a major policy push for adoption of smart meters.

This case focuses on the various issues involved in the execution of a smart metering project and decision dilemmas of a utility manager - *a Chief Engineer* - responsible for execution of metering projects. It presents the socio-political context surrounding electricity supply, often reflected in the organizational culture of the discom. Besides various schemes supporting metering, the regulatory aspects of metering including compliance to technical standards, cost recovery, incentives/penalty faced by the utility/chief engineer are discussed. Guidelines and implementation structures/best practices for smart metering are discussed.

Key words: Smart metering, electricity distribution sector, distribution utility, Cost-Benefit Analysis, Project Management.

[ID:47]

Circular Economy Business Model: A literature Review

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Abstract

The aim of this study is to provide a thorough examination of the literature on circular economy business models from 2019 to 2023. The investigation covers the fundamental concept of circular economy business models as well as their potential prospects to lay the groundwork for this study. To identify and categorize relevant articles, a three-step process was used. These articles were rigorously evaluated and contextualized, with a particular emphasis on the concept of circular economy business models, culminating in recommendations for future research directions. Adopting circular economy strategies has numerous environmental and economic advantages, where the enterprises could extend the life cycle of products and reduce raw material consumption by designing goods with durability, repairability, and remanufacturing in mind. Furthermore, adopting circular economy principles can stimulate innovation, aid in the advancement of environmentally friendly technologies, and open up new business opportunities in the recycling and waste management domains. Circular economy concepts are spreading across industries as businesses recognize their ability to improve long-term performance and resilience in the face of resource constraints and environmental challenges. As a result, both government and business are increasingly incorporating circular economy principles into their agendas in order to foster sustainable growth and create a more regenerative economic framework. Therefore, this study effectively synthesizes a wealth of existing literature into a cohesive research paper, serving as a useful starting point for researchers interested in investigating circular economy business paradigms. The finding shows that circular economy business models is emphasized as a strategic transition towards a more sustainable and regenerative economic landscape within a country.

Key Words: Circular Economy; Business Model, Circular Economy Business Model

Introduction

Circular economy business models have emerged as a potential solution to the problems associated with traditional linear economic models, such as resource depletion, environmental deterioration, and waste generation. Unlike linear approaches that follow a capture-make-dispose cycle, A circular economy promotes regenerative systems that reuse and recycle resources for as long as possible (Ellen MacArthur Foundation, 2013). This move toward a circular strategy is motivated by the understanding of limited resource limits and the need to divorce economic development from resource use (Geissdoerfer et al., 2017). By reducing waste and increasing the use of resources more efficiently, a circular economy is beneficial to the environment. but it also provides economic possibilities by reducing reliance on finite resources and generating creative business models (Ghisellini et al., 2016). As a result, policymakers, business, and academia are increasingly looking at the possibilities of circular economy principles to create more sustainable and resilient economic systems.

The circular economy idea has gained traction across a wide range of businesses and sectors, inspiring an increasing number of research institutes to investigate its application, advantages, and obstacles. Empirical research has identified the possible environmental advantages of circularity, such as lower greenhouse gas emissions, energy savings, and trash production (Korhonen et al., 2018). Implementing circular economy business models, according to Geissdoerfer et al. (2017), may significantly reduce carbon emissions and resource exploitation compared to linear models. Furthermore, a circular economy provides economic benefits by increasing resource efficiency, competitiveness, and job creation in recycling and remanufacturing (Lieder and Rashid, 2016). The EU acknowledges the circular economy's potential to create long-term development and has included circular economy ideas into its policy framework to promote a more resource-efficient, long-term economy (European Commission, 2020). A primer on circular economy business models emphasizes its importance as a revolutionary way to tackle severe environmental concerns while fostering a more resilient and prosperous economic future.

2Methodology

This study's major research technique is a survey of the literature on circular economy. The dissertation repository that will serve as the foundation for our study was chosen in a multi-step procedure. First, the phrases "circular economy," "business model," and "circular economy business model" were thoroughly searched in the databases of (i) sci-hub, (ii) Scopus, and (iii) Google Scholar. During the first phase, 115,000 items were discovered. As a result, the study scope was restricted to the keywords "circular economy business model" from 2019 to the present to sort out the significant material of the research, and a total of 17,800 articles were identified. The allintitle was selected, and 152 articles were discovered. A total of 92 items, including sci-hub, were downloaded. They were all downloaded and read. During the reading process, seven articles were removed because they were not in English, were doctorate dissertations, or there was an issue with the article arrangement. Finally, 85 articles were chosen for the final sample.

Literature Review

(i) Circular Economy

The circular economy (CE) idea has recently acquired acceptance in academics (Babbitt et al., 2018; Geissdoerfer et al., 2017; Ghisellini et al., 2016; Kalmykova et al., 2018; Bocken et al., 2016; Canada et al., 2019), legislators and strategists (Ahmed et al., 2021), and industrial development (Pego et al., 2021). It rejects the notion that things and materials degrade indefinitely, instead imagining "an economic system that substitutes the concept of 'end-of-life' by decreasing, or reusing, recycling, and recovering resources throughout production/distribution and consumption" (Markus Gall, 2020). It aims to achieve sustainable development at the micro, meso, and macro levels (cities, regions, nations, and others) in order to improve the environment, foster economic success, and promote social fairness for both current and future generations (Kirchherr et al., 2017). In addition, businesses that participate in the circular economy are essential to the economies of developing nations because of the contribution they provide to the Gross Domestic Product (GDP) and employment (Fatimah et al., 2023). Not only at the level of the individual business, but also at the level of the whole economy, the value of companies that participate in the circular economy is in the billions of dollars (Fatimah & Biswas, 2017). In addition, businesses that participate in the circular economy are essential to the economies of developing nations because of the contribution they provide to the Gross Domestic Product (GDP) and employment (Fatimah et al., 2023). Not only at the level of the individual business, but also at the level of the whole economy, the value of companies that participate in the circular economy is in the billions of dollars (Fatimah & Biswas, 2017). Several studies have started to investigate various aspects of the sector as a result of the incorporation of the advantages of the circular economy. Some research, such as Hussein et al., (2021) have evaluated the successful implementation of CE and further analyses the best strategy to efficiently execute a circular economy.

Hoffman et al. (2020) investigate the life cycle evaluation of the present circular economy using contemporary cloth diapers as an example. (Asgari, 2021) investigate effective incentives and impediments to the adoption of a circular economy; their results demonstrate that incorporating a circular economy may alter current businesses to be more competitive in the long run. Several additional sectors have been investigated in the current circular economy, includes customer-relevant entrepreneurial processes (Poblete et al., 2021), selecting behavior (Lieder et al., 2020), banking and finance (Toxopeus et al., 2021), and lithium-ion batteries (Wrlsen et al., 2021). Other uses investigated by researchers include agriculture (Klein and al., 2022), construction (Munaro and Tavares, 2021), manufacturing (Pieroni et al., 2021), and sterilising (Han et al., 2020), among others. The previous explanation clearly highlights the significance of circular economy in today's competitive worldwide market (Yun Arifatul Fatimah, 2023).

In recent years, the circular economy concept has received a lot of attention as a possible alternative to traditional linear economic models (Arsawan, 2022). Resources are utilized for as long as feasible in a circular economy via measures such as recycling, remanufacturing, and product design that stresses durability and repairability (Ellen MacArthur Foundation, 2013). According to a comprehensive literature review (Geissdoerfer et al., 2017), the circular economy offers a new sustainable development paradigm, offering a regenerative approach targeted at decoupling economic growth from resource usage and environmental degradation. Circularity has the potential to bring major environmental benefits such as decreased greenhouse gas emissions, energy savings, and waste reduction (Korhonen et al., 2018). A

circular economy is consistent with the ideals of sustainable development and presents a revolutionary paradigm for addressing critical environmental concerns by emphasizing resource efficiency and waste reduction.

The literature on the circular economy also emphasizes the economic potential and corporate rewards connected with implementing circular practices. The review by (Ghisellini et al., 2016) emphasizes the circular economy's ability to produce balanced interactions between environmental and economic systems. Companies may generate value via cost reductions, greater competitiveness, and the creation of new income sources by rethinking existing business structures and embracing circular concepts (Ellen MacArthur Foundation, 2013). A circular economy encourages innovation and the development of environmentally friendly technology, allowing enterprises to function in a more sustainable manner (Ting et al., 2021). This has prompted politicians to realize the circular economy's potential for long-term development and to incorporate circular economy ideas into regional and national policy frameworks (European Commission, 2020).

While the circular economy has immense potential, its complete implementation is fraught with difficulties that must be overcome. One of the most significant barriers is the transition of current production and consumption patterns, which necessitates collaborative efforts across stakeholders (Korhonen et al., 2018). According to (Lieder & Rashid, 2016), it is critical for enterprises, governments, consumers, and other stakeholders to work together to build closed-loop supply chains and enable material flow cycling. Furthermore, consumer behavior influences the adoption of circular processes, and increasing awareness and altering attitudes are vital for a successful transition to a circular economy (Geissdoerfer et al., 2017). Policymakers also play an important role in facilitating the adoption of the circular economy via regulatory frameworks, fiscal incentives, and other policy tools (European Commission, 2020). Overcoming these issues requires a comprehensive, integrated strategy that addresses economic, social, and environmental concerns, making the circular economy a complicated but necessary undertaking for achieving the SDGs. The definition of circular economy is shown in the graphic below:

Table 1: Definition of Circular Economy

Author (year)	Definition
Dragomir & Dumitru, 2022; Berlin et al., 2022	Businesses have investigated the circular economy (CE) as a closed-loop system in which goods are reused and turned into other sorts of resources.
Berlin et al., 2022	The circular economy is a revolutionary business transformation mechanism that emphasizes and promotes sustainable production and consumption.
Imam Mukhlis, 2021	A circular economy is designed with environmental conditions and quality in mind, encouraging inclusive community and environmental wellbeing.
Henrysson & Nuur, 2021	Circular economic models may be used to replace sometimes unsustainable linear economic models as an approach for transitioning to sustainability.
Welfens et al., 2017	The field of environmental economics is concerned with resource efficiency.
Chizaryfard et al., 2020	Because of the necessity of mitigating climate change, the circular economy is one of the ideas with promise.
Chizaryfard et al., 2020	The circular economy idea encompasses all reduction, reuse, and recycling operations in production and consumption.
Henrysson & Nuur, 2021	Circular economy models place a premium on resource and energy efficiency acquired via radical solution innovation.

Lombardi & Laybourn ,2012; Chertow and Ehrenfeld, 2012	The circular economy is described as the action and execution of ecologically beneficial initiatives such as reuse, refurbishment, remanufacturing, repair, and product sharing.
Korhonen, Honkasalo & Seppälä, 2018	The circular economy (EC) appears as a promising option for the development of environmentally conscious economic practices.
Geissdoerfer et al., 2017; Schroeder et al., 2019	The circular economy (CE) is a sustainable economic and environmental component.
Blomsma & Brennan ,2017	Circular economy is described as a broad phrase that encompasses all operations in which resources are reduced, reused, and recovered throughout production, distribution, and consumption.
MarCEt et al., 2018	The phrase "circular economy" refers to an economy that strives to maintain resources, goods, and components in a circular flow so that they may be reintegrated into the value chain when they fail.
Kirchherr et al. (2018), Blomsma et al., 2017	A circular economy is an economic system that substitutes "death" of resources with the three R principles (reduce, reuse, and recycle) and adds a fourth rule called "recycle." This is what is meant by the term "circular economy."
Kirchherr et al., 2017	Materials used in the three economic levels' manufacturing, distribution, and consumption processes.
Kirchherr et al., 2017; Ellen MacArthur Foundation, 2015; Sikdar, 2019	CE is characterized as a purposeful and intended restorative and regenerative industrial system, with the word "restoration" replacing the phrase "end of life."
üdeke-Freund et al., 2018	CE denotes how firms generate economic value for themselves by producing value for their customers.
MacArthur, 2013	CE is characterised as "a restorative or regenerative industrial economy created with intention and design."
Genovese et al., 2017; Lieder & Rashid, 2016	CE has the ability to address the issues of waste creation and resource shortages while being economically efficient.
Geissdoerfer et al., 2017	CE is defined as "a regenerative system that reduces resource inputs, waste outputs, and energy leaks by delaying, shutting, and decreasing material and energy cycles."
Nakajima ,2000	Circular and service-based systems are insufficient for long-term production.
Genovese et al., 2017	CE is an essential element.

Rashid et al., 2013	Consider it a necessity for supporting (supply chain-aligned) sustainable development.
Jennifer Pollard, 2021	Circular economy is a worldwide paradigm that challenges conventional production methods and services are developed and exchanged in contemporary marketplaces with the goal of conserving and regenerating natural components of the terrestrial biosphere.
Rosa et al., 2019	The circular economy is a worldwide economic model that focuses on the intelligent design of materials, goods, and systems to reduce the negative effect of the use of limited resources.
Wautelet, 2018	The concept of a circular economy is founded on a comprehensive framework that is primarily connected to the academic disciplines of ecological economics, environmental economics, and industrial ecology.
Geissdoerfer et al., 2017	Economics of performance - ecological industrialization - cradle to grave - permaculture - biomimicry - collaborative consumption (shared economy - regenerative design
Rosa et al., 2019	The circular economy is a worldwide economic model that focuses on the intelligent design of materials, goods, and systems to reduce the negative effect of the use of limited resources.
Juan Valenzuela-Inostroza, 2019	One axis of the circular economy is reverse logistics.
Turki, Sauvey & Rezg, 2018	Circular Economy is defined as recycling materials, remanufacturing products, and redesigning technologies. Reverse Logistics researches manufacturing/remanufacturing, transportation, warehousing, and stock recycling systems.
European Commission, 2014	The circular economy is a method for achieving economic development while reducing resource use by fundamentally altering manufacturing chains and consuming behaviors.
Geldron, 2013	The term "circular economy" refers to a kind of economic model in which production and commerce continue unabated throughout the whole life cycle of a good or service, with the goal of enhancing resource use efficiency and lowering environmental impact while building a circular economy.
Ellen MacArthur Foundation, 2013	The circular economy is defined as an industrial system that repairs or regenerates itself via purpose and design.
Geng & Doberstein, 2008	The implementation of closed-loop material flow throughout the whole economic system is characterized as circular economy.
Webster, 2015	A circular economy is one that recovers by design, with the purpose of always having the best goods, components, and resources available.
Ellen McArthur Foundation,	The circular economy is seen as a long-term sustainable model capable of decoupling economic growth and development from the usage of finite

2013	resources while simultaneously opening up opportunities for innovation in all industries.
Ismaila Akintan, 2021	The circular economy is an industrial idea that eliminates waste by changing the way goods are supplied and manufactured.
Nguyen, Stuchey & Zils, 2014	The circular economy is a model, as opposed to a "linear" economy, which focuses on a "take, manufacture, discard" paradigm (basically: cradle to grave vs. cradle to cradle), using both (too many) resources and being powered (often) by non-renewable energy sources.
Lahti et al., 2018	Circular economy is an environmental ecology that has evolved in response to the requirements of the global economy, requiring human economic activities to adhere to three fundamental principles: reduce, reuse, and recycle.
Berger et al., 2018	A circular economy may meet the economic objectives of sustainable development by promoting environmental quality, social equality, and economic success for current and future generations.
Merli et al., 2018	CE must overhaul the whole manufacturing and consumption system.
Antikainen & Valkokari, 2016; French & La Forge, 2006	The CE complete loop is made up of two supply chains: one forward and one reverse, where items recovered from consumers re-enter the forward chain to be recycled into new useable products.
De Angelis et al., 2018	In CE, resources loop and create many cycles until the final remaining value is not employed, at which point the value is lost via repair, reuse, renovation, and recycling.
Kirchherr et al., 2017	CE is an economic model that replaces the product end-of-life cycle with micro, meso, and macro material resource recovery, reduction, and reuse.
Gesdorfer et al., 2017	CE involves slowing, closing, and reducing material cycles via design, maintenance, repair, reuse, refurbishment, and recycling to optimize systems and decrease input, waste, and disposal.
Reike et al., 2018	Attribute CE to a 3R to 10R paradigm spanning from discard, reuse, reduce, repair, refurbish, remanufacture, repurpose, remine, and recover materials to recover energy.
Geissdoerfer et al., 2017	The circular economy (CE) has been promoted as a significant long-term development tool.
Su et al., 2013	The circular economy paradigm, which is an alternative to the traditional linear "take, make, discard" model, aims to facilitate the development of resource-cycle-based sustainable production and consumption patterns.
Urbinati et al., 2017; Ghisellini et al., 2016	The circular economy is a new environmental and social concept for business sustainability that affects regional development.
Veleva & Bodkin, 2018	A circular economy seeks to enable the integration of business operations with the pillars of industrial ecology by stressing the redesign of goods and processes to ensure the system's efficiency and self-sufficiency.
Ellen McArthur	A circular economy is described as "designing repair and regeneration to

Foundation, 2013	maintain goods, components, and materials at their greatest level of usability and value at all times."
European Commission, 2014	A circular economy is a system that reduces resource inputs as well as emissions, waste, and energy outflows; people want to be able to limit their environmental effect without jeopardizing development and wealth.
Ellen MacArthur Foundation, 2013; Kirchherr et al.) et al. et al., 2017; Murray et al., 2017; Saidani et al., 2017	CE is said to symbolise the much-debated and often vague idea of sustainable business operations, as it enables product differentiation, competitive advantage, and growth.
Kirchherr et al., 2017	A circular economy is defined as "an economic system that substitutes the idea of 'end-of-life' by minimizing, or reusing, recycling, and recovering resources in production/distribution and consumption." By aim and design, the economy is characterized as a "restorative or regenerative industrial system."
Ellen MacArthur Foundation, 2015	It replaces "end-of-life" with repair, switches to renewable energy, and eliminates harmful chemicals that prevent reuse. usage, and reduce waste via material, product, and system design
Gianmarco Bressanelli, 2022	Define CE as: "Restorative and regenerative economic systems by design, implemented by one or more supply chain actors through one or more levers and enablers (circular product design, sterilization, supply chain management and Digital 4.0 technologies) to reduce the concept of end-of-life, reuse, remanufacture or recycle materials, components and products during production, distribution and consumption to achieve technological and biocircularity for sustainable Development".
European Commission, 2018; Ghisellini et al., 2016; Kirchherr et al., 2017	The circular economy has been highly praised and acknowledged as a complete paradigm for (re)designing economic systems in practice and politics.
Desing et al., 2020	CE may be applied at several levels of the socioeconomic system, such as via consumer behavior changes and legislative improvements.
Geissdoerfer et al., 2018	CE through implementation at the entrepreneurial level .
Bocken et al., 2014; Wells & Seitz, 2005; Winkler, 2011	CE Innovations Can result in design changes throughout manufacture, distribution, usage, and recycling to keep materials circular and reduce energy use.

Kirchherr et al., 2017	The circular economy is a kind of economic system that substitutes the concept of "end-of-life" by reducing, reusing, recovering, and recovering resources throughout the production/distribution and consuming processes. The objective of sustainable development is to achieve environmental quality, economic prosperity, and social equality at the micro (things, businesses, consumers), meso (eco-industrial parks), and macro (cities, regions, countries, and others) levels.
Bocken et al., 2016	The circular economy is new, and its value creation is centred on embedding economic value in discarded things and reusing them to create new market products (Rosa et al. 2019). The circular economy is described as how businesses generate, deliver, and collect value by a) delaying, b) closing, or c) contracting the flow of resources (energy or materials).
Nußholz, 2017, Oghazirishammar & Parida, 2019	The circular economy is described as: Key enterprises, in collaboration with partners, employ innovation to create, capture, and distribute value while increasing resource efficiency by extending the life of goods and components to generate environmental, social, and economic advantages.
Geissdoerfer et al., 2017	The circular economy is a discipline of sustainability science that investigates company competitiveness in an age of developing scenarios that emphasize social and environmental responsibility.
The Ellen MacArthur Foundation, 2015	A circular economy is defined as "an economy that is restorative and regenerative by design, such that products, components, and materials are separated into technological and biological cycles".
Manninen et al., 2018	CE is a concept that minimizes inputs, waste, and emissions by reusing, reducing, recycling, maintaining, repairing, and remanufacturing materials and energy cycles.
(Kirch et al., 2017	CE is described as an economic system in which waste at the end of the life cycle is reduced, items are reused, recycling takes place, and resources are recovered.
Geissdoerfer, 2017	Characterized as regenerative systems that reduce resource and energy usage and waste creation by decreasing, slowing down, and shutting resource and energy loops.
Riccardo Losa, 2019	The circular economy is a concept that aims to establish a regenerative system by extending, shutting, and reducing the resource loop.
Kirchherr, Reike & Hecht, 2017	The circular economy (CE) is often seen as a means of implementing long-term corporate growth.
Kirchherr et al., 2017	CE is an economic concept that tries to reduce, reuse, recycle, and recycle (4R) resources in a systematic manner rather than via micro-level adjustments (companies, individuals and products).
Bocken et al., 2014; Geissdoerfer et al., 2017	CE might be seen as a solution for long-term systems.

Geissdoerfer et al., 2017	CE might be a prerequisite for long-term growth.
Geissdoerfer et al., 2017; Kirchherr et al., 2017	CE is an economic system whose ecology seeks to assist the environment and the economy directly.
Geissdoerfer et al., 2017	CE is a society's expansion via environmental betterment and social emphasis.
Geissdoerfer et al., 2017	The purpose of CE is to transition from a linear economy to a closed-loop system in which private enterprises and regulators bear primary accountability.
Kirch et al., 2017	The circular economy promotes ecologically benign material recycling, the recovery of manufacturing waste, and the regeneration of materials for future use.
Mohan et al., 2016; Lausset et al., 2017; Tebbiche et al., 2021; Marousek and Trakal, 2022; Mardoyan and Braun, 2015 et al.,	A circular economy comprises rebalancing carbon flows by sequestering CO ₂ via sequestration technologies, increasing biofuel production, and creating energy-worthy gases from plant matter fermentation.
Bocken NMP et al., 2021	A circular economy prioritizes slowing, shutting, decreasing, and regenerating resource cycles in order to solve important concerns such as anthropogenic climate change, biodiversity loss, and resource stress).
(World Economic Forum, 2018	The circular economy is a potentially transformational approach that has sparked tremendous commercial interest.
Foundation, 2015	The circular economy strives towards a more sustainable society and economy by avoiding and minimizing material flow and resource use via material and product closed loops.
Lewandowski, 2016; Bocken et al., 2016	The circular economy and its production and consumption patterns are gaining popularity, although agreement on circularity is still forming.
(Nobre, G. et al., 2021	Defined as "an economic system that aspires to achieve zero waste and contamination across the material life cycle, from environmental extraction through industrial transformation, to the end consumer, for all ecosystems concerned" or "a new ecosystem"
Murray, A. et al., 2017	The circular economy is the most recent effort to sustainably combine economic operations with environmental concerns and resource consumption.
Hobson, 2016	The circular economy is envisioned as a new ecological project that encourages and connects economic growth.

Hofmann, 2019	The circular economy (CE) is gaining popularity as a way of achieving sustainable development by decoupling economic growth from resource exploitation and environmental damage.
Kirchherr et al., 2018	Define a circular economy as "an economic system based on the replacement of the 'end-of-life' concept by reducing, or reusing, recycling and recovering materials in production/distribution and consumption micro- and macro-levels (cities, regions, countries, etc.) to operate in order to achieve sustainable development, which means creating environmental quality, economic prosperity and social equity for the benefit of present and future generations .
Reike et al., 2018	In the last decade, the circular economy has received a lot of attention as an economic model that may solve sustainable development and climate issues.
Ministerio, 2023	As a long-term strategy, the circular economy must implement necessary changes to the business system and adjust the operation activities and supply-chain-related actions, including the adjustment of business operations and supply-related action.
Lewandowski, 2016	The circular economy evolved mostly from ecological economics and industrial ecology.
Camilleri, 2018	A circular economy is defined by closed-loop flows of materials and energy that include natural and human resources, as well as science and technology.

(ii) Business Model

A business model has been extensively examined in academic literature, and it is an important component of a firm's strategic framework (Marina P.P. Pieroni et al.,2019). A business model outlines how a company develops, delivers, and captures value and contains aspects like value propositions, customer groupings, income streams, and critical resources (Teece, 2010). Scholars have underlined the importance of business models in determining a firm's competitiveness, innovative capacity, and long-term viability (Baden-Fuller & Mangematin, 2013). A well-designed business model may drive a company's performance and establish resilience in a volatile business environment by matching internal competencies with external market possibilities.

One of the most significant contributions of business model research is its emphasis on business model innovation. Firms are always looking for new methods to produce and capture value, which has resulted in the rise of creative business models that disrupt established sectors or create totally new markets (Zott et al., 2011). Business model innovation has been highlighted as a source of competitive advantage and organizational flexibility by academics (Foss & Saebi, 2017).Furthermore, business model innovation is becoming more widely recognized as a strategic response to social and environmental problems. such as programmed promoting sustainable development and the circular economy (Pietrobelli & Rabellotti, 2011).

The literature also looks at how digital technology affect business models. The digital

revolution has altered old business structures and allowed new methods of value creation and distribution (Afuah & Tucci, 2012). Digitalization is transforming sectors and undermining conventional business models via e-commerce platforms, sharing economy models, and data-driven tailored services (Chesbrough & Rosenbloom, 2002). Businesses must constantly modify their business models to capitalize on digital technology and stay competitive in a quickly changing digital world. What a company does, who it does it for (value proposition), how it does it (value creation and delivery), and why it does it (revenue model) are the four components that make up what is known as a business model (BM), which is a framework (Osterwalder & Pigneur, 2010; TeeCE, 2010).

According to Hedman & Kalling (2003), the goal is to discover all of the critical components needed for a company's business to be successful. There are three sorts of way, according to (Chesbrough & Rosenbloom, 2002). The creation of value for customers should always come first and foremost in the objectives of any viable company strategy. The second difference is between producing value for the organization and providing value for stakeholders. The goal is to deliver value to clients while also making money for the firm. The third problem is one of awareness. A business model has six roles, according to Chesbrough and Rosenbloom: market segmentation, value proposition, cost structure with possible advantages, value chain structure, and mapping of the company's strategic direction and value network (Chesbrough & Rosenbloom 2002). Generally In other words, it is a method for a business to build and utilize its resources in order to deliver higher value to consumers than rivals and profit as a result (Afuah, & Tucci, 2001). Scholars, on the other hand, have characterized There was no agreement (Zott, & Massa, 2011), however every business model has many similar parts and components that must be present in order for the model to be successful (Trinh Thi Xuan My et al., 2021). The Business Model Canvas (Osterwalder & Pigneur, 2009) is presently the most extensively used framework for building business models, and it is made up of nine core components, which are described below:

- a) Key Activities: The most crucial activities a firm must perform in order to function and provide value to its consumers.
- b) Material: The most essential material, financial, intellectual, or human resources.
- c) Partner network: by intelligently optimizing partner (Howells et al., 2003). Network selection, enterprises get access to resources that they do not have and the capacity to compensate for the claimed beneficial effect of cooperation.
- d) Value Proposition: Describe the advantages of the bundled service and what the firm provides.
- e) Customer base: a group of individuals and/or organizations who share one or more characteristics and to whom the firm intends to deliver a variety of services and goods.
- f) Channels: The many communication, distribution, and sales channels utilized by the firm to reach out to consumers and supply goods and services.
- g) Customer Relations: Facilitate the continuing communication and management process of the company's present and future customers' connections and interactions.
- h) Cost structure: Describe the most significant financial ramifications of core operations and running business models.

- i) Money Streams: There are multiple methods for a firm to capture value and make revenue from various sectors in order to segment consumers by meeting their expectations.

(iii) Circular Business Model

The term circular business model (CBM) refers to activities that are based on a circular economy, as highlighted by the 3Rs: reduce, reuse, and recycle (Lieder & Rashid, 2016).

The primary notion of the circular economy is to reintroduce waste materials into the manufacturing process. Through the "3R" (Refurbish-Reuse-Recycle) strategy, which incorporates economic norms of behavior, this waste material may be utilized on three levels.

- a) Renovation-This is the lowest degree of waste disposal and the lowest cost of reuse in production. The process of returning a worn or damaged product (manufacturing equipment) to its original geometry so that it may be utilized in manufacture is known as refurbishment (Jurac & Zlataar, 2013). Retrofitting is an essential component of climate change mitigation and developing a sustainable connection with the earth.
- b) Reuse-This is the second layer of trash management, with greater rebuilding expenses. In the case of manufacturing equipment, this entails performing general repairs before reinstalling the manufacturing equipment into production. For outdated items, this means completely rebuilding them with more costly parts. The reuse concept entails reusing goods and packaging materials. Manufacturers and designers that adhere to the ideas of a circular economy should priorities the creation of long-lasting and reusable goods, i.e. sustainable design. There are three alternatives for implementing a circular economy in manufacturing and manufacturing: (1) extending product useful life, (2) creating mediation centers for non-functional commodities, and (3) strengthening cooperation and production among these centers (Rong & Ling, 2012). The foundation, however, is to participate in LCA, and the longer service life must be included into the design process. However, this technique often opposes the aim of certain organizations, who desire to reduce the LCA and therefore increase the sales interval on the one hand (Xiyuan & Lei, 2011). Repurposing enterprises, on the other hand, acquire a competitive advantage by showing such socially responsible conduct. This increases their goodwill and hence the brand's standing, which has a beneficial influence on the business's commercial performance (Bocken et al. 2016; Wang et al., 2005).
- c) Recycle-This is the third and last phase of trash disposal. This entails collecting ultimately broken items and transforming them into new products. This process involves sorting, cleaning, and recycling (Lieder & Rashid, 2016). Reducing garbage disposal, prolonging product life and decrease soil, air, and water pollution, contamination (da Cruz et al., 2012).

A Circular Business Model is a business model that conforms to CE principles and incorporates important resource loops that are delayed, lowered, or closed, decreasing resource input for the company and its value network while eliminating out-of-system waste (Bocken et al., 2016; Geissdoerfer et al., 2018a). There are various classifications of CBM types (Lüdeke-Freund et al., 2019; Rosa et al., 2019), and Lacy et al. (2014) emphasize that types are chosen for practical reasons, distinguishing between circular supply, product as a service, product life extension, resource recycling, and sharing platform. Implementing a circular economy business innovation may provide positive economic, environmental, and social outcomes, expanding beyond a narrow focus on economic success (Geissdoerfer et al., 2017; Ghisellini et al., 2016). Waste is essentially non-existent in a truly circular system.

In a fully circular economy, everything continually cycles through multiple resource streams (Emelie Hultberg et al., 2021). The value proposition is an important component of CBM. Circular goods, virtual

services, product service systems (PSS), and consumer incentives in recycling systems are examples of value proposition components (Lewandowski, 2016). A product, a product-related service, or a service may be a circular value proposition (De Jong et al., 2015). This is represented in the influential framework of (Bocken et al., 2016) as shutting, slowing, or decreasing resource cycles. Within these cycles, a diverse range of CBMs arise; some span the whole resource flow, while others concentrate just on certain activities and need links to other CBMs to complete the cycle. The significance of long-term sustainability and/or the impact of systemic changes on corporate innovation in the circular economy. Chiappetta Jabbour et al., 2020 and Jensen et al., 2019 discovered two studies that assessed the economic, environmental, and social implications of several scenarios. (Asif et al., 2016; Palmié et al., 2021) investigated the economics and context of circular economy company innovation strategies. The six primary kinds of CBM that support resource flows identified in a study (Lüdecke-Freund et al., 2019) include repair and maintenance, reuse and redistribution, refurbishing and remanufacturing, recycling, cascading and repurposing, and organic raw materials. Discussions on the circular economy and embedded coalbed methane often center on the environmental and economic advantages, while there is widespread agreement that CBM should have a triple bottom line approach (Geissdoerfer et al., 2017; Kirchherr et al., 2017). As a consequence, CBM is seen as a solution for promoting sustainable development by reducing carbon emissions and waste while enhancing economic growth.

(iv) Circular Economy Business Model (CEBM)

CEBM expands on standard BM principles by allowing resource cycles to replenish organically by shutting down, delaying, or decreasing (Pollard et al., 2021). Similarly, CEBM is the establishment, diversification, acquisition, or transformation of BMs that provide value by proposing, generating, and capturing solutions while adhering to CE standards (Geissdoerfer et al., 2020; Linder & Williander, 2017). CEBM The creation of a circular business strategy necessitates a fundamental change from a linear to a circular business strategy (Foss & Saebi, 2017), which is critical to the practical realization of circular business value (Madosa et al., 2017). CEBM develops in collaboration with the value chain to maximize value potential—the effective proposal and creation's execution (Urbinati et al., 2020). Innovation in circular economy business models strives to increase resource efficiency and effectiveness by discovering novel ways of producing value throughout the product life cycle (Bocken et al., 2016; Den Hollander & Barker, 2016).

There are several CEBMI methodologies that can be found in the published research (Bocken et al., 2019; Pieroni et al., 2019a; Rosa et al., 2019), but they lack the systematization that is necessary to assist the management of strategic circular economy business model innovation (Bocken et al., 2019; Pieroni et al., 2019). An earlier study (Bocken et al., 2019; Pieroni et al., 2019) identified 11 circular economy business model innovation methods. These methods contain process model characteristics that are frequently utilized to offer an ordered collection of practices and support components that describe and guide the execution of the entire business model innovation process (Adrodegari et al., 2018; Pieroni et al., 2019; Smirnov et al., 2012). The authors Lopes de Sousa-Jabbour and others (2019) state that the currently used process models are either conceptual or experimental, and they have not been well examined.

Notably, the installation of CEBM is included in the coverage (Bocken et al., 2019; Pieroni et al., 2019a). The elements are broken down into phases (including activities, actions, and processes), as well as forms (including deliverables, challenges, tools, and change drivers) (text documents, linear

or cyclic processes, and innovation-like leaks). In the literature (Khan et al., 2020; Pieroni et al., 2019), Dynamic Capabilities (DC) are regarded as the foundation of circular economy business model innovation due to their ability to handle institutional, strategic, and operational components of circular economy business model innovation. This is because DC are able to handle all three aspects of circular economy business model innovation (Bocken & Geradts, 2019).

A CEBM organization is defined as one that creates, gathers, and distributes value while improving resource efficiency by extending the useful life of materials, components, and products and closing material loops (Nubholz, 2017). CEBM emphasizes systems that retain resources in their natural state to optimize value by shutting down, slowing down, or limiting naturally renewable resource cycles (Salvador et al., 2020). BSI (2017) offers a definition that extends on the concepts of value creation and capture, as well as the development and value of decision ideas through time (short, medium, and long term). CEBM is a sustainable subdivision that places "economic and environmental factors ahead of social issues" (Rosa et al., 2019). According to Ranta et al. (2018), most CEBM research approaches the triple bottom line as a whole value, restricting the development of economic value and impeding organizational adoption of CEBM. Several CEBM prototypes have arisen in the literature (Pieroni et al., 2020).

The CEBM prototype is explained in detail. The circular economy replaces traditional linear in the circular economy (CEBM). CEBM strives to discover opportunities for circular value propositions, exploit opportunities for circular value production, and optimize prospects for value capture, per the three-value model established by (Richardson, 2008; Boken et al., 2016). CEBM aspires to create commercially viable circulatory systems that provide value to businesses (Bocken et al., 2016). Its components, as a well-known framework, are optimized

to assist CE implementation (Lewandowski, 2016; Nubholz, 2017; Salvador et al., 2020). Another often discussed approach in CEBM research is categorizing activities into three basic functions: value proposition, value creation and delivery, and value capture (Nubholz, 2017; Richardson, 2008).

(v) In-Depth Analysis of Seven Important Circular Economy Business Models

- **Maintenance Business Model**

Companies in this industry must evaluate the necessity of prolonging product life to prevent hoarding useless items. Customers can create a community of people by disseminating experiences and tips on how to fix products with a "DIY" mentality, increasing attachment to the company and awareness of environmental issues (Adam et al., 2017), making customers less willing to buy brand new products, thereby reducing the use of virgin materials and the waste generated (Lüdeke-Freund et al., 2019). A rise in channels between firms and stakeholders may also set the benchmark for adopting this to decrease early costs and influence consumer purchasing behavior in favor of more sustainable purchasing behavior (Hopkinson et al., 2018). Commitment to high-quality repair and maintenance within a defined time frame might result in a favorable brand reputation (Lüdeke-Freund et al., 2019).

- **Reuse And Redistribution**

This unique business concept is aimed at price-sensitive and ecologically conscientious clients who are heavily impacted by product costs and make long-term purchase choices (Adam et al., 2017). This allows firms to lower the cost of raw material manufacturing and energy consumption while increasing client traffic in retail establishments (Lüdeke-Freund et al., 2019).

- **Remanufactured**

This is also known as the "extended product value" concept, in which buyers may choose from a wide range of items at a lower cost (Bocken et al., 2016). Companies may remanufacture by lowering the cost of original materials and receiving free resources. In order to reduce cost, companies are proposed to use the same or higher quality as previously (Mariafrancesca Dagostino et al., 2021).

- **Recycle**

This "waste-to-value" concept employs a cyclical method to recover damaged or useless items, giving garbage a second life (Adam et al., 2017). The beneficial effect of this approach is substituting recycled resources for virgin materials, which saves prices, allows for product diversification, and opens up new market prospects (Lüdeke Freund et al., 2019).

- **Cascading And Reuse**

This one-of-a-kind method recycles nutrients from trash and end products using a variety of biological processes and ecological principles, changing them into inputs and products. The value proposition is "waste is food," which involves transforming natural inputs into energy that would otherwise be wasted (Mariafrancesca Dagostino et al., 2021).

- **Organic Raw Material**

The model's value proposition is to utilize green and organic resources as inputs, which are turned into end commodities in a closed-loop system (Lüdeke-Freund et al., 2019). The process of transforming industrial waste into another industrial feedstock is known as industrial symbiosis (Bocken et al., 2016).

- **Leasing Business Model**

This concept, often known as the "access and performance" model, involves a company leasing a product or service for a certain length of time (Bocken et al., 2016). In this situation, materials and components stay inside the closed loop, allowing for the most effective use of resources, which is the loop's primary aim (Adam et al., 2017).

Circular economy business models have developed as a possible solution to addressing the problems associated with conventional linear economic models, such as resource depletion, environmental degradation, and waste creation. A circular economy, unlike linear models that follow a capture-make-dispose paradigm, encourages regenerative systems that keep resources in use for as long as feasible via Recycling, remanufacturing, and refurbishing (Ellen MacArthur Foundation, 2013). Acknowledging limited resource limits and the need to divorce economic development from resource use is driving this transition toward a circular strategy (Geissdoerfer et al., 2017). A circular economy, by eliminating waste and optimizing resource efficiency, may assist the environment and give economic possibilities by reducing reliance on finite resources and generating creative business models (Ghisellini et al., 2016). Consequently, authorities, businesses, and universities are actively investigating the potential of circular economy ideas to develop more sustainable and resilient economic systems.

Circular economy concepts have indeed gained significant attention in recent years as society becomes more aware of the pressing need for sustainable and environmentally responsible practices. A circular economy seeks to decrease waste, reduce resource consumption, and encourage material

reuse and recycling (Wayan Edi Arsawan, 2022). According to studies referenced in Geissdoerfer et al. (2017), the circular economy presents a new sustainable development paradigm, offering a regenerative approach aimed at decoupling economic growth from resource use and environmental degradation (Korhonen et al., 2018).

According to a research, the possible environmental advantages of circularity include lower greenhouse gas emissions, energy savings, and garbage creation. Furthermore, a circular economy provides economic benefits by increasing resource efficiency, competitiveness, and job creation in recycling and remanufacturing (Lieder & Rashid, 2016). Companies may generate value via cost reductions and new income sources by rethinking existing business structures and embracing circular ideas (Ellen MacArthur Foundation, 2013).

While the circular economy has enormous promise, its execution remains difficult. One of the most major challenges is the shift of present production and consumption patterns, which needs multi-stakeholder collaboration (Korhonen et al., 2018). According to (Lieder & Rashid, 2016), firms, governments, consumers, and other stakeholders must work together to build closed-loop supply chains and enable material flow cycling. Furthermore, consumer behavior influences the adoption of circular processes; increasing awareness and altering attitudes are vital for successfully transitioning to a circular economy (Geissdoerfer et al., 2017). Policymakers also play an essential role in facilitating the adoption of the circular economy via regulatory frameworks, fiscal incentives, and other policy tools (European Commission, 2020). Overcoming these issues requires a comprehensive, integrated strategy that addresses economic, social, and environmental concerns, making the circular economy a complicated but necessary undertaking for achieving the Sustainable Development Goals (SDGs).

Finding

A circular economy business model may provide a variety of environmental and financial advantages. By designing their products for toughness, repairability, and manufacturability, businesses may maximize the usage of raw resources while prolonging the life of their products. Circularity may also encourage innovation, contribute to developing environmentally friendly technologies, and open up new financial possibilities in the recycling and waste management industries. Circular economy concepts are gaining traction across industries as firms see their ability to improve long-term performance and resilience in the face of resource constraints and environmental concerns. As a result, organizations and governments are increasingly incorporating circular economy principles into their programmes in order to promote sustainable development and more regenerative economic systems.

Conclusion

In conclusion, circular economy business models have emerged as a viable revolutionary strategy for addressing the difficulties associated with conventional linear economic models. Examples include resource depletion, environmental damage, and garbage generation. By focusing on waste reduction, material reuse, and resource efficiency, the circular economy offers a viable alternative to a more sustainable and regenerative economic structure (Ellen MacArthur Foundation, 2013). Empirical studies have identified the potential environmental and economic advantages of implementing circular economy concepts, such as lower carbon emissions, energy savings, greater resource efficiency, and job creation in recycling and remanufacturing (Geissdoerfer et al., 2017; Lieder & Rashid, 2016). Policymakers, corporations, and academics have recognized the value of a circular economy in

fostering a more resilient and prosperous future by decoupling economic development from resource use and reducing negative environmental consequences.

However, building a circular economy is fraught with difficulties. To transition from a linear to a circular economic model, adjustments must be made at all levels, including product design, supply chain management, customer behavior, and regulatory backing (Korhonen et al., 2018). To prolong product life and decrease waste, businesses must develop new models that promote durability, repairability, and remanufacturing (Geissdoerfer et al., 2017). Effective stakeholder engagement is required to build closed-loop supply chains and promote material flow circulation (Ghisellini et al., 2016). Policymakers are critical in building an enabling environment by enacting legislation, incentives, and financial systems that promote and reward sustainable behavior (European Commission, 2020). Furthermore, supporting the circular economy concepts necessitates increasing awareness and encouraging changes in consumer attitudes and behaviors toward more sustainable consumption patterns (Lieder & Rashid, 2016). Overcoming these obstacles is essential to fulfilling the circular economy's full potential to advance sustainable development and solve major environmental concerns.

Finally, circular economy business models provide a potential revolutionary strategy to achieve sustainable development objectives by reinventing economic systems and promoting responsible resource management. Its potential advantages in terms of waste reduction, resource efficiency, and economic opportunity highlight its importance in tackling environmental issues and promoting a more resilient economic future. While moving to a circular economy poses hurdles, such as changes in corporate operations and consumer behavior, effective stakeholder engagement and a supportive regulatory framework may pave the way for the successful implementation of circular economy concepts. A circular economy, combining economic development with responsible resource usage and environmental management, promises to build a more sustainable and affluent society.

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Design Thinking Process Towards Creative Teaching and Learning in Southeast Asia

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Abstract

Design thinking has gained prominence as a problem-solving approach that emphasises empathy, creativity, and iterative testing. By simulating the cultural context, designers can gain insights into the preferences, behaviors, and learning styles of students in the region. This understanding helps in developing educational tools that resonate with the students and are more effective in facilitating their learning experiences. The case study focuses on design process, developing, and evaluating two prototypes for schools in Southeast Asia. This approach has the potential to positively impact education in the region by bridging the gap between the tool's design and the cultural background of the students. By taking into account their cultural context, these educational tools can foster greater engagement, relevance, and ultimately, improve learning outcomes. This approach could serve as a valuable case study for other regions looking to incorporate design thinking and culture-based design into their education systems.

Introduction

Design thinking (DT) has gained much attention from practitioners and academics because of its unique approach to problem-solving and innovation. Its emphasis on human-centred design allows for a more holistic understanding of the needs and perspectives of various stakeholders, including students and student groups (Mitcheli et al., 2018 p. 2). By employing DT principles in education, we can avoid an overly narrow perspective and instead foster a broader, more inclusive approach to teaching and learning. DT encourages educators to empathise with students, understand their unique challenges and aspirations, and create solutions that truly address their needs. However, it's important to note that there may be differing opinions regarding the applicability and outcomes of DT. Some proponents believe it can revolutionise education by fostering creativity, critical thinking, and collaboration, while critics may raise concerns about its implementation and potential limitations. To further explore these differences, it would be interesting to delve into specific examples and research studies that have examined the outcomes of DT in education. Understanding the nuances and context can help provide a clearer picture of the benefits and limitations of this approach. We must note that little has been done to improve usability features in the learning domain. Usability measured by effectiveness, efficiency, and satisfaction is often overlooked in the development of educational platforms due to instructors' and software developers' lack of technological skills (Davis, 1989), which makes it challenging for teachers to present complex concepts and motivate students who display a lack of interest in learning new concepts. The presence of attention-deficit students in classrooms obscures the matter, and moreover, the Southeast Asian teachers who are fundamentally unequipped to comprehend complex educational digital tools further complicate the matter. DT can be a valuable tool to promote a more inclusive and student-centred educational experience. By incorporating diverse perspectives and engaging students in the design process, educators can foster a broader perspective that considers the needs and aspirations of all learners.

Literature Review

DT is a systematic approach to problem-solving that emphasises understanding and empathising with the end users. It helps uncover their desires, needs, and challenges in order to create innovative solutions. Over the years, various iterations and approaches have emerged

within the DT framework. These approaches share the common goal of fostering creativity, collaboration, and user-centricity throughout the entire design process. In contrast to classical engineering sciences, DT relies on a sociological foundation by having the attribute “human-centred” prefixed to DT (Brenner & Uebernickel, 2016). Creativity and innovation are the essential variables of the DT process apart from focusing on human-centred attributes. Many scholars have identified creative processes to be part of DT activities. The synergy between design and creativity is a powerful combination that can lead to the creation of high-quality and useful designs. By focusing on both quality and usefulness, designers can ensure that their creations not only look aesthetically pleasing but also serve their intended purpose effectively. In this context, Mulet and colleagues (2017) argue that there is a significant relationship between creativity and the outcome of design. Therefore, the process of Design Thinking (DT) must have an effective method to encourage creativity. Based on this argument, it is essential to expose design students to appropriate techniques that foster creativity in order to support their growth as future designers. By offering them a favorable environment for generating ideas, we empower them to explore their creative abilities and generate novel design solutions.

Seidel and Fixson (2013) explain that there are three stages in design thinking: need-finding, brainstorming, and prototyping. These stages are put into practice using various tools, such as different ethnographic research techniques (for example, observation and journey mapping), tools for making sense of information (such as mind mapping and personas), visualization tools (like imagery, storytelling, and metaphor), tools for generating ideas (such as brainstorming and concept development methodologies), approaches for creating prototypes (such as business concept illustrations and storyboarding), and methods for designing experiments to test ideas. Recently, Liedtka et al. (2021) have argued that users of DT experience a powerful and cumulative transformation as they advance through different stages and utilise various tools. Each stage builds upon the previous one, and a failure in one stage predicts failures in others. If the discovery stage does not produce profound insights, it is unlikely that brainstorming tools will generate unique and valuable solutions. In such cases, the final stage, which involves using experimentation tools, will only result in average ideas for prototyping and testing. Therefore, innovators gain cumulative benefits as they progress through each stage.

Human-Computer Interaction Approach in Design Thinking

Objective

According to our previous study and surveys (Vadivel et al., 2021), it has been demonstrated that cultural influences affect the teaching and learning styles of individuals from Southeast Asia. The objective of this case study on design thinking (DT) is to explore how high school teachers and students in the region perceive and prefer an exceptionally effective design for educational tools considering cultural factors. Therefore, the case study aims to identify the cultural factors and cultural orientation that should be incorporated into educational tools to enhance motivation and facilitate teaching and learning in Southeast Asia. To determine cultural design preferences for educational tools, this study employed several DT techniques,

including a Brain-swarming session, a Cultural Interface design survey, and an Interactive Technology Focus Group.

Method

The first step in the process is to conduct a Brain-swarming session, which aims to encourage discussions among Asian students in order to generate high-quality and creative ideas for a digital game or activity that incorporates their cultural background.

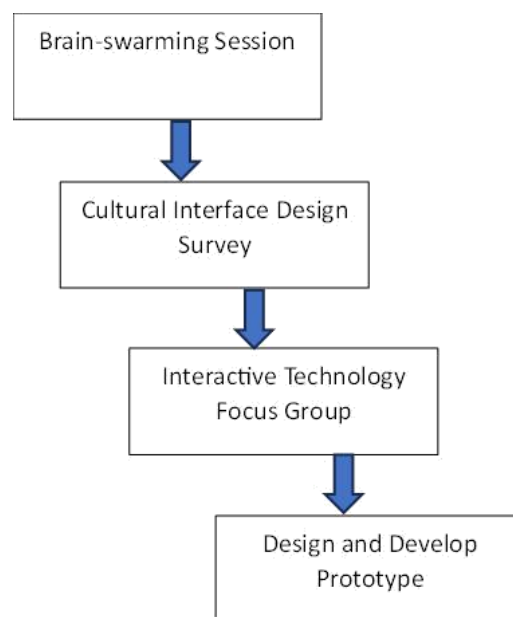


Figure 1 Design Thinking Flow

The second step involves conducting a survey on Cultural Interface Design, which aims to gather the requirements and user interface preferences of Asian students from a particular group. The third step entails organizing an interactive technology focus group, where the goal is to gain insights from students regarding their experiences and perspectives on the use of icons and buttons in educational tools. This is achieved by showcasing some examples. The final stage of the process involves designing and building a prototype based on the discoveries and findings from the previous three steps: the brain-swarming session, the cultural interface design survey, and the interactive technology focus group.

Brain-swarming Session

Brain-swarming is a creative problem-solving technique that combines elements of brainstorming and swarm intelligence. In the brain-swarming session, participants came together to generate ideas and solutions for the specific problem or challenge for cultural

interactive design. The purpose of this approach is to leverage the collective intelligence and diversity of perspectives within the group to produce innovative ideas and insights. Brain-swarming can be particularly effective when tackling complex problems that require a wide range of expertise and creative thinking. By fostering collaboration and encouraging participants to build upon each other's ideas, brain-swarming session can lead to novel and impactful solutions.

Students of Asian origin, including those from Vietnamese, Indonesian, and Indian backgrounds, who are between the ages of 17 and 21, were extended an invitation to partake in a brain-swarming session focused on technology design preferences for an educational system at James Cook University. In order to inspire ideas, students were informed about the educational system's goal and asked culturally relevant questions. To maximize the effectiveness of the Brain-swarming activity, we established specific themes related to Asian culture that participants could draw inspiration from. Throughout the Brain-swarming session, we encouraged open-ended discussions and the exploration of various cultural perspectives. We also provided prompt questions to encourage conversations and spark ideas, ultimately ensuring that the generated ideas aligned with the project's objectives. Furthermore, we created a safe and inclusive space where all participants felt comfortable sharing their thoughts and opinions.

The following questions were used to initiate discussions among the participants:

- ☐ What childhood activities or games have impacted you most?
- ☐ Which cultural factors positively affect how you learn, and why?
- ☐ Which cultural values do you observe in class (secondary school)?
- ☐ What cultural values should be present in technology used in the classroom?
- ☐ If you are allowed to transform the technology used in the classroom, what factors would you consider about Southeast Asian culture?

The students were given papers, whiteboards, coloured stickers, coloured markers, and pens to sketch their design preferences and ideas creatively. We also shared some traditional activities and games to initiate discussion on types of childhood games. The brain-swarming session lasted around two hours, during which the students generated creative design ideas. Some of the ideas included: ensuring a simple user interface, incorporating attractive colours, allowing customization through **different themes, incorporating more enjoyable activities**, making the user interface visually appealing, providing easily understandable instructions, teaching basic concepts, incorporating features that encourage creativity, and **utilizing social games** to make the activity more fun. These results led to the next phase in DT which is a Cultural Interface Design Survey. The objective of the Cultural Interface Design Survey is to obtain students' interface preferences for the educational tool.

Cultural Interface Design Survey

A preliminary survey was conducted to collect the preferences and experiences of Asian students regarding User Interface (UI) design. A total of twenty Asian students from James Cook University were selected to participate in the survey, representing countries such as Myanmar, Singapore, and Vietnam. The participants' age range was between 17 to 24 years old. The survey comprised six open-ended questions for discussions related to UI features, the impact of the interface on User Experience (UX), ease of use, and students' motivation, enjoyment, and learning experiences.
















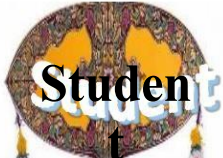
- ☐ Does easy-to-use UI motivate learning?
- ☐ Does Colourful UI stimulate the learning experience?
- ☐ Does Colourful UI improve the learning experience?
- ☐ Does Simple UI enhance the learning experience?
- ☐ Is easy-to-use UI effective and fun?
- ☐ Does quick downloading and uploading of materials enhance the learning experience?

The result from the cultural interface design survey results indicate that students prefer an interface that is colourful, lively, simplified, and enjoyable. They want an interface that can enhance their learning experience. Based on these findings, we have decided to move forward with the next phase, which is an Interactive Technology Focus Group. The goal of this focus group is to encourage students to identify cultural icons, buttons and design for the educational interface.

Interactive Technology Focus Group

A focus group was conducted to collect the preferences of Asian students in User Interface (UI) and User Experience (UX) through voting. A total of 15 Asian students were invited to participate in a survey before the design phase. The survey evaluated icons and buttons for a technological interface. The participants hailed from Singapore, Indonesia, Myanmar, and Malaysia, and their ages ranged from 16 to 25. Among the respondents, 4 were Indian, 2 were Malaysian, and 9 were Chinese. The survey on icons and buttons consisted of six questions that explored cultural icons and buttons related to cultural motivation, cultural pride, and a positive learning experience with cultural values. The results were organized according to the respondents' backgrounds to discover their specific cultural preferences. The choices made by the students were significantly influenced by their culture, festivals, and pride in their respective country.

Table 1 Evaluation of Icons and buttons

1) Would these pictures motivate you or make you comfortable if they appear as the background of the buttons on an educational application/tool?			
			
(a)	(b)	(c)	(d)
2) Which backgrounds would motivate you or make educational application/tool? you comfortable if they appeared on			
			
(a)	(b)	(c)	(d)
			
(e)	(f)	(g)	(h)
3) Which buttons would make you comfortable if they appeared on an educational			
			
4) Which one of the following types of music would you want to hear in the educational application/tool during an outdoor activity? (a) Western Cowboy (b) Local_Malay			
5) Would you prefer animations (moving pictures) in an educational application/tool? Yes No Not sure (a) (b) (c)			
6) Would you prefer to see more localised (e.g., from Southeast Asia) images on an educational application/tool (e.g., local festivals, local iconic buildings, etc.)? Yes No Not sure (a) (b) (c)			

The results of the focus group indicate that most students showed a preference for a background and buttons that are a single color. When asked if pictures appearing as the buttons' background on an educational application or tool would motivate or make them comfortable, the majority of students chose a design that reflects their own country and culture. These students were from Myanmar and Indonesia. When it came to their preferred type of music to hear in the educational application or tool during an outdoor activity, the majority of students chose "local Malay" music over "Western cowboy" music. Furthermore, 60% of the students expressed a preference for animations in the educational application or tool, and another 60% expressed a desire for more localized images, such as local festivals and iconic buildings from Southeast Asia.

The three phases of design thinking (Brain-swarming, Design survey, and Focus group) resulted in the development of a Themed-based Prototype and an Activity-based Prototype.

The outcome of Design Thinking

The Festive-Themed Prototype



Figure 2 Figures for Festive Theme (Christmas)

The initial design took a theme-based approach. We made a prototype with a festive theme designed

specifically to teach the Science topic of "Photosynthesis" in Secondary schools across Southeast Asia. We tested this prototype in Indonesian secondary schools, involving 80 students and 17 teachers. We created,

developed, and evaluated various festive themes, such as Christmas, Ramadhan, Diwali, and Lunar New Year, in Indonesia. Figure 1 demonstrates an example of icons with a Christmas theme.

The Activity-based Prototype

The design resulted in a second outcome, which was a prototype focused on activities. Several traditional activities and cultural games were identified (see Table 2). 'Gasing', 'Sepak Takraw', and 'Congkak' were recognized as cultural game metaphors, while 'Batik' and 'Wau bulan' (Moon kite) were seen as cultural artwork activity metaphors, both of which were transformed into cultural- activity metaphors in the prototype. The most popular cultural game, 'Gasing' (Top), and the cultural activity of 'Batik' prints were chosen as the cultural activity metaphor. The purpose of this prototype was to educate Science students in Southeast Asia about the concept of "Photosynthesis". To incorporate cultural significance, a traditional cultural activity called Gasing, which featured a batik design, was selected.

Table 2 Popular Asian cultural-activities and Artwork

Traditional/Cultural Games	Descriptions
Top Spinning (Gasing) <i>Gasing (Top)</i>	A rope is tightly tied around the gasing (top) and spun. Once the gasing starts to turn, the player carefully scoops off the gasing using a wooden bat and places it on a wooden surface. The gasing that spins the longest wins. It is widely played in the villages in Southeast Asia (Jaelani et al., 2013).
Sepak Takraw (rattan ball) <i>Sepak Takraw</i>	The game is played by two teams using a woven rattan ball. Each team has three players and two substitutes. Players can only touch the ball with their feet, head, knees, and chest. Each team can handle the ball three times while passing it to the other side; the goal is not to let it touch the ground. The first team to score 15 to 21 points wins the set (depending on the rules). This game is played in almost all countries in Southeast Asia (Zarei et al., 2018).

<p>Congkak</p> <p><i>Congkak</i></p>	<p>Congkak is a popular board game played in Asia. It is known as Mancala in other regions. The Congkak board has two rows of seven holes containing seven seeds and a storehouse (bigger hole). Two players are seated at opposite sides and take turns playing by collecting all of the marbles from one of the holes on their side and dropping one marble at a time in each hole clockwise until the player has emptied all the seeds in their hand. If the last seed falls into a house part of a player's village, he can pick up all the seeds from his opponent's house that lies opposite it and deposit them in his storehouse. The player who collects the most seeds in the storehouse wins the game (Chan, 2010).</p>
Cultural Artwork Activity	Descriptions
<p>Batik Art Design (Silk painting)</p> <p><i>Batik (silk painting)</i></p>	<p>Batik painting (silk painting) is well known in Asia as an art. It is a unique tradition in Southeast Asia. It is called Batik in Malaysia, Indonesia, Vietnam and Myanmar, and it is called Barung Batik in the Philippines. Batik designs are expressions of love and happiness (Rante et al., 2016).</p>
<p>Wau Bulan (Moon Kite Flying)</p>	<p>These are huge, decorated kites used in kite flying competitions in Malaysia, Indonesia, the Philippines (during Cebu's Sinulog Festival), Brunei and Vietnam. They are also used during the Bali Kite Festival: worshipers send signals to the gods asking for a plentiful harvest during this colourful festival. There is an enormous annual traditional kite flying competition in Thailand</p>



Wau Bulan (Moon Kite)

between Chula and Pakpao. In Malaysia, the kite is named Wau Bulan (moon kite), an intricately designed moon kite traditionally flown in Kelantan; it has been adopted as one of Malaysia's national symbols (Noor and Manan, 2012).

The prototype was tested in secondary schools in Indonesia and Brunei, involving a total of 100 students and 20 teachers who participated in the evaluation. The activity-based prototype can be seen in Figure 3, a ‘Batik’ printed ‘Gasing’ metaphor prototype.



Figure 3 Cultural Activity using Gasing metaphor

The Students' Learning Process

The student learning process typically involves several stages and strategies to facilitate effective learning. Students in the class participate in activities as a part of the learning process. The process begins by providing the students with an overview of cultural activities and discussing their experiences with individuals who have previously engaged in similar activities. The subsequent step involves introducing the students to an interactive cultural-activity prototype, which is specifically designed to enhance their comprehension of the scientific concept of Photosynthesis. In the third step, students are expected to respond to a series of survey questions in order to share their experiences using this cultural activity prototype. Research conducted by Sithira Vadivel et al. in 2021 demonstrated that students in Southeast Asia exhibited an improved learning experience and outcome as a direct result of engaging in these activities (Sithira Vadivel et al., 2021).

Conclusion

There are many ways to creatively present learning content. The flow of thoughts and ideas can generate a remarkable output that no other design could have produced. The more creative the

learning is, the more it enhances students' learning experiences. Creative presentation of learning content can greatly enhance students' learning experiences. By incorporating creativity into the design and delivery of educational content, students are more likely to be engaged, motivated, and interested in the subject matter. Furthermore, integrating culture and technology in the learning process helps create a well-rounded educational experience that resonates with students from various backgrounds. It not only promotes cultural awareness and understanding but also highlights the relevance of technology in our increasingly interconnected world. Creative thinking transcends boundaries and opens up endless possibilities. It encourages students to think critically, solve problems innovatively, and apply knowledge in new and unconventional ways. By nurturing creativity in education, we can inspire a new generation of thinkers, makers, and problem solvers who can tackle complex challenges and create meaningful contributions to society.

In summary, embracing creativity in the presentation of learning content has immeasurable benefits. It sparks students' curiosity, fosters a love for learning, and empowers them to think creatively, critically, and collaboratively.

Limitations and Future Research

The drawback of this study is that its participants and audience mainly belong to the Southeast Asia region. In order to enhance the reliability of our findings and gain a more extensive understanding of the subject, as well as gather a wider range of perspectives and experiences, future research will involve participants and audiences from various regions. This may lead to more comprehensive insights. The approach utilized in this study is an iterative technique of design thinking. A similar iterative technique of design thinking will be applied in our upcoming study concerning the trust and safety design of Generative AI.

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Facial-Sentiment Recognition in Chatbots: Navigating the Nexus of AI Innovation and Ethical Implications in the Age of Industry 4.0.

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Abstract

In the emergent era of Industry 4.0, the confluence of business and technology has never been more pronounced. As educators and researchers in the business domain, we recognize the transformative potential of Artificial Intelligence (AI) platforms, such as ChatGPT, in reshaping business models and consumer interactions. Our latest research endeavors to bridge the gap between technology management and user experience by integrating facial-sentiment recognition into chatbot systems. Drawing upon a rigorous qualitative analysis involving a diverse student cohort, we have conceptualized a pioneering chatbot model. This model, underpinned by cutting-edge facial recognition AI, is designed to interpret and respond to user emotions in real-time, setting a new benchmark in digital customer engagement strategies pertinent to modern businesses. By leveraging principles of design thinking, this innovation offers businesses a unique opportunity to enhance customer engagement metrics, notably session duration and interaction counts.

However, our findings also caution businesses about the potential cybersecurity risks and privacy concerns inherent in such digital disruptions. This research, therefore, not only heralds an

innovative UI design inspired by advancements in AI but also underscores the importance of ethical considerations in technology management. In summation, our study:

- 1) Presents an innovative intersection of business and technology, informed by the advancements of platforms like ChatGPT.
- 2) Offers empirical evidence on the business benefits of integrating facial recognition technologies within digital engagement strategies.
- 3) Advocates for a balanced approach, emphasizing the ethical considerations surrounding AI in a business context.

As we continue to navigate the multifaceted landscape of technological change in the business domain, it is imperative to stay abreast of innovations that can drive sustainable and competitive advantages for enterprises in the digital age.

Keywords: Industry 4.0, AI, ChatGPT, Facial recognition, Chatbots, Digital engagement, Cybersecurity

[ID:81]

Integrating AI Technology into Higher Education Classrooms- Purpose and Benefits

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Abstract. Artificial Intelligence (AI) stands poised to transform the landscape of education, presenting a profound opportunity to revolutionize traditional teaching and learning paradigms. Through the harnessing of machine learning algorithms and the finesse of natural language processing, we find ourselves at the precipice of a pedagogical evolution. This proposal earnestly contends for the infusion of AI platforms into the hallowed halls of higher education classrooms. At its core, the primary objective of this proposal pulsates with a resounding commitment—to elevate student outcomes to unprecedented heights. The central idea orbits around the creation of learning experiences that are not only highly personalized but also astonishingly adaptive. The essence lies in providing students with a pedagogical journey finely tuned to their unique needs, an experience that resonates with their individual aspirations and abilities. It is a vision that harbors the promise of heightened engagement, heightened retention, and, most significantly, a fortified scaffold for academic triumph.

This vision, however, does not exist in abstraction. Its realization demands a meticulous blueprint. To this end, the proposal charts a structured course of action. It begins with the

meticulous identification of learning objectives, creating a clear map of the educational terrain to be traversed. The selection of AI platforms and tools then follows, a discerning choice aligning with the contours of those identified learning objectives and themes. It calls for an orchestration of collaboration—an alchemy of pedagogical minds as instructors and instructional designers unite in crafting learning materials attuned to the AI platform. Next, the proposal demands the creation of assessments, the litmus tests of progress, indispensable for furnishing the AI platform with the crucial feedback loop. Pilot programs take the reins next, initiated within a select cadre of courses, designed not only to unveil the shining potentials but also to unveil any lurking implementation intricacies. Finally, guided by the compass of insights gleaned from the pilot, the proposal unfurls the grand sail of scalability, expanding the AI platform's reach to encompass a broader academic expanse.

The benefits reaped from this endeavor are a rich harvest. It promises a pedagogical terrain wherein personalization reigns supreme—a landscape where learning adapts to the student, not the other way around. Real-time feedback becomes the stalwart ally of both student and instructor, a compass pointing the way to progress. Engagement takes on new dimensions, and the precious fruits of retention are reaped in abundance. Indeed, the pinnacle is academic success, marked by not only higher grades but also a heightened graduation rate—a testament to the transformative potential of AI.

In sum, the proposal champions the cause of AI platforms in higher education classrooms. It resonates with the promise of empowering students, propelling them into the future workforce, and breathing new life into the tapestry of education. It is a clarion call to institutions of higher learning, an entreaty to consider the adoption of AI as a beacon guiding the ship of education toward a brighter, more personalized horizon.

Keywords: AI, education, personalized learning, adaptive learning, student outcomes, engagement, retention, academic success

[ID:99]

The Metaverse: Impacts on the Built Environment – Indoor Environmental Quality , Health and Wellness

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Abstract

Currently the Metaverse is still at its nascent stage and inevitably it is becoming a reality in our lives soon. This platform will impact multiple sectors and will bring about business opportunities as well as contribute to a higher quality of life. In this paper, we will discuss key opportunities and challenges about how a metaverse universe might bring about superior building performance in terms of resource efficiency, health, and wellness. It will cover the opportunities such as: education, learning and development for both humans; and machines, and digital transformation to assist in achieving Net Zero. In addition, challenges will be discussed including health concerns, and significant carbon emissions in training AI models.

Keywords: Resource Efficiency, Sustainability, Health, Wellness

[ID: 102]

A Novel IoT-based Automatic Water Changing System with Proposed Water Parameter Monitoring Technique

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Abstract

Hobbyists who keep aquariums have a difficult time finding inexpensive, dependable tools to manage their fish tanks. Weekly water changes are one of the most crucial jobs, yet many available solutions are either pricey or unreliable. Additionally, most solutions only deal with water changes and ignore other crucial elements like pH levels, dissolved particles, and temperature variations that may call for adjustments to the water. To help aquarium hobbyists manage their fish tanks, this paper offers an IoT-based automatic water changing system with water parameter monitoring. Through Home Assistant, the device enables customers to wirelessly monitor and manage water parameters using a mobile device. It includes several sensors for measuring temperature, dissolved solids, pH, and water level. The system can do more than just measure; it can also analyze the data and make decisions based on the readings. For instance, the system may activate the water inlet to refill the tank with water if the waterlevel drops below the predetermined threshold. The temperature can also be changed by employing a heater or cooling fan. When the system is unable to act immediately, it can activate an indication to alert the user to the need to change a certain parameter. Simply said, this gadget automates fish tank maintenance for aquarium hobbyists at a reasonable price. Water level, pH, salinity, temperature, and dissolved solids are among the factors it can track and modify. This can ensure that the environment in the fish tank is always hygienic and clean.

Keywords: Fish tank, water parameter, fish tank maintenance, dissolved particles

[ID: 116]

‘Zero-Waste Cities’ Initiatives and the Construction of China’s Urban Circular Economy Innovation Hubs

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Abstract

The development of circular economy (CE) is closely linked to innovation. In the process of building 'Zero-Waste Cities' in China, it is crucial to build innovation hubs that can promote the recycling of solid waste. Based on the analysis of relevant theories of Circular Economy Innovation Hubs (CEIHs), this paper studies the basic situation of pilot cities in the construction of 'Zero-Waste Cities' in China, and provides a research framework for the construction of CEIHs and questionnaire scales.

Key Words: Zero-Waste Cities; CE; Innovation Hubs

1 Introduction

Before 2002, China's CE policy mainly focused on environmental protection and pollution prevention, mainly at the level of end-governance of the environment (Wu et al., 2023). The Mineral Resources Law of the People's Republic of China and The Energy Conservation Law of the People's Republic of China, promulgated and implemented in 1996 and 1998 respectively, began to advocate the concept of CE development, promote energy conservation in society as a whole, improve the efficiency of resource and energy use, protect and improve the environment, and promote comprehensive, coordinated and sustainable economic and social development (NPC, 2002, 2005). In 2005, according to the Several Opinions on Accelerating the Development of CE issued by the State Council of the People's Republic of China, the Pilot Work Programme on CE was proposed for the first time, and key industries such as iron and steel, non-ferrous metals, coal, electric power, chemical industry, building materials, light industry, and other key sectors such as renewable resources, waste metals and used household appliances, as well as some industrial parks were selected, and some provinces and municipalities were relied upon to carry out pilot projects on CE (SCC, 2005). In 2008, the Law of the People's Republic of China on the Promotion of CE was promulgated and implemented, which clarifies the incentives and legal liabilities for the activities of reduction, reuse and resourcing in the processes of production, circulation and consumption from a legal perspective (NPC, 2008).

Starting from 2012, China began to promulgate a five-year plan for the development of the CE, making the CE an important part of national economic development.

Comprehensive recycling of solid waste is an important component in the development of a CE. In order to promote the waste reduction, resource utilisation and harmless disposal of solid waste, the State Council of China released the Pilot Work Programme for the Construction of 'Zero-Waste Cities' in 2018, and took 11 cities, including Shenzhen, and 5 special areas, including Xiong'an New Area, as pilot reforms (SCC, 2019). In December 2021, the Ministry of Ecology and Environment and other departments collaboratively released the Work Programme for the Construction of 'Zero-Waste Cities' in the 14th Five-Year Plan Period (MEE, 2022), which promotes the construction of 'Zero-Waste Cities' in about 100 cities at the prefecture level and above, and promotes the construction of solid waste-generating cities with high solid waste intensity and development of CE.

However, achieving CE is a systematic project that requires not only the diversified participation of governments, enterprises, social citizens, etc., but also changes in people's values, social norms and behaviors, as cultural barriers, technological barriers, and financial barriers may hinder the realization of CE (Suchek et al., 2021). Therefore, how to realize the innovation of CE under the multiple participation and influence of multiple factors is an important research topic. That is to say, innovations play an important role in waste reduction, source utilization and sound disposal of solid waste in the process of building 'Zero-Waste Cities'. These innovations involve the development of new technologies, new business models and new processes that support sustainable production, consumption and resource management.

From an organisational viewpoint, an innovation hub is a physical or virtual space that facilitates innovation by bringing together like-minded individuals, businesses and organisations for collaborative learning and co-creation (Jiménez and Zheng, 2021). The core value of innovation is that it is a community of passionate and entrepreneurial people (Bachmann, 2014). This characteristic of diverse participation is exactly suitable for the realisation of CE innovation, so CEIHs in cities play an important role in promoting the construction of 'Zero-Waste Cities'.

This paper firstly analyses the relevant theories of CEIHs, followed by reviews the literature on CEIHs, then finally, a presentation of the research framework for constructing CEIHs and a research scale.

2 Basic Theory of CEIH

Theories related to CE and innovation mainly include stakeholder theory, stakeholder collaboration, resource-base view and competitive advantage theory (Ye, F., et al., 2023; Simmou, et al., 2023; Kuo, et al., 2022). For the innovation hub, social responsibility to stakeholders or pressure from stakeholders will promote the diversified participation of enterprises in the innovation process. In the process of collaborative innovation, concern for the environment gives rise to green innovation, which in turn becomes an advantageous resource for the enterprise and improves its competitive advantage (Figure 1).

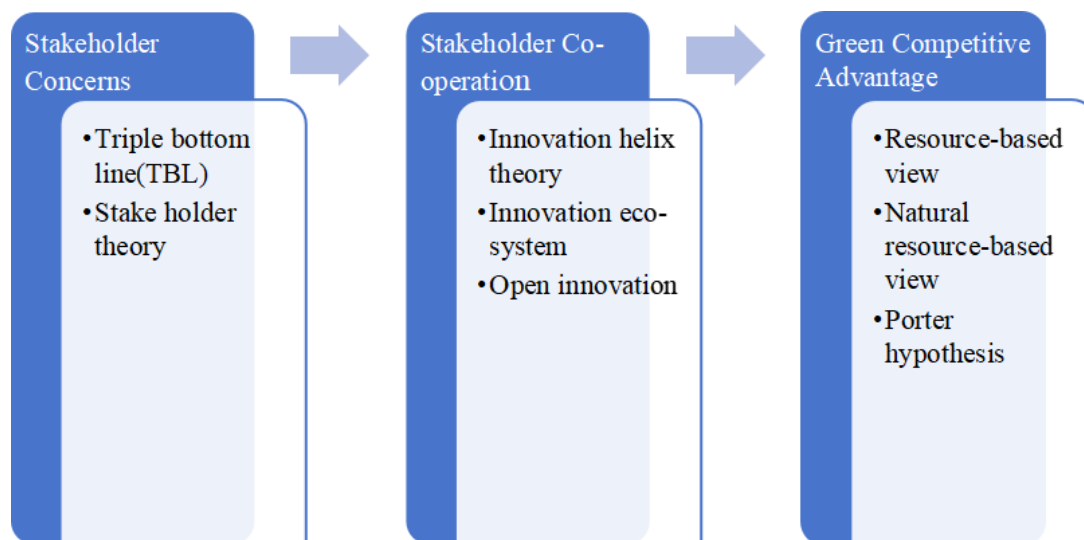


Figure 1 Theories Related to CEIHs
(Source:The author of this study)

The Triple Bottom Line (TBL) is a concept developed by Elkington (1997) in relation to sustainable development. It evaluates the overall sustainability and impact of an organisation's activities by considering three dimensions of performance: economic, social, and environmental. TBL is often closely linked to the balance of the 3Ps (people, planet and profit) (Giang et al., 2022). People measures the social impact of the organisation, including commitment to shareholders and other stakeholders. Planet measures the environmental impact of the organisation, with the key metrics being the level of waste and recycling. Profit measures the economic impact of the organisation, with the key metrics including profitability and total profit levels. TBL is important primarily because it goes beyond a single economic metric and prompts leaders to think beyond profit and consider each stakeholder affected by the organisation. In other words, the interests of stakeholders around a particular event or activity can be put into the framework of TBL (Hede, 2007).

Stakeholder theory, first proposed by Freeman in 1984, is a perspective in business ethics and management that emphasizes the importance of considering the interests and relationships of

various stakeholders in decision-making processes. According to Donaldson and Preston (1995), stakeholder theory is firstly descriptive and instrumental; descriptive sees the firm as a collection of competing and cooperative interests with intrinsic value, and instrumental believes that stakeholder theory provides a framework for linking stakeholder management practices to the achievement of various firm performance objectives. Secondly, stakeholder theory views stakeholders not only as a legitimate interest group in the firm's activities, but also as having intrinsic value. Finally, stakeholder theory is a broad management theory that requires changes in the organisational structure, policies, and leadership styles of firms when dealing with stakeholder's relationships.

In the process of corporate technological innovation, concerns and pressure from stakeholders give rise to responsible innovation. The classic theory of collaborative innovation with stakeholders is the innovation helix. The innovation helix theory started with the triple helix model of interaction between academia (universities), industry and government (Etzkowitz, 1993). As the role of consumers, the public or non-governmental organisations (NGOs) in innovation gradually increased, social participation in the innovation process became more important, leading to the quadruple helix model (Carayannis and Campbell, 2009). Later, the focus of the innovation process on the natural environment further led to the emergence of the quintuple helix model to study stakeholders in the innovation ecosystem (Duran-Romero et al., 2020). The innovation ecosystem consists of different players, relationships, and resources that all play a role in transforming a great idea into transformative impact at scale. The effectiveness of each part of the innovation ecosystem relies on the other parts of the system moderating, working together, and achieving innovation performance. Innovation ecosystems thrive on diversity and collaboration. To successfully collaborate in an ecosystem, the mindset must dynamically transcend organizational boundaries (Fasnacht and Fasnacht, 2018). This is open innovation. According to Chesbrough and Brunswicker (2013), open innovation is a more distributed, more participatory, and more decentralised approach to innovation. Within an innovation ecosystem, the diversity of organisations and individuals contributes to a rich pool of ideas and expertise available for open innovation activities.

In eco-innovation or green innovation, well-designed environmental regulations can stimulate innovation, enhance competitiveness, and lead to long-term economic benefits for businesses, which is the Porter hypothesis proposed by Porter and Linde in 1995. According to their study, regulation promotes innovation mainly because it (1) signals resource inefficiency and technological improvements to firms. (2) increases environmental awareness among firms and rewards. (3) reduces uncertainty about the value of environmental investments. (4) increases external pressure for technological progress. (5) creates a level playing field for economic transformation.

In the short term, although the benefits of green innovation may not be able to make up for the corresponding costs, in the long term it will bring great benefits to enterprises. Therefore, according to the Resource-Based View (RBV) theory (Jay Barney, 1991), a company's competitive advantage stems from its unique and valuable resources that are difficult to imitate or replicate. In green innovation, the Natural Resource-Based View (NRBV) (Hart, 1995) is an extension of the RBV theory that focuses specifically on the strategic management of natural resources. The RBV theory emphasises all types of resources, the NRBV theory specifically examines the unique characteristics and challenges associated with natural resources.

3 Literature Review

The main goal of CE is to seek the regeneration of resources so that obsolete materials can be dematerialised and re-entered into the production chain (MacArthur, 2014) and waste can be reprogrammed (EEA Report, 2019) and used as a resource (Wilts, 2017). However, there are multiple barriers to the realisation of CE such as high start-up costs, complex supply chains, difficulties in collaboration between firms, lack of technology, and compromises in quality (Jaeger and Upadhyay, 2020), which urgently requires eco-innovation in business models, networks, organisational structures, processes, products, and services (Prieto-Sandoval et al., 2018).

Taratori et al. (2021) introduced a quintuple helix model to describe stakeholders in innovation ecosystems based on the triple helix model (Etzkowitz, 1993) and the quadruple helix model (Carayannis and Campbell, 2009), and suggested that the principles of CE should be applied to eco-innovation. By analyzing 83 papers related to innovation and CE, Suchek et al. (2021) categorized 7 research areas in the areas of strategic alliances for innovation, business models, influencing factors, value creation, technology and waste management, resources and capabilities, and competitive advantage of clusters.

From the perspective of the research content of eco-innovation and the barriers to achieving the goal of CE, how to design an effective organisational model to promote technological innovation in related fields through effective collaboration and value creation among stakeholders, and ultimately to achieve the goal of CE, is the core of the solution to the current problem. From this point of view, innovation hubs may be an effective organisational model.

Different scholars have given different definitions of innovation hub depending on the purpose of the research. Hans-Dieter (2008), Mian and Hulsink (2009) consider innovation hubs as network platforms and innovation ecosystems for knowledge production and transfer. Other scholars link innovation hubs to science parks and incubators, arguing that an innovation hub is a space or geographical area that brings together R&D institutions as well as venture capital, incubators, and start-ups (Sambuli and Whitt, 2017; Cameron Davis et al., 2023). In Global Innovation Hubs Index (2020), Nature Journal gives the definition of innovation hubs: "Cities or metropolitan

areas that are able to leverage their unique strengths in science, technology and innovation to lead the global flow of innovation factors and influence the efficiency of resource allocation."

From the current literature, there is less research literature that combines CE and innovation Hubs. In the context of the growing popularity of concepts such as Smart Cities, Livable Cities, Green Cities, Biophilic Cities, EcoCities, and Regenerative Cities, Liaros (2020), from the perspective of Habitat Theory, has characterized the regions or cities where people live, portraying them as CEIHs and emphasising features such as openness and transparency, life-cycle planning, systems thinking, and striving for zero waste based on renewable energy, but he has not examined the innovation function of the HUB. From the perspective of innovation management, CEIHs refer to connecting different links of the industrial chain into a network within a certain region, creating synergies among stakeholders and eventually forming a dynamic circular innovation ecosystem. Within this system, stakeholders such as research institutes, entrepreneurs, companies, investors, incubators, and governments provide collaborative experiences and share information, skills, and technological expertise with each other, which ultimately produces eco-efficient results (Vehmas et al., 2018; Todeschini et al., 2017; Weissbrod and Bocken, 2017).

In terms of the influencing factors of CE, de Jesus and Mendonça (2018) and Kirchherr et al. (2018) argue that the influencing factors of CE include institutions, markets, technologies, culture and infrastructure. Institutions include various planning, supportive and regulatory policies related to CE; markets include factors such as production costs, financing costs, product competitiveness, and customer acceptance; technologies include various types of technologies and human resources to realise the CE; society and culture include the environmental awareness of consumers and the green culture of enterprises; infrastructures include the construction of infrastructures in CE parks as well as various types of waste recycling and treatment facilities etc. In terms of influencing factors of innovation hub, the infrastructure of common workspace (Timeus and Gasco, 2018), the sharing of explicit and tacit knowledge (KMT, 2018; Wikhamn and Styhre, 2019), the risk-tolerant culture of the organisation (Maroufkhani, Wanger and Ismail, 2018), interactions and collaborative networks between different stakeholders (Teh and Roos, 2015), etc. all have an impact on the innovation capability and effective operation of the Innovation Hub. It can be seen that the influencing factors of CEIHs include external and internal factors, both of which together have an impact on the innovation performance of the organization.

Recovery and recycling of solid waste is a core aspect of CE, and technological interventions and eco-innovation are important tools to achieve solid waste management (Yadav et al., 2022). In China, The Pilot Work Program for the Construction of 'Zero-Waste Cities' in 2018 considers 'Zero-Waste Cities' to be a model of urban development that is led by the new development concept of innovation, coordination, greenness, openness and sharing, and that promotes the

formation of green development and lifestyle, continuously promotes the reduction of solid waste at source and the utilization of resources, minimises the amount of landfill and reducing the environmental impact of solid waste to a minimum. Working Programme for the Construction of 'Zero-Waste Cities' in the 14th Five-Year Plan Period in 2021 aims to achieve a "single network" of solid waste management information, the concept of "Zero-Waste" will be widely accepted, and the solid waste management system and management capacity will be significantly improved (MEE, 2021).

In technological innovation, China established the National Industrial Solid Waste Treatment Industry Technology Innovation Strategic Alliance in August 2020 (Sina, 2020), with the aim of establishing a technological innovation system that combines enterprise as the main body, market as the guide and combines industry, academia and research, and guiding and supporting the gathering of innovative elements to enterprises. In terms of development models, some cities in China are actively building CE industrial parks and exploring the construction path and organisation model of 'Zero-Waste Cities'. For example, the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) is actively exploring a synergistic sharing model of specialised parks (Zheng Wei, 2022) to link the solid waste industry chain.

The construction of 'Zero-Waste Cities' in China requires not only innovation leadership, but also the joint participation of many parties, so the CEIH based on solid waste treatment is an important organisation model to promote the technological innovation capacity of the municipal solid waste treatment industry and to achieve the goal of the construction of 'Zero-Waste Cities'.

From the current research literature, although there is a large amount of literature on CE and innovation, and some of the literature has studied the case of innovation hubs, there is less literature on CEIHs, and there is no research on CEIHs from the perspective of 'Zero-Waste Cities' construction. This paper attempts to study the role of CEIHs in the construction of 'Zero-Waste Cities' in China, based on the practice of such cities.

4 Current Situation of Zero-Waste Pilot Cities in China

The second batch of 'Zero-Waste Cities' construction pilots originated from the "Work Programme for the Construction of 'Zero-Waste Cities'" during the Fourteenth Five-Year Plan period. According to the list of cities to be constructed released in April 2022, a total of 113 cities were included, including 4 municipalities directly under the central government and some cities in 27 provinces of mainland China. The evaluation indicators include 5 primary indicators, 17 secondary indicators and 58 tertiary indicators on solid waste reduction at source, resource utilisation, final disposal, safeguard capacity and public access. Due to the relatively late construction of the pilot, it is not yet possible to see the specific technological innovation effects in the process of building 'Zero-Waste Cities'. Therefore, the analysis in this section is mainly based on the first pilot construction list of 'Zero-Waste Cities' released by China's Ministry of

Ecology and Environment (MEE) on 30 April 2019, including Shenzhen City in Guangdong Province, Baotou City in Inner Mongolia Autonomous Region, Tongling City in Anhui Province, Weihai City in Shandong Province, Chongqing Municipality, Shaoxing City in Zhejiang Province, Sanya City in Hainan Province, Xuchang City in Henan Province, Xuzhou City in Jiangsu Province, Panjin City in Liaoning Province and Xining City in Qinghai Province. From the start of the pilot to the present day, these 11 cities have gone through more than three years of construction. Using data on the number of enterprises in the environmental governance industry and patents in the solid waste treatment industry in the pilot cities, an attempt is made here to analyse the current state of innovation in solid waste treatment in these cities. It also introduces the 'Zero-Waste Park' through the case of Shaoxing, Zhejiang Province.

4.1 Annual Changes in the Number of Enterprises in the Environmental Management Sector

The number of enterprises related to environmental governance in pilot cities from 2011 to 2022 was queried through the China TianYanCha database. As shown in Figure 2 below, from 2019 to 2022, the number of enterprises in the environmental governance sector in pilot cities increased significantly. In particular, Shenzhen City in Guangdong Province, Chongqing Municipality and Xuzhou City in Jiangsu Province experienced the largest increases.

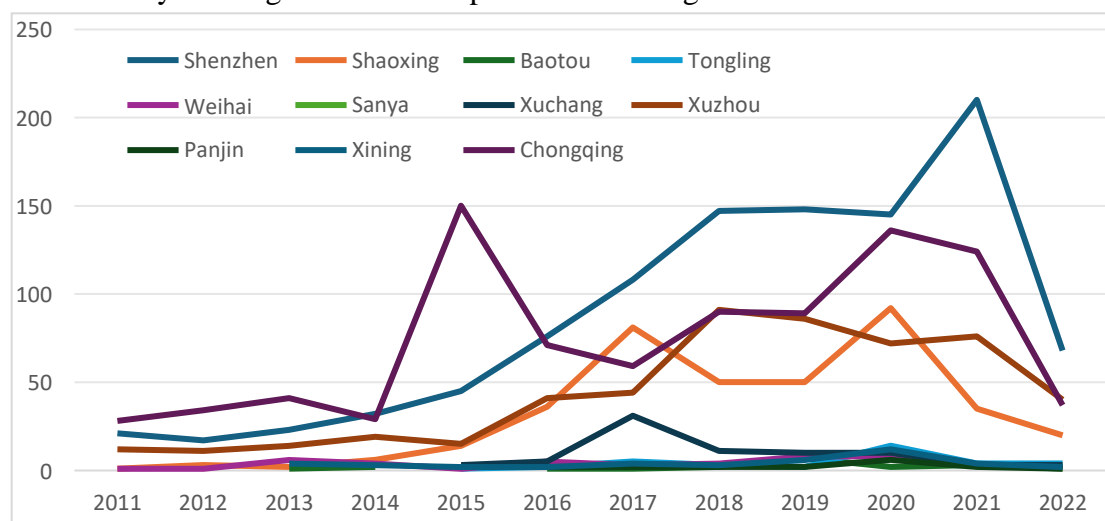


Figure 2 Changes in Environmental Management Enterprises in Pilot Cities of 'Zero-Waste Cities', 2011-2022

(Source of data: TianYanCha enterprise database, <https://www.tianyancha.com/>)

4.2 Patent Data Changes in the Field of Solid Waste Treatment

According to Feng (2020) on the IPC classification number of patents in China's solid waste industry, by querying the Innojoy patent database, the patent application data of the 11 pilot cities were extracted based on the solid waste industry patent data in the provinces where the 11 pilot cities are located, and at the same time, the proportion of the number of patent applications of the pilot cities in the patents of the province was calculated, and the time range was from 2011 to

2022. The data show that although the number of solid waste industry patents in some of the pilot cities shows an increasing trend (Figure 3), the proportion of each city in their respective provinces has not changed significantly (Figure 4).

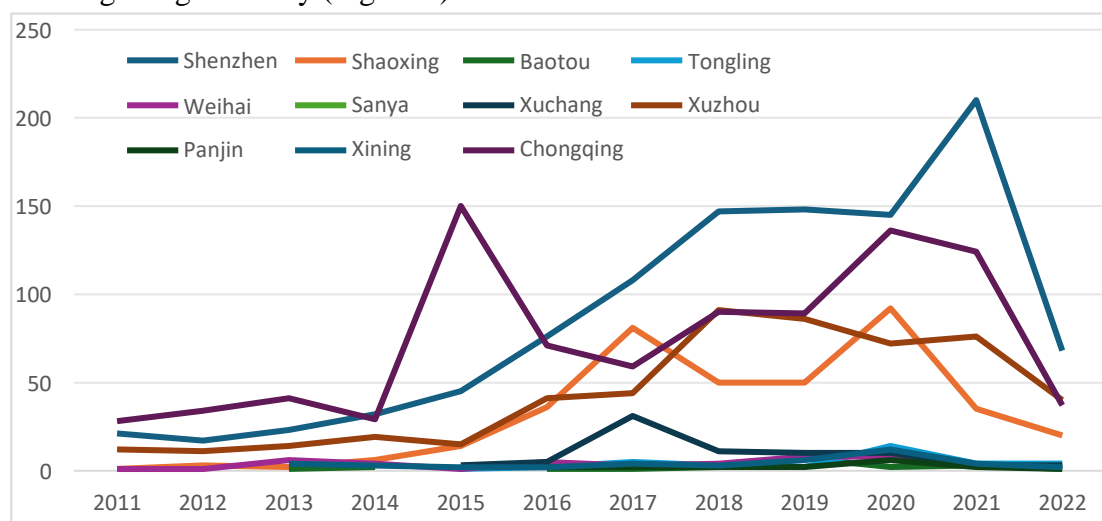


Figure 3 Changes in the Number of Patent Applications in the Solid Waste Industry in Pilot Cities From 2011 to 2022

(Source of data: Innojoy patent database, <http://www.innojoy.com/search/home.html>)

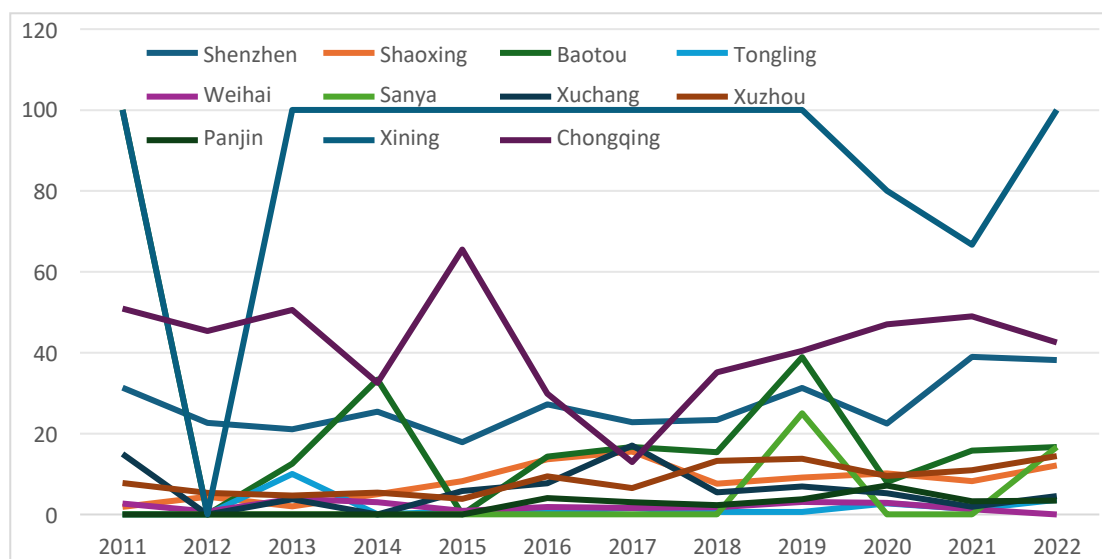


Figure 4 Proportion of Patent Applications in Solid Waste Industry in Pilot Cities in the Province, 2011-2022

(Source of data: Innojoy patent database, <http://www.innojoy.com/search/home.html>)

It can be seen that the development of solid waste treatment and CE in the pilot cities is mainly based on the increase in the number of related enterprises, and the effect of eco-innovation has

not been realised. If we analyse the reasons for this, on the one hand, it may be that the COVID-19 epidemic that started in 2019 has affected the operation of enterprises and also disrupted the plan of the zero-waste pilot cities. On the other hand, it is the fact that enterprises in the field of solid waste treatment are not yet very strong in their awareness of innovation and motivation to innovate.

4.3 Construction of 'Zero-Waste Parks'

According to a study on 'Zero-Waste Parks' conducted by China's "Green Development Alliance of State-level Economic and Technological Development Zones", the total amount of solid waste generated in the 15 industrial parks in the pilot cities is about 6.96 million tonnes, which accounts for a large proportion of the total amount of solid waste generated in the respective pilot cities, indicating that industrial parks are a key area for the construction of 'Zero-Waste Cities'. Industrial parks are a key area of focus for the development of 'Zero-Waste Cities'. The organisation's survey shows that although these industrial parks have made great efforts in leadership and organisational development, institutional innovation, and research into green production methods, there are still major gaps in construction planning, fine management, solid waste tracking, and waste disposal capacity of 'Zero-Waste parks'¹⁴.

The 'Zero-Waste Park' in Shaoxing, Zhejiang Province, is part of the overall 'Zero-Waste Cell' construction programme¹⁵. Shaoxing City in Zhejiang Province is committed to promoting the construction of a 'Zero-Waste Cities' through scientific and technological innovation (Qi Yangjian et al., 2021). Since 2006, in order to promote the technological impetus for the development of CE, Shaoxing City has implemented the '850' project for CE, constructing more than 50 key CE projects each year in eight categories and three major industrial fields, such as energy conservation, water conservation, comprehensive resource utilisation and waste utilisation. These projects play an important role in promoting ecological innovation in Shaoxing. Binhai New City Biomedical Industrial Park is a typical 'Zero-Waste Park', the introduction of VAR incinerator enterprises in the park can be most of the hazardous wastes generated in the production process of the park for incineration, the combustion of steam generated for production, a year is expected to save 50 million yuan. Enterprises in the park also put forward a "green process" to drive the production of enterprises, built six pre-treatment of

¹⁴ Source: "Progress of the Thematic Study on the Construction of 'Zero-Waste Parks'", Ministry of Ecology and Environment of the People's Republic of China, at <https://www.mee.gov.cn/home/ztbd/2020/wfcsjssdgz/dcsj/ztyj/202006/P020200601580703601860.pdf>. It is clear that the construction of a CEIHS is very important in order to transform urban high-technology industrial parks into 'Zero-Waste Parks'.

¹⁵ 'Zero-Waste cells' is an organizational model for promoting the construction of 'Zero-Waste Cities', which promotes the development of a CE throughout the city by fostering small units of social life in the city that reduce, resource and harmless solid waste. For example, the construction of "Zero-Waste cells" in Shaoxing City, Zhejiang Province, includes 12 major categories of elements, such as schools, neighborhoods, city parks, hospitals, factories, supermarkets, hotels, scenic spots, institutions, construction sites, villages and parks.

environmental protection workshops and related ancillary workshops, and actively build a 'Zero-Waste Factory'¹⁶.

5 Reflections on the Construction of China's Urban CEIHs Based on the 'Zero-Waste Cities' Construction

5.1 Basic Research Framework

In order to promote the improvement of solid waste treatment efficiency in the construction of 'Zero-Waste Cities' in China, highlight the innovative concept of 'Zero-Waste Cities' construction, and realise the improvement of the innovation ability of urban solid waste treatment industry under the condition of multiple participation, it is necessary to build an urban CEIH. Based on the above theoretical analysis, the research framework of urban CEIH is constructed by combining the 4R principle of solid waste treatment and the development concept, basic principle and index system of China's "Zero-Waste Cities". This is shown in Figure 5 below. Firstly, the correspondence between the '4R+D' in CE and the evaluation index system of China's 'Zero-Waste Cities' is analysed. Secondly, the basic framework of CEIH is constructed according to the innovation requirements and participants in the process of solid waste reduction, solid waste resource utilization and solid waste final disposal in industry, agriculture, construction and residential life, and the interrelationships of solid waste treatment industry chain, technology chain and innovation chain. Finally, it is determined that the ultimate goal of the CEIH is the improvement of innovation capacity and the construction of a 'Zero-Waste Cities'.

¹⁶ Zhejiang News. (2021) Shaoxing's 'Waste-Free City' construction on display. Available at: <<https://zj.zjol.com.cn/news.html?id=1765719>>, accessed at: 26/10/2023.

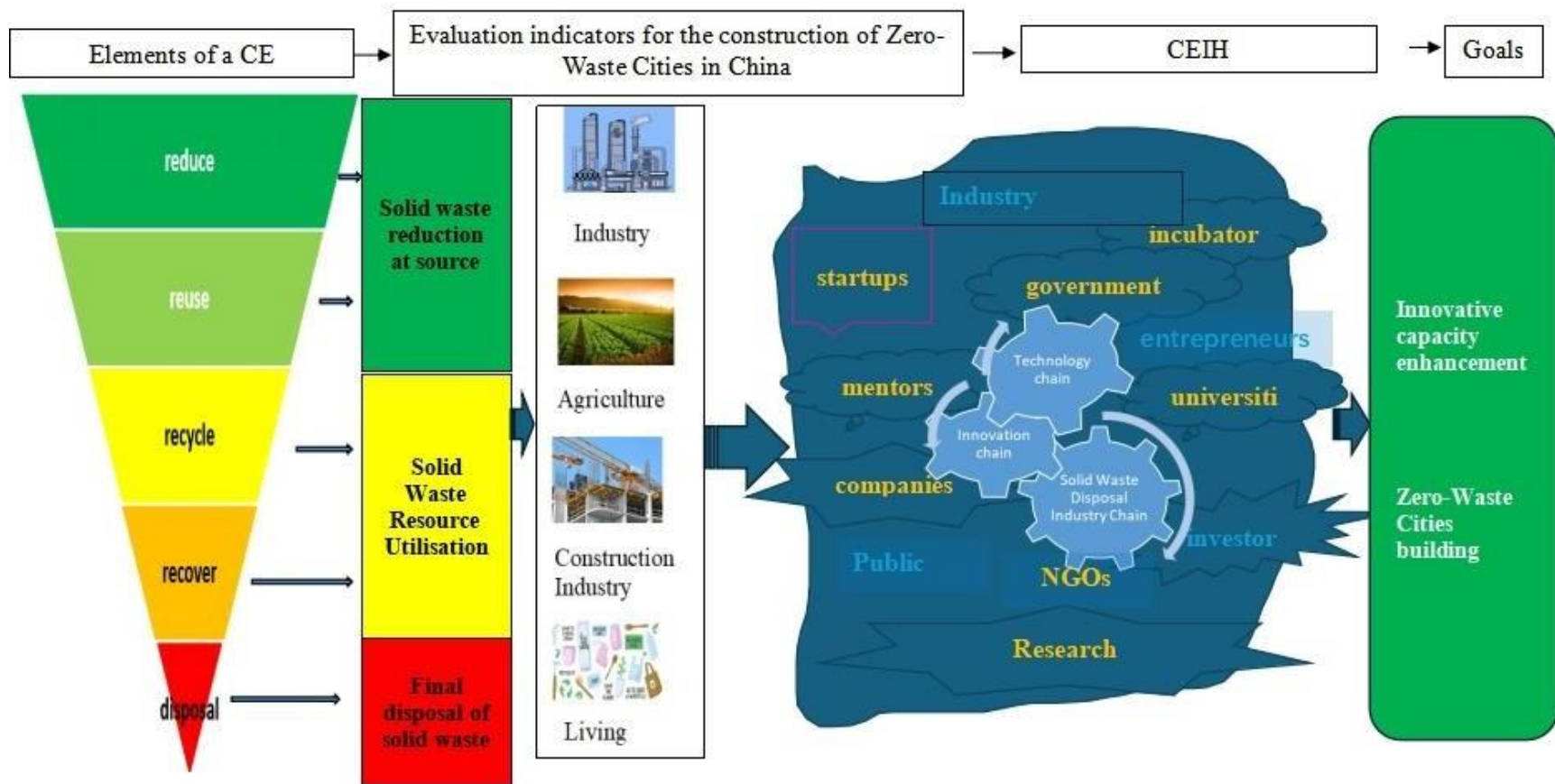


Figure 5 Framework for Analysing Urban CEIHs
(Source: The author of this study)

In addition, the construction of a CEIH must take into account the leading industries in the city. As different industries produce different types of solid waste and use different technologies, targeted CEIH should be built for specific industrial parks. In addition to industry, innovation hubs for solid waste disposal in agriculture and construction should also be built. In addition, the construction of urban virtual innovation hubs should be actively explored, so that citizens can participate in the virtual space of the CEIHs network, and enhance the environmental awareness of citizens.

5.2 Scale Design for Evaluating Innovation Performance in CEIHs Research

According to the Indicator System for the Construction of 'Zero-Waste Cities' (2021 Edition) issued by the Ministry of Ecology and Environment of China, there are formulas for calculating the tertiary indicators corresponding to the three primary indicators of source reduction, waste resource utilisation and waste disposal, which can be evaluated theoretically based on the results of the calculations, but some of the indicators are difficult to calculate based on the existing public statistics on environmental protection. In addition, two first-level indicators about safeguarding capacity and the public's sense of access cannot be quantified. It can be seen that the use of questionnaires is a better choice to evaluate the performance of the construction of a 'Zero-Waste Cities' and the performance of its CEIHs which are studied in this paper. Here the questionnaire scale for the performance of urban CEIHs was established by eliminating the indicators related to agricultural solid waste and life solid waste and selecting the indicators related to innovation. The evaluation indicators are as follows:

Table 1 Evaluating Indicators of the CEIHs Performance

Primary index	Secondary indicators	Tertiary index	Items	Survey Respondent
Industries	Industries	Reduction at source	Reduced intensity of general industrial solid waste generation	Industrial business
			Reduction in industrial hazardous waste generation	
			The proportion of industrial enterprises assessed through cleaner production audit increased	
			The proportion of enterprises carrying out green factory construction increased	
			Increase in the percentage of industrial parks carrying out eco-industrial park construction, recycling and green park construction	
		Waste Resource Utilisation	Increase in the comprehensive utilisation rate of general industrial solid waste	
			Increase in the comprehensive utilisation rate of industrial hazardous waste	
		Disposal of waste	Increase in the decline in landfill disposal of industrial hazardous waste	
			Increase in the coverage rate of medical waste collection and disposal system	
			Increase in the coverage rate of the collection and disposal system for hazardous waste from social sources	
			Substantial decrease in storage and disposal of general industrial solid waste	
			Increase in the proportion of dumps where comprehensive remediation of bulk industrial solid waste dumps (including	

Protection capability	Construction Industry	Reduction at source	tailings ponds) is carried out	Construction business
			Green Buildings Increase as a Percentage of New Construction	
		Waste Resource Utilisation	Increase in the ratio of assembled buildings to new buildings	
			Increase in the comprehensive utilisation rate of construction waste	
		Disposal of waste	Increase in the utilisation rate of construction waste resources	
	Policy		The decrease of construction waste consumption increased	Government
			Local regulations, policy documents and relevant plans for the construction of 'Zero-Waste Cities' are relatively well formulated	
			Improved coordination mechanism for the construction of 'Zero-Waste Cities'	
			The effectiveness of 'Zero-Waste Cities' construction has been included in the assessment of political performance.	
	Market		Increase in the number of "'Zero-Waste Cities' cell" construction units.	Business
			Increase in the balance of green loans for 'Zero-Waste Cities'.	
			Increase in the stock of green bonds for 'Zero-Waste Cities'.	
			Increase in the proportion of comprehensive utilisation products in government procurement	
			Increase in the research and development of key technologies and equipment for solid waste recycling and disposal, as well as the transformation of results	
	Technology		Increased participation in the formulation of technical standards and norms for the resourcefulness and harmlessness of solid waste.	Business
			Solid waste management has implemented information-based supervision	
	Supervisory		Environmental regulatory authorities	Environmental department
			Increase in the passing rate of sampling inspections for standardised management of hazardous waste	
			Increase in the filing rate of criminal cases on the discovery, disposal and detection of environmental pollution of solid waste	

			Decrease in the rate of closing cases involving solid waste letters, complaints and reports	
			Increase in the coverage rate of solid waste environmental pollution cases for ecological	

			environment damage compensation.	
Sense of achievement by the citizen			Increase in the popularity rate of publicity, education and training for the construction of 'Zero-Waste Cities'	Urban citizen
			Increased public participation in the construction of 'Zero-Waste Cities'.	
			Increased public satisfaction with the effectiveness of 'Zero-Waste Cities' construction.	

6 Conclusions and Further Discussions

The construction of 'Zero-Waste Cities' is an important initiative to promote the development of China's CE. Solid waste reduction, resource utilisation and waste disposal in the construction of 'Zero-Waste Cities' are closely related to technological innovation by enterprises. The study found that the pilot cities of 'Zero-Waste Cities' construction have actively explored the construction of "Zero-Waste cells", but due to the impact of the COVID-19 epidemic, the pilot cities of 'Zero-Waste Cities' construction have not been able to achieve higher level of technological innovation in solid waste treatment than other cities. Therefore, the organisational model of urban CEIHs should be explored in accordance with the evaluation indicators of the Ministry of Ecology and Environment of China on the construction of 'Zero-Waste Cities', so as to promote the sustainable development of cities. At the same time, in terms of performance evaluation, it is also necessary to overcome the shortcomings of the existing secondary data and establish the research scale of CEIHs through a questionnaire survey.

In addition, in order to further promote the construction of CEIHs in the process of 'Zero-Waste Cities' construction, various types of influencing factors need to be considered. In terms of internal influencing factors, they mainly include the innovation capacity of cooperation within the Innovation hubs, the green culture of the company and the green intellectual capital. External factors include the innovation hel formed by external cooperation, external environmental policy pressure and other stakeholder pressure. In addition, the construction of the CEIHs needs to be led by the government. Because the construction of the CEIHs requires a large amount of capital investment, and it is not possible to achieve profitability in the short term. In order to achieve the modernisation of solid waste governance capacity and governance system, and to realise China's long-term sustainable development goals, the construction of the innovation hubs under the leadership of the government is needed.

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Self-learning human assistive autonomous system enabled by foundation models and robotics middleware framework

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The worldwide aging society in the developed and developing world is rapidly increasing. In 2022, over 770 million people are aged 65 which is 10% of the world's population and it is estimated that by 2050, it is expected to reach 16% and by 2100, 25%. [1]. There is concrete evidence that health and medical needs increase as we age. At the same time, the number of healthcare professionals is declining with a projected shortfall of 10 million health workers by 2030 [2]. In the elder care sector, research into robotics for healthcare has been in development for decades, however, the constant cycle of improvement in the intelligence space is still heavily being performed by humans. Foundation models for robotics have been a development of interest for roboticists worldwide [3]. By using modularised foundation models to capture a continuous stream of data on the observation of the expression, movement, voice, behaviour, emotion, and other sensory data of the patient, a customised response could not only

elevate the emotional and mental setbacks of the individuals but also provide possible early detection of deadly diseases like heart attacks. The successful response from these robotics systems that's coupled with foundation models could further be improved by interaction with other robotic systems via the robotics middleware framework that is performing its own self-learning processes. This would not only reduce the time and cycle required for improvement by trained healthcare professionals but also reduce both the workload and manpower required for such tasks.

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A Real-Time Operating System (RTOS) based Robotic Car

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Abstract

Robotics has been around for many years. The first modern robot was invented in 1950s. It was an inventor from Louisville, Kentucky by the name of George C. Devol. As technology advances, we have many robots available today. From simple as a RC car to complex as Humanoid robot called Sophia. In today's world most places need robots to ease the workflow. However, most of the existing robots we need to constantly try and improve them and many ways. This paper proposes a Multi-Threaded Real-Time Operating System (RTOS) based Robotic Car controlled through an Android App. This robotic car facilitates users to wirelessly control the robotic car via their Android mobile phone. Three different modules are operating concurrently in the device – microcontroller, RTOS, and Android app. The first module is the microcontroller which processes various input/output data. The second module is the RTOS which takes the user's input and prioritizes which task it will execute. Lastly, the Android app which is a user interface where the user can input which direction, they want the robotic car to move.

Keywords: Robot, RTOS, android, microcontrolle

[ID:135]

Consumer Perceptions of Fairness with Fintech AI

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Abstract

This study examines whether consumers perceive differences in procedural and distributive fairness between humans and AI in fintech service delivery. Using two scenario experiments we find that when subjects were told that their transactions were being processed by an AI algorithm or a person without being told which, subjects showed no difference in the levels of procedural fairness and unfairness and distributive fairness and unfairness they experienced. However, when subjects were explicitly told the processor of their transactions (exclusively human or AI), consumers experienced a difference in the level of procedural unfairness they experience between humans and AI. Specifically, when subjects were exposed to procedural unfairness they thought AI was more unfair than humans. Subjects also reported higher levels customer satisfaction for humans compared to AI in the unfair condition. The study found further that the effect of procedural unfairness on customer satisfaction was moderated by algorithm discomfort and attributions of company responsibility for AI actions. These findings suggest that as AI becomes more competent in delivering services to consumers, managers need to be more strategic about how AI is branded and how services failures with AI is managed.

Key terms: AI, fintech, fairness procedural unfairness, algorithm discomfort

This study evaluates the role of fairness in AI interactions between consumers and Fintech services. Financial service firms such as retail banks and personal investment management firms have been on the forefront of AI adoption with applications such as transactions monitoring and portfolio management. Perceptions of fairness regarding how decisions are made that impact customers in respect of billing of customer expenses and allocation of returns have always been core aspects of effective relationship management (Bhatt 2020; Devlin, Kumar, and Sekhon 2014; Worthington and Devlin, 2013; Zhu and Chen, 2012; Carr 2007; Seiders and Berry, 1998). Fairness theory is mainly explained in terms of theory of justice, social exchange, and equity theory (Adams, 1963, 1965; Smith et al. 1999; Patterson et al., 2006). Although fairness can be defined in several dimensions (Bhatt 2020; Carr, 2007; Colquitt et al., 2001), the primary dimensions are procedural fairness and distributive fairness (Anderson and Petterson 2008; Kumar 1996; Duffy et al. 2003; Hamilton; 2006; Sweeney and McFarlin, 1993).

This study examines the role of procedural fairness and distributive fairness in interactions between consumers and AI. Procedural fairness is concerned with how decisions are made regarding customers. Procedurally fair decisions involve keeping customers informed, allowing input and being courteous on decisions that affect them. Distributive fairness refers to how financial value is shared in the relationship. Distributively fair treatment of customers involves charging of appropriate and reasonable fees and conveying returns to customers in a timely fashion.

Given the rapid spread of generative AI as a means of interacting with customers it is reasonable to ask if consumers can discern whether they're interacting with humans or AI based on how fair and or unfair they're treated during a service interaction. A difference in distributive fairness is not anticipated between human and AI service providers, since distributive fairness to the customer is receiving less value than what is desired by the customer. Both touch points are equally capable of shortchanging customers. However, these touch points may differ on procedural fairness, which is about how consumers are informed about the decisions that affect them and use of appropriate courtesies. While social protocols are clear for front line employee and customer interactions, they are more ambiguous for AI customer interactions and for how consumers interpret and attribute actions. Hence, the first research question:

RQ 1: Can consumers determine whether they're interacting with an AI or a human based on how fairly or unfairly (distributive and procedural) they are treated in a fintech interactions.

Methodology

RQ1 was tested using a scenario experiment in which a small business customer applied for a \$10,000 loan from a fictional digital bank. Subjects were told that they were advising the loan applicant and needed to review the application process. The experiment is comprised of four manipulations, namely procedural fairness, procedural unfairness, distributive fairness and distributive unfairness. After submitting a loan application, the applicants were informed that further requests and the loan approval decisions would be done via email. Subjects were told that the bank has two systems for reviewing and approving loans that operate independently of each other. Subjects were not told whether applications were being processed either by an AI or by Humans. Subjects in the AI and Human groups were presented with the same fairness experiences. Subjects were provided with the following description prior to each manipulation.

Loan applications are reviewed and approved by either a loans officer or an AI (artificial intelligence) algorithm. An AI algorithm is a computer program that can perform tasks done by humans without human intervention. The AI algorithm reviews applications and makes decisions independently of human input. Only one of these (the loans officer or the AI algorithm) will review and make the approval decision on your loan application. The AI communicates with the applicant via email without human intervention. The AI Algorithm and the loans officer have the same level of expertise.

All subjects were informed that customer loans would be processed within 24 hours and that it would take a further 8 hours to deposit the funds. In the procedurally fair condition loans are processed in 24 hours and deposited within eight hours. In the procedurally unfair condition loans were processed and approved in 24 hours but were not deposited to customer's account until 5 days after being approved. The distributive fairness condition customers were told that their interest rate would be 3.5% and this was the average for all customers. In the distributive unfairness condition customers were told that their interest rate on the loan would be 6% even though the average interest rate for customers receiving this loan was 3.5%.

Results

The dependent variable is whether subjects thought the application was being processed by a human loans officer or and AI algorithm measured using a semantic differential scale of 1 (more likely human loan officer) to 7 (more likely AI algorithm). The manipulations were successful: procedural fair/unfair ($p=.035$), distributive fair/unfair ($p=.039$). The results (see Tables 1 and 2) indicate that there is no significant difference in the degree to which subjects thought the application was processed by AI when people were in procedural fair vs. unfair conditions ($M_{\text{procedural fair}}=5.09$ vs. $M_{\text{procedural unfair}}=5.20$, $p=.806$) as well as in distributive fair vs. unfair condition ($M_{\text{distributive fair}}=4.93$ vs. $M_{\text{distributive unfair}}=4.60$, $p=.398$). Study one shows conclusively that when customers are aware of the possibility that they may be dealing with AI or a human, experiencing distributive unfairness or procedural unfairness will not lead them to conclude who they are dealing with. This is good news for AI developers. The findings indicate that consumers don't have an inherent bias toward technology regarding fairness in service interactions.

Table 1: Results: Comparison of the Differences in Perception of Served by human or AI (Procedural fairness Vs. Procedural unfairness)

	N	Mean	Std. Deviation	Std. Error Mean
Procedural fairness	33	5.09	2.082	.362
Procedural unfairness	40	5.20	1.698	.268

*The difference is not significant ($p=.806$)

Table 2: Results: Comparison of Differences in Perception of Served by Human or AI (Distributive fairness Vs. Distributive unfairness)

	N	Mean	Std. Deviation	Std. Error Mean
<u>Distributive fairness</u>	40	4.93	1.623	.257
Distributive unfairness	35	4.60	1.684	.285

*The difference is not significant ($p=.398$)

Study 2

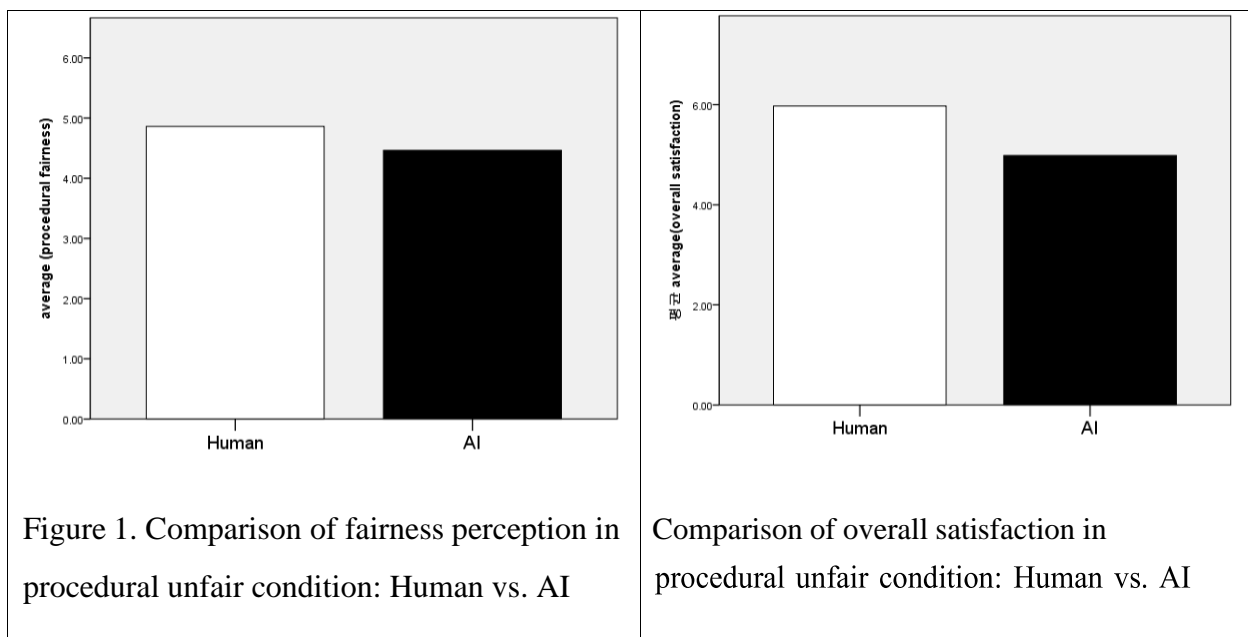
In study 2 we expected that there would be differences in perceptions of fairness when people know who they are interacting with (AI vs. Human).

RQ2: Is there a difference in consumers' fairness perception when they know who they are interacting with (AI vs. Human)?

RQ3: Do consumers experience different levels of customer satisfaction depending on whether they experience distributive and procedural unfairness from an AI vs a human?

Subjects in the AI condition were told that customer loan applications were processed and decided by AI and similarly for subjects in the human condition. Customer satisfaction was used as the dependent variable. Manipulation checks were successful for both procedural fairness/unfairness ($p < .001$) and distributive fairness/unfairness ($p < .001$). Study 2 found no significant difference between the level of procedural fairness ($M_{\text{Human}}=5.3542$ Vs. $M_{\text{AI}}=5.3971$, $p=.866$), distributive fairness ($M_{\text{Human}}=5.4688$ Vs. $M_{\text{AI}}=5.5064$, $p=.866$) and distributive unfairness ($M_{\text{Human}}=4.4881$ Vs. $M_{\text{AI}}=4.1429$, $p=.349$) between subjects served by humans and AI. A difference was found for the procedural fairness condition. When subjects interacted with humans, they perceived that it was fairer than when they interacted with AI (see Figure 1, $M_{\text{Human}}=4.8618$ Vs. $M_{\text{AI}}=4.4643$, $p=.866$, $p=.08$). Also, subjects had significantly higher customer satisfaction levels for humans compared to AI (see Figure 2, $M_{\text{Human}}=5.9737$ Vs. $M_{\text{AI}}=4.9841$, $p=.019$). These findings suggest that procedural unfairness is more noticeable in interactions with frontline employees but notwithstanding, consumers are likely to be more satisfied with humans than with technology.

Figure 1: Perception of Procedural Unfairness



Following the results of Study 2, further exploration was confined to procedural unfairness. It expected that consumer discomfort with AI algorithms would increase the negative effects of unfair experiences on customer satisfaction. Algorithm discomfort has been shown to increase consumer skepticism toward fintech firms. As such it has the potential to increase the negative effect of the consumers' procedural unfairness perception on overall satisfaction.

RQ4: Does algorithm discomfort increase the negative effects of procedural unfairness on consumers' satisfaction?

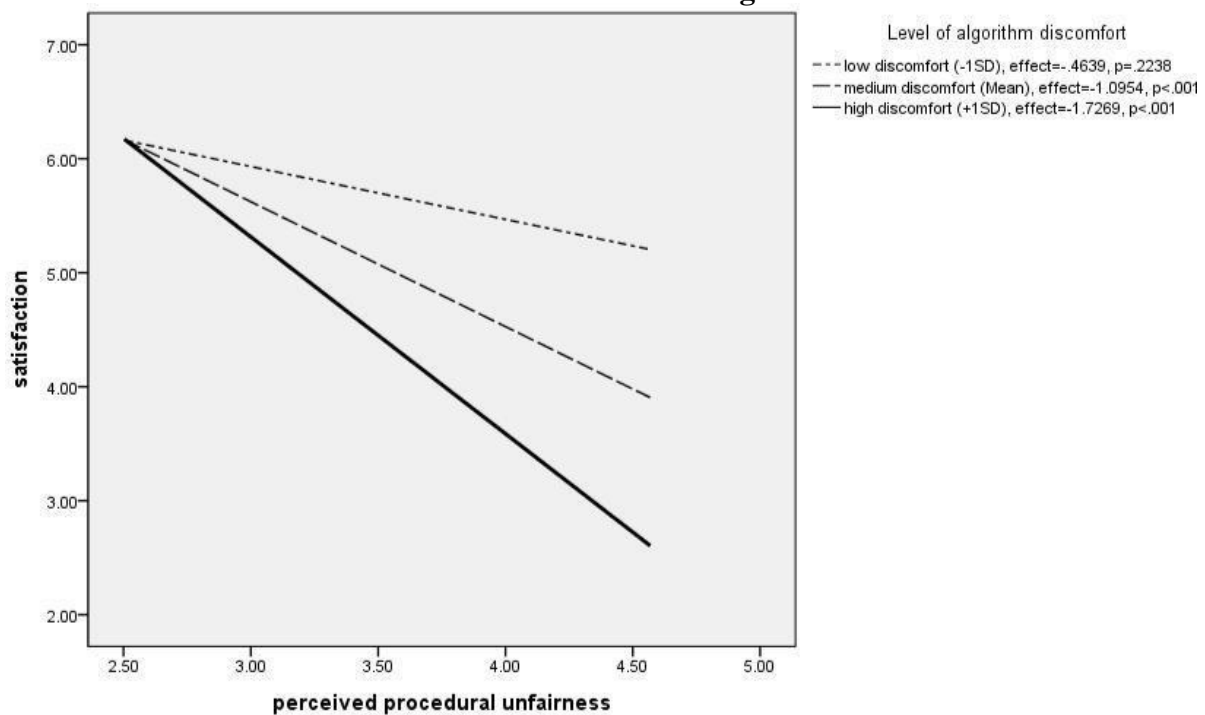
Another factor that could impact the implications of AI unfairness on customer satisfaction is the extent to which consumers attribute the decisions of AI to corporate policy. In the case of service providers or frontline employees we know that consumers tend to evaluate them differently from company policy. However, AI may be thought of differently as the programmable actions and representation of company policy. To the extent that consumers attribute AI decision to company policy, they are more likely to view unfairness as systematic rather than an AI inadequacy. The thought that unfair AI experiences are the intended result of company policy should increase the negative effects of unfair experiences. Hence, the 5th research question:

RQ5: Does the perception that AI algorithms reflect company policy increase the negative effects of unfair experiences using AI?

To test RQ4 and RQ5 we measured algorithm discomfort and corporate responsibility attribution using measurement scales. The data were conducted as part of study 2. The moderating effects were tested using regression process models. The analysis found a significant moderating effect of algorithm discomfort. Specifically, we found that the higher people's algorithm discomfort, the stronger the negative effect on satisfaction when they encountered procedural unfairness with AI (see Table 3 & Figure 2, $p=.042$; sample size=42).

Table 3. Results: Moderating Effect of Algorithm Discomfort

	Coefficient	SE	t-value	p-value	LLCI	d
Constant	4.3923	2.7618	1.5904	.1200	-1.1988	9.9834
Algorithm discomfort	.2468	.6612	1.6208	.1133	-.2669	2.4103
Procedural unfairness perception	.7034	.8499	.8277	.4130	-1.0171	2.4239
Algorithm discomfort * Procedural unfairness perception	-.4268	.2028	-2.1051	.0420*	-.8373	-.0164

Figure 2: The Main effect of Procedural Unfairness on Customer Satisfaction at Levels of Algorithm Discomfort

Moderator Value(s) Defining Johnson-Neyman Significance Region(s):

Algorithm Discomfort

Value % below % above

3.1796 28.5714 71.4286

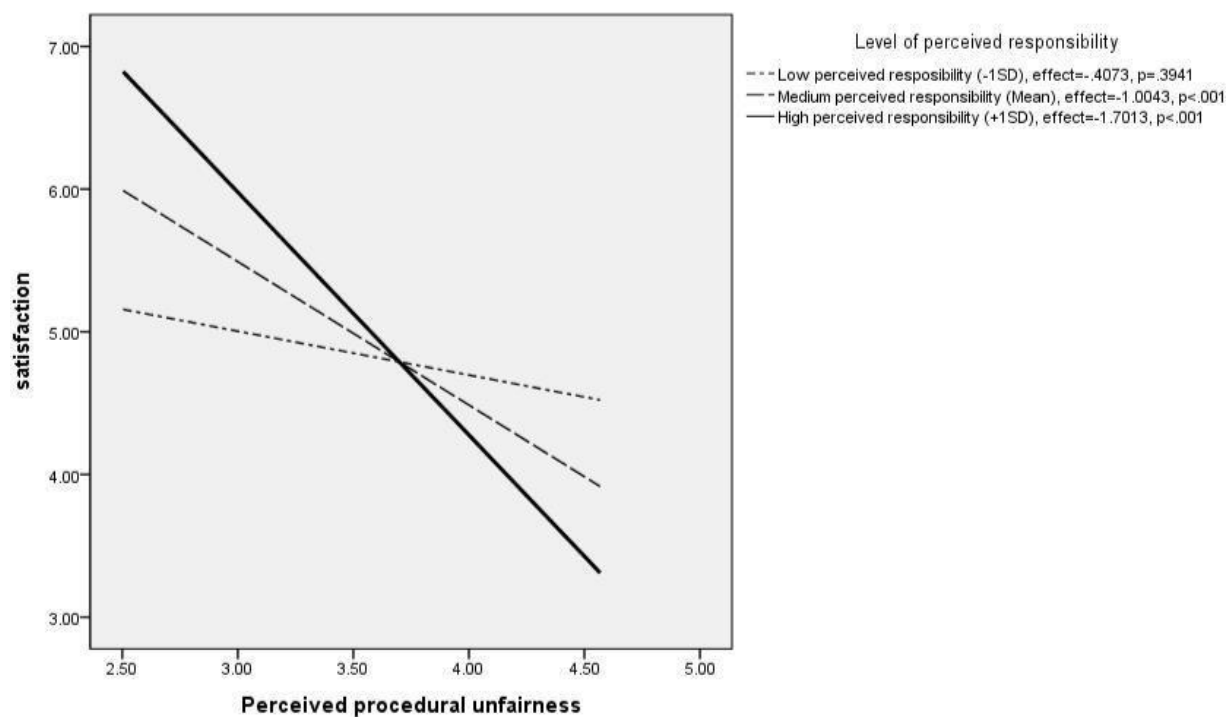
In addition, we also found a significant moderating effect for attribution of company responsibility. Specifically, the higher people's perception of the company's responsibility, the stronger the negative effect on satisfaction when they encountered procedural unfair situations

with AI (see Table 4 & Figure 4, $p=.004$, sample size=42).

Table 4. Results: Moderation Effect of Perceived Company Responsibility

	Coefficient	SE	t-value	p-value	LLCI	ULCI
Constant	-6.5165	5.2617	-1.2385	0.2231	-17.1684	4.1354
Perceived responsibility	3.0566	1.358	2.2508	0.0303	0.3074	5.8058
Procedural unfairness perception	2.6231	0.8964	2.9262	0.0058	0.8084	4.4379
Perceived responsibility * Procedural unfairness perception	-0.7092	0.2319	-3.0586	0.0041*	-1.1786	-0.2398

Figure 4 Moderator Value(s) Defining Johnson-Neyman Significance Region(s): Perceived Responsibility



Moderator Value(s) Defining Johnson-Neyman Significance Region(s): Perceived Responsibility

Value	% below	% above
5.1718	30.9524	69.0476

Discussion

This study analyzed whether there is a difference in consumer reactions based on their perception of interacting with AI or humans. In study one we told subjects that they would be interacting with either AI or humans and not both. We found that similar fair and unfair experiences for humans and AI did not predict subject's perception that they were dealing with humans or AI. This finding suggest that as generative AI improves, it may not be necessary to inform customers whether the service is being delivered by AI or humans as far as fairness related issues are concerned. Not informing consumers would avoid invoking technology related biases.

The study also found that when subjects are told that they are interacting with AI or humans, there were significant differences in perceptions of procedural unfairness between humans and AI. Specifically, in procedurally unfair situations, consumers viewed AI as less fair than humans. Also, Customer satisfaction was higher for humans than for AI, perhaps reflecting an inherent bias and discomfort with AI.

The present study also found that algorithm discomfort moderates the effect of procedural unfairness on customer satisfaction by increasing the negative impact of procedural unfairness. This finding is consistent with emerging research suggesting that algorithm discomfort fuels skepticism and distracts from objective evaluation of AI based services. Finally, our findings indicate that the more customers attribute responsibility for AI performance to corporate policy, the less satisfied they will become in response to procedural unfairness. This finding is especially important because it suggests that managers need to think carefully about how they talk to customers about their AI technology. It may be better in some situations to create a separate brand for AI technology. We suspect that because consumers don't expect AI technology to be making bad procedural decisions, they are perhaps viewing procedural unfairness from AI as deliberate. This is not the case for procedural unfairness from frontline employees.

With the increasing prevalence of AI in decision-making processes, companies handling AI need to conduct further research on how consumers perceive AI decisions. As suggested by the results of this study, reducing algorithm discomfort and minimizing the practice of attributing responsibility to the company may help to mitigate these negative effects. It is hoped that the findings of the present study will serve as a basis for more in-depth research on consumer responses to AI decision-making in the future.

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ID: #137

Development of an universal battery charger

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Abstract

Many electrical and electronic gadgets these days are battery powered. As a matter of course, rechargeable batteries have become popular over the years as they are more environmentally friendly, cost efficient and longer lasting compared to their disposable counterparts. With the growing accessibility of electronic devices in the current days, battery chargers, especially portable ones, have become vital in one's daily life. Consequently, the demand for battery load testers has increased as well. As manufacturers often overclaim the battery's capacity, load testers are used to test the battery's performance. Comparably, in the case where batteries need to be transported, they may need to be discharged for safety purposes. It is extremely rare to find a battery charger that can be used on multiple battery types as well as a product that can perform both charging and discharging. In this project, a universal battery charger and a load tester will be developed. The final product consists of a smart charger and a discharger that can test two common batteries, SLA (sealed lead acid) and Lithium-Ion.

Keywords:

Rechargeable batteries, battery tester, battery load tester

[ID: 138]

Sustainable Vertical Farming

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Abstract

The COVID-19 pandemic has changed human behavior. Since the COVID-19 pandemic, the people have a high demand for consumption of nutritious foods such as fresh vegetables and meat is needed to increase immunity in the body. Global food security has increased food standards so that these changes have an impact on limiting food distribution and decreasing food availability in an area. Independent production of food in every home could be a solution to this problem. However, it is difficult for urban areas to implement it, because of the production requirement of large area. Farming has evolved into a new way, namely vertical farming, where plants are grown in layers that are stacked vertically. One example of vertical farming is the aquaponics system. Aquaponic systems require that the aquatic environment be balanced to support the life of fish and vegetables. The water system must flow continuously through the nutrient-rich hydroponic pond and back to the fish tank with fresh water. The maintenance of water quality is carried out every day by the farmer and monitoring all parameters that affect water quality and cleaning the system regularly at least once every 2-4 weeks. These high maintenance aquaponic systems can restrict people from being interested in aquaponic farms for their own food production or as a hobby. This proposed work creates a device control system for water quality management for aquaponic systems. The system has an integrated sensor that monitors the condition of the aquaponic system, including pH, water level, temperature, turbidity, and total dissolved solid sensor. To maintain optimal water conditions, the system automatically initiates water changes. It also includes a controlled water heater and fish feeder automation to assist with maintenance. The device can be accessed wirelessly to monitor water parameters and change the set point of the control system. It also has an alert system to notify the user when water parameters exceed the set point.

Keywords: Aquatic environment, water quality, aquaponic

[ID:141]

Cultural Intelligence and Virtual Team Performance: Evidence from Blended Learning International Cooperation Project

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In an increasingly interconnected and digital world, international cooperation and virtual teamwork have become integral aspects of many organizations' operations. The success of such endeavors is heavily influenced by the ability of team members to navigate the complexities of diverse cultural backgrounds. This study delves into the relationship between cultural intelligence (CQ) and the performance of virtual teams, drawing upon empirical evidence from a Blended Learning International Cooperation Project from two continents and six countries.

Cultural intelligence, a concept rooted in the recognition of cultural differences and the ability to adapt one's behavior accordingly, has gained substantial attention in recent years. It is a multifaceted construct encompassing four dimensions: metacognitive CQ, cognitive CQ, motivational CQ, and behavioral CQ. These dimensions collectively facilitate effective intercultural interactions.

The Blended Learning International Cooperation Project serves as a unique context for exploring the impact of CQ on virtual team performance. The project brings together individuals from diverse cultural backgrounds to collaborate on common goals using a combination of in-person and virtual communication methods. The study employs a mixed-methods approach, combining surveys, interviews, and performance metrics to assess the relationship between CQ and team success.

Our findings reveal a strong positive correlation between cultural intelligence and virtual team performance. Teams composed of individuals with higher CQ levels tend to exhibit improved communication, conflict resolution, and overall collaboration. The metacognitive dimension, focusing on self-awareness and the ability to understand cultural norms and biases, is identified as a critical predictor of success in virtual teams.

Furthermore, motivational CQ, encompassing the drive to adapt to new cultural settings, plays a crucial role in maintaining team cohesion and commitment. Teams with members exhibiting higher motivational CQ are more likely to sustain their enthusiasm for cross-cultural collaboration, even in the face of challenges.

Keywords: Cultural intelligence, virtual Teams, blended learning

Factors Affecting Adoption of Design Thinking in Organizations: A Conceptual Framework

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Introduction

Design thinking has become a popular innovation methodology across sectors. Yet bringing this creative problem-solving into established companies involves challenges. This paper outlines key drivers behind adopting design thinking approaches in organizations. Drawing from research and real-world cases, this study maps internal and external factors influencing this organizational change process. Internally, leadership buy-in sets the tone. It shapes budget and talent investments in design skills. Existing corporate cultures can also aid or resist new design workflows. Employee mindsets likewise determine openness to experimentation and ambiguity within design thinking projects. Externally, market pressures and technology disruptions impel companies to pursue design thinking and human-centric methodologies. Meanwhile, outward-facing design leaders demonstrate impact, making change seem more necessary and feasible. Still other factors surround any concerted "design transformation." By detailing these organizational and contextual enablers, this study develops a conceptual framework that equips business leaders to assess readiness for design thinking adoption. It aims to accelerate experiential, creative strategies to meet emerging challenges and opportunities.

Crucially, these drivers interact; they rarely operate in isolation. For example, leadership signaling can shape talent investments and culture over time. Similarly, employee openness helps determine if experimental design approaches flourish or get dismissed prematurely. Overall, organizations must cultivate ecosystems receptive to design thinking's core methods like iterative prototyping, user empathy, and testing. This means coordinating structures and workflows to support these new practices. For leaders undertaking this adoption process, the framework offers practical guidance. Analyzing the organizational, market and workforce factors reveals strategic priorities. These insights, in turn, allow executives to set objectives, mitigate obstacles, and capitalize on synergies across these areas. Focused interventions could target culture, capability-building or connections with external partners. Fundamentally, organizations must address interdependent barriers and enablers. Doing so unlocks design thinking's fullest benefits--sparking sustainably innovative and human-centered solutions. A supportive backdrop enables the approach to scale and transform operations.

Literature review

While design thinking has grown in popularity in recent years, scholarly research on what drives the adoption of design thinking within organizations is still relatively limited. Most existing literature has focused on documenting design thinking implementations (Brown, 2008; Lockwood, 2009) or prescribing best practices (Martin, 2009; Kelley, 2001). What needs to be improved is research that aims to theoretically and empirically model the factors that enable or hinder the adoption of this innovation methodology.

The few studies that have looked at barriers to design thinking adoption have examined selective factors like leadership and culture in isolation (Elsbach & Stigliani, 2018). However, adoption research in other domains highlights that in most real-world contexts, multiple factors interact to impact adoption decisions (Zhang et al., 2014). By not examining factors simultaneously, existing research thus fails to provide a big-picture understanding of the adoption of design thinking.

This reveals an important gap needing scholarly attention – an integrated framework that captures factors influencing design thinking adoption across multiple levels: individual adopter attitudes, group dynamics, organizational attributes, and broader contextual characteristics. Developing such a multi-level adoption framework can give researchers and practitioners a stronger basis for diagnosing and enhancing design thinking assimilation. This paper aims to contribute towards filling this gap by proposing such a research framework and outlining future research directions to validate it.

Research Methodology

This study undertakes a systematic review of the literature to identify factors influencing adoption decisions highlighted across various disciplines and innovation domains. First, a keyword search was conducted across major research databases like SCOPUS and Web of Science to find papers examining design thinking and other innovation adoption contexts. Terms like “design thinking”, “diffusion of innovations”, “technology adoption” and “adoption barriers” were used to capture diverse streams of adoption research.

After an initial screening of over 280 articles, 62 highly relevant papers were selected for detailed review and framework development. The methodology involved iterative open and axial coding cycles (Miles et al., 2019) to extract adoption factors highlighted within these articles and categorize them into coherent groups and themes. Additional theoretical lenses like Rogers’ Innovation Diffusion theory, Davis’s Technology Acceptance Model, and organizational behaviour models were used to organize factors into an overarching framework encapsulating drivers and barriers to adoption at different levels.

Contributions

This paper makes several key contributions to the existing literature on design thinking

adoption in organizations. First, it proposes a comprehensive conceptual framework that captures the different factors impacting the adoption of design thinking. While prior research has explored select factors such as leadership support (Brown 2008) or organizational culture (Lockwood 2009), this paper is the first to integrate the various individual, group, organizational, and contextual factors into one framework. Capturing these interrelated factors gives a more complete picture of what drives or hinders the adoption of design thinking.

Second, in developing the framework, the paper brings relevant adoption theories from the management and information systems literature, such as Rogers' Innovation Diffusion Theory (2003) and Davis's Technology Acceptance Model (1989). Applying these fundamental theories to understand design thinking adoption represents a novel theoretical contribution. The paper discusses where these theories are relevant and where modifications may be warranted in the context of design thinking, providing a strong conceptual basis for future empirical evaluations.

Finally, the paper outlines potential research directions for qualitative and quantitative inquiries to validate and refine the proposed framework. Highlighting these open research questions contributes by shaping the research agenda in this emerging area of design thinking adoption. Overall, with its comprehensive framework grounded in adoption theories and identification of future research needs, this paper makes important early steps to enhancing scholarly understanding of how organizations can facilitate greater adoption of design thinking.

In conclusion, this conceptual framework provides a structured lens for comprehending the complex landscape of factors influencing the adoption of design thinking in organizations. It serves as a foundational guide for researchers, practitioners, and decision-makers seeking to foster a culture of innovation and leverage design thinking as a catalyst for organizational success in today's dynamic and competitive business environment. This conceptual integration process yielded the multi-level research framework presented in this paper. While conceptual, the framework development process aims to facilitate future empirical research through careful grounding in existing literature. To conclude, opportunities for qualitative and quantitative investigations to validate and advance understanding of design thinking adoption are outlined.

Track 5: Entrepreneurship

[ID:19]

Customer Involvement and Social Media in Small And Medium Enterprises

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Abstract

Despite increasing attention to the influence of customer involvement and social media in developing innovation in small and medium-sized enterprises (SMEs), few studies have specifically investigated how to improve the effectiveness of social media based customer involvement. Drawing on the knowledge-based view, social network and capability theories, we address this question by arguing that Social Customer Relation Management (CRM) enhances the effect of social media based customer involvement upon innovation. One key capability further enhances the moderating effect of Social CRM: customer information processing capability. The results from a longitudinal dataset of 317 SMEs indicate that SME customer involvement, enabled by Social CRM, customer information processing capability increases innovation performance. These findings have important implications for researchers and managers interested in enhancing the efficacy of SME customer involvement using social media.

Introduction

Researchers and practitioners have recognized the increasing importance of customer involvement in the new product/service development process (Xie et al., 2023; Lusch and Nambisan, 2015; Cui and Wu, 2016). Notably, firms benefit more if customer involvement is via social media (Al Halbusi et al., 2022; Sigala et al., 2012; Rapp et al., 2013). The use of social media provides a more effective discussion platform to communicate directly with customers incorporating their feedback into new product/service development (e.g., ideation stage, development stage, or launch stage) (Olanrewaju et al., 2020; Trainor et al., 2014). For example, firms such as Google, Microsoft, T-Mobile, Amazon, and IBM have invested

considerable resources in developing and maintaining social media to attract users, to obtain information and to tap into their creativity which in turn, produces superior innovation performance (Chesbrough, 2013).

While social media based customer involvement can generate benefits for firms, small and medium-sized enterprises (SMEs) face particular challenges in this respect. Different organizational resources are required to develop and maintain social media (Olanrewaju et al., 2020; Trainor et al., 2014), in order to entice customers to be more actively involved in new product/service development process. This creates potential barriers preventing SMEs from using social media in this manner given they are more likely to have limited technical and financial resources restricting innovation activities (Olanrewaju et al., 2020; Michaelidou et al., 2011). In addition, while firms using social media can obtain large amounts of new information (Cui and Wu, 2016), most have limited capabilities to develop social networks and convert this information into innovation knowledge (Al Halbusi et al., 2022; Sirmon et al., 2007). This is more evident for SMEs given restricted access to financial resources (Li et al., 2008) and the deployment of different innovation capabilities (Maes and Sels, 2014), such as the integration of internal and external knowledge resources to manage core competencies or build innovation strategies. As such, generalizing social media strategies used by larger firms to SMEs is questionable. Thus, SMEs require a different approach to effectively utilize social media.

Social customer relationship management (Social CRM), refers to “the integration of customer-facing activities, including processes, systems, and technologies, with emergent social media applications to engage customers in collaborative conversations and enhance customer relationships” (Trainor et al., 2014, p. 1201). This suggests that, through social media, CRM is emerging as a new approach exploring social networks as a unique information source to inform

innovation (Harrigan et al., 2020; Heller Baird and Parasnis, 2011). However, although Social CRM is suited to innovation development, it remains unclear how Social CRM enables SMEs to enhance their innovation performance gains from customer involvement using social media.

Drawing on the knowledge-based view, and social network and capability theories, we aim to explore this question. Specifically, according to social network theory (Borgatti and Halgin, 2011), firms using Social CRM are able to substantially enhance their innovation performance through customer involvement. As such, customers using social media are interconnected and embedded in various external social networks (Salo, 2017); so, firms can enlarge, capture, and

deploy knowledge resources from customers (Hitchen et al., 2017). Thus, the use of Social CRM should help SMEs overcome the limitations of customer involvement using social media.

Although SMEs employing Social CRM can enhance innovation, they require capabilities (Eisenhardt and Martin, 2000; Sirmon et al., 2007) to effectively leverage Social CRM resources (Trainor et al., 2014). Drawing on capability theory (Eisenhardt and Martin, 2000; Sirmon et al., 2007), we argue that customer information processing capability should be able to leverage Social CRM to enhance the innovation performance gains from customer involvement using social media.

The remainder of this article proceeds as follows. First, we present the theoretical background and propose hypotheses relating to the variables of the study. Second, research method and data analysis results are reported. Finally, the implications of the findings are discussed, and avenues for further research are suggested.

Theory and hypotheses development

Customer involvement using social media and innovation performance

Customer involvement refers to the extent to which the customer serves as an information source to help with the development of new products or services (Cui and Wu, 2016). Early research on customer involvement suggests that the individual customer was regarded as the innovator (von Hippel, 2001). Analyses then shifted toward exploring customers en-mass (Füller et al., 2008) whereas more recent studies have focused upon networks in virtual environments (Hienerth et al., 2014), where a crowd of firms and customers interact and so contribute towards innovation. Saldanha et al. (2017) also suggests that customer involvement is utilized in firm-to-customer interaction facilitated primarily by the firm's capabilities.

Cui and Wu (2016) categories customer involvement into three types: (1) customer involvement as an information source; (2) customer involvement as co-developers; and (3) customer involvement as innovators. In relation to this study, we focus specifically on customer involvement as an information source in the new product/service development process by using social media (hereinafter 'customer involvement using social media'). This refers to a greater degree of participation in the new product/service development process between firms and customers, where social media is utilized to obtain information from customers and apply it to development of new products/services (Cui and Wu, 2016).

The main purpose of social media based customer involvement is to enlarge the scope for customer information sources and integrate their creativity into the new product/service

development process in real time (Agnihotri et al., 2016). As social media technologies advance, external information resources become more substantial (Chesbrough, 2013). This information is a key input to the new product/service development process used to develop new products/services solutions to meet customer needs (Saldanha et al., 2017). Since the new product/service development process has been considered a process of knowledge management (Joshi and Sharma, 2004), the knowledge-based view (KBV) is a viable theoretical perspective from which to understand customer involvement using social media.

The KBV focuses on key knowledge workers (Grant, 1996), conceptualizing firms as institutions for developing and integrating information and knowledge (Eisenhardt and Santos, 2002). Research on the KBV has repeatedly shown that access to knowledge varies between firms and it is associated with innovation performance (Cheng et al., 2016; De Luca and Atuahene-Gima, 2007). In particular, knowledge develops from experiential learning and transfers within and across SMEs creating superior innovation outcomes (Kallmuenzer and Scholl-Grissemann, 2017; Carlo et al., 2012). Based on this encouraging empirical support for the KBV, with respect to SME innovation outcomes, we focus on the potential influence of broad knowledge obtained from customer involvement using social media on SME innovation performance.

On the basis of the KBV, customer involvement using social media should be useful to help firms utilize customer knowledge because first, the nature of customer knowledge can influence the innovation development (Cui and Wu, 2016). Second, customer involvement using social media enables firms to engage consumers in a timely and direct manner at relatively higher levels of efficiency than more traditional communication tools (Salo, 2017). Third, employing customer involvement using social media should inform understanding of customer needs, detect defects earlier, attain preliminary feedback regarding possible market reactions and thus, produce more creative product/service ideas more highly valued by customers (Mahr et al., 2014).

Therefore, if SMEs employ customer involvement using social media to obtain customer information and integrate such information with their internal knowledge into their new product/service development process, they should be better able to expand their novel information sources (Cui and Wu, 2016). This will, in turn, enhance innovation (Kallmuenzer and Scholl-Grissemann, 2017). Therefore, we hypothesize:

H1: Customer involvement using social media is positively related to innovation performance for SMEs.

Social CRM and customer involvement using social media

Traditionally, surveys, interviews, or other market research tools have supplied firms with information about customer needs, to improve organizational innovation processes (Mahr et al., 2014). Recent advanced technologies, such as online brand communities (Nambisan, 2002), enable customers to be better informed. These include social media that enables the integration of customer information into the innovation process (Sigala et al., 2012).

Social media refers to online services that support social interactions among users through greatly accessible and scalable web- or mobile-based publishing techniques (Salo, 2017). According to Greenberg (2008), social media are a group of Internet-based applications that build on the technological foundations of Web 2.0 allowing the creation and exchange of user-generated content. Musser and O'Reilly (2006, p. 4) define Web 2.0 as “a set of economic, social, and technology trends that collectively form the basis for the next generation of the Internet - a more mature, distinctive medium characterized by user participation, openness, and network effects.” The exclusive aspects and popularity of social media have revolutionized innovation practices (e.g., customer involvement or open innovation, West et al., 2014). Additionally, some firms use social media as a new-generation customer relationship management practice, a combination of existing customer relationship management systems with social media, a so-called Social CRM (Greenberg, 2008).

An example of Social CRM is a firm employing social media as networking platforms (i.e., a fan page or a discussion venue in Facebook, Twitter, Line, or Instagram) for its new product/service development. People who are interested in the new products/services sign up as users for discussion purposes. The firm can follow user discussions regarding the new products/services for real-time feedback whilst users can offer ideas, information, or knowledge for current products/services or indeed, future new products/services. Thus, Social CRM is a strategic resource and process that aims to create long-lasting relationships between a firm and its customers through social media technologies (Malthouse et al., 2013).

Social network theory suggests that by offering access to external resources and knowledge firms develop social capital providing an extra source of knowledge advantage for firms (Borgatti and Halgin, 2011). It is noted that successful innovation requires an effective combination of customer information, customer involvement and customer relationship management; all of which are important issues in the new product/service development process (Mahr et al., 2014). In addition, firms are better able to accurately obtain state-of-the-art information from customers by using social media (Agnihotri et al., 2016). The customer interaction approach also acknowledges that customer involvement includes simultaneously

managing customer relationships and obtaining information from customers (Rapp et al., 2013; Cui and Wu, 2016).

Therefore, the integration of social media with customer relationship management should enhance the effectiveness of customer involvement. In this sense, within the social media context, SMEs using customer involvement should increasingly rely on new information from external customers not available internally. Accordingly, whether SME customer involvement using social media can enhance their innovation performance should depend on Social CRM.

Ernst et al. (2011) indicate that, with effective Social CRM, firms are better able to effectively strengthen their relationships with customers enabling them to encourage customers to be more actively involved in the innovation development process and eventually, produce greater outcomes within the business-to-business and business-to-customer contexts. Employing Social CRM is particularly important for SMEs given limited social network resources compared to larger competitors with considerable budgets to create new social networks (Wincent et al., 2012).

As such, SME customer involvement using social media with effective Social CRM is more likely to acquire large amounts of information from customers who participate in social media discussions. They are also likely to acquire high-quality information as the use of social media enables the SMEs to better communicate with customers in a question-and-answer manner (Beck et al., 2014), to provide real-time interactions (Trainor et al., 2014), and obtain accurate, as well as novel, information (Agnihotri et al., 2016). Integrating quantity and quality of information with expertise in new product/service development teams, should lead to better new products/services (Wynarczyk et al., 2013). Overall, we propose that SME customer involvement using social media should be amplified via effective Social CRM. As such, we hypothesize a two-way interaction effect of customer involvement using social media and Social CRM on innovation performance. Therefore:

H2: Social CRM moderates the effect of customer involvement using social media on innovation performance, such that when Social CRM is more effective, the innovation performance is more likely to be enhanced for SMEs.

Customer information processing capability, Social CRM, and customer involvement using social media

Capabilities are defined as the ability to deploy resources effectively so that inputs can be transformed into desirable outcomes; they are needed to create value from resources for the realization of competitive advantage in a rapidly changing environment (Eisenhardt and Martin, 2000; Sirmon et al., 2007; Ulaga and Reinartz, 2011). In addition, Cohen and Levinthal (1990) argue that the ability to exploit, assimilate, and apply external knowledge contributes to firm capabilities which, in turn, contribute to innovation. The maintenance of superior innovation performance depends particularly upon the ability of SMEs to successfully configure resources not only within the firm, but also from external business environments (Whittaker et al., 2016). Thus, diverse capabilities explain why SMEs with similar knowledge resources produce significantly different levels of innovation (Maes and Sels, 2014).

Customer involvement research has emphasized that customer involvement is a mechanism for integrating external input and information from customers in the innovation process (Cui and Wu, 2016). Whether and how well input and information from customers are utilized and leveraged depends on firm capabilities to leverage such input and information and transforming them into innovation products/services (Saldanha et al. 2017; Menguc et al., 2014). Similarly, Social CRM researchers point out that although Social CRM has been characterized as a strategic

resource to obtain competitive advantage, this could be an over-simplified statement as it overlooks the role of capabilities (Trainor et al., 2014). Firms need capabilities to derive insights from information obtained from external users, to effectively leverage Social CRM for new product/service development (Trainor et al., 2014).

As discussed earlier, to enhance the effectiveness of Social CRM, SMEs need to be able to effectively manage relationships with customers but also accurately obtain unique information through social media technologies. Against this background, we reason that the effectiveness of Social CRM should depend on one type of enabled firm capability: *customer information processing capability*. It refers to the ability to acquire, disseminate, and use customer information to create superior value (Veldhuizen et al., 2006); an information-related capability that facilitates the ability to accurately acquire, disseminate, and use customer information (Murray et al., 2011). Below, we discuss how customer information processing capability enables Social CRM to enhance the contribution of customer involvement to innovation performance, using social media.

A study by Schweisfurth and Raasch (2015) describes customer information processing capability as the ability to analyze the activities supporting learning from external knowledge, which encompasses four information-related activities: acquisition, transmission, utilization, and storage. Saldanha et al. (2017) report that information processing capability is important for customers' information management, which demonstrates its significance for improving a firm's innovation performance. Veldhuizen et al. (2006) and Murray et al. (2011) indicate that the effectiveness of information processing demands substantial market-related capabilities for managing large volumes of customer information. Thus, customer information processing capability is the ability to acquire, process, and interpret customer information into meaningful information for creating superior innovation outcomes.

Customer information processing capability enables a firm to recognize and interpret external information derived from customers (Saldanha et al., 2017). That is, firms with strong customer information processing capability are better able to rapidly access and effectively incorporate external customer inputs into innovation development. Thus, Social CRM and customer information processing capability together with social media enabled customer involvement to increase the speed of new product/service development, thereby further improving innovation performance. Similarly, customer information processing capability facilitates the incorporation of external customer inputs into the firm's new product/service development (Wang et al., 2013).

As SMEs are less likely to engage in formal R&D, customer information processing capability gains greater importance to enhance the benefits of such information (Brunswicker and Vanhaverbeke, 2015); this capability, combined with Social CRM, further enhances the efficiency of customer involvement through social media.

Overall, customer information processing capability enables SMEs with effective Social CRM to more accurately deploy customer information inputs into their new product/service development which, in turn, enhances innovation. As such, we hypothesize a three-way interaction effect of social media based customer involvement, Social CRM, and customer information processing capability on innovation performance. Therefore,

H3: Customer information processing capability enhances the moderating effect of Social CRM in the customer involvement using the social media—innovation performance relationship, such that when a high level of Social CRM combines with a high level of customer information processing capability, the positive effect of customer involvement using social

media on innovation performance is increased for SMEs.

Research method

Data collection

To test the hypotheses, we required a social media context with rich customer information to cover both business-to-business and business-to-customer industries where SMEs are under pressure to innovate and introduce new products/services. Consistent with previous innovation research (Fang et al., 2010), we only included SMEs involved in at least one innovation project generated by information obtained from customers through social media discussions in the last three years. We chose a three-year time span because, according to Rindfleisch et al. (2008), this is an appropriate compromise between enhancing causal inference by performing temporal order in the empirical design.

For this purpose, based on a sample of 5000 SMEs as compiled by a business research firm (China Credit Information Service), we selected 1500 SMEs at random and contacted each by telephone to determine whether they had engaged customer involvement using social media in the last three years. This led us to exclude 524 SMEs resulting in a target population of 976 SMEs asked to participate in the study.

We recruited trained interviewers to conduct on-site surveys. This approach ensures we generate valid information and high-quality data in developing economies (Cheng et al., 2016; Jia et al., 2014; De Luca and Atuahene-Gima, 2007). To allow time for the performance effects of Social CRM, customer information processing capability and innovation performance to materialize, we collected data longitudinally over three waves: early-2020, early-2021, and early-2022, through separate surveys. We also obtained different information from different sources in each SME, to reduce common method bias (Podsakoff et al., 2012). In addition, to avoid an arbitrary selection of a particular innovation project, before we conducted the first survey, new product/service development managers were asked to provide information on only one innovation project that was classified as the most successful in the last three years.

Specifically, (1) in early-2020, new product/service development managers (or similar personnel) were asked to provide data regarding customer involvement using social media; (2) in early-2021, marketing managers (or similar personnel) provided data regarding Social CRM, while senior managers of top-management teams provided data regarding customer information processing capability; and (3) in early-2022, financial managers provided data regarding innovation performance.

We successfully obtained responses from 317 matched SMEs (1268 questionnaires), resulting in an effective response rate of 32.4%. Of the 317 SMEs, 70.6 percent had annual sales revenues of more than \$1.7 million US. The sample consisted of small and young firms (less than five years old) operating across various industries, including information technology, electrical, biotechnology, machinery, food, textile, and financial service. The information technology, electrical, biotechnology, machinery, and textile firms were sampled for the business-to-business areas, while the food and financial service firms were sampled for the business-to-customer areas.

We verified the qualifications of respondents by asking them to indicate their tenures with the firms and their positions. The results showed that, on average, the respondents had been in their industries for 10.2 years, in their senior-level leadership positions for 7.5 years, and in their current positions for 3.9 years. Specifically, about 52% of the new product/service development managers had been in their current positions for four or more years, and about 55% of the marketing managers had been in their senior-level manager positions for eight or more years. Approximately half of the senior managers of top-management teams had worked within their

industries for 10 years or more, and about 58% of financial managers had been in their present positions for three or more years.

In addition, following Zhou and Wu (2010), we also asked our respondents to indicate their knowledge level regarding the research topics in terms of Social CRM, capability, customer involvement, and social media use. The means were 5.97, 5.84, 5.12, and 5.71 (1=little knowledge, 7=a great deal of knowledge) for the new product/service development managers, marketing managers, senior managers of top-management teams, and financial managers, respectively. All respondents in this study were directly involved in the innovation project and qualified to inform on the constructs of this study. While the use of a self-assessed method to assess the respondents' knowledge level does not seem the prefect option, previous studies (Atuahene-Gima, 2005; Zhou and Wu, 2010; Molina-Castillo et al., 2013) have demonstrated that this method is appropriate. Overall, these results provide support that our respondents were knowledgeable about the research topics under investigation.

To check for non-response bias, comparisons were made between participating and non-participating SMEs, in terms of firm age and firm prior performance. The *t*-test showed no differences between participating and non-participating SMEs.

Questionnaire development

We first developed an English version of the questionnaire, and then used a double-translation procedure to translate it into Chinese (English-Chinese-English). This process included: (1) the authors initially translating the items into Chinese; (2) two other academics then translating the Chinese version back into English; and (3) these translations being checked by a third academic to ensure conceptual equivalence (Douglas and Craig, 2007). A comparison between the original items and the items translated by another two academics, whose expertise focuses on research methodology, SMEs, and innovation, demonstrated the desired consistency.

To ensure the content and face validity of the items, we conducted 13 in-depth interviews with respondents whose titles in the firm include new product/service development managers, marketing managers, senior managers of top-management teams, or financial managers. We asked them to verify the relevance and completeness of the questionnaire items. Based on their feedback, a draft questionnaire was prepared that included measurement items judged to have high content and face validity.

Measures of constructs

The measure for *customer involvement using social media* was adapted and extensively discussed in Cui and Wu (2016), and consisted of four items. *Social CRM* was measured with 13 items adapted from Trainor et al. (2014), and related to activities for information generation, information dissemination, and responsiveness. The measure for *customer information processing capability* was adapted from Veldhuizen et al. (2006), with 12 items that assessed a firm's ability to acquire, disseminate, and use customer information obtained from the firm's social media discussions. We adapted the measure of *innovation performance* from Song and Thieme (2009), with three items in terms of market share, sales, and return on investment.

We controlled for sources of heterogeneity in SMEs characteristics, including age and prior performance. SMEs age was measured as the number of years the firm has been in virtual business operation. SMEs prior performance was measured using the return on assets of the year prior to our survey (Zhou and Wu, 2010).

Analyses and results

Construct validation

The notable strength of confirmatory factor analyses via structural equation modeling is in dealing with measurement errors in the variables, which cannot be accounted for by traditional exploratory factor analysis (Hair et al., 2019). Thus, the MPlus Exploratory Structural Equation

Modeling technique (Muthén and Muthén, 2017) was used to establish the internal consistency of our measures, because it combines exploratory and confirmatory factor analysis in one procedure and avoids the problems associated with the traditional two-step process (Fornell and Yi, 1992).

Based on the three criteria suggested by Fornell and Larcker (1981), we assessed convergent validity. The results showed that: (1) all loadings were above the 0.7 threshold between 0.71 and 0.86; (2) the composite reliability of the constructs ranged between 0.85 and 0.95; and, (3) average variance extracted (AVE) ranged from 0.61 to 0.65. Thus, all three conditions for convergent validity are met.

We then assessed discriminant validity in two ways. First, using a procedure suggested by Fornell and Larcker (1981), we assessed the AVE by the indicators corresponding to each factor and compared these with the variance each factor shared with the other factors in the model. The results shown in Table 1 indicated that all diagonal elements representing the square root of the AVE were greater than the highest shared variance.

Second, we used an alternative approach suggested by Anderson and Gerbing (1988). The results suggested that the value of the unconstrained model was significantly lower than that of the constrained model in all cases (e.g., for the pair of constructs customer involvement and customer information processing capability, the unconstrained model had a chi-square of 32.7 and the constrained model had a chi-square of 94.1. The chi-square difference [68.2] was significant at $p < 0.001$). Overall, we find strong evidence of convergent and discriminant validity.

Table 1. Basic descriptive statistics and correlation matrix					
Variables	1	2	3	4	5
Customer involvement using social media	.80				
2 Social CRM	.26*	.78			
3 Customer information processing capability	.29*	.28*	.76		
4 Innovation performance	.34**	.23*	.24*	.81	
5					

SMEs age (log)	.11	.07	.11	.11	--
. SMEs prior performance (log)	.15	.11	.14	.28*	.23* --
Mean	5.11	4.92	5.05	5.32	3.95 3.84
Standard deviation	2.36	1.59	2.48	2.22	1.15 2.04

** $p < 0.01$; * $p < 0.05$; $N = 317$; Bold figures on the diagonal are the square root of the AVE

Hypotheses testing

We used the ordinary least square regression analysis to test hypotheses. To alleviate concerns for multi-collinearity, we mean-centered the composites for each measure (Cohen et al., 2003). The results indicated that all the pertinent equations were statistically significant. Model 1 included the control (SMEs size and SMEs prior performance) and moderating (Social CRM and customer information processing capability) variables. The main effects model (Model 2) produced an R-square value of 0.30. When we included the product terms for the moderated effects, increases in the R-square were statistically significant.

In H1, we expected that customer involvement using social media is positively related to innovation performance for SMEs. The results shown in Table 2 (Model 2) verify this prediction, with an estimate of 0.362 ($p < 0.01$), indicating customer involvement using social media is positively and significantly related to innovation performance, in support of H1.

In H2, we expected that Social CRM would positively moderate the relationship between customer involvement using social media and innovation performance. The results shown in Table 2 (Model 3) verify our expectation with an estimate of 0.386 ($p < 0.01$). In addition, the parameter estimate of 0.335, for customer involvement using social media—Social CRM product term, is statistically significant ($p < 0.01$), supporting H2.

To better understand this interaction pattern, we plotted the predicted values of innovation performance, for high and low levels of customer involvement, using social media and Social CRM. Following Cohen et al. (2003), we used -1 and $+1$ standard deviations for the variables of interest in this, and all other, plots. The results indicated that the highest level of innovation performance was observed for high levels of both customer involvement using social media and Social CRM. Other combinations of customer involvement using social media and Social CRM showed lower and negative performance values. The results suggest that, when customer involvement using social media combines with high levels of Social CRM, positive innovation performance is enhanced.

In H3, we expected that the combinative effects of Social CRM and customer information processing capability would enhance innovation performance gains from customer involvement using social media. The results shown in Table 2 (Model 4) indicated that the

parameter estimate for the three-way interaction (customer involvement using social media, Social CRM, and customer information processing capability) is significant ($\beta = 0.327$, $p < 0.01$).

We also plotted this interaction and the results showed that firms with high Social CRM achieve greater innovation performance when they possess a high level of customer information processing capability, while other combinations indicated substantially lower values of innovation performance, supporting H3.

Table 2. Results of customer involvement using social media and its moderators

	Model 1	Model 2	Model 3	Model 4
	Control	Main effects	CI \times Social CRM	CI \times Social CRM \times CIPC
Control variables				
SMEs age	.163	.152	.061	.125
SMEs prior performance	.198	.210	.151	.112
Direct effects				
Customer involvement using social media (CI)		.362**	.386**	.394**
Interaction effects				
Social CRM		.261*	.249*	.229*
Customer information processing capability (CIPC)		.229*	.328**	.293**
CI \times Social CRM			.335**	.362**
CI \times CIPC				.189
Social CRM \times CIPC				.167
CI \times Social CRM \times CIPC				.327**
R ²	.26	.30	.33	.43
\hat{e} R ²		.04**	.03*	.10**
F-change	3.96**	4.23**	4.68**	5.21**

** $p < 0.01$; * $p < 0.05$; N = 317

Discussion

Theoretically, customer involvement using social media provides an opportunity for SMEs to move beyond traditional perspectives by explicitly considering alternative ways to achieve superior innovation performance (Salo, 2017). To probe this claim, we sought to advance the literature by examining whether the joint effect of customer involvement using social media and Social CRM can enhance SME innovation performance. We also extend the capability literature by investigating one key capability, customer information processing capability, that further enhances the moderating effects of customer involvement using social media.

Overall, the findings support the hypothesized main and interaction effects. Results support that customer involvement using social media has a positive impact on SME innovation

performance. This result is consistent with the KBV framework as customers help SMEs by providing useful input (e.g., as an information source) that helps enhance innovation development. Regarding the interaction effects, Social CRM and customer information processing capability interact positively with customer involvement using social media. This indicates that SMEs who employ Social CRM and possess customer information processing capability enhance the efficacy of customer involvement using social media. Theoretical and managerial implications of these findings are discussed below.

Theoretical implications

This study contributes to the SME literature in the following ways. First, previous research has suggested that further advancement in the field of customer involvement requires linking empirical research with established theories (Bogers et al., 2010). We connect customer involvement with KBV and advance a mechanism that identifies the effect of customer involvement using social media on innovation performance for SMEs. In our findings, we demonstrate KBV is a useful theoretical lens with potential for analyzing customer involvement using social media. In addition, the increased innovation performance is produced by a high level of customer involvement using social media, because these SMEs can effectively use valuable customer information obtained from customer involvement to enhance innovation performance. Our study, therefore, contributes to the growing field of customer involvement research by offering guidelines on how SMEs enhance their innovation performance by leveraging customer involvement to expand their knowledge through the use of social media (Michaelidou et al., 2011).

Second, a key contribution relates to our empirical investigation of the usefulness of Social CRM for SMEs attempting to employ customer involvement for innovation purposes.

Previous research (Malthouse et al., 2013) has called for deploying Social CRM to utilize customer information in innovation development. Our results provide empirical evidence for the benefits of employing Social CRM. Therefore, this study not only lends support to the importance of customer involvement in the new product/service development process (Cui and Wu, 2016), but also validates the assumption that Social CRM is a key element in new product/service development. Furthermore, recent research in the SME literature acknowledges that networks between firms and customers are crucial to value co-creation (Van de Vrande et al., 2009; Wynarczyk et al., 2013). We contribute to this stream of research by confirming that SMEs can co-create new products/services with customers in the

new product/service development process through an effective adoption of Social CRM.

Third, we offer a contribution to the SME capability literature by examining the role of customer information processing capability in leveraging the Social CRM resource. Our findings suggest that SMEs with strong customer information processing capability can facilitate the integration of their expertise with the information obtained from social media discussions. This is because strong customer information processing capability enables SMEs to search for and analyze complex information and identify new insights from customer involvement, thereby to create new knowledge beneficial for their new product/service development (Saldanha et al., 2017). Social CRM and customer information processing capability act as enabling factors to enhance the effectiveness of customer involvement using social media. As shown in the data analyses, when Social CRM and customer information processing capability are high, innovation performance gains increase. SMEs that are well-equipped to manage customer relationships and/or process information they obtain from social media discussions will more effectively create new knowledge for their innovation purposes, that is, new applications of knowledge that enable SMEs to facilitate their efficacy of new product/service development. Fourth, our results help to clarify potentially conflicting issues raised in a capability-rigidity paradox. The essence of the capability–rigidity paradox being that competence exploitation tends to expel competence exploration (Leonard-Barton, 1992). Thus, the key to the paradox is

organizational factors that ensure simultaneous investments in both the exploitation of existing firm capabilities and the exploration of new ones (Raisch and Birkinshaw, 2008). Our results indicate that SMEs engaged in Social CRM tend to explore new capabilities (customer information processing capability). On the other hand, the results of Trainor et al. (2014) show that larger firms tend to exploit existing capabilities (e.g., Social CRM capability). Both results support the proposition by Raisch and Birkinshaw (2008) that Social CRM guide managerial decisions to allocate resources to develop new capabilities and to exploit existing ones. Nevertheless, our findings also suggest that managers in SMEs seem more willing to develop new capabilities when facing a new market situation (e.g., the social media environment) (Battisti and Deakins, 2017; Sok et al., 2015). This new insight, that is missing in the SME literature but is offered here is that, compared with larger firms, SMEs apparently tend to explore new firm capabilities instead of exploiting existing firm capabilities in terms of Social CRM and, thus, escape the capability–rigidity paradox.

Finally, our study provides a better understanding of the performance effects of customer involvement at the organizational level. Previous studies (e.g., Ernst et al., 2011) have tended

to examine the impact of various aspects of customer involvement on innovation performance at the individual level. In our study, an integration of Social CRM and customer information processing capability provides a better understanding of the organizational mechanisms that influence the link between customer involvement and innovation performance.

Managerial implications

Our findings have implications for SME managers. First, our results advance previous work by Nambisan (2002), addressing the issue related to customer involvement in the virtual environment. It appears that SMEs using social media to make use of customer involvement that aligns with Social CRM can create superior innovation outcomes. Particularly where new product/service failure rate has remained high over the years (Cooper, 2011), Social CRM provides managers with a promising way to tackle this critical problem.

Second, our findings also indicate that customer information processing capability can be leveraged to facilitate Social CRM. That is, having Social CRM does not ensure that it will enhance the effectiveness of customer involvement using social media. Thus, managers of SMEs must devote sufficient resources and energy to develop customer information processing capability. For example, SMES can develop the skills (such as big data analytics) to process large amounts of customer information collected from social media discussions.

Limitations and future research

As with most studies, there are some limitations that must be acknowledged, and which open up opportunities for future research. First, this study focuses mainly on the analysis of customer involvement using social media. Future research could examine a specific stage of the innovation development process. For example, to incorporate customer involvement in the launch stage of the new product development process by employing Social CRM should help SMEs overcome the challenges associated with launching new products to market.

Second, our findings suggest that the effectiveness of Social CRM is not limited to Western developed countries. Nevertheless, this does not mean that the effect is equally strong because national and cultural factors might influence customer attitudes toward CRM programs (Bennett and Sargeant, 2005). Future research could investigate this issue by comparing the effectiveness of Social CRM in regions/countries with varying types of cultures. In addition, some SMEs may simultaneously use customer involvement using social media and without using social media for their new product/service development. Future studies could examine what the differences are between some SMEs that use social and some that do not use social

media for their innovation development.

Third, customer involvement and Social CRM are complex phenomena. Our research indicates that customer information processing capability enables Social CRM to enhance customer involvement using social media in SMEs. However, we were not able to investigate other possible capabilities/factors that could influence the effectiveness of customer involvement during the innovation development process. Further research may pay particular attention to negative effects of Social CRM.

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[ID:41]

Managing Sustainability Transition Among Social Entrepreneurship in India

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As an emerging means of venture formation, social entrepreneurship seeks to address complex and challenging social issues. Social enterprises operate in areas or sectors that are generally unexplored or undermine other enterprises owing to remoteness, beneficiary profiles, or logistical constraints, which are often neglected by mainstream development. However, the sustainability approach to resource appropriation makes business operations more productive as well as more complex as optimality, prudence, and responsibility become focal points. Amidst it all, social enterprises are flourishing and committed to sustainability in their operations. Several strategies are adopted to manage such transitions in practice. A collaborative framework often makes their operations more competitive and socially friendly. The study aims to investigate the existing collaborative framework of social entrepreneurship in India and propose a model to strengthen the sustainability transition while identifying its pros and cons. The study adopts a review of the literature and primary data based on interviews. The study would bring an integrated mechanism based on a sustainability model while meeting the organization's objectives, either for-profit or not-for-profit. The study assumes significance in developing more regional social entrepreneurship frameworks that are considered catalysts for local development.

Keywords: social entrepreneurship, sustainability, collaboration, transition, India

Industry overview and cluster identification in the competitive and economic regional development context

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The most authors define the cluster as a grouping of companies, usually SME, with the synergy capability due to geographical proximity. However, other authors allude that the bonds of trust created between companies are those that generate the competitive phenomenon of the cluster (Bao Cruz, 2014; Rosenfeld, 1997; Porter, 1998; Pineda, 2022).

Which elements could identify a cluster? How does its identification could impact on economic and competitive development in a region?

This research addresses the elements in diverse geographical regions and industries to highlight the potential of economic and competitive development at regions studied, as well as the benefits that can be obtained. Therefore, the aim of this research is through the quotients method to identify cluster (Fregoso, 2013), as well as typify its elements to develop region and economic growth. The methodology followed in the research is non-experimental, with a quantitative approach and inductive-deductive type. Several municipalities with the possibility of clusters were identified using the quotients method, pointing out some factors and characteristics that enhance competitiveness and development of the regional industry. Some cases size and diversity of the population were not sufficient to support industrial analysed. However The research will continue as the data updates, where different opportunities to ones argued will be observed.

Keywords: SME, Internationalization, Business Management, Cluster

[ID:93]

Research and Development Investment of Future- Star Present Negative-Profit Biotech Companies in Financial Crisis

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Abstract

COVID-19 and Russia's invasion of Ukraine have severe short-term effects on capital markets. On the other hand, basic research in the life sciences is long-term, and many drug- discovery biotechnology (biotech) startups and companies normally face the "valley of death" as the negative profit period. Therefore, this paper plans to understand the underlying

probabilistically reproducible characteristics of the Research and Development (R&D) investment of the current successful and survival biotech companies with negative profit and excess debt in the FY2008 financial crisis. The research aims to search for future guidelines by looking back on the characteristics of the R&D investment at a similar past time of the current surviving and outstanding biotech companies using the United States Securities and Exchange Commission's Electronic Data Gathering, Analysis, and Retrieval system database.

Keywords—biotech companies, the valley of death, research and development investment, financial crisis, real optio

[ID:110]

High Growth Startups & Entrepreneurial Networks

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Abstract

The entrepreneurial network is a significant factor in successful startups. Extant research has shown that there are multiple dimensions and types of networking. Networks can be examined in terms of strong personal and weak business ties. Within each type of network, the engagement techniques could differ based on geographic-cultural and other factors. Networks can be a critical explanatory factor for high-growth startups. However, this relationship between entrepreneurs' success and their networks merits further study. This research attempts to answer two questions, (1) "What is the relationship between high-growth startups and entrepreneurial networks?" and, (2) "What are the mechanisms involved in an entrepreneur's networking decisions?" An in-depth qualitative research method was chosen with structured interviews with local entrepreneurs in Singapore. The entrepreneurs' responses were categorized into four sections: (1) Networking development, (2) Motivations for networking, (3) Network characteristics, and (4) Network maintenance. Three key findings emerged from the analysis of the interviews: (1) Strong resilience, solid technical knowledge, and capable business experience are essential to the creation of successful networks, (2) Entrepreneurs must diligently weigh, choose, and maintain their networks to ensure that they remain valuable with respect to time constraints, and (3) Vigilance to local regulatory changes as well as global business environment and trends are crucial aspects of network considerations. The study ends by discussing limitations and recommendations for further investigation.

Keywords – Entrepreneurial networks, start-ups, network structures, network mechanisms

INTRODUCTION

The entrepreneurial network is a significant factor leading to the success of startups. In many scenarios, it can be one of the differentiating factors for a start-up to achieve hyper-growth, scale, and outcompete competitors. In today's dynamic and interconnected business landscape, entrepreneurs face numerous challenges and opportunities. One critical factor that has emerged as a catalyst for success is the establishment and cultivation of entrepreneurial networks. In many situations, it can be one of the differentiating factors for a start-up to achieve hyper-growth and gain competitive advantage. Networks play a pivotal role in shaping entrepreneurial endeavours and driving business growth. This research aims to examine the multifaceted nature of entrepreneurial networks and their influence on business growth, as well as the network mechanisms involved.

LITERATURE REVIEW

The basics of networking involve getting direct access to the factors of production and market, understanding relationships, and gaining competitive advantage (McQuaid, 1996). A commonly explored dimension of networking is in terms of variations of relationship ties (Hernández-Carrión, Camarero-Izquierdo, C. & Gutiérrez-Cillán, J, 2020). Relationship ties can be classified into social and interpersonal or business and political. The former is often recognised as the strong ties, characterised by providing radical innovations and detailed information with explicit knowledge transfer, equipping entrepreneurs with economies of time to

deal with volatility, and generally being regarded as personal networks with bonding social capital with no specific industrial context (Hsu, Liu & Huang, 2015). The latter is recognised as weak ties. They are more relevant in helping entrepreneurs acquire business resources, often consisting of new information and people, making incremental changes. Professional networks are generally regarded as weak ties (Elfring, & Hulsink, 2003).

Networking can also be defined as the engagement of the dimension of social capital to acquire resources and supports from relationships. Such relationships can be pre-established personal ties, relationships entered through brokerage, and relationships initiated purely based on contractual trust (Jonsson, 2015). From such relationships, whether self-selected or tied by circumstances, tangible or intangible resources may be acquired (Hsu, Liu & Huang, 2015).

Different mechanisms are engaged when entrepreneurs utilise their networks. Starting off with the foundation of resource mechanism, entrepreneurs enrich their social capital with abundant and varied resources. While network sizes and diversity vary from person to person, this resource mechanism determined the quantity and variety of his network (Yin & Jahanshahi, 2018). The exchange mechanism follows suit when entrepreneurs facilitate a fluid exchange of resources among their network members, providing the necessary interchangeability of resources within the network (Dodd & Keles, 2014). Networks will further develop under the development mechanism with co-evolution of content and structure and innovation and technology (van, Elfring & Cornelissen, 2022). Entrepreneurs continue to engage their networks with management mechanisms. Such a form of network management can be planned or spontaneous (Troise, 2020), under the influence of macroeconomic and business environments (Shu, Ren & Zheng, 2018) or be part of an entrepreneur's strategic business plan (Tubadji, Fetahu, Nijkamp, & Hinks, 2020).

Benefits from networking include providing entrepreneurs with structures and processes to obtain commercial information. Through expanding connections and opportunities, entrepreneurs are able to receive more resources and learning (Witt, 2004). However, network structures also present certain constraints due to their densities, hierarchies, and sizes. For instance, when the majority of a person's network time and energy is only consumed by one group, he faced missing opportunities due to network closure (Burt, 2019). Fundamentally, one's network capability depends on motivation, social competency, cultural influence, and information transfer (Menkhoff & Labig, 1996).

The social characteristic of networking is the entrepreneurs' social resources (Sullivan & Ford, 2014). Membership of organizations and self-employed friends or acquaintances are used as indicators of network resources presumably favourable to entrepreneurship (Korsgaard, Ferguson,

- Gaddefors, 2015). Examples are trade and business organisations, community organisations, and political associations (Herminia & Mark, 2007). Determinants of entrepreneurship can also include social demographic attributes, human capital factors, and general network contacts

(Preisendörfer, Bitz, & Bezuidenhout, 2014).

METHODOLOGY

An in-depth qualitative research method was chosen with structured interviews with two entrepreneurs in Singapore. Interviews were conducted with the entrepreneurs with the focus of discussion on their networks. Questions were asked to gain deeper insights into each entrepreneur's networks.

For each of the entrepreneurs, they responded to the following categories of interview questions:

Entrepreneur background	<ul style="list-style-type: none">• Demographic background• Venture/business type• Stage of start-up
Networking development	<ul style="list-style-type: none">• Networking in decision-making• Description of networks at the start of the venture• Description of

	networks at the current stage of the venture
Motivations of networking	<ul style="list-style-type: none"> • Main reasons/ motivations to network
Network characteristics	<ul style="list-style-type: none"> • Network contacts • Frequency of interactions and engagement with contacts • Identification and engagement of potential contacts and platforms • Methods of networking • Network Characteristics
Benefits and challenges of networking	<ul style="list-style-type: none"> • Benefits and challenges of networking • Constraints of networking • Referrals and peers
	<ul style="list-style-type: none"> • Reaping benefits from networks
Maintaining networks	<ul style="list-style-type: none"> • Network maintenance and prioritisation • Passive and active networks • Exiting networks • Effectiveness of networking skills

After the interviews, transcription of the interviews was done by converting the recorded interviews into written text, capturing both the questions asked and the responses provided by the participants using transcription software. A comprehensive understanding of the data and identifying key themes or patterns that emerged from the interviews were gained through familiarization with the interview transcripts by thematic analysis. Texts were categorized into themes to gain a deeper understanding of the participants' perspectives, experiences, or opinions.

FINDINGS

The first interview revealed important insights on the various aspects related to the entrepreneur's networks. The important findings derived from this interview are as follows.

(1) Recognising the importance of networks: The entrepreneur recognizes the significance of networks in their business. National agencies have provided entrepreneurs with the opportunity to connect with foreign delegates and potential partners. Important international forums (such as the London Climate Action Forum) serve as crucial platforms for entrepreneurs to present their products and services to stakeholders. Networks, both formal and informal, play a crucial role in expanding their business and

accessing resources, contacts, and information. (2) Taking a top-down approach in networking: The entrepreneur emphasizes the importance of working from a top-down approach, primarily driven by government policies and regulations. Clear guidelines and directives from policymakers and large organizations, which can create a market and drive demand. The government's role in setting the direction and creating a conducive environment for sustainable practices is seen as vital. (3) Leveraging expertise and experience: The importance of extensive experience and expertise in the business field is highlighted. Industrial experts are often willing and open to sharing knowledge, collaborating, and licensing their frameworks with others in the industry. Their expertise and international exposure have allowed them to establish connections and engage with stakeholders across different sectors.

The second interview disclosed how the entrepreneur recognized the importance of networks in the business venture. Networks, both in terms of business contacts and social connections, are critical for growth and outreach. Building a wide network of customers and suppliers is essential in the B2B context. The important findings derived from this interview are as follows:

(1) Evolution of networks: Networks changed over time as the stage of the company progressed. While they try to maintain existing connections, expanding the network, and developing new relationships often result in less frequent engagement with existing contacts. The level of engagement may vary based on the needs of the business.

(2) Motivations for network engagement: The motivations for engaging with different networks are diverse. Networks are sought for learning, sharing experiences, getting advice on common challenges faced by entrepreneurs, or even for personal support. The specific motivations may vary based on the type of network and the needs of the business at a given time.

(3) Balancing Different Networks: It is crucial to maintain a balanced approach to engaging with different networks. Various modes of engagement with networks, including physical events, social media, face-to-face meetings, and casual meetups for coffee are engaged for networking. The mode of engagement depends on the nature of the relationship and the preferences of the individuals involved. There is high value in a mix of networks, including government institutions, entrepreneurial organizations, and social communities. Each network serves a specific purpose, such as implementing projects, brainstorming, or providing personal support.

In comparing the two sets of findings, several similarities and differences can be observed regarding the entrepreneurs' networks. The similarities are (1) Learning and sharing: Both entrepreneurs emphasize the value of networks as platforms for learning and sharing experiences. They mention the benefits of engaging with individuals from various industries, gaining insights into different business strategies, and solving common challenges. (2) Engagement in events: Engagement in networking events and gatherings is a means to expand networks, meet new people, and establish connections. The potential of these events for exchanging knowledge and finding opportunities is recognized. (3) Evolving networks: Networks evolve and change over time as business requirements shift. They mention the dynamic nature of networks and how the composition of one's network may vary as the business progresses. However, there are also differences. Their network types are very different. One engages with government institutions as part of the network, particularly in the context of project-based work. The other engages with social communities, with environmental initiatives and governance concepts as additional network sources.

In general, both entrepreneurs acknowledge the importance of the entrepreneurs' network. The interviews allowed for a deep understanding of the entrepreneurial performance and personal context of the individual, as well as a broader spectrum of network classifications and underlying motivations.

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CONCLUSION

Overall, the analysis reveals the recognition of the significance of networks in an entrepreneurial journey. Business and social networks, and governmental and international relationships are valued and engaged for learning, sharing experiences, gaining insights, and expanding outreach.

It is important to acknowledge the limitations of this research study. Firstly, the sample size was small, comprising a limited number of participants. This restricts the generalizability of the findings to a larger population. Additionally, the research was solely based on interviews, which introduces the potential for subjectivity and bias in the data collected. Furthermore, the analysis was conducted over a relatively short time span, which may not capture the long-term dynamics and changes in the phenomenon under investigation. These limitations should be considered when interpreting the results.

Future research can be done based on quantitative measurement of networks, evaluating the effectiveness and impact of entrepreneurial networks in start-ups through network analysis and network intelligence techniques.

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[ID: 113]

Extrinsic Factors and Personal Attitude of Agricultural Students: The Moderation Role of Family Business Status

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Abstract

This study aimed to determine the influence of access to resources, subjective norms, and sociocultural forces on the personal attitude of agricultural students to start a farming business in South Africa. This relationship was looked at from a family business status perspective. An estimated 3,486 students were enrolled for various agriculture-related qualifications in multiple institutions of higher learning in South Africa when this cross-sectional, quantitative study was carried out. Data from 421 agricultural students were collected through a Prospective Farmers Profile Questionnaire at six institutions of higher learning in South Africa. The study revealed that personal attitude to start a business is predicted by extrinsic factors, subjective norms, and sociocultural forces, but not access to resources. The moderation role of family business status was found not statistically significant on all extrinsic factors but a statistically significant relationship between access to resources and family business status of agricultural students from families not owning a business was found. It is a positive personal attitude that will likely result in a start-up. Farming entrepreneurship, especially among the youth will assist in employment creation, economic growth and fighting poverty, three problems that many countries in the African continent are currently facing. Access to resources is one of the most critical factors that influences entrepreneurship but agricultural students do not consider it significant in their personal attitude to start a business. Access to resources should be built into the syllabi for students to gain knowledge of this vital business start-up factor.

Keywords: access to resources, family business status, personal attitude, subjective norm, sociocultural forces

Indian social enterprises as navigators of sustainability transitions: Case studies of for-profit and not-for-profit social enterprises in India

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Abstract:

This study delves into social entrepreneurship in India, with a primary objective to explore how social enterprises, specifically PotholeRaja and ThinkZone, drive sustainability transitions with a strong emphasis on inclusivity. The research employs a qualitative methodology, gathering primary data through in-depth interviews with the founders of these organisations. PotholeRaja, a for-profit entity in Karnataka, and ThinkZone, a non-profit organisation in Odisha, are selected as case studies due to their pivotal roles in promoting sustainability and inclusivity. This paper concludes with their transformative power in prioritising social impact and implementing sustainable business models that address social, economic, and environmental concerns. Both organisations actively engage marginalised communities, exemplifying inclusivity as a core principle. Also, the study sheds light on how they adapt, innovate, collaborate, and maintain transparency, thereby serving as beacons of hope for a more sustainable and inclusive India.

Keywords: Social entrepreneurship, collaboration, sustainability transitions, inclusivity.

1. Introduction:

Social entrepreneurship in India is gaining significant attention due to its potential to address complex social issues and drive positive change. According to Bacq and Janssen (2011), social entrepreneurs establish social enterprises to effect social transformation within their respective areas of operation. Their primary goal is to generate meaningful social impact rather than focusing solely on financial metrics. Social enterprises are involved in sustainable business models that prioritise addressing social, economic and environmental issues while generating profits. Ashraf et al. (2019) discuss the scope of adopting socially responsible organisations for sustainable empowerment and economic growth in emerging economies. Fama and Jensen (1983) argue that social enterprises hold immense promise for driving a global transition towards sustainability.

Schot and Kanger (2018) state that a sustainability transition represents a radical departure from business-as-usual practices. It is a visionary and forward-thinking response to the pressing issues of our time. This transformation is not a mere tweak or adjustment to existing systems; rather, it encompasses a comprehensive and enduring process that spans multiple dimensions of society. It recognises that sustainability is not limited to environmental concerns but includes social and economic aspects. Markard et al. (2012) emphasise that the sustainability transition is not a superficial change but a profound transformation within established socio-technical systems.

These systems include producing and consuming energy, goods, and services and organising our societies. The goal is to shift these systems towards more sustainable modes of production and consumption, where the wellbeing of people and the planet are prioritised over short-term gains and resource depletion. The transition to sustainability indicates an essential change from business as usual and involves an extensive adjustment within established socio-technical systems. It addresses pressing issues by encompassing multiple dimensions of society and prioritising environmental, social, and economic sustainability.

Audretsch et al. (2018) underscore that the social impacts of such entrepreneurship rely on networks involving diverse stakeholders within these ecosystems, playing a pivotal role in connecting various actors and amplifying broader social benefits. Iqbal et al. (2018) delve into quadruple helix collaboration, which involves innovative stakeholders working together to foster sustainable social initiatives. This type of collaboration emphasises the importance of involving actors from academia, industry, government, and civil society in social entrepreneurship efforts. Arogyaswamy (2017) provides insights into this evolution and highlights the importance of institutional support in the journey of social entrepreneurship for chasing sustainable transitions. As proved by Ceesay et al. (2021), cause-based social entrepreneurial collaborations offer an innovative method for attaining sustainable transitions. These partnerships stand out due to their exceptional cooperative value practises, deeply rooted in a common social goal. By working together to address particular social concerns through these alliances, committed organisations and social entrepreneurs redefine the narrative of collaboration for sustainability transitions. Parrish and Foxon (2006) narrated that sustainability transitions frequently combine physical innovations and social coordination approaches. For example, the co-evolutionary nature of these changes is shown by the ability of institutional innovations to get around technology limitations and create new, dynamic, activity-rich niches. Creative business tactics are a significant source of variation that can support these co-evolutionary shifts.

The study of PatholeRaja and ThinkZone is a valuable exploration of how social enterprises in India drive sustainability transitions with a strong focus on inclusivity. Gupta and Vegelin (2016) argue that an inclusive development analysis of the SDGs may help assess whether the textual design aims to ensure that development focuses both on social and ecological issues and on the political tools for achieving the transformation it aims for. Thus, these two organisations, PatholeRaja and ThinkZone, although distinct in their mission and structure, represent a holistic model for addressing societal and environmental challenges. In this context, the study aims to explore and address the inclusivity approach taken by these social enterprises.

Campos et al. (2022) discuss that inclusivity initiatives hold profound significance for for-profit and not-for-profit social enterprises, pivotal in driving positive change and fostering sustainability. For-profit social enterprises embrace economic inclusivity, providing economic opportunities and resources to marginalised communities. The inclusivity approach ensures that organisations like PotholeRaja and ThinkZone reach and benefit many stakeholders, particularly those often marginalised or disadvantaged. This approach encompasses measures to ensure equitable access to services and opportunities for underserved populations. For PotholeRaja, inclusivity involves engaging local communities, including vulnerable groups, in road repair and construction projects, thus creating employment and skill-building opportunities. It can also entail outreach programs involving waste pickers or marginalised individuals in collecting and recycling materials. In the case of ThinkZone, an inclusivity approach focuses on providing quality education and skill development to economically disadvantaged children while empowering their parents and educated youth. Ensuring that the education provided is accessible, culturally relevant, and responsive to the community's needs

is crucial to inclusivity. The study likely analyses and provides insights into how these organisations address inclusivity in their operations, including outreach strategies, community engagement, and adaptability to diverse needs, ultimately providing recommendations and a framework for other social enterprises to adopt more inclusive practices, thus contributing to comprehensive sustainability transitions encompassing all segments of society.

2. Methodology:

The selection of two social ventures, PotholeRaja, a for-profit organisation based in Karnataka, Bangalore, and ThinkZone, a non-profit organisation in Odisha, Cuttack, for in-depth analysis, serves as a foundational aspect of the research methodology. The study primarily focuses on gathering primary data through qualitative interviews with the founder members of these organisations, utilising a semi-structured approach with open-ended questions. These case studies were thoughtfully chosen as invaluable opportunities to investigate and understand the diverse spectrum of leading approaches, governance structures, and enhanced outcomes emerging within India's dynamic landscape of social entrepreneurship. By studying these two distinctive ventures, the research aims to shed light on the multifaceted ways social enterprises contribute to sustainability and positive change in the Indian context.

3. Case studies:

3.1. PotholeRaja;

PotholeRaja, founded by Dr Prathap B. Rao in 2016 and headquartered in Karnataka, Bangalore, is a unique venture with a profound commitment to improving road safety, saving lives, and raising social awareness throughout India. The organisation's core mission is to create accident-free roads, save lives through innovative road construction and pothole repair, conserve valuable fuel resources, and champion sustainability by repurposing waste materials. PotholeRaja has achieved significant financial success, generating an impressive 50 crores in revenue over the last three years, with an annual income of 7 crores and a robust working capital of 35 lakhs. The organisation's proactive efforts to minimise its carbon footprint by sourcing external energy underscore its commitment to environmental responsibility, positioning PotholeRaja for continued growth and a positive impact on road safety and sustainability.

3.2. ThinkZone;

ThinkZone, led by Dr Vinayak Acharya and based in Cuttack, Odisha, has been a beacon of hope in addressing the educational challenges faced by under-resourced communities in India since its establishment in November 2013. With millions of children in primary grades struggling with basic literacy and numeracy skills, ThinkZone has adopted an innovative approach. They empower parents and educators by utilising accessible tech solutions and community-led interventions to nurture foundational skills in children aged 3 to 10, offering them a brighter future. At the core of their efforts is the Empower Educators initiative, which transforms youths and women into trained educators equipped with technology-driven teaching methods and 21st-century pedagogical skills. This promotes self-sustainability and generates income while creating a significant social impact. ThinkZone operates with a working capital of 15 lakhs for daily operations and a dedicated team of 32 employees, primarily funded by grants and funds, emphasising their commitment to making a substantial difference in the lives of underprivileged children and reshaping India's educational landscape.

Description:

The stories of ThinkZone and PotholeRaja exemplify their roles as navigators of sustainability transitions in the Indian context. ThinkZone's commitment to enhancing education outcomes in low-resource settings demonstrates its dedication to social sustainability. Empowering teachers and students improves education quality and fosters aspirations and opportunities for children, contributing to a more sustainable future by reducing educational disparities and nurturing human capital. On the other hand, PotholeRaja's mission to enhance road safety and expand into Africa underscores its

commitment to environmental and infrastructure sustainability. Their innovative practices, such as waste material repurposing and carbon reduction, showcase their dedication to eco-friendly initiatives. By exporting their successful model to Africa, they contribute to global sustainability efforts, addressing road safety challenges and promoting environmentally responsible infrastructure development.

These case studies are justified, as they precisely reflect these organisations' pivotal role in driving sustainability transitions in India and on a global scale. These case studies illustrate how social enterprises address local challenges and expand their impact to create a safer, more sustainable future worldwide.

Innovation and Technology for Sustainability Transitions:

Mäkitie et al. (2023) argue that links between innovative sustainable and digital innovation, known as revolutionary double innovations, are of particular interest in the context of sustainability transitions, as they have the potential to amplify the positive impact of innovation and technology on sustainability goals. In the context of ThinkZone, their all-in-one mobile application represents a pioneering example of leveraging innovation and technology to drive positive social change in education. This innovative solution addresses a specific social issue: the need for accessible, quality education in underserved communities. By identifying the root causes of educational gaps and understanding the target audience, ThinkZone has tailored its approach to suit the needs of these communities. Staying informed about technological trends is evident in their comprehensive app, which incorporates many technological elements. They utilise digital platforms to make education more accessible and user-friendly, ensuring that the target audience can easily access their services. The app also incorporates data analytics, which provides valuable insights for monitoring progress and making data-driven decisions, ultimately enhancing the quality of their educational services. Automation within the app streamlines administrative tasks, increasing efficiency and allowing resources to be allocated more effectively to core educational services. This strategic use of technology enhances the scalability of their academic approach, ensuring it can meet the growing demand for quality education in underserved areas. Sustainability and ethical considerations are embedded in ThinkZone's approach. The app provides education and empowers local educators with upskilling opportunities, contributing to the long-term sustainability of their educational initiatives.

Additionally, the app's focus on culturally sensitive and inclusive education aligns with ethical considerations, ensuring fair treatment of beneficiaries. Measuring impact is critical to their approach, as the app enables tracking educational outcomes and progress. ThinkZone also prioritises user-centred design, as evident in their use of activity and game-based learning modules that engage and involve the target audience.

PatholeRaja's GridMats and ThinkZone's mobile applications leverage innovation and technology to reduce resource consumption, enhance cost-effectiveness, align with

sustainability goals, and promote efficient resource management. They contribute to sustainable transitions in road construction and education, showcasing the power of technology in addressing critical challenges and driving sustainability.

Furthermore, ThinkZone extends its innovative approach beyond the classroom to ensure holistic advancement through the "Parent's Remote Assistance and Knowledge Support for Holistic Advancement of Kids (PRAKASHAK)." This initiative empowers parents to actively engage in their children's learning activities through various communication channels, regardless of their financial constraints or the type of mobile phone they possess. This transformative approach fosters a continuous, collaborative effort between educators and parents, aiming for a well-rounded development for children. The commitment to inclusive education and providing simple, achievable learning activities for parents are at the core of ThinkZone's mission.

PatholeRaja's GridMats and ThinkZone's mobile application represent potent examples of how innovation and technology can foster inclusivity. GridMats offers a sustainable solution that reduces financial barriers in infrastructure development, benefiting underserved communities and extending their application to various contexts. ThinkZone's mobile application ensures inclusive education with user-friendly technology, data-driven efficiency, and a commitment to upskilling local educators. Furthermore, the "Parent's Remote Assistance and Knowledge Support for Holistic Advancement of Kids (PRAKASHAK)" initiative extends inclusivity to parents, recognising their essential role in a child's education. Both innovations showcase the transformative potential of technology in promoting accessibility, cost-effectiveness, and user-friendliness, ultimately advancing inclusivity and sustainable development.

These profiles of PatholeRaja and ThinkZone exemplify the pivotal roles through technology application and innovation with different goals these social enterprises play in driving sustainability transitions. PatholeRaja contributes to sustainability infrastructure and environmental goals, while ThinkZone empowers educators and parents, fostering inclusive and holistic education practices. Both organisations are instrumental in steering towards a more sustainable and inclusive future.

Collaboration for sustainability transitions:

PotholeRaja and ThinkZone's operations thrive on collaboration, illustrating their roles as social enterprises bridging sustainable transitions. These collaborations are crucial in tackling critical issues and encouraging positive change in their fields. PotholeRaja's commitment to road safety and sustainability is exemplified through its extensive collaborations. They actively engage with various entities, including government authorities, non-governmental organisations (NGOs), civic societies, and corporate partners. These collaborations underscore the power of uniting diverse stakeholders for a common cause. Their partnership with government authorities, characterised by Memoranda of Understanding (MoUs), highlights their dedication to working hand-in-hand with public resources to enhance road infrastructure and safety. By aligning their expertise with public resources, PotholeRaja aims to create lasting, positive impacts on the community, furthering their mission of safer, more sustainable roads. Collaborations with NGOs, civic societies, and various stakeholders reflect their commitment to fostering positive change and creating more compassionate and harmonious societies.

One notable collaboration is between PotholeRaja and Diageo, facilitated through their engagement with iVolunteer. This unique partnership brought together different parties to harness technology and address real-time issues, specifically potholes. The project spanned across cities and used technology to identify and repair potholes. The success of this endeavour marked a significant achievement for Diageo's corporate social responsibility (CSR) team and

demonstrated the positive impact of such collaborations in local communities. Furthermore, PotholeRaja collaborates with major corporate houses within the Corporate Social Responsibility (CSR) initiative framework. These alliances underscore a collective commitment to fostering social awareness and creating safer roads. Corporate partnerships are pivotal in amplifying PotholeRaja's capacity to instigate transformative change with a shared sense of responsibility and unity. As a socially conscious organisation, PotholeRaja extends its environmentally sustainable practices by collaborating with local waste recycling units to source raw materials and liaise with municipalities to optimise energy consumption. Notably, industries closely linked to road connectivity, such as automotive giants like Toyota and Nissan, actively collaborate with PotholeRaja as part of their corporate social responsibility (CSR) initiatives, acknowledging their distinct responsibility in enhancing road conditions. Similarly, technology leaders like Lenovo, Intel, Bosch, and others, operating within the same cities, collaborate with PotholeRaja to contribute to society under CSR projects, thereby reinforcing the idea that businesses bear a collective responsibility for the betterment of their communities. These partnerships underscore a commitment to reducing the carbon footprint and fostering eco-friendly roads, aligning harmoniously with PotholeRaja's overarching mission.

PotholeRaja's commitment to fostering meaningful collaborations transcends traditional boundaries, extending to esteemed educational institutions such as SP Jain Institute of Management & Research (SPJIMR), Velammal College of Management, and prestigious Indian Institutes of Management (IIMs). While PotholeRaja doesn't have formal partnerships with these institutions, they welcome students for internships through mutual and verbal agreements. The founder's association with institutes like IIMB, Christ, Alliance, IFIM, Wellingker, MS Ramaiah, and many other esteemed establishments, where they serve as visiting faculty for various disciplines, enhances these informal educational connections. Through this engagement, students gain valuable insights into sustainable road construction and social entrepreneurship practices. The founder's extensive experience as a business and management consultant with global organisations worldwide further enriches the learning experience. It enhances Pothole Raja's capacity to drive impactful change through knowledge sharing and skill development.

These collaborations, formalised through Memoranda of Understanding, demonstrate ThinkZone's unwavering dedication to improving education outcomes for underprivileged communities and forging a brighter future. Additionally, ThinkZone partners with influential foundations and corporations through their Corporate Social Responsibility (CSR) projects, reinforcing their mission to enhance education outcomes for underserved populations and showcasing their commitment to innovative and impactful education solutions. ThinkZone's partnership with the government of Odisha extends to the 'Quality Learning Initiative in Schools,' focusing on students in Class 1-5. This ongoing program empowers teachers with a comprehensive support system, offering offline and online skill-enhancement workshops, access to activity-based teaching resources, and a dedicated mobile application for effective classroom management, assessments, and interactive learning activities. Moreover, ThinkZone collaborates with notable foundations, including The Millennium Alliance, a consortium of public-private partnership partners, and Foundation Botnar, a Swiss philanthropic foundation dedicated to youth health and wellbeing. These partnerships exemplify ThinkZone's dedication to making a transformative impact in education. Foundation Botnar, in particular, shares ThinkZone's vision of advocating for youth voices and equitable use of digital technology, actively investing in innovative programs and fostering cross-sector dialogue and partnerships.

Furthermore, ThinkZone's collaboration with Adani Steel under their CSR project reflects a significant step in their mission to empower underprivileged communities through education.

This Memorandum of Understanding (MoU) underlines ThinkZone's commitment to positively impact the lives of children and families in these communities. This partnership aims to create lasting change and provide educational opportunities for those who need it most.

These collaborations highlight how PotholeRaja and ThinkZone use the potential of cooperation to advocate sustainability transitions in road safety, infrastructure development, and education. These collaborative activities highlight their essential roles in solving critical issues and encouraging positive change, ultimately leading to a more sustainable and inclusive future in India.

Sustainable Impacts:

PatholeRaja:

PotholeRaja, led by Dr Prathap Bhimesena Rao, has played a pivotal role in creating meaningful social impacts beyond road safety and environmental awareness. Central to their sense of social responsibility is an ambitious mission to empower the transgender community. In sync with India's evolving legal and social landscape regarding LGBTQIA+ rights, PotholeRaja is dedicated to offering full-time employment opportunities to 500 transgender individuals. This initiative underscores their unwavering commitment to diversity and inclusivity, significantly contributing to broader social awareness and community development. Through active engagement with the transgender community, PotholeRaja aligns itself with shifting societal norms and regulations that acknowledge the rights and dignity of transgender individuals in India, exemplifying the transformative power of social impact initiatives.

PotholeRaja's remarkable commitment to sustainable practices distinguishes them as pioneers in the transformation of India's road infrastructure while also leaving a positive impact on the environment. Their significant achievement of an 80% reduction in carbon emissions stands as a testament to their proactive approach to mitigating the environmental impact of road construction and maintenance. This accomplishment is made possible by implementing innovative strategies encompassing advanced technologies, eco-friendly construction methods, and using energy-efficient machinery. Moreover, PotholeRaja's focus on resource conservation and waste management is critical to their environmentally conscious road construction practices. Their innovative approach, which involves using waste materials, minimises waste generation and showcases a sustainable and environmentally responsible model. By effectively reducing waste and conserving resources, PotholeRaja significantly contributes to a greener and more ecologically sustainable future. Their conscientious approach to water consumption further underscores their dedication to resource conservation and environmental preservation, highlighting their initiatives' substantial positive environmental impact.

PotholeRaja's impact extends far beyond road safety and environmental concerns, positively affecting the local communities they serve, particularly economic development. Their steadfast commitment to providing employment opportunities for residents is vital in fostering grassroots economic empowerment. By hiring local labourers for road repair, maintenance, and construction, PotholeRaja actively contributes to the community's economic wellbeing. This approach empowers local individuals and instils a sense of shared responsibility within the community, promoting a more robust local economy. Furthermore, PotholeRaja's dedication to engaging local labour indirectly supports local waste recycling factories and collectors, thus creating a ripple effect of economic benefits within the community. This economic interdependence is a crucial driver of sustainable development in their operating areas. PotholeRaja's commitment to improving road accessibility for vulnerable community

members, such as those residing in nursing homes and orphanages, not only enhances road safety but also underscores their dedication to inclusivity and social responsibility. Their efforts to provide safer transportation options for these communities reflect their belief that everyone, regardless of their circumstances, deserves the economic and social benefits of secure and accessible roads, further reinforcing their positive economic impact on the communities they serve.

Moreover, PotholeRaja actively spreads road safety awareness through collaborations with NGOs and volunteers, reinforcing their commitment to creating safer roads for the entire community. This comprehensive approach emphasises their role in preventing road accidents and enhancing road safety in India. PotholeRaja's commitment to eco-friendly practices permeates every aspect of its operations. PotholeRaja's sustainable impacts illustrate their pivotal role in fostering inclusivity, environmental consciousness, community development, and road safety, making them a pioneering force in the drive towards eco-friendly and efficient road infrastructure development in India.

ThinkZone:

ThinkZone's initiatives have begun to showcase promising transformations in the educational landscape for underprivileged communities. These initiatives have significantly enhanced young learners' foundational skills, with students consistently outperforming their peers in language and arithmetic scores. The data highlights substantial improvements in language and arithmetic skills, with an impressive 71% enhancement in language and a remarkable 63% increase in arithmetic skills. These improvements extend to students of different age groups, with children aged 3 to 6 demonstrating age-appropriate skills. ThinkZone's programs have laid a strong foundation for further learning, fostering early skill development. In primary grades (6-10 years), students have made remarkable strides in their educational journey. The progress includes transitioning from basic skills to more advanced ones, such as sentence identification and writing. ThinkZone's impact extends to various vital domains, with improvements in number recognition, counting, comparison skills, shape knowledge, division skills, and reading and writing.

ThinkZone's initiatives have also positively impacted parents, with a 32% increase in parents actively engaging in their children's learning. This demonstrates the growing involvement of parents in supporting their children's education and reinforces the collaborative efforts of educators, students, and parents in creating a more enriching learning environment. ThinkZone's focus on upskilling educators has yielded remarkable results. Educators have shown a substantial improvement in their skills, with an average increase from 50% to 78% in just six months. This capacity-building initiative covers many skills, including early childhood and primary grade education, communication, technology utilisation, activity-based teaching methodologies, and classroom management. This upskilling not only enriches the professional growth of educators but also enhances the learning experiences of the students they serve.

ThinkZone's sustainable impacts demonstrate their significant contributions to enhancing the educational outcomes of underprivileged communities. Their commitment to improving foundational skills, engaging parents, and upskilling educators drives positive change in the academic landscape, contributing to a brighter future for young learners in under-resourced areas.

Key Findings and Metrics	Percentage of Result
Overall Findings	
Children (ages 3-5) progress in foundational skills	Significant progress
Notable improvements in language score	71% improvement
Enhancement in arithmetic scores	63% improvement
Improvement in number recognition	Significant improvement
Improvement in counting skills	Significant improvement
Improvement in comparison skills and shape knowledge	Significant improvement
Improvements in reading skills	Significant improvement
Improvements in writing skills	Significant improvement
Improvements in division skills	Significant improvement
Other Metrics	
The majority of children developed age-appropriate skills	55%
Class 3 students advanced to 'Sentence Identification & Writing'	Advanced to the next level
Class 1 students performing one-digit addition and subtraction	92%

More children are considered "school-ready"	Indicating readiness for school
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Social marketing

Kotler, Lee & Rothschild et al. (2006) defined social marketing as a "process that applies marketing principles and techniques to create, communicate and deliver value to influence target audience behaviours that benefit society (public health, safety, the environment, and communities) as well as the target audience". It helps you to decide which people to work with. What behaviour to influence? How to go about it? And how do we measure it?

PotholeRaja:

PotholeRaja's social marketing and promotion strategies primarily focus on driving awareness about road safety and sustainability. They have harnessed the potential of collaborations, media exposure, and social media engagement to advance their mission. Collaborative efforts with renowned corporate entities fortify their cause and attract substantial media coverage, highlighting the vital role of corporate involvement in addressing infrastructure challenges and endorsing the significance of corporate social responsibility. Extensive media exposure through various print and electronic platforms has proven instrumental in disseminating their message to a broader audience, shedding light on their innovative approaches and accentuating the critical issues surrounding road safety and sustainability. PotholeRaja's intelligent utilisation of social media platforms has enabled them to connect with a diverse audience and actively engage with concerned citizens who share their vision for safer roads and a sustainable future. Through creating compelling content and active participation in discussions, PotholeRaja has effectively rallied support and fostered awareness, underscoring the influential role of social media in mobilising collective action for social change.

ThinkZone:

In social marketing, ThinkZone, while primarily dedicated to educational initiatives as a non-profit organisation, recognises the importance of broadening its reach and impact. To this end, they maintain a robust online presence through their website and active social media profiles, strategically utilising these platforms to bolster and amplify their educational programs. Through this online presence, they effectively connect with a broader audience, disseminate

inspirational success stories, and drive awareness about the profound significance of quality education for underprivileged communities. ThinkZone also engages in strategic collaborations with governmental and non-governmental organisations and foundations that are deeply committed to education and child welfare. These alliances serve as indirect endorsements of ThinkZone's work while simultaneously advocating for inclusive and quality education. This collaborative approach leverages the collective strength of like-minded entities within the education sector, working together to drive positive social change.

Furthermore, ThinkZone adopts a grassroots strategy by encouraging its alumni and community members to share their personal experiences. This approach, rooted in social marketing principles, humanises its message and forms a genuine connection with local and global audiences. It effectively mobilises support from those directly touched by ThinkZone's work, fostering a sense of community and shared responsibility in advocating for its mission of quality education for all.

PotholeRaja and ThinkZone have strategically adapted their social marketing approaches to align with their missions and objectives. PotholeRaja strongly emphasises corporate partnerships and media coverage to increase awareness of road safety and sustainability. At the same time, ThinkZone focuses on maintaining a robust online presence and fostering partnerships to extend its reach and advocate for quality education. These organisations play pivotal roles in their respective domains, actively contributing to broader sustainability goals and exemplifying the principles of effective social marketing.

Stakeholders Communication:

Effective stakeholder communication is vital to PotholeRaja and ThinkZone's operations, highlighting their commitment to transparency and engagement.

PotholeRaja:

PotholeRaja places a strong emphasis on transparency in their interactions with stakeholders. They have established clear communication channels by routinely publishing project reports after each initiative. These reports provide detailed insights into project objectives, progress, and outcomes. By making this information readily available, PotholeRaja ensures that its stakeholders, including investors, clients, and the general public, can access comprehensive information about their activities and impact. This practice of openness fosters trust and accountability, emphasising PotholeRaja's unwavering commitment to honest and transparent communication with its stakeholders. It allows stakeholders to understand the organisation's work and actively participate in and support their mission, further reinforcing their role in navigating sustainability transitions in India's road infrastructure.

ThinkZone:

ThinkZone also values transparency in its interactions with stakeholders. The organisation maintains an open and proactive approach to engaging with its diverse stakeholders. Annually, ThinkZone publishes an easily accessible annual report. This report provides a window into the organisation's accomplishments, impact, and overall progress, making it available in the public domain. This transparency commitment builds stakeholders' trust and offers a clear and comprehensive view of ThinkZone's initiatives, particularly their transformative effects on under-resourced communities. By sharing their achievements openly, ThinkZone invites collaboration, support, and engagement from a broader audience. This approach aligns with their mission to improve education and drive positive change, emphasising their pivotal role as navigators of sustainability transitions, especially in providing quality education for

underserved communities in India.

Both PotholeRaja and ThinkZone highly value transparent communication with their stakeholders. Through their respective practices of publishing projects and annual reports, they build trust and accountability and provide comprehensive insights into their activities. This transparent engagement invites support and collaboration from a wider audience and underscores their roles as facilitators of sustainability transitions within their road infrastructure and education domains, respectively.

Extended work:

Going beyond their primary road safety mission, PotholeRaja engaged in an extended activity that exemplified their strong commitment to community wellbeing during the challenging COVID-19 period. In collaboration with Covid-Relief Bengaluru, they reached out a helping hand to provide essential food kits to migrant families in Bengaluru. This compassionate endeavour not only underscored their dedication to social responsibility but also showcased their ability to adapt and respond effectively to the pressing needs of vulnerable communities during times of crisis. PotholeRaja's involvement extended far beyond road maintenance, encapsulating the spirit of unity and support that was indispensable during the unprecedented challenges of the pandemic.

Strengthen inclusivity to the next level:

David Bornstein et al. (2007) narrated to take inclusivity to the next level, it's crucial to foster a culture where diversity isn't just acknowledged but celebrated. This multifaceted approach involves committed leadership that sets the tone, actively seeking diversity in your workforce, implementing inclusive policies and practices, and providing ongoing diversity and inclusion training. Encouraging the formation of Employee Resource Groups (ERGs) and fostering open communication helps create a welcoming environment where diverse perspectives are valued. Investing in inclusive leadership development and mentorship programs further supports underrepresented groups. Supplier diversity and inclusive product design showcase a commitment to serving diverse communities. Celebrating differences, setting measurable goals, and ensuring continuous improvement are vital. Collaboration with diverse organisations and inclusive marketing amplify the message of inclusivity and create a well-rounded, enriched workplace where each individual feels respected and empowered, ultimately driving success and wellbeing within the organisation.

1. Inclusivity model for sustainability transitions

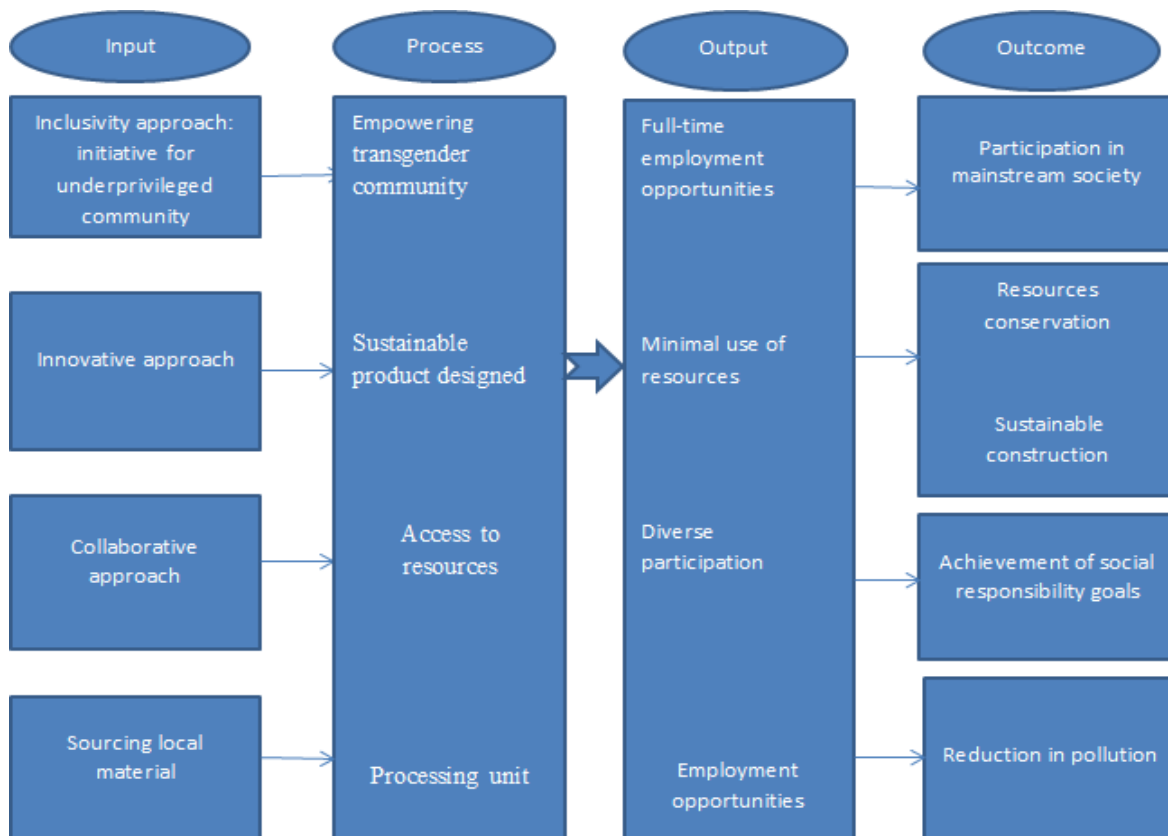


Figure 1.0

Inclusivity Approach: The model demonstrates a strong commitment to inclusivity by launching an initiative to empower underprivileged communities, focusing on the transgender community. By providing full-time employment opportunities, it not only fosters economic independence but also promotes social inclusion. Empowering marginalised communities and enabling participation in the mainstream economy can reduce pollution by offering sustainable livelihoods that do not rely on environmentally damaging practices.

Innovative Approach: Innovation is pivotal in this model's quest to reduce pollution. The model minimises environmental impacts through the sustainable design of products and the minimal use of resources. Sustainable construction methods further enhance resource conservation. Developing eco-friendly products and construction techniques reduces waste, energy consumption, and pollution at various stages of production and use.

Collaborative Approach: Collaboration is a core component of the model, ensuring diverse stakeholders come together to achieve shared social responsibility goals. By fostering cooperation among employees, local communities, NGOs, and governmental bodies, the model leverages collective efforts to address pollution-related challenges. This collaboration enhances problem-solving and the implementation of effective strategies for pollution reduction.

Sourcing Local Material: The model contributes to pollution reduction in multiple ways by sourcing materials locally. It creates employment opportunities within the community and supports the local economy. Additionally, this practice significantly reduces the carbon footprint associated with transportation, as materials do not need to be transported over long distances. Less transportation equals fewer emissions, furthering the model's pollution

reduction goal.

This model integrates a diverse set of strategies and approaches to tackle the issue of road safety. It strongly emphasises inclusivity by empowering marginalised communities with employment opportunities, making them active participants in the mainstream economy. It leverages innovation to create sustainable products and construction methods that minimise resource use and environmental impacts. Collaboration ensures that collective efforts are directed towards achieving social responsibility goals related to pollution reduction. Lastly, the sourcing of materials locally not only provides employment opportunities but also reduces emissions associated with transportation. The model effectively addresses the pressing pollution issue through these combined efforts while promoting social inclusivity and economic empowerment.

2. *Inclusivity model for sustainability transitions*

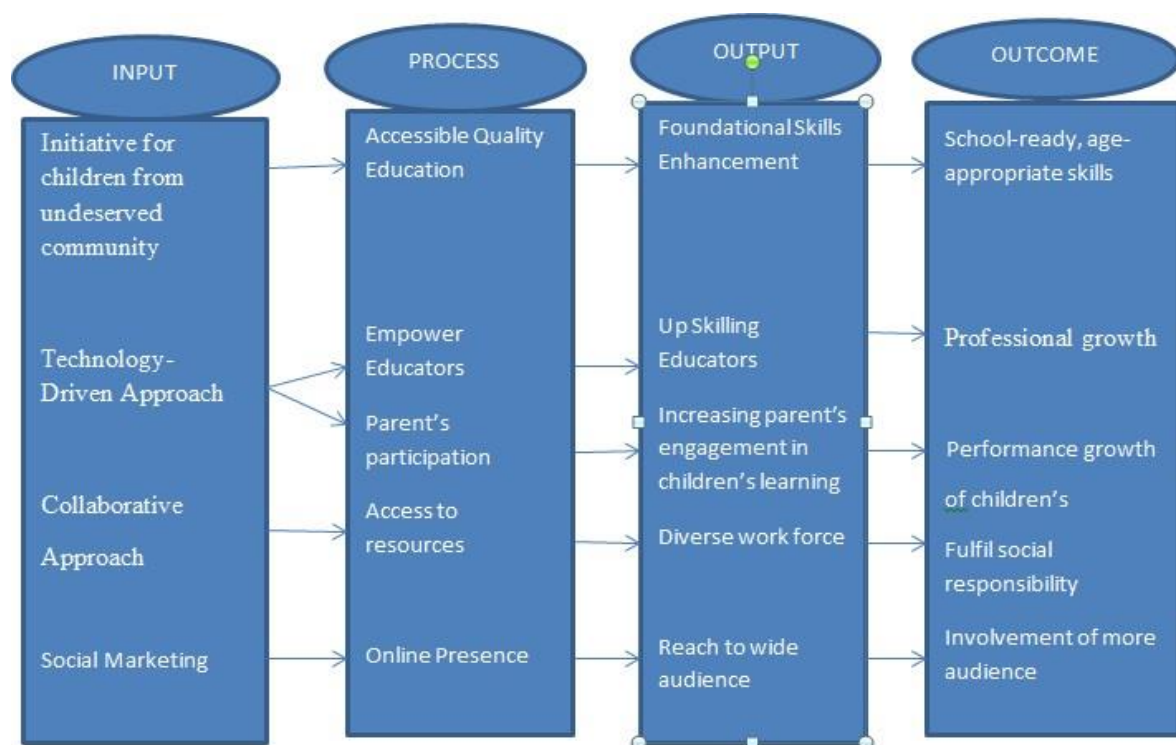


Figure-1.1

Accessible Quality Education for Children from Underserved Communities: ThinkZone is dedicated to making quality education accessible to children from underserved communities. They offer an innovative, all-in-one mobile application that empowers educators with tools to enhance teaching and learning techniques. By doing so, they bridge the gap and provide quality education to those who need it most.

Technology-Driven Approach: ThinkZone's use of an all-in-one mobile application is at the core of its technology-driven approach. This innovative app empowers educators with the tools to enhance their teaching and learning techniques. By utilising technology in this manner, ThinkZone ensures that educators can adapt to the unique learning needs of each student. Incorporating offline usability addresses challenges in low-resource and remote areas where internet access is limited, thus reducing the digital divide and ensuring equal access to educational resources.

Innovative Approach: ThinkZone's app empowers educators and integrates gamified skill development modules, thereby making training and skill development more enjoyable and effective. Including a competency-based learning approach ensures that complex concepts are explained effectively, and vernacular learning modules make education culturally sensitive and inclusive. Moreover, the activity-based learning methodology effectively transforms the learning experience for students, fostering a more profound understanding and retention of knowledge. These innovative features collectively enhance the quality of education while encouraging interactive and dynamic learning, which is critical to foundational skill development.

Community Involvement: ThinkZone extends its innovative approach to involve parents and the broader community through its Parent's Remote Assistance and Knowledge Support for Holistic Advancement of Kids (PRAKASHAK) initiative. By engaging parents and providing them with no-cost access to educational content, ThinkZone ensures that families can actively participate in their children's learning journey. This community involvement enhances the holistic development of children and creates a more enriching and interactive learning environment, contributing to improved learning outcomes.

Collaborative Approach: ThinkZone collaborates with various stakeholders, including the government, NGOs, and corporations, which aligns with the model's emphasis on collaboration. Their partnerships with the government of Odisha for 'Quality Learning Initiatives' in Anganwadis and schools underscore their commitment to transforming the educational landscape. These initiatives, executed collaboratively, ensure more engaging and effective educational experiences, aligning with the collaborative approach's goal of improving education outcomes.

Community Involvement: ThinkZone extends its innovative approach to involve parents and the broader community through its Parent's Remote Assistance and Knowledge Support for Holistic Advancement of Kids (PRAKASHAK) initiative. By engaging parents and providing them with no-cost access to educational content, ThinkZone ensures that families can actively participate in their children's learning journey. This community involvement enhances the holistic development of children and creates a more enriching and interactive learning environment, contributing to improved learning outcomes.

Impact and Transparency: ThinkZone's commitment to impact assessment and transparency is evident through its annual reports, which make its accomplishments and progress accessible

to the public. This aligns with the model's emphasis on continuous improvement and a transparent approach to engage a broader audience and foster positive change in under-resourced communities.

In conclusion, ThinkZone's multifaceted approach to accessible quality education through technology, innovation, collaboration, and community involvement resonates with the model. It showcases its remarkable success in enhancing foundational skills and improving learning outcomes for underprivileged communities. By integrating these elements, ThinkZone is actively reshaping the educational landscape and nurturing the aspirations of young minds.

Discussion:

The study underscores the transformative power of social entrepreneurship in India, as exemplified by PotholeRaja and ThinkZone. These organisations prioritise social impact over financial gain, emphasising the need for sustainable business models that address social, economic, and environmental concerns. This approach represents a forward-thinking response to complex societal challenges, a departure from traditional profit-centric business practices. Inclusivity is a central theme in the study, showcasing how for-profit and non-profit social enterprises play a vital role in creating opportunities for marginalised communities. PotholeRaja focuses on economic inclusivity by involving local communities in road repair projects and creating employment and skill-building opportunities. At the same time, ThinkZone provides accessible and culturally relevant education to underprivileged children, empowering parents and educators. Inclusivity ensures that these organisations benefit many stakeholders, including those often marginalised or disadvantaged.

The study also highlights the transformative potential of technology and innovation in achieving sustainability goals. PotholeRaja's GridMats and ThinkZone's mobile application demonstrate how technology can be harnessed to address critical challenges, reduce resource consumption, and promote efficiency in resource management. These innovations contribute significantly to sustainability transitions in road construction and education. Collaboration and partnerships are instrumental in social entrepreneurship. PotholeRaja and ThinkZone actively engage with diverse stakeholders, such as government authorities, NGOs, corporate partners, and foundations. These collaborations emphasise the power of uniting various stakeholders for a common cause, improving road safety, infrastructure development, or education. Such partnerships are crucial in addressing complex social issues and driving positive change.

Both organisations adopt effective social marketing strategies aligning with their missions and objectives. Transparent communication through the publication of project and annual reports builds trust, accountability, and broader support for their initiatives. This transparency highlights their roles as facilitators of sustainability transitions within their respective domains. The study also acknowledges the adaptability and social responsibility of PotholeRaja, particularly during the COVID-19 pandemic. Their outreach to provide essential support to vulnerable communities demonstrates their ability to respond effectively to pressing needs and showcases their commitment to social responsibility.

Conclusion:

PotholeRaja and ThinkZone stand out as exemplary social enterprises actively leading the charge in driving sustainability transitions, fostering inclusivity, and tackling complex social challenges within India. Their unwavering commitment to sustainability, inclusivity, innovation, collaboration, and adaptability positions them as pivotal actors reshaping their respective sectors. The study's insights offer invaluable guidance for fellow social enterprises embracing similar inclusive and sustainable practices, thereby contributing to holistic

sustainability transitions that touch every segment of society. These organisations shine as beacons of hope for a more sustainable and inclusive future in India.

This study underscores the profound impact of social entrepreneurship in India. PotholeRaja and ThinkZone are inspirational illustrations of how social enterprises can spearhead sustainability transitions, champion inclusivity, and confront pressing social dilemmas. Their pioneering methods, dedication to collaboration, adaptability, and social responsibility position them as instrumental forces in steering India towards a more sustainable and inclusive tomorrow. The lessons drawn from this study offer a valuable blueprint for other social enterprises striving to integrate inclusive and sustainable practices, ultimately contributing to comprehensive sustainability transitions that encompass all strata of society. These organisations are beacons of hope, lighting the path towards a more sustainable and inclusive India.

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Entrepreneurship Education: A Journey from Past to Future

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Abstract :

Entrepreneurship education is of paramount significance in imparting individuals with the knowledge, competencies, and the entrepreneurial mindset essential for excelling in the fast-paced and competitive realm of entrepreneurship. It plays a pivotal role in nurturing both the theoretical and practical aspects of entrepreneurship, fostering innovation, risk-taking, and the ability to identify and seize opportunities. Additionally, entrepreneurship education often encompasses experiential learning, mentorship, and exposure to real-world challenges, contributing to the holistic development of entrepreneurial skills. Entrepreneurship education is not only intended to facilitate the establishment of new ventures but also to enhance individuals' critical thinking abilities, adaptability to evolving circumstances, and their capacity to drive innovation within existing organizations. It has become an indispensable component of modern education, equipping individuals to excel in a competitive and innovative global economy. The major percentage of entrepreneurs in world evolves from educational institutions. In spite of developing multidisciplinary entrepreneurship education programs in response to the increasing demand for entrepreneurial competencies and creative thinking, however, there is much to be done by these institutions to focus on developing multi-talented entrepreneurs with diversified skills and competencies. Therefore, this research, explores the developments in entrepreneurial education, rooted in an extensive literature analysis of previous articles. The outcomes of this research reveal that historically, entrepreneurship education comprised sporadic courses with limited institutional support, primarily focusing on conventional business

management principles. However, the recent modification of entrepreneurial education provides integration of real-world challenges, mentorship, and practical experiences, fostering a culture of innovation and risk-taking.

Keywords: Entrepreneurship Education, Digital technology, Teaching and Learning, Students

Introduction

Entrepreneurship education has seen major changes throughout the years, reflecting economic realities (Boldureanu et al., 2020). Previously, entrepreneurial education was rather restricted, often integrating regular business courses, and got little attention in the educational area (Amalia & Korflesch, 2021). However, as the value of entrepreneurial skills in driving economic development and innovation becomes clearer, entrepreneurship education programmes are rapidly growing (Bashir et al., 2023). These programmes have expanded to include a broader variety of disciplines, with an emphasis on hands-on experience, creativity, risk-taking, and the development of an entrepreneurial attitude. This trend is continuing, as stated by Kuratko & Morris (2018), and future entrepreneurship education is expected to include more multidisciplinary methods, deeper integration of technology, and an emphasis on sustainability and global entrepreneurship. Pay attention. The changing nature of entrepreneurship education demonstrates its flexibility to the changing business environment, as well as its vital role in assisting people to flourish in a dynamic and competitive world (Reyes-Aceves et al., 2023). Therefore, the evolution of entrepreneurship education, from its historical limitations to its current dynamic and multidisciplinary approach, underscores its adaptability to economic realities and its pivotal role in equipping individuals to thrive in an ever-changing and competitive world, as highlighted by various scholars (Boldureanu et al., 2020; Amalia & Korflesch, 2021; Bashir et al., 2023; Kuratko & Morris, 2018; Reyes-Aceves et al., 2023). The objective of this study is to comprehensively examine the transformation of entrepreneurship education over time, exploring its historical constraints, the contemporary expansion of diverse educational approaches, and the future trajectory of entrepreneurship education in response to changing economic and technological landscapes, thereby emphasizing its critical role in fostering adaptability and success in a dynamic global environment.

Methodology

This study uses literature review as the main research method. As the basis of our research, the selection of the paper library is a multi-step process. First, the term “entrepreneurship education” was comprehensively screened in the databases of (i) Scopus and (ii) Google scholar. During this initial phase, a total of 196,000 articles were discovered. Therefore, in order to sort out the important content of the research, the research scope was narrowed to the keywords of "entrepreneurship education" since 2023, and a total of 8100 articles were found. Select All in title and found 842 articles. A total of 242 articles were downloaded including sci-hub. All were downloaded and read. During the reading process, 159 articles were deleted because they were not in English or were doctoral dissertations or there was a problem with the ordering of the

articles. Some articles analyze the relationship between two or more variables, and 82 articles were selected as the final sample. Figure 1 summarizes the steps of article review on the entrepreneurship education study field.

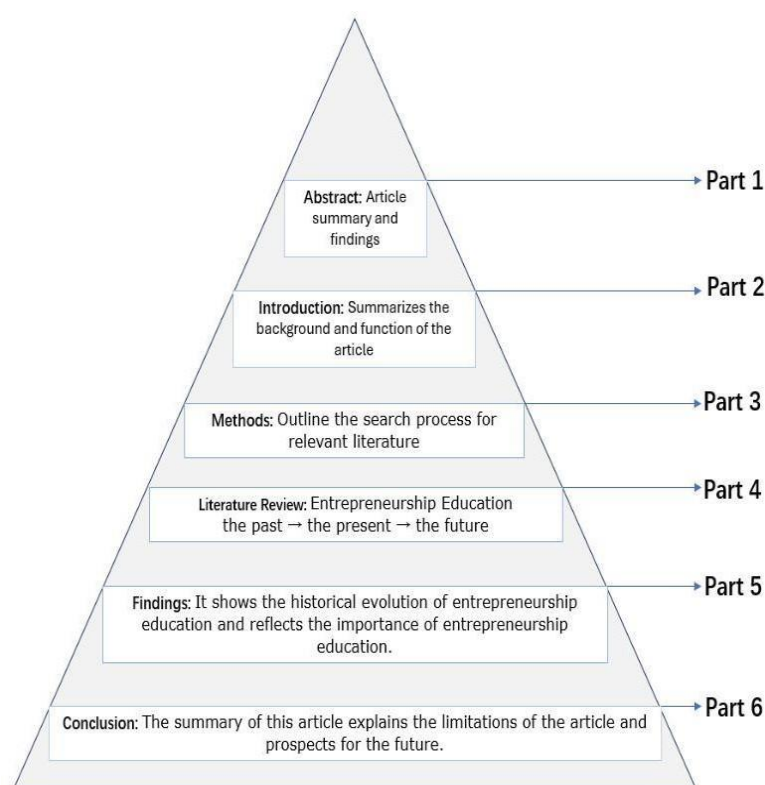


Figure 1: The Flow of Article Review Steps

Literature Review

Entrepreneurship education has a long history and has changed dramatically over time (Ratten Jones, 2021). Historically, entrepreneurship education was informal and mostly handed down via apprenticeships, family companies, and practical experience (Lack  us, 2015). Formal entrepreneurship education is limited, and business schools emphasize managerial skills over entrepreneurial abilities (Fayolle & Gailly, 2008). Kozmetsk et al. (1987) conducted the first research on entrepreneurial education. This research lay the groundwork for understanding the function of education in developing entrepreneurship, as well as its significance in economic growth and innovation. It underlined the need of focused education to support and foster entrepreneurial ideas and practices, setting the groundwork for future entrepreneurship education research. However, as the value of entrepreneurship in economic growth became clearer, academic institutions started to realize the necessity for specialized entrepreneurship education programmers.

However, early entrepreneurship courses were often chastised for being theoretical and distant (Gartner, 1985). They do not give the hands-on experience and practical understanding that

potential entrepreneurs need. The area of entrepreneurship education has evolved throughout time toward a more hands-on, experiential approach (Hindle & Mainprize, 2006). To better educate students for entrepreneurship, the change includes a blend of real-world challenges, business plan contests, and mentorship initiatives.

As entrepreneurship education has evolved, it has moved beyond business schools and into other fields, realizing that entrepreneurial abilities are transferable across sectors (Kuratko, 2005). Today, entrepreneurship education has become more diverse, with several specialized programmers, incubators, and accelerators addressing various business requirements and surroundings (Elenurm, 2022). This development demonstrates the increased acceptance of entrepreneurship as a driver of economic growth and innovation (Stoica et al., 2020). Entrepreneurship education must adapt to the requirements of the fast changing business environment as the entrepreneurial ecosystem expands and diversifies (Liu et al., 2021). Despite significant advances, continuing study and improvement is required to guarantee that entrepreneurship education stays relevant and successful.

The present condition of entrepreneurship education demonstrates a substantial movement toward hands-on learning and practical application (Ratten & Usmanij, 2021). Academic institutions all across the globe understand the value of instilling entrepreneurial abilities in their students. To suit the evolving demands of budding entrepreneurs and intrapreneurs, they are increasingly providing comprehensive entrepreneurship programmers and courses (Agarwal, 2022). This change is the result of a rising realization that entrepreneurship is a critical engine of economic development and innovation (Kuratko, 2017). Today's entrepreneurial education stresses the integration of real-world difficulties, mentoring, and practical experience (Pittaway & Edwards, 2012). It goes beyond typical classroom instruction to foster entrepreneurial thinking and to promote innovation, flexibility, and risk-taking (Neck et al., 2014). Furthermore, the inclusiveness of multidisciplinary entrepreneurship education acknowledges its relevance in a range of situations, allowing students to flourish in start-up and corporate environments.

The present landscape of entrepreneurship education depicts a vibrant and expanding sector. Academic institutions have extended their entrepreneurship in response to the rising relevance of entrepreneurship in the global economy (Wardana et al., 2020). Entrepreneurship education nowadays emphasizes experiential learning and practical application (Fayolle & Gailly, 2015). It combines real-world problems, practical experience, and mentorship that goes beyond typical classroom training to build an entrepreneurial attitude and foster innovation, flexibility, and risk-taking (Kuratko & Audretsch, 2013). Furthermore, the inclusiveness of multidisciplinary entrepreneurship education acknowledges its cross-cutting importance, allowing students to flourish in a number of circumstances, whether founding start-ups or driving innovation inside existing enterprises (Neck et al., 2014). The phases of entrepreneurial education are shown in Figure 2.

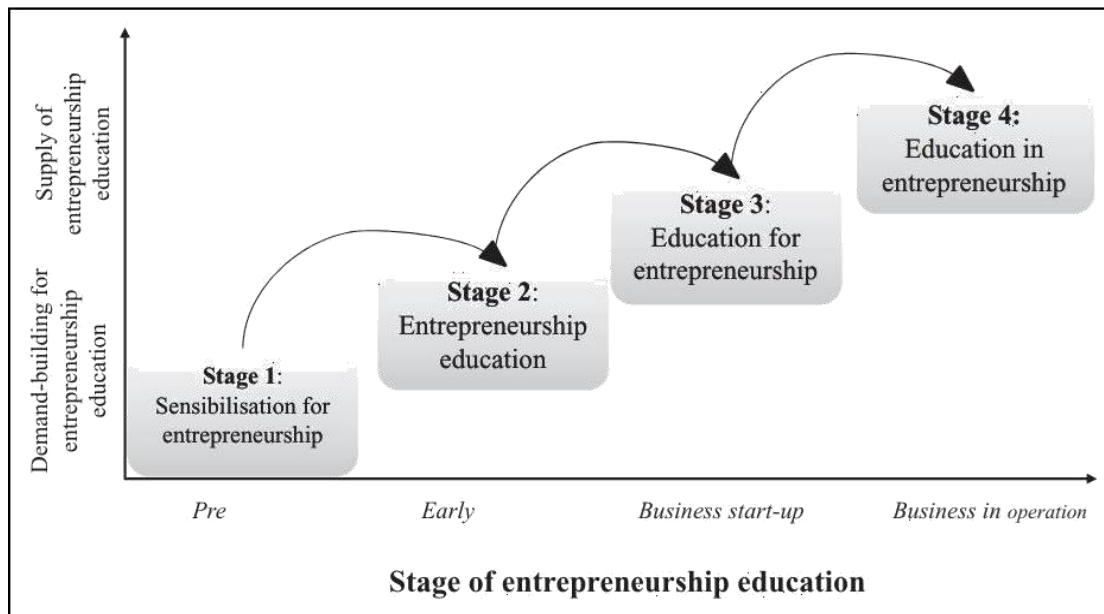


Figure 2: Stages of Entrepreneurship Education.

Source: Davey et al. (2016)

Scholars are now investigating the link and interaction between entrepreneurship education and many factors. Most academics, for example, feel that there is a definite beneficial relationship between entrepreneurship education and entrepreneurial inclination. According to Nowiski et al. (2019), those who have undergone entrepreneurship education exhibit greater entrepreneurial inclinations. This kind of education provides students with the necessary information, abilities, and mindset for entrepreneurship, as well as the confidence and incentive to seek entrepreneurial possibilities. According to certain research, entrepreneurship education is directly linked to the formation of entrepreneurial goal intentions. Entrepreneurship education, according to Gelderen et al. (2008), has a favourable effect on the clarity and specificity of personal entrepreneurial objectives, and this educational intervention not only improves entrepreneurial skills but also influences students' goal-setting processes. Entrepreneurship education is critical to the development of entrepreneurial abilities.

Kuratko et al. (2005) demonstrate a consistent positive relationship between entrepreneurship education, which provides students with practical skills such as business planning, opportunity identification, financial management, and risk assessment, and the acquisition of basic entrepreneurial competencies. According to Lián & Fayolle (2015), obtaining entrepreneurship education has a good influence on an individual's proclivity to participate in entrepreneurial activity. Individuals may get a deeper understanding of the problems and possibilities of entrepreneurship via education, as well as the essential information and skills, and develop a more positive entrepreneurial mindset. According to studies such as Fayolle & Gailly (2015), obtaining entrepreneurship education has a beneficial influence on people's views about entrepreneurship. Education equips people with the information, skills, and mindset necessary for entrepreneurial activities, as well as cultivates a higher awareness of risk-taking, creativity, and opportunity identification. Proactive mindset.

Astiana et al. (2022) shown that entrepreneurship education has a considerable impact on an individual's

proclivity to participate in entrepreneurial activity. Education significantly helps to the establishment and growth of companies by giving students with the knowledge, skills, and confidence required to start a company. According to Frolova et al. (2021), entrepreneurship education may greatly boost students' enthusiasm for participating in entrepreneurial activity. Individuals learn not just information and skills via education, but also the inspiration and confidence required to start a company. Wilson et al. (2007) found that obtaining entrepreneurship education helps instill confidence and belief in an individual's capacity to effectively carry out entrepreneurial activities. Education may boost people's entrepreneurial self-efficacy via practical learning experience, knowledge gain, and problem-solving abilities (Saoula et al., 2023).

Among others, Wei et al. (2019) found a positive relationship between entrepreneurship education and the acquisition of basic entrepreneurial competencies, with educational programmers providing students with practical skills such as business planning, opportunity identification, financial management, and risk assessment. Furthermore, they promote the development of crucial skills such as critical thinking, creativity, problem solving, communication, and adaptability. Lorz et al. (2012) discovered that entrepreneurship education had a favourable influence on students' inventive behavior. Education gives people with the capacity to find and explore new solutions by teaching information, promoting entrepreneurial thinking, and encouraging creative problem solving. Motivation and tools. Furthermore, several researchers have shown that entrepreneurial education is favorably associated to personal performance satisfaction. According to Raharjo et al. (2023), entrepreneurship education has a beneficial influence on students' satisfaction with their entrepreneurial success.

According to Rahim & Mukhtar (2021), entrepreneurship education has a favourable influence on how people see entrepreneurship as a realistic career choice. Education demystifies the entrepreneurial process, removes perceived hurdles, and boosts people's confidence in their entrepreneurial ability by giving information, skills, and real-world insights. Entrepreneurship education, as a result, is critical in transforming an individual's perception of entrepreneurship from a distant or dangerous alternative to a practical and appealing career path. Entrepreneurship education has long piqued the curiosity of academics. Figure 3 shows an overview of entrepreneurial education and other characteristics.

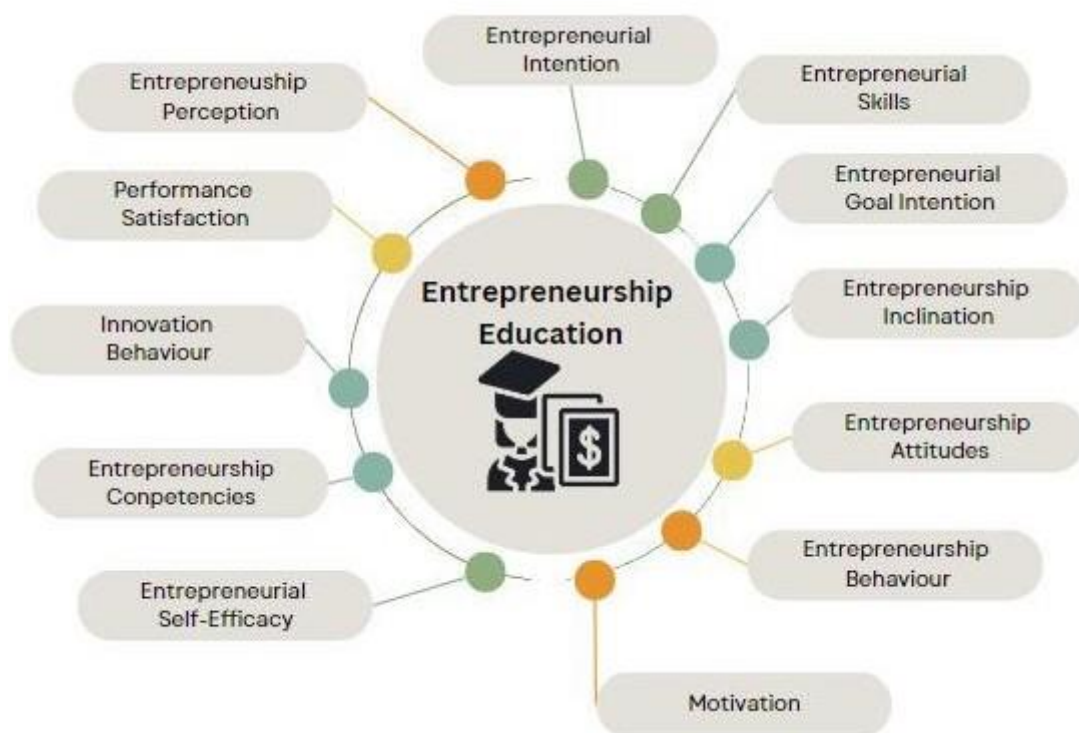


Figure 3: Entrepreneurship Education and Other Variables

Several important changes are predicted to have an influence on entrepreneurship education in the future. Artificial intelligence, blockchain, and the Internet of Things are all expected to play significant roles in entrepreneurship education (Ebben & Johnson, 2006). As the global economy grows increasingly linked, the emphasis on global entrepreneurship and international business is expected to grow (Jones & Casulli, 2014). Sustainability and social entrepreneurship, which address environmental and social challenges, are also likely to grow in prominence (Schaltegger et al., 2018). Furthermore, as more individuals see the usefulness of entrepreneurial qualities in a variety of situations, entrepreneurship education is projected to widen its interdisciplinary reach (Kuratko et al., 2017). The intersection of these themes is expected to result in a dynamic and adaptable entrepreneurial education environment that prepares students to flourish in a continuously changing entrepreneurial environment.

In reaction to increasing social, technical, and economic changes, the future of entrepreneurship education will undergo substantial transformation. The growing integration of digital technology, which is altering corporate processes and offering prospects for digital entrepreneurship, is one noteworthy trend (Maringe & Carter, 2017). As entrepreneurs attempt to operate abroad, the global interconnection of economies and marketplaces underscores the need of global entrepreneurship and cultural competence (Jones & Matlay, 2011). Furthermore, sustainability and social entrepreneurship are gaining popularity as a result of increased concerns about environmental and social difficulties (Schaltegger & Wagner, 2011). Furthermore, the proliferation of multidisciplinary methods in entrepreneurship education allows students to build broader abilities and adapt to a broader variety of business possibilities (Neck et al., 2014). As these tendencies continue to change the entrepreneurial environment, entrepreneurship education is expected to become more dynamic and adaptable, allowing people to succeed in a constantly changing and complicated entrepreneurial ecosystem.

Finding

According to research results on entrepreneurship education, there has been a substantial historical change, with a history marked by restricted theoretical offers. The contemporary environment places a premium on practical experience and entrepreneurial thinking, reflecting its critical role in fostering innovation and economic success. Emerging trends including as digital technology integration, globalization, and an emphasis on sustainability and social entrepreneurship are projected to affect entrepreneurship education in the future. Interdisciplinary techniques are also becoming more popular. These results underscore the dynamic character of entrepreneurship education, which is always responding to the changing demands of the entrepreneurial environment.

It is clear that entrepreneurship education has undergone significant transformations over time, reflecting evolving economic realities and pedagogical insights. In the past, entrepreneurial education was often limited, frequently confined to conventional business courses and received minimal attention within the educational landscape (Amalia & Korflesch, 2021). However, the contemporary era witnesses a noteworthy shift. The recognition of entrepreneurial skills as pivotal drivers of economic development and innovation has spurred rapid growth in entrepreneurship education programs (Bashir et al., 2023). These programs have expanded their horizons, encompassing a broader array of disciplines, and placing a strong emphasis on experiential learning, creativity, risk-taking, and the cultivation of an entrepreneurial mindset. This evolution aligns with the vision presented by Kuratko and Morris (2018), and the future of entrepreneurship education is anticipated to involve greater multidisciplinary approaches, deeper integration of technology, and a focus on sustainability and global entrepreneurship (Kuratko & Morris, 2018). This dynamic progression underscores the adaptability of entrepreneurship education to shifting business environments and highlights its indispensable role in preparing individuals to excel in an ever-changing and competitive world (Reyes-Aceves et al., 2023). In tracing the evolution of Entrepreneurship Education (EE), it becomes evident that the past, present, and future represent distinct phases, each marked by a unique set of characteristics and objectives.

Past: Historically, EE primarily relied on informal learning, often taking place within the confines of traditional classrooms or through apprenticeships within family businesses. The transmission of knowledge was rooted in the passing down of practical experiences from one generation to the next. Students learned entrepreneurship through observation and hands-on involvement in their family enterprises, reflecting a time when entrepreneurship was often synonymous with small-scale, family-based businesses.

Present: The contemporary landscape of EE is markedly different. It emphasizes experiential learning, where students actively engage in practical learning experiences. Problem-solving and case study methodologies are integrated into the curriculum, allowing students to apply their knowledge to real-world scenarios. This shift is aimed at instilling an entrepreneurial mindset that goes beyond mere knowledge acquisition. Entrepreneurship education programs have been formalized, offering structured courses that encompass various aspects of entrepreneurship, from ideation to venture creation.

Future: As we gaze into the future of EE, several transformative trends come to the fore. These include the integration of emerging technologies such as Artificial Intelligence (AI), Blockchain, and the Internet of Things (IoT) to equip students with essential digital skills. The curricula are expected to reflect a greater emphasis on digital technology, facilitating interdisciplinary integration across diverse fields of study. Sustainability and social entrepreneurship will be

central themes, reflecting the growing importance of ethical and environmentally responsible business practices. The future of EE envisions a dynamic, technology-driven, and socially conscious approach to preparing entrepreneurs for a rapidly changing global business landscape.

In conclusion, the past, present, and future of EE represent a continuum of adaptation and innovation. The evolution from informal family-based learning to structured, experiential programs has paved the way for a future characterized by technological integration and sustainability, reflecting the ever-changing demands of the entrepreneurial environment and the broader socio-economic landscape. Figure 4 depicts past, current, and future trends in entrepreneurship education.

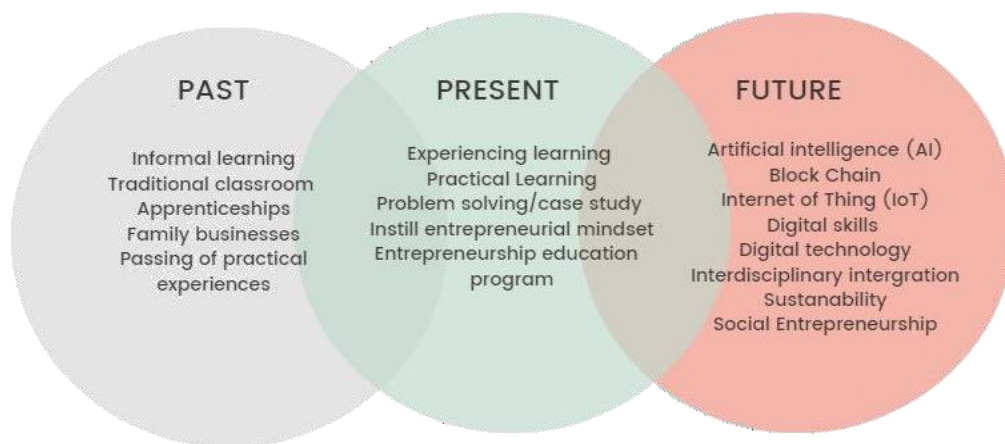


Figure 4: The Past, Current, and Future Trends in Entrepreneurship Education

Future Research

Therefore, future research in entrepreneurship education offers numerous promising avenues for exploration. First, researchers can delve into pedagogical innovations, emphasizing the effectiveness of merging practical experiences with theoretical knowledge. This approach may include hands-on learning, real-world entrepreneurial challenges, and their impact on students' skill development and entrepreneurial mindset. Second, the integration of digital technologies, such as virtual reality and artificial intelligence, into entrepreneurship education presents an opportunity to examine how these technologies enhance learning and prepare students for the digital business landscape. Third, the implications of globalization and cross-cultural competencies in entrepreneurship education are vital subjects for future studies. Researchers can investigate the role of cultural differences in shaping entrepreneurial practices and strategies. Sustainability and social entrepreneurship themes within entrepreneurship education are also prime subjects. Exploring how programs prepare students to address global challenges while building socially and environmentally responsible businesses is an important direction. Interdisciplinary approaches, government policies' effects, lifelong learning's potential, the influence of technology on entrepreneurial mindset, and the evaluation of multidisciplinary curricula are additional avenues that researchers can explore to contribute to the development of entrepreneurship education. Longitudinal studies on the long-term impact of entrepreneurship education on graduates' careers and contributions to innovation and economic development are equally crucial in shaping future research.

Conclusion

In conclusion, the trajectory of entrepreneurship education has changed dramatically over time. It has hitherto been confined and theoretical, stressing conventional business ideas. The contemporary epoch demonstrates a change toward experiential learning, the development of entrepreneurial thinking and practical skills, and the awareness of entrepreneurship's significance in economic growth and innovation. Several trends, including the integration of digital technology, the globalization of entrepreneurship, and the growing relevance of sustainability and social entrepreneurship, will impact entrepreneurship education in the future. The field's multidisciplinary reach is likely to increase further, equipping students for the intricacies of the ever-changing entrepreneurial environment. Business education continues to be an important component in assisting people to thrive in the dynamic and competitive world of entrepreneurship.

The future of entrepreneurship education is intrinsically linked to several critical factors that collectively shape its effectiveness and impact across diverse educational and training levels. The paramount considerations include the ongoing relevance of entrepreneurship courses and programs, their internal coherence, practicality in application, effectiveness in producing desired outcomes, and efficiency in resource utilization. The primary beneficiary of entrepreneurship

education extends beyond the immediate learners; it encompasses the broader societal context in which these educational initiatives are embedded. This overarching perspective dictates that entrepreneurship learning and its eventual outcomes must adeptly cater to the socio-economic requisites of a multitude of stakeholders, including students, their families, various organizations, and the nations to which they belong.

To successfully achieve this objective, a concerted effort is required on the part of entrepreneurship educators and researchers. They must collaborate in forming a cohesive and professional community characterized by a shared set of values and common objectives. By uniting their endeavors, this community seeks to effect transformative changes in the very essence, execution, and consequences of entrepreneurship education. The core focus is on identifying and addressing the evolving needs of the field, creating connections among all stakeholders, and fostering a culture of reflection that leads to continuous improvement and innovation in entrepreneurship education. In this way, entrepreneurship education can evolve to meet the ever-changing demands of a dynamic and competitive global landscape while ensuring its lasting relevance and value to society.

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Track 6: Talent, Skills and the World of Work

[ID:98]

Embracing Green Work Culture: Managerial Frameworks in Achieving Sustainable Work Organizations in Asia

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Abstract

Though research on green work culture (GWC) and specifically its sub-theme green human resource management (GHRM) have been steadily increasing over the past two decades, it is only in the past five years that wider scholarly attention has gained serious momentum. Green work culture may be highlighted as an 'organizational emphasis and alignment with its sustainable goals. This emphasis needs to be ingrained in its mission of economic, human, and environmental outcomes. In addition, it needs to be reflected in the organization's value, beliefs, and behaviors. Green work culture signals a transformation of an organization's strategic mindset. It is a composite concept where aggregation of various functional components like HRM, marketing, finance, manufacturing, and others are viewed from a green outcome perspective. The reasons for the urgency in Asia arise from imperatives such as size of its population, importance of agriculture, global economic dominance, vulnerability of environmental diversity etc.

This paper reviews some of the concepts and practices that have been emphasized by scholars over the recent years and puts forward reflective model for managerial action paradigm. It may be pointed out that most previous research in this area focuses on descriptive and inferential statistics with a cross sectional design. In contrast, this paper argues that managerial frameworks need to be rooted in the active support of earth-friendly policies and practices and driven by drivers such as regulatory drivers, stakeholder drivers, green supply chain competitiveness as well as eco-innovations. The key action platforms that foster these imperatives are a) empowerment of employees with ability, motivation, and opportunity to induce change. b) Boost organizations' green performance by focusing on innovation and effectiveness in resource utilization c) Identification of the enablers inform promote managerial policies and practices. d) Embedding green work culture in the operational ethos and mindsets e) Integration of organization wide strategic platforms in achieving competitive

advantages and environmental performance.

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[ID:2]

The effect of Human Resource Analytics on Employee Performance

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Abstract.

Data analysis in human resource contributed significantly to connect data with organizational and individual performance, by providing the organization with better understanding for effectively managing employees so that business goals can be reached quickly and efficiently. Thus, the key aspect of human resource analytics is to conclusively show the impact the human resource department has on the employee and on the organization as a whole. Hence, the aim of this study is to explore the relationship between “human resource analytics” as an independent variable, “employee performance & behavior”, and “organizational performance” as dependent variables, for a comparative study between the Lebanese profit and non-profit organizations. For this research paper a survey was distributed and collected from 201 employees, to explore the impact of human resource analytics on the components of employee performance and behavior and organizational performance of the profit and non-profit organizations in Lebanon.

The results showed that there is a positive relationship between human resource analytics and employee performance and behavior in the profit organizations, compared to a no relation between human resource analytics and employee performance and behavior in the non-profit organizations. There is a positive relationship between human resource analytics and organizational performance in the profit organizations, compared to a weak relationship between human resource analytics and organizational performance in the non-profit organizations. This study has confirmed that human resource analytics are applicable in the profit Lebanese organizations, and less applicable in the non-profit Lebanese organizations.

Keywords: Human Resource Analytics, Employee Performance, Employee Behavior, Organizational Performance, profit and non-profit Organization.

Introduction

Over the past decade, technology has changed dramatically. Human resource has been affected by the change as well, though; it has been slower to adjust than other functions. Cloud technologies, advances in machine learning, faster processing; allowed to store and analyze huge amounts of data from within and outside of the organizations. Thereby, understanding the role of technology and data analytics in people management which can help turn people management and human resource functions from transactional service providers to strategic partners playing a key role in the organization. Analytics is a relatively new arena for human resources department, compared to analytics in other business departments. Therefore, applying data analysis to key human resource processes enhances the performance in the organization. Consequently, data analysis in human resource contributed significantly to connect data with organizational and individual performance, by providing the organization with better understanding for effectively managing employees so that business goals can be reached quickly and efficiently. Furthermore, Technology has also made advanced human resource management tools more accessible to different type of organizations; profit and non-profit ones.

Therefore, the aim of this study is to explore the relationship between human resource analytics, employee performance & behavior, and organizational performance in the Lebanese profit and non-profit organizations. Therefore, this study will be significant in promoting and customizing the importance of human resource analytics to increase, maintain and retain the employee's performance & behavior and the organizational performance as well. Thus, by understanding the impact of human resource analytics and its benefits on the performance, various parties from profit and non-profit organizations are able to maintain their competitive advantages. Furthermore, the study generates interest from a wider perspective of employee performance & behavior and organizational performance in the profit and non-profit organizations in Lebanon. The findings of this study will help to provide a foundational basis for the work in the area of developing human resource analytics and benefits package linked to employee performance, employee behavior, organizational performance, profit organizations and non-profit organizations in Lebanon.

Profit and Non-Profit Organizations

The profit organizations are part of what is called the private sector, business sector, corporate sector. It includes businesses and corporate organizations of all sizes and industries. The growth and size of the private sector is majorly related to the type of economy that a government adapts, for example in countries with free economy such as the USA, profit organizations constitute the biggest percentage in the national economy, thus in countries with free economy; the workforce is mostly employed by the profit organizations. Lebanon's economy relies on the profit organizations, yet the obstacles to achieving significant growth are those of the MENA region in general. Other than lack of transparency, sectarianism, and corruption in significant part of the sector; the majority of the organizations still adopt the old methodology of assessing performance based on financial metrics, thus reducing efficiency and employee motivation.

Currently modern HRM practices are being adapted by Lebanese banks, such as creating a training department which enables capacity building of employees while engaging them in the type and efficiency of the trainings (Association of Banks in Lebanon, 2014). On the other hand, The non-profit organizations are organizations that have undertaken the duty of social activity, without seeking profit (Potáček, 1999). Non-profit organizations are also non-governmental, thus the non-profit organizations are referred to as the “third sector” in contrast to the private and public sectors (Evers & Laville, 2004). Non-profit organizations can take a variety of forms and sizes, from informal neighborhood groups, churches, kitchens, charities, labor unions, to museums, hospitals and even large universities (Anheier, 2014). Contrary to common belief, NPOs are allowed to generate profit, but it must only be used to support the operations of the organization (Anheier, 2014). Historically, the non-profit sector started with formed groups of volunteers for the purpose of social duty, as early as the colonial times (Ott & Dicke, 2016).

Over the past few decades, the middle east has been a major area of operations for NGOs, due to armed conflicts, refugee crisis, political and social instability, and poverty; implementing project directly, or through governments, local authorities and local NGOs. Missions to areas of operations implies hiring local staff, including management positions. All those factors make it more complex to manage all the aspects of talent acquisition, people and performance management, requiring a decentralized management system that can take into consideration a set of variables that are different from an area of operation to another. In the current status quo, NGOs can no longer afford to continue an outdated approach relying on employees’ passion for the job rather than qualified talents with proper human resource management policies in place (Proulx, 2016). NGOs are also looking into inducing a centralized human resource support by the HQs to local human resource leaders at country level (Proulx, 2016). In Lebanon, few NGOs have systematic annual staff performance appraisal system. Training of staff is assigned on ad-hoc basis, based on what trainings are offered to the NGO on short notice (UNDP, 2009). Majority of NGOs in Lebanon lack a transparent recruitment process, significant disparities in salaries between senior and junior staff can be seen.

The difference between the Profit and Non-profit organizations may be clear from the name itself, yet many operational differences exist. The main goal for a profit organization is to return dividends to its stakeholders or profit to its owners, while the goal of a nonprofit organization is to expand its mission and meet its nonprofit targets set (Russo, 2016). Organizations of both sectors rely on the same set of tools in place for planning purposes, such as applying SWOT analysis, having a well written and planned strategic vision and mission (Russo, 2016). While on the other hand, one of the biggest difference may be the source of input organizations from the two sectors rely on; the profit organizations rely on input from employees within the organization, or input of consultants to do the analysis and create the organization’s vision, while in the nonprofit sector, strategic planning relies on input from outside stakeholders who support or benefit from the organization’s scope of work, to take part in strategic planning (Russo, 2016). Thus employee engagement in the strategic planning process is crucial in both sectors. The profit organizations being dependent on employees’ input, and the nonprofit organizations being dependent on stakeholders’ input, who are in direct contact with employees.

Human Resource Analytics

Conferred by Holsapple et al. (2014), human resource analytics can be classified as one domain of Business analytics (BA). However, Fitz had a different opinion, where he not only differentiated between human resource analytics and BA, but went further and took into consideration the area of human resource metrics, stating that human resource metrics are “the language of organizational management”, thus using human resource metrics enables the adoption of a language understood by the whole organization (Fitzenz, 2010). Fitz also concurred that human resource analytics to be “an out- growth of and marriage between human resource metrics and general business analysis” (p.15). Prior to human resource analytics, metrics focused on relationship between labor issues and the business plan, while human resource analytics allows the adoption of “all Business Intelligence (BI) data to both support the delivery of human resource services and influence the behavior of all levels of employees” (p.15).

Organizational Performance and Employee Performance & Behavior Organizational performance in its simplest definition can be referred to as the actual output of an organization, in comparison with its intended set of goals over a specific period of time (Richard, et al., 2009). Despite the fact that measuring organizational performance was based on the concerns of preparing and controlling financial reports, rather than having it linked to strategic planning (Halachmi, 2005); in 1930s the first recorded performance measurement model was created in France by engineers aiming to improve production by acquiring a better understanding of the cause-effect relationship, the model was called the Tableau de Bord, which translates to Dashboard (Epstein & Manzoni, 1997). The Tableau de Bord was revolutionary in a sense that it included both financial and non-financial indicators (DeBusk, et. al, 2003). Then, two decades later, the 1950s witnessed the biggest growth of performance measurement models. The appraisal standard of quantifiable performance was created by Martindell (Martindell, 1950), the approach was later on adopted and elaborated by Drucker in 1954, into the “management by goals” model, in which organizational performance should be considered from different angles within the organization (Lodi, 1974). During the period between 1950 and 1980, publications shifted their focus towards balanced indicators that takes into consideration the relevance of each indicator with the organizational context (Koontz & O'Donnell, 1974). At the end of the 1980s, the adopted model that predominantly relied on financial information, which prevailed since the 1920s, faced a vast wave of criticism, mainly for the lack of indicators that could measure quality, innovation, customer satisfaction, and employee satisfaction (Ittner & Larcker, 1998).

The late 1980s and the 1990s marked the creation of complex models, with indicators covering various information, such as the “scorecard format” (Lohman, et. al, 2004), leading the way to more complex models with analytical capabilities, such as the BSC model (Kaplan & Norton, 2004), the SMART “strategic measurement analysis and reporting technique” (Cross & Lynch, 1988), IPMS “integrated performance measurement system” (Bititci, et. al, 1998a), Skandia navigator (Edvinsson & Malone, 1997), and sigma sustainability scorecard (The Sigma Project, 2003). The implementation of the new performance measurement systems shifted the focus of research into solving a new dilemma, which is the management of the data generated by those systems, thus the focus migrated from performance measurement to performance management (de Waal, 2003).

The individual performance and employee behavior plays a focal role in driving organizational performance. The need to understand employee behavior came into attention during the era of the industrial revolution (Lombardo, 2017). During this era, Frederick Taylor viewed job tasks as components that can be analyzed when broken down into small parts (Lombardo, 2017). He also believed that an employee could be replaced at any instant of the labor process, just like replacing a machine part (Lombardo, 2017). Employee performance is interlinked with employee behavior. It refers to how an employee reacts, adapts, and performs under specific circumstances, taking into consideration the employee's culture and the organization's culture, affecting the environment of the workspace (Mckineey, 2017).

In order to assess those variables, the performance management science emerged many decades ago (Brooks, 2016). According to multiple sources, performance appraisals were invented around WWI by WD Scott, as a performance measurement tool, yet the concept did not assume wide recognition until more formal appraisal systems were developed and adopted around the 1950s (Brooks, 2016). By mid-1950s, companies were using a personality-based appraisal system, which by the end of the decade proved to be insufficient, due to the absence of the self-appraisal element (Brooks, 2016). In the 1960s, companies began to do better at assessing performance, where the approach shifted towards goals and objectives; employees were assessed based on their capacities that could influence their ability to achieve in the future, rather than focusing on the personality of an employee (Brooks, 2016). This development in appraisal systems did not make it immune from criticism that arose in 1970s, where several cases were taken to court, due to the fact that the systems in place followed a subjective, and opinion-based approach, thus companies started to introduce psychometrics and rating scales into their appraisal systems (Brooks, 2016). During the time between 1980s and early 2000s, companies adapted a holistic approach, focusing on employee engagement and motivation (Brooks, 2016). The new approach gave birth to new set of metrics that are still in use to our present day; such as communication, teamwork, ability to handle emotions, self-awareness, and conflict reduction (Brooks, 2016).

Advancement in communication and mobile technology played a role in the nonstop evolution of performance management systems (Brooks, 2016). Companies are recognizing more and more the value of a company culture, and its direct effect on employee performance and behavior, thus they starting a 360-degree feedback approach, which consists of seeking multiple feedback sources when assessing employee performance, and reducing the traditional hierarchy in favor of more equal work environment (Brooks, 2016). Thus nowadays organizations are adopting performance management systems which have better outcome for the organization, ranging from communication improvement, stress reduction due to frequent communication, relevant appraisals for everyone, adaptive capacity building for all; while on the other hand, traditional appraisal systems had negative outcomes, such as being too painful and emotionally charged, yielding poor understanding of expectations, having a bad timing, being based on manager's subjective opinion, as well as having promotions not in line with the real performance (People Streme, 2013).

Human Resource Analytics and Organizational Performance

Human resource departments passed through many evolution phases by enabling technology which gave them a strategic function within the organization, rather than being an operational and reducing bias. This new role was achieved by the analysis of data and the use of technology to

contribute to a great organizational performance.

Human resource analytics can be considered a tool to predict and direct business outcomes, in order to improve the quality of people-related decisions thus increasing organizational performance (Bassi, et. al, 2012). In this scope, human resource analytics face the challenge of identifying the type of data that should be captured, how to use it, and how to benefit from the data that is already available. A challenge that can only be answered through the nature of the organization, whether profit or non-profit, and at a deeper level, the goals of the organization, with the problems at hand.

Conclusion

The Lebanese organizations provide support for the applicability of the human resource analytics in order to improve employee's performance and behavior along with organizational performance. This aforementioned literature covered the conceptual model relation of human resource analytics on the employees' performance and behavior, and organizational performance in both profit and non-profit organizations.

Also, this chapter presented the implications of this study and showed how much the human resource analytics in the Lebanese profit and non-profit organizations affect the performance of employees and organizations. The limitations and delimitations were covered in this chapter, showing the major obstacles that faced the researcher in her fieldwork. Finally, recommendations were made on how researchers can further develop and expand this work on the use of human resource analytics.

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Identifying Linkages among Corporate Social Responsibility, Environmental, Social and Governance, Human Resources and Performance: A Systematic Literature Review

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Abstract

Background and Purpose

Corporate social responsibility (CSR) has been functioning since decades, however, the focus on environmental, social and governance (ESG) is relatively recent. The relationship between ESG and CSR is also not very clearly identified by many organizations, and thus used as interchangeably. In addition, role and importance of human resource (HR) functions for the success of CSR and ESG is always debated by scholars.

Methodology

Departing from the quantitative approach, this paper adopts a qualitative research strategy. The present paper thus uses a systematic review under systematic literature review (SLR) process for analyzing and synthesizing the relevant papers from 1999 till 2022 to answer relevant questions such as how the importance and contribution of HR had shaped and benefitted the organization as the outcome. The present research had followed the approach of extracting relevant articles from SCOPUS, Google Scholar, and Web of Science databases with giving a comprehensive list of key words and thematically identifying the variables of HR influencing the ESG performance of organizations.

Findings

Articles, in English language under Art and Humanities, Business, Management and Accounting, Economics, Econometrics, Finance, Social Sciences, multidisciplinary areas were extracted. Only research articles published in quality peer reviewed journals were considered for final stage. Initial search had produced 1044 articles; however, after using exclusion criteria as identified, articles were 146. Post those, two researchers reviewed all the abstracts as well as papers. In this process, total 38 articles were considered for the final stage.

Although a direct causal conclusion remains complex, past academic literature has argued for either a

positive or neutral correlation between HR practices and ESG quality. The present SLR process had identified four major themes namely

1. Linkages, Alignment and Evolution of HR, ESG/CSR,
2. ESG/CSR, HR and Responsible Leadership,
3. Impact of ESG/CSR Practices on Employee level Performance,
4. Impact of ESG/CSR practices on Organizational Performance

Practical Implications

The present paper is important as it identifies the relationship and importance of HR in the present context when sustainability is an important parameter for any organization. It highlights, how HR can be helpful for organizations for achieving their ESG goals. It also helps in aligning the HR goals to organizational goals and vice-versa.

Key Words: Corporate Social Responsibility, Environmental, Social and Governance, Sustainability, Human Resource, Employee Performance, Organizational Performance

1.0 Introduction

Of late, environmental, social and governance (ESG) has become an important indicator for sustainable business performance and development in organizations. In fact, ESG has advanced

so (Velte, 2019) further into organization functions including HR domain for strategic priorities. Clearly, many organizations have started using ESG as key performance indicators (KPIs) in many of their functions and roles. Fuelled by stakeholders' interest such as awareness and focus towards net zero (Sindhwani et al., 2022), including those of investors, leads to the important question: what is the best way of ensuring HR practices aligned with ESG goals of a company? Contemporary researchers, when diagnosing ESG influence on HR function, often attempt to address how HR contributes to ESG goal of a company. The recent pandemic due to COVID- 19 have increased the focus of ESG on social issues comparatively, and many social issues in a workplace are intrinsically linked to issues that HR professionals deal with on a day-to-day basis.

Despite ESG investment gaining support from the government and regulatory authority, the level of implementation, ESG disclosure and transparency are diverse among countries (Liu & Nemoto, 2021). Discussions regarding human resource management (HRM) indicators in line with sustainability practices have only gained strength in recent years and professionals are still adapting to the application and use of such concepts (Barrena-Martinez et al., 2019). Earlier research had suggested that there is a relationship between CSR and HR (Schoemaker et al., 2006; Agrawal & Puri, 2020), however, how the relationship is translated into actual output or performance of employees was studied most in the context of environmental performance or success of environment management system or pro-environmental behaviour of employees' context (Sarvaiya et al., 2021). Here researchers are curious how the sustainability/green initiatives of organizations help employees' motivation and engagement towards improved job performance and satisfaction. In addition, is there a direct or indirect linkage between CSR/ESG/green activities to financial or non-financial performance through HR linkage?

The aim of our research is to analyse the relationship between ESG performance and HR practices and the importance of HR in linking the performance of employees as well as organization. Until now, such considerations are less carried out in the context of organizations based in India. The conducted research answers the research questions:

- i) How are CSR practices evolved and ESG practices are linked in the organization's context?
- ii) How are HR practices helping corporates in achieving the strategic goals of ESG?
- iii) Is HR helping in achieving employee level performance for ESG goals?
- iv) Is CSR/ESG helping in achieving organization level goals?
- v) How is HR linked directly in achieving organization level goals?
- vi) Is there any difference among countries with respect to following ESG and CSR Practices?

This present research thus focuses on understanding and analysing the aspects related to CSR, ESG, sustainability aspects and the linkage between HR and organizational performance. The focus here is also to assess how employee level indicators are getting impacted. What the direction emerging out of this analysis. It is also to understand where still the gap remains, which seems critical for achieving the strategic goals. The results of our research, therefore, provides understanding on requisite HR practices towards achieving CSR and ESG goals. Basically, this study investigates (i) which policies and practices in human resources are most used among companies adopting the above concept(s), and (ii) among these policies and practices, which contribute to a better business perspective. This study intends to present a tool for companies, and human resources professionals, and people managers to understand and adopt policies and practices for future.

2.0 Theoretical Background

An assessment by Cornell & Shapiro (2021) reveal that ESG is used as a critical factor for reliability construction and corporate value evaluation for company's various stakeholders, including shareholders, consumers, employees, and communities. Companies with continuous ESG activities positively affects organization performance and increased stakeholders' satisfaction (Patel et al., 2021). Further, evidence is there that a positive ESG performance positively and significantly affects work productivity (Hsu et al., 2018). Indeed, it is understood that companies with higher ESG scores have competitive advantages in attracting and retaining talent (Liu & Nemoto, 2021; Ismail et al., 2022). Schleich (2022) evaluated the MSCI ESG indicator from 1991 onwards and hypothesized that significant positive relationship between workforce performance, workforce-related metrics, and ratings assigned to the social dimension.

While ESG is a priority agenda for many executive boards, identifying appropriate leaders within organisations for implementation is a challenge. Because ESG includes both financial and non-financial objectives, it is important for leaders to prioritise the activities to address the long-term sustainable goals of the company. According to Herrera, J. & de las Heras-Rosas (2020), the social factors addressed by 'S' of ESG captures the relational dimension of the company together with its internal (the employees of the company) and external stakeholders (local community).

These factors can explain the effects of ESG towards the improvement of employees' well-being

(job quality, occupational health and safety, training and development) and in terms of promoting local sustainable development, the prominent being CSR. This is where HR plays a crucial role for identifying leaders who can achieve these ESG goals.

The objective of the next section is to identify important themes as emerged after the analysis of the paper. Here, three major themes are emerged and are shown below.

3.0 Methodology

This paper applies qualitative research approach with systematic literature review (SLR) methodology. Under that, authors had conducted 'systematic review' to summarize and synthesize the results appeared from multiple searches. Here, the purpose of the research is to provide an overall picture of findings for a particular questions, which are raised in the Introduction itself. In addition, four experts in the domain of ESG including Vice President Sustainability and CSR, Chief human resource officer (CHRO), senior head sustainability and one senior academician from sustainability area were contacted to further understand and validate the results.

The present methodology follows the following criteria:

1. Background and context was amazed for relevance and gap areas were identified
2. Research questions were framed
3. Databases and keywords were identified
4. Duration of the search period.
5. Inclusion and exclusion criteria were set
6. Criteria for appraising studies were based on content analysis and coding on themes by two researchers and further discussing and finalizing the themes
7. For synthesizing the results, four experts in the ESG domain were contacted and explored the validity of the results
8. Likelihood of publication bias..
9. Recommendation and practical implications to be suggested
10. Future directions of research to be identified

The empirical setting for our research had followed the SLR approach utilizing Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework (Moher et al., 2011). In addition, we had prepared word cloud from the identified themes post literature review with the help of the open website support <https://monkeylearn.com/word-cloud>. The purpose was to visualize, how the manual coding by the authors is getting reflected in some key words. Here, the aim is to investigate how HR practices of the organizations are linked with sustainability focus defined by CSR or ESG on performance indicators such as employee level satisfaction or performance of employees or organizations or the both. Although a direct causal conclusion remains complex, past academic literature has argued for either a positive or neutral correlation between HR practices and sustainability focus of the organization (Wang et al., 2017).

Departing from the quantitative approach, this paper adopts a qualitative research strategy. This is suitable due to lack of studies with empirical on linkage of HR practices with sustainability intention to derive potentially new categories from the data.

Figure 1: PRISMA Framework for Systematic Literature Review

3.1 Search Strategy and Resources: For achieving the above purpose, the databases viz. SCOPUS, Google Scholar, and Web of Science were used to extract the relevant articles giving a comprehensive list of key words as given below. All the combinations were used to cover the topic and objectives comprehensively. Key words used were “Environment Social and Governance and HR” OR “ESG and HR” OR “ESG and HR Culture” OR “ESG and HR Practices” OR “ESG and CSR” OR “ESG and Human Resource Practices” OR “ESG and Corporate social responsibility” OR “CSR and HR” OR “CSR and HR Practices” OR “CSR and HR Culture” OR “CSR and Human Resources” OR “CSR and Human Resource” OR “Social Governance and HR” OR “Social Governance and Human Resource” OR “Social Governance and Human Resources” OR “ESG and performance” OR “Environmental Social and Governance and Organizational Performance” OR “ESG and Organizational Performance” OR “ESG and Reputation” OR “ESG and Brand Image” OR “ESG and Stock Returns” OR “ESG and Employer Branding”.

3.2 Inclusion/Exclusion Criteria: From 1999 onwards; only articles, in English language under Art and Humanities, Business, Management and Accounting, Economics, Econometrics, Finance, Social Sciences, Multidisciplinary areas were extracted. Only research articles were considered for final stage. Initial search had produced 1044 articles; however, after using exclusion criteria as given above, articles were 146. Post those two researchers read all the abstracts as well as papers for final selecting of articles to be used. In this process, total 38 articles were considered for final stage.

Figure 2: Research output between 1999-2022

The figure shows the number of articles appeared initially with the chosen key words from 1999 onwards: **Research output on ESG, CSR and related expected specially its impact and relationship with HR and organizational performance between 2010-2022**

As present in Figure 4, research on ESG, CSR and related expected specially its impact and relationship with HR and organizational performance has increased recently. There has been a huge jump on research interest post 2020. In addition, journals such Journal of Sustainable Finance and Investment, Journal of Portfolio Management, Journal of Investing and Journal of Business Ethics were under focused journals of the related publications.

Figure 3: Research Articles in high quality journals

Figure 4: Presence of Countries in CSR/ESG Research

As presented in Figure 5, most number of research articles are retrieved from United States, followed by United Kingdom and Australia and Germany. These countries had given lots of focus on these areas of research.

Figure 5: Documents extracted against Subjects

As the inclusion criteria of the present research, articles from humanities, management and social sciences were kept under consideration. The reason behind this is, authors are trying to assess the relationship between CSR/ESG and HR and organizational performance related objectives. This, the above criteria of inclusion of articles seems justified.

Figure 6: Details of Funding Agencies

Figure 7: Word Cloud for Theme 1: Evolution of CSR, ESG and sustainability practices For understanding the dominating words appearing out of the articles, a word cloud was prepared and as it is reflected that HRM, responsible leadership, HR, CSR, employee, theory analysis, etc., are appearing, which validates the theme and paper identification process.

Figure 8: Word Cloud for Theme 2: Outcome of Socially Responsible practices or CSR practices on employee level performance indicators

Under this theme, words such as employee, CSR, turnover intention, work engagement, job outcome, role job performance are appearing. This shows that papers are about CSR and employee related outcomes.

Figure 9: Word Cloud for Theme 3: CSR/ESG impact on organizational performance

4.0 Analysis and Synthesis. In the present research these criteria were followed:

Researchers analysed the research agenda by framing appropriate questions and using word cloud and other bibliometric tool to understand and analyse the topic well. In addition, four experts in the area of ESG were also contacted to validate the findings and to understand the value of results and their relevance in the context of practice.

Table 1: Selected Journals and Cite Scores

Table 2: Theme 1: Evolution of CSR, ESG and sustainability practices

CSR is a strategic approach of an organization to ensure sustainable performance by means of positive contribution to the environment, the local community, and the associated stakeholders (Pop et al., 2011). Santana et al. (2020) studied evolution, development, and conceptual linkages between CSR and HRM with the help of co-word bibliographic networks analysis between 2006 to 2019 on 194 documents retrieved from the WoS. The review process helped the process of development of measurement instrument (Virakul, 2015). Herrera et al. (2020), tried to assess trends related to CSR and HRM. Results confirmed the relationship between the two subjects to multiple interpretations. The results of the longitudinal study shed light on green-management, stakeholders, commitment, competitive-advantage, satisfaction, performance, sustainability, or research-methods-analysis.

Evidently, CSR and HR linkages are broadened and organizations in general are combining the delivery of benefit to the marketplace (Schoemaker et al., 2006; Kang et al., 2017; Zhu & Hua, 2017). Sheehan et al. (2014) conceptualized socially responsible practices towards human resource development. The research tried to showcase the relationship among three in the meaningful manner. On similar lines, Cooke et al. (2010) showed positive indications that firms having CSR give focus to market and return to employees. HR contributes to CSR activities on value-based principles (Gond et al., 2013). Hsu & Cheng (2015) found that socially responsible firms usually perform better in terms of their credit ratings and have lower credit risk (in terms of loan spreads, defaults).

Although, HR must be playing an active role on activities related to CSR, yet there is found a gap between the formal policies related to CSR which are not formulated by HR department (Sharma et al., 2018). The study of Obara et al. (2018), exploring the relationship between CSR and HR using empirical data from 22 international businesses based in the UK bridged the great divide CSR and HR implementation strategies, while presenting a multi-layered relationship between them. Indeed, there is an overlapping relationship between CSR and HR (Hallin et al., 2019). Yet, the relationship between the two is found subject to multiple interpretations (Herrera et al., 2020).

Table 3: Theme 2: CSR practices on Employee level performance indicators

An assessment by Sarvaiya et al. (2021) among 29 HRM and CSR professionals from 16 New Zealand organisations revealed that HRM provides considerable strategic and operational inputs to the development and implementation of 'internal CSR', along with employee development and well-being. The results of the Tarigan et al. (2020) indicated that CSR activities helped directly as well as indirectly in improving employer branding based on potential employees' job pursuit intention because of better work life balance offered. Kim et al. (2011), tried to assess the role of CSR on the performance of 409 front line employees' work-related outcomes. The findings showed that perceived management support for CSR as well as perceived customer support perceived well-being of employees. In addition, Bohdanowicz et al. (2011), this paper evaluated how the improvement of hotel's environmental performance is impacting the overall performance of the hotel while taking a sample of 70 Hilton Worldwide hotels in operation in Continental Europe in 2006-2008. The results indicated a positive link between CSR and human resource management (HRM) in hotels. The research of Sobhani et al. (2021) examined the associations among socially responsible HRM (SRHRM) practices, organisational citizenship behaviour (OCB), turnover intention, and bank reputation on a sample of 711 Bangladeshi bank employees. The results suggested that SRHRM has significant positive effects on both OCB and bank reputation, and a significant negative influence on turnover intention. It was also found that sustainability defined by either CSR or ESG was helping organizations in improving attractiveness for their present as well as prospective future employees and retaining resources like talented employees provides organization with a sustained competitive advantage and sustainable growth (Lombardi et al. 2020).

The objective of Ismail et al. (2014) was to analyse competency as predictors to employee level performance. Findings of the research indicated that orientation and competency of CSR managers

was high, and significantly influenced employee level performance to some extent. In the similar lines, Wang et al. (2017), assessed how CSR activities were helping the organization on aspects related to i.e., turnover intention, performance on their present job, and other attitude and behaviour related outcomes. Results based on the sample of 340 Chinese manufacturing employee-supervisors indicated positive direction as hypothesized. Ali (2021) explored the relationship between CSR and work ethic.

The study of Barrena-Martinez et al. (2019) aimed to understand how socially responsible HR(SRHM) practices influence on employee commitment. For that, purpose, sustainability reports, CSR standards such as the Global Reporting Initiative and ISO 26000 along with subject matter experts' opinion was collected. The analysis results showed that there is a positive relationship towards employee commitment with socially responsible HRM practices. Similarly, John et al. (2022) used the sense making theory to investigate how COVID-19 induced unfavourable (HR) practices affect the link between perceived (CSR) and employee identification and employee commitment using the data collected from 392 hospitality sector employees in Pakistan. Results indicated CSR activities helped managers during the pandemic impacted positively on employees' attitudes. On the similar lines, Omid et al. (2022), tried to understand how socially responsible HR practices (SRHRM) benefits to employee related outcomes. The research suggested the positive outcomes. Mascarenhas et al. (2020), with grounded theory approach tried to explore the impact of CSR and social identity on employees' work engagement, job satisfaction and organisational identification in an higher education institute's context with 171 employees. Results indicated that there is a strong association between employee engagement, job satisfaction among employees with the organisation, and perceived organisational support to employees.

Karatas-Ozkan et al. (2022), explored the dual nature of the CSR-HRM relationship to organizational outcomes, along with exploitation of workforce and democratizing CSR engagements, respectively. It was found that HR function plays a crucial role in organizations. In addition, regulating, governance and legitimizing role overall. CSR-HRM relationship was found having positive relationship to organizational commitments.

Table 4: Theme 3: CSR/ESG impact on organizational performance

The study of Feng et al. (2022), tried to find out the relationships among ESG, CSR, and stock returns using the panel data of ESG ratings, CSR scores, and annual stock returns of 684 Chinese-listed companies from 2011 to 2020. The results indicated that there is a direct impact of ESG on stock returns, which is related to corporate profitability. In contrast, the study results of Fiskerstrand et al. (2020) investigated the linkage between ESG ratings and financial performance. For the above purpose, Norwegian stock data, based on their sensitivity and exposure (beta) toward ESG factors from 2009 to 2018 using the Dow Jones Sustainability Nordic Index was conducted. However, the results indicated that there is no direct connection between ESG and stock returns in the Norwegian stock market. Bansal et al. (2021) assessed and found that ESG parameters are related to sustainability and firm performance. In addition, Kim et al. (2022), analysed the effect of ESG activities on market-oriented organizational culture, subsequently, the relationship between ESG and performance was analysed. The results indicated that ESG activities of MNC

subsidiaries are positively associated with financial and non-financial performance. However, the effect of the market-oriented organizational culture showed the weakened the positive relationship between the two. This was interpreted may be because of short-term market-oriented organizational culture versus the long-term orientation of the sustainability of ESG activities. Recently, this was further evidenced that ESG scores could be an indicator for corporate sustainability performance (Rajesh & Rajendran, 2020). In addition, Lombardi et al. (2020), tried to analyse the impact of CSR activates on football's club's performance while taking a sample of football players. It was found that there is a positive correlation between assuring socially responsible practices and CSR and company performance (Ademi, & Klungseth, 2022).

The study of Patel et al. (2021), was found mixed results on the effects of ESG scores on firm performance. The findings indicated that ESG and sales dynamism predict lower firm's impliedvolatility, and on contrary, higher firm-level ESG rating helps in improving for the decline in the implied volatility. The industry-level dynamics among ESG scores and sales and investor growth expectations in the form ofimplied volatility are added considerations in studying ESGand performance relationships. The research ofGholami et al. (2022), also tried to assess the impact of ESG performance and financial performance of the organization over 10 years using Australian sample from Bloomberg's database from 2007 to 2017. The results indicated that ESG performance has direct benefit to large firms but not for SME companies. Hasan et al. (2022), presented the study analysing the impact of the practice of ESG reporting on financial,social, and environmental performance using sustainability score of the organization. The findings provided strong support for identifying emerging paradigms in the ESG literature. The objective of the study of Farooq (2015), was to understand the impact of intrinsic motivation of employees, who participated and volunteered in sustainability related initiates of the organization. The focus was to understand, how it helped ultimately triple P (people, plat, profit) objective of the organization by taking self-determination theory. The findings supported the hypothesis and indicated the positive direction. Similarly, Nyikahadzoi et al. (2022), tried to assess linkages between CSR and business sustainability achievement related goals. Results indicated positively not only to sustainable development related goals, but also to overall well-being of employees as well.

Karatas-Ozkan et al. (2022), tried to analyse the relationship between CSR, HRM and organisational performance. Research findings showed that there is a linkage between CSR andperformance outcomes – where strategic role of HR keeping in mind CSR activities. The research of Ismail et. al. (2014), highlighted that there is direct link between corporate image and competency level and attitude of CSR managers. Thus, socially responsible activities are significantly responsible for improving reputation ofthe firm though indirectly.

Sustainability Experts' Comments

The experts had also acknowledged that recently the focus on ESG and sustainability has increased. And, organizations across the globe had started focusing on these matters seriously. Earlier only few leading organizations were having the sustainability at core or few organizations, which were enthusiastic were showcasing their focus on sustainability and focus,however recently it is across globe and industry. Policymakers have started prioritizing the similar focus with core

values focusing around sustainability and ESG and human resource.

As per the senior head sustainability of the manufacturing organization, ESG is now a focus area for our industry. The company is under top 1000 listed companies under national stock exchange, India. From Financial Year (FY) 2022-23, there is a mandate of filing Business Responsibility and Sustainability Report (BRSR) of top leading listed companies in India. BRSR is based on ESG with nine leading principles. These principles are based on ethics, corporate governance, human rights, fair and transparent HR practices, payment of adequate wages, salaries, and benefits to the employees, Transparency in HR policies and systems. More disclosures related to business functions, sources of revenue and expenditure, etc. There is also a lot of focus on HR and employee wellbeing as well.

Another expert, which is recently a CHRO further added that now HR is also involved in many activities related to CSR and sustainability. Although, there is a separate team of two persons handling these matters, though, HR is involved in aligning policies and practices as per the requirement and mandates given by management. Presently, a lot of focus on employee well-being is given and practices are further modified for better achievement in the areas of sustainability and overall engagement and wellbeing of employees along with providing them opportunities for helping them achieving the best performance out from their potential. He further added, that newer training programmes on awareness and capacity building are designed for achieving such purpose. In addition, suggestion schemes are more incentive oriented for extracting better suggestions.

While discussing with VP sustainability and CSR, it was realized that HR plays a very important role in terms of achieving the best results. Employee level initiatives are encouraged. Organization is also investing time and efforts in making the communication more comprehensive to all the stakeholders with respect of sustainability initiatives.

The inputs from the academician who is involved in such research from last one decade had mentioned that research indicates that the focus on ESG and sustainability has increased in the last four-five years. There is adequate evidence proving the relationship between sustainability initiatives and organizational performance.

5.0 Discussions and Conclusions

There are multiple articles extracted under the theme of CSR, ESG and its evolution, however, most of the articles were trying to assess the relationship or the role of HR. In the initial years, the focus was given how policies need to be formed and the actual benefit can be assessed. It was found in earlier studies found an overlap between CSR and HR. Moreover, these two serve as a complementary role. The understanding and analysis to measure employee performance and organizational performance and how both are directly as well as indirectly linked to achieve the desired strategic goals, was the concern for both the manufacturing as well as service companies.

In the later stage, it was assessed that the increased attention to ESG creates both challenges and

opportunities for HR professionals. The challenge was to adapt to the new pressures generated by ESG indicators. HR function is a true partner in the company's long-term sustainable success. Growing demand for ESG disclosure requires HR professionals to identify and recruit expertise to help their companies improve their "performance" across these ESG dimensions. In addition, since ESG covers a wide spectrum of a company, it becomes important for HR function to create the need for greater collaboration with other business functions as key stewards of organizational culture. The above analysis shows that there is a positive relationship between CSR and performance. However, the focus of ESG and combining or linking CSR and ESG was not very clearly defined.

6.0 Recommendations for Practice

Recently, studies were found trying to understand the CSR inclination of the organization on employee wellbeing, improvement in employee commitment, well-being enhancement and jobsatisfaction leading to employee engagement. In addition, socially responsible HR practices were considered in place of CSR in some studies. These studies also found that there is a negative impact on attrition, where organizations are involved in socially responsible practices. In addition, prospective talent was also found influenced by the sustainability focus of the organizations, which was found converted as employer branding and a greater number of prospective employees are willing to join the organization. In addition, CSR and ESG focus is getting converted to improvement of overall performance of the organization. However, impact of ESG score on stock returns had shown mixed results. In few studies the linkage of CSR or ESG focus on organizational level performance with HR policies and practices focusing and aligning the two were also studied and found positive linkage. However, such studies were found less. It was also found that recently the focus on CSR, ESG and sustainability has increased. It was also noted that post COVID the focus on employee wellbeing was increased and a positive relationship and role of CSR and socially responsible practices was seen and acknowledged. Post COVID focus on ESG has improved significantly as most studies are very recent giving ESG focus. This might be because of global awareness on sustainability and related issues because of climate change and greenhouse gas reduction pledge by countries both developed and developing was noticed.

7.0 Limitations

These are some limitations as well in the present research work as noted. The present research had tried to answer questions starting from evolution to linkage between CSR, ESG, HR to performance indicators such as employee's performance and organizational performance. This was because of the raised gap seen in the existing literature. However, in future research can focus on linkage between sustainability focus defined by either CSR or ESG to either employee level performance to organization level performance. This will become possible as the recent focus all over is seen on analysing such linkages. In addition, the present research had included all types of research such as on either manufacturing or service sector organizations. In future identical sample studies can be analysed to firm a trend in one type of organizations.

8.0 Future Scope of Work

There is a lot of scope to conduct studies focusing the role of HR facilitating organization's sustainability goals. There is a need to conduct studies considering ESG scores, employees' perception on organization's sustainability focus, culture, HR policies and practices and how these activates are getting translated into employer attractiveness and overall employee and organizational performance. There is also a need to study more on developing countries showing interest to sustainability, thus the impact of such focus needs to be analysed. The positive outcome will motive other organizations as well to follow the suit and it will help ultimately to all the stakeholders of the society for better well-being as well as performance. In addition, as per the EY report (August 2021), there is growing trend of interest in non- financial performance and reporting worldwide among Indian corporates. The most common means of reporting among companies in India is through publication of annual sustainability reports and integrated annual reports, based on the GRI Standards and the Integrated Reporting Framework respectively. In addition, growing awareness and interest in ESG issues among the investor and analyst communities is also driving companies to increasingly respond to a variety of ESG ratings and indices. This has resulted in a greater volume of information available publicly on how companies are addressing ESG priorities and creating long-term stakeholder value.

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Table 1: Selected Journals and Cite Scores

S.L.	Journal	Cite Score	Business Management Accounting Percentile	Publisher
1	JOURNAL OF SUSTAINABLE TOURISM	13.8	96th	Taylor & Francis
2	JOURNAL OF WORLD BUSINESS	12.1	95th	Elsevier
3	CORPORATE SOCIAL RESPONSIBILITY AND ENVIRONMENTAL MANAGEMENT	11.5	94th	Wiley-Blackwell
4	JOURNAL OF BUSINESS ETHICS	10.8	9th	Springer Nature
5	MANAGEMENT DECISION	7.9	93rd	Emerald Publishing
6	INTERNATIONAL JOURNAL OF HUMAN RESOURCE MANAGEMENT	7.8	97th	Taylor & Francis
7	SUSTAINABILITY ACCOUNTING MANAGEMENT AND POLICY JOURNAL	4.8	81st	Emerald Publishing
8	JOURNAL OF ASIA BUSINESS STUDIES	4.2	74th	Emerald Publishing
9	FRONTIERS IN PSYCHOLOGY	4		Frontiers Media S.A.
10	ASIA PACIFIC BUSINESS REVIEW	3.7		Taylor & Francis
11	ASIA-PACIFIC JOURNAL OF BUSINESS ADMINISTRATION	3.3		Emerald Publishing
12	EUROPEAN JOURNAL OF TRAINING AND DEVELOPMENT	2.9		Emerald Publishing

Table 2: Relevant Papers Published under Theme 1: Evolution of CSR, ESG and sustainability practices

Author(s)	Publication Year	Title	Key Words	Cited by	SDG Goals	
Cooke, FL; He, QL	2010	Corporate social responsibility and HRM in China: a study of textile and apparel enterprises	Business ethics; China; Csr; HRM; Private enterprises; Textile industry	73	8, 12	China
Gond, JP; Igalens, J; Swaen, V; El Akremi, A	2011	The Human Resources Contribution to Responsible Leadership: An Exploration of the CSR-HR Interface	Corporate Social Responsibility; Employees; Human Resources; Organizational behaviour; Responsible leadership	122	16	France
Hallin, A; Gustavsson, TK	2009	Managing Death - Corporate Social Responsibility and Tragedy	Borders; Corporate social responsibility; Death; Human resource management; Middle management; Private; Public	5	12	Sweden
Kang, WIK; Fornes, G	2017	Where are they going? Case of British and Japanese human resource management	Human Resource Management, Corporate Social Responsibility, Qualitative Analysis, Cross-cultural analysis, Business & Society	12		Britain & Japan

Obara, LJ; Peattie, K	2018	Bridging the great divide? Making sense of the humanrights-CSR relationship in UK multinational companies	Human Resource Management, Corporate Social Responsibility	25		UK
Santana, M; Morales- Sanchez, R; Pasamar, S	2020	Mapping the Link between Corporate Social Responsibility (CSR) and Human Resource Management (HRM): How Is This Relationship Measured?	CSR; human resource management; socially responsible human resource management; green human resource management; environmental management; sustainable human resource management; pro-environmental behaviour; SciMAT; bibliometrics	36		Spain
Sheehan, M; Garavan, TN; Carbery, R	2014	Sustainability, corporate social responsibility and HRD	CSR; Sustainability; Sustainable HRD	21	12	Ireland

Table 3: Theme 2: Outcome of Socially Responsible practices or CSR practices on Employee level performance indicators

Author(s)	Publication Year	Title	Key Words	Cited by	SDG Goals	Country
Barrena-Martinez, J; Lopez-Fernandez, M; Romero-Fernandez, PM	2019	Towards a configuration of socially responsible human resource management of experts; socially responsible HRM practices: findings from an academic consensus	corporate social responsibility; Human resource management; panel of experts; socially responsible HRM system; socially responsible human resource management	50	9, 12	
Bohdanowicz, P; Zientara, P; Novotna, E	2011	International hotel chains and environmental protection: an analysis of Hilton's we care! programme (Europe, 2006-2008)	Corporate social responsibility; Environmentalism; Hilton; Hospitality; Human resource management	220	4, 12, 13	Europe
Ismail, M; Kassim, MI; Amit, MRM; Rasdi, RM	2014	Orientation, attitude, and competency as predictors of manager's role of CSR-implementing companies in Malaysia	business companies; Competency; Corporate social responsibility; Manager's; Orientation; Role	9	12	Malaysia
Karatas-Ozkan, M; Ozgoren, C;	2022	Dual nature of the relationship between corporate social	CSR, HRM, Organization, Employee Engagement	3	12	UK

Yamak, S; Ibrahim, S; Tunalioglu, MN; Pinnington, A; Nicolopoulo u, K; Baruch, Y		responsibility and human resource management: A blessing or a curse?				
Kim, M; Kim, J	2021	Corporate social responsibility, employee engagement, well- being and the task performance of frontline employees	CSR, Employees, Task Performance, Well being	25	12	USA
Lombardi, R; Manfredi, S; Cuzzo, B; Palmaccio, M	2020	The profitable relationship among corporate social responsibility and human resource management: A new sustainable key factor	contract duration; corporate social responsibility; employee es; football sector; human resource management; stakehold ers; sustainable performance	17	4, 9, 12	Italy

Mascarenhas, C; Mendes, L; Marques, C; Galvao, A	2020	Exploring CSR's influence on employees' attitudes and behaviours in higher education	Corporate social responsibility; Identification with the organization; Job satisfaction; Work engagement	5	4	Portugal
Omidi, A; Dal Zotto, C	2022	Socially Responsible Human Resource Management: A Systematic Literature Review and Research Agenda	Corporate social responsibility; Critical HRM; HRM ethics; Internal CSR; Responsible management; Socially responsible HRM; SRHRM	2	12	
Arvaiya, H; Arrowsmith,	2021	Exploring HRM involvement in	CSR; CSR–HRM link; HRM	12	12	New Zealand

J; Eweje, G		CSR: variation of Ulrich's HR roles by organisational context	roles; Ulrich model			
Tarigan, J; Susanto, ARS; Hatane, SE; Jie, F; Foedjiawati, F	2021	Corporate social responsibility, job pursuit intention, quality of work life and employee performance: case study from Indonesia controversial industry	Controversial industry; Corporate social responsibility; Employee performance; Job pursuit intention; Quality of work life	8	12	Indonesia
Wang, W; Fu, Y; Qiu, HQ; Moore, JH; Wang, ZM	2017	Corporate Social Responsibility and Employee Outcomes: A Moderated Mediation Model of Organizational Identification and Moral Identity	Corporate social responsibility; Helping behavior; In-role job performance; Moral identity; Organizational identification; Turnover intention	63	12	China
Nyikahadzoi L., Lotriet R., Smit A. (2022)						
Cheruiyot, Thomas Kimeli; Maru, Loice Chemngetich (2014)	2014					

Table 4: Theme 3: CSR/ESG impact on organizational performance

Author(s)	Publication Year	Title	Key Words	Cited by	SDG Goals	Country
Feng, GF; Long, H; Wang, HJ; Chang, CP	2022	Environmental, social and governance, corporate social responsibility, and stock returns: What are the short-andlong-Run relationships?	CSR, ESG, Stock Returns, Policy, Performance	3	12	China
Fiskerstrand, Sondre R.; Fjeldavli, Susanne; Leirvik, Thomas; Antoniuk, Yevheniia; Nenadic, Oleg		Sustainable investments in theNorwegian stock market	corporate social performance; ESG; financial performance; portfolio strategy	12	9, 12	Norway
Farooq, Q; Liu, X; Fu, PH; Hao, YH	2020	Volunteering sustainability: An advancement in corporate social responsibility conceptualization	corporate community programs; corporate philanthropy; huma n resource management; sustainable development; workp lace attributes	11	1,4,9	China
Gholami, Amir; Murray, Peter A.; Sands, John		Environmental, Social, Governance & Financial Performance Disclosure for Large Firms: Is This Differentfor SME Firms?	environmental; social and governance; firm financial performance; stakeholder theory; legitimacy theory; voluntary disclosure	2	4, 12	Australia

Kim, J., Cho, E., Okafor, C. E., & Choi, D.	2022	Does Environmental, Social, and Governance Drive the Sustainability of MNC, subsidiary, Multinational Corporation's Subsidiaries? Evidence From Korea	ESG, sustainability, MNC, subsidiary, market-oriented organizational culture, moderating effect	1	4	Korea
Lombardi, R; Manfredi, S; Cuozzo, B; Palmaccio, M	2020	The profitable relationship among corporate social responsibility and human resource management: A sustainable key factor	contract duration; corporate social responsibility; employees; football sector; human resource management; stakeholders; sustainable performance	17	4, 9, 12	Italy
Patel, Pankaj C.; Pearce, John A., II; Oghazi, Pejvak		Not so myopic: Investors lowering short-term growth expectations under high industry ESG-sales-related dynamism and predictability	Environmental performance; Financial performance; Implied volatility; Sustainability	8	8, 12	USA
Sobhani, Farid Ahammad; Haque, Amlan; Rahman, Shafiqur (2011),						

Table 5: Summary of Identified Themes

	CSR focused organizations...	Author(s)
1	..Larger contribution to environment & community at large	Pop et al., 2011
2	..Enhanced return on employees with focus on CSR	Cooke et al. (2010)
3	..Helps in increasing value based principles	Gond et al., 2013
4	..socially responsible firms usually perform better in terms of their credit ratings and have lower credit risk	Hsu & Cheng (2015)
	CSR & HR linkages & benefits	
1	conceptual linkages between CSR and HRM	Santana et al. (2020)
2	CSR & HR variable measurement instrument	Virakul, 2015).
3	trends related to CSR and HRM	Herrera et al. (2020)
4	CSR and HR linkages & benefits to the marketplace	Schoemaker et al., 2006; Kang et al., 2017; Zhu & Hua, 2017)
5	..based on empirical data results, there seems a great divide between CSR and HR implementation strategies	Obara et al. (2018)
6	.. overlapping relationship between CSR and HR	Herrera et al., 2020
7	Socially responsible practices motivate towards HR	Sheehan et al. (2014)
	CSR practices on Employee level performance	
1	HRM provides considerable strategic and operational inputs on overall development with employee development and well-being	Sarvaiya et al. (2021)
2	CSR activities helped directly as well as indirectly in improving employer branding & increased job pursuit with better work life balance	Tarigan et al. (2020)
3	perceived management support for CSR improved perceived well-being of employees	Kim et al. (2011)
4	Green HR practices have positive OCB and negative on turnover intention	Sobhani et al. (2021)
5	..focus of CSR and ESG improves employer attractiveness for their present as well as prospective future employees and retaining talented employees	Lombardi et al. 2020
6	..competency of CSR influenced employee level performance	Ismail et al. (2014)
7	CSR activities were helping the organization on aspects related to i.e., turnover intention, performance on their present job, and other attitude and behaviour	Wang et al., 2017

8	..positive direction between CSR and work ethic	Ali (2021)
9	..SRHR practices influence on employee commitment	Berrena-Martinez et al., (2019)
10	perceived CSR helped organizations on employee identification and employee commitment	John et al., 2022
11	SRHR practices benefits to employee related outcomes	Omidi et al., 2022
12	..CSR practices have positive influence on employee performance	Mascarenhas et al. (2020),
13	..CSR-HRM relationship was found having positive relationship to organizational commitments.	Karatas-Ozkan et al. (2022),
14	intrinsic motivation of employees on triple bottom line	Farooq (2015),
	CSR, ESG and HR on organizational Performance	
1	..indicated positive link between CSR and HRM with improved performance of hotels	Bohdanowicz et al. (2011)
2	..ESG, CSR, and stock returns are positive	Feng et al. (2022),
3	... linkage between ESG rating and financial performance	Fiskerstrand et al. (2020)
4	..ESG parameters are related to sustainability and firm performance	Bansal et al. (2021)
5	..effect of ESG activities on market-oriented organizational culture, subsequently positive financial and non-financial performance	Kim et al. (2022)
6	..ESG scores as an indicator for corporate sustainability performance	Rajesh & Rajendran, (2020)
7	..positive correlation between assuring socially responsible practices and CSR and company performance	Ademi, & Klungseth (2022)
8	..mixed results on the effects of ESG scores on firm performance	Patel et al. (2021)
9	..positive impact of ESG performance and financial performance of the organization	Gholami et al. (2022)
10	..positive correlation between SGHR, CSR and company performance	Ademi, & Klungseth, (2022)

Identifying Linkages among Corporate Social Responsibility, Environmental, Social and Governance, Human Resources and Performance: A Systematic Literature Review

Figures

Figure 1: PRISMA Framework for Systematic Literature Review

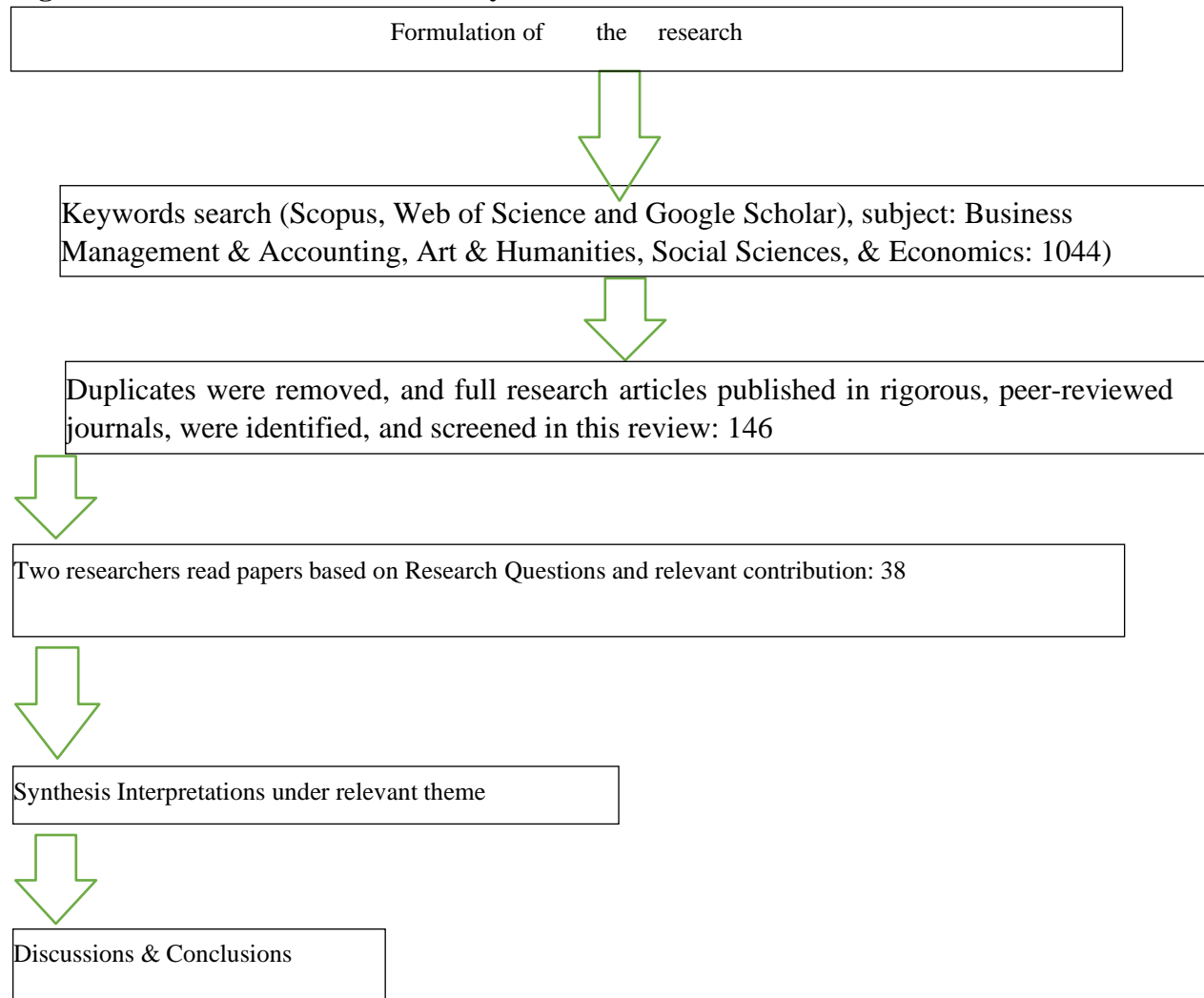
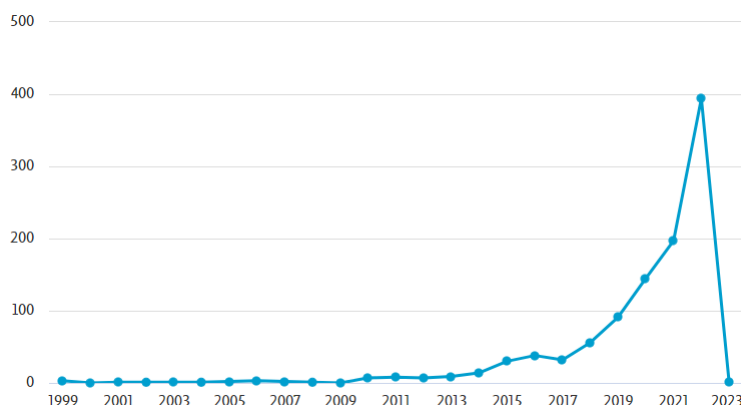


Figure 2: Research output between 1999-2022

The figure shows the number of articles appeared initially with the chosen key words from 1999 onwards:



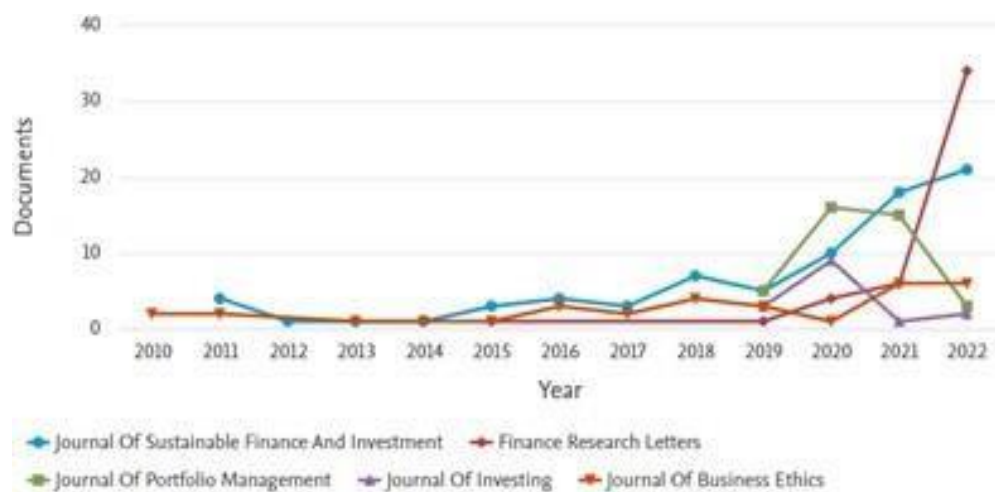


Figure 3: Research Articles in high quality journals

Figure 4: Presence of Countries in CSR/ESG Research

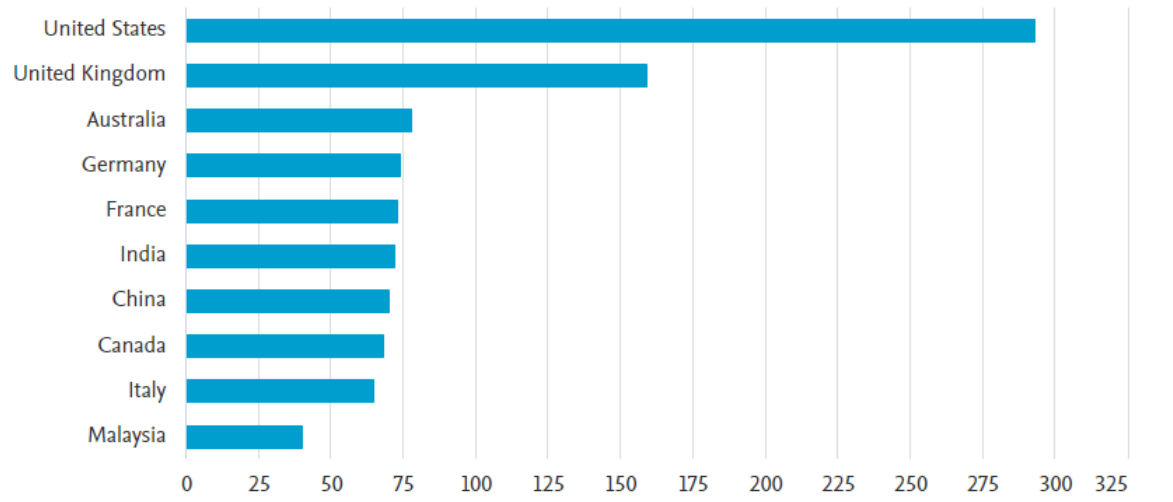


Figure 5: Documents extracted against Subjects

Documents by subject area

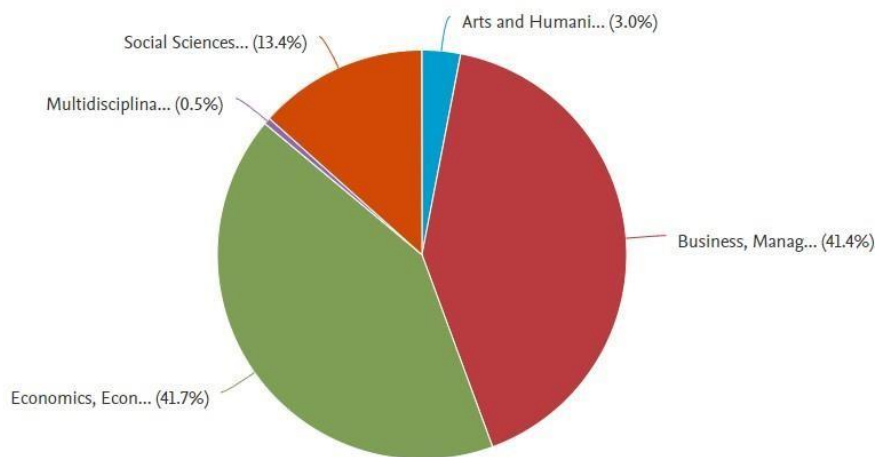
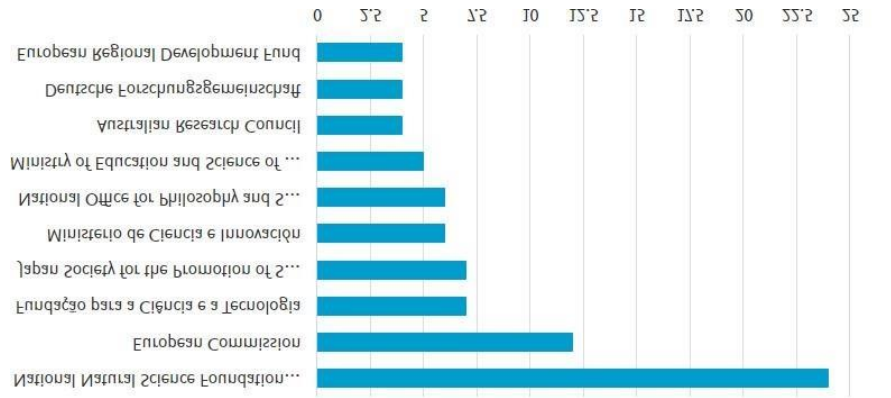


Figure 6: Details of Funding Agencies



Compare the document counts for up to 12 funding sponsors:

Figure 7: Word Cloud for Theme 1: Evolution of CSR, ESG and sustainability practices



Figure 8: Word Cloud for Theme 2: Outcome of Socially Responsible practices or CSR practices on employee level performance indicators



Figure 9: Word Cloud for Theme 3: CSR/ESG impact on organizational performance

[ID:12]

Comprehensive Implementation of Workforce Nationalization Strategy

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Most prior literature on the GCC workforce nationalization has focused on a limited set of themes (e.g., nationalization challenges), initiatives (e.g., quota system), and methodology (e.g., qualitative) and none has captured the full range of content associated with its implementation phenomenon resulting in our current incomplete knowledge on it. As one of the first studies on this phenomenon, our study explores the antecedents of a comprehensive implementation of workforce nationalization in the GCC countries. We postulate a research model based on the strategic human resource and strategic management works of literature which contain five exogenous variables under three perspectives, namely, Qatarization, organizational and environmental. The model was tested by using structural equation modeling (SEM) to analyze data collected from 300 managers in Qatar. The results show that four variables, namely formal Qatarization planning, top management commitment, Qatarization experience, and stakeholders' pressures, positively influence the comprehensive implementation of Qatarization efforts. This study not only contributes to the nationalization literature in the GCC countries but also offers practitioners and policymakers relevant insights and raises additional questions for future research.

Keywords: GCC, Nationalization Strategy, Qatar

[ID:33]

“What Should I Do Now?” A Career Construction Approach Linking Career Shocks and Protean Career

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Abstract

This paper extensively reviews the existing conversations on ‘career shock’ and identifies two broad research gaps. First, the ostensible absence of the connection between protean career literature and career shock conversations, in spite of scholars arguing in favour of self-managed careers in the context of unpredictable and extraordinary events. Second, minimal consideration of cultural contexts in career discourses. To address these underexplored areas, a conceptual framework is developed where we propose that career shocks increase one’s ‘adaptability’, as a result of reappraisal of existing career goals, to make one more oriented towards protean career. Drawing on Career Construction Theory (CCT), we argue that both positive career shock and negative career shock lead to protean career attitude via two career adaptability resources namely, ‘confidence’ and ‘concern’, respectively. We also use uncertainty avoidance (UA) as a culture-specific moderator to claim that the relationship between negative career shock and protean career attitude is contingent on one’s degree of UA.

Keywords: adaptability, career construction, career shock, protean career, uncertainty avoidance.

Communication Style and Transformational Leadership – Subordinates' Perspective

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Abstract

This research focuses on the subordinates' evaluations of the transformational leaders' communication style. The data represents 98 subordinates. Subordinates were evaluating their leaders' transformational leadership style as well as their communication style. Transformational leadership measures leadership behavior with five dimensions: Enabling, Challenging, Modeling, Rewarding and Individualizing. The communication style describes persons unique style with four dimensions: Emphatic, Avoidant, Dominant and Open communication. The results indicated several statistical differences, indicating that the more transformational leaders are, the more they are using Emphatic communication style.

Keywords: Transformational leadership, Communication style, Subordinates' evaluations

Introduction

The concept of transformational leadership (Antonakis & House, 2002; Avolio, 1999; Bass, 1998) is one of the most widely researched paradigms in the leadership field and has shown substantial validity for predicting several outcomes including leader performance and

effectiveness ratings in addition to subordinates' satisfaction and motivation (Judge & Piccolo, 2004; Sashkin, 2004). Transformational leaders act as mentors to their followers by

encouraging learning, achievement, and individual development. They provide meaning, act as role models, provide challenges, evoke emotions, and foster a climate of trust. Leaders should inspire and motivate others with their visions, example and especially with their verbal skills. This kind of inspiring and motivating behavior requires well-developed verbal communication skills.

Leaders' communication style has been noted as an important quality and it is specially connected to enhancing self-awareness, but surprisingly this area still lacks research. There are only a few studies, which confirm the importance of the topic and show that leaders who pay attention to their own communication are more effective change agents than those who do not (Gilley, Gilley, & McMillan, 2009), and that leaders' communication styles are linked to their subordinates' levels of satisfaction (Infante, Elissa, & Gorden, 1982) and motivation (Kay & Christophel, 1995).

Here the purpose is to examine the transformational leadership and communication style from solely followers' perspective.

Theories and Earlier Research

Transformational leadership

Transformational leadership improves the morale and performance of employees and motivates them with various apparatuses. It gives employees a sense of belonging, making each employee and manager feel like a collective unit (Fassina et al., 2008). Transformational leaders show concern towards the needs of their subordinates, motivating and inspiring them to achieve organizational goals and objectives. Transformational leaders are not solely focused on the task at hand; they mentor subordinates, help employees create a bond within the organization, developing individuals into leaders. These types of leaders are able to boost the performance level of their staff and ensure that they are satisfied within the working environment thus making them fully committed to the organization (Chen et al., 2014). Transformational leaders express social and emotional intellect and are often charismatic, and they instill organizational vision and goals in their employees (Bass & Avolio, 1993). A study by Daus and Ashkanasy

(2005) also indicates that emotional intelligence is significantly related to transformational leadership.

Communication and leadership

Interpersonal communication is conceptualized as the verbal and nonverbal interaction between two or more interdependent individuals (DeVito, 2013). In work settings, dyadic communication is a two-way communication between superiors/leaders and their subordinates (Kristof-Brown et al., 2005).

Among the few studies on communication and leadership, De Vries et al. (2010) reported on charismatic, human-oriented, and task-oriented leadership and concluded that leadership is very much grounded in communication style in relation to charismatic and human-oriented leadership. They found charismatic leadership to be characterized by communication styles incorporating assuredness, supportiveness, argumentativeness, and preciseness. Berson and Avolio (2004) found that leaders assessed as transformational were more effective communicators in all three areas factored in—that is, they were careful listeners, open, and careful transmitters. According to Lehmann-Willenbrock et al. (2015) transformational leadership was positively linked to functional problem-solving communication by team members. This positive relationship was mediated by leaders' solution-focused communication. Pacleb and Bocarnea (2016) conducted a study on the relationship between leadership styles and communication styles and the impact it has on leader-member exchange amongst employees in a United States banking sector. Findings revealed that transformational leadership positively predicts expressiveness, preciseness, and questioningness; and negatively predicts verbal aggressiveness, emotionality, and impression manipulativeness as communication styles.

According to Brandt & Uusi-Kakkuri (2016), those leaders who judged themselves to have a strong transformational leadership style also reported they had an emotionally intelligent, controlled, and transparent communication style. Their leadership style was marked by the absence of the avoiding or dominating approaches. According to Brandt (2021), highly transformational female leaders communicate differently than less transformational female leaders, indicating that the highly transformational leaders are using more Impatient, Self-Controlled, Dominant and Clear communication styles than less transformational female leaders.

Method

The sample was 98 respondents, most of them women (71%), at the age 31-40 year (32%) and educational background at economics (31%). Most (60%) of the respondents had also experience of being at leadership position. However, over half of them (62%) did not have subordinates currently. The leaders they were evaluating were mostly also women (89%). Factor analyses and regression analyses were done with SPSS-program.

Questionnaires

Transformational leadership was measured with the Finnish version of the Leadership Practices Inventory (LPI), which is originally developed by Kouzes and Posner (1988). The Finnish version of the LPI used in this study has been in use since 2005 (see e.g. Hautala, 2006; Brandt & Laiho, 2013; Brandt, 2021). The items in the questionnaire were rated on a Likert scale with options ranging from 1 (very rarely if at all) to 5 (frequently if not constantly). The dimensions of transformational leadership are: Enabling, Challenging, Modelling, Rewarding, and Individual Consideration. *Enabling* ($\alpha=0,937$) means including everyone into projects, *Challenging* ($\alpha=0,793$) constantly developing ways of working, and taking also risks, *Modelling* ($\alpha=0,690$) means showing example in the way of working, *Rewarding* ($\alpha=0,862$) means celebrating outcomes and *Individual consideration* ($\alpha=0,686$) means taking others individually into account in various ways.

Communication style was measured with 34 items, examining different perspectives on communication styles with a 7-point Likert scale from 1 (I never behave like this) to 7 (I always behave like this). Following factor analyses with Varimax rotation, four communication styles were designated: Emphatic, Avoidant, Dominating and Correct. *Emphatic* ($\alpha=0,842$) style means that a person can notice the other person's feelings, if in doubt that s/he has been insulting, s/he is apologizing, and s/he can easily put his/her soul into the other's position. The *Avoidant style* ($\alpha=0,869$) means that a person has tendency to avoid or delay the critical subjects. *Dominant style* ($\alpha=0,849$) means that person takes a big role in the discussions and can raise his/her voice during the discussions; others might be a little bit scared of his/her presence. The *Open style* ($\alpha=0,645$) means that a person does show the his/her weaknesses as well and is able to ask forgiveness if noticing doing something wrongly.

Results

According to subordinates, the more transformational leaders use more Emphatic communication style (see Table 1). When looking the Transformational leadership dimensions the more Enabling the leader is the more Emphatic, Open and Non-Unclear s/he is. In case of Challenging, the Emphatic, Dominant, and Open communication style are used. Also, the less the respondent had experience of leadership themselves, the more Challenging the leader is experienced. The Emphatic communication style increase Modelling behavior, and as the higher the subordinate's education level is, the more the leadership is experienced as Modelling. In case of Rewarding there were no statistical significances. The Open communication impacts on the Individual consideration.

Discussion

This study was interested solely of the subordinates' appraisal of their leaders' transformational leadership behavior and how it is connected their communication style. The results indicate that especially emphatic communication is important indicator of transformational leadership. Emphatic communication means that person is good at seeing other people point of views, behaves appreciative way and also s/he is reflective of concerning own behavior.

According to De Vries et al. (2010) the leadership is very much grounded in communication style, in relation to charismatic and human-oriented leadership, and this study confirms this. According to their study, the charismatic leadership is connected with assuredness, supportiveness, argumentativeness, and preciseness (De Vries et al., 2010). Especially supportive and assuredness communications are connected with emphatic communication style. Similarly, Berson and Avolio (2004) found that leaders assessed as transformational were more effective communicators in all three areas that is, they were careful listeners, open, and careful transmitters. Emphatic style is related to first two, and Non-Unclear communication style to last one. It seems that those leaders who are regarded as transformational leaders are clear in their talks. According Brandt and Uusi-Kakkuri (2016) leaders' self-appraisals indicate that transformational leaders used emotionally intelligent, controlled and transparent communication style. They did not use avoiding or dominating communication. Thus, it seems like leaders' own appraisals are in line with followers' thoughts of good leaders.

Interestingly, the background information did not have almost at all impact. Only in two cases they were affecting on the leadership. The less experienced as leadership appraised their superiors more Challenging. This is quite much logical, that less experienced persons evaluate their leaders more innovative, visioning and brave in case of taking risks. With experience, people can be more critical in certain aspects. The other background impact was in case of educational level and Modelling. The higher educated people have tendency to rate their leaders more Modelling. It can be that people with higher education recognize the Modelling leadership more easily than others.

Even the data was rather small, some tendencies could be seen. However, more data would be needed from various field to do more definite conclusions.

Table 1. Results of regression analyses predicting transformational leadership and its dimensions

	TF-Total		Enabling		Challenging	
	R=0.621, sig. <.001		R=0.804, sig. <.001		0.632, sig. <.001	
	Standardized coefficients Beta	<i>p</i>	Standardized coefficients Beta	<i>p</i>	Standardized coefficients Beta	<i>p</i>
Respondent's gender	-0.079	0.569	0.001	0.997	-0.315	0.117
Leader's gender	0.227	0.246	0.249	0.195	0.292	0.299
Age	-0.054	0.404	-0.030	0.636	0.139	0.132
Education level	0.085	0.181	-0.022	0.726	0.065	0.471
Area of education	-0.011	0.680	0.025	0.343	0.005	0.895
Experience of leadership	-0.046	0.495	-0.027	0.687	-0.241	0.015*
Nr. of subordinates	0.024	0.792	0.014	0.870	0.153	0.235
Unclear	-0.152	0.141	-0.309	0.003*	-0.233	0.116
Emphatic	0.346	<0.001*	0.546	<0.001*	0.488	<0.001*
Dominant	0.114	0.074	0.020	0.747	0.337	<0.001*
Open	0.109	0.084	0.194	0.002*	0.196	0.032*
	Modelling		Rewarding		Ind.Consideration	
	R=0.558, sig. <.001		R=0.480, sig. 0.020		R=0.374, sig. 0.282	
	Standardized coefficients Beta	<i>p</i>	Standardized coefficients Beta	<i>p</i>	Standardized coefficients Beta	<i>p</i>
Respondent's gender	0.119	0.544	-0.246	0.504	0.054	0.831
Leader's gender	0.120	0.663	0.292	0.573	0.189	0.599
Age	-0.094	0.301	-0.299	0.081	0.018	0.880
Education level	0.185	0.040*	0.194	0.249	-0.047	0.683
Area of education	0.007	0.843	-0.032	0.644	-0.057	0.240
Experience of leadership	-0.006	0.952	-0.055	0.759	0.086	0.481
Nr. of subordinates	-0.186	0.140	0.282	0.235	-0.141	0.392
Unclear	-0.229	0.116	-0.173	0.525	0.185	0.329
Emphatic	0.365	0.010*	0.207	0.432	0.130	0.478
Dominant	0.063	0.484	0.289	0.088	-0.129	0.266
Open	0.127	0.155	0.329	0.052	-0.304	0.010*

* $p < 0.05$ = statistically significant

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Andragogies to Advance Business Education for Sustainable Development in an Era of Generative Artificial Intelligence: Challenges and Opportunities

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Within the context of the United Nation's (UN) 2030 Agenda, the need for innovation in learning and teaching initiatives to advance Business Education for Sustainable Development (BESD) – purposeful teaching and learning initiatives within business schools that focus on ensuring the economic bottom line and simultaneously on commitment toward socio-environmental well-being, has become increasingly significant. Leading accreditation bodies such as the AACSB have often influenced Business Schools to ensure continuous quality improvement and align BESD with the Principles for Responsible Management Education (PRME) to produce business graduates capable of understanding and resolving broader challenges as reflected in the UN agenda. This exploratory study draws on constructivism and production andragogies and showcases innovative assessment approaches adopted within the unit MM403: Strategic Planning and Sustainability to advance BESD at the University of New England (UNE) Business School. The overarching research question of: “To what extent do constructivism and production andragogies advance BESD in an era of generative Artificial Intelligence (gAI)?” Evidence gathered from the critical reflection component within the assignment (n=220) and formal student evaluation (pre/post-intervention) indicates enhanced critical thinking, engagement, learning outcomes, and overall satisfaction, as well as lessened misuse of generative artificial intelligence such as ChatGPT assignment tasks, have a real-world purpose. Although a systematic longitudinal data analysis is needed to generalize the implications of this study, the utility of andragogical innovation in advancing BESD and inspiring transferable models of assessment design policies and practices across the board cannot be overlooked.

Keywords: Australia; Business education for sustainable development; Innovative Assessment Design; Teaching and Learning

**Managerial creativity vs. functional fixedness:
How to avoid an impasse in problem solving**

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Abstract

Dramatic shifts in global economy require new approaches to business development and management. Many of these approaches regard creativity as a vital psychological factor for success in dealing with these shifts. We studied functional fixedness as one of the most powerful antagonists of creative thinking which can lead to reaching an impasse in problem-solving. It is related to excessive focusing on the specific functional property of an object. We propose a particular method how to loosen the functional fixedness. This method based on the switching one's attention from the main property of the object to secondary ones. We tested the effectiveness of this method with 302 participants. The study consisted of two experiments with 110 and 192 participants, respectively. Prior to performing a creative activity (story writing in Experiment 1 and thinking up unusual uses of a given object in Experiment 2), participants from different groups were asked to name objects which possess the main functional property of the given object to the same extent, to a lesser extent, and to a greater extent, respectively. In both phases of the study, we found a significant effect of the extent of target property possession on the originality of participants' creative products ($p < .05$ for each of them). Participants named objects with the lesser manifestation of the target property outperformed on originality their counterparts from other groups. Results of the study can be applied to enhancing managerial creativity, as well as to various procedures and stages of innovation management.

Keywords: creativity, functional fixedness, problem solving,

[ID: 71]

Factors that Make an Expatriate Assignment Successful from An HRM Lens In the New Millennium Era (2000-2023): A Systematic Integrative Review

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Abstract

The article focuses on the evolution of the expatriate management field from the human resource management lens. The aim of the article is to highlight the factors that have shaped the success of an expatriate assignment in the new millennium era marked from year 2000 to 2023. To achieve the said objective a systematic integrative review was conducted on 109 articles. To facilitate with the identification of success factors a thematic analysis was performed to integrate the expatriate research field. Braun and Clark (2006) process of theme identification was followed. The resulting six factors that were found to act as success factors for an expatriate assignment in the last two decades were- Factors affecting expatriates' decision to have a boundaryless career, Expatriate adjustment factors, Expatriate social support factors, Expatriate well-being factors, Expatriate performance factors, and Expatriate engagement factors. Further, future directions are stated to increase understanding of the field in the coming times for the HR managers and organizations.

Key Words: Expatriate management, success factors of expatriate assignment, HRM, new millennium era, review

[ID:75]

A Research on the Effects of Workplace Environment on Employees' Job Satisfaction in Private Business Universities of India

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Abstract:

The main reason for the study was to actually take a look at the relation between workplace and educators' job satisfaction in private business colleges of Andhra Pradesh, India. The variables that are considered in the workplace are Freedom of educators, Involvement of educators, Management policies, Co-workers' relationships and Employer – Employee relationships as independent variables and educators' job satisfaction considered as dependent variable. A structured 5 point likert scale questionnaire was utilised to gather the information from 105 full time educators from the Business Administration Department of private sector universities of Andhra Pradesh, India. The data was analysed through SPSS 17 by utilising statistical tools, like for example, Descriptive statistical, Pearson correlation and Simple linear regression. The results show that there is a positive relation between all elements of the workplace and job satisfaction of educators. Research moreover tracked down that the employer – employee relationship is the most significant factor of the workplace in Private Business Colleges of India. It is recommended that the colleges' administration ought to focus on providing a favourable workplace, and especially on the element of the Relationship between employer and employee to create better job satisfaction among educators, which might also prompt better performance. As this research included only the educators of Private Business colleges of India, the results can't be generalised to all the sectors of the country. Variables and sample size ought to be increased to get better results in the future research.

Keywords:

Workplace Environment, Job satisfaction, Educators, Education Sector, Private Business Universities.

[ID:76]

The EX-Factor in the Post-pandemic Era

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Purpose: This paper aims to understand the drivers of employee experience (EX) in the post-pandemic era and how the paradigm of EX has been shifted by employing online employee reviews (OER). This research highlights employee-narrated EX dimensions and analyzes their respective sentiments and importance.

Method(s): This research adopts Latent Dirichlet Allocation (LDA) modeling to analyze the online employee reviews and diagnose the EX-dimensions discussed in OER. This research uses sentiment and importance analysis to examine the sentiments and importance of various dimensions of EX. Additionally, dominance and regression analysis have been performed on the quantitative data.

Findings: The results of LDA offers 13 dimensions of EX that formulate overall EX. The *psychological well-being* and *employee safety* are reported as relatively novel dimensions of the EX. However, the conventional dimensions of EX, such as *salary & growth* and *skill development*, were noted as the most important. Interestingly, employee sentiments and emotions significantly impacted the overall EX.

Practical Implications: In the redefined business environment during the post-pandemic time, this research would facilitate HR practitioners to revisit business policies in the light of employee preference that is instrumental to delivering a smooth EX. The OER websites are suggested to incorporate the identified dimensions of EX to capture comprehensive EX.

Originality: This research offers novel insights and extends the literature on the employee experience, especially in the post-pandemic era. The paper expands and updates the dimensions of EX by adding recently emerged EX-dimensions.

Keywords: Post-pandemic, Employee experience, Topic modeling, Mixed-method.

Sustainable Transitions at Work: Exploring the Implications of a Spanish 4-Day Working Week in Employee Happiness and Productivity

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ABSTRACT

The purpose of this study is to explore if the 4-day working week can be successful in Spain and whether it would increase the happiness and productivity of employees in the workplace. Thus far, studies have discussed theories behind how working 4 days is beneficial for the individual and for the economy, as well as the possibility that other combinations of shorter working schedules could be more effective.

A qualitative research method was utilised in the study and findings from the semi-structured interviews provided basis for the study. The interviews produced interesting but contradictory findings. Although the 4-day working week was perceived as very beneficial, employees wondered if it is implemented, would wages be maintained the same or not in Spain. The employees also reported that 'happiness' and 'productivity' would increase as a direct result of working at a reduced work schedule. However, based on the insights from interviewees it is also apparent, that it might be possible that the 4-day working week will not be very successful in Spain because their working

Keywords: Talent, Skills, World of work, Sustainable Transition at work

B2B Buyer-Seller Interaction And Strategic Use Of AI

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Abstract

This theoretical paper explores the multifaceted landscape of B2B buyer-seller interaction, with a strategic focus on the seamless integration of artificial intelligence (AI) to enhance customer experiences throughout the buyer's journey. This paper presents the latest research on how AI-driven customer experience strategies can be aligned with broader business strategies to yield competitive advantage and foster enhanced customer relationships.

Introduction

Plenty of business practitioners are using AI in their work already, because it helps in various ways and makes working more efficient. The study made of 692 business practitioners showed that it is currently mostly used in researching and ideation, drafting of business messages and reports, and summarizing and revising text (Cardon et al., 2023). Interestingly, it has been noted that customers have started trusting AI more than humans (Logg et al., 2019).

The adoption of AI is seen as an important step toward digital sales practices (Alamäki & Korpela, 2021), and the greatest potential value of AI lies in marketing and sales (Davenport et al., 2020). Research estimates that about 40% of sales tasks can be automated (Hunter, 2019) and that AI can be applied in every sales process step (Paschen et al., 2020). AI will change the entire value creation function and infuse sales more and more (Singh et al., 2019).

According Ahearne et al. (2022) there are profound shifts in buyer-seller interactions precipitated by readily available information, which has empowered buyers and altered the traditional dynamics of engagement. This transformation necessitates reevaluating conventional sales strategies, which previously operated under the assumption of a less informed buyer base.

Technological advancements necessitate reevaluating sales processes, with AI redefining management and strategic decision-making (Kolbjornsurd et al., 2016). The strategic use of AI could be instrumental in navigating the complexities of multiformat communications, which informed buyers increasingly prefer (Ahearne et al., 2022). This reevaluation is also seen in the context of social media and technology's role in organizational buying, where digital interactions increasingly

influence consumer preferences (Gustafson et al., 2019; Burke, 2002).

According Dan O'Connell, as AI develops, it will remain at the forefront of customer service, and thus organizations must understand how this technology can enable them to improve their services (AI Magazine, 2023). In customers point of view, online agents and AI also help new and existing customers adjust to different service contexts (Köhler et al., 2011). It has shown that 68% of B2B buyers prefer doing business online versus with a salesperson (Hoar, 2017) because the digital channel offers greater convenience, price transparency, and access to product information and customer reviews (Caitlin et al., 2016). Furthermore, B2B buyers considering a purchase spend 17% of their time meeting with potential suppliers and 27% of their time researching sources independently online (Gartner, 2019). The AI has been increasing these numbers hugely and will change dramatically the B2B-sales. The more and more limited face-to-face time makes a challenge for the traditional relationship building. These limited moments become critical and define the outcome of the business encounter. Sellers need to be equipped with the understanding of the jobs-to-be-done for the customer (Christenssen et al., 2016) as well as crafting the right experience to stand out from the competition. (Heath & Heath, 2017). The purpose of this paper is to present the latest studies of AI's possibilities in sales and provide aspects that should be taken into account when using AI in B2B-sales.

Literature Review

To better align themselves with the demands of digital commerce so as to achieve competitive advantage, selling firms are modernizing their sales strategy and pursuing digital sales interactions (DSIs) (Bharadwan & Shipley, 2020). The increasing prevalence of buyer-seller communications and transactions being conducted remotely via a screen-to-screen interface marks an evolution from the traditional in-person, face-to-face exchange (Kopalle et al., 2019; Verhoef & Bijmolt, 2019). AI can occur at any point along the B2B buying journey, spanning from pre-sales communications to actual sales transactions to post-sales activity.

Strategic shift in the B2B communication

The strategic shift towards digital solutions is further evidenced by the increasing adoption of digital sales force automation tools, which are gaining acceptance in supply chain interactions (Mahlamäki et al., 2020). Ahearne et al. (2022) suggest that sellers must now recalibrate their interaction strategies to effectively connect with customers who enter the buying process with a higher degree of certainty and at a more advanced stage. This includes the optimization of digital interactions to build trust rapidly. Integrating AI into managing B2B customer journeys is a pivotal advancement, offering a structured approach to enhancing customer interactions and experiences (Rustholkkarhu et al., 2022, p. 4).

It has long been understood that effective communication is a fundamental determinant of salesperson performance outcomes (e.g., Singh et al., 2017; Spiro & Weitz, 1990). Sellers' customer-oriented behavior predicts relationship development (Williams, 1998), performance (Lussier & Hartmann, 2017; Singh & Venugopal, 2015), and customer satisfaction (Lussier & Hartmann, 2017). Good

listening skills on behalf of the seller have been found to enhance trust (Drollinger & Lucette, 2013), relationship quality and the overall communication skills of salespeople (Drollinger & Lucette, 2013). It has been found that a sender's verbal (e.g., Peterson et al., 1995) and nonverbal (e.g. Lim, et al., 2017) cues matter in face-to-face encounters.

Scholars opine that digital technologies, such as AI, can alter the customer experience (Kannan & Li, 2017; Kumar et al., 2020). The leading firms are innovating their sales channel in an attempt to deliver a superior customer experience across the entire customer journey (e.g. Moorman & Lemon, 2020), and in turn, drive topline revenues and/or conduct sales interactions more efficiently (Sheth & Sharma, 2008; Thaichon et al., 2018).

According to Bharadwaj and Shipley (2020) one way to begin thinking about salesperson communication effectiveness in a digital-sales-interaction is to consider the nature of the sales communication in conjunction with its temporal aspect. A seller's interaction with an institutional buyer can be scripted or tailored, and it can transpire in real-time or without temporal synchronization. Whether the communication is adaptive (i.e., the seller tailors the message) versus standard (i.e., the seller conveys a scripted message) or synchronous versus asynchronous.

A communication in an exchange system involves a sender conveying a plethora of signals to the receiver. Akin to a face-to-face meeting, the sender transmits auditory and visual signals in a DSI. However, other cues – such as touch and smell – are not as salient because the sender and receiver do not occupy the same physical space (Bharadwaj & Shipley, 2020). Koponen et al. (2019) have found that in international sales work, salesperson's success is influenced by three dimensions: behavioral, affective, and cognitive dimensions. The affective dimension includes, among other things, the attitude of empathy, openness and positivity towards working with different kinds of people. The behavioral dimension includes, for example, presentation and nonverbal skills as well as awakening feelings of belonging and trust. How these competencies are achieved has not been studied.

The emotions as social interaction (EASI) model (van Kleef, 2016) can provide the theoretical scaffolding to construe the seller's facial behavior as a signal. It is well-established that how effectively a salesperson from a selling organization communicates with a buyer influences her/his success (e.g., Singh et al., 2017; Spiro & Weitz, 1990; Webster, 1968; Weitz, 1981). Pugh (2001) has studied 106 actual bank teller-customer service encounters, and finds that the sellers' positive facial expressions can influence the perceived quality of the service received. In case of head and body activity Pauser et al. (2018) found out that symmetric movements have a greater impact on attitude towards the salesperson in a low-gesture culture (high-gesture culture).

AI-mediated communication (AI-MC)

Hancock et al. (2020) have defined AI-mediated communication (AI-MC) as “interpersonal communication in which an intelligent agent operates on behalf of a communicator by modifying,

augmenting, or generating messages to accomplish communication goals.” Cardon et al. (2023) suggest that AI-MC will become central to many of the business communication activities of most

business practitioners within a year. While current applications of generative AI apply most to AI-assisted writing (Cardon, Fleischmann, et al., 2023), Cardon et al., (2023) anticipate that AI will influence all aspects of communication in upcoming years.

Customer experience in buyer-seller interaction

The significance of customer experience (CX) in B2B interactions, as delineated in Batra's analysis, underscores the criticality of both pre-sale and post-sale interactions in shaping the customer journey. These interactions, which span from direct engagements, such as sales transactions via representatives, to indirect influences like perceptions formed through social media, form the backbone of CX in the B2B context (Batra, 2017). The evolving focus of corporate strategy towards CX, especially since the mid-2000s, highlights its increasing prominence in discussions related to business and marketing strategies, customer service, and overall business management. This shift underscores a broader acknowledgment of the importance of CX in fostering and sustaining business relationships. This holistic view of CX, recognizing the importance of both attracting and retaining customers through continuous and effective engagement, is pivotal in today's business environment. (Batra, 2017).

The initial steps towards creating products or services that customers are willing to pay a premium price for are identifying and comprehending the job that needs to be done. However, it is equally important to design appropriate experiences for the purchase and utilization of the offering and then incorporate those experiences into the company's processes. (Christenssen et al., 2016).

In the elemental level customer experience, can be divided into four different elements: a) cognitive, b) emotional, c) physical and sensory, and d) social (see, for example, "Emotional"). Ladhari, Souiden, & Dufour, 2017). Cognitive refers to the highest mental processes such as perception, memory, language, problem-solving and abstract thinking. Keiningham et al. (2017). means functionality in customer experience; speed and service availability. The emotional aspects are considered very difficult and complex to study (eg. Ladhari et al., 2017), but it has generally been studied whether the emotions experienced by the client are positive or negative, such as joy, regret, anger, rage, delight and surprise (Keiningham et al., 2017). Physical elements in the customer experience mean different things if it is a physical meeting or an online meeting. Physical refers to the environment, lighting and signposting to the site, while online refers to technology-related factors such as user-friendliness and clear design (Keiningham et al., 2017). Social elements refer to the influence of other people, such as one's own colleagues, networks and friends, meaning the social and mental identity of how one experiences and sees oneself (e.g., social and mental identity). Verhoef et al., 2009).

During the customer buying process, sellers are in contact with the buyer for 17 % of the time. (Gartner, 2019.) As noted by Ahearne, there has been a noticeable change in the relationship between buyers and sellers. Technological advancements and greater access to information have significantly impacted the evolution of the buyer's journey. In turn, this has led to a noticeable reduction in the length of the journey, with sellers often only becoming involved in its later stages. This shift can be attributed to buyers being more informed and frequently making purchasing

decisions before interacting with salespeople, which limits their influence during the journey (Ahearne et al., 2022). Additionally, the nature of buyer-seller interactions has transformed due to the need to comprehend these interactions within a multichannel customer context (Ahearne et al., 2022). As such, these interactions may occur at any point during the customer journey.

According to research, when recalling an experience, individuals tend to disregard most of the details and instead focus on specific moments. This phenomenon is referred to as "duration neglect," wherein people tend to overlook the duration of an experience. Instead, they evaluate the experience based on two key moments: the best or worst moment, which psychologists call the "peak," and the ending. This psychological principle is known as the "peak-end rule." (Fredrickson

- Kahneman, 1993). Additionally, when evaluating experiences, we do not simply average our minute-by-minute sensations. Rather, we tend to recall the most significant moments, including the highs, the lows, and the transitions (Heath & Heath, 2017; Fredrickson & Kahneman, 1993). Exceptional service experiences are often forgettable, with only a few standing out as such. It is

important to note that certain moments hold more value than others. Specifically, a defining moment is a brief and memorable encounter that holds significant meaning (Heath & Heath, 2017).

According to Heath and Heath (2017) the defining moments are created from one or more of the following four elements: *A) Elevation*: (1) Boost sensory appeal; (2) Raise the stakes; (3) Break the script, *B) Insight*: (1) Trip over the truth; (2) Stretch for insight, *C) Pride*: (1) Recognize others; Multiply milestones; (3) Practice courage, *D) Connection*: (1) Create shared meaning; (2) Deepen ties; (3) Make moments matter.

Customer experience and strategic AI

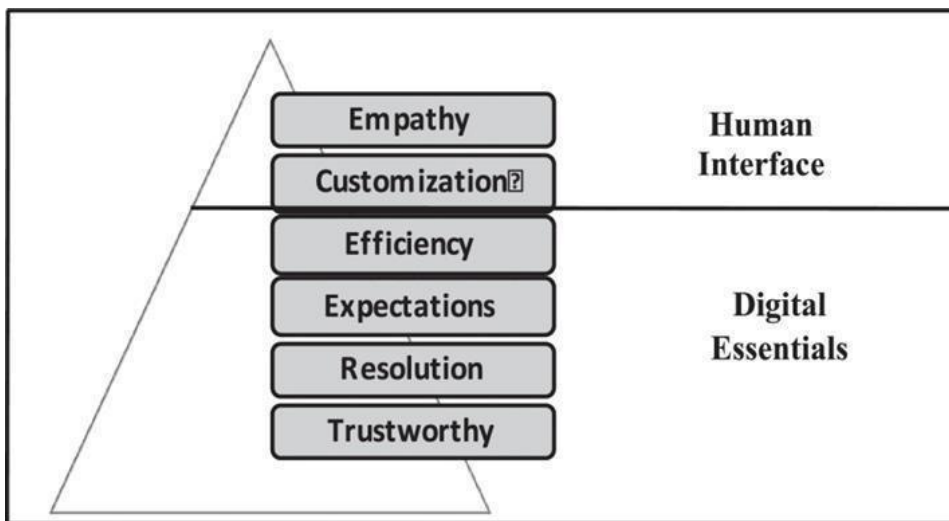
Gartner (2020) states that AI could be used to analyze customer experiences and customer feedback in a very efficient way. Newman (2019) suggests that AI is potentially one of the most important sales promotion tools for continuously improving customer experience and maintaining competitiveness. Omale (2019) suggests that AI can be used to utilize data to create customer profiles and learn how best to discuss with each profile.

Khan and Iqbal (2020) have interviewed service providers about the benefits of AI and the factors to consider. Although AI brings a lot of possibilities, efficiency and speed, some customers want personal communication. With those customers, artificial intelligence can cause confusion and misunderstandings for both customers and providers. It would be important to identify customers who especially want personal service and customers who prefer to handle their affairs with a Chatbot or Virtual Customer Service (see Figure 1).

Vijayakumar's study (2023) has found that AI in customer experience has enabled companies to offer increasingly personalized and efficient services, developing customer satisfaction and loyalty, which has then been reflected in positive growth in companies' results. According to him, the possibilities of artificial intelligence in sales and customer experience include (Vijayakumar, 2023):

- Performing critical and routine tasks with AI, allowing salespeople to focus on customer encounters
- Updating products with the help of AI e has increased customer satisfaction
- Using AI to assist customers with product needs and prioritizing them
- It has been possible to assist in the introduction of a new product/service with artificial intelligence, which means that the benefits of the new purchased product can be utilized faster and more efficiently.

Figure 1. Digital CX Pyramid by Khan & Iqbal, 2020



Impacts and possibilities of AI

Dan O'Connell discusses on AIMagazine (2023) that adopting AI for customer intelligence can help companies increase productivity by automating operations and leveraging AI to understand consumer needs better. This can lead to a personalized experience that builds customer loyalty and increases revenue. The effectiveness is confirmed by Ullal et al. (2020) study where they found out that effectiveness of AI is same than experienced salesmen and 2.7 times better than inexperienced salesmen in closing the sales calls.

McKinsey & Company (2023), in the document "AI-powered Marketing and Sales Reach New

Heights with Generative AI," offers pivotal insights into the transformative impact of generative AI on marketing and sales domains. It delineates how gen AI is revolutionizing both B2B and B2C

sectors by enhancing customer experience through hyper-personalization based on intricate analysis of customer behaviors and purchase histories. The document highlights Gen AI's role in

augmenting sales effectiveness by automating routine tasks and allocating more resources towards direct customer engagement. It further explores the technology's proficiency in dynamic audience targeting and lead generation, leveraging advanced predictive analytics to optimize marketing strategies. Gen AI's continuous support in the sales process is emphasized, offering bespoke content and real-time negotiation guidance, extending even into post-sale phases for customer onboarding and retention. It acknowledges that contemporary businesses need to integrate Gen AI into their strategies to elevate customer engagement and enhance operational efficiency and growth.

AI's influence extends to market knowledge within B2B marketing, a transformative force in understanding and predicting buyer behaviors (Paschen et al., 2019). Business practitioners widely see AI as leading to more efficient and high-quality work (Cardon et al., 2023).

Conclusions

The latest research suggests that aligning AI-driven customer experience strategies with broader business strategies is a competitive advantage and necessary for businesses aiming to thrive in the digital age. The strategic implementation of AI facilitates a more nuanced understanding of customer behavior, preferences, and needs, leading to more effective and personalized customer interactions. This alignment seems vital in enhancing customer relationships and ensuring business success in an increasingly AI-integrated world.

The potential viewpoints for consideration for B2B-sales are plenty. For example, the hyper personalization: AI can match potentially suitable customers to suitable sales persons, AI can offer suitable ways how to interact with different customer segments, and AI can help sellers in the right mode before the customer interaction, e.g. giving advice of the customers' preferred rhythm (fast/slow talking, vivid/peaceful).

AI mediated communication can be helpful when customizing messages to different customer groups. It can help during sales interactions finding the necessary information already in some minutes earlier before the customer will ask about those. Remote interaction will be in crucial role, when customers have done background work already before they are connected to seller.

The ethical dimensions of AI deployment in B2B contexts cannot be overlooked, as there are potential negative implications that must be considered in the strategic use of AI (Castillo et al., 2021). These developments underscore the need for a nuanced understanding of AI's role in shaping the future of B2B buyer-seller interactions.

The business practitioners evaluated that the character-based traits such as integrity and soft skills

will become more important when the AI will be used. Integrity was most often identified as the competency that will be more important in the AI Age. Roughly 78% of frequent users said it would be more important (Cardon et al. 2023). The high demand for integrity may be because of the possible harmful ways of using AI; e.g. violate data privacy, introduce bias, and even damage relationships (Cardon et al. 2023).

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The Impact of Psychological Safety on Psychological Capital

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Abstract

Psychological safety as well as psychological capital have become important themes when enhancing organizations' functioning. The interest here is to see if the experienced psychological safety has impact on the individuals' psychological capital. The data consisted 194 respondents and the regression analyses produced multiple statistically significant results, indicating that dimensions of the psychological safety are related to psychological capital. The more team indicates respect to each other, courage to say own opinions, sharing knowhow, reflection and the more equitable the organizational culture is, the higher individuals' psychological capital is.

Keywords: Psychological safety, psychological capital, team behavior

Introduction

Organizations are more and more interested on psychological themes inside the teams and focus is more on team members' behavior than only in the leadership. Concepts like psychological safety, psychological contract and psychological capital are important organizational factors which have gained from year to year more attention in both research and practice. Psychological safety, the feeling that taking interpersonal risks will not result in embarrassment, ridicule, or shame, enables people to engage, connect, change, and learn (Edmondson & Lei, 2014). When individuals feel psychologically safe, they expect that taking an interpersonal risk will not pose an intolerable level of threat to identity or sense of self (Edmondson & Lei, 2014). Psychological safety is originally defined as "feeling able to show and employ one's self without fear of negative consequences of self- image, status, or career" (Kahn, 1990, p. 708). Psychological safety describes a perception that 'people are comfortable being themselves' (Edmondson, 1999, p. 354).

The other important concept is psychological capital, which have proven to have many positive

impacts on individual's working life. It is a job-related positive psychological resource within an individual's cognitive and attitudinal perspective (Luthans et al, 2007). Several studies have indicated that high psychological capital has a positive impact on individuals' satisfaction, performance, and commitment at organizations (Avey et al, 2011; Luthans et al, 2005; Luthans et al, 2008; Peterson et al, 2011). Psychological capital is not permanent trait, so it can be developed even with the help of short interventions (Lupsa et al., 2019). Psychological capital in a way enhances the individual to get most out of his/her talents and flourish in positive, non-stressful way.

Those important concepts; psychological safety and psychological capital has not been previously studied together, and thus this study responds in this research gap. Identifying the concepts impacting organizational behavior more specifically, enhances organizations and HR to focus on the right things when building teams that will have enhanced psychological safety and psychological capital.

Theories and Earlier Research

Psychological safety

People in high-quality relationships have a sense of 'deep contact' (Quinn & Quinn, 2002) and experience a feeling of being known or respected by the person or people (Dutton & Heaphy, 2003), even if the relationship is short in duration. When employees engage one another respectfully, they reflect an image that is positive and valued. They create a sense of social dignity, which confirms each other's worth and sense of competence (Dutton, 2003b). When relationships have greater emotional carrying capacity it is acceptable for people to display a range of emotions in the relationship, increasing the probability that both people will be understood (Dutton & Heaphy, 2003). Dutton and Heaphy(2003) argue that higher quality relationships are marked by a tensility that allows the relationship to bend and with-stand stress and conflict and bounce back after setbacks. Beliefs that others see oneself as competent are important because those who feel that their competencies are in question are more likely to feel judged or monitored, keeping their viewpoints to themselves for fear of harming their image (Edmondson, 2004). In contrast, when people in a relationship are actively looking for value in their counterparts, it produces a context in which members can speak freely about their thoughts and feelings (Dutton, 2003; Zander & Zander, 2000).

Prior research shows that psychological safety varies significantly among workgroups within organizations, which has practical and theoretical implications for learning and human development (e.g., Edmondson, 1999). It has been showed leader behaviors such as acknowledging fallibility and proactively seeking input are associated with increased psychological safety in intensive care units (Nembhard & Edmondson, 2006). Studies indicate, that psychological safety is greater when leaders actively reduce status gaps between themselves and lower-level personnel (Nembhard & Edmondson, 2006), and when

leaders maintain mutual support, acceptance, and respect (Singer et al., 2015). According to Nembhard and Edmondson (2006) hierarchy, the degree of authority, and respect afforded to individuals based on their position in a social system, inhibits psychological safety.

Walumbwa and Schaubroeck (2009) found that psychological safety mediates the positive relationship between ethical leadership and voice behavior, indicating that employees feel comfortable challenging their leaders when a psychologically safe climate has been established. Researchers have noted that a supportive management and context is a key antecedent of psychological safety (Carmeli & Zisu, 2009; Edmondson, 1996; 1999). Specific leader behaviors such as being available and accessible, inviting input, and modeling openness and fallibility, are seen to directly shape followers' perceptions of psychological safety (Edmondson, 2004; Nembhard & Edmondson, 2006). Likewise, servant leadership, which refers to pattern of behavior which serves to nurture the development of individuals and groups, promote their well-being, and provide support (Greenleaf, 1977), has been linked to work team psychological safety through the mediating influence of members affective trust in the leader (Schaubroeck et al., 2011).

A number of organizational studies have shown that psychological safety is an important factor affecting various employee participative behaviors in organizations. Previous research suggests that when individuals feel psychologically safe, they are more likely to enact self-regulated strategies such as offering ideas, admitting and learning from mistakes, asking for help, engaging in learning opportunities, providing feedback to others, and speaking up (Edmondson & Lei, 2014; Hirak et al., 2012; Holley & Steiner, 2005). Studies indicate that psychological safety is seen as a factor increasing an employee's level of personal engagement at work (Kahn, 1990; May, Gilson, & Harter, 2004). Similarly, psychological safety promotes one's self-expressive behavior (Kahn, 1990).

Research has found that psychological safety can facilitate learning behavior in teams because it alleviates concerns that other members may react negatively to their learning behavior (Edmondson, 1999). Learning behaviors such as seeking help, asking for feedback and speaking up about errors and work assumptions involve interpersonal risk, especially when the person in a position may also judge the individual's performance or competency (Lee et al., 2003; Lee et al., 2004). In a study of hospital intensive-care units, Tucker et al. (2007) found that psychological safety has a positive influence on learning behavior, which ultimately leads to successful implementation of new practices. Detert and Burris (2007) found that subordinates' sense of psychosocial safety has a positive impact on their improvement-oriented speaking behavior. Finally, research also found that psychological safety is important to knowledge sharing among co-workers in the context of traditional manufacturing and service operations (Siemens et al., 2008).

Psychological capital

Psychological capital serves as a job-related positive psychological resource within an individual's cognitive and attitudinal perspective (Luthans et al, 2007). It is a construct of further development and also decreasing (Gardner et al, 2005a), in contrast to most other personal traits, which are seen as unchangeable natural tendencies. Several studies have focused on the quantitative results of leadership's, trainings' and interventions' impact on psychological capital (Luthans et al., 2006).

The four dimensions as Self-efficacy, Optimism, Resilience and Hope form as combined the psychological capital. A definition of psychological capital is "an individual's positive psychological state of development that is characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success" (Luthans et al, 2007, p. 3). Self-efficacy identifies an individual's belief about his or her ability to successfully execute a specific and even sudden task. Optimism is a more general positive view of the world and expectation that things will turn out to be positive rather than negative (Luthans et al, 2010). Resilience is an individual's adaptive response to negative events and setbacks, promoting well-being or protecting against risk factors (Reich et al., 2010). Hope is goal-directed thinking in which people perceive that they can produce routes or pathways to desired goals. Goals may vary temporally from short to long term, but they must be of sufficient personal value for a person to engage in them (Lopez et al, 2003).

Earlier studies indicate, that employees scoring high on psychological capital are more satisfied with their jobs, careers, and lives (Karatepe & Karadas, 2015). Many studies have found that it impacts positively in the job satisfaction (Badran & Youssef-Morgan, 2015 and Bergheim et al., 2015). It has also been associated with positive career mobility (Järlström & Brandt, 2017) and objective career success measured in wages and hierarchical career progression (Järlström et al, 2020). At the organizational level, it is connected to organizational performance (Hmieleski & Carr, 2008), business excellence (Hsu et al., 2014) and competitive advantage (Youssef & Luthans, 2010).

For individuals it is important also because, e.g. Cole et al. (2009) found that individuals with lower levels of psychological capital are at greater risk of being unemployed. In case of turnover intentions, Siu et al. (2015) found that work well-being (both job satisfaction and stress symptoms) fully mediate the association between psychological capital and turnover intention. Higher psychological capital is associated with career mobility (Järlström & Brandt, 2017) and objective career success measured in wages (Goldsmith et al., 1997; Järlström et al., 2020).

Method

Data

There were 194 respondents who did belong into 25 teams from 10 organizations. Most of the respondents did belong into age group under 30 years (43,8%), followed with groups 31-40 years (24,7%) and 41-50 years (22,7%). Most of the respondents were women (64,4%), and most of them had been working at the team from 1-5 years (55,2%), followed by under 1 year (32%). The team age was in most cases from 1-5 years (63,9%), followed by under 1 year (18%).

Questionnaires

Psychological Safety

Even frequently used psychological safety measures are often short questionnaires, with 10 or fewer items (Detert & Burris, 2007; Edmondson, 1999), we wanted to do the wider analyses with 56 items from work situations. The Likert-scale was from 1 (=Disagree strongly) to 7 (=Agree strongly). The factor analyses (Varimax) produced seven dimensions: Team Basics, Open and Bold, Developing Knowhow, Developing Team, Dialogue, Genuineness, Interfering, Leadership, Organization culture.

- *Team Basics* ($\alpha = 0.953$) was measured with 13 items, and it describes that team members are equals, and appreciated in their team. 2. *Courage* ($\alpha = 0.944$) was measured with 9 items, meaning that respondent have courage to say his/her opinions, and have even the wild ideas. 3. *Increasing Knowhow* ($\alpha = 0.893$) means that team members are constantly learning from one to another. There were 7 items which were measuring this one. 4. *Team Development* ($\alpha = 0.857$) describes how team recognizes and values accomplishments and also discusses and reflects actively. 5. *Dialogue* ($\alpha = 0.895$) is about open and active discussions with five items, 6. *Genuineness* ($\alpha = 0.912$) with five items, is about trust and sharing also personal weaknesses, and 7. *Interfering* ($\alpha = 0.879$) which means that in the wrong kind of behavior will be interfered.

Leadership and organization culture were measured 20 items with the Likert-scale from 1 (=Disagree strongly) to 7 (=Agree strongly). The factor analyzes produced two factors as expected. First one 1. *Leadership* ($\alpha = 0.961$) measures with 12 items, how team leader shows example, is equal and honest and encourages team members, and other 2. *Organization culture* ($\alpha = 0.864$) measures the justice and belongingness with five items.

Psychological Capital

The Psychological Capital was measured with 14 items, with the Likert-scale from 1 (=Disagree strongly) to 7 (=Agree strongly). Varimax analyzes produced four dimensions: Hope ($\alpha = 0.864$), Optimism ($\alpha = 0.934$) and Resilience ($\alpha = 0.852$) all measured with three items and Self-Efficacy ($\alpha = 0.889$) which was measured with five items. All the dimensions were summed up forming the Psychological Capital Total -measurement.

RESULTS

At the Table 1. can be seen the means and standard deviations of the dimensions. In case of Psychological capital, the highest mean was the Hope and lowest the Resilience. In case of Psychological safety, the highest was the Team Basics and Increasing Knowhow. The lowest were the Dialogue and the Team Development.

Table 1. Means and standard deviations of dimensions

	Hope	Self-efficacy	Resilience	Optimism	PsyCap Total
Mean (std)	5.72 (1.12)	5.65 (0.98)	5.11 (1.13)	5.66 (1.14)	5.72 (1.12)
	Team Basics	Courage	Increasing Knowhow	Team Development	Dialogue
Mean (Std)	5.90 (1.03)	5.42 (1.13)	5.78 (0.90)	5.07 (1.18)	4.59 (1.22)
	Genuineness	Interfering	Leadership	Organizational Culture	
Mean (Std)	5.47 (1.23)	5.12 (1.28)	5.60 (1.20)	5.07 (1.15)	

Regression analyses show that the dimensions Team Basics, Courage, Increasing Knowhow, Team Development and Organization Culture have statistically significant impact on the Psychological Capital Total (Table 2). In case of Hope, the dimensions as Team Basics, Courage and Team Development have statistically significant impact. In case of Optimism, the statistically significant impact has three dimensions, namely Team Basics, Team Development, and Organizational Culture. In the Table 3 the results in case of Resilience and Self-Efficacy are seen. The Dialogue and

Genuineness have statistically significantly impact on the Resilience. In case of Self-Efficacy, the statistically significant impact has the Increasing Knowhow. Background information did not have impact in Psychological Capital Total or any of the dimensions of the Psychological Capital.

Table 2. Results of regression analyses predicting Psychological capital and its dimensions Hope and Optimism

	PsyCap Total, R= 0.845		Hope R=0.710		Optimism R=0.785	
	B	sig.	B	sig	B	sig
Background information						
Respondents' age	0.008	0.873	0.027	0.735	0.022	0.756
Gender	-0.051	0.563	-0.013	0.924	0.022	0.854
Team's age	0.028	0.648	-0.025	0.795	0.036	0.669
Time belonging to team	0.078	0.285	0.129	0.245	0.061	0.529
Psychological safety						
1. Team Basics	0.288	<0.001*	0.323	0.015*	0.512	<0.001*
2. Courage	-0.180	0.023*	-0.247	0.040*	-0.076	0.463
3. Increasing Knowhow	0.231	0.004*	0.121	0.322	0.122	0.251
4. Team Development	0.268	<0.001*	0.626	<0.001*	0.236	0.012*
5. Dialogue	0.038	0.491	-0.091	0.289	-0.038	0.612
6. Genuineness	-0.012	0.861	-0.166	0.108	-0.149	0.100
7. Interfering	0.031	0.579	-0.052	0.550	0.020	0.792
Leadership & Culture						
8. Leadership	0.064	0.259	0.110	0.207	0.95	0.216
9. Organization Culture	0.174	0.003*	0.158	0.073	0.246	0.002*

* $p < 0.05$ = statistically significant

Table 3. Results of regression analyses predicting Psychological capital and its dimensions Resilience and Self-efficacy

	Resilience R= 0.779		Self-efficacy R= 0.810	
	B	sig	B	sig
Background information				
Respondents' age	-0.006	0.928	0.008	0.895
Gender	-0.128	0.277	-0.103	0.293
Team's age	0.062	0.458	0.093	0.182
Time belonging to team	-0.003	0.973	0.054	0.508
Psychological safety				
1. Basics	0.322	0.006*	0.005	0.958
2. Courage	-0.234	0.025*	-0.047	0.595
3. Increasing Knowhow	0.189	0.075	0.423	<0.001*
4. Team Development	0.090	0.334	0.093	0.229
5. Dialogue	0.159	0.033*	0.117	0.059
6. Genuineness	0.181	0.045*	0.033	0.656
7. Interfere	0.076	0.322	0.089	0.159
Leadership & Culture				
8. Leadership	0.003	0.965	0.074	0.244
9. Organization culture	0.141	0.067	0.117	0.066

* $p < 0.05$ = statistically significant

Discussion

These results show that Psychological safety at teams is important aspect on developing the individuals' Psychological capital. The background information (age, gender, team's age, and time belonging to the team) did not have any impact on the Psychological capital, even there are some earlier studies that indicate for example that men are having higher PsyCap than women (e.g. Brandt, 2020).

In these teams, the respondents regarded the highest Psychological safety dimension as Team Basics and Increasing Knowhow. Those are both quite work-related dimensions (not very personal) and thus might be quite easy to have those in acceptable level at teams. The lowest were Dialogue and Team

Development, which need both time and willingness to see the situations honestly and with the open reflection.

In case of Total Psychological Capital, the important impacting dimensions seem to be Team basics, that team member respect and count on each other, Courage, that individuals have courage to say their opinions, Increasing Knowhow; the members share the knowhow and learn from each other, Team Development; that team reflects its functioning and celebrates accomplishments, and finally Organization culture which emphasizes fairness and belonging. When having these dimensions of the Psychological safety in the good level, the impact will be seen as increased team members' Psychological capital. Further, as earlier studies indicate, the both high Psychological safety and high Psychological capital advance outcomes in organizational and individual level.

Interestingly, leadership which has been traditionally important dimension in many ways of organizations' life, did not have any impact here on the Psychological capital. It may be, that the strong team compensates the leadership and the role of the leader in team is nowadays smaller than usually have been taught. Also, after corona years, there is increased amount of remote work, so the traditional leadership is not so much needed anymore. The respondents also represented specialists, and they do not need guidance, instead they need circumstances where they can use their talents and do fruitful co-operation with others.

In case of practical recommendations, if the team has problems with Self-efficacy, the focusing especially on sharing knowledge and learning from others would be helpful. When wanting to increase the level of Resilience, the focus on the Team Basics, Courage, Dialogue and Genuineness would help. For example, in case of Genuineness, when team members show themselves as they are, and show off their weakness it increases the member's Resilience.

Even the data was relatively small, and represented only few organizations, the results show significant relationship with Psychological safety and Psychological capital. In developing talents at organizations, and ensuring their career paths, it is important to make sure that teams act in psychological safety way. The Psychological safety ensures that people can take all their capabilities in use and have growth mindset in terms of Psychological capital.

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Identity Construction Work of Chinese Migrant Workers: From Negotiating Dagongzhe Identity to Personal Identification

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Despite the increasing awareness of China's migrant workers and their continued suffering, there has been scant research on how migrant workers see themselves and how they construct their social identity or dagongzhe identity and their personal identification. Drawing on an inductive, qualitative study, we develop a coherent theoretical model of dagongzhe identity in three dimensions: comparison self which consists of reference groups and role models; relational self which consists of laoxiang, friends, and workplace; and reflectivity self which consists of life-planning, mianzi and guanxi. We depict how migrant workers make the self-adjustment and internalize their social identity through threat-focus personal identification (PI) path as the newcomer in a new organizational context; opportunity-focus PI path when they become the skillful workers; closeness-focus PI path when they are stirred to the new venture. Through three PT paths, we unpack the dynamic interplay between sensebreaking, sensemaking, enacting identity and constructing identity narrative. We conclude with a discussion of how our study contributes to the literature of social identity and personal identification in low-income and low-status group who experience transition and constant strains, as well as implications for future research and practice.

Keywords: Migrant workers, identity construction work, identity components
personal identification

Challenges in Conducting Training Need Analysis - Faced by Small and Medium-sized Enterprises (SMEs) in Malaysia

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Abstract

Conducting Training Needs Analysis (TNA) is a critical process for Small and Medium-sized Enterprises (SMEs) in Malaysia to identify and address skill gaps within their workforce. This abstract explores the challenges faced by SMEs in Malaysia when undertaking TNA, shedding light on the unique obstacles that hinder effective employee development strategies. SMEs in Malaysia encounter financial constraints as a primary challenge in conducting TNAs. Limited budgets often restrict the resources allocated for comprehensive analyses, hindering the ability to identify specific training needs accurately. Additionally, a lack of awareness among SMEs about the importance of TNAs exacerbates the challenge. Many SMEs may not fully grasp the transformative impact TNAs can have on employee performance and overall business competitiveness. Resource and expertise constraints further impede TNAs in SMEs. Unlike larger corporations, SMEs may lack dedicated human resource departments or experts capable of designing and implementing robust TNA processes. This dearth of in-house expertise poses a significant challenge in developing effective training programs tailored to the organization's unique requirements. Regulatory compliance adds another layer of complexity to TNAs in Malaysian SMEs. Different industries have specific training requirements and standards, and ensuring compliance with these regulations demands additional resources and time. The intricate nature of compliance often deters SMEs from conducting thorough TNAs. Geographical constraints also play a role, particularly for SMEs in remote or rural areas. Limited access to training providers and educational institutions poses challenges in implementing TNAs effectively, impacting the availability and quality of training programs. To address these challenges, a multi-faceted approach is recommended. Government support, in the form of financial incentives or grants, can alleviate budgetary constraints. Awareness campaigns can educate SMEs about the transformative potential of TNAs. Collaborative initiatives between SMEs and educational institutions can provide the expertise needed for robust TNAs. Moreover, digital solutions can overcome geographical barriers, enabling SMEs to access training resources more efficiently. By addressing these challenges, SMEs in Malaysia can conduct more effective TNAs, paving the way for targeted and impactful employee development initiatives.

Keywords: Training need analysis, Small and Medium Enterprises (SMEs), Challenges, Malaysia

Introduction

The COVID-19 pandemic is one of the worst disasters since the Great Depression (Sohrabi, 2020). It has affected production, operation, customer service, innovation, business model, marketing, and logistics. The need to upskill and reskill employees has also been influenced. While affected countries quickly provided relief packages and financial support for education and training to displaced workers, they also took other steps. Every nation's economic recovery depended on how well its workforce competed in a shifting labour market. Companies have to meet sales goals despite the pandemic. It was vital to ensure that personnel had the skills and tools to improve and adapt to company difficulties. During the epidemic, nearly 100 countries provided monies to train and retrain their workers (Nicola et al., 2020). Levinson (2018) defines manufacturing as the creation or transformation of physical, chemical, and mechanical materials into new commodities. Manufacturing entails making new products from physical, chemical, and mechanical materials (Levinson, 2018).

In this case, manufacturing companies' development and achievement defined that the economic sector's advancement, operated as one of the primary determinants in deciding a country's national wealth (Roos, 2016). Accordingly, to the preceding statement, it was critical for manufacturing companies to have professional management and employees who can act as central pillars in ensuring the relevance of those organisations in competing with their business competitors towards success in that specific field. In other words, employees were expected to be skilled and highly qualified, with good knowledge, abilities, attitudes, and values that will improve their performance level in accomplishing the duties and functions assigned to them within the scope of their employment (Nurmahmudah & Putra, 2020).

As a result, these organisations have identified staff training programs as essential for sustaining the performance level of employees. Talent in the industry is an asset that assists the organisation in implementing its strategy and achieving its objectives. They are the ones who have completed the tasks efficiently and effectively, as well as the source of innovation and originality. An employer recognises the significance of its employees in achieving its objectives and goals; it requires a highly competent, skilled, and educated or trained workforce (Nurmahmudah & Putra, 2020). This competitive environment has compelled companies to strengthen their employee-related techniques to develop and maintain an aggressive advantage, with outperforming competitors as the goal (Villardón-Gallego et al., 2020). To maintain an aggressive or competitive advantage, an organisation must ensure its employees constantly learn and grow through training.

As shown in Table 1.1, the amount spent by the global training industry in 2020 was over \$357.7 billion. Organisations in North America spent about \$122 billion on training each year. (Patel, 2010). Consequently, North America spent \$165.3 billion on training, while the rest of the world spent \$192.4 billion (Training Industry Report, 2020).

Table 1.1 The Reduction in Allocation of Training Budget in 2020 because of the COVID-19 Pandemic

Year	Global Spend (USD)	North America (USD)	Rest of World (USD)
2020*	\$357.7B	\$165.3B	\$192.4B
2019	\$370.3B	\$169.4B	\$200.9B
2018	\$366.2B	\$166.8B	\$199.3B
2015	\$355.6B	\$160.0B	\$195.6B
2010	\$271.1B	\$122.0B	\$149.1B

Source: Training Industry Report (2020)



Figure 1.1 HRD Corp Training Spending in Malaysia
Source: HRD Corp (2021)

Figure 1.1 illustrates the expenditure dedicated to training in Malaysia. It shows that the amount spent on training in 2020 was RM475 million. The levy collected in 1993 was RM55 million, which climbed to RM485 million by 2021. In 1993, there were only five officially recognized

training providers. However, the number of registered training providers experienced a remarkable expansion over time. It grew from five in 2000 to a staggering 6,873 in 2021. Alongside this growth, there was a significant increase in the number of registered employees. The count rose from 368 in 1993 to 33,960 in 2021.

Figure 1.2 illustrates the notable expansion of Micro, Small, and Medium Enterprises (MSMEs) in Malaysia between 2016 and 2021. Based on the most recent data released by the Department of Statistics, Malaysia (DOSM), the Malaysia Statistical Business Register (MSBR) reveals that there was a total of 1,226,494 micro, small, and medium enterprises (MSMEs) in 2021. These MSMEs accounted for 97.4% of the overall establishments in Malaysia. This indicates a rise of more than 140,000 enterprises in comparison to the 1,086,157 micro, small, and medium-sized enterprises (MSMEs) recorded in 2016, illustrating an average annual growth rate of 5.2% during the span of six years.

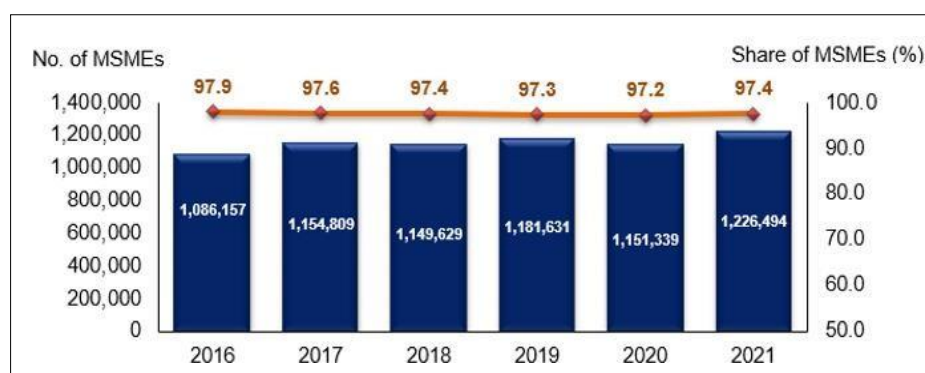


Figure 1.2 Number of MSMEs from 2016 -2021
Source: Department of Statistics, Malaysia (DOSM)

Upon analysis of the primary economic sectors, it becomes apparent that the services sector consistently maintains a dominant position within the micro, small, and medium enterprises (MSMEs) landscape, accounting for more than 80% of all MSMEs during the entire period under examination. According to the most recent MSMEs profile for the year 2021, as illustrated in Figure 1.3, the services sector constituted a significant proportion of 83.8%, comprising 1,028,403 firms. Subsequently, the construction industry emerged as the second most significant contributor, accounting for 8.0% with a total of 98,274 firms. The manufacturing sector constituted approximately 5.8% of Micro, Small, and Medium Enterprises (MSMEs), which is equivalent to a total of 71,612 firms. The agricultural sector exhibited a growth rate of 1.9%, encompassing a total of 23,633 firms. In contrast, the mining and quarrying sector contributed a mere 0.4% to the overall economy, consisting of 4,572 firms.

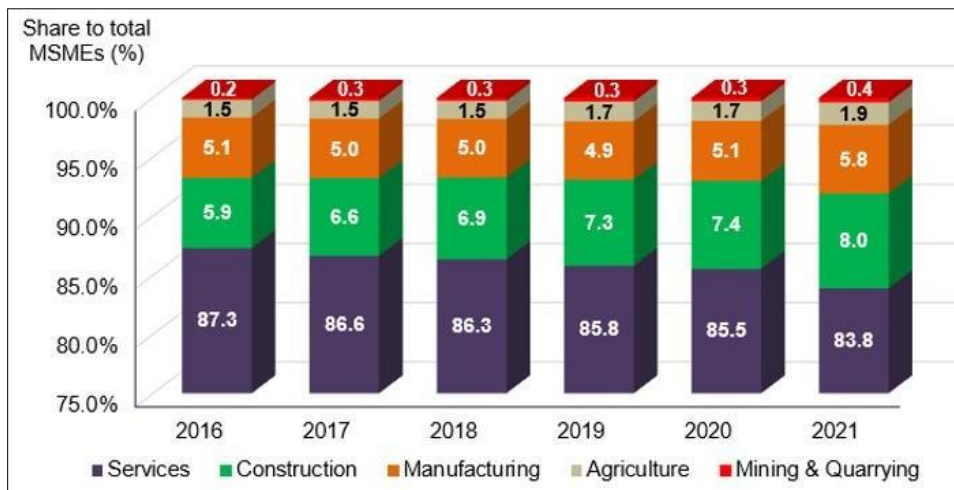


Figure 1.3: Share to the total number of segmentations
Source: Department of Statistics, Malaysia (DOSM)

When considering business size, microenterprises stood out as the predominant segment within the MSME landscape, representing the largest share. From 2016 to 2021, there was a notable increase of over 150,000 microenterprises, indicating an average annual growth rate of 5.6%. Examining the composition in 2021, as shown in Figure 1.4, microenterprises accounted for a significant 78.6% of the total MSME establishments, amounting to 964,495 firms. Small-sized firms constituted 19.8% (242,540 firms), while medium-sized MSMEs accounted for the remaining 1.6% (19,459 firms).



Figure 1.4: The percentage of share to total of Micro, Small, and Medium Enterprises in Malaysia

Source: Malaysia Statistical Business Register, Department of Statistics, Malaysia (DOSM)

Malaysia's economy relies on SMEs for growth, job generation, and innovation. SMEs in Malaysia, like others elsewhere, face many training issues. Effective training improves SME

labour skills, productivity, and competitiveness. This introduction will discuss Malaysian SMEs' training problems.

SMEs in Malaysia consist of companies with fewer than 250 people and operate in manufacturing, services, retail, and technology. Training has many benefits, but SME-specific challenges make it difficult to implement.

This introduction will prepare us to examine these difficulties and their effects on Malaysian SMEs. Understanding these difficulties helps stakeholders—government agencies, industry groups, training providers, and SMEs—develop strategies and solutions to empower and assist SMEs in their training efforts. Meeting these problems can make Malaysia's SME sector more skilled and competitive, boosting its long-term economy.

Literature Review

The difficulties that Malaysia's Small and Medium-sized Enterprises (SMEs) have in organising and carrying out training programmes are a subject of considerable interest and cause concern. This is because SMEs play such an important part in the overall economic growth of the country. A survey of the relevant literature reveals various widespread obstacles that small and medium-sized enterprises (SMEs) in Malaysia face in their efforts to train their employees, including the following:

Most small and medium-sized enterprises (SMEs) in Malaysia struggle mostly due to limited financial resources. According to research, many small and medium-sized enterprises (SMEs) work with constrained resources, making it challenging to allot cash for training and development programmes. According to Othman et al. (2015), this limitation frequently leads to a lack of investment in the training of staff members. Many small and medium-sized businesses (SMEs) may not have a complete understanding of the advantages of training and its potential to increase employee performance and the overall competitiveness of the organisation. According to Zin et al. (2014), a lack of awareness like this can result in reluctance to spend in various training efforts. Many small and medium-sized enterprises (SMEs) do not have their own specialised training departments or the in-house knowledge necessary to effectively plan, deliver, and evaluate training programmes. According to Wan et al. (2016), the development of training efforts can be hampered when there are insufficient qualified trainers or training resources. Training and development are subject to legislation and requirements that are specific to Malaysia's many industries. According to Sulong et al. (2017), ensuring compliance with these requirements can be a substantial problem that requires additional resources, time, and effort from small and medium-sized enterprises (SMEs). Small and medium-sized enterprises (SMEs) frequently make do with small teams, with individuals assuming a variety of responsibilities. Finding the time to participate in training might be difficult because it can interfere with day-to-day operations and reduce overall productivity (Aziz et al., 2016). According to Kaur and Mehrotra (2013), geographical limitations can be a restricting issue, particularly for small and medium-sized enterprises (SMEs) located in remote or rural areas of Malaysia, where access to training providers, educational institutions, and resources may be limited. Employees may sometimes be resistant to training programmes because they perceive them to be an imposition or additional strain of work on their shoulders. According to Zulkifli et al. (2018), overcoming the reluctance of employees and gaining their active engagement might be a significant problem. Small and medium-sized businesses frequently lack the resources and the expertise necessary to

evaluate the efficiency of their training programmes. According to Razali and Roslan (2015), it might be difficult to assess whether an investment in training is producing the desired benefits if the evaluation process is not carried out properly. Small and medium-sized businesses that have high employee turnover rates have a particular difficulty. According to Chin et al. (2013), if people leave a company quickly after obtaining training, it can give the impression that investments in training were in vain. This results in a loss of both financial and human resources. These difficulties are not mutually exclusive and frequently cross, creating a challenging environment for small and medium-sized enterprises (SMEs) in Malaysia that are attempting to deliver effective training to their workforce. To effectively address these difficulties, a multi-pronged strategy that includes collaboration between large and small businesses, government agencies, trade organisations, and training providers is required. It is vital to overcome these challenges to improve the competitiveness and sustainability of small and medium-sized enterprises (SMEs) in Malaysia, which will ultimately contribute to the expansion and growth of the Malaysian economy.

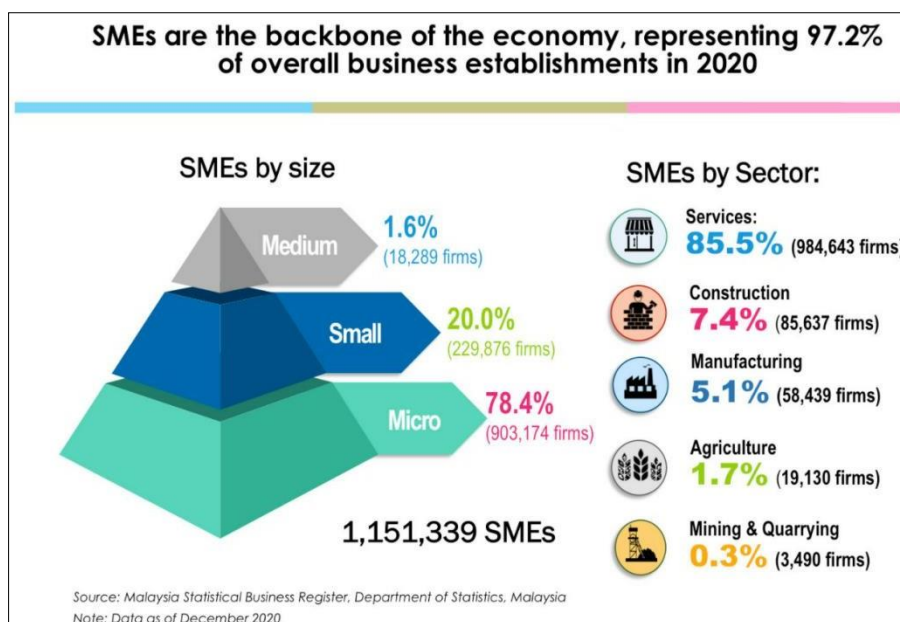


Figure 2.1: MSME by Sector

Source: Economic Census Department of Statistics Malaysia (2020)

As shown in Figure 2.1 above, MSMEs are the backbone of the economy of the respective countries. In Malaysia 97.2% of the business establishments are MSMEs comparing with all the other sizes and sectors. As reported by the Department of Statistics Malaysia, in 2020, the census shows that there are 18,289 medium scale MSMEs which is contributing to 1.6%, 229,876, small MSMEs which is contributing to 20.0% and finally 903,174 Microenterprises which is the largest contributing to 78.4%, where in total having 1,151,339 establishments (Department of Statistics, Malaysia).

When examining the various sectors, it becomes evident that the service sector is the largest, comprising 85.5% of the total, which equates to a substantial 984,643 MSMEs. The second-largest sector is construction, accounting for 7.4% and totaling 85,637 MSMEs. Following closely is the manufacturing sector, representing 5.1% and amounting to 58,439 MSMEs. The

agriculture sector occupies the fourth position with 1.7%, encompassing 19,130 MSMEs. Lastly, the mining and quarry sector has the smallest share at 0.3%, with a modest 3,490 MSMEs. To foster a robust economy in Malaysia, relying heavily on critical industries is essential (Razak et al., 2018). These industries heavily rely on the availability of a skilled and knowledgeable workforce to produce profitable goods. The key to developing a workforce of this calibre is to implement effective training programmes. These industries can provide their staff with the competencies, skills, and knowledge required to successfully perform the demands of their roles by investing in thorough and focused training programmes. Employees can develop their critical thinking and problem-solving skills, acquire specialised technical skills, and stay current on industry advancements through training. Additionally, training programmes can promote a culture of lifelong learning, promoting employee engagement, motivation, and adaptability in a business environment that is rapidly changing. By placing a high priority on training and development, these sectors can not only improve productivity and quality but also draw in and keep top talent, ultimately boosting their competitiveness and long-term success. Consequently, the significance of training in manufacturing becomes evident in the pertinent literature. Training serves multiple purposes, ensuring that new employees are adequately prepared for their positions (Chin & Lim, 2018). Consequently, this study investigates the significance, nature, application, and challenges of Training Needs Analysis (TNA) in the context of manufacturing companies in Johor, Malaysia.

Fragala et al., (2020) investigated the relevant literature and discovered that most academics concurred on the need of conducting a pre-need analysis before to beginning the training process. This was one of the findings of their investigation. The research conducted by Ganefri et al. (2020) emphasises how important it is to coordinate the organization's training requirements with its long-term strategic goals to maximise the efficiency of training programmes. The research, on the other hand, has considered the engagement of key stakeholders in the process of identifying training requirements and the roles that these individuals ought to play to enable the formulation of efficient training plans. The results of the TNA process will be incorrect, and the "buy-in" strength of the TNA will be lacking if key stakeholders in the process do not commit to and participate actively in the TNA process. It is not only the responsibility of those working in the departments of Training or Human Resources; rather, it is everyone's responsibility to make sure that they are adequately trained. Even while numerous organisations assert that they carry out some kind of needs assessment, the methodologies that they use might not be suitable. Because of this, it is of the utmost importance to analyse whether organisations participate in TNA, how they conduct themselves, and whether their activities are consistent with the beliefs and goals of TNA. According to Ganefri et al.'s definition from 2020, TNA is "the factor that truly contributes to producing the required results from the analysis that has been found because of the diagnostic work carried out in the organisation, task, and person." There is no indication in the available research that TNA adheres to a certain definition.

Several authors, like Ayvaz-Tuncel and Obanolu (2018), have emphasised how important training requirement analysis is to the overall performance of a company.

Within the TNA, there are four distinct roles: The process of determining an organization's training requirements may be utilised as a training and development tool for strategic activities. When designing the TNA, the "3 W" questions can be answered, which are "where," "what," and

"who." TNA enables accurate budgeting as well as the planning and carrying out of evaluations in an efficient manner.

The planning for the TNA includes the following three process elements: As was discussed in earlier literature publications, the first step in the process is an organisational analysis. During this step, the process determines the requirements in the job performance or the requirements inside the organisation to assist with utilising the existing resource. This is basically to develop its personnel by giving the appropriate training, completing the requirements of the organization's aims and objectives, and meeting the requirements of the organisation. In addition to this, it is for the purpose of enhancing the quality as well as the productivity of the production process of the products and services (Rajan, 2018).

According to Ayvaz-Tuncel and obanolu (2018), the second process is known as operational analysis. In some articles, this process is also referred to as task analysis. During this process, the training elements or needs needed for an employee to efficiently carry out their job, task, or even their project are determined.

(Ayvaz-Tuncel & obanolu, 2018) The third procedure, which is known as the person or individual analysis, identifies the employee work performance as well as the level of the employee's abilities, knowledge, and attitude in carrying out their job. Numerous scholars have compiled evidence to back up the assertion that the TNA plays an important part in determining the level of success that training programmes achieve within a business. If the training programmes do not have an appropriate TNA, then they will not be able to achieve the level of success that they should. TNA possesses a diverse set of characteristics, as established by the results of the prior inquiries into the matter. To provide a summary, the strategic TNA process, full participation from top management and supervisors, financial budgeting and support from the management, expert trainers, proper data collection in the organisation, adequate data analysis method, selection of participants or employees, and a written HRD policy and direction are all essential components (Mazhisham et al., 2018).

Methodology

To gain a deeper understanding of the challenges faced by Small and Medium-sized Enterprises (SMEs) in Malaysia when conducting training activities, a literature review methods approach is proposed. This approach combines many articles research methods, enabling a comprehensive exploration of the topic.

The purpose of this article is to cover literature related to challenges in Training Need Analysis and they were examined use focal phenomenon. The main goal of this analysis study is not to identify the relationship of the research, but to observe and classify the type of challenges in the SMEs. The related articles were found in Google scholars database, with the keywords used; "training need analysis", "challenges", "SMEs" and "Malaysia"

Challenges in Conducting Training Activities

One of the most significant challenges faced by SMEs in Malaysia is the constraint of financial resources. SMEs often operate on tight budgets, which makes it challenging to allocate funds for training activities. The cost of training, including course fees, materials, and potential employee

downtime, can be a significant burden for these businesses. Many SMEs in Malaysia lack a comprehensive understanding of the importance of training and its potential benefits. This lack of awareness can lead to a reluctance to invest in training programs. SME owners and managers may not fully grasp how training can improve employee skills and contribute to the growth and competitiveness of the business. SMEs frequently lack the necessary in-house expertise and resources to design, develop, and deliver effective training programs. They may not have dedicated training departments or access to trainers with the required skills and knowledge. This constraint can hinder the development of training initiatives. Malaysia has specific regulations and requirements in various industries related to training and development. Ensuring compliance with these regulations can be a time-consuming and resource-intensive process, adding to the challenges faced by SMEs in delivering proper training. SMEs typically operate with lean teams, and employees often wear multiple hats. Finding time for training can be a significant challenge, as it may disrupt daily operations and affect overall productivity. SMEs need to balance the need for training with their day-to-day business demands. Geographical constraints can limit access to training providers, educational institutions, and resources. SMEs in remote or rural areas may struggle to access training programs, workshops, or institutions, thereby limiting their employees' skill development opportunities. In some instances, employees may resist training initiatives, perceiving them as an imposition or an added workload. Overcoming employee resistance and convincing them of the value of training can be a significant challenge for SMEs. SMEs often lack the tools and expertise to assess the effectiveness of their training programs. Without proper evaluation, it can be difficult to determine whether the investment in training is delivering the expected results. This lack of evaluation may lead to continued inefficiencies in training. SMEs may face higher turnover rates than larger enterprises. This can be a challenge because investments in training may seem futile if employees leave shortly after receiving training. SMEs may struggle to retain skilled employees, leading to a loss of both financial and human resources. In an era of increasing digitalization and technology advancement, some SMEs may find it challenging to keep up with technology-related training. Staying updated with the latest technological trends and providing relevant training to employees can be a considerable obstacle.

These challenges collectively pose significant hurdles for SMEs in Malaysia when it comes to conducting effective training activities. Addressing these challenges requires a holistic approach involving government support, industry associations, training providers, and the SMEs themselves to develop strategies and solutions that promote training and development in the SME sector.

Impact on SME Performance

The challenges faced by Small and Medium-sized Enterprises (SMEs) in Malaysia in conducting training activities can have a significant impact on their overall performance and competitiveness. These challenges affect various aspects of SME operations, which, in turn, influence their performance in the following ways: Insufficient training can lead to lower employee productivity and efficiency. Without the necessary skills and knowledge, employees may take longer to complete tasks, make more errors, and be less efficient in their work. This reduced productivity can directly impact SME performance. Training is essential for fostering innovation and adaptability within SMEs. Without training, employees may lack the skills needed to adapt to new technologies and business trends. This can hinder the SME's ability to

innovate and stay competitive in a rapidly changing market. Inadequate training can result in a less skilled and less competitive workforce. This, in turn, can limit the SME's ability to compete effectively with larger companies and other SMEs that invest more in employee development. High turnover due to a lack of training and skill development can be costly for SMEs. The expense of recruiting and training new employees, coupled with the loss of institutional knowledge, can harm SME performance and profitability. Poorly trained employees may produce lower-quality products or services, negatively impacting the SME's reputation and customer satisfaction. This can lead to decreased sales and market share. Failure to provide proper training can result in non-compliance with industry regulations and safety standards. This can lead to legal issues, fines, and reputational damage, affecting the SME's financial health and performance. Inefficient operations due to untrained employees can result in higher operational costs. These increased costs can erode profit margins and make the SME less competitive. SMEs that lack trained employees may find it challenging to expand into new markets or diversify their product or service offerings. This limitation can hinder the potential for growth and expansion. Customer service is a critical aspect of SME success. Insufficiently trained employees may not provide the level of service that customers expect, leading to customer dissatisfaction and potential loss of business. The ability of an SME to weather economic downturns and market challenges is closely tied to the skills and capabilities of its workforce. Well-trained employees are more adaptable and resilient, helping the SME navigate difficult times effectively.

In summary, the challenges faced by SMEs in Malaysia in conducting training activities can have a multifaceted impact on their performance. From reduced productivity to increased costs and decreased competitiveness, these challenges can hinder the overall growth and sustainability of SMEs. To enhance SME performance, it is crucial to address these challenges by investing in effective training and development programs. This investment can lead to a more skilled, adaptable, and competitive workforce, ultimately benefiting the SME's bottom line and long-term success.

Solutions and Best Practices

The Malaysian government can provide financial incentives, grants, or subsidies to SMEs to facilitate their investment in training activities. Tax incentives or grants for skill development programs can help alleviate financial constraints. Conduct a thorough training needs assessment to identify specific skill gaps within the organization. This ensures that training programs are tailored to address the most critical areas of improvement. SMEs can collaborate with industry associations or other SMEs to share training resources and costs. This can be especially beneficial for businesses with limited resources. Embrace e-learning platforms and digital training tools to make training more accessible and cost-effective. Online training can be conducted at employees' convenience, reducing the disruption to daily operations. Invest in training programs that are customized to the specific needs of the SME. Tailored training ensures that resources are used effectively and efficiently. Malaysia has various government-supported training institutions and agencies that offer cost-effective training programs. SMEs can take advantage of these resources to access training expertise and facilities. Foster a culture of continuous learning within the organization. Encourage employees to take ownership of their development and recognize and reward their efforts in acquiring new skills. Establish clear key performance indicators (KPIs) to evaluate the effectiveness of training programs. Regularly assess and adjust training initiatives based on their impact on employee performance and

business outcomes. Implement mentorship and coaching programs within the organization to transfer knowledge and skills from experienced employees to newer ones. This can be a cost-effective way to enhance skills and knowledge. Provide flexible training schedules to accommodate employees' work commitments. Offer options such as evening or weekend training sessions to minimize disruption to daily operations. Establish partnerships with industry experts, educational institutions, or training providers. Collaborative efforts can result in more cost-effective and relevant training solutions for SMEs. Take advantage of government-supported apprenticeship programs, which can provide SMEs with skilled workers while offering on-the-job training opportunities. Engage employees in the training process and communicate the benefits of training. Involve them in setting training priorities and goals, making them more receptive to training initiatives. Continuously monitor the progress of employees after training and provide ongoing support to reinforce learning. Follow-up and reinforcement activities are essential for long-term retention of skills. Regularly assess and adapt training strategies based on changing business needs, technological advancements, and market conditions. The process of improvement should be ongoing.

In addressing the challenges faced by SMEs in Malaysia when conducting training activities, a combination of these solutions and best practices can be tailored to suit the unique needs of each SME. By fostering a culture of learning, utilizing government support, and implementing cost-effective training solutions, SMEs can enhance their competitiveness and overall performance.

Case Studies

Certainly, here are a couple of hypothetical case studies that illustrate the challenges faced by Small and Medium-sized Enterprises (SMEs) in Malaysia when conducting training activities:

Case Study 1: XYZ Manufacturing Sdn Bhd

XYZ Manufacturing is a medium-sized enterprise in Malaysia, specializing in the production of precision components for the automotive industry. The company has been struggling with several challenges in conducting training activities:

Challenge 1: Limited Financial Resources

- XYZ Manufacturing operates on a tight budget due to fluctuating market demands and rising raw material costs. Investing in employee training programs seems financially burdensome, leading to an inadequately skilled workforce.

Solution:

- XYZ Manufacturing decided to explore government grants and subsidies available for SMEs to invest in employee training. They collaborated with the Malaysian Investment Development Authority (MIDA) to secure funding for a series of technical and managerial training programs.

Challenge 2: Regulatory Compliance

- The automotive industry in Malaysia is highly regulated, with stringent quality and safety standards. Ensuring that employees receive the necessary training to meet these standards is challenging.

Solution:

- XYZ Manufacturing partnered with a local technical institute known for its automotive training programs. They developed a customized training curriculum that aligns with industry regulations. This not only ensures compliance but also enhances product quality and safety.

Case Study 2: ABC Tech Solutions Sdn Bhd

ABC Tech Solutions is a small IT services company in Malaysia, offering a range of software and hardware solutions. They have encountered distinct challenges when conducting training activities:

Challenge 1: Employee Resistance

- Many employees at ABC Tech Solutions were resistant to training. They perceived it as an added workload, as their daily tasks were already demanding.

Solution:

- To address this challenge, ABC Tech Solutions initiated a communication campaign to raise awareness of the benefits of training. They shared success stories of employees who had benefitted from training, and they also involved employees in setting training priorities to make the process more engaging.

Challenge 2: Limited In-house Expertise

- ABC Tech Solutions lacked the in-house expertise to design and deliver specialized technical training on the latest IT solutions.

Solution:

- The company collaborated with a local IT association, which offered access to industry experts. They set up a mentorship program where experienced IT professionals provided on-the-job training to junior staff, bridging the skills gap.

Challenge 3: High Turnover Rates

- ABC Tech Solutions faced significant employee turnover due to competitive offers from larger IT firms. This resulted in a loss of trained employees.

Solution:

- ABC Tech Solutions decided to focus on talent retention by offering career development pathways and opportunities for employees to grow within the organization. By providing a clear trajectory for advancement, they were able to reduce employee turnover and retain trained talent.

These case studies highlight how SMEs in Malaysia can identify and address challenges in conducting training activities through creative solutions and strategic collaborations. Each SME's unique circumstances require tailored approaches to enhance employee skills, compliance, and overall competitiveness.

Future Directions and Policy Recommendations

Given the increasing digitalization of workplaces, there is a need to encourage SMEs to adopt digital and online training solutions. Government policies can support the development and adoption of e-learning platforms and tools, making training more accessible and cost-effective for SMEs. Government and industry associations can facilitate collaboration among SMEs to share training resources and expertise. Establishing industry-specific training consortiums or clusters can be beneficial in addressing common challenges and reducing costs. The government should consider providing grants specifically for customized training programs tailored to the needs of individual SMEs. This approach ensures that training investments are well-aligned with each business's unique requirements. Develop policies that encourage experienced industry professionals to engage in part-time training roles, facilitating knowledge transfer and skill development within SMEs. Simplify and streamline regulatory compliance requirements for SMEs in various industries, including by offering clearer guidelines and assistance for meeting training-related standards. Implement incentive programs for SMEs that prioritize employee training. These incentives can include tax breaks, grants, or preferential loan terms for businesses that demonstrate commitment to enhancing employee skills. Expand and promote apprenticeship programs that offer hands-on training opportunities for SMEs, providing a skilled workforce while reducing the cost of training. Government agencies can facilitate the accreditation and certification of SME training programs to ensure that they meet industry standards. This recognition can enhance the credibility of SME training initiatives. Develop a standardized framework for evaluating the effectiveness of training programs in SMEs. This framework should include Key Performance Indicators (KPIs) that measure the impact of training on employee performance and business outcomes. Raise public awareness about the importance of SME training by conducting campaigns and seminars. Promote success stories to inspire SMEs to invest in employee development. Encourage SMEs to integrate training and development as an integral part of their business plans. This could be a requirement for accessing certain benefits or grants. Establish regional training centres that cater specifically to the training needs of SMEs. These centres can offer affordable, high-quality training programs and resources. Invest in research to better understand the evolving training needs of SMEs in different sectors. Regular data collection and analysis can inform future policies and initiatives. Develop support networks where experienced SMEs can mentor and share best practices with newer SMEs, including guidance on effective training strategies. Encourage SMEs to view training as a long-term investment rather than a short-term cost. Promote strategies that foster continuous learning and development within the workforce.

These policy recommendations and future directions aim to create an environment in which SMEs in Malaysia can more effectively address the challenges associated with training activities. By adopting a comprehensive approach that combines financial incentives, regulatory support, and a culture of continuous learning, SMEs can enhance their competitiveness and contribute to the country's overall economic growth.

Conclusion

Given the increasing digitalization of workplaces, there is a need to encourage SMEs to adopt digital and online training solutions. Government policies can support the development and adoption of e-learning platforms and tools, making training more accessible and cost-effective for SMEs. Government and industry associations can facilitate collaboration among SMEs to

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Track 7: Information Management

[ID:58]

Cognitive Misunderstandings and Theoretical Analysis on Big data

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Since the amount of global big data surged to ZB scale in 2013, there have been some major misunderstandings about the nature and the current state of big data. There are also some vague conceptions, important omissions, and inaccurate definitions made by authoritative organizations about the essential relationship and strategic development positioning between big data and the Internet. This article clarifies those cognitive errors from historical and theoretical perspectives. Meanwhile, given the lack of awareness for the importance of the impending technological infrastructure and strategic transformation, the article briefly introduces one of the most influential emerging technology fields, the AI orientated Metaverse, revealing the disruptive roles it will play, and the next generation Internet it represents.

Keyword: Big data, The Internet, Blockchain, AI, Metaverse, Cognitive errors
Strategic omissions

Track 8: International Business, Regional Development and Geopolitics

[ID: 21]

Estimating the degree of globalization of enterprises: methodological concepts and empirical study

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Abstract

The aim of the paper is to develop a methodology for estimating the degree of internationalization of companies and, more specifically, their degree of globalization. This methodology will allow us to apply it in an empirical study based on Swiss MNEs. Due to the small size of the Swiss market, companies are highly internationalized, but it is not clear whether they operate on a global scale or whether they are mainly concentrated in a few countries or regions of the world. Although many studies focus on the phenomenon of enterprise globalization (e.g. Fisch and Oesterle, 2003; Rugman and Verbeke, 2004; Vahlne and Ivarsson, 2014; Marshall et al., 2020; Rosa et al., 2020), as Eschmann(2023) notes, “the diversity of approaches and indicators reflects the fact that the understanding of the globalization phenomenon remains uncomplete”. One of the main reasons is the lack of a definition commonly accepted by the scientific community (Verbeke et al., 2018). our study will analyse the upstream and downstream indicators of globalization that can be detected in the literature such as the sales, the assets, employment and R&D. Next, we will take inspiration from the main methodologies for estimating the intensity of corporate globalization in order to examine the case of the largest Swiss companies. The main approaches are provided by Rugman and Verbeke (2004 and 2008). To our knowledge, no study has been based on a set of the above four indicators. They are essentially limited to one track and two indicators only.

Key words: MNEs, Internationalization, globalization.

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Regional Development with NextGeneration EU and in EU projects implemented in Slovakia

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The article provides an insight into the new NexGeneration EU Strategy transiting from old 2014-2020 EU programme period facing risks, obstacles in EU region, following territorial strategy. Comparative analysis beyond past and future “Plans of New Structuralisation” are describing major comparison and risks between EU sustainability and EU project related issues. Analysis focus on challenges about the Sustainable transition between two Programming periods standards and evoke collaboration before and after 2020 to predict current trends influenced by pandemic and potential EU sustainability risks in terms of EU project implementation, realization, monitoring and strategies. Added value of research is resulting possible collaboration possibilities by measuring gap in economic and demographic development in EU, Slovakia’s regions influenced after COVID-19 pandemic in the era of new programme period of the EU 2021-2027. As for specific new generation example research provides wide potential of Calls for proposals based on needs, addresses specific needs of Sectors, Ministries, Geopolitics, Regional Sustainability for example in INTERREG HU SK. The aim of the article is to present potential project implementation crisis and to tackle common challenges together and find shared solutions in other EU member states based NextGenerationEU plan implemented in Slovakia. Moreover, in the field of healthcare, research and education, transport, or sustainable energy, economy provide research based data analysing Risk management categories as part of specific EU development strategies. Next Interreg programmes, funded by the European Regional Development Fund support the harmonious development of the European Union's territory at different levels and started their new programme period just currently with new Calls of proposals, strongly reacting on Priority Axis as Joint Risk Management and Social Cooperation, reacting properly on the after-pandemic status of EU crisis. NextGenerationEU is more than a recovery plan, chance to emerge stronger from the pandemic, transform of EU economies,

create opportunities and jobs for the Europe where the vision to invest together €806.9 billion can make Europe greener, more digital and more resilient.

Keywords: Regional development, project implementation, NexGenerationEU, territorial strategy, EU cohesion

Adapting the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) to the Acceptance of Public Policies.

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ABSTRACT

The understanding of how people accept and embrace new policies is vital in today's world. This paper introduces an original way of looking at this by adapting the widely recognized Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2). The goal is to provide a foundational model for assessing policy acceptance. More specifically, we adapted the UTAUT-2 framework to study how Macau residents perceive the "Northbound Travel for Macau Vehicles" policy, which allows cars with Macau registration plates to enter China. Using structural equation modeling software (SmartPLS), we analyze data collected from 136 respondents who experienced the policy. Our findings reveal that Performance Expectancy (PE) and Habit (HB) significantly influence individuals' intention to take advantage of the policy. In other words, people are more likely to embrace policies they perceive as beneficial and that align with their existing habits. Effort Expectancy (EE) and Facilitating Conditions (FC) do not significantly impact acceptance, perhaps as a result of participants' familiarity with the policy and their resource availability. Surprisingly, while not directly tied to usage, Social Influence (SI) shows a high mean value, suggesting its potential role in policy acceptance when influential individuals adopt the policy. This pioneering research contributes to the field by bridging the gap between technology acceptance models and

policy studies. Most importantly, it validates the use of the UTAUT-2 as a technology framework that is adapted for assessing policy acceptance.

Key Words: Policy Acceptance, Policy Adoption, UTAUT-2, Economic Development, Policy acceptance factors, Public policy implementation.

1. INTRODUCTION

Technology has revolutionized the way we live, work, and interact with others, becoming an integral part of our daily lives. However, studies have shown that new ideas are difficult to accept even if they have obvious advantages (Rogers, 2003), and, in practice, new ideas take a long time to be fully embraced. Similarly, the implementation of public policies faces significant challenges in terms of acceptance and effective use, as individuals often resist adhering to changes that impede their established routines. It is like a city planner making a change to the direction in which cars travel on a specific street; the decision may be unpopular at first, but eventually, people learn to accept the decision.

While a large amount of work has been conducted in the technology field (Venkatesh et al., 2012) there are significant gaps in our understanding of public policy acceptance (Hudson, Hunter, & Peckham, 2019). New models are, therefore, necessary to test the recipients' acceptance of innovative policies. To fill the gap in the literature, it is proposed that a framework that assesses the acceptance of technology can be adapted to examine the acceptance of public policies. More precisely, the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) was adapted to capture the nuances of policy acceptance related to the recently introduced policy in Macau SAR (China) known as "Northbound Travel for Macau Vehicles" (Government Information Bureau, 2022, December 20). As a result of this policy, private motor vehicles registered in Macau can apply to enter mainland China from January 2023. More precisely, the policy allows private, non-commercial vehicles to enter Guangdong Province (China) with only a Macau registration plate. The new procedure replaces the previous stringent requirement of obtaining a double license plate to enter the Mainland. The government intends to create new opportunities for Macau residents in the development of the so-called Guangdong-Hong Kong-Macau Greater Bay Area (GBA) and support Macau's integration into the overall national development plan. As a result of this policy, Macau residents are expected to have easier access to the mainland for short-term business trips, study, work, and travel (Macau Daily Times, 2022, December 21).

This work has implications for policymakers and researchers; it contributes to the understanding of public policy acceptance and substantiates the use of the UTAUT-2 to study this domain.

2. LITERATURE REVIEW

2.1 Review of policy acceptance frameworks

Several frameworks have been proposed over the years to provide insight into policy acceptance and implementation. These frameworks were designed to help understand the factors that lead to successful policy implementation, as well as to identify potential obstacles.

Saglie (1996) conducted a study on Norwegian alcohol policy by examining the mechanisms through which voter preferences were connected to public policy. There are different types of public reactions

to policy decisions analyzed in the study. The consumer model, in which citizens evaluate public policy according to their preferences, the support model, in which citizens tend to follow and support political leaders' decisions, and the discontent model which results in a lower level of citizen acceptance of policy implementation. The author used these dimensions to explain how attitudes toward alcohol policy were changing in Norway. Sang and Lee (2009), studied a Conceptual Model of e-Government Acceptance in the Public Sector which integrated constructs from the Technology Acceptance Model (TAM), the theoretical extension of the TAM (TAM2), the Diffusion of Innovation (DOI), the DeLone and McLean (D&M) IS Success Model, in addition to trust and risk literature to explain the factors influencing government officers' acceptance of e- Government services. PytlikZillig et al. (2018) in a book titled "Deliberative Public Engagement with Science" dedicated a chapter to policy acceptance. Their study focused on identifying factors that predict willingness to accept and support policy decisions. The authors developed twenty constructs to explain process perceptions and attitude coherence. Hu et al. (2021) conducted a study about Mainland China's free independent travelers (FIT) scheme. Under the policy, Hong Kong and Macau travel permits can be obtained by citizens from authorized cities in mainland China through a simple endorsement procedure. As a result, citizens were able to travel independently and stay for up to seven days on a single entry. The authors evaluated Macau residents' perceptions and attitude formation mechanisms regarding the FIT policy. Borrowing from the technology domain, Pierce (2014) in the doctoral dissertation "Extending the Technology Acceptance Model to Policy Acceptance Model", adapted the Technology Acceptance Model(TAM) (Davis, 1989) to analyze the acceptance of new policy implementation. The Policy Acceptance Model (PAM) is centered on two constructs (perceived usefulness and perceived ease of use) that influence the attitude toward using a policy. The design of the Model of e-Government Acceptance in the Public Sector (Sung & Lee, 2009) and the PAM (Pierce et al., 2014) support the notion that models initially created to explain acceptance in the technology domain could also be used to explain policy acceptance. In light of this premise, the next sections will introduce the UTAUT and our conceptual framework.

2.2 UTAUT Theoretical Framework

In 2003, Venkatesh, Morris, Davis, & Davis published what would become one of the most commonly used theories to explain technology acceptance and use. A search in Google Scholar reveals that at the time of writing the original papers "User acceptance of information technology: Toward a unified view" and "Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology" have been cited over 55,000 times altogether in various articles. The Unified Theory of Acceptance and Use of Technology (UTAUT) was developed to synthesize the existing technology acceptance research into a single framework. The authors based the theory on previous studies such as the Innovation Diffusion Theory (IDT) (Rogers, 2003), the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), the Technology Acceptance Model (TAM) (Davis, 1989), and the Theory of Planned Behavior (TPB) (Fishbein & Ajzen, 2011), among others.

The original UTAUT model presents four key constructs, (performance expectancy, effort expectancy, social influence, and facilitating conditions) that impact the behavioral intention to use technologies. In 2012, Venkatesh, Thong, and Xu extended the model to include three constructs (price value, hedonic motivation, and habit) to adapt the theory to a consumer context and named the framework UTAUT-2. Generally, stronger constructs lead to stronger behavioral intentions to accept technology, and consequently, usage behaviors. Based on the extensive research, meta- analysis, and validation of the model in different settings (Lampo, 2022; Tamilmani, et al., 2021), an adapted UTAUT-2 is proposed to test acceptance in the policy context.

3. CONCEPTUAL MODEL

In light of the extensive research in the literature and the results of our preliminary study, most of the UTAUT-2 predictors were considered suitable for adaptation to this study's objectives.

Initially, semi-structured, individual interviews were conducted with three law practitioners about the use of the UTAUT-2 constructs in the policy domain. Participants were provided with an overview of the constructs and invited to discuss their application to a policy context. The gathered responses were similar and confirmed the use of the model for our purpose. In particular, the discussion revealed that two predictors were not relevant to the context. As a result, it was decided to exclude the constructs of Price Value and Hedonic Motivation from our exploratory study. Thus, our conceptual model consists of five constructs (Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, and Habit) that are theorized to positively affect the behavioral intention to use a policy. As a general rule, the stronger each construct, the greater the impact on the intention. According to the model, behavioral intention best predicts how the policy will be used in real-life situations. Each of the constructs is defined in Table 1.

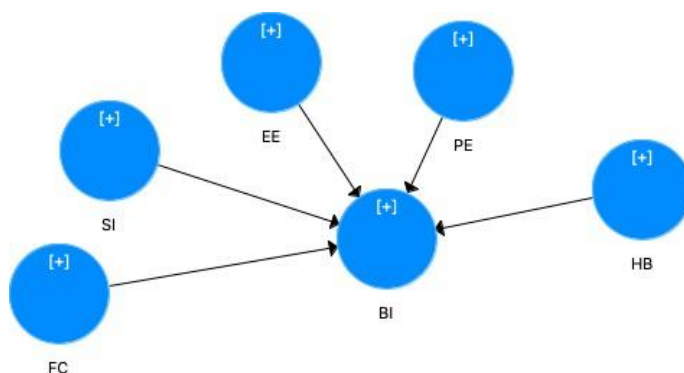
Table 1: Definition of Constructs

Behavioral Intention	(BI)	The extent to which individuals intend to use a policy
Performance Expectancy	(PE)	The degree to which using a policy will provide benefits in performing certain activities.
Effort Expectancy	(EE)	The degree of ease associated with the individuals' use of the policy.
Social Influence	(SI)	The perception of how important others feel about a particular policy.
Facilitating Conditions	(FC)	People's perceptions of the resources and support available for using a policy.
Habit	(HB)	The perception of whether using a policy could become routine behavior.

Definitions adapted from Venkatesh et al. (2012).

According to the literature, each construct is expected to impact the behavioral intention to use a policy in the near future. The conceptual model is illustrated in Figure 1, followed by the list of our research hypotheses in Table 2.

*Figure 1.
(SmartPLS*



*Conceptual Model
output).*

Table 2:
Summary of Hypotheses

H1	A positive and significant relationship exists between Performance Expectancy (PE) and behavioral intention (BI)
H2	A positive and significant relationship exists between Effort Expectancy (EE) and behavioral intention (BI).
H3	A positive and significant relationship exists between Social Influence (SI) and behavioral intention (BI).
H4	A positive and significant relationship exists between Facilitating Conditions and behavioral intention (BI).
H5	A positive and significant relationship exists between Habit (HB) and behavioral intention (BI).

Hypotheses based on Venkatesh et al. (2012).

4. METHODOLOGY

Our study adopted a descriptive and cross-sectional design to explore the behavioral intention of local drivers to accept and use the “Northbound Travel for Macau Vehicles” policy. A self-administered survey with questions adapted from the UTAUT-2 was developed to assess policy acceptance. The survey’s items were measured by a 7-point Likert scale with anchors ranging from 1 (strongly disagree) to 7 (strongly agree) and consisted of 20 items grouped according to their latent variables. Table 3 reports the items used in our study.

Table 3: Survey Items

Performance Expectancy (PE)	PE1	I find [the policy] is useful in my daily life
	PE2	Using [the policy] is beneficial to me
	PE3	Using [the policy] makes my life easier
Effort Expectancy (EE)	EE1	It's easy for me to learn how to use [the policy]
	EE2	[the policy] is clear and easy to understand
	EE3	[the policy] is easy to follow
	EE4	It is easy for me to become an expert in [the policy]
Facilitating Conditions (FC)	FC1	I have the resource necessary to use [the policy]
	FC2	I have the knowledge necessary to understand [the policy]
	FC3	[the policy] is compatible with my lifestyle
	FC4	I can get support if I have problems with [the policy]
Social Influence (SI)	SI1	People who are important to me would use [the policy]
	SI2	People who influence my behavior would think of using [the policy]
	SI3	people I value would think [the policy] is a good idea
Habit (HB)	HB1	The use of [the policy] could become a habit for me
	HB2	Using [the policy] may become a necessity for me.
	HB3	I feel I must use [the policy]
Behavioral Intention (BI)	BI1	I intend to use [the policy] in the near future
	BI2	I predict that I will use [the policy]
	BI3	I plan to use [the policy] soon

The target population included Macau residents, aged 18 or above, who owned a car. The survey also included demographic variables to record the respondents' gender, age, and education. The survey was first developed in English and then translated into traditional Chinese using the back-translation technique (Son, 2018) to facilitate understanding.

GPower (Erdfelder et al., 1996) was used to determine the minimum sample size for the study. Considering multiple regressions (.15 effect size, .05 probability error, .80 power, and five independent variables), the software estimated a minimum sample size of 92 cases.

A pilot test was conducted to identify potential issues. We distributed a preliminary survey to 10 university students and staff from a higher education institution in Macau. Although data from a student sample may not be representative of the real situation, it was relatively convenient to use this approach. This is because the main purpose was to explore the clarity of the questions, rather than the generalizability of the findings. Finally, the survey instrument was considered ready for the fieldwork, and the responses gathered in the pilot test were discarded.

The main study relied on a convenience sampling technique to collect responses in a short amount of time. An online platform was used to administer the survey. The fieldwork ultimately yielded 136 valid and usable responses. Participation was voluntary and no remuneration was offered for taking part in the survey. In addition to being informed of the purpose of the study, all the participants were assured that their answers were anonymous and that only aggregate data would be published.

5. DATA ANALYSIS AND RESULTS

5.1 Details of the Respondents

The respondents were respectively males (62.50%; n=85) and females (37.50%; n=51). The majority of participants were between 25 and 40 of age (58.82%; n=80). Most respondents reported having either a bachelor's degree (28.77%; n=40) or a master's degree (22.05% n=30).

5.2 Evaluation of the PLS-SEM Results

SmartPLS 4 was used as a modeling package to perform data analysis. PLS-SEM should be preferred over CB-SEM when prediction and theory development are part of the study (Hair et al., 2021), as in our case. A preliminary analysis established that the PLS algorithm was not affected by issues related to missing data, outliers, non-normality, and multicollinearity.

A first look at the results showed that the model explained 76.3% ($R^2 = 0.763$) of BI's variance and that the constructs EE, FC, and SI did not appear as determinants of policy use. However, to interpret these findings correctly the measurements model and structural model must be assessed (Garson, 2016). Accordingly, our data were first tested for constructs' reliability, validity, and discriminant validity to determine whether the indicators of each construct measured the same underlying concept and were different from the other constructs in the model. Table 4 presents the reliability and validity of the constructs.

Table 4: Constructs reliability and validity

Construct	Items	Loadings	Cronbach's Alpha	rho_a	rho_c	AVE
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Behavior Intention (BI)	BI1	0.950				
	BI2	0.900	0.921	0.921	0.95	0.864
	BI3	0.938				
Performance Expectancy (PE)	PE1	0.953				
	PE2	0.971	0.956	0.956	0.971	0.919
	PE3	0.952				
Effort Expectancy (EE)	EE1	0.916				
	EE2	0.917				
	EE3	0.914	0.914	0.916	0.946	0.853
	EE4	0.940				
Social Influence (SI)	SI1	0.902				
	SI2	0.922	0.897	0.898	0.936	0.829
	SI3	0.907				
Facilitating Conditions (FC)	FC1	0.641				
	FC2	0.762				
	FC3	0.889	0.777	0.923	0.848	0.586
	FC4	0.749				
Habit (HB)	HB1	0.953				
	HB2	0.956	0.946	0.947	0.965	0.902
	HB3	0.941				

Evaluation criteria: Loadings >0.70; Cronbach's Alpha: >0.70; Rho_a: >0.70; Rho_c: >0.70; AVE: >0.50.

Discriminant validity was assessed by using the heterotrait-monotrait (HTMT) ratio of correlations, which is the preferred method in PLS-SEM (Hair et al., 2021). Each value was below the conservative threshold of 0.85. As a result, there was a significant difference between the constructs in our model. The following Table 5 reports the HTMT results.

Table 5: Constructs Discriminant Validity

	BI	EE	FC	HB	PE	SI
BI	-					
EE	0.624	-				
FC	0.693	0.796	-			
HB	0.848	0.638	0.742	-		
PE	0.818	0.683	0.741	0.836	-	
SI	0.696	0.828	0.736	0.740	0.693	-

Evaluating criterion: HTMT <0.85

As all results met the recommended thresholds, the measurements model was successfully evaluated, and the structural model could be analyzed next. As reported earlier, our model explained 76.3% of the dependent variable BI. A closer examination of the structural paths indicated that HB ($\beta = 0.528$) and EE ($\beta = 0.333$) had the strongest effect on BI. The bootstrapping routine also validated that these results were significant at the 5% level. Despite the relationships SI→BI ($\beta = 0.056$), FC→BI ($\beta = 0.003$), and EE→BI ($\beta = 0.002$) being positive, the bootstrap did not substantiate these results.

In addition, the f^2 effect size was calculated to determine if an omitted construct had a fundamental effect on intention. An effect size of approximately 0.02, 0.15, and 0.35 is considered small, medium, and large, respectively (Hair et al., 2021). The analysis reported effects in the case of dropping HB (0.258) and PE (0.109). On the other hand, SI (0.004), EE (0.002), and FC (0.001) did not have a significant impact on the intention to use the policy.

The structural analysis concluded with the measure of approximate model fit. This test in SmartPLS is assessed by the standardized root mean square residual (SRMR). In our study, the SRMR value of 0.78 was lower than the more conservative threshold of 0.80 (Hair et al., 2021), which indicates that the model fits well the data.

5.3 Analysis of the Constructs

The construct behavioral intention (BI) is the strongest predictor of actual use (Venkatesh et al., 2012), which in our context refers to the possibility of the respondents using the policy. In our case, participants tend to agree about taking advantage of the policy (M=4.98, SD=1.74). The mean values of PE (M=4.98, SD=1.74), EE (M=4.53, SD=1.59), FC (M=4.56, SD=1.51), and HB (M=4.42, SD=1.84) indicated that these factors tend to be important to the users of the policy. Among the predictors of intention, SI (M=5.04, SD=1.47) scored the highest. The following Table 6 summarizes these results.

Table 6: Constructs Analysis.

Items		Mean	SD
BI	Behavioral Intention	4.98	1.74
PE	Performance Expectancy	4.84	1.85
EE	Effort Expectancy	4.53	1.59
FC	Facilitating Conditions	4.56	1.51
SI	Social Influence	5.04	1.47
HB	Habit	4.42	1.84

Note: Items measured on a 7-point Likert scale

Having examined the key components of the model, it is now possible to conclude with the assessment of the hypotheses.

5.4 Assessment of the Hypotheses

To report the results, the standardized paths between latent variables were assessed. The structural analysis found that two out of five hypotheses were supported at the 0.05 level; Performance Expectancy (PE) and Habit (HB) had their path relationships in the expected direction and significantly contributed to the model. Our analysis found Effort Expectancy (EE), Facilitating Condition (FC), and Social Influence (SI) to be non-significant regarding the behavioral intention to use the policy under study; the associated hypotheses H2, H3, and H4 were rejected as a result. Although other relationships among the constructs could have been examined, we aimed to determine the relationships following the theory. Table 7 summarizes these results.

Table 7: Assessment of hypotheses.

Hypothesis	Path	Coefficient	t-Value	p-Value	Supported
H1	PE→BI	0.333	2.300	0.021	YES
H2	EE→BI	0.002	0.019	0.985	NO
H3	FC→BI	0.002	0.025	0.980	NO
H4	SI→BI	0.056	0.623	0.533	NO
H5	HB→BI	0.528	4.152	0.000	YES

Hypotheses evaluation criteria: t-Value>1.96; p-Value<0.05

6. CONCLUSION

We adapted the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) to the acceptance of public policies. Our findings indicated that Performance Expectancy (PE) and Habit (HB) were supported in the model and had a significant impact on the intention to use the policy. Results indicate that the greater the perceived benefits for the policy recipients, the more likely it is they will use it and become accustomed to it. The construct of Social Influence (SI), although not supported, received the highest mean score (5.04) on a seven-point Likert scale. This finding suggests that, although not directly responsible for usage behavior, social factors may also play a role in the acceptance of public policies if significant others are using them; a result that is consistent with Lampo and Silva (2022). Further, the constructs of Effort Expectancy (EE) and Facilitating Conditions (FC) were also not significant in our context, even if respondents generally agreed or strongly agreed with the related statements. In the case of EE, this could be explained by the fact that participants were familiar with the policy and did not expect particular effort in understanding it, thus making EE less relevant. In the case of Facilitation Conditions (FC), participants appeared to meet the conditions and requirements (i.e., Chinese driver's license, owning a vehicle, etc.) independently from using or not the policy.

To the best of our knowledge, this is the first study that uses the UTAUT framework to study policy acceptance. The analysis shows that an instrument designed for technology adoption is also suitable for understanding the underlying factors of accepting policies, thus helping policymakers in implementing policy and re-designing (if needed) documents that can be widely accepted and adopted by the public. Moreover, the model allows for a better understanding of how public opinion and other stakeholders perceive and respond to policies. It is also possible to identify gaps and challenges in policy design and communication by applying this model.

Policymakers can draw several conclusions from our study. Using a policy should first and foremost provide benefits for performing certain activities, a concept embodied in our model by the construct of performance expectancy. People are less likely to use a policy if they do not perceive it to be effective in achieving their intended goals (such as convenient travel from Macau to Mainland China). Therefore, policymakers should ensure that their policies are perceived as effective by the target population. Then, policymakers should also take into account the role of Habit in policy adoption. People are more likely to accept policies that align with their established habits (i.e., the consolidated practice of Macau residents crossing borders to travel to the mainland) and make such habits more convenient (i.e., residents can drive their vehicles to travel to China).

Therefore, policymakers should consider the established habits of the target population when designing new regulations. Third, although Social Influence was non-significant in our analysis, it received a high average score, suggesting its potential as a factor in policy acceptance. Policymakers should consider the role of social influence in policy adoption to ensure the success of their work.

In conclusion, the adaptation of the UTAUT-2 to the acceptance of public policies sheds light on the factors that contribute to policy adoption as well as establishes the model's applicability to policy acceptance. Our findings suggest that perceived effectiveness and habit are crucial factors in policy acceptance, while social influence may also play a role. By taking these factors into account, policymakers can design and implement policies that are more likely to be accepted by their target population.

7. LIMITATIONS AND FUTURE RESEARCH

Convenience sampling was used under the assumption that respondents were similar to the overall target population. Also, the use of a larger sample would allow for more statistical tests such as the multi-group analysis (MGA) in SmartPLS. To gain richer insights and a deeper understanding of the motives underlying the use of policies, future studies should assess more constructs and include qualitative questions in the survey to understand the underlying reasons why respondents perceive Effort Expectancy, Social Influence, and Facilitating Conditions as high but do not act upon them.

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Economic freedom and its influence on economic growth and human development in emerging countries

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Abstract

Purpose: The current study aims to analyze how the decisions governments make when applying a trade policy based on the economic freedom of emerging countries affect economic growth and human development since there is still no consensus on the most appropriate trade policy.

Design/methodology/approach: This was achieved through a panel data analysis that included information from 53 emerging countries in Latin America and Asia, corresponding from 2013 to 2022. It was found that economic freedom influences, but not significantly, human development.

Findings: Although it does positively impact economic growth. This study provides information to explain better the political models focused on the free market and thus improve decision-making for governments regarding the quality and standard of living of emerging countries' populations.

Originality: Based on institutional theory, this research generates new knowledge to understand how economic freedom and emerging countries' human and economic development are related.

Keywords: Economic freedom, economic development, human development.

INTRODUCTION

There are various studies on emerging countries and the why poverty has not yet been reduced after applying a hegemonic economic policy focused on the free market since the 1990s (De la Dehesa, 2019). Some studies mention that there have been failures in the market (Stiglitz, 2017), where large corporations and other economic agents concentrate a large part of the capital, causing the disappearance of small producers causing gaps in income, especially in the most vulnerable sectors. This, in turn, results in the general population failing to develop on a human scale. Low wages and job insecurity coexist with economic growth, concentrating on a few people. This situation worsens income distribution, but the free market can significantly reduce this inequality in the long term, as explained by the inverted Kuznets curve (Huynh, 2022). The question is: For how long? Perhaps, it will only be reflected in a higher rate of violence, generations without opportunities, and increased poverty (Caravaca, 2022).

It has been identified that an appropriate institutional framework is necessary to take advantage of the opportunities offered by any economic system (Varela & Ramírez, 2019). Therefore, the need arises to identify the best trade policy that supports sustainable development. Some studies have shown that a national policy focused on economic freedom influences human development (Jacimovic et al., 2013). Economic freedom is characterized by the incentives generated by property rights, increased government spending, development of strategies for opening and investing in new businesses, and labor, monetary, commercial, and investment freedom that have benefited employment (Jacimovic et al., 2013). Thus, it generates sustained growth (Haller 2016; Egu & Aregbeshola, 2017). In addition, it generates the conditions for attracting foreign direct investment (FDI), which is initially attracted by the advantages of low costs and, in the medium term, by the conditions of the internal market, skilled labor, and infrastructure (Abbes et al., 2015).

This study identifies a theoretical model that shows how trade policy focused on the free market affects economic development and, therefore, sustainable human development. First, a theoretical debate is presented on how economic freedom is related to economic growth and sustainable human development so that the empirical findings that support the premises proposed in this research can be presented.

The wealth of nations is seen as a consequence of an open and free business environment in which direct foreign investment, the free flow of capital, exports, and imports prevail. The economic and

health crisis generated in 2019 by the COVID-19 pandemic has also created a greater global tension. It has made us wonder whether the free-market benefits economic development (Aïssaoui & Fabian, 2021). It has generated greater concern about the true benefits it creates, such as employment (Jacimovic et al., 2013) and sustainable human development (Haller 2016; Egu & Aregbeshola, 2017). All this increased populism, especially in Latin America, where corruption has dramatically increased. Populism and corruption with the free market put the expected benefits for the population at risk (Aïssaoui & Fabian, 2021).

Hence, it is found that institutions could create obstacles to human and economic development (Butzbach, 2021). Dzionek-Kozłowska & Matera (2021) state that the role of national culture is crucial in economic development. Human interactions are necessary for the industrialization process. Not to mention that certain rigid economic systems negatively affect economic freedom. It identifies itself with commercial openness, ease of investing and doing business, financial freedom, and monetary freedom. Different studies show that it is important to develop these variables since they encourage the economic development of less developed countries (Arel-Bundock, 2016). However, economic freedom has also given results regarding income inequality in the short term, while there has been a reduction in the long term. Therefore, it initiates economic growth, as explained by the curve inverted Kuznets applied in Asia (Huynh, 2022). This has generated an increase in countries with populist policies, but even so, it has been found that certain institutional changes focused on economic freedom are applied in some countries with this political aspect. They include the development of labor policies and tax incentives that encourage the creation of local businesses and, in turn, are triggers for economic development (Larnell, 2018). It has been found that during different economic crises, a regulation of the capitalist system is required to achieve its stability. As a result, it is understood why changes generated in different democratic governments in terms change to a model of greater control over capitalism (Ormaechea et al., 2021).

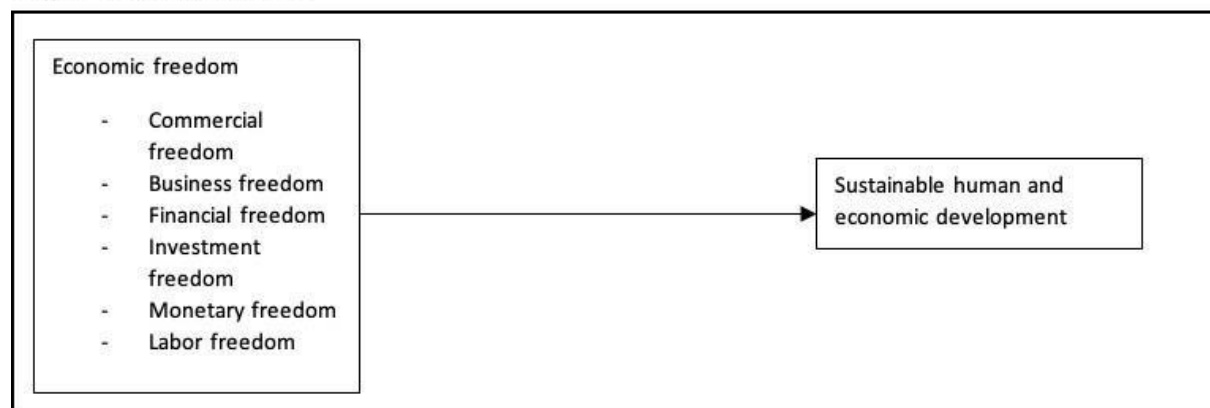
The previous economic trend could be explained by relying on the new institutional economics to understand social changes, interdependencies, structural tensions, and the balances in the economic system of developing countries that affect their growth (Nouira & Saafi, 2022). In this sense, there is little adoption of formal institutional structures, but they will be systematically adopted by the interrelation of domestic politics and transnational mechanisms as well as international competition (Perry, 2020). Therefore, the ease of doing business is something that institutional economics could

explain and, in turn, identify the potential in economic development(Urbano et al., 2020).

They are affected by environmental factors such as the climate for doing business, and the dynamism of the ecosystem, while psychological factors include risk aversion, the desire for autonomy, and self-satisfaction (Porfirio et al. 2018). In addition, it has been revealed that entrepreneurship has an important relationship with economic growth since the speed of such the growth depends on the initiatives to do business. It is necessary to adopt policies that stimulate greater business performance and promote the entry of new ventures into the national market (Rusu et al., 2022). At the same time, the development of strategies for financial inclusion is required, such as banking digitization (Yu, 2022).

New entrepreneurs require more efficient and cheap capital (Esubalew & Raghurama, 2020), in order to turn them into true agents of change that trigger the development of a country. In the following model (Figure 1), it can be seen that the development of an open trade policy focused on globalization and economic freedom can achieve better human development supported by greater economic growth.

Figure 1. Research model



Source: Self made

TRADE POLICY AND HUMAN DEVELOPMENT

Developed and developing countries apply different trade policies to attract FDI, as the employment rate has improved in countries that have made major structural reforms by making a more open market for foreign investment flows (Grahovac & Softić, 2017). But that is not only generating reforms but also having financial and economic stability, a good level of security, and social equity.

Additionally, as previously mentioned, formal and informal institutions can generate difficulties for human and economic development (Butzbach, 2021). However, some studies show that an adequate institutional framework, such as a focused trade policy in the opening, stimulates economic development and triggers human development (Kowalewska et al., 2023), especially from less developed countries (Arel-Bundock, 2016). This can be explained by the inverted Kuznets curve. It has been demonstrated that in Asian countries, there was inequality at the beginning, but currently, it has been reduced substantially (Huynh, 2022). The quality of an institutional framework that regulates a business environment stimulates the quality of an institutional framework, regulates a business environment, stimulates entrepreneurship, and seeks to reduce uncertainty marks an important point to attract foreign direct investment that triggers a spillover of knowledge about the economy (Aziz, 2019).

When analyzing a positive environment for doing business, the human capital structure improves. There is a tangible impact on economic development, as mentioned by He and Yao (2022). They conducted a study in 30 provinces of China and confirmed that the business environment and a human capital structure create quality economic growth. Another important point to achieve human development is access to the national financial system, mainly through a public policy that encourages savings and access to credit to the most vulnerable sectors of the population. Providing purchasing power to those who can pay for quality education, medical care, and so forth (Ababio et al., 2018).

Therefore, the increase in labor policies and tax incentives help generate new businesses, both new and foreign direct investment (FDI), when multinational companies invest abroad in activities that create value. This activity has been proven to positively impact poverty reduction, productivity, human capital, and physical capital, generating capital flows in poor countries positively affecting the balance of payments (Amir & Mehmood, 2012; Nikolov, 2016). It also contributes to strengthening the institutions that fight corruption (Topalli et al., 2021); consequently, sustained economic growth is achieved. So that developing countries take advantage of the positive effects of trade opening and benefit from FDI flows, they must have a specialized and qualified labor force to make them attractive to multinational companies (Barzotto et al. 2016). Countries that invest in human capital are attractive to FDI and, in turn, grow economically (Hamoudi & Aimer, 2017). It is worth mentioning that economic freedom variables such as investment freedom, business freedom, and financial freedom end up benefiting society as a whole (Korle et al., 2020). Therefore,

the following hypothesis is proposed:

H1 A commercial policy focused on the free market, such as commercial freedom, business freedom, financial freedom, investment freedom, monetary freedom, and labor freedom, generates greater human development.

TRADE POLICY AND ECONOMIC DEVELOPMENT

The trade policy applied by the countries since the 1990s has been characterized by privatization, democratization, and decentralization. Such policy led to industrial reconfiguration (Yang et al., 2020). This was supposed to encourage not only the establishment of relevant institutions but also reward citizens for accepting certain initial losses, which inevitably came with the introduction of a new economic system (initial drop in income, rise in the unemployment rate, the growth of inequality and the phenomenon of evident poverty). The development of institutions in countries with little tradition in their development was negatively affected by the strengthening of individuals and interest groups that made up the political and economic powers, abusing the mechanisms of the democratic system to appropriate economic power and even more political. In such circumstances, the elements of acceptance of an authoritarian system, with clear preferences regarding economic development, improvement of living standards, and reduction of poverty and inequality, were produced as socially acceptable and preferred by the population (Prašćević, 2013). However, it has been seen that in emerging countries where formal institutional policies of economic freedom were applied, they generate a positive impact on the generation of businesses that contribute to economic growth and reduce unemployment rates, as is the case of the BRICs (Udimal et al., 2020).

On the other hand, the globalization process is an intrinsic process to the result of the activities of multinational companies given using foreign investment, exports, and imports and, in itself, all commercial relations with the exterior. Considering this aspect, the market takes advantage of the advantages and obtains goods of acceptable quality at very cheap prices (Haller, 2016). It is possible to understand the role that international companies have had in the growth of domestic consumption and their ability to stimulate the competitiveness of export processes for all countries that participate in this environment. Thus, emerging markets, and mainly manufacturing markets, are the ones that benefit the most from this environment (Jacimovic et al., 2013). Therefore, the globalization process became essential for the system. Companies generated specialized skills for participation in specific sectors, as well as the use of technologies and management skills, in such a way that they obtained

competitive advantages that caused sustained growth (Egu & Aregbeshola, 2017).

In this context, governments have been concerned with regulating the imbalances caused by these production models through macroeconomic policies. The tax burden has favored the recovery of produced capital and prevented a significant reduction in productive resources, thereby strengthening the national economy, contributing to the improvement of inflationary processes, the growth of aggregate demand, and the premium of downside risk (Grubišić, & Marčetić, 2013). Even though it seems that taxes would hurt the development of companies, the reality is that their impact was minimal compared to their benefits. The Net Present Value has generated a direct compensation rate that produces a change that could be positive in the long run; however, investors have the last word to make their investment based on this understanding (Hove & Chidoko, 2012).

These policies' contribution to emerging and weakly developed markets has been “the growth”; pros and cons cannot be denied. When argued correctly, they can find adherents. This is why it is accepted that the processes imposed by globalization in emerging markets improve their competitiveness and economies (Haller, 2016). It has been seen how developing countries expand beyond their traditional participation in international production as recipients of FDI. Also, an impact of their FDI in the countries of origin. Also, emerging countries are large suppliers of inputs and finished products, which generates foreign exchange and triggers economic growth.

Therefore, foreign direct investment (FDI) can be attractive by developing a policy based on economic freedom. At first sight, it would seem to be beneficial for the country's macroeconomic development. Still, some studies demonstrate that investments have been mostly in manufacturing and service sector activities. This is due to having cheap labor and raw materials (Bose, 2012); but not so much in research, development, and innovation (R+D+i). It has been proven that R+D+I generate sustainable development. Its absence means that it does not have sufficient sophistication (Forte, 2013). It is important to develop adequate conditions in developing countries: environmental factors such as the climate for doing business, the dynamism of the ecosystem, psychological factors such as risk aversion, the desire for autonomy and self-satisfaction, and the ease of doing business (Porfirio et al. 2018); not to be only attractive in costs. Therefore, it has been found that entrepreneurship has an important relationship with economic growth since the speed of such growth depends on the initiatives of doing business, so it is necessary to adopt policies that stimulate the creation of greater performance that promotes the entry of new ventures into the national market (Rusu et al., 2022).

Developing countries have greater chances of absorbing investments from different countries in the short term and thus generating the right environments for economic development and increasing values in the long term (Grubišić & Marčetić, 2013). Evidence indicates that developing countries that apply a free investment policy detonate their economic development. It is the source of transformation (Abbes et al. 2015). Emerging countries have made an effort to develop strategies to reduce political risk and improve institutions (Arel-Bundock, 2016), in addition to betting on the infrastructure, economic stability, less corruption, and the development of the internal market (Bose, 2012; Assunção et al., 2013).

It has been proven that emerging countries have achieved great changes, which has led to attracting foreign capital, which has translated into profits for foreign transnationals (Budiarta, 2018). It has also favored the creation and strengthening of transnationals in developing countries that have managed to expand into the world's richest regions. For this reason, lines of research have been generated on foreign direct investment abroad (OFDI) and the increase in the competitiveness of local companies. This logic between FDI and competitiveness creates links to transfer resources and technologies from international markets to the national economy. In addition, it transforms the productive structure by acquiring large-scale resources, assets, and technologies to develop technology-intensive industries. It helps to increase the competitiveness of local companies and, at the same time, establishes new links to transmit resources and technologies from the global to the domestic market, in addition to developing distribution and value channels abroad (Caseiro & Masiero, 2014; Maciągowska & Kołtuniak, 2016; Knoerich, 2017; Egu & Aregbeshola, 2017; Noor, et al. 2016; Nwaolisa & Francis, 2018); Therefore, the following hypothesis is proposed:

H2: An economic policy focused on the free market, such as commercial freedom, business freedom, financial freedom, investment freedom, monetary freedom, and labor freedom, generates greater economic growth.

METHODOLOGY

Data source and variables

To verify the previously proposed hypotheses, it was decided to develop an explanatory scope design, with information from the Index of Economic Freedom (IEF) published by The Heritage

Foundation and the Human Development Index (HDI) developed by the United Nations Development Program (UNDP) in a period from 2013 to 2021 and taking 53 emerging countries in Asia and Latin America. The regression technique with panel data with fixed effects (FE) regressions was used, and the Hausman test was developed to choose FE. In addition, it was found that there was heteroskedasticity and serial autocorrelation with the Wald and Wooldridge tests, 465 observations were obtained.

Measurement of variables

Independent variables. The following variables: business freedom, labor freedom, monetary freedom, commercial freedom, investment freedom, financial freedom and foreign direct investment were analyzed. They were measured according to the IEF indicators of The Heritage Foundation (2021), which measures the market opening of the countries, which are described below:

- Business freedom (BF), where the IEF takes the Doing Business index, which measures the ease with which a company can open a business from a regulatory and infrastructure point of view based on the 13 subfactors determined by the World Bank.
- Labor Freedom (LF), also taken from the IEF, measures the regulatory framework of the countries' labor market and includes regulations related to wages, laws that prohibit dismissals, compensation regulations, hiring, and hours at work.
- Monetary freedom (MF), which combines inflation with a series of government activities where they control market prices, such as subsidies. 0
- Commercial freedom (CF) seeks to measure the scope of tariff and non-tariff barriers that influence exports and imports of goods and services; it has two indicators; the weighted average tariff rate and a qualitative assessment of non-tariff barriers.
- Investment freedom (IF), which measures that there are no restrictions on investment flows, means that capital resources can be moved within and outside the country in specific activities within the financial system of a country.

- Financial Freedom (FF) measures how efficient the banking system is and its independence from government control, reducing competition and credit access.
- Foreign Direct Investment (FDI) is the flow of capital made by multinational companies in countries with activities that generate market value.

Dependent variables. To analyze the effects of the opening of the market on economic development and human development, the following variables were taken:

- Per capita Gross Domestic Product (BFGDPPC), which measures the productivity of a country and was taken with data from the World Bank, to smooth the observations and adjust them to a normal distribution, the natural logarithm was applied.
- The Human Development Index (BFHDI) is the indicator of the United Nations Development Program (UNDP), which has three dimensions: life expectancy and health, knowledge, and decent standard of living; As in the case of the previous dependent variable, the variable to be generated was transformed with the natural logarithm.

ANALYSIS OF DATA

For the data analysis and prior to it, the relevance of developing a data panel was established; first, an analysis of bivariate correlations was made (Table 1). The independent variables business freedom, labor freedom, commercial freedom, freedom investment, financial freedom, and foreign direct investment have a positive and significant relationship greater than 0.01 with economic growth. Monetary freedom is positively related, but it is only significant at 0.05. When analyzing the relationships of the Human Development Index, only labor freedom has a negative relationship with a significance level of 0.05. Investment freedom and monetary freedom fail to reach significance levels that can explain any relationship.

Table 1. Correlations matrix

LNGDPPC	BFFDI		BFHDI	BF	LF	MF	CF	IF	FF
BFGDPPC	1								
BFFDI	0.177***	1							
BFHDI	0.877***	0.272***	1						
BF	0.446***	0.0514	0.503***	1					
LF	0.308***	-.1203**	0.263***	0.433***	1				
MF	0.126**	0.022	0.092	0.421***	0.366***	1			
CF	0.282***	0.303***	0.269***	0.174***	0.0685	0.399***	1		
IF	0.240***	0.066	0.246***	0.322***	0.171***	0.581***	0.528***	1	
FF	0.366***	0.320***	0.391***	0.2987***	0.0898**	0.4537***	0.589***	0.648***	1

Source: Own elaboration. Nota: *, **, *** represents 0.1, 0.05, 0.01 significance levels.

They began with estimating OLS and random effects, and the Lagrangian multiplier was obtained. and as Table 2 depicts, both in the models with the dependent variable of economic growth and in the Human Development Index, there is a level of 0.01, so it is concluded that there is unobserved heterogeneity, and it is recommended to use panel data models. Thus, the Pesaran test was also applied, resulting in levels of 0.01, which indicates that using the OLS estimation is not a viable option and confirms the need to use the panel data technique. That is why it was considered to continue the random effects since the Hausman test in the models of both dependent variables turned out to be significant: 0.01.

In addition, the results of the Wald test (Wooldridge, 2019) were obtained. They show the presence or absence of heteroscedasticity and autocorrelation, they turn out to be significant; therefore, the regressions had to be run with generalized least squares standard error corrections. (MSGLS) and self-correction of standard errors to exceed the estimates in heteroscedasticity and autocorrelation (Table 2).

From the results presented in Table 2, the following discoveries can be highlighted: models with Prais-Winsten estimation (Park & Mitchell, 1980) of random effects were developed to evaluate the linear trends to correct the autocorrelation (model 2), which shows that the variables Business Freedom with a significance level of 0.01, Labor Freedom with a significance level of 0.01, Financial Freedom with a significance level of 0.01 and Foreign Direct Investment with a significance of 0.10, create positive effects on human development. So, this model is the one that best explains, but it could not be assumed that hypothesis 1 is verified. This is because running the model with robust results with error correction standards cannot have significant variables.

On the other hand, when analyzing the economic development of emerging countries, it can be seen in Table 3 that in model 5, where the standard error corrections are presented, it can be seen that the variables with the greatest significance (0.01) are Freedom of business, labor freedom, investment freedom, financial freedom and Foreign Direct Investment (0.05 significance), and investment freedom without significance. It is worth noting that the monetary freedom variable has a negative effect, which suggests that there must be greater controls on central banks regarding their monetary policy.

Table 2. Human Development Index (HDI) Index

	Modelo 1	Modelo 2	Modelo 3
	Coef.	Coef.	Coef.
BF	0.0003576*	0.0013775***	-0.000133
LF	0.0003925**	0.0009208***	-0.0000288
MF	0.000822***	-0.0003454	0.0000636
CF	0.0006142***	0.000301	0.0001078
IF	0.0007407***	0.0002776	0.0000414
LF	0.0002504	0.0015138***	-0.0002662
BFFDI	0.0012921	0.0013617*	0.000294
Const	6.372626***	6.349169***	6.245876
chi ²	0.000	72.92***	
Breush & Pagan Multiplier test	Lagrangian 1310.33***		
Wald test			
Wooldridge test	14.505***		
Hausman	1503***		
F			15.379***
Pesaran test	27.948***		
Observations	465	465	405

Source: Own elaboration. Note: *, **, *** represents 0.1, 0.05, 0.01 significance levels.

To correct the heteroscedasticity and autocorrelation of the dependent variable model, a generalized least squares model (Model 6) was generated and the STATA command xtpcse was developed, where it turns out that monetary freedom negatively impacts economic development and commercial freedom is not significant with the generalized least squares model, while in the autocorrelation correction for standard errors, monetary freedom, commercial freedom and foreign direct investment are not significant; Therefore, hypothesis 2 is verified.

Table 3. Growth economic estimation

Model 4		Model 5	Model 6	Model 7
	Coef.	Coef.	Coef.	
BF	0.0056532*	0.0252466***	0.0256171***	0.0131287***
LF	0.0051752*	0.0138726***	0.0103326***	0.0078443***
MF	0.0035053	-0.0237425***	-0.0241665***	-0.0033394
CF	0.0065725**	0.0117392***	0.0021688	0.003689
IF	0.0106745***	0.0006596	0.0068906***	0.0025074
LF	0.0013268	0.013684***	0.0089245***	0.0121214***
BFFDI	-0.0048532	0.0242972**	0.0501688***	-0.0027729
Const	7.37133***	6.952549***	7.555564***	7.355881***
chi ²	47.1***	215.87***	606.83***	81.29***
Breush y Pagan Lagrangian multiplier test	50.697***			
Wald test	9927.38***			
Wooldridge test				
Hausman	15.03***			
Pesaran test				
Observations	465	465	465	465

Source: Own elaboration. Note: *, **, *** represents 0.1, 0.05, 0.01 significance levels.

CONCLUSIONS AND IMPLICATIONS

This document focused on the analysis of economic freedom as one of the variables that is made up of trade openness, ease of investing and doing business, financial freedom, monetary freedom, and labor freedom (Arel-Bundock, 2016), and that could explain economic growth and in turn impact human development in developing countries (Arel-Bundock, 2016; Huynh, 2022; Amir & Mehmood, 2012; Nikolov, 2016). However, in this research, there is no evidence that these variables explain human development in a concrete way.

On the other hand, in the 1990s, several emerging countries underwent a process of economic transition; they went from having an authoritarian political system to one based on democracy and globalization, where, at first, it was thought that it was pertinent that the citizens of poor countries had losses in their well-being to prop up growth in the medium and long term (Prašević, 2013) but, three decades have passed and a large part of these countries are still waiting for development that is reflected in better jobs, education, health, infrastructure, among other factors that improve their quality of life. However, empirical evidence shows that some countries, especially in Asia, present a more equitable growth explained by inverted Kuznets (Huynh, 2022).

This is not widespread in emerging countries; it can be accepted that globalization can improve the competitiveness of nations and, therefore, their economic development. There is a need to create the necessary conditions to attract foreign direct investment, improve the conditions for national investment, create open and equitable trade policies, and, in turn, have a modern financial and labor market since all this has been found. impacts productive activities and value creation, both from an economic point of view and also from a social point of view (Caseiro & Masiero, 2014; Maciągowska & Kołtuniak, 2016; Knoerich, 2017; Egu & Aregbeshola, 2017; Noor, et al. 2016; Nwaolisa & Francis, 2018), but there is still a need to find a theoretical model that explains more completely the phenomenon analyzed in the present investigation, so in future investigations, it is proposed to add different variables such as corruption, spending government, the quality and level of education of the population among others, so it is necessary to seek greater theoretical support.

Among the limitations is that only the institutional framework is considered, and different theoretical approaches can explain the development of the countries. Another element rarely

mentioned in this document is the cultural environment, which would be important to study to know what impacts national culture can have in the economic sphere.

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Measuring Marine Sustainability in the Gulf Region via Ocean Health Indicators

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Abstract

The Arabian/Persian Gulf is characterized by its diverse coastal and marine ecosystems, which provide substantial ecological and economic benefits. However, rapid population growth and extensive regional development have significantly pressured marine sustainability. This study employs OceanHealth Indicators to comprehensively assess the Gulf's marine health to address this challenge and achieve sustainable development goal 14 (life below water). By examining key dimensions such as biodiversity, pollution levels, and ecosystem resilience, this research aims to inform policymakers and stakeholders about the current state of the Gulf's marine ecosystems, supporting targeted interventions for effective conservation and management practices.

Keywords: Sustainable development, Arabian/Persian Gulf, SDG 14, life below water

1. Introduction

The waters between Iran, Iraq, Kuwait, Saudi Arabia, Bahrain, Qatar, United Arab Emirates, and Oman have historically been important global trade centers. With the discovery of the oil and gas reserves, the role of this region in world politics has been even more emphasized. This has led to undermining the region's importance for the marine environment and the countries that share its coastlines. The Gulf region is home to diverse coastal and marine ecosystems, including coral reefs, mangroves, seagrasses, and other habitats, which support a range of marine species. These ecosystems provide important ecological services, such as carbon sequestration, nutrient cycling, and water purification. They also support the economies and livelihoods of the communities that rely on the region for fishing, tourism, and other activities.

However, rapid population growth and development have resulted in numerous environmental challenges in recent years. The Gulf region deals with several environmental issues that have far-reaching consequences for human and natural systems. Climate change is one of the most serious of these issues. Rising temperatures, less rainfall, and more frequent and severe weather events are stressing already sensitive ecosystems and jeopardizing essential natural resources such as water and agriculture. Climate change will necessitate various mitigation and adaptation measures, such as increasing energy efficiency, developing renewable energy, and adopting water conservation initiatives.

Water shortage is another major environmental issue in the Gulf region. With a limited source of fresh water, the area primarily relies on desalination and groundwater. This reliance has resulted in groundwater depletion, ocean intrusion, and soil salinization, among other difficulties. To overcome this issue, more investment is needed in water efficiency, reuse, and recycling, as well as alternate water sources such as treated wastewater and brackish water.

The Gulf region likewise confronts substantial marine pollution concerns. The region is home to some of the busiest maritime channels in the world, which can lead to oil spills, chemical pollution, and trash. Coastal development and tourism also strain marine ecosystems, contributing to habitat degradation and biodiversity loss. Addressing marine pollution necessitates various actions, such as encouraging sustainable tourism, minimizing plastic waste, and enforcing legislation to prevent marine littering.

These factors have led to serious biodiversity loss in the Gulf region. Overfishing, hunting, and introducing non-native species contribute to the region's biodiversity reduction. This biodiversity loss can have repercussions across the ecosystem, affecting ecosystem services such as food, water, and recreation availability. Greater investment in habitat restoration and protection, sustainable fishing practices, and efforts to control the spread of invasive species are required to address this challenge. To address these issues, it is critical to examine the existing health of the Gulf's marine ecology and find appropriate ways to safeguard it. One way to determine the current state is to use the United Nations framework on sustainable development.

The Sustainable Development Goals (SDGs) are a set of 17 global objectives to tackle the world's economic, social, and environmental concerns by 2030. The goal of SDG 14 is to "conserve and sustainably use the oceans, seas, and marine resources for sustainable development." This aim recognizes the oceans' and their ecosystems' crucial role in the global economy, food security, and climate regulation. The waters also provide a source of income for millions of people worldwide.

Several targets have been established to achieve SDG 14, including:

- Prevent and reduce marine pollution, particularly from land-based activities such as marine debris and nutrient contamination.

- Protect and restore marine ecosystems and strengthen their resilience by addressing ocean acidification and other climate change consequences.
- End overfishing, illicit, unreported, uncontrolled fishing, and damaging fishing methods through regulating harvesting.
- Improve conservation and long-term use of coastal and marine regions, including creating and implementing marine protected zones.

Ocean health indicators (OHI), which give a framework for monitoring the health of marine habitats based on various biological, social, and economic characteristics, are one approach to measure achievements towards these targets. The term "ocean health indicators" refers to a set of measurements used to assess the status of the ocean and its ecosystems, which includes characteristics such as water quality, biodiversity, and ecosystem productivity. These indicators can aid in identifying trends and changes in ocean health over time, as well as informing policy choices and management practices that can aid in protecting and restoring ocean health.

SDG 14 contains various objectives concerning ocean health, including decreasing marine pollution, safeguarding marine and coastal ecosystems, and boosting the economic advantages of sustainable marine resource use for small island developing states and least developed nations. Indicators of ocean health may be used to track progress toward these goals, giving critical information on the effectiveness of policies and activities targeted at attaining SDG 14. Overall, ocean health indicators provide an alternative mechanism to track progress toward the objective of sustainable development of the oceans and their resources. The well-being of marine ecosystems and the human populations that rely on them can be monitored via ocean health indicators.

To achieve SDG 14 and guarantee the sustainable development of the region's marine resources, a detailed knowledge of the status of the Gulf's seas and the variables that impact their health is required. Using ocean health indicators as a baseline to track progress toward SDG 14 in the Gulf area can give useful insights into the efficacy of ocean health policies and initiatives. Policymakers and stakeholders may identify areas of success and areas for improvement by monitoring changes in parameters like water quality, biodiversity, and ecosystem productivity, ensuring that the Gulf's seas are maintained and exploited sustainably for the benefit of everyone.

Various policies and management techniques must be implemented to safeguard the Gulf's coastal and marine ecosystems. This could include tighter fishing regulations, establishing marine protected areas, and reducing pollution from industrial and urban sources. It is vital to use methodologies such as OHI to assess the current state of the Gulf's coastal and marine ecosystems and to provide effective conservation

measures. The Gulf region is important for the marine environment and the communities that rely on it. However, the region is facing significant environmental challenges, largely due to the rapid growth of population and development in the region. To protect the Gulf's coastal and

marine ecosystems, it is crucial to assess their health using tools such as OHI and identify potential solutions for their protection. By doing so, we can ensure that all can enjoy the region's ecological and economic benefits, both now and in the future.

This research aims to address these challenges by employing Ocean Health Indicators to assess the current state of the Gulf's marine ecosystems. OHI indicators measure several aspects of sustainable marine, providing a variety of indicators for artisanal opportunities, biodiversity, coastal protection, carbon storage, clean waters, food provision, livelihoods & economies, natural products, sense of place, tourism & recreation. By examining these key dimensions, this research aims to inform policymakers and stakeholders about the current state of the Gulf's marine ecosystems, providing a framework for future conservation and management practices. In the next section, we discuss the literature review on marine sustainability. The data section includes details on how the data was collected and the relevant indicators. The analysis section provides a visual overview of trends in the Omani indicators compared to other countries in the region. Finally, the research concludes with future suggestions for conserving marine ecosystems.

2. Literature on Marine Sustainability

The SDGs represent a continuum of the Millennium Development Goals (MDGs) and comprise 17 interconnected ambitious goals expected to be achieved by 2030. Achieving these goals by 2030 is suffering setbacks due to conflicts, COVID-19, and environmental changes, and requires a strong commitment from the global community (United Nations, 2022a; Zhao et al., 2022). SDGs are aimed at strengthening human and ecological well-being and ensuring economic growth. The ocean economy is attracting global interest and is projected to reach US \$3 trillion by 2030 (OECD, 2016; Voyer et al., 2021). In as much that ocean-driven economic growth and prosperity for all are desirable, effort towards achieving these SDG goals must strike a balance between the triangular pillars (social, economic, and environmental) of sustainability because ocean-driven economic growth is strongly reliant on a healthy ocean (Recuero Virto, 2018; Sumaila et al., 2021; Vierros, 2021).

SDG 14 focuses on sustaining marine life with seven broad targets: ocean pollution, ocean and climate, and sustainable use of ocean resources. Synergies and trade-offs exist among the SDG goals, and SDG 14 plays a crucial role in the progress expected in all other SDGs (Griggs et al., 2017; Le Blanc et al., 2017; Ntona & Morgera, 2018; Pradhan et al., 2017; Singh et al., 2018). For example, sustainable utilization of marine resources and reduction in ocean pollution (SDG 14.1, 14.4, 14.6 and 14.7) would enhance health, food and water

security (SDG 2, 3, and 6), promote economic growth, poverty, and inequality reduction through the provision of employment and income (SDG 1, 8 and 10) for coastal and non-coastal communities (Carpenter et al., 2021; FAO, 2017; Zhongming et al., 2019). In addition, improvement in the conservation and restoration of coastal ecosystems (SDG 14.2 and 14.5) would help mitigate the impact of climate change (SDG 13) through carbon sequestration and protect the biodiversity and habitat degradation on land (SDG 15) (Fonseca et al., 2020; Schmidt et al., 2017). Among the SDG goals, SDG 14 shows the least identifiable progress. It

remains unclear if the targets can be reached by 2030, considering that more than two-thirds of coastal states have not fulfilled any of the four (14.2, 14.4, 14.5, and 14.6) SDG 14 targets that have expired as of 2020 (Andriamahefazafy et al., 2022; Dawes, 2020, 2022; Nash et al., 2020). It is possible to attribute the failure to achieve SDG 14 to the lack of priority given to it by policymakers and donors, who place a higher priority on issues that they consider more pressing in the short term based on their countries' developmental needs (Cheng et al., 2021; Nash et al., 2020; Sethi et al., 2017). According to a study by Custer et al. (2018), policymakers in lower-income countries pay more attention to issues of health (SDG 3), food (SDG 2), water (SDG 6), and energy (SDG 7), while policymakers from high-income countries attach more importance to issues of inequality (SDG 10) and sustainable cities (SDG 11). The progress in SDG 14 can be accelerated in the coming years when policymakers and donors start to see the long-run impact of ocean deterioration and base their policy and funding on a scientifically consistent approach.

The coastal ecosystems provide immense ecological services for the marine environment and human well-being. The oceans absorb 30% of the global annual carbon emissions, serve as the mainstay livelihood for more than 3 billion people, assist in nutrient cycling and sedimentation control, and provide recreational and touristic services (Drius et al., 2019; United Nations, 2022b). Despite the immense importance of the ocean, it currently receives the lowest impact funding. It is threatened by different stressors such as pollution, ocean acidification, climate change, and unregulated fishing. With the population boom and increased global consumption, the ocean damage caused by pollution is expected to increase (Beaumont et al., 2019). The ocean receives several million metric tons of plastic yearly (which constitutes 85% of marine litter), and some chemical compounds with unverified environmental effects are discharged into the ocean. (United Nations, 2022a; Willis et al., 2022). The atmospheric carbon dioxide concentrations are increasing further aggravating ocean acidification.

Consequently, the ocean's ability to mitigate climate change is restricted, and marine species and biodiversity are at risk of extinction (Jewett & Romanou, 2017; United Nations, 2022a). The threat of overfishing and unreported and unregulated fishing persists; over a third of global stocks were overfished in 2019 (United Nations, 2022a). Overfishing has been significantly exacerbated by increasing demand for fish, disruptive

fisheries subsidy policies, and technological advancements (Nilsson et al., 2019; Sakai et al., 2019; Skerritt & Sumaila, 2021). In as much as the recently signed Agreement on Fisheries Subsidies under the World Trade Centre (WTO) is considered a historic achievement towards ocean sustainability (WTO, 2022), it is necessary to establish a proper monitoring mechanism to ensure that countries adhere to the agreement's provisions. Besides the environmental costs associated with the threats to ocean sustainability, the economic costs to fisheries and their dependent industries are huge. Keeping the ocean healthy and resilient requires approximately US\$175 billion in funds annually (Johansen & Vestvik, 2020). Without proactive initiatives, the economic costs of maintaining the ocean can be unbearable for countries with limited financial and technological resources, especially those with low incomes (Willis et al., 2022).

The Gulf is a relatively small and semi-enclosed water body surrounded by eight countries: Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (Vaughan et al., 2019). The area is regarded as one of the world's harshest marine environments but is still home to various coastal and marine ecosystems crucial to the productivity of marine resources (Naser, 2016). The drivers of pollution are diverse, but the oil and gas industry, coastal anthropogenic disturbance, and desalination plants are considered the most important contributors (Moossa et al., 2022; Yaghmour et al., 2022). Many regional countries face severe water shortages and require desalination to meet municipal and industrial needs (Ibrahim & Eltahir, 2019). The need for more desalination infrastructure is expected to grow based on the fast pace of the economic and demographic development of the Gulf countries. The desalination process can harm the ocean ecosystem due to the discharge of brine (hypersaline effluent), which increases water temperature, salinity, and heavy metal concentrations (Sharifinia et al., 2019). The negative impact of desalination can be minimized by adopting membrane-based and solar-based plant designs, treating brine discharge effectively, and collaborating across boundaries. (Hosseini et al., 2021; Ihsanullah et al., 2022; Le Quesne et al., 2021; Miller et al., 2015). The region is prone to oil pollution considering that the region produces approximately 30% of the global crude oil, close to 60% of crude oil shipment transits the area, and serves as a crucial trading route (Hassanshahian et al., 2020; U.S. Energy Information Administration, 2022). Various incidence of accidental oil spillage, incidental (primarily due to war) spillage, and petrochemical exploration activities is still an existential threat to ecosystem sustainability (Alqattan & Gray, 2021; Al-Saad & Al-Imarah, 2021; Sheppard et al., 2010). The issue of oil pollution is a transboundary one that requires strong regional cooperation to address it. An integral part of curbing ocean pollution in the region is creating awareness among stakeholders of the ecological repercussions of continuing to take the Gulf for granted, developing local capability to assess and manage environmental risks, strengthening coastal management regulations, and adopting less intrusive advanced technologies (Al-Saidi, 2022; Babagolimatikolaei, 2022; Manzhynski et al., 2016; Rezaei Some et al., 2021; Sale et al., 2011). SDG stakeholders have often predominantly included international organizations, non- governmental organizations, and government agencies, while local communities are not adequately carried along (Bennett et al., 2018; Lee

et al., 2020). The local coastal communities appear the closest to the coastal ecosystem, and their active participation in coastal policy development would strengthen ocean sustainability.

There are still significant challenges in achieving SDG 14 at the regional level, according to the Arab Region Sustainable Development Goal report for 2022 (Bayoumi et al., 2022). Nevertheless, country-level commitments are being made toward achieving SDG 14 by implementing projects and incorporating targeted goals into their long-term strategic plans. Oman has planted over 600,000 mangrove trees, established five (5) coral reefs, and established 14 marine and semi-marine reserves of various types (Omanuna, 2022). The UAE has 16 marine protected areas, launched a national shark, turtle, and ray conservation and management plan, banned the disposal of pollutants into the ocean, implemented a Fisheries Resources Assessment Survey, and cleaned up coastal oils (UAE Ministry of Climate Change and Environment, 2023). As part of the Saudi green

initiative, Saudi Arabia plans to protect at least 30% of the global ocean by 2030 via Marine Protected Areas and maintain three additional reserves by that date (Saudi Vision, 2022). Qatar has reviewed its original 2004 National Biodiversity Strategy and Action Plans and established the Environmental Science Center (ESC) to research marine science (Hukoomi, 2022). Bahrain has declared five specific water bodies (Ras Sanad at Tubli Bay, Tubli Bay, Huwar Islands, Mashtan Island, and Arad Bay) as national marine sanctuaries, joined the Clean Seas Global Campaign, issued two ministerial decrees prohibiting plastic waste importations, and establishing specifications and standards for plastic bags (The Supreme Council for Environment, Kingdom of Bahrain, 2022). In Kuwait, two marine reserves have been established (4.4 percent of 11,896 square kilometers of marine areas), a thousand Crimean seeds were planted in the coastal zone in 2018, and a marine survey was conducted to monitor the resources of the sea (Supreme Council for Planning and Development, 2020). In Iraq, The Eden project was implemented to restore flora and fauna in the Marshland that was formerly turned into a desert and while Iran is developing the Marine Technology Development and Marine Ecotourism Plan and recently completed conservation Zeytoon coral reef site in Qeshm island (Nature Iraq, 2022; UN, 2020).

Some efforts have also been initiated at the regional level. Several conventions have been held by the Gulf countries geared towards ensuring a sustainable ocean, which is not limited to the Regional Organization for the Protection of the Marine Environment (ROPME), Regional Clean Sea Organization (RESCO), Council of Arab Ministers Responsible for Environment (CAMRE), and United Nations Environment Programme Regional Office for West Asia (UNEP/ROWA). Some of these conventions lack compliance measure clauses, which have not achieved the desired effectiveness and compliance level for ocean sustainability. These countries have experienced limited success in controlling maritime pollution because they have been unable to cooperate and commit to implementing various regional and international maritime conventions (Aldosari, 2021; Naderi, 2021). Implementation of the conventions would surely change the narratives. To achieve these SDG 14 themes, countries must identify cross-cutting research

needs for balancing competing triangular pillar demands for ocean resources, timely policy measures, and more research-informed policies.

Most of the SDG 14 literature on the region has adopted a narrative approach in assessing ocean sustainability. To our knowledge, none has used an indicator-based approach at a regional level. The indicator-based approach reduces complexity in communication and provides a comprehensive and clear message to relevant stakeholders to aid policy decisions (Allen et al., 2017; Boesch et al., 2014). A closer study to our present assessment is that of Gulseven (2020b, 2020a) based on a single-country analysis using the UAE. Our study uses the comprehensive Ocean Health Indicators (OHI) developed to evaluate progress towards a healthy ocean. The OHI is preferred over other indicator sources, UN and Bertelsmann Stiftung, because the indicators are thematically and conceptually clear, reducing the missing data puzzles and

limiting the SDG 14 assessment (Gulseven, 2020b). The next section explores the OHI to measure the level of achievements of Gulf countries towards SDG 14.

3. Data

The United Nations' Sustainable Development Goal 14 (SDG 14), "Life Below Water," aims to conserve and sustainably use the oceans, seas, and marine resources for sustainable development. Monitoring progress towards this goal requires robust data and indicators that reflect the health and sustainability of marine ecosystems. In this article, we utilize the Ocean Health Indicators dataset to assess achievements towards SDG 14 and provide insights into the state of our oceans.

The Ocean Health Indicators (OHI) dataset is a comprehensive collection of measurements that quantifies various aspects of marine health and sustainability. These indicators are designed to capture key dimensions of ocean ecosystems, including biodiversity, productivity, resilience, and human impacts. While the data is not specifically targeting progress toward achieving SDG14, it is an excellent proxy. The dataset provides a valuable tool for evaluating progress towards SDG 14 and identifying areas requiring targeted conservation and management interventions.

The Ocean Health Index believes a healthy ocean can provide various sustainable benefits to both present and future generations. To assess the ocean's health, participating scientists, economists, and sociologists reviewed existing studies and identified ten categories, referred to as "goals," that represent people's expectations and desires regarding the ocean. Each goal is evaluated based on its ability to deliver specific benefits sustainably. A goal receives a score of 100 if it maximizes its benefits without compromising the ocean's ability to continue delivering those benefits in the future. Lower scores indicate potential for greater benefits or that current practices negatively impact future benefits.

To calculate the scores, various components are considered, including the current status, likely future status, trend, pressures, and resilience associated with each goal. The Goal Scores are determined by averaging the Present and Likely Future Status. The Current Status reflects the goal's current value compared to a reference point, resulting in a score ranging from 0 to 100. The Likely Future Status predicts the score the goal will have in five years, also on a scale from 0 to 100. This prediction is based on three variables: the observed trend in the goal's status over the past five years, the pressures that negatively affect the goal's status (ecological and social factors), and the resilience of the goal (ecological factors and social initiatives, such as policies and laws) that help mitigate those pressures.

The Gulf Cooperation Council (GCC) countries consist of the following countries: Oman, United Arab Emirates, Saudi Arabia, Qatar, Bahrain and Kuwait. These countries have similar economic profiles, where oil and natural gas reserves are the most significant sectors of the economy. A similar economic perspective can also be made for the Gulf neighbors Iraq and Iran, who share direct access to the same sea. Therefore, our analysis includes data on GCC countries, Iraq, and Iran as they share the same resources in the Gulf.

4. Analysis

Ocean Health Index has been subject to annual assessments starting from 2012. Each assessment aims to compute scores for a new year based on the latest available data. Often, adjustments are made to models, or alternative data sources are utilized alongside the inclusion of an additional year of data. To maintain comparability across all years, scores for previous years are recalculated using updated methods and data sources during each assessment. We have used the latest dataset available up to 2021. Therefore, when analyzing trends in scores, it is important to use data from the same assessment year to ensure that any changes observed reflect alterations in ocean health rather than changes in evaluation methods.

Artisanal Opportunities

Artisanal Fishing refers to small-scale, low-technology fishing practices undertaken by individuals on the shore or small boats offshore. This fish is usually caught by traditional fishing tools such as rod and tackle and is used for local consumption. It is specifically mentioned as a goal (SDG 14. b) to “provide access of small-scale artisanal fishers to marine resources and markets the considered.” OHI goal is slightly different and aims to capture society’s access to the coastline. As per the OHI definition, this goal aims to capture people’s access to coastal resources regardless of whether they engage in fishing.

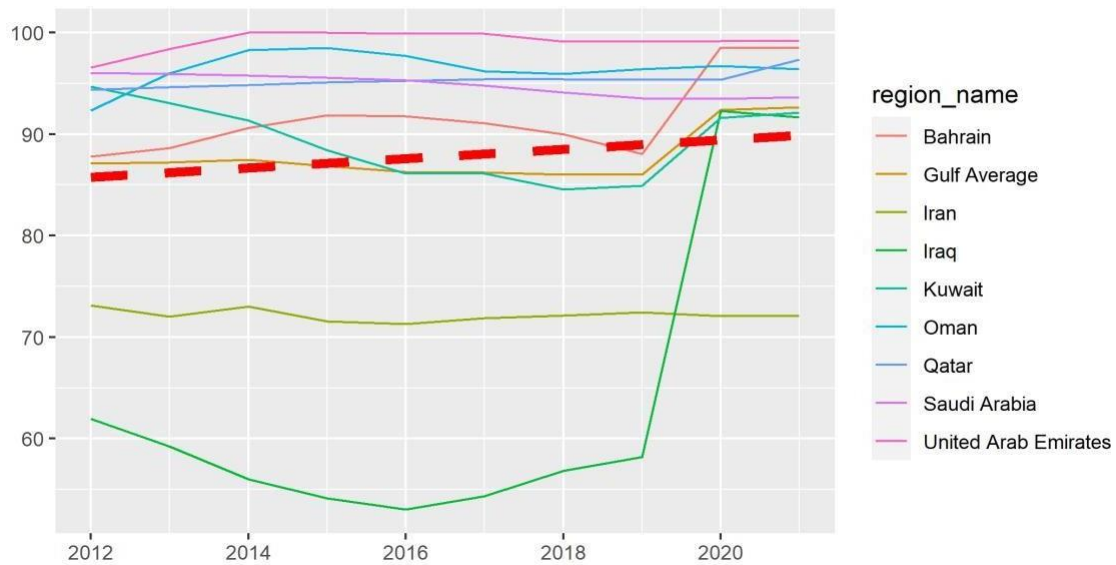


Figure 1 Artisanal Fishing Indicator

As per Figure 1, the countries in the Gulf region have access to the coastal resources' as defined by the artisanal opportunities indicator. GCC member countries provide their residents access to coastal resources as the population centers of these countries are either surrounded or located next to the coastal line. Iraq has also increased its score in artisanal opportunities, while Iran remains way below others in the region regarding this indicator. Nevertheless, there is an overall tendency to provide residents access to coastal lines as measured by artisanal opportunities.

Biodiversity

Maintaining biodiversity in the marine ecosystem can be achieved by protecting the marine life and their habitats. Achievements towards the biodiversity goal are measured via two subgoals: habitats and species. The habitats subgoal measures the current state of the living environment of the wildlife, whereas the species goal measures how the variety of marine life is being protected. Indicators for these goals measure the habitat conditions of corals, mangroves, seagrass, and salt marshes and the management of tourism and mariculture activities to preserve biodiversity and the variety of species.

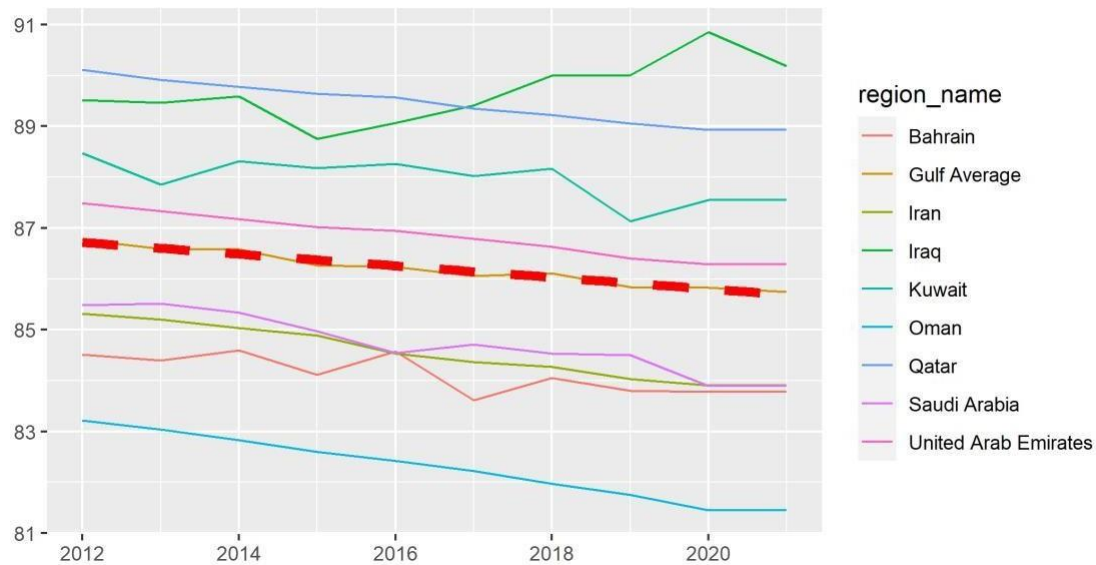
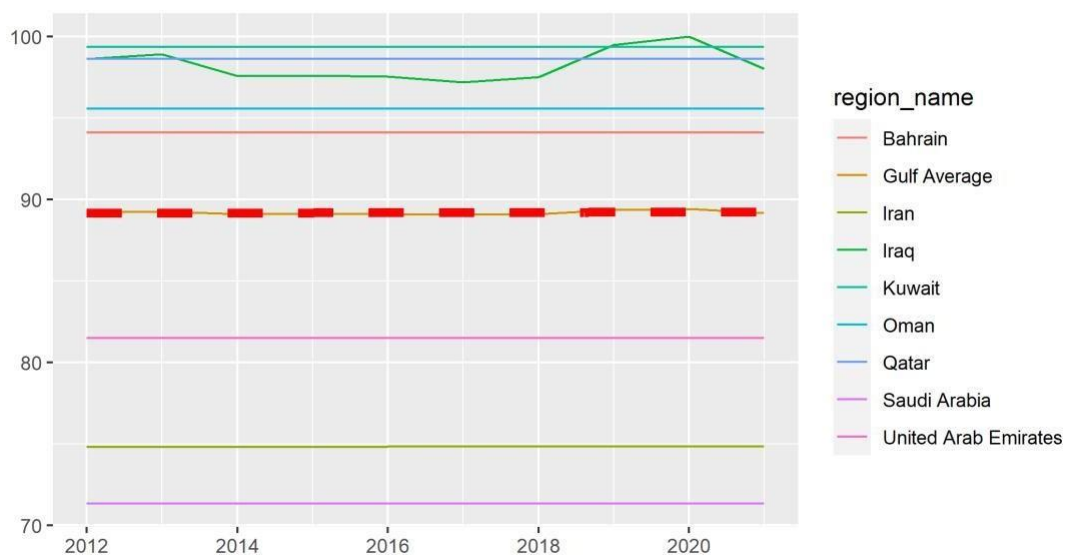


Figure 2 Biodiversity indicator

Figure 2 shows the biodiversity trends for individual countries in the Gulf region. Overall, there is a striking negative trend in biodiversity indicators. The individual biodiversity scores for all countries except for Iraq are declining. The main possible reason for this decline is the increasing human population, which stresses the natural habitats more. There is a tendency to build intensive residential/commercial areas by reclaiming the sea. In the region, it is common to completely build artificial islands within the sea for residential/commercial purposes. However, draining wetlands or mangroves for such purposes is a form of habitat destruction. Human activities such as coastal developments via physical concrete structures within the coastal areas are of great concern for maintaining biodiversity in the Gulf.

Coastal protection

Protecting the coastal areas is essential for the nature living in them and the society living near



these areas. The coastal protection goal measures protecting the coastal areas against natural events such as flooding and human-caused events such as erosion. The primary indicators measuring this goal compare the current amount of protection relative to the level provided recently. Pressures measuring coastal protection include indicators such as ocean acidification, sea surface level rise, UV radiation, and coastal governance.

Figure 3 Coastal protection indicator

The individual country scores regarding coastal protection goals have been more or less stable, as seen in Figure 3. The average score in the region is 89. Iran, Saudi Arabia, and UAE are below the average, whereas Bahrain, Iraq, Kuwait, Oman, and Qatar performed above the regional average.

Carbon storage

Oceans provide a major service to society by capturing huge amounts of carbon dioxide from the atmosphere and absorbing it in carbon. Mangroves, tidal marshes, and seagrasses living near the coastal ecosystems are essential in capturing carbon. Therefore, the health condition of these systems is measured by the carbon storage goal. This goal specifically measures the habitat areas of these three ecosystems and how they change over time. A score of 100 means these systems are protected and are in their best condition. A score of zero (0) means they do not exist anymore.

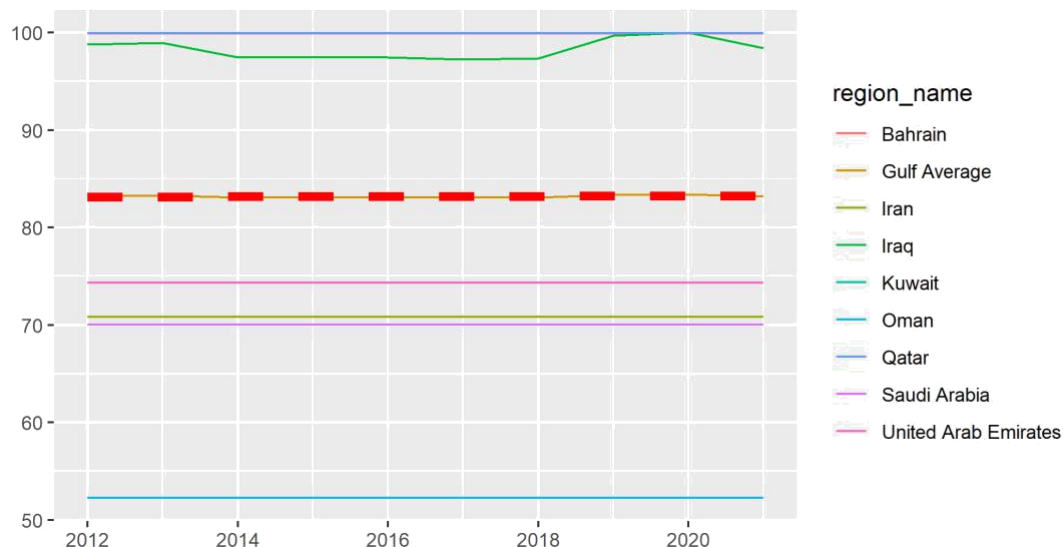


Figure 4 Carbon Storage indicator

Figure 4 shows the current state of sea habitat in the Gulf region. The average score from the carbon storage goal is 83. Kuwait, Bahrain, Qatar, and Iraq scored almost top scores, suggesting that the mangrove, tidal marsh, and seagrass habitats are still in the same condition as they used to be. Iran, Saudi Arabia, and UAE have a stable score of around 70 to 75, suggesting that some ecosystems are lost. Oman has a strikingly

low score of 52 in carbon storage. This suggests significant potential to recover mangroves, tidal marshes, and seagrass in Oman's coastal zone.

Clean waters

The Clean Waters Goal aims to eliminate human-caused contaminants such as chemicals, excess nutrients, pathogens, and trash from the marine environment. Agriculture is a major source of contamination via excessive fertilization containing chemicals such as nitrogen and phosphorus. These chemicals ultimately end up in the sea, causing eutrophication and possible dead zones in coastal waters. Human waste is another major pollutant where untreated sewage can cause major public health issues for people near the coastline.

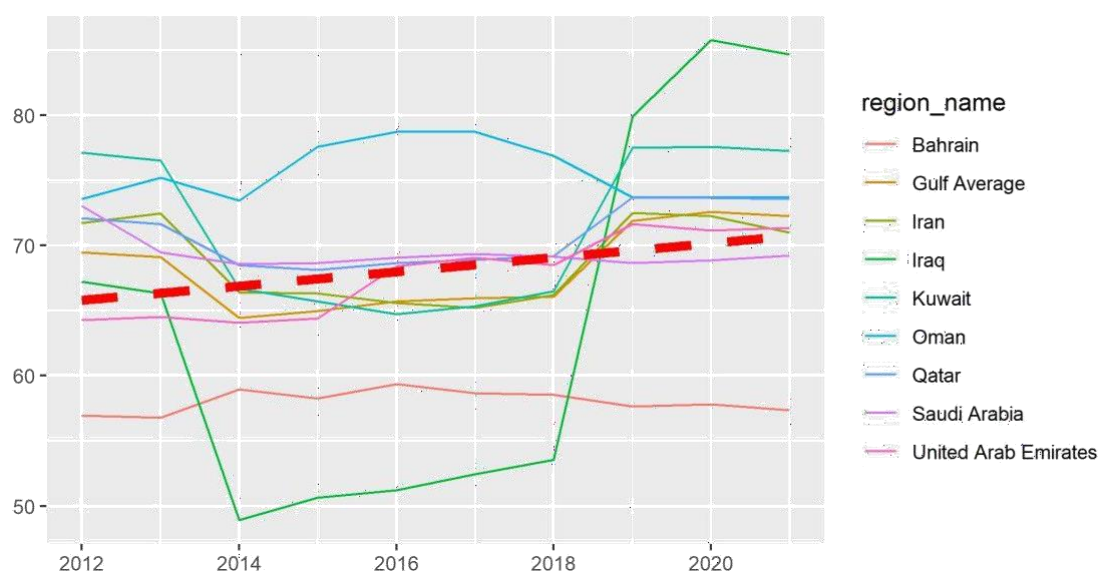


Figure 5 Clean waters Indicator

The indicators that define the clean water goals capture the degree to which waters are polluted by measuring the trends in chemical, nutrient, pathogen, and plastic trash pollution. For the Gulf countries, while there is variety in data, there is an overall tendency for achieving cleaner waters, as seen in Figure 5. Iraq has improved from a score of 50 in 2014 to 90 in 2021. Other countries also progressed towards cleaner waters. A major reason for this improvement is better recycling and wastewater treatment. The only exception is Bahrain, where the Clean Waters score is below 60. In Bahrain, groundwater aquifers traditionally played significant roles in human civilization, yet the overuse of these aquifers has caused many traditional natural springs to cease flowing.

Food provision

Food Provision aims to measure how sustainable the seafood and mariculture systems within a given region. The food Provision goal measures the amount of sustainably harvested seafood resources, including wild-

caught commercial fisheries, recreational fisheries, and seafood harvested from mariculture. There are two subgoals: one is the fisheries index, and the other is the mariculture index. The sustainable fisheries subgoal aims to capture how sustainable is the amount of wild-caught fisheries compared to the potential optimal level. There are specific indicators of fishery catch weight, ecological intensity, and protected marine areas. The mariculture subgoal measures maximum seafood yield from sea farms without damaging the coastline with indicators on the mariculture harvest weight and sustainability scores.

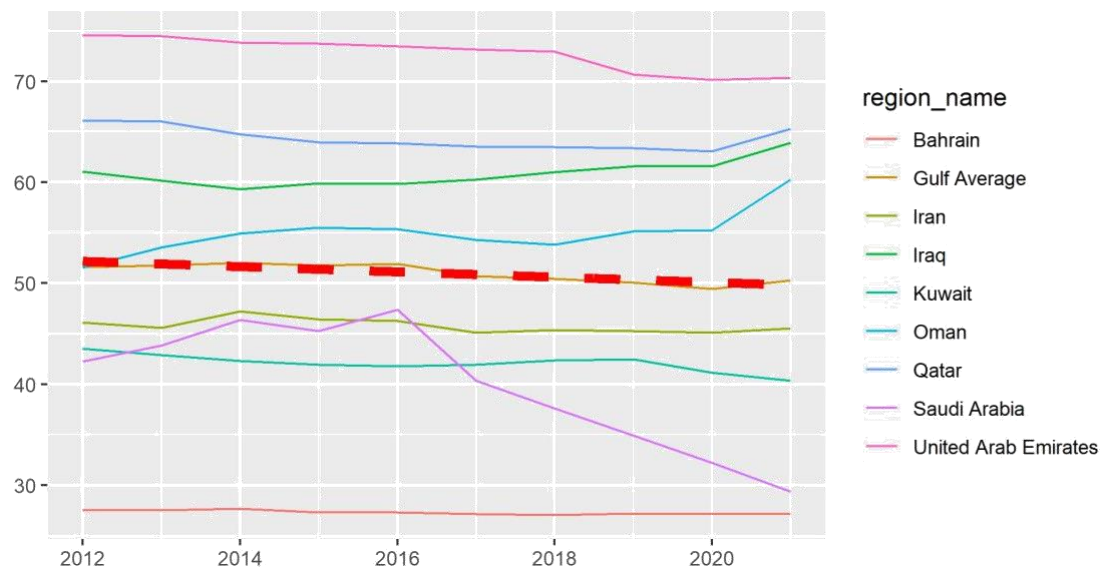


Figure 6 Food Provision Indicator

Before oil was found, marine resources were the primary food source for the region's population. It is still a significant source of food, but the sustainability of the region as a food source is becoming questionable. The coastal population has increased significantly over the past years and keeps increasing. The amount of fish population is declining due to catching beyond sustainable levels. There is also a general lack of mariculture concepts in the region. As mariculture is almost non-existent, alternatives to natural fish catching are limited. This is particularly evident in Bahrain and Saudi Arabia, where the food provision scores are way below the regional average. Figure 6 shows a similar case for Iran and Iraq, where food from the Gulf area is insufficient to feed their population.

Livelihoods & economies

The livelihoods and economies goal measures how much revenue is generated from the marine resources and how this revenue is reflected in the local wages. Coastal zones provide both direct and indirect jobs to the countries. A fishing company may provide direct employment, whereas a tourist hotel may provide indirect employment. The livelihoods subgoal measures the amount of benefits the people receive in the form of jobs and other benefits. The economics subgoal aims to capture the revenue generated by the marine-related industries.

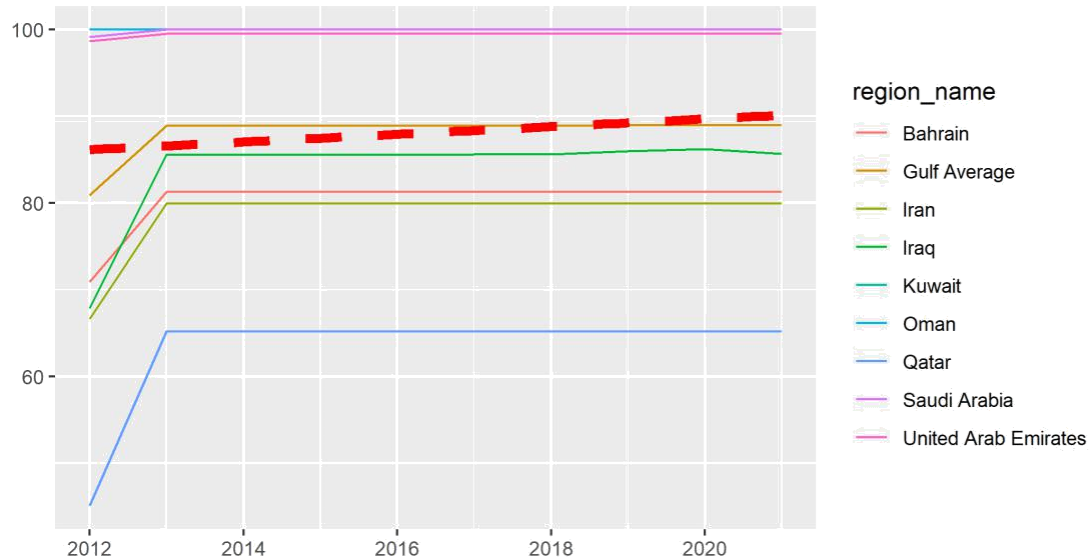


Figure 7 Livelihoods and Economies indicator

The OHI data has not been updated since 2013, as the data sources that enabled it to differentiate between different sectors of economic activity have not been updated. Nevertheless, based on Figure 7, we observe that between 2012 and 2013, there was a sharp increase in the livelihoods & economic subgoal scores for Bahrain, Iran, Iraq, and Qatar. Likely, these countries have already attained the top scores like Oman, Saudi Arabia, and UAE, which already had the top scores.

Natural Products

The natural products goal aims to measure countries' ability to sustainably harvest three natural products: ornamental fish, fish oil and fish meal, and inedible seaweeds & marine plants. The data on the amount and value of these natural products harvested is retrieved from FAO global aquaculture data, FAO commodities data, and related databases.

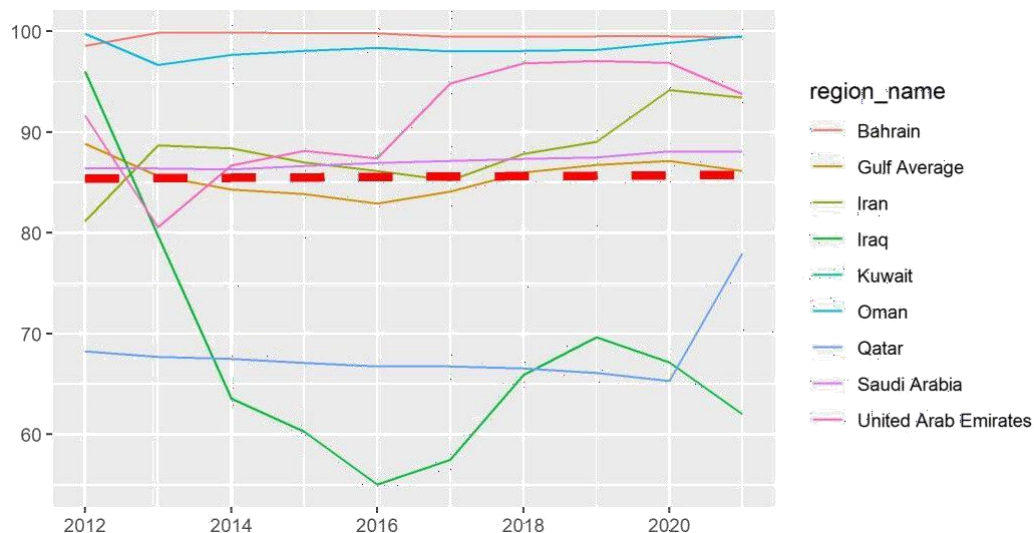


Figure 8 Natural products Indicator

Figure 8 shows a wide range of scores from the Natural Products category within the Gulf countries. Iraq and Qatar scored relatively lower than their neighborhood peers. Historically, pearl diving was a primary source of income for the residents in the coastal areas. It is still a part of the tradition. Still, with the invention of freshwater pearl farming, this activity has fallen from being a substantial economic activity to something more of a historical heritage.

Sense of Place

The Sense of Place goal aims to measure the level of protection for the iconic species and lasting special places that contribute to the region's sense of cultural identity. The iconic species subgoal aims to conserve the sustainable level of species that have become part of the local cultural identity. The data for this indicator is retrieved from the International Union for Conservation of Nature (IUCN) and related sources. The lasting special places aim to conserve the status of iconic geographical locations with relevant aesthetic, recreational, or existence value for the people. As no such data defines a lasting special place, proxy data is used as legally protected sites compared to the reference targets.

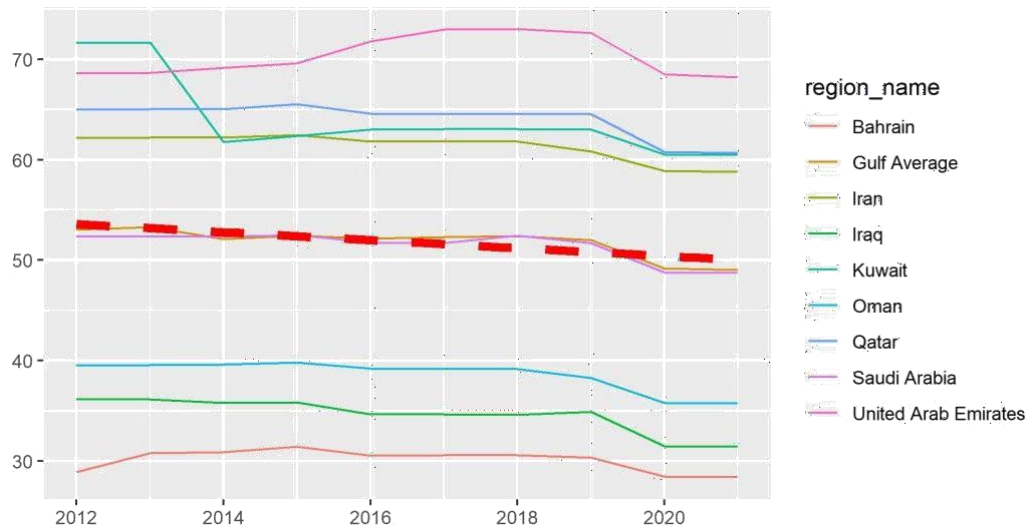


Figure 9 Sense of Place Indicator

The Gulf region not only scored very low in the sense of place goal, but we also observed a major decline in the score over the last ten years, as per Figure 9. Almost all countries in the region scored lower than a decade ago. This suggests that the regional countries are losing their traditional sense of place as measured by the iconic species and lasting special places indicators. One primary reason is the decline in iconic fish species such as brown spotter grouper populations. Regionally known as hammour fish, reports suggest that its population has declined by almost 85% in the last decade.

Tourism & Recreation

The Tourism & Recreation Goal aims to measure the economic surplus derived through tourism and recreational activities in the coastal areas. While no regionally calculated global data gives the exact economic surplus from the tourism sector, the number of jobs created in the sector is very closely related to the economic activity in this sector. Therefore, this economic surplus is measured by the number of employees working in the tourism sector.

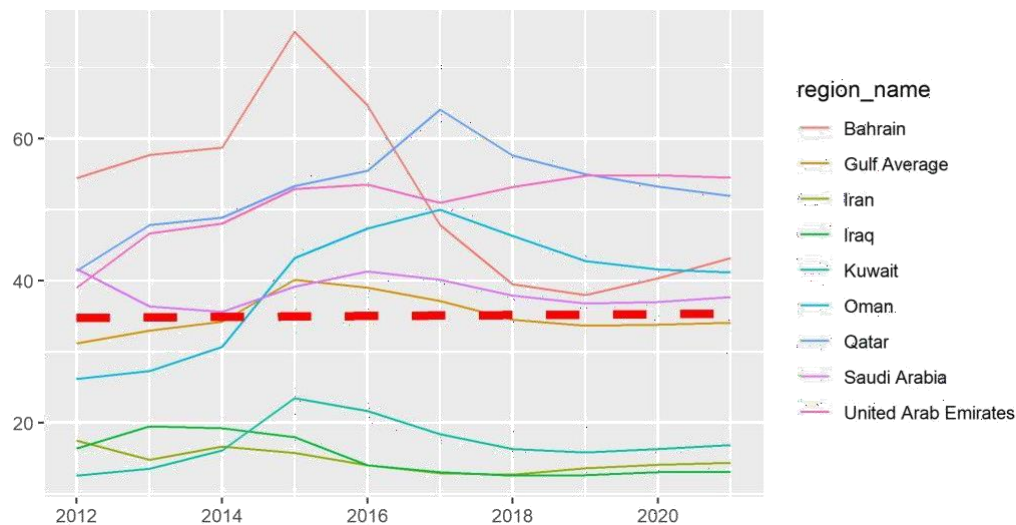


Figure 10 Tourism and Recreation Indicator

Figure 10 suggests that the tourism sector has been more or less stable over the last decade. It is evident that countries such as the UAE, Bahrain, and Oman have consistently invested in and actively promoted their tourism industries. These nations have successfully positioned themselves as attractive destinations for travelers. Moreover, Saudi Arabia has emerged as a new player in the tourism sector, making efforts to promote its unique offerings and diversify its economy beyond oil. However, the data reveals contrasting patterns for tourism sectors in Iran, Iraq, and Kuwait. These countries appear to lag behind their regional counterparts in providing employment opportunities through tourism. This could indicate that these nations have yet to tap into the potential of their tourism resources fully or may face challenges in attracting visitors and stimulating the industry's growth.

Further analysis is required to understand the reasons behind these variations comprehensively. Factors such as geopolitical circumstances, infrastructure development, marketing strategies, and governmental policies could play crucial roles in shaping the disparities observed in the tourism sectors of northern (Iran, Iraq, and Kuwait) vs southern (KSA, Bahrain, Qatar, UAE, Oman) countries in the region.

OHI Score

Each country's Ocean Health Index score is determined by averaging the scores obtained from evaluating

ten specific goals. A comprehensive assessment of a country's ocean health can be obtained by taking the mean of these individual goal scores. This approach ensures a balanced and holistic measurement of the various dimensions of ocean health, allowing for comparisons and analysis at the country level.

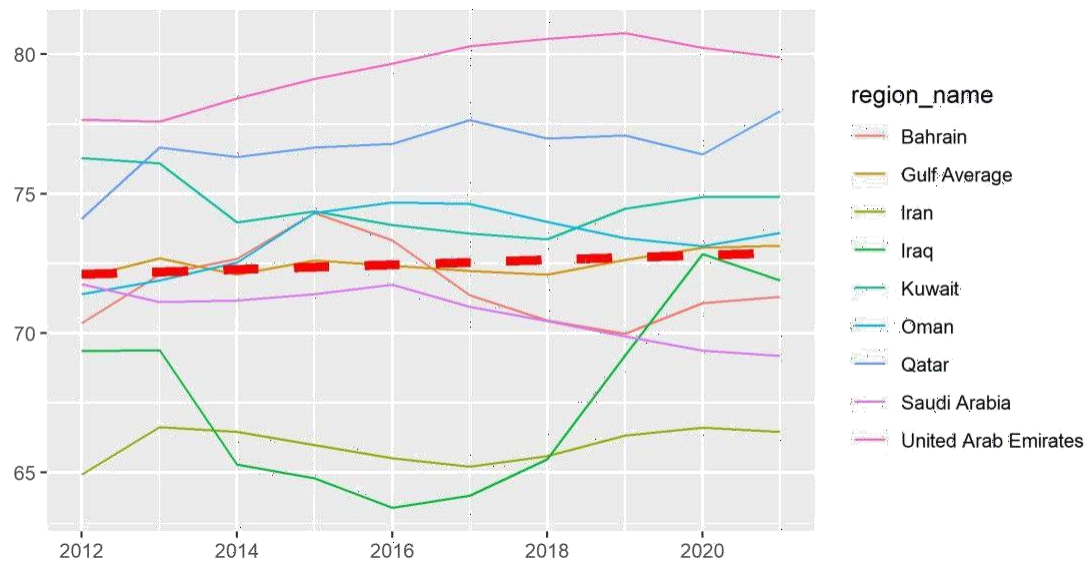


Figure 11 Average scores of Gulf countries

Figure 11 above visualizes each country's scores in 2021 in a flower plot. As can be seen in Figure 11, there is an overall tendency to improve scores over the last decade. UAE has been leading other regional countries, whereas Qatar is catching up. Iran is most likely at the lower end of this spectrum due to its low tourism and administrative governance score. From 2014 to 2018, Iraq had a lower score on the OHI index due to internal conflicts. Still, as soon as these conflicts were solved and the country had a stable government, its score improved substantially, even passing Saudi Arabia and Bahrain.

Flower Plots

The flower plot below visualizes the 2021 Ocean Health Index scores of individual countries located in the Gulf region. It is a unique visualization technique used to display multivariate data, also known as a bloom plot or a scatterplot with petals. It is a variation of a scatter plot where data points are represented by flower-like shapes, with each petal representing a different variable. The plot also helps us see the overall index score and subcomponents of the index scores.

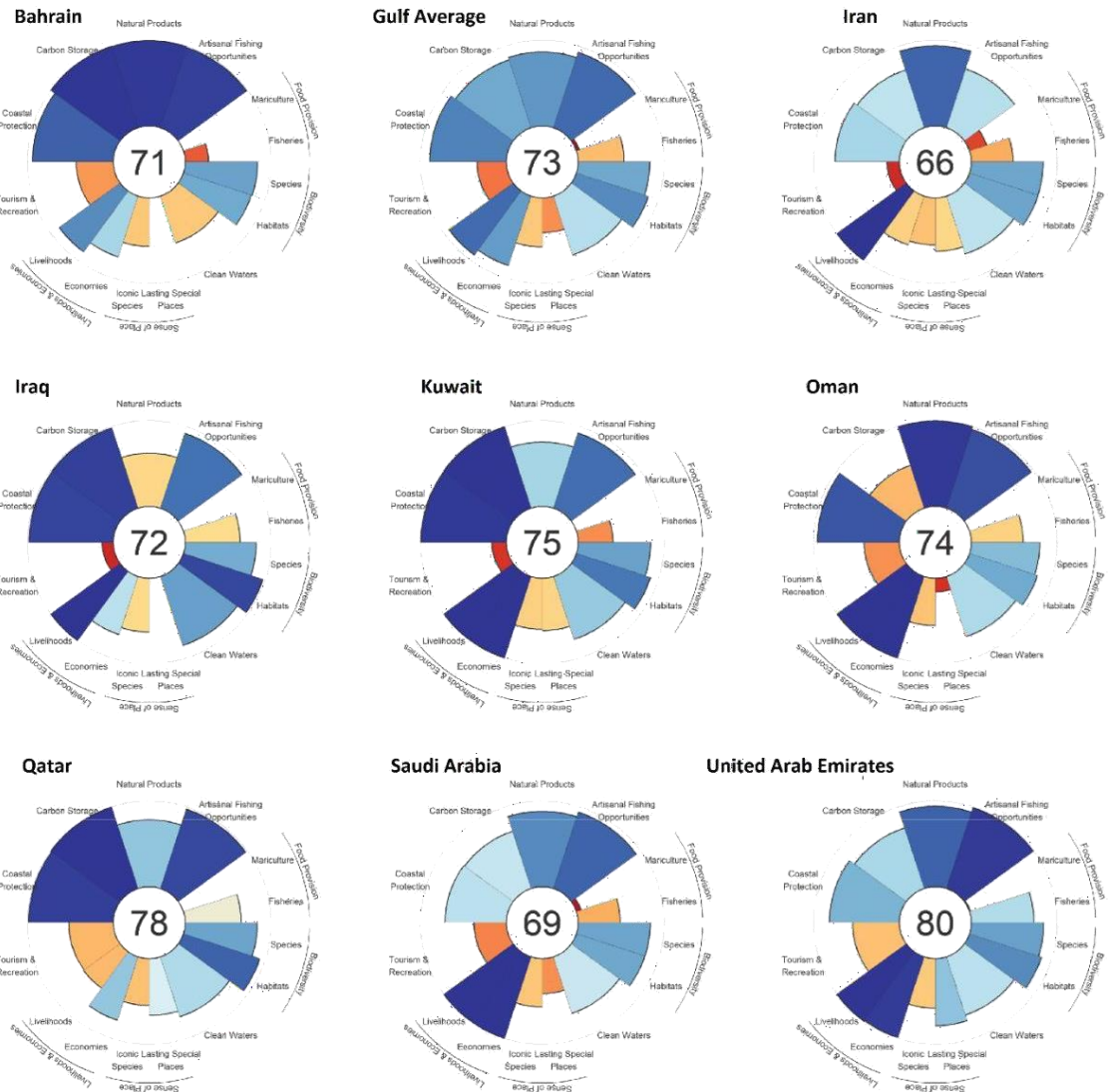


Figure 12 Flower plot score for individual Gulf country

Based on Figure 12 above, we observe that UAE has earned the highest score of 80, whereas Iran has earned the lowest score of 66. The average OHI score in the region is 73. Iran's overall score in 2021 was 66. Iran received the top or near top scores in natural products, artisanal fishing opportunities, and the livelihoods subgoal. However, it received very low scores in food provision, sense of place, and tourism & recreation categories. Iraq's overall score in 2021 was 72. Iraq received top or near top scores in coastal protection, carbon storage, artisanal fishing opportunities goals, habitats, and livelihoods subgoals. However, like Iran, it received very low scores in food provision, sense of place, and tourism & recreation categories. Kuwait's overall score in 2021 was 75. Kuwait received top or near top scores in coastal

protection, carbon storage, artisanal fishing opportunities, and livelihoods & economies goals. However, similar to its neighbors Iran and Iraq, it received very low scores on food provision, sense of place, and tourism & recreation categories.

Bahrain's overall score in 2021 was 71. Bahrain scored top or near the top in coastal protection, carbon protection, natural products, and artisanal fishing opportunities. However, it received very low scores on food provision, clean waters, sense of place, and tourism & recreation categories. Qatar's overall score in 2021 was 78. Qatar received the top or near top scores in coastal protection, carbon storage, artisanal fishing opportunities, and biodiversity goals. However, it received very low scores in food provision, sense of place, and tourism & recreation categories. Saudi Arabia's overall score in 2021 was 69. Saudi Arabia received the top or near top scores in natural products, artisanal fishing opportunities, biodiversity, and livelihoods & economies goals. However, it received very low scores in food provision, sense of place, and tourism & recreation categories. UAE's overall score in 2021 was 80. UAE received the top or near top scores in almost all categories except food production, sense of place, and tourism & recreation.

Oman's overall score in 2021 was 74. Oman received the top or near top scores in coastal protection, natural products, artisanal fishing opportunities, and livelihoods & economies goals. However, it received very low scores on carbon storage, food provision, sense of place, and tourism & recreation categories.

5. Conclusion

Overall, marine ecosystems play an essential role in the growth and development of the countries in the Gulf region. The region is best known for its oil and gas resources; however, marine life still plays a significant role in the regional economies. Nevertheless, there are indicators that the region is losing its sense of place and does not utilize mariculture. Fisheries score is also following negative trends. Tourism

- (3) recreation is improving in the central and southern countries, but the countries located in the northern Gulf do not show much improvement when it comes to tourism. Iran, Iraq, and Kuwait have significant potential, but this is not realized primarily due to security and political issues.

Metal contamination in fish is a significant environmental and public health issue that has garnered worldwide attention in recent years. This contamination arises from various sources, including industrial and agricultural activities, municipal and domestic wastewater discharges, and atmospheric deposition. As Cunningham et al. (2019) discussed, the Gulf region is particularly vulnerable to this problem due to the extensive industrialization, urbanization, and oil exploration and production activities. Several metals, including mercury, lead, cadmium, arsenic, and chromium, have been identified as problematic due to their potential to cause adverse health effects in humans, particularly if ingested through contaminated seafood.

Fish are particularly susceptible to accumulating these metals in their tissues and organs through the food chain. Thus, they are a crucial indicator of metal contamination levels in aquatic environments.

Improving the Ocean Health Index score for countries in the region requires a comprehensive approach that addresses key challenges and promotes sustainable practices. We recommend several interventions from the relevant public authorities.

Firstly, establishing and effectively managing Marine Protected Areas (MPAs) is crucial. These areas serve as sanctuaries for marine biodiversity, allowing ecosystems to recover and thrive. Governments should designate and enforce MPAs, ensuring they cover a range of habitats and incorporate effective monitoring and enforcement measures to protect against illegal fishing and other harmful activities.

Secondly, promoting sustainable fishing practices is essential for maintaining healthy fish populations and ensuring long-term food security. Implementing catch limits, promoting selective fishing techniques, and reducing bycatch are crucial. Collaborative efforts among regional countries can help manage shared fish stocks and establish effective regional fisheries management organizations.

Thirdly, addressing pollution is vital for improving ocean health. Strict regulations should be implemented to minimize pollution from land-based sources, such as industrial and agricultural runoff, sewage discharge, and oil spills. Governments should invest in wastewater treatment infrastructure, promote sustainable agricultural practices, and raise public awareness about the impacts of pollution on marine ecosystems.

Additionally, countries in the region must prioritize climate change mitigation and adaptation measures. Reducing greenhouse gas emissions and implementing strategies to mitigate climate change impacts, such as coastal zone management and coral reef conservation, are crucial. Enhancing the resilience of coastal areas, including mangrove restoration and beach nourishment, can help protect against the impacts of rising sea levels and extreme weather events.

To ensure the success of these efforts, it is important to foster environmental education and awareness. Public awareness campaigns can promote sustainable practices and responsible behavior towards the marine environment. Encouraging citizen science initiatives and community involvement in ocean conservation can strengthen local engagement and ownership. International cooperation is also vital. Collaborating with neighboring countries and engaging in regional agreements can facilitate collective action and information sharing. Participation in international organizations focused on marine conservation can provide valuable support and resources for enhancing ocean health in the region.

It is also important to know the current state of these indicators so that progress can be measured. According to Allen et al. (2017), using indicator-based assessments to track progress towards the SDGs is

essential for regional countries. Indicator-based assessments provide a valuable tool for policymakers and other stakeholders to identify areas of progress and where additional efforts are needed. They also enable comparisons across countries and regions, helping to identify best practices and areas for improvement. By adopting these methods and approaches, countries in the region can work towards improving their Ocean Health Index scores, ensuring the long-term sustainability and health of their marine ecosystems, and promoting the well-being of both present and future generations.

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Achieving Sustainable Development Goals (SDGs) through Collaboration in Rural Communities in India

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Abstract

India being the home to one-sixth of all humanity holds the key to success of the United Nations' Sustainability Development Goals (SDGs 2030) agenda. The Sustainable Development Report (2021) has ranked India at 120 among 165 nations. This indicates that the challenge of implementing the goals is indeed a daunting task. India adopted a multi-stakeholder approach to lay the foundations for the promotion of an inclusive and sustainable growth from the grassroots. The localization model of the SDGs focuses on "people first" (UNECE, 2016) and involves national, state, district and local governments (Panchayati Raj), businesses (Corporate Social Responsibility programs), non-government organizations (NGOs), Self Help Groups (SHGs) and citizens in implementing the SDGs. This conceptual paper reviews the role of multi-stakeholders in implementing the first six goals of the SDGs and the resultant impact on local communities. The paper is divided into four parts: the first part includes a review of literature relating to localization of SDGs in Indian context and operationalizing the SDGs, empowerment of local governments (village Panchayats) to partner with other stakeholders to identify and implement the SDGs that are appropriate to local communities; the second part analyzes the role of local governments at grassroots level and assessment of the outcomes using a range of publications and case studies; the third part discusses the challenges encountered by local governments and other stakeholders in developing and implementing the SDGs in local communities; and the final part concludes with highlights on implications for public policy and institutional governance, some of the limitations of this study and suggestions for future research.

Key words: SDG, CSR, Localization, Multi-stakeholders, and Local Governance

Introduction

The origin of the concept of sustainability stems from the United Nations' (UN) efforts in 1987 to protect the environment through long-term sustainable strategies [Brundtland, 1987]. It was

defined as the ‘development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs’. As far as India is concerned, protection of the environment is ingrained in the mind of any average person in India from childhood as the whole race worships Nature and approaches it with a religious fervor and spiritual importance. Besides, an inherent cultural trait of frugal living and saving for tomorrow inculcates a generational habit of conservation of resources for the future. Repeated reusing of almost all products whether it is made of paper, plastic, or metal, results in involuntary recycling until it is not usable any more. Frugal innovation is a hallmark of Indian ethos which influences social sustainability and human well-being [Khan, 2016]. India has adhered to most of the themes of the sustainability involuntarily for decades. A typical example of the renewable resources may be seen in using a small earthen pot for serving a cup of tea. Tea is usually served in all of North India in small earthen pots and consumers would dash it to ground to break it into pieces. The raw material of mud (clay) comes from the earth, the village potter has a continuous job in turning the clay into small cups and pots, and the consumers get a clean cup each time while the broken cup returns to the earth where it came from. Thus, there is no depletion of raw material and each cup being there for just one-time use protects the personal hygiene. The onset of globalization and the prevalence of multinational corporations (MNCs) have introduced plastic thereby costing the rural potters their permanent vocation and wage-earning job. People in India used the banana or lotus or lily leaf for their meal plate which became cattle feed after use. The daily use of biodegradable products is nowadays sadly reduced which is now replaced by paper or plastic plates. India had made great progress in meeting SDG targets related to climate change and sustainable consumption and production, but lagged behind in reducing poverty and hunger, improving education, promoting inclusive growth and achieving gender equality [Biberman et al, 2020, Thomas et al, 2021, Sharma, et al, 2021].

India is home to about 1.3 billion people comprising about one sixth of the global population according to the country's census data of 2011. About 833 million people who live in 641,000 plus villages are dependent on farming related activities and a good percentage of them also migrate to towns and cities as wage workers. India's young population aged between 0-14 accounts for 25.3% and working age population 15-59 account for 62.5% according to the United Nations population data, 2021. However, about 22.5% of the population in India experience poverty gap at an income of \$1.90 a day as per the World Bank. The Sustainable Development Report (2021) has ranked India at 120 among 165 nations. This indicates that the challenge of implementing the goals is indeed a daunting task. Sustainability refers to a long-term goal while sustainable development refers to the processes and pathways used to achieve it. Diversity of India has both positive and negative implications for achieving the SDGs goals for the country as a whole. Despite a weak overall ranking, the country's spillover ranking at 32 with a score of 98.90 indicates that India causes more positive spillovers.

Literature Review: Localization of SDGs and Local Governance

Generally, publications reflect what really matters to society. While the SDGs themes are global in scope and scale, issues addressed therein often have local or immediate impact [Juergen et al, 2020]. The choice of the SDGs also depends on the current phase of industrialization. India being a low to middle income country, research scholars in India have published on the SDGs of hunger, health, gender, water, energy, and responsible consumption (goals 2, 3, 5, 6, 7, and 12). The Chinese scholars have focused more on issues relating to SDGs of energy, communities, responsible consumption, and climate (goals 7, 11, 12, and 13). Subjective well-being has an important role in defining the success of the SDGs as there is a general correlation between the SDGs and community well-being. Countries with higher SDG index score indicate their higher levels of subjective well-being. Regional analysis demonstrates that what accounts for human well-being varies greatly according to regional socio-economic context and therefore policy efforts will be differentiated based on the contexts [De Neve et al, 2020]. Policy makers in

developing countries increasingly see science, technology, and innovation (STI) as an avenue for meeting the SDGs. Market failures call for government interventions in supporting STI for SDGs; GOI explicitly linked CSR program, entrepreneurial startup programs and incubators in the scope of activities to augment “social goods” [Surana, et al, 2020].

Localizing the SDGs also means placing the importance on local areas and the local people’s priorities, needs, and resources at the center of sustainable development [Reddy, 2016, Tjandradwei et al, 2018]. Due to the complex structure of the governments, excessive centralization, and the top-down administrative system in developing countries, many doubt the capabilities of local institutions and their readiness to take up the challenges of localization of the SDGs [Tucho et al, 2020; Bardal, et al, 2021; del Arco, et al, 2021, Eunice Annan-Aggrey et al, 2021]. Such skepticism is met with the argument that the localization of the SDGs will be an opportunity to democratize and empower local communities in order to find local solutions for local problems. Successful local governance over centuries fail at times of rapid changes [Dietz et al, 2003]. India’s local self-governance at the grassroot level is known as the Panchayat(s). Established in 1992, they represent decentralized local self-governance of village clusters with the elected head known as sarpanch or chieftain. Participatory local planning through an inclusive process anchored by the union of villages (Gram Panchayats), can result in identification and prioritization of issues perceived by the local community, ideation of context- specific solutions, and better utilization of funds received from various sources. This is particularly crucial in a country like India, where several diverse contexts exist even within a state. In heterogeneous context, achievement of the SDGs hinges on localized action with the village administration playing a significant role. The Gram Panchayats Development Plans (GMDPs) comes under the list of legislative powers of the states [Chakradhar, 2018].

The SDG goals are deliberately set lofty that require a concerted and harmonious participation of businesses, governments, non-governmental organizations (NGOs), and societies simultaneously for success [Stibbe et al, 2016; PEP 2016]. These goals are wholesome and target numerous potential areas unlike any of the previously set development goals. While most SDG goals register success in the well-being of individuals (for instance *no hunger* - goal 2), responsible production and consumption (goal 12) and climate action (goal 13) do not [De Neve et al, 2020; Pradhan et al, 2017, and Wastl, et al, 2020]. Thus, there is an expected synergy and trade-off between certain pairs of goals. Therefore, this requires collaborative efforts and sensitive response among all groups. Both are important for the multi-stakeholder initiatives to be fruitful and each group has to be humble in being a facilitator in the process [Biekart et al, 2017; Moreno-Serna et al, 2020].



When planning is done at a macro level, its implementation fails at a micro level as evidenced by a study of malnutrition among children in 600,000 villages in India [Das, et al, 2020]. It reveals that the advanced modeling techniques may be applied in rural areas and micro regions to increase the success rate of the SDGs as collection of data is available nowadays [Kim et al, 2021]. Diversity usually causes a barrier in the implementation of SDGs and so each region with all of its local administrations and businesses engaged in a collective effort, has to adopt a fundamental change in its approach to achieve sustainability [Moallemi, 2020]. Higher education institutions tend to focus on rigor of curriculum, effectiveness of teaching, performing applications through research, and enhancing learning outcomes. The Ashoka University, India has gone a step further as it has embraced the green campus concept through a three-

dimensional approach of environmental management system, public participation, and teaching & research [Alshuwaikhat et al, 2008, Chakraborty, et al, 2021].

Involvement of Multiple Stakeholders

As per the 2011 national census, the total population is 1,210 billion out of which 833 million people live in rural areas. Therefore, it is imperative for the country to adopt a multi- stakeholder initiative at all national and subnational levels to accomplish significant success in the SDGs. The size of the rural population is a challenge to implement the SDGs with an inclusive approach. Hence, India created a designated unit called the National Institution for Transforming India (NITI) in 2015. It is a premier policy think tank that is charged with the responsibility of implementation of the SDGs and aligning government programs to serve as a catalyst in the country's economic development. With the Prime Minister serving as the chairperson, the NITI envisions acceleration of SDGs through localization at national and sub- national levels. The essential purpose of this method is to build awareness at all levels and make each unit respond with sensitivity. After a series of 25 major consultations at all levels, the adoption, implementation, and monitoring of the SDGs is placed on a fast track wherein various intra and inter-governmental partnerships are working harmoniously with no one left behind [NITI, 2021; QMQL et al, 2021]. The NITI composite index (2021) highlights substantial variation of 77 to 52 across the states. The southern states of Kerala and Tamil Nadu are on the top and the northern states collectively known as the Hindi belt, have recorded the lowest progress in achieving the SDGs. Mountain and northeastern states have also performed well on environmental targets. To succeed in a large and diverse country like India policy makers have recognized that localization of SDGs is an imperative. The theme of sustainability in its infancy was meant to emphasize localization and involvement of multi- stakeholders who are familiar with local contexts and engage local institutions (Panchayati Raj at the village level) to plan and implement the SDGs that are critical for the well-being of the local communities. Involved partnerships as implied by the SDG 17, multi-stakeholder partnerships (MSPs) are an important means to sharing of all resources including knowledge, expertise, technology and capital to achieve the SDGs in all countries, particularly developing countries. The UN gives high priority to partnerships as a vehicle to achieve the SDGs. It claims that Public Private Partnerships (PPPs) could alleviate the impact of shortages of public funds, experience and technological innovation [Wang et al, 2020].

India is the first country to mandate Corporate Social Responsibility (CSR) investments of all of its corporations whereby the outcomes have a significant impact on society. Besides, the government funds some monetary support to bridge the financing gap of \$565 billion per annum to accomplish the SDGs by 2030 [Pandey et al, 2021]. Policymakers in India must strengthen the role and coordination of science, technology, and innovation-based incubators in order to achieve the SDGs [Surana et al, 2020]. Better governance of agriculture, food

consumption, health, and nutrition will help a country achieve success in the SDG goal 2 on hunger as evidenced by southern states in India [Das et al, 2018]. Kerala is a southern state in India where the tribal community has registered better prosperity than their counterparts in other states in India and also South Asian countries. This is a remarkable achievement in spite of their modest economic performance as evidenced by a case study in Attapadi region in the Palakad district [Sarah et al, 2021].

The circumstances in present day India are congenial for sustainable goods and services as the consumers show an increasing preference for them. The investors' consciousness for Environmental, Social and Governance (ESG) has helped India receive \$28.6 billion of Socially Responsible Investment (SRI) in 2019 [SATTVA-UNDP 2020]. US, China, and India are the top three countries producing enormous amount of E-waste (solid waste stream) each year. All countries in the world must responsibly dispose their E-waste comprising mostly from the telecom, medical, computer, and electrical equipment. Consumers must be educated to adopt proper recycling. At the same time, manufacturers must produce their products with a longer lifespan and with the use of recyclable material. The transformation of E-waste into green elements is a shared responsibility between manufacturers and consumers [SATTVA, 2021].

As far as the CSR funds are concerned about \$12.5 billion were invested in SDGs related projects during the 5-year period ending 2020 in India. The southern states received about \$2.5 billion and Tamil Nadu about \$500 million. The primary SDGs related projects were in education, healthcare, rural development, poverty, hunger, malnutrition, vocational skills, livelihood enhancement projects, sanitation and drinking water. The public sector project accounted for 17% and private sector companies 83%. About 50% of CSR funds were invested by funding the implementing agencies, including NGOs. [SATTVA, 2021].

The Tata Group of companies is a popular conglomerate in India. It recognizes the importance of including the ESG factors in its strategies. Since the businesses promote employment, innovation, and R&D, they play a vital role in increasing prosperity for all through sustainable development [Tata Sustainability Group, 2017]. The World Business Council for Sustainable Development (WBCSD) strongly advocates a novel concept of inclusion by integrating low income communities into the firms' value chains where they can fit in as customers or vendors or service providers [WBCSD, 2016]. Notwithstanding all adverse effects of COVID-19, the pandemic has underscored the importance of sustainable future for one and all [Mullick et al, 2020]. The setbacks in the implementation of SDGs due to COVID-19 may be overcome through CSR programs [Nair et al, 2021]. According to the Federation of Indian Chambers of Commerce and Industry (FICCI), 85% of its 250,000-member companies in India are diligently promoting the SDGs through their businesses [FICCI, 2018]. Odanthurai is a small village in the state of Tamilnadu, India has become a model for several local governments in India. It provides

free supply of electricity to its 8,000 residents. Its local administration used its own resources in the production of wind and solar energy. The village has self-sufficiency in water as well [R. Chinnadurai, 2014].

Impediments to Progress

India has a long way to improve its ranking in the global indices pertaining to poverty, hunger, the status of women, inequality, and general happiness remain far from satisfactory. The country ranks 131 on HDI out of 189 countries and 94 out of 107 assessed countries in the Global Hunger Index, ranked 139 out of 149 in Happiness Index. Gini coefficient of 82.3 in 2020 compared to 74.1 in 2019 indicates that inequality continues to increase. India's emphasis on poverty eradication, food security, health, education, gender equality, access to water and sanitation, employment generation in rural communities remains fundamental goals of rural development. In this context, localization of SDGs and the role Panchayat Raj Institutions in implementing the SDGs has become an opportunity to local communities and also a challenge. Formulation of participatory Gram Panchayat Development Plans by Village Panchayats coincided with SDGs in 2015.

Integrating the SDGs with the rural development plan (Gram Panchayat Development Plan) devolved to the rural areas \$29 billion for the period 2015-2020 under the Fourteenth Finance Commission (FFC) award. This was followed by the initiation of participatory local planning integrating FFC and Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), and converging resources under the control of the local administration. The local development plans of Panchayats are expected to synchronize with attainment of identified sectoral SDGs goals. Building local leadership capacities and promoting innovative, community driven, sustainable solutions to local problems is key to attaining the SDGs at the local level. The essence of good local governance requires enhanced capacity of the elected representatives of the Panchayati Raj Institutions and their functionaries. There are 153,400 Village Panchayats, 6613 Intermediary or Block level Panchayats and 630 district level Panchayats. Elected Women Representatives are key agents for transformational economic, environment and social change in India. Lack of knowledge among elected representatives, especially women about Panchayat Raj Act and rules and this compounded by illiteracy make it difficult and lead to misuse of resources and corruption. Elected women representatives are often represented by their male relatives (proxy or stand in representatives)

Poor performance in hunger and equality (Goals 2 and 5)

The goals of gender equality, decent work and economic growth, ending hunger, upholding peace justice and strong institutions are lagging way behind. The country's score on goals of gender equality and ending hunger were less than 50. The performance on SDG 2, ending

hunger by 2030 appears dismal with the score having fallen from 48 in 2018 to 38 in 2019. The Global Hunger Index released in October 2019 highlights India's poor performance by placing it at the rank of 102 among 117 qualifying countries. In India, 25 states and Union territories failed to address hunger and malnutrition, with the state of Jharkhand faring the poorest, scoring 22 of 100, followed by Madhya Pradesh at 24 and Bihar at 26. States that lagged also include Gujarat, Maharashtra, Chhattisgarh, Odisha, Rajasthan, Meghalaya and Uttar Pradesh. Three new indicators were considered in 2019 that focused on anemic children (6-59 months), underweight children (0-4 years), and gross value added in agriculture per worker. These were in addition to the four existing indicators: Rural households under public distribution system; Stunted children (under age five); Pregnant women (15-49 years) who are anemic; and Rice, wheat and coarse cereals produced annually per unit area. Goa with a score of 76 topped this indicator among the states, down by four points since 2018. Considering the poor performance on SDG implementation in many critical areas, there is a need to reorient public policy away from its short-term emphases, towards focusing on long-term goals. There is a need for localization of SDGs to aid in its implementation and monitoring strategy. For this, institutional mechanisms need to be developed and initiatives taken to cast local development plans in the SDG framework.

The new education policy released in 2019 emphasizes the basic tenets of the SDG 4 with a renewed focus on quality education, universal access, equitable quality, and life-long learning. Considering the performance of the front runners, literacy levels seem to have a positive impact on the SDGs especially in the southern states. The state of Kerala has played an exemplary role in advancing the cause of education. Some of the limitations in implementing SDG 4 are the disparities in access to quality education, especially at the tertiary level, with wide variations between states and within states. Poor learning outcomes achievement in school education, inadequate measures to targeting teacher quality, and challenges of employability of students graduating from schools and colleges are also a matter of deep concern. About 75% of the eligible population is still left out of the higher education system. There are also instances of innovation in advancing SDG 4. The state government of Andhra Pradesh (AP) in partnership

with Ammachi Labs implemented the ASPIRE program in 2017 targeting students from classes 8-12 in 40 residential schools run by the state's Social Welfare Department. The program introduces students to experiential learning, a blend of conceptual thinking, life skills, digital literacy, and soft skills.

Implications for Public Policy

A study of 1,000 marginalized customers in 34 villages in India and Tanzania shows the importance of basic marketplace literacy. These customers have had very little access to marketplace. With some literacy, they experienced an increase in their psychological well-being.

They felt encouraged to become entrepreneurs [Viswanathan et al, 2021]. Literacy promotes the economy to be knowledge driven thereby making the individuals less vulnerable. Thus, the scope of the SDGs is accomplished [Oshenekohwo, 2017]. A study of 1,519 villages all across India recognizes the complexity in the healthcare in rural areas where many informal providers dominate the scene with varying quality and pricing. The study highlights the need for a suitable healthcare policy for India [Das et al, 2020]. The importance of women empowerment is noticeable when mothers become members of the Empowered Action Group (EAG) and thereby avert infant mortality [Paul et al, 2021].

India has adopted numerous programs for the realization of the SDGs by 2030. The Empowered and Resilient India (Sashakt Bharat - Sabal Bharat) program has lifted more than 270 million people out of poverty with placing them on a path of economic growth. The Clean and Healthy India (Swachh Bharat - Swasth Bharat) program addresses health, nutrition, and sanitation. Social inclusion and universal access are promoted by the Inclusive and Entrepreneurial India (Samagra Bharat - Saksham Bharat) program. The Sustainable India (Satat Bharat – Sanatan Bharat) program emphasizes clean and efficient energy systems while the Prosperous and Vibrant India (Sampanna Bharat- Samriddh Bharat) program is looking forward to take the country from a \$3 trillion to a \$5 trillion economy by a wholesome inclusiveness, building infrastructure, and promoting innovation.

Conclusion

The traditional method of involuntarily adopting sustainability themes in India is now being reintroduced through collective efforts of the government at the federal, state, and regional levels in conjunction with public private partnerships (PPPs) and non-governmental organizations (NGOs). The challenges that stem from a diverse population, lack of awareness, and weak standards of literacy are being addressed in multiple platforms. While the country has advanced in many industrial sectors, financial market modernization, privatization of many state-owned enterprises (SOEs), and market liberalization, accomplishment of the SDGs by

2030 seems to be an elusive target. However, the overwhelming attention by multi-stakeholders is expected to bring home the benefits of the SDGs by 2030.

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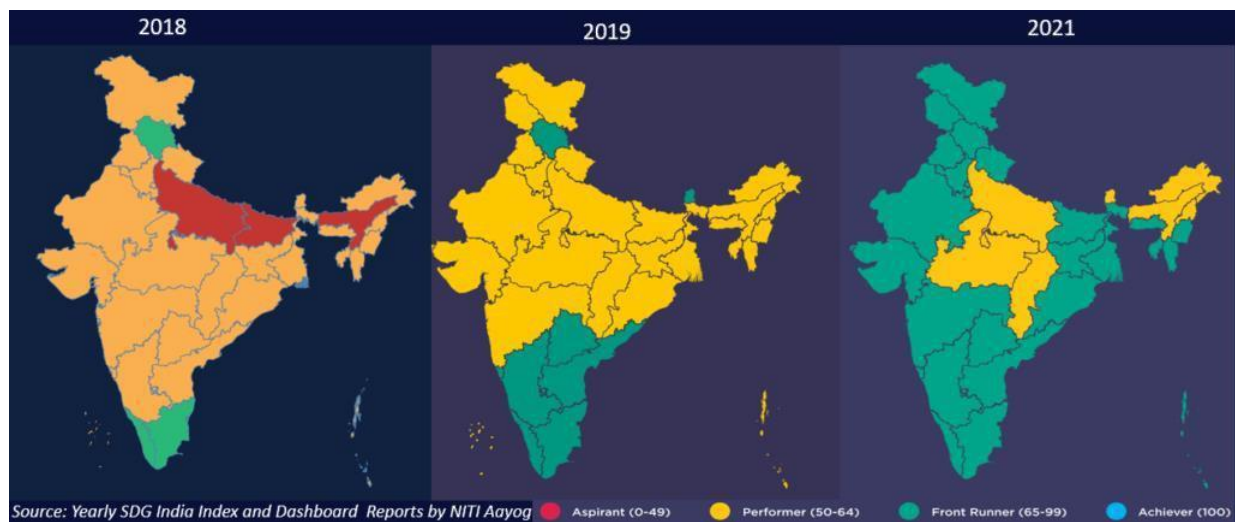
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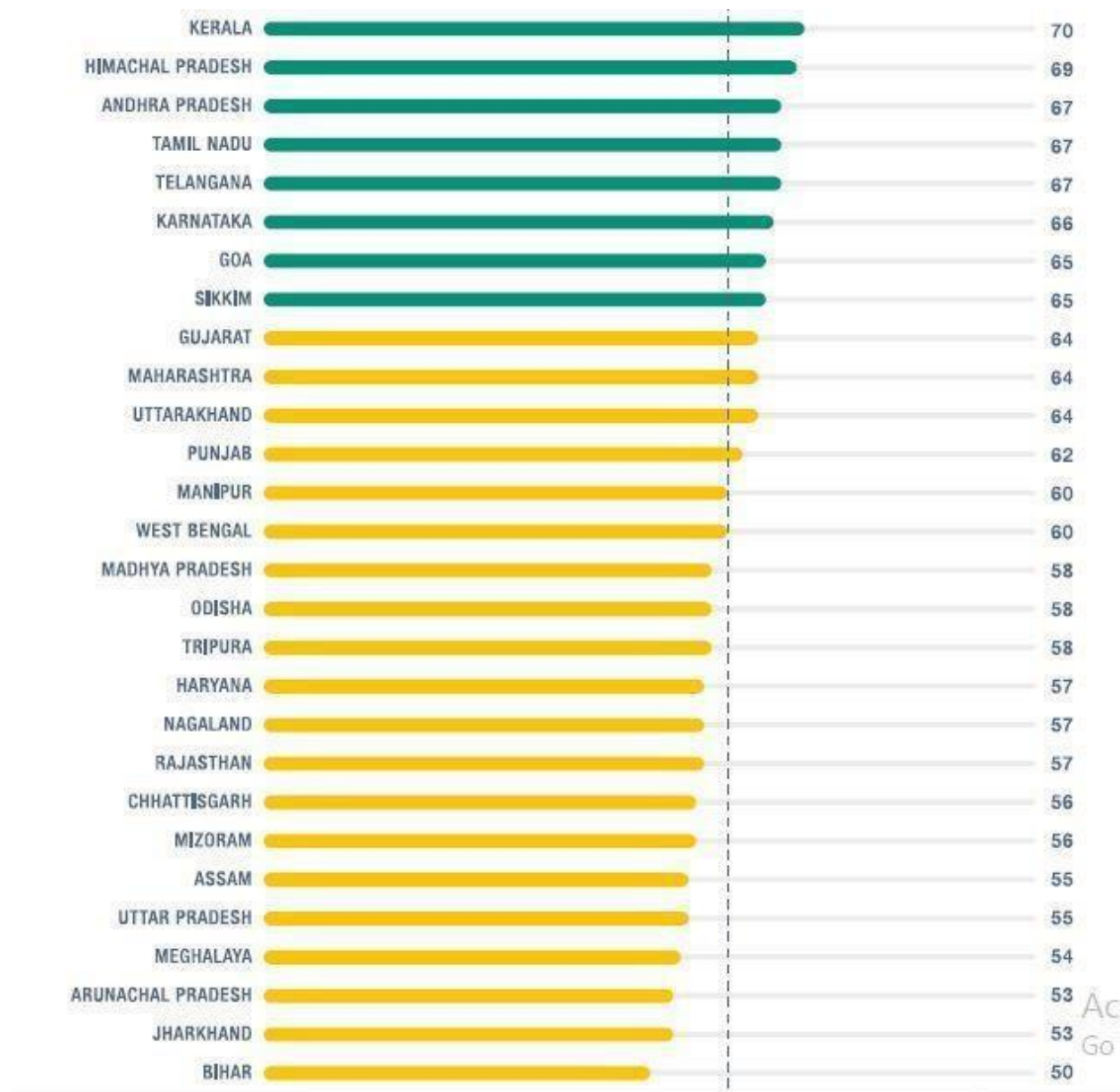
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Recent Annual Progress



Status of States in advancing the SDGs



[ID:139]

Unemployment and its Effect on Indian Economy

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ABSTRACT

Inflation of employment is primary challenges that affect every economy in all developing countries. The unemployment rate in India has been increasing over the years. The current paper aims to analyze the factors leading to unemployment and its impact on the Indian economy. The study focuses on how employment rate plays a role in overall development of the Indian economy by secondary data sources and focuses on the present scenario of unemployment in India. The present paper explains about the reasons for Unemployment and its cause on economy of the country. The paper analyzes how an enhance in population, poverty, illiteracy, inflation and lack of employment and partial employment can lead to a slowdown in the growth of the economy. The paper discusses the Recommend Strategies for Improving the Status of Employment in the Indian economy problems faced by the economy due to high rate of unemployment.

Key words: unemployment, population, Economic growth, development, Inflation, Poverty.

INTRODUCTION

One of the most challenging problems faced by developed and developing countries alike is the increasing large number of unemployed young people. Failure to incorporate young people into the labour market has wider implications for countries' future growth and development. Therefore, the issue of youth employment and unemployment is prominently on the agenda of international development. In developing countries, the extent of the relationship between poverty and unemployment is often the subject of significant discussion. The root of the debate can be traced to the skepticism identified by successive labor force surveys in developed countries about the validity of low unemployment levels.

Unemployment is a circumstance when an individual effectively looks for a task and can't find work. Unemployment indicates the wellbeing of the economy. The unemployment rate is the most successive proportion of unemployment. The unemployment rate is the quantity of

individuals' jobless partitioned by the working populace or individuals working under workforce. Unemployment happens when an individual who is effectively searching for business can't find work. Unemployment is often utilized as a proportion of the soundness of the economy. The most incessant proportion of unemployment is the unemployment rate, which is the quantity of jobless individuals separated by the quantity of individuals in the workforce.

REVIEW OF LITERATURE:

Bairagya Indrajit (2018) Shows that the unemployment rate was higher among the educated than the uneducated and the rate of unemployment increases with higher education levels. The paper analyzes the factors responsible for higher rates of unemployment in the economy. The article proves that as levels of education becomes higher; people tend to demand jobs with a good pay scale and do not prefer jobs in the informal sector. The paper reinforces the need to enhance capital formation in order to reduce unemployment rate in India.

Fujita, Shigeru (2010) Using the monthly CPS, the author estimates unemployment-to-employment (UE) transition rates and unemployment-to-inactivity (UN) transition rates by unemployment duration for male workers. When estimated for the period of 2004-2007, during which no extended benefits are available, both of the transition-rate profiles show clear patterns consistent with the expiration of regular benefits at 26 weeks. These patterns mainly disappear in the profiles for the period of 2009-2010, during which large-scale extensions have become available. The instigator conducts counterfactual experiments in which the estimated profiles for 2009-2010 are replaced by the hypothetical profiles inferred from the ones for 2004-2007. The results indicate that the benefit extensions in recent years have raised male workers' unemployment rate by 0.9- 1.7 percentage points. Approximately 50-60 percent of the total increase is attributed to the effects on UE transition rates and the remaining part is accounted for by the effects on UN transition rates.

Abraham Vinoj (2009) shows that when there is a distress, level of income falls below the sustenance level, and the proportion of population that is not working must enter the labour market for supplementing the household income. The distress that most commonly occurs in the agricultural sector leads to lower levels of productivity, lower income and stagnation. The paper shows that the income crisis that gripped farming led to employment growth in rural areas.

OBJECTIVES OF THE STUDY:

- To Study the Current Scenario of Unemployment in India
- To Identify the Causes of Unemployment in India
- 3. To Recommend Strategies for Improving the Status of Employment in the Indian economy

RESEARCH METHODOLOGY:

The present studies based on secondary data and is descriptive in nature. The secondary data has been collected through various resources such as books, research journals, articles, reports of Ministry of Labor and Employment and reports of planning commission of India / NITI Ayog.

GOVERNMENT INITIATIVES:

The following are the initiatives taken by the Indian government to increase employment opportunities in the economy:

- (19) Integrated Rural Development Programme (IRDP): Launched in 1980, this scheme aims to create full employment in rural areas.
- (20) Training of Rural Youth for Self- Employment (TRYSEM): Launched in 1979, this scheme aims to make unemployed youth in rural areas between 18-35 years to acquire self employment skills.
- (21) Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA): This scheme , launched in 2005, aims at providing social security by guaranteeing minimum 100 days of paid work in a year to families that have adult members opting for an unskilled labour-intensive work.
- (22) Pradhan Mantri Kaushal Vikas Yojana (PMKVY): The scheme launched in 2015, aims to enable a large number of youth in the country to take up skills training required for industries.
- (23) Start up India Scheme: Launched in 2016, the objective of the scheme was to develop ecosystems that promote entrepreneurship in the country.
- (24) Stand up India Scheme: Launched in 2016, the objective of this scheme was to provide bank loans from Rs. 10 Lakh to Rs. 1 Crore for at least one SC/ST borrower and to minimum one woman borrower per branch of the bank to set up a Greenfield enterprise.

Table No. 1
Unemployment Rate in India

Sr. No.	Years	Unemployment Rate (%)	Annual Change (%)
1	2011	8.17	-0.15
2	2012	8.10	-0.07
3	2013	8.04	-0.06
4	2014	7.98	-0.06
5	2015	7.92	-0.07
6	2016	7.84	-0.07
7	2017	7.73	-0.11
8	2018	7.65	-0.08
9	2019	6.51	-1.14
10	2020	10.20	3.69
11	2021	7.71	-2.48
12	2022	7.33	-0.38

Data Source: [World Bank](http://www.worldbank.org) (www.macrotrands.net. Retrieved 2023-10-31.)

CAUSES OF UNEMPLOYMENT IN INDIA:

- **Higher population:** The rate of growth of population is increasing continuously for the past decades. The number of community in the country, especially the youth population, is much greater compared to the number of jobs available. This creates a situation of unemployment in the economy.
- **Poverty and Illiteracy:** One of the main reasons for unemployment is due to a lesser number of people being educated and literate. As they do not possess the skills necessary for employment due to low levels of income and standard of living, they often find it difficult to obtain jobs in the formal sector.
- **Inflation:** A continuous rise in prices without a proportionate increase in goods and services produced, leads to fall in real income in the hands of the public.

When there is an increase in community, supply of labour is greater than the require which has an adverse impact on wages. This leads to more people being unemployed as they are not happy with the current wages being offered to them.

- **Agricultural workers:** The people who are employed in the agricultural sector are employed only upto a certain period of time and are unable to find jobs for other parts of the year.
- **Casual and informal labour:** As the number of jobs available is much lesser compared to those who are in need of work, people tend to work in the informal sector which comprises of low and irregular wages.
- **Lack of full employment:** The industrial sector does not work to its maximum capacity due to lack of adequate machinery and supply of raw materials due to which they are unable to hire maximum workers in factories.

TYPES OF UNEMPLOYMENT IN INDIA:

In India, there are six types of unemployment. The types of unemployment are discussed below:

1. Disguised Unemployment: Unemployment where people employed are more than actually needed. Disguised unemployment is generally traced in unorganized sectors or the agricultural sectors.

2. Structural Unemployment: This unemployment arises when there is a mismatch between the worker's skills and availability of jobs in the market. Many people in India do not get job matching to their skills or due to lack of required skills they do not get jobs and because of poor education level, it becomes important to give them related training.

3. Seasonal Unemployment: That situation of unemployment when people do not have work during certain seasons of the year such as labourers in India rarely has occupation throughout the year.

4. Vulnerable Unemployment: People are deemed unemployed under this unemployment. People are employed but easily i.e. without proper job contracts and thus report of their work are never maintained. It is one of the main types of unemployment in India.

5. Technological Unemployment: the situation when people lose their jobs due to advancement in technologies. In 2016, the data of the World Bank predicted that the proportion of jobs threatened by automation in India is 69% year-on-year.

6. Cyclical Unemployment: unemployment caused due to the business cycle, where the number of unemployed heads rises during recessions and declines with the growth of the economy. Cyclical unemployment figures in India are negligible.

IMPACT OF UNEMPLOYMENT:

The unemployment in any country has the following effects on the economy:

- The problem of unemployment gives increase to the problem of poverty.
- The government suffers extra borrow burden because unemployment causes a decrease in the production and less utilization of goods and services by the people.
- Unemployment affects the economy of the country as the workers that could have been gainfully employed to create resources actually get dependent on the remaining working population, thus escalating socio-economic costs for the state. For instance, a 1 % increase in unemployment reduces the GDP by 2 %.
- It is often seen that unemployed people end up getting addicted to drugs and alcohol or attempts suicide, leading to losses to the human resources of the country.

SOLUTIONS TO REDUCE UNEMPLOYMENT:

1. By providing adequate skillbased and vocational training, unemployed youth can obtain jobs in industrial and services sector.
2. Increased investment in heavy industries: Investment in heavy and basic industries and consumer goods industries should be increased to provide more employment with more production.
3. Self-employment should be encouraged: Government should take initiatives to encourage self-employment. Young entrepreneurs should be assisted with hassle free loans. The unemployed are a great concern to the Government.
4. Improvement in education and health care services increases human capital formation and provides more employment opportunities to the public.

CONCLUSION:

Unemployment is primary challenges that affect every economy in all developing countries. The rate of unemployment in India has been increasing over the years. The rate of the employment is the important for the economy of the any country. The employed people have the capability to boost the economy and have capable to use the resources available in country. In Indian situation, as discussion has been made, it is create that the rate of the population is one of the vital factors to slow down the rate of employment. Now a days, educational exposure have increased many fold in India and youth are ready to take the new challenges in order to contribute in the growth and development of the country in addition to the self growth.

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The Role of the UAE Government in Fostering Institutional Development to Transform the Nation from Oil Dependence to a Diversified Economy

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Abstract

This article assesses the leadership of the United Arab Emirates (UAE) in the establishment and evolution of the crucial institutions necessary for the shift from a state reliant on oil to a modern diversified economy. This study employs an integrated framework that incorporates modernization, dependency, and institutional theories to explain how the strategic utilization of oil wealth has promoted economic diversification, technological innovation, and substantial improvements in the education and healthcare sectors.

Introduction

The United Arab Emirates (UAE) has a population of 10.06 million, with expatriates accounting for 89 percent of the total. The country's Gross Domestic Product (GDP) is \$509 billion, and the GDP per capita (Purchasing Power Parity) is \$88,960 (IMF, 2023). It has undergone a swift and successful change from an economy heavily reliant on oil to one that is now diverse and strong, thus serving as a prominent example of successful development. This article explores the methods by which the UAE government has managed this transformation, highlighting the strategic planning and significant government intervention that support this development.

What are Institutions?

Douglass North (1990, p. 3) defines institutions as a collection of laws that govern social relationships. He explains in further detail that institutions are specifically artificial limitations set by humans that influence how individuals interact with one another. However, the primary emphasis often lies in the impact of a broader understanding of institutions on various economic outcomes. This definition, which is more extensive, incorporates multiple aspects of economics, as well as the political and social framework of society, as per Douglass North's interpretation as well as Acemoglu and Robinson interpretation. Differences in societies can arise from variations in their formal mechanisms for collective decision making, such as democracy or dictatorship, as well as their economic institutions, including the protection of property rights, barriers to entry, and the range of contracts available to businesspeople. They can also differ because of variations in the operations of the official establishments. For example, two democratic nations may exhibit contrasting allocations of political power between different groups or socioeconomic classes.

Moreover, one community may anticipate the failure of democracy, while another culture anticipates its stability. An extensive range of institutions can be perceived as both advantageous and disadvantageous. This is beneficial because it enables us to conduct theoretical and empirical research on the role of institutions without being limited by taxonomies (Acemoglu and Robinson, 2010 p.3).

Theoretical Framework

The concept of Modernization Theory refers to a sociological perspective that focuses on the process of societal development and transformation towards modernity. The modernization idea posits that progress advances through several stages of economic expansion (Raj, 2019). For the United Arab Emirates (UAE), this has entailed transitioning from conventional extraction-oriented industries to more intricate industrial sectors. This approach also highlights the significance of cultural and institutional changes in economic advancement (Tabellini, 2010).

Dependency theory is a sociopolitical and economic theory that examines the relationship between developed and underdeveloped countries by focusing on how the latter is dependent on the former for resources, capital, and economics. Dependency theory offers an alternative perspective, emphasizing the difficulties that countries with abundant resources encounter, such as economic inequalities and reliance on external sources (James & Rodríguez-Franco, 2015). This study examines the strategies employed by the UAE to address these difficulties, with a specific focus on policies designed to decrease a country's dependence on oil.

Institutional theory refers to a sociological perspective that examines how formal and informal rules and norms shape the behavior and actions of individuals and organizations within a social system. Institutional theory provides valuable insights into how formal and informal institutions influence economic outcomes. The UAE government's proactive involvement in establishing and restructuring institutions has played a significant role in directing the country's development (Tatiana & Marano, 2018; Ahmed et al. 2022).

The role of the government in promoting economic diversification

The UAE government has made significant investments in both economic diversifications away from oil and creating a favorable environment for business and innovation. This includes the creation of high-quality infrastructure, opening of markets to entice foreign investors, and execution of policies that promote the expansion of the private sector. The effectiveness of these methods is apparent in the growth of sectors such as tourism, aviation, and finance, which have emerged as substantial contributors to the GDP (Ahmed, 2015).

Technological innovation as a fundamental element in development

The UAE has made significant investments to establish itself as a leading regional center for technology and innovation, acknowledging the crucial role of technological progress. The government's dedication to fostering technological entrepreneurship and sustainable development is exemplified by initiatives such as the Dubai Internet City and Masdar City. These endeavors are enhanced by significant investments in education, specifically in STEM disciplines, to cultivate a proficient workforce capable of sustaining a knowledge-driven economy (Ahmed, 2018).

Enhancement of organizational structures and processes in the fields of education and healthcare

Education

The UAE's strategic investments in education are intended to provide its young population with the skills necessary to support a varied economy. The reforms prioritized enhancing educational standards at all levels, implementing a new curriculum that highlights critical thinking and innovation, and allocating resources to higher education in order to cultivate a group of skilled individuals capable of leading diverse industries (Ahmed & Amiri, 2022).

Health care

The government has enacted health care policies aimed at ensuring accessibility, enhancing quality, and encouraging preventive treatment. This encompasses the establishment of advanced medical infrastructure and the implementation of innovative medical advancements, resulting in notable enhancements in health outcomes and overall well-being of the population (Gulseven & Ahmed, 2022).

Analysis of similarities and differences with worldwide consequences

An analysis of the UAE's growth model in relation to other resource-rich nations, such as Norway and Saudi Arabia, offers a more comprehensive understanding of the diverse strategies for handling oil wealth. In contrast to Saudi Arabia, the UAE has successfully implemented a proactive and diverse approach to diversification, resulting in significant and long-lasting outcomes. Furthermore, the UAE has the opportunity to improve its policies for long-term fiscal sustainability by studying Norway's effective management of its oil earnings through sovereign wealth funds (Mehlum et al., 2006).

Conclusion

The findings of this study suggest that the UAE's approach is in line with modernization theory on infrastructure and social services, but its efforts to decrease economic reliance are consistent with the dependence theory. Institutional theory provides useful insights into governmental endeavors that propel societal and economic transformation. The UAE's development model, typified by visionary leadership and strategic governance, provides useful lessons for other nations and emphasizes the significance of ongoing reforms and adaptations to attain sustainable growth and global integration (Ahmed et al. 2022).

The United Arab approach to institutional development highlights the substantial influence of deliberate government involvement on economic planning and resource management. The UAE's continuous endeavors to alter and reorganize its economic and institutional structures offer valuable perspectives for other developing nations aspiring for sustainable expansion and worldwide integration.

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Track 9: Accounting & Finance

Analyzing Carbon Credit Price Determinants in the Indian Market: Insights from the Clean Development Mechanism

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Abstract

One of the primary drivers of environmental degradation and climate change is the emission of CO₂. To combat carbon emissions on a global scale while minimizing costs, carbon trading was established by Kyoto Protocol as a market mechanism and a key instrument in mitigating climate change. This paper delves into the evolution of carbon trading through the Clean Development Mechanism in the Indian market and explores the factors influencing carbon prices. The main objective of this study is to analyze the long-term and short-term relationships between energy prices (including oil, natural gas, and coal prices), the Index of Industrial Production (IIP), European Union Allowance prices, and carbon credit prices in India. To achieve this, the long and short-term impacts of these factors have been examined on carbon credit prices by applying the Autoregressive Distributed Lag (ARDL) model. The results indicate that coal prices and IIP are negatively correlated with carbon prices and are likely to lead to a significant decline in carbon prices. Conversely, European Union Allowances show a positive association with carbon prices in India. Interestingly, the prices of other energy sources, namely oil and natural gas, do not exhibit any significant influence on carbon credit prices, rendering them ineffective determinants in the Indian context. These findings hold significant policy implications for the development of pilot programs and the national carbon market to foster sustainable economic growth.

Keywords: Carbon Credits, Emission Trading, Clean Development Mechanism, ARDL

[ID:119]

Do Auditors Care about “Greenwashing”: Evidence from Textual Analysis on ESG Gap and Audit Fees

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Abstract

This study first investigates the gap between environmental, social, and governance (ESG) disclosure score and ESG engagement activities. Further, we examine the impact of the gap between ESG disclosure scores and the complexity/length of ESG reports on audit fees. We conjecture that the complexity and length of ESG reports reflect genuine ESG engagement and textual manipulations, respectively. After analyzing Chinese cross-listed companies in polluting industries, we observe a negative (positive) association between the complexity (length) of ESG reports and ESG disclosure scores. Moreover, auditors charge lower audit fees for firms with low ESG disclosure scores and more complex ESG reports since those ESG textual narratives are informative. Auditors charge higher audit fees for those with low ESG disclosure scores and longer ESG reports because of ineffective communication. However, no evidence shows that the complexity (or length) of ESG reports affects audit fees when firms have high ESG disclosure scores. Finally, we demonstrate that auditors can identify ESG gap between low ESG disclosure scores and complex (or short) ESG reports and charge lower audit fees. In general, we conclude that auditors do not implement same audit strategy on ESG disclosure for high and low ESG disclosure score firms.

Keywords: ESG; ESG gap; ESG readability; Audit fees; Greenwashing; Audit risk

1. Introduction

Environmental, social, and governance (ESG) performance is a crucial non-financial factor that stakeholders and investors consider when evaluating a firm's potential risks and growth opportunities. Firms regularly issue ESG disclosures, which allow outsiders to learn about the firm's ESG activities. ESG disclosure helps reduce information asymmetry and improve earnings forecast accuracy, contributing to a better information environment (Chen, Hung, and Wang, 2018; Dhaliwal, Radhakrishnan, Tsang, and Yang, 2012). David Graham, former HKEx's Chief Regulatory Officer and Head of Listing, asserted that issuers who report their ESG performance reap the benefits of better risk management, improved access to capital, greater capacity to meet supply chain demands, and lower operational costs.¹ Interestingly, an increasing number of listed companies attach importance to ESG disclosure and engagement.

Several pieces of legislation requiring companies to disclose non-financial information are currently being prepared or have become effective. *ESG Reporting Study for Hong Kong Listed Companies 2021* published by PwC shows that an increasing number of respondents refer to other relevant reporting standards when preparing ESG reports, in addition to the requirements of the HKEX

• https://www.hkex.com.hk/News/Regulatory-Announcements/2015/151221news?sc_lang=en

ESG reporting Guide (Appendix 27). In other words, current ESG disclosure guidelines drive companies to cover every required ESG pillar, and thus ESG disclosure may serve as a compliance exercise, not a tool of value creation.

Furthermore, the current generally accepted ESG ratings or ESG scores are assessed on the ESG disclosure quality in aggregated ESG pillars. For example, ESG scores from Bloomberg's Environmental, Social, and Governance database, which compiles comprehensive information spanning numerous key sustainability topics.² However, firms tend to have more diversified choices of reporting standards and prepare ESG reports according to the characteristics of the business, industry features, and the demands of stakeholders (PwC, 2021). Therefore, ESG ratings or disclosure scores may underestimate ESG achievements for those who undertake more ESG on relevant businesses and strategies but less ESG on comprehensive activities. Meanwhile, practitioners would disclose ESG pillars as much as possible to obtain higher ESG ratings or scores, which wastes resources on irrelevant ESG activities.

Although Wang et al. (2017) find that companies with stronger CSR performance (higher ESG disclosure score) are more likely to have CSR reports with higher readability, they fail to differentiate CSR performance and disclosure. Hence, this study aims to examine the relationship between ESG disclosure score and ESG report readability at the paragraph level and the lens of the whole report. If the ESG disclosure score cannot evaluate ESG activities perfectly, could people assess actual ESG

engagement by ESG reporting? A textual narrative analysis of ESG reports may be a way to detect the real ESG activities that firms have undertaken.

Research suggests that the lack of financial report readability impairs the usefulness of those reports for users (Li, 2008; You and Zhang, 2009; Leavy, Li, and Merkley, 2011; Callen, Khan, and Lu, 2013). On the flip side, managers may manipulate textual content to obfuscate information. Li (2008) and Lo et al. (2017) demonstrate that firms strategically adjust the readability of textual content to hide adverse information. Manipulating readability may serve as a tool for firms to obfuscate inferior CSR information in comprehensive CSR narrative disclosures (Wang et al., 2017). However, some studies argue that complex words are more informative and make the text more readable (Loughran and McDonald, 2014; Piantadosi, Tily, and Gibson, 2011). A highly readable ESG report may indicate a lack of professional terminology. Based on this statement, ESG report with professional terminologies may be difficult-to-read but may not result from intentional obfuscation.

Auditors, as a monitor of corporate governance mechanisms, provide professional assurance services to listed firms and add value to firms' disclosures. On the one hand, although providing an opinion on an ESG report is not included in a financial statement audit, auditors are still expected to review ESG information when they adopt a business risk approach. On the other hand, ESG reports,

(25) These include air quality, climate change, water and energy management, materials and waste, human capital, audit risk and oversight, compensation, diversity, board independence, structure and tenure, and shareholders' rights.

which contain plenty of specialized terminologies, are not easy to read by information users.

Some studies find that the readability of ESG report is not significantly improved in the past years, and those reports require readers with Bachelor's or even Master's degrees (Richard, 2011; Nilipour, De Silva, and Li, 2020). Auditors can see through the complex language (Abernathy et al., 2019; Xu et al., 2019), especially if they are with the Big Four or are industry specialists (Wang et al., 2021). It implies that auditors may not charge higher audit fees because of the complexity of ESG reports. Thus, we study whether and how ESG reports readability affects auditor-client contracting. The results indicate that auditors charge lower audit fees for those firms with hard-to-read paragraphs in ESG reports but charge extra fees when firms have longer ESG reports. These findings only exist among those firms' ESG disclosure scores below the median.

As noted above, better ESG disclosure may bring a better reputation to firms and their managers. However, like the window dressing of accounting performance, a beautiful ESG disclosure may not always result from high-quality ESG engagement. Bae et al. (2021) demonstrate that there is a potential disconnect between firms' CSR rating and their actual action by using the data during the Covid-19 pandemic. Although we assume ESG disclosure score may not fully represent ESG engagement, and textual manipulations on ESG reports impair ESG readability and informativeness, few papers consider both ESG disclosure score and ESG report readability together when studying ESG engagement. Failure to evaluate the quality and readability of ESG disclosures may mislead investors, creditors, and even regulators (LópezPuertas-Lamy et al., 2017). The opportunistic view of CSR suggests that the motivation for CSR reporting may be management's self-interest (Kim et al., 2012) and a demand for greenwashing, both of which increase audit fees through increasing audit engagement risk.

This study aims to fill several lacunas in the literature. It is worth noting that although there is a few literatures on the relationship between readability and audit fees (e.g., Abernathy et al., 2019; Wang et al., 2021) or between ESG disclosure/performance and audit fees (e.g., Garcia, de Villiers and Li, 2021; Chen, Srinidhi, Tsang and Yu, 2016), there are scant studies investigating the language of ESG reports' complexity and audit fees. Although Garcia et al. (2021) and Chen et al. (2016) find that CSR performance increases audit fees through audit complexity, they did not examine the degree of complexity of language in ESG reports. Moreover, while accounting fraud, a phenomenon where a gap between financial disclosure and actual financial condition, has been studied thoroughly, there is a lack of study on the gap between ESG disclosure and genuine ESG engagement. Prior studies of firm disclosure readability compare different readability measurements. However, those studies fail to examine readability at the paragraph level and the lens of the whole report. In addition, a prior study suggests Fog Index and length of the disclosure are either-or measures of readability.

We first find that firms with complex language (lower readability) in ESG reports have lower ESG disclosure score at paragraph level. However, firms with longer ESG reports (lower readability) have higher ESG disclosure score when we examine in the whole report level. These findings imply that those readability measures have a significant variance and different impacts on ESG disclosure when information users read ESG reports partially or as a whole. In addition, we find that the explanation of terminology in ESG reports mitigates the negative association between ESG scores and ESG complexity. Secondly, we

demonstrate that auditors charge lower audit fees for firms with more complex or shorter ESG reports when firms' ESG disclosure scores are lower. Finally, we find that auditors successfully detect the gap between lower ESG disclosure score and good ESG engagement and such gap affects audit-client contracting. But the evidence is only shown in paragraph level. That is, auditors implement different audit strategies for high and low ESG disclosure score firms.

This study contributes to the literature in several ways. First, the current study investigates the language of ESG reports' complexity and communication efficiency of ESG reports vis-a-vis audit fees. Second, we combine two traditional measures, ESG disclosure scores and the readability of ESG reports, and propose a new concept, a firm's ESG gap. Subsequently, we investigate whether such a gap could be considered by auditors and interpreted by audit fees. Hence, this study extends the ESG and audit fees literature by documenting the link between a firm's ESG gap and audit fees. Third, we expand the readability of firm disclosure literature. Professional ESG reports contain plenty of terminologies that reduce the readability of ESG reports. We propose that complexity measured by Fog Index and communication efficiency measured by length represent different dimensions of readability in ESG disclosure and naturally have different impacts. This study provides a new perspective on audit risk. By considering a firm's ESG gap, auditors could assess its non-financial performance and evaluate its business risk and corporate governance deficiency.

The remainder of this paper is organized as follows. Section 2 reviews relevant literature and develops the hypotheses. Section 3 presents models and data. Section 4 discusses the results. Finally, Section 5 concludes the paper.

2. Literature Review and Hypotheses Development

2.1 ESG disclosure quality and ESG readability

CSR ratings and ESG disclosure scores are widely used in industry and academia. For example, MSCI ESG ratings assess companies' exposure to and management of ESG risks and opportunities mainly based on company disclosures and government databases³. Bloomberg's ESG information is taken from direct sources, including CSR reports and other statements, such as annual reports, proxy statements, corporate governance reports, company websites, and CDP data.⁴ Many papers use KLD data to measure strengths and concerns on ESG engagement (e.g., DiGiuli and Kostovetsky, 2014; Cho et al., 2013; Deng et al., 2013), which is also collected from public, corporate documents, such as annual reports, company websites. However, firm disclosures on ESG activities may not fully represent what

- MSCI ESG Ratings Methodology, June 2022.

- <https://data.bloomberglp.com/professional/sites/10/1148330431.pdf>

firms have done.

Studies suggest that CSR⁵ disclosures give a firm legitimacy by proving its commitment to social responsibility (Lanis & Richardson, 2013; Ullmann, 1985), and firms that issue CSR reports are less likely to flout public expectations as they want to maintain their good reputation and company image (Deegan et al., 2002; Deegan & Gordon, 1996). That is, the legitimacy threat motivates poor performers to disclose more (Gray et al., 1995; Neu et al., 1998; Aerts and Cormier, 2009). However, such incremental disclosed information also provides a facade to disguise unsustainable corporate agendas, repair public perception of a brand, and thus maximize perceptions of legitimacy (Fan et al., 2021). Therefore, disclosure could be utilized by managers as a tool to legitimize their behavior (Gray, 2000). In a research report on sustainability trends issued by PwC, only 15% of respondents show a high willingness to disclose data on negative impacts and drive continuous improvement, more than 70% of respondents are willing to make discreet disclosure on negative impacts within the scope delineated by compliance requirements. This evidence implies that ESG ratings and scores may misstate the genuine ESG engagement because of the bias on disclosure of ESG activities. Contrary to legitimacy theory, signaling theory suggests that adverse selection encourages good performers to make more credible, objective and quantitative disclosures so that they can distinguish themselves from poor performers (Spence, 1973; Verrecchia, 1983). Undertaking ESG activities is viewed as a way of increasing firm value, in that case, ESG engagement should be correlated with firms' businesses and strategies (Edmans, 2022). Furthermore, high-quality ESG disclosure, based on genuine ESG engagement, should contain more detailed information and professional terminology on how firms achieved in ESG activities. Based on this perspective, the more ESG that firms engaged, the more ESG information that firms disclosed.

A stream of studies detects management's genuine intention through firm disclosure documents. Readability attempts to measure the ability of the reader to decipher the intended message. Loughran and McDonald (2014) find that the length of 10-k files is outperformed other measures to assess the readability of financial disclosure by effectively conveying information to investors and analysts. Meanwhile, they indicate that reports with a high Fog Index (hard-to-read disclosure) containing more complex words may not always add noises. Wang et al. (2021) find that the readability of MD&As significantly affects audit fees through audit engagement risk. However, Big Four or industry specialist auditors are less affected by the poor readability of an MD&A. Information content of firm disclosure is not equally informative of firm risk. Wang et al. (2017) find a negative association between Fog Index and disaggregated ESG disclosure scores (social) and no relation between Fog Index and environmental or governance pillar scores. Similarly, Wang et al. (2021) find that not all the information in an MD&A is equally influential on audit fees and auditors pay different attention to different sections.

We suggest that the readability of ESG reports should be measured by two dimensions, complexity

- In this paper, we use ESG and CSR interchangeably. Although the literature predominantly uses CSR, we also use ESG in this study because our samples are HK-listed firms. The term Environmental, Social, and Governance is used by the Hong Kong Exchanges in the listing rules.

of language and communication efficiency of value-relevant information. The traditional readability measure, Fog Index, counts the "complex" words consisting of three or more syllables, not including proper nouns, familiar jargon, or compound words. However, ESG reports may contain many professional terms with three or more syllables. We also find that some firms disclose definition tables of professional terminology to explain complex words and specialized descriptions in their ESG reports. Such explanation of professional terminology helps readers understand ESG engagement well and accurately assess ESG scores and ratings. In that case, the ESG disclosure score is still high even though the readability in complexity is low in that the high-quality of engagement of ESG could be recognized well. In addition, the complexity of the document is presumably linked to firm complexity (You and Zhang, 2009). Therefore, we expect that the readability measuring complexity may not be correlated to textual manipulations.

Except for complexity, the other dimension of readability is measured by the length of the ESG report. Loughran and McDonald (2014) propose that firms are less likely to use sesquipedalian words or complex rhetoric if firms are trying to obscure earnings-relevant information, instead, they are more likely to bury negative information into longer documents. In practice, ESG disclosure is required to include integrated ESG aspects issued by regulators and governments. Longer ESG reports must contain more comprehensive and complete information, thus achieving higher ratings or ESG disclosure scores. However, a higher ESG disclosure score may not mean a higher quality of ESG engagement.

Taken together, we use readability measured by complexity at the paragraph level and length at the whole report level to examine actual ESG engagement. The complexity of ESG reports is related to professional terms in the reports representing genuine ESG engagement, and the ESG report length, which measures the communication efficiency of ESG reporting, may link to the completeness and obfuscated language, not ESG performance. Since the two competing theories, legitimacy theory and signaling theory, explain the disclosure issue oppositely and the two dimensions of readability measures differently, we first posit a non-directional hypothesis:

H1: There is an association between ESG disclosure score and ESG report readability.

2.2 ESG activity, ESG readability, and audit fees

DeFond and Zhang (2014) find that audit fee is associated with auditor engagement risk because it reflects the auditor's effort and risk. Others (Bedard & Johnstone, 2004; Doogar et al., 2015; Hillegeist, 1999; Hribar et al., 2014) suggest that auditors are likely to exert more effort to collect evidence and implement substantive testing with riskier clients. In response to greater perceived audit risk, auditors may also charge higher fees as compensation.

According to the ethical view of CSR, a firm's CSR performance should influence its audit fees. Firms with high moral and ethical standards are willing to engage in CSR activities and perform them

well (DeFond and Zhang, 2014; Du et al., 2020). Companies with high CSR performance may make fewer accounting misstatements, have less business risk (Kim et al., 2012; Lin and Dong, 2018), and lower capital costs (Dhaliwal et al., 2011). Lys et al. (2015) indicate that a high CSR investment in current year is a signal of the future strong financial performance. Positive moral capital mitigates the negative assessments by stakeholders following firms' misconducts also reduces firm business risk (Godfrey, 2005; Peloza, 2006; Zhang, Zhu, Yue, and Zhu, 2010). Therefore, auditors may charge socially responsible firms lower fees because of their lower audit engagement risk than other firms. However, the opportunistic view of CSR suggests that the motivation for CSR reporting may be management's self-interest (Kim et al., 2012) and the need to window dress or greenwash. Such disclosure acts as a veil (Hopwood, 2009) that creates an artificial green identification or covers unpleasant facts (Clarkson et al., 2011). Either management's textual manipulations or discreet disclosure of bad news mislead investors to present a value creation image. Such ESG reporting with vague language increases firm business risk and audit risk.

Nevertheless, unreadable disclosure may not always correlate with veil incentives and textual manipulations. In ESG reporting text, professional terminology is commonly used, especially when firms genuinely undertake ESG activities. Thus, ESG reports with terminology may be difficult-to-read but do not represent intentional obfuscation. Therefore, auditors may not charge higher audit fees when ESG report contains more professional terms. Some studies show that audit fee is positively associated with CSR report issuance and performance because CSR increases audit complexity. For instance, because of increased audit complexity, Garcia et al. (2021) find that audit fee is higher for firms with more CSR strength and concerns. However, there are few studies investigating the relationship between audit fees, the complexity of ESG report narratives, and ESG disclosure score.

For another readability measure-length of the ESG report, however, a longer report means worse readability. Firms are more likely to bury negative impact and obscured information into long documents instead of using sesquipedalian words or complex rhetoric (Loughran and McDonald, 2014). Moreover, these "greenwashed" firms do not provide informative information but try to cover every theme and key issue required by the disclosure guidelines. Therefore, they could obtain higher ESG disclosure scores. In this situation, the longer report may increase audit fees once auditors successfully identify such obfuscation, which results in higher audit risk and business risk. Chen et al. (2016) exhibit a positive association between audit fees and the length of ESG reports. They argue that longer reports increase the complexity and credibility of ESG reports, and those firms devote more resources to high-quality audit services. However, their study did not consider the impact of ESG disclosure score on audit risk assessment. Prior studies use ESG disclosure scores (e.g., KLD data, Bloomberg ESG scores) to measure ESG engagement and performance (Chen et al., 2016; Wang et al., 2017; and Garcia et al., 2021). However, we conjecture that ESG engagement could be better interpreted by ESG reporting narratives. Based on the discussion above, the association between the complexity of ESG reports and audit fees is mixed, and auditors may charge higher audit fees when firms have longer ESG reports. The discussion above leads to our second hypothesis:

H2a: There is an association between audit fees paid and ESG report complexity, the association is affected by high and low ESG disclosure scores differently.

H2b: There is a positive association between audit fees paid and the length of the ESG report, the association is affected by high and low ESG disclosure scores differently.

2.3 ESG gap and audit fees

When ESG disclosure cannot fully inform genuine ESG engagement, we expect that a gap between ESG disclosure (rating) and actual ESG engagement exists. Low readability will affect readers even if it does not affect their willingness or ability to acquire information from long and complex financial disclosure (Li, 2008; You and Zhang, 2009). Rennekamp (2012) suggests that the clarity with which information is conveyed will affect readers' processing fluency and have important consequences for related judgments and decisions. Similarly, complex language in ESG reports makes ESG disclosure mistakenly be assessed and enlarges the ESG gap between disclosure scores and actual engagement. Failure to evaluate the quality of ESG engagement by misunderstanding ESG reporting can mislead investors, creditors, and even regulators. Therefore, analyzing firms' ESG gap, which is the discrepancy between what firms disclose and what they do about ESG, may help us to understand whether a firm's ESG activities are genuine attempts to enhance firm value or an instrument for window dressing or greenwashing, and explore how a firm's ESG gap influences its audit fees.

There are two points we discuss here when analyzing such an ESG gap. The first is that the ESG gap arises unintentionally because of the ESG assessment scheme. We argue that the aggregated assessment scheme of ESG may under-assess ESG engagements from those firms focusing on some specific and relevant ESG pillars and key issues. The motivation for ESG engagement might be value creation, not regulation compliance. Edmans (2022) suggest that firms should engage in ESG activities relevant to their particular business and to increase value. Investors tend to invest in great companies instead of companies that are great at ESG. This perspective moves ESG from a compliance exercise to a value creation tool and implies that integrated ESG disclosure scores or ratings may not fully reflect firms' conduct on a specific aspect of ESG or efforts on value creation. Moreover, a PwC survey (2021)⁶ indicates that a growing number of listed firms are inclined to make

ESG disclosures based on the industry and their own features to demonstrate ESG strategies, objectives, activities, and annual performance to stakeholders. Therefore, we conjecture that aggregated ESG assessment schemes may not fully evaluate firms' actual ESG engagement and an ESG gap exists because of the design of the ESG assessment scheme.

Second, the ESG gap comes from ESG activities and engagement narratives. On the one hand, the

7. *ESG Reporting Study for Hong Kong Listed Companies 2021*

gap may result from intentional manipulations. Wang et al. (2017) suggest that manipulating readability may serve as a tool for companies to obfuscate inferior CSR information in comprehensive CSR narrative disclosures. In a research report on sustainability trends issued by PwC (2022)⁷, 71% of respondents are willing to make discreet disclosure of negative impacts within the scope delineated by compliance requirements. This result indicates that management tends to cater to investors by manipulating the textual narratives of ESG reporting. Chen et al. (2016) find that CSR reports are longer when managers have a greater need for credibility. Loughran and McDonald (2014) argue that firms are more likely to bury negative information into longer disclosure. Taken together, we expect that the longer the ESG reports, the more likely that firms window dress their ESG disclosure. On the other hand, some firms which genuinely engage in ESG activities must provide more details on how they improve their influence on the environment, society, and governance. For instance, many heavy-polluted firms disclose their improvement in carbon emissions and achievement of green innovation. They usually explain how their green patents improve the emission quality and describe the technology in detail. Undoubtedly, this information demonstrates a high-quality of ESG engagement. However, these words usually contain three or more syllables, which also reduce the readability of the ESG report. Low readability of disclosure statements negatively impacts readers' perceived processing fluency by increasing their cognitive difficulty (Claypool, et al., 2015; Rennekamp, 2012). Readers will have weaker desire to deeply understand it and consequently have lower comprehension (Gao et al., 2022). Thus, it makes those firms' ESG disclosure score (or rating) mistakenly being assessed. Therefore, ESG disclosures are not perfectly correlated to actual ESG engagement either because of the biased ESG assessment scheme or because of textual manipulation and characteristics of ESG report. Once there is an ESG gap, understated/overstated ESG disclosure scores will mislead investors and analysts. We propose that a more complex ESG report contains more professional terminology and provides more specialized descriptions, thus representing high-quality ESG engagement. Therefore, an ESG gap may exist at the paragraph level when firms have complex (simple) ESG reports but obtain low (high) ESG disclosure scores. As to the length of ESG reports, long ESG reports may reflect poor engagement with inefficient communication. Although firms that cover every theme and topic in ESG disclosure guidelines have longer ESG reports than the ESG reports that firms do not follow ESG disclosure guidelines, our sample is from 2016, when Hong Kong listed companies were mandatorily required to disclose ESG reports per the requirements of HKEX ESG reporting Guide (Appendix 27). Therefore, firms with longer ESG reports are less likely to result from compliance issues. Similarly, shorter ESG reports are more likely attributed to efficient communication instead of poor compliance.

[Insert Appendix I here]

This study focuses on whether ESG rating evaluators ignore genuine ESG engagement because of

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hard-to-read ESG reports and whether efficient (short) ESG reports are assessed downward because of a biased ESG assessment scheme.⁸ Therefore, even though there are at least four possible ESG gaps shown in Appendix I, we only examine two ESG gap situations, which are: when a firm has a low ESG disclosure score but has high complex ESG report; and when a firm has a low ESG disclosure score but has a short ESG report. We investigate whether auditors consider ESG gap and charge differently for those firms that have such ESG gap, so we hypothesize as follows:

H3a: Audit fees are considerably affected by a situation when auditors identify an ESG gap between low ESG disclosure score and more complex (or shorter) ESG report.

H3b: Audit fees are considerably affected by a situation when auditors identify an ESG gap between high ESG disclosure score and less complex (or longer) ESG report.

3. Models and data

3.1 Sample and data sources

We start with firms cross-listed in Hong Kong and mainland China and include firms in polluting industries in the manufacturing, utilities/energy, and mining industries per the *Guidelines for the Industry Classification of Listed Companies (2012 Revision)*.⁹ The sample period is from 2016 to 2020.

The measures of audit fees, ESG disclosure, and the control variables that reflect firm characteristics are constructed using financial data gathered from the Wind, China Stock Market & Accounting Research (CSMAR), Bloomberg, and RESSET databases. We exclude firm-years with missing values for any variable. We finally obtained 200 firm-year observations.

The ESG report readability data are obtained by processing the ESG reports of selected firms using Python. We download the ESG reports from the HKEXnews website (<https://www.hkexnews.hk>), process the ESG reports, and obtain the textual data. Finally, we obtain 41,351 observations of readability measures at the paragraph level. The length of an ESG report is computed by the number of paragraphs in an ESG report. All continuous variables are winsorized at the 1% and 99% levels. The sample distribution is presented in Table 1.

[Insert Table 1 here]

3.2 Measuring ESG disclosure quality

We measure ESG performance using the aggregated ESG scores from the Bloomberg database.

5. We suggest that the current ESG assessment scheme mainly evaluates ESG engagement in compliance. In other words, it encourages longer ESG reports to cover every specific topic and theme while ignoring real ESG performance. Such an assessment scheme facilitates greenwashing and results in the ESG gap.

6. These guidelines were issued on October 26 2012 by China Securities Regulatory Commission (CSRC).

The ESG scores range from 0 to 100, with a higher score representing better ESG performance. Bloomberg ESG data are collected from company sources such as a proprietary Bloomberg survey that requests corporate data directly, CSR reports, annual reports, and company websites (Bloomberg, 2012). Bloomberg scores each ESG pillar and generates an aggregate ESG score and each disaggregated score in environmental, society, and governance for a firm; firms are subject to different rating criteria based on geographical and industrial differences.

3.3 Measuring readability of ESG reports

The readability of the ESG reports is proxied by the automated readability index (*ARI*) and Gunning Fog index (*FOG*). All measures estimate the US education level required to understand the text on a first reading; therefore, a high score represents high textual complexity and low readability.

The measures calculate the education level as follows:

$$ARI = 4.71 * (characters / words) + 0.5 * (words / sentences) - 21.43 \quad (1)$$

$$FOG = 0.4 * (words / sentences + 100 * complex words / words) \quad (2)$$

3.4 Research design

To test Hypothesis 1, we estimate the following regression models to examine the association between ESG readability and ESG disclosure score at both paragraph level and whole report level. Since we expect that the explanation of professional terminology in ESG reports could increase readability of ESG reports, whether an ESG report contains a definition table of professional terminology is also considered in the model:

$$ESG_score_{i,t} = \alpha_0 + \alpha_1 Readability_{i,(j),t} + \sum \alpha_{2...n} Controls_{i,t} + YEAR \text{ and } INDUSTRY FE + \varepsilon_{i,t} \quad (3)$$

$$ESG_score_{i,t} = \alpha_0 + \alpha_1 Readability_{i,(j),t} + \alpha_2 Profterm_{i,t} + \alpha_3 Readability_{i,(j),t} * Profterm_{i,t} + \sum \alpha_{4...n} Controls_{i,t} + YEAR \text{ and } INDUSTRY FE + \varepsilon_{i,t} \quad (3)'$$

In the equations, *i*, *j*, and *t* represent the firm, paragraph, and year, respectively. The dependent variable *ESG_score* is the aggregated ESG disclosure scores issued by Bloomberg. We use Fog Index and ARI to interpret the independent variable *Readability* in complexity (paragraph level). The length of the ESG report is followed by Chen et al. (2016), which estimates the *Readability* in communication efficiency (firm level). *Length* is an indicator variable, equals one if the natural logarithm of the number of paragraphs contained in an ESG report is greater than the industry median in the year, and zero otherwise.

We hand-collected ESG reporting-related data, such as whether ESG reports are audited by a third

party (*EA*) and whether a definition table of professional terminology is contained in ESG reports (*Profterm*). We follow the models of Li (2008) and Wang et al. (2017) to collect our control variables. The control variables include firm size (*Size*), financial performance (*ROA*, *Loss*, *Lloss*), liquidity (*Rec*, *CAPINT*), leverage (*Lev*), corporate governance (*BDIND*), growth opportunity (*MB*, *Growth*), and ownership structure (*SOE*). All control variables are defined in Appendix II.

We test our second and third hypotheses by estimating ordinary least squares regressions that control for financial characteristics and audit engagement factors likely to affect audit fees (*Auditfee*) at year *t*.

$$Auditfee_{i,t} = \alpha_0 + \alpha_1 Readability_{i(j),t} + \sum \alpha_{2...n} Controls_{i,t} + YEAR \text{ and } INDUSTRY FE + \varepsilon_{i,t}$$

(4)

$$Auditfee_{i,t} = \alpha_0 + \alpha_1 Gap_{i(j),t} \text{ or } Gap'_{i(j),t} + \sum \alpha_{2...n} Controls_{i,t} + YEAR \text{ and } INDUSTRY FE + \varepsilon_{i,t}$$

(5)

The dependent variable *AuditFee* is the natural logarithm of total audit fees for firm *i* in year *t*. For Equation (4), we also separately examine the readability of ESG reports on audit fees on high and low ESG disclosure score groups. As discussed in Section 2.3, we are interested in the effects of ESG gaps on audit fees when a firm has a more complex or a shorter ESG report but has low ESG score; or when a firm has a less complex or a longer ESG report but has high ESG score. In Equation (5), *Gap_{i(j),t}* is a dummy variable to measure a firm with a low ESG disclosure score but has a more complex or shorter ESG report; *Gap'_{i(j),t}* measure a firm with high ESG disclosure score but has less complex or longer ESG report. Prior research suggests that audit fee is associated with client size (*Size*), profitability (*ROA*, *Loss*, *Lloss*), risk and growth (*Lev*, *INVENT*, *CAPINT*, *MB*, *Growth*), corporate governance (*BDIND*, *Boardsize*), and other client-specific characteristics (*Top10*, *Switch_Firm*, *Switch_CPA*) (Hay et al. 2006).

4. Results

4.1 Descriptive statistics

Table 2 presents the descriptive statistics for the variables used in the primary analyses. The Fog Index and ARI measure the complexity of ESG reports at the paragraph level. The means (medians) of these two measures are 23.240 (21.000) and 25.300 (22.100), respectively. Both the average and standard deviation of complexity are higher than them from the US market in Wang et al. (2017). The average complexity of the ESG reports sample is 18.71 for Fog Index from the US market in Wang et al. (2017) study. The standard deviations for Fog Index in our study is 10.640 while it is only 1.70 in

the US market. That is, Chinese companies' ESG reports¹⁰ are more complex and more varied than American ESG reports. The mean (median) of the ESG report *Length* is 0.485 (0). Like the range of *Fog* and *ARI*, the range of *ESG_score* from 14.463 to 60.744 shows a large variation in ESG disclosure score among companies. The mean of *Auditfees* is 15.720. The mean of *EA* is 0.155, indicating that 15.5% of firms obtain assurance for their ESG reports. The mean of *Profterm* is 0.205, which shows that 20.5% of firms disclose the definition table of professional terminology in their ESG reports.

[Insert Table 2 here]

4.2 Multivariate analysis

4.2.1 ESG disclosure score and ESG readability (H1)

Table 3 reports results from estimating Equation (3) and (3)'. The results show the relation between ESG disclosure score and readability at both paragraph level (Columns 1 to 4) and report level (Columns 5 and 6). In Columns (1) to (4), the coefficients of *FOG* and *ARI* are all negative and significant, which are consistent with the results of Wang et al. (2017). The findings that higher complexity of ESG report at paragraph level is correlated to lower ESG disclosure scores imply that those ESG reports contain more complex professional terms or unclear language, which impede readers' understanding of ESG engagement. However, the coefficients of *FOG*Profterm* and *ARI*Profterm* are 0.0135 and 0.0092 at 5% and 10% significant levels, respectively, in Columns (2) and (4). Both positively significant coefficients indicate that the negative impact of the complexity of ESG reports on ESG scores is weakened when those reports contain a definition table of professional terminology. If the complexity of ESG reports is resulted from textual manipulations, the explanation of professional terminology should not significantly mitigate the negative association between ESG score and complexity. These results are consistent with the argument that hard-to-read ESG reports with more specialized terminology do not bring noise but represent a real high-quality engagement of ESG activities. We also realize that good engagement in ESG activities may not always increase ESG disclosure scores since the lack of descriptions of complex terminology. That may be a reason that the ESG gap exists. In Columns (5) and (6), the length of ESG reports is positively related to the ESG disclosure score, which is inconsistent with the conclusion in Loughran and McDonald (2014). Their study suggests that short 10-k files effectively communicate between managers and investors. However, *ESG_score* is an assessment of ESG disclosure compiled with numerous key sustainability topics. In other words, the larger the coverage of ESG reports, the higher the ESG disclosure score firms could obtain. Thus, the results in Columns (5) and (6) support our assumption that the ESG disclosure score shows more in the full extent of ESG activities that firms engaged instead of the amount and quality of value-driven ESG

⁷. Since our sample is the listed companies in Hong Kong market, all the disclosures are required to provide both Chinese version and English version. We use English version of ESG reports to measure their readability.

activities relevant to businesses and long-run strategies. At the same time, the insignificant coefficient of *Length*Profterm* indicates that the explanation of professional terminology does not affect the association between ESG score and the length of ESG reports.

Generally, the results in Table 3 imply that complex ESG reports with professional terminology and specialized words diminish the difficulty of reading ESG reports and increase the comprehension of ESG engagement. An additional description of those complex terminology could reduce the gap between real ESG engagement and ESG disclosure scores.

[Insert Table 3 here]

4.2.2 ESG readability and audit fees (H2)

Table 4 shows the regression results of the association between audit fees and readability of ESG reports. Accordingly, the association is conditional on the firms' ESG disclosure score. In Panel A, we report the results at the paragraph level. In Columns (1) and (4), the coefficients of *ESG_high* are - 0.0307 and - 0.0312, respectively and both are significant. The results indicate that firms with high ESG disclosure scores are charged with lower audit fees. All coefficients of *FOG* and *ARI* are negatively significant. Auditors charge lower fees when firms have more complex ESG reports for both high and low ESG score groups. We find that auditors can identify and manage complex ESG reporting but do not find that auditors charge firms with high and low ESG scores differently when they read complex ESG reports. Auditors require lower audit fees when ESG reports are obtained assurance because the coefficients of *EA* are all negative and significant. Although Chen et al. (2016) find that audited ESG reports increase audit fees, our sample are all heavily polluted firms which indicate that audited ESG reports mitigate audit engagement risk. In Panel B Column (1) and (2), the coefficients of *Length* are 0.0136 and -0.1287 but insignificant which suggest that the length of ESG reports does not affect audit fees in the full sample and in high ESG disclosure score group. However, the coefficient of *Length* is 0.3293 in Column (3) indicates that auditors charge higher audit fees for firms with longer ESG reports only when firms have worse ESG disclosure scores. These results suggest that auditors concern communication efficiency of ESG reports for low ESG score firms. Thus, we recommend that firms with low ESG disclosure scores should shorten their ESG reports by providing short narratives to convey information efficiently to investors and analysts, which is consistent with the findings in Loughran and McDonald (2014).

[Insert Table 4 here]

4.2.3 ESG gap and audit fees (H3)

To investigate how auditors respond to a gap between ESG disclosure score and genuine engagement reflected by ESG narratives, we examine an ESG gap when a firm has a low ESG disclosure score but has a highly complex ESG report; and when a firm has a low ESG disclosure score but has a

short ESG report. Columns (1) and (3) in Table 5 report the results when a firm has a low ESG score and high complexity at the paragraph level. Significantly negative coefficients (-0.0264 and -0.0279 at 1% level) in these two columns indicate that auditors charge lower audit fees for those firms that genuinely engage in ESG activities even when informative ESG information is less readable and ESG disclosure score is lower. In Columns (2) and (4), we do not find evidence that audit fees are affected when firms have an ESG gap, that is, a situation that firms with simple language in ESG reports contain less informative ESG information and have higher ESG disclosure scores. Taken together, auditors can identify the ESG gap between low ESG disclosure score and high complexity of ESG reports and assess audit engagement risk not only from the completeness of ESG disclosure, but also from text narratives of ESG reports. Auditors do not violate the ESG disclosure score assessment even the ESG reports are simple and uninformative when ESG score is high. However, auditors' judgment on complex text narratives of ESG reports is unaffected by ESG disclosure score assessment when ESG score is low. Columns (5) and (6) show the results at the whole report level. However, both coefficients of the gap are insignificant, suggesting that auditors do not consider the ESG gap between the ESG disclosure score and the length of the reports.

[Insert Table 5 here]

4.3 Further analysis of the readability of ESG reports and audit efforts

Audit fees manifest the audit engagement risk assessed by auditors and indicate the price of auditors' efforts and work time. Therefore, besides examining the association between ESG report readability/ESG gap and audit fees, we also investigate whether and how text narratives of ESG reports influence audit report lag. In Table 6, Column (1) to (4) report that ESG reports with more complex language only reduce the audit report lag for firms with low ESG disclosure scores. The results indicate that complex ESG reports with more professional terminology and specialized description are associated with lower audit risk. As a response, auditors would decrease audit efforts and thus result in lower audit fees. The findings suggest that audit effort is another channel through which the complexity of ESG reports influence audit fees. On the flip side, we do not find evidence that the communication efficiency of ESG reports affects audit efforts (Columns (5) and (6)). Audit fees would not be changed per the length of ESG reports. Combining the results in Panel B Table 3, the results also support that length of ESG reports, as a dimension of readability, increases audit fees through the audit engagement risk channel, not the audit effort channel.

[Insert Table 6 here]

The coefficients of *Gap_FOG* and *Gap_ARI* in Column (1) and (3) in Table 7 are 0.0068 and

0.0055, both are significant. The results show that auditors take more efforts if a firm has a more complex ESG report but lower ESG disclosure score. Additionally, the negative and significant coefficients of *Gap' _FOG* and *Gap' _ARI* in Column (2) and (4) suggest that auditors take less efforts when firms have high ESG scores and uninformative ESG reports. The results in Table 7 support our argument that a complex ESG report contains genuine and informative information indicating a high quality of ESG engagement. Conversely, an easy-to-read ESG report indicates a low quality of ESG engagement because of containing less informative information.

The coefficients on *Gap_length* in both Columns (5) and (6) are insignificant, suggesting that the ESG gap at the report level does not have significant effect on audit report lag.

[Insert Table 7 here]

Audit fee premiums can often compensate auditors for increased financial reporting risks (Charles et al., 2010). Our results in both Table 5 and Table 7 suggest that auditors spend less time in reviewing simple narratives or in assessing a few ESG activities, but do not demand higher fees to compensate for firms' ESG risk per simple narratives of ESG report and/or low quality of ESG engagement even those firms obtain high ESG disclosure score. Meanwhile, auditors charge less audit fees for firms with low ESG disclosure scores but complex ESG reports (Column (1) and (3), Table 5) while taking more effort when ESG reports have complex language (Column (1) and (3), Table 7). Therefore, we imply that more complex ESG reports makes auditors spend more time to understand genuine ESG engagement and/or to assess ESG activities but audit fees are lower because good quality of ESG engagement reduces audit risk. However, for those firms with high ESG disclosure score but simple ESG reports, auditors spend less efforts on audit works while do not charge lower audit fees for them.

4.4 Robust tests

4.4.1 Alternatives measure of complexity

As robust analyses, we consider other readability measures at the paragraph level that are also widely used in textual analysis studies. The Coleman–Liau Index is a readability assessment test designed by linguists Meri Coleman and T. L. Liau to approximate the usability of a text (Karmakar and Zhu, 2010). The measurement of CL Index is as follows:

$$CL\ Index = 5.89 * (Charactors / Words) - 29.5 * (Sentences / words) - 15.8 \quad (6)$$

Table 8 shows the results supporting the findings in Tables 4 and 5.

[Insert Table 8]

4.4.2 2SLS regressions for H2 and H3

To control for the endogeneity problem, we deploy the 2SLS approach for H2 and H3, comprising Equation (4) and (5). Table 9 and 10 show the results. Since we suggest that the complex and long ESG reports are more likely to indicate genuine ESG engagement and textual manipulations respectively, we choose the number of words in a paragraph (*Count_word*), professional terminology table (*Profterm*) and awards for ESG report (*Esgaward*) at the paragraph level model and FOG index dummy of the wholereport (*FOG_high*) and the number of paragraphs of ESG report (*Lnlong*) at report level model as instruments. The number of words in a paragraph is usually positive to the disclosure complexity. When firms provide professional terminology table, the words in the report must be difficult to understand. The ESG awards usually are shown as pictures or a list, so they do not increase but decrease the complexity of ESG reports. In addition, these three instruments do not highly affect audit fees directly. At report level model, the number of paragraphs of ESG report increase the length of ESG reports but are unlikely to affect audit fees. When the complexity of an ESG report is above industry median, the length of ESG report also can be affected because firms are more likely to provide professional terminology table. However, the complexity of whole ESG report is unlikely to affect audit fees directly. Not all parts of an ESG report have the same impact on readers' comprehension, thus Fog Index at report level may mistakenly assess the report complexity and is unlikely to affect audit fees significantly and directly. The F-values in the first stage regressions are all greater than 10.

We assume that auditors treat high and low ESG disclosure score groups differently. The results in Table 5 support our argument that auditors can identify ESG gap between low ESG disclosure scores and high ESG complexity and charge lower audit fees for those firms only. Therefore, auditors may concern different aspects of ESG disclosure when they assess audit engagement risks of high and low ESG disclosure scores firms. Specifically, the number of words in a paragraph is expected to assess the readability of a paragraph for both high and low ESG disclosure score groups. We also add two indicator variables, professional terminology table (*Profterm*) and ESG report awards (*Esgaward*) for the model of low ESG disclosure score group.

The results of the Equation (4) 2SLS model reported in Table 9, mainly confirm H2a and H2b reported in Table 4. Since only the results for the high ESG score group are not consistent with the results in Table 4, we conclude that auditors charge lower audit fees only for low ESG score groups when they read complex ESG reports. This finding supports our assumption that complex ESG reports with professional terminology and specialized words reflect genuine ESG engagements and thus reduce audit engagement risk and audit fees. On the flip side, the complexity of ESG reports do not affect audit fees when firms are in high ESG disclosure score group. The report level results are consistent with the results in Table 4. Combining the results in Table 4 and Table 9, we suggest that auditors successfully detect genuine ESG engagement even though firms have lower ESG disclosure scores and thus charge

less audit fees. Furthermore, auditors do not implement the same audit strategy when firms have high ESG disclosure scores. They do not compensate for bad ESG engagement and textual manipulations when firms have high ESG disclosure scores.

[Insert Table 9 here]

The results of the Equation (5) 2SLS model reported in Table 10 confirm H3 reported in Table 5. In Columns (1) and (3), the negative coefficients are -0.0657 and -0.0698, respectively, both at a 1% significant level. These results are consistent with the results in Columns (1) and (3) in Table 5. We conclude that auditors can identify the ESG gap between low ESG disclosure scores and high complexity of ESG reports and charge lower audit fees. Although the coefficients of *Gap_FOG* and *Gap_ARI* are significant at 1% level in Column (2) and (4), the results are not consistent with the results in Table 5. Therefore, auditors do not identify the ESG gap between high ESG disclosure score and less complex ESG reports. The results in Column (5) and (6) indicate that auditors do not identify the ESG gap at the report level, which are consistent with the results in Table 5.

[Insert Table 10 here]

5. Conclusion

Prior research demonstrates that firm disclosure is a vital source for the capital market. When more non-financial information among firm disclosure is released to the market, the readability of firm textual narratives concerns investors, auditors, regulators, and scholars. Many studies demonstrate that readable disclosure with clear language and short length expresses information more efficiently and implies firms have no negative news to hide (e.g., Li, 2008; Abernathy et al., 2019; Loughran and McDonald, 2014; Lo et al., 2017; Wang et al., 2021), ESG reports with more professional terms and complex narratives are naturally difficult-to-read as firms must meet the requirements of the reporting standards, describe actual ESG engagement with professional terminologies and balance information and individual agendas.

Scant studies examine ESG report readability and how it affects auditors' judgment. In addition, many institutions issue ESG ratings or scores to evaluate a firm's ESG performance which investors and analysts widely use, but their rating scheme sources are mainly from firm disclosure. Based on this assumption, the ESG disclosure score may be misstated, and the gap between the ESG disclosure score and genuine ESG engagement is a concern.

In this study, we find that the complexity of ESG reports is negatively associated with ESG disclosure scores. The negative association attenuates when firms provide a definition table of professional terminology in their ESG reports. These findings imply that the complexity of ESG reports

results from providing detailed ESG engagement information and makes ESG reports unreadable. Thus, the ESG disclosure score of these firms would be lower.

Furthermore, we observe that auditors treat high ESG score firms and low ESG score firms differently when they consider the textual narratives of ESG reports. Notably, auditors charge lower audit fees when firms have complex or short ESG reports, but the evidence is only significant when firms have lower ESG disclosure scores. This result indicates that auditors may have noticed the ESG gap between firms' disclosure and their textual narratives. Fundamentally, the empirical results support our hypothesis that auditors consider the aforesaid gap. Consequently, they charge lower audit fees for more complex ESG reports, even those firms with low ESG disclosure scores, since those ESG textual narratives are more informative. However, there is no evidence that auditors implement the same audit strategy for firms with high ESG disclosure scores. That is, the complexity and length of ESG reports do not affect auditors' judgement on audit engagement risk and audit fees.

Moreover, we demonstrate that there are two dimensions of the measurements of readability of firm disclosure. One is the complexity of narratives at the paragraph level, and the other is the efficiency of the whole report in communication between firms and the market. These findings explain that traditional readability measurements like the Fog Index and the length of text examine different aspects of the readability of ESG reports. We likewise show that hard-to-read ESG reports contain professional and unique information instead of obfuscating investors and analysts.

Finally, this study has theoretical and practical implications, which may be useful for regulators in formulating ESG reporting standards and managers who work on ESG reporting activities. For example, given our findings that short ESG reports communicate efficiently, regulators may provide more guidelines for firms to disclose specific ESG engagement relevant to their business and strategy, not only disclose ESG for completeness and compliance.

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Table 1
Sample Distribution and Paragraph-Firm-Year Observations

Year	Firm	Paragraphs	Paragraphs per firm
2016	35	5,818	166.23
2017	37	6,789	183.49
2018	42	7,789	185.45
2019	41	8,783	214.22
2020	45	12,172	270.49
Total	200	41,351	206.76

Table 2
Descriptive Statistics

Variable	N	Mean	SD	Median	Min.	Max.
<i>Continuous variables</i>						
Fog	41,351	23.240	10.640	21.000	6.000	65.380
ARI	41,351	25.300	13.180	22.100	5.800	77.500
Auditfees	200	15.720	0.912	15.730	13.960	17.790
ESG_score	200	38.746	8.595	39.669	14.463	60.744
Size	200	25.170	1.456	25.330	21.250	28.530
ROA	200	0.037	0.041	0.033	-0.101	0.199
Rec	200	0.078	0.077	0.078	-0.263	0.278
Lev	200	0.078	0.072	0.052	0.003	0.288
INVENT	200	0.552	0.137	0.575	0.204	0.756
CAPINT	200	0.099	0.075	0.094	0.012	0.427
BDIND	200	0.291	0.177	0.248	0.052	0.666
Boardsize	200	0.394	0.063	0.375	0.333	0.571
MB	200	2.228	0.218	2.197	1.792	2.708
Growth	200	1.252	0.450	1.101	0.787	3.668
<i>Dummy variables</i>						
Length	200	0.485	0.501	0	0	1
ESG_high	200	0.540	0.500	1	0	1
Top10	200	0.890	0.314	1.000	0.000	1.000
Switch Firm	200	0.125	0.332	0.000	0.000	1.000
Switch CPA	200	0.615	0.488	1.000	0.000	1.000
SOE	200	0.810	0.393	1.000	0.000	1.000
Loss	200	0.035	0.184	0.000	0.000	1.000
Lloss	200	0.065	0.247	0.000	0.000	1.000
EA	200	0.155	0.363	0.000	0.000	1.000
Profterm	200	0.205	0.405	0.000	0.000	1.000

Notes: This table shows the descriptive statistics and univariate tests for all firms. The complexity of ESG reports measurements are in paragraph level. All variables are defined in Appendix II.

Table 3 ESG disclosure score and ESG readability in complexity and communication

	Paragraph level				Report level	
	(1)	(2)	(3)	(4)	(5)	(6)
	<i>ESG_score</i>				<i>ESG_score</i>	
FOG	-0.0060** (-2.10)	-0.0090*** (-2.80)				
FOG*Profterm		0.0135** (2.01)				
ARI			-0.0071*** (-3.10)	-0.0092*** (-3.53)		
ARI*Profterm				0.0092* (1.69)		
Length					4.2552*** (3.96)	4.6638*** (4.05)
Length*Profterm						-2.3637 (-0.99)
Profterm	0.4628*** (5.38)	0.1526 (0.86)	0.4624*** (5.37)	0.2327 (1.44)	2.1852 (1.63)	3.5317* (1.85)
Size	2.1426*** (55.61)	2.1450*** (55.65)	2.1409*** (55.57)	2.1433*** (55.60)	1.1827** (2.00)	1.2433** (2.09)
ROA	-29.4561*** (-24.42)	-29.5955*** (-24.50)	-29.4398*** (-24.41)	-29.5582*** (-24.47)	-12.4693 (-0.71)	-13.1007 (-0.75)
Rec	5.4626*** (9.66)	5.4275*** (9.59)	5.4624*** (9.66)	5.4315*** (9.60)	2.0550 (0.26)	2.6262 (0.33)
Lev	-11.7908*** (-32.20)	-11.8251*** (-32.26)	-11.7735*** (-32.16)	-11.8077*** (-32.20)	-0.7040 (-0.14)	-1.6341 (-0.33)
CAPINT	10.6405*** (35.98)	10.6154*** (35.86)	10.6669*** (36.13)	10.6441*** (36.02)	5.1334 (1.26)	4.9648 (1.22)
BDIND	-35.1330*** (-63.71)	-35.0867*** (-63.57)	-35.1165*** (-63.69)	-35.0838*** (-63.60)	-22.3495*** (-2.81)	-22.5262*** (-2.83)
MB	-0.3100*** (-4.09)	-0.3140*** (-4.14)	-0.3138*** (-4.14)	-0.3174*** (-4.18)	-0.2103 (-0.16)	-0.2215 (-0.17)
Growth	0.1226 (0.80)	0.1220 (0.80)	0.1183 (0.78)	0.1214 (0.80)	-0.3073 (-0.14)	-0.1894 (-0.09)
Top10	1.9394*** (18.50)	1.9191*** (18.22)	1.9408*** (18.51)	1.9254*** (18.30)	1.0468 (0.65)	0.9036 (0.56)
Loss	-1.9642*** (-6.54)	-1.9628*** (-6.53)	-1.9599*** (-6.52)	-1.9571*** (-6.51)	-0.0644 (-0.02)	0.0232 (0.01)
Lloss	1.0938***	1.0985***	1.0944***	1.1006***	-0.1098	-0.0331

	(6.29)	(6.32)	(6.30)	(6.33)	(-0.05)	(-0.02)
SOE	-5.1620*** (-57.83)	-5.1738*** (-57.83)	-5.1600*** (-57.81)	-5.1699*** (-57.79)	-3.2432** (-2.31)	-3.2260** (-2.30)
EA	8.6024*** (96.57)	8.6002*** (96.54)	8.6055*** (96.63)	8.6025*** (96.57)	5.4387*** (3.72)	5.3941*** (3.68)
Constant	5.3764*** (5.38)	5.4356*** (5.44)	5.4375*** (5.45)	5.4756*** (5.48)	15.6275 (1.04)	14.6543 (0.97)
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	41351	41351	41351	41351	200	200
Adjusted R^2	0.476	0.476	0.476	0.476	0.454	0.454

Notes: The table presents the regression results for how the readability of ESG reports (complexity and communication efficiency) affects ESG disclosure score. Dependent variable is *ESG_score*. The main variable of interest are *FOG*, *ARI* and *Length*. *Profterm* is an indicator variable, equals one if an ESG report contains definition table of professional terminology. Industry and year fixed effects are controlled. All variables are defined in Appendix II. ***, **, * indicates statistical significance at the 1%, 5% and 10% level respectively.

Table 4 The readability in complexity and communication of ESG report and audit fees

Panel A The complexity of ESG report and audit fees

Paragraph Level Dep.var: *AuditFee*

	(1) Full sample	(2) High ESG score	(3) Low ESG score	(4) Full sample	(5) High ESG score	(6) Low ESG score
FOG	-0.0022*** (-10.82)	-0.0023*** (-10.21)	-0.0013*** (-4.54)			
ARI				-0.0015*** (-9.07)	-0.0017*** (-8.93)	-0.0010*** (-4.12)
ESG_high	-0.0307*** (-5.93)			-0.0312*** (-6.03)		
Size	0.5636*** (220.58)	0.5505*** (143.72)	0.6707*** (162.35)	0.5639*** (220.69)	0.5505*** (143.64)	0.6710*** (162.50)
ROA	-5.3915*** (-61.48)	-8.0170*** (-69.87)	-4.6259*** (-34.73)	-5.3947*** (-61.49)	-8.0136*** (-69.80)	-4.6318*** (-34.78)
Rec	1.6245*** (38.10)	0.2999*** (5.97)	3.4581*** (43.67)	1.6251*** (38.10)	0.3018*** (6.00)	3.4562*** (43.65)
Lev	0.0322 (1.25)	0.2538*** (7.94)	-0.3533*** (-8.25)	0.0294 (1.14)	0.2515*** (7.86)	-0.3551*** (-8.30)
INVENT	-1.7111*** (-48.75)	-1.8450*** (-42.75)	-1.5959*** (-31.41)	-1.7117*** (-48.75)	-1.8445*** (-42.71)	-1.5963*** (-31.40)
CAPINT	0.4996***	0.7669***	0.5484***	0.4932***	0.7615***	0.5459***

	(20.34)	(26.23)	(11.14)	(20.09)	(26.05)	(11.09)
BDIND	-0.9680*** (-22.27)	-2.6820*** (-48.56)	-0.8600*** (-13.36)	-0.9734*** (-22.39)	-2.6938*** (-48.78)	-0.8569*** (-13.31)
Boardsize	-0.1570*** (-10.89)	-0.4665*** (-22.38)	-0.1347*** (-6.83)	-0.1567*** (-10.87)	-0.4651*** (-22.30)	-0.1344*** (-6.82)
MB	0.1326*** (24.64)	0.1135*** (16.58)	0.5991*** (50.58)	0.1329*** (24.67)	0.1133*** (16.53)	0.5994*** (50.59)
Growth	0.1819*** (16.82)	0.2500*** (18.90)	0.3291*** (18.42)	0.1826*** (16.88)	0.2505*** (18.93)	0.3293*** (18.43)
Top10	0.1197*** (16.31)	0.2454*** (22.77)	0.1971*** (17.18)	0.1192*** (16.24)	0.2459*** (22.81)	0.1967*** (17.14)
Switch_Firm	-0.2781*** (-39.22)	-0.2359*** (-25.85)	-0.2490*** (-24.85)	-0.2785*** (-39.26)	-0.2363*** (-25.88)	-0.2493*** (-24.88)
Switch_CPA	-0.0534*** (-11.31)	0.0056 (1.01)	-0.0721*** (-8.15)	-0.0532*** (-11.27)	0.0055 (1.00)	-0.0720*** (-8.13)
Loss	-0.4036*** (-18.98)	-1.1134*** (-31.71)	-0.2203*** (-8.63)	-0.4038*** (-18.98)	-1.1115*** (-31.64)	-0.2208*** (-8.65)
Lloss	-0.2560*** (-21.01)	-0.5371*** (-36.30)	-0.0416** (-2.22)	-0.2553*** (-20.94)	-0.5351*** (-36.16)	-0.0415** (-2.21)
SOE	0.1575*** (24.31)	0.1999*** (22.24)	0.1915*** (16.77)	0.1573*** (24.26)	0.1993*** (22.17)	0.1918*** (16.79)

EA	-0.3850 ^{***} (-61.33)	-0.2404 ^{***} (-31.10)	-0.7319 ^{***} (-52.38)	-0.3855 ^{***} (-61.39)	-0.2409 ^{***} (-31.15)	-0.7324 ^{***} (-52.41)
Constant	2.1552 ^{***} (27.15)	3.6778 ^{***} (32.60)	-1.3377 ^{***} (-10.84)	2.1380 ^{***} (26.93)	3.6692 ^{***} (32.51)	-1.3508 ^{***} (-10.96)
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	41351	25687	15664	41351	25687	15664
Adjusted R^2	0.788	0.821	0.808	0.787	0.821	0.808

Panel B The length of ESG report and audit fees conditional on ESG disclosure score

Report Level- Dep.var: *AuditFee*

	(1) Full sample	(2) High ESG score	(3) Low ESG score
Length	0.0136 (0.16)	-0.1287 (-1.15)	0.3293** (2.07)
ESG_high	0.0232 (0.28)		
Size	0.5565*** (12.82)	0.5946*** (9.20)	0.5437*** (8.34)
ROA	-4.8056*** (-3.65)	-6.8294*** (-3.62)	-3.7901* (-1.98)
Rec	2.6194*** (4.17)	1.3572 (1.58)	3.0805*** (2.81)
Lev	-0.2582 (-0.70)	0.4169 (0.75)	-0.7071 (-1.23)
INVENT	-0.5268 (-0.91)	-0.9151 (-1.18)	-0.6986 (-0.76)
CAPINT	0.6058* (1.76)	1.0926** (2.19)	0.4957 (0.79)
BDIND	-0.6337 (-0.94)	-2.8178*** (-2.82)	-0.0343 (-0.04)
Boardsize	0.0582 (0.25)	-0.1672 (-0.46)	-0.0503 (-0.14)
MB	0.2850*** (2.93)	0.1944 (1.32)	0.4336*** (2.99)
Growth	0.1576 (0.97)	0.1529 (0.69)	0.3819 (1.47)
Top10	0.2914** (2.40)	0.3172 (1.58)	0.3070* (1.76)
Switch_Firm	-0.2862** (-2.59)	-0.1824 (-1.11)	-0.3429** (-2.32)
Switch_CPA	-0.0815 (-1.09)	0.0132 (0.13)	-0.1495 (-1.26)
Loss	-0.3694 (-1.50)	-0.7789* (-1.85)	-0.2178 (-0.69)
Lloss	-0.1381	-0.2343	-0.1677

		(-0.91)	(-1.13)	(-0.73)
SOE		0.2289** (2.14)	0.2577 (1.50)	0.3889** (2.18)
EA		-0.3364*** (-3.06)	-0.1364 (-1.02)	-1.0230*** (-3.78)
Constant		1.1352 (0.85)	1.3171 (0.66)	1.2681 (0.65)
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	200	108	92	
Adjusted R^2	0.730	0.716	0.718	

Notes: This table shows how the readability of ESG reports in the two dimensions, complexity (*FOG* and *ARI*) and communication efficiency (*Length*) affects audit fees and how ESG disclosure score affects the association. Dependent variable is *Auditfee*. The main variables of interest are *FOG*, *ARI* and *Length*. We regress the model in both paragraph level and report level. *ESG_high* is an indicator variable, equals one if ESG disclosure score of a firm is greater than median in a year, zero otherwise. Industry and year effects are controlled at firm level. All variables are defined in Appendix II. ***, **, * indicates statistical significance at the 1%, 5% and 10% level respectively.

Table 5 ESG gap and audit fees

	Paragraph level				Report level	
	(1)Gap model	(2)Gap' model	(3)Gap model	(4)Gap' model	(5) Gap model	(6) Gap' model
	<i>Auditfees</i>				<i>Auditfees</i>	
Gap_FOG	-0.0264*** (-4.46)	0.0117** (2.49)				
Gap_ARI			-0.0279*** (-3.75)	-0.0028 (-0.59)		
Gap_Length					-0.1435 (-1.60)	-0.0744 (-0.90)
Size	0.5583*** (225.39)	0.5593*** (226.05)	0.5590*** (227.17)	0.5608*** (224.04)	0.5372*** (12.94)	0.5776*** (13.92)
ROA	-5.2950*** (-60.79)	-5.3073*** (-60.87)	-5.3065*** (-61.00)	-5.3334*** (-61.04)	-4.7893*** (-3.68)	-4.9339*** (-3.76)
Rec	1.5718*** (37.19)	1.5749*** (37.19)	1.5786*** (37.40)	1.5869*** (37.36)	2.5256*** (4.07)	2.6943*** (4.34)
Lev	0.0465* (1.82)	0.0444* (1.73)	0.0442* (1.73)	0.0361 (1.40)	-0.1914 (-0.53)	-0.3392 (-0.93)
INVENT	-1.7172*** (-48.84)	-1.7120*** (-48.67)	-1.7186*** (-48.86)	-1.7149*** (-48.76)	-0.6413 (-1.11)	-0.5108 (-0.89)

CAPINT	0.4314*** (18.00)	0.4367*** (18.25)	0.4368*** (18.27)	0.4412*** (18.38)	0.5925* (1.75)	0.6634* (1.93)
BDIND	-0.9068*** (-21.26)	-0.9139*** (-21.35)	-0.9140*** (-21.48)	-0.9337*** (-21.62)	-0.5830 (-0.89)	-0.7298 (-1.10)
Boardsize	-0.1617*** (-11.21)	-0.1627*** (-11.27)	-0.1600*** (-11.09)	-0.1609*** (-11.14)	0.0171 (0.07)	0.0920 (0.40)
MB	0.1301*** (24.20)	0.1310*** (24.38)	0.1306*** (24.31)	0.1322*** (24.56)	0.2760*** (2.86)	0.2896*** (3.00)
Growth	0.1793*** (16.61)	0.1787*** (16.51)	0.1798*** (16.65)	0.1812*** (16.74)	0.1549 (0.97)	0.1675 (1.04)
Top10	0.1141*** (15.58)	0.1135*** (15.47)	0.1144*** (15.62)	0.1145*** (15.61)	0.2924** (2.45)	0.2789** (2.31)
Switch_Firm	-0.2800*** (-39.43)	-0.2797*** (-39.39)	-0.2802*** (-39.46)	-0.2798*** (-39.40)	-0.2841*** (-2.61)	-0.2781** (-2.54)
Switch_CPA	-0.0504*** (-10.67)	-0.0508*** (-10.75)	-0.0504*** (-10.68)	-0.0507*** (-10.74)	-0.0798 (-1.08)	-0.0842 (-1.13)
Loss	-0.3815*** (-17.99)	-0.3867*** (-18.27)	-0.3837*** (-18.11)	-0.3905*** (-18.42)	-0.3508 (-1.44)	-0.3944 (-1.61)
Lloss	-0.2590*** (-21.24)	-0.2595*** (-21.26)	-0.2579*** (-21.15)	-0.2578*** (-21.11)	-0.1295 (-0.87)	-0.1422 (-0.95)
SOE	0.1634***	0.1627***	0.1626***	0.1608***	0.2498**	0.2094**

	(25.33)	(25.19)	(25.23)	(24.84)	(2.36)	(1.98)
EA	-0.3948*** (-63.31)	-0.3935*** (-63.19)	-0.3942*** (-63.26)	-0.3928*** (-63.00)	-0.3578*** (-3.29)	-0.3217*** (-2.97)
Constant	2.2269*** (28.31)	2.1973*** (28.05)	2.2060*** (28.19)	2.1698*** (27.61)	1.7363 (1.32)	0.6551 (0.51)
Observations	41351	41351	41351	41351	200	200
Adjusted R^2	0.787	0.787	0.787	0.787	0.735	0.732

Notes: This table shows directly how ESG gap influence audit fees. We posit an ESG gap when firms have low (or high) ESG disclosure score but high (or low) *FOG/ARI*, the results shown in Column (1)/(3) (or Column (2)/(4)), and an ESG gap in report level that firms with short (long) ESG reports have low (high) ESG disclosure score (in Column (5) and (6)). Dependent variable is *Auditfee*. The main variables of interest are *Gap_FOG*, *Gap_ARI* and *Gap_Length*. In Gap model, *Gap_FOG* and *Gap_ARI* equal one if firms have low ESG disclosure score but high complex ESG reports, zero otherwise; *Gap_Length* equals one if firms have low ESG disclosure score but short ESG reports, zero otherwise. In Gap' model, *Gap_FOG* and *Gap_ARI* equal one if firms have high ESG disclosure score but low complex ESG reports, zero otherwise; *Gap_Length* equals one if firms have high ESG disclosure score but long ESG reports, zero otherwise. Industry and year effects are controlled at firm level. All variables are defined in Appendix II. ***, **, * indicates statistical significance at the 1%, 5% and 10% level respectively.

Table 6 The readability in complexity and communication of ESG report and audit report lag conditional on ESG disclosure score

	Paragraph Level				Firm Level	
	(1) High ESG score	(2) Low ESG score	(3) High ESG score	(4) Low ESG score	(5) High ESG score	(6) Low ESG score
	<i>AuditLag</i>				<i>AuditLag</i>	
FOG	-0.0000 (-1.21)	-0.0003*** (-6.32)				
ARI			-0.0000 (-0.92)	-0.0003*** (-6.23)		
Length					0.0131 (0.76)	0.0177 (0.47)
Size	-0.0071*** (-14.17)	-0.0051*** (-5.84)	-0.0071*** (-14.16)	-0.0050*** (-5.78)	-0.0064 (-0.65)	-0.0186 (-0.99)
ROA	-0.6812*** (-41.04)	0.0573** (2.48)	-0.6812*** (-41.04)	0.0564** (2.45)	-0.6262** (-2.02)	0.0290 (0.06)
Lev	-0.0968*** (-19.49)	0.1216*** (16.43)	-0.0968*** (-19.49)	0.1214*** (16.40)	-0.0740 (-0.84)	0.0595 (0.44)
Profterm	-0.0183*** (-18.51)	-0.0098*** (-5.00)	-0.0183*** (-18.50)	-0.0098*** (-5.02)	-0.0180 (-0.95)	-0.0187 (-0.43)
Subsidiary	0.0002*** (19.04)	-0.0000** (-2.47)	0.0002*** (19.02)	-0.0000** (-2.49)	0.0001 (0.84)	0.0001 (0.49)
Firmage	-0.0009***	0.0003**	-0.0009***	0.0003**	-0.0019	-0.0028

	(-9.36)	(1.98)	(-9.36)	(1.98)	(-0.98)	(-0.85)
BDIND	-0.0427*** (-6.33)	-0.0615*** (-6.37)	-0.0430*** (-6.40)	-0.0609*** (-6.30)	0.0307 (0.24)	0.0256 (0.12)
MB	-0.0020** (-2.26)	-0.0149*** (-7.23)	-0.0020** (-2.25)	-0.0149*** (-7.23)	0.0008 (0.04)	-0.0195 (-0.52)
Growth	-0.0401*** (-21.82)	0.0070** (2.25)	-0.0400*** (-21.79)	0.0070** (2.26)	-0.0395 (-1.13)	0.0073 (0.12)
Top10	-0.0154*** (-9.80)	-0.0345*** (-18.21)	-0.0154*** (-9.80)	-0.0346*** (-18.25)	-0.0291 (-0.92)	-0.0291 (-0.73)
Switch_Firm	-0.0163*** (-12.87)	-0.0016 (-0.90)	-0.0163*** (-12.89)	-0.0017 (-0.95)	-0.0235 (-0.95)	0.0204 (0.55)
Loss	-0.2159*** (-42.42)	-0.0515*** (-11.88)	-0.2158*** (-42.42)	-0.0516*** (-11.90)	-0.1050 (-1.61)	-0.0291 (-0.37)
SOE	-0.0335*** (-26.87)	0.0169*** (9.26)	-0.0335*** (-26.88)	0.0170*** (9.28)	-0.0312 (-1.21)	0.0459 (1.05)
EA	-0.0058*** (-5.96)	0.0062*** (2.65)	-0.0058*** (-5.96)	0.0062*** (2.64)	-0.0097 (-0.50)	-0.0224 (-0.33)
Constant	4.3678*** (313.60)	4.1546*** (194.65)	4.3674*** (313.64)	4.1522*** (194.98)	4.3206*** (16.10)	4.4957*** (9.89)
Observations	25687	15664	25687	15664	108	92
Adjusted R^2	0.384	0.415	0.384	0.415	0.194	0.063

Notes: This table shows how the readability of ESG reports in the two dimensions, complexity (*FOG and ARI*) and communication efficiency (*Length*) affects audit report lag conditional on ESG disclosure score. Dependent variable is *AuditLag*. The main variables of interest are *FOG*, *ARI* and *Length*. We regress the model in both paragraph level and report level. Industry and year effects are controlled at firm level. All variables are defined in Appendix II. ^{***}, ^{**}, ^{*} indicates statistical significance at the 1%, 5% and 10% level respectively.

Table 7 ESG gap and audit report lag

	Paragraph Level				Firm Level	
	(1)Gap model	(2)Gap' model	(3)Gap model	(4)Gap' model	(5) Gap model	(6) Gap' model
	<i>AuditLag</i>				<i>AuditLag</i>	
Gap_FOG	0.0068*** (7.79)	-0.0075*** (-10.86)				
Gap_ARI			0.0055*** (4.95)	-0.0115*** (-16.72)		
Gap_length					-0.0011 (-0.06)	0.0102 (0.65)
Size	-0.0040*** (-9.82)	-0.0038*** (-9.33)	-0.0042*** (-10.49)	-0.0031*** (-7.53)	-0.0068 (-0.80)	-0.0087 (-1.00)
ROA	-0.3091*** (-24.04)	-0.3128*** (-24.34)	-0.3050*** (-23.73)	-0.3239*** (-25.20)	-0.3289 (-1.28)	-0.3154 (-1.23)
Rec	0.0525*** (13.74)	0.0510*** (13.35)	0.0536*** (14.04)	0.0471*** (12.32)	0.0298 (0.43)	0.0383 (0.55)
Lev	-0.0162*** (-18.03)	-0.0162*** (-18.02)	-0.0161*** (-17.94)	-0.0166*** (-18.45)	-0.0229 (-1.20)	-0.0224 (-1.18)
BDIND	0.0000 (1.36)	0.0000 (0.78)	0.0000 (1.61)	0.0000 (0.29)	0.0000 (0.30)	0.0001 (0.36)
MB	-0.0009***	-0.0009***	-0.0009***	-0.0009***	-0.0023	-0.0024

	(-12.10)	(-11.76)	(-12.22)	(-11.53)	(-1.38)	(-1.48)
Growth	-0.0674*** (-12.07)	-0.0723*** (-12.86)	-0.0649*** (-11.64)	-0.0820*** (-14.49)	0.0042 (0.04)	0.0143 (0.13)
Top10	0.0093*** (11.74)	0.0095*** (11.99)	0.0091*** (11.54)	0.0099*** (12.54)	0.0011 (0.06)	0.0007 (0.04)
Switch_Firm	-0.0222*** (-13.81)	-0.0212*** (-13.12)	-0.0224*** (-13.90)	-0.0206*** (-12.81)	-0.0244 (-0.78)	-0.0257 (-0.82)
loss	-0.0115*** (-10.38)	-0.0111*** (-9.94)	-0.0116*** (-10.43)	-0.0108*** (-9.69)	-0.0215 (-0.93)	-0.0199 (-0.86)
Lloss	-0.0130*** (-12.51)	-0.0130*** (-12.56)	-0.0129*** (-12.45)	-0.0130*** (-12.53)	-0.0033 (-0.16)	-0.0040 (-0.19)
SOE	-0.1026*** (-32.54)	-0.1022*** (-32.50)	-0.1019*** (-32.31)	-0.1038*** (-33.04)	-0.0688 (-1.45)	-0.0670 (-1.41)
EA	-0.0063*** (-6.66)	-0.0067*** (-7.01)	-0.0061*** (-6.45)	-0.0074*** (-7.76)	0.0025 (0.12)	0.0036 (0.17)
Constant	4.1696*** (379.74)	4.1702*** (381.91)	4.1751*** (381.23)	4.1610*** (381.10)	4.2571*** (18.94)	4.2932*** (18.88)
Observations	41351	41351	41351	41351	200	200
Adjusted R^2	0.344	0.345	0.344	0.348	0.165	0.167

Notes: This table shows how ESG gap influence audit report lag. Based on the results in Table 4, we conclude that firms with more complex ESG reports pay lower audit fees if they have low ESG disclosure score. High *FOG/ARI* indices of ESG reports with more professional terminology and complex narratives

imply that high quality of ESG engagement. Thus, we posit an ESG gap when firms have low (or high) ESG disclosure score but high (or low) *FOG/ARI*, the results shown in Column (1)/(3) (or Column (2)/(4)). We also conclude that firms with longer ESG reports pay higher audit fees when firms have low ESG disclosure scores from Table 4. Long ESG reports impede communication between firms and stakeholders. Thus, we posit an ESG gap in report level that firms with short (long) ESG reports have low (high) ESG disclosure score. The report level results represent in Column (5) and (6). Dependent variable is *AuditLag*. The main variables of interest are *Gap_FOG*, *Gap_ARI* and *Gap_Length*. Industry and year effects are controlled at firm level. All variables are defined in Appendix II. ***, **, * indicates statistical significance at the 1%, 5% and 10% level respectively.

Table 8 Alternative measure of readability in complexity, audit fees and ESG gap

	(1) High ESG score	(2)Low ESG score	(3)Gap model	(4)Gap' model
	<i>AuditFee</i>		<i>AuditFee</i>	
CLI	-0.0020*** (-3.62)	-0.0051*** (-6.45)		
Gap_CLI			-0.0187*** (-3.22)	-0.0016 (-0.34)
Size	0.5509*** (143.55)	0.6713*** (162.95)	0.5588*** (225.26)	0.5606*** (227.69)
ROA	-8.0141*** (-69.71)	-4.6685*** (-35.10)	-5.3096*** (-61.04)	-5.3300*** (-61.18)
Rec	0.3109*** (6.18)	3.4281*** (43.40)	1.5731*** (37.17)	1.5850*** (37.47)
Lev	0.2365*** (7.39)	-0.3734*** (-8.75)	0.0418 (1.63)	0.0374 (1.46)
INVENT	-1.8498*** (-42.75)	-1.5896*** (-31.33)	-1.7140*** (-48.75)	-1.7148*** (-48.76)
CAPINT	0.7394*** (25.32)	0.5155*** (10.54)	0.4297*** (17.83)	0.4408*** (18.34)
BDIND	-2.7210*** (-49.13)	-0.8471*** (-13.17)	-0.9108*** (-21.31)	-0.9302*** (-21.85)
Boardsize	-0.4544*** (-21.76)	-0.1347*** (-6.84)	-0.1626*** (-11.27)	-0.1613*** (-11.18)
MB	0.1137*** (16.58)	0.6001*** (50.82)	0.1305*** (24.26)	0.1320*** (24.59)
Growth	0.2550*** (19.26)	0.3304*** (18.50)	0.1794*** (16.60)	0.1809*** (16.73)
Top10	0.2464*** (22.81)	0.1961*** (17.11)	0.1140*** (15.56)	0.1144*** (15.60)
Switch_Firm	-0.2387*** (-26.12)	-0.2496*** (-24.92)	-0.2801*** (-39.44)	-0.2799*** (-39.40)
Switch_CPA	0.0063 (1.13)	-0.0695*** (-7.85)	-0.0502*** (-10.64)	-0.0507*** (-10.73)
loss	-1.1114*** (-31.59)	-0.2235*** (-8.77)	-0.3855*** (-18.20)	-0.3899*** (-18.42)
Lloss	-0.5279***	-0.0440**	-0.2591***	-0.2581***

	(-35.60)	(-2.35)	(-21.24)	(-21.17)
SOE	0.1959*** (21.77)	0.1934*** (16.96)	0.1626*** (25.22)	0.1611*** (25.01)
EA	-0.2451*** (-31.69)	-0.7360*** (-52.70)	-0.3946*** (-63.20)	-0.3929*** (-62.96)
Constant	3.6529*** (32.24)	-1.2831*** (-10.36)	2.2190*** (28.09)	2.1736*** (27.79)
Observations	25687	15664	41351	41351
Adjusted R^2	0.820	0.808	0.787	0.787

Notes: This table shows the alternative results of Table 4 and Table 5. *CLI* is an alternative measurement of readability in complexity. Industry and year fixed effects are controlled. All variables are defined in Appendix II. ***, **, * indicates statistical significance at the 1%, 5% and 10% level respectively.

Table 9 2SLS Regression

	Paragraph level				Report level	
	(1)High ESG score	(2)Low ESG score	(3)High ESG score	(4)Low ESG score	(5)High ESG score	(6)Low ESG score
	<i>Auditfees</i>				<i>Auditfees</i>	
FOG	0.0061** (2.45)	-0.0050*** (-4.91)				
ARI			0.0042** (2.53)	-0.0034*** (-4.51)		
Length					-0.1335 (-0.82)	0.5903** (2.03)
Size	0.5526*** (135.59)	0.6670*** (156.32)	0.5526*** (136.33)	0.6684*** (158.57)	0.5956*** (8.81)	0.5091*** (8.16)
ROA	-8.0352*** (-75.53)	-4.5557*** (-37.71)	-8.0439*** (-75.87)	-4.5839*** (-38.29)	-6.8341*** (-5.00)	-3.9214** (-2.42)
Rec	0.3517*** (5.03)	3.5175*** (38.16)	0.3463*** (5.02)	3.5040*** (38.16)	1.3577 (1.47)	3.3144*** (2.88)
Lev	0.1916*** (5.58)	-0.3145*** (-7.58)	0.1982*** (6.05)	-0.3253*** (-7.92)	0.4134 (0.92)	-0.3946 (-0.62)
INVENT	-1.8911*** (-31.37)	-1.6248*** (-30.15)	-1.8920*** (-31.48)	-1.6228*** (-30.06)	-0.9185 (-0.90)	-1.1371 (-1.02)

CAPINT	0.6776*** (15.17)	0.6151*** (9.29)	0.6923*** (16.93)	0.5990*** (9.13)	1.0950** (2.16)	0.7653 (1.08)
BDIND	-2.7761*** (-46.96)	-0.8562*** (-12.09)	-2.7451*** (-51.29)	-0.8462*** (-11.95)	-2.8171*** (-3.62)	-0.1352 (-0.14)
Boardsize	-0.4332*** (-14.97)	-0.1304*** (-5.73)	-0.4371*** (-15.51)	-0.1300*** (-5.71)	-0.1652 (-0.46)	-0.2452 (-0.81)
MB	0.1146*** (17.25)	0.5868*** (30.91)	0.1153*** (17.37)	0.5892*** (30.94)	0.1941* (1.66)	0.4183*** (3.08)
Growth	0.2713*** (18.73)	0.3286*** (20.36)	0.2699*** (19.08)	0.3293*** (20.46)	0.1532 (0.82)	0.4041** (2.04)
Top10	0.2450*** (29.23)	0.2029*** (14.07)	0.2436*** (29.26)	0.2007*** (13.93)	0.3153** (2.08)	0.3649** (2.09)
Switch_Firm	-0.2488*** (-28.22)	-0.2499*** (-20.59)	-0.2476*** (-29.00)	-0.2511*** (-20.70)	-0.1814 (-1.46)	-0.3329** (-2.56)
Switch_CPA	0.0111** (2.02)	-0.0742*** (-8.04)	0.0112** (2.06)	-0.0736*** (-7.98)	0.0133 (0.16)	-0.1608 (-1.59)
Loss	-1.0941*** (-44.01)	-0.2128*** (-8.07)	-1.0992*** (-46.11)	-0.2155*** (-8.22)	-0.7820*** (-2.84)	-0.2228 (-0.75)
Lloss	-0.5139*** (-26.09)	-0.0372 (-1.05)	-0.5192*** (-27.93)	-0.0374 (-1.06)	-0.2361 (-1.34)	-0.1200 (-0.49)
SOE	0.1882***	0.1859***	0.1896***	0.1875***	0.2567	0.4010**

		(16.03)	(13.84)	(16.52)	(13.96)	(1.54)	(2.18)
EA		-0.2554*** (-25.81)	-0.7274*** (-57.77)	-0.2539*** (-26.41)	-0.7293*** (-58.22)	-0.1363 (-1.14)	-1.1955*** (-4.25)
Constant		3.3931*** (24.59)	-1.1950*** (-8.99)	3.4154*** (25.84)	-1.2559*** (-9.63)	1.1774 (0.61)	2.4775 (1.48)
Observations		25687	15664	25687	15664	108	92
Adjusted R^2		0.812	0.806	0.814	0.807	0.716	0.707
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table shows the 2SLS regression for H2. Industry and year fixed effects are controlled. For all the first regressions, F-values are greater than 10.

All variables are defined in Appendix II. ***, **, * indicates statistical significance at the 1%, 5% and 10% level respectively.

Table 10 ESG Gap and Audit fees: 2SLS

	Paragraph level				Report level	
	(1)Gap	(2)Gap'	(3)Gap	(4)Gap'	(5) Gap	(6) Gap'
	model	model	Model	model	model	model
	<i>Auditfees</i>				<i>Auditfees</i>	
Gap_FOG	-0.0657^{***} (-10.01)	-0.0356 ^{***} (-6.07)				
Gap_ARI			-0.0698^{***} (-10.70)	-0.0282 ^{***} (-4.82)		
Gap_Length					-0.1539 (-1.54)	0.0350 (0.40)
Size	0.5512 ^{***} (212.42)	0.5657 ^{***} (219.39)	0.5507 ^{***} (212.49)	0.5649 ^{***} (217.28)	0.5296 ^{***} (12.04)	0.5567 ^{***} (13.32)
ROA	-5.2724 ^{***} (-60.68)	-5.4669 ^{***} (-60.90)	-5.2613 ^{***} (-60.53)	-5.4360 ^{***} (-60.63)	-4.8231 ^{***} (-3.71)	-4.8283 ^{***} (-3.69)
Rec	1.5125 ^{***} (35.39)	1.5816 ^{***} (37.50)	1.5113 ^{***} (35.42)	1.5837 ^{***} (37.55)	2.5324 ^{***} (4.08)	2.6254 ^{***} (4.21)
Lev	0.0877 ^{***} (3.37)	-0.0063 (-0.24)	0.0921 ^{***} (3.54)	0.0016 (0.06)	-0.1961 (-0.54)	-0.2566 (-0.70)
INVENT	-1.7149 ^{***} (-48.83)	-1.7549 ^{***} (-49.06)	-1.7155 ^{***} (-48.86)	-1.7431 ^{***} (-48.90)	-0.6513 (-1.13)	-0.5154 (-0.90)
CAPINT	0.4436 ^{***} (18.59)	0.3956 ^{***} (15.84)	0.4422 ^{***} (18.53)	0.4088 ^{***} (16.52)	0.5626 (1.65)	0.6128 [*] (1.80)
BDIND	-0.8570 ^{***} (-19.96)	-0.9792 ^{***} (-22.68)	-0.8551 ^{***} (-19.94)	-0.9723 ^{***} (-22.44)	-0.5483 (-0.83)	-0.6239 (-0.93)
Boardsize	-0.1718 ^{***} (-11.89)	-0.1556 ^{***} (-10.77)	-0.1731 ^{***} (-11.98)	-0.1578 ^{***} (-10.92)	0.0128 (0.06)	0.0503 (0.21)
MB	0.1305 ^{***} (24.35)	0.1371 ^{***} (25.26)	0.1306 ^{***} (24.38)	0.1369 ^{***} (25.08)	0.2722 ^{***} (2.82)	0.2862 ^{***} (2.96)
Growth	0.1704 ^{***} (15.73)	0.1950 ^{***} (17.65)	0.1695 ^{***} (15.64)	0.1916 ^{***} (17.37)	0.1321 (0.82)	0.1572 (0.97)
Top10	0.1184 ^{***} (16.15)	0.1169 ^{***} (15.93)	0.1190 ^{***} (16.24)	0.1156 ^{***} (15.77)	0.3034 ^{**} (2.53)	0.2941 ^{**} (2.43)
Switch_Firm	-0.2760 ^{***} (-38.85)	-0.2798 ^{***} (-39.41)	-0.2759 ^{***} (-38.86)	-0.2805 ^{***} (-39.50)	-0.2912 ^{***} (-2.67)	-0.2868 ^{***} (-2.62)
Switch_CPA	-0.0519 ^{***}	-0.0480 ^{***}	-0.0521 ^{***}	-0.0474 ^{***}	-0.0753	-0.0846

	(-11.01)	(-10.13)	(-11.04)	(-9.93)	(-1.02)	(-1.13)
Loss	-0.3677*** (-17.32)	-0.3972*** (-18.76)	-0.3658*** (-17.23)	-0.3950*** (-18.66)	-0.3670 (-1.51)	-0.3744 (-1.53)
Lloss	-0.2644*** (-21.68)	-0.2501*** (-20.40)	-0.2642*** (-21.67)	-0.2529*** (-20.66)	-0.1368 (-0.92)	-0.1391 (-0.93)
SOE	0.1758*** (26.68)	0.1573*** (24.33)	0.1780*** (26.92)	0.1571*** (24.22)	0.2600** (2.43)	0.2259** (2.14)
EA	-0.3896*** (-62.57)	-0.3955*** (-63.43)	-0.3893*** (-62.54)	-0.3952*** (-63.34)	-0.3456*** (-3.29)	-0.3362*** (-2.97)
Constant	0.5512*** (212.42)	0.5657*** (219.39)	0.5507*** (212.49)	0.5649*** (217.28)	1.9260 (1.40)	1.1493 (0.88)
Observations	41351	41351	41351	41351	200	200
Adjusted R^2	0.787	0.787	0.787	0.787	0.735	0.731
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table shows the 2SLS regression for H3. Industry and year fixed effects are controlled. For all the first regressions, F-values are greater than 10. All variables are defined in Appendix II. ***, **, * indicates statistical significance at the 1%, 5% and 10% level respectively.

Appendix I ESG gaps between ESG disclosure scores and ESG readability

ESG engagement (Readability)		ESG disclosure score	
High Complexity	Good engagement	Low ESG disclosure score	Gap
Low Complexity	Bad engagement	High ESG disclosure score	Gap
Long (inefficient communication)	Bad engagement	High ESG disclosure score	Gap
Short (efficient communication)	Good engagement	Low ESG disclosure score	Gap

Appendix II

Definition of Variables

Variable name	Variable definition
<i>FOG</i>	Readability index, which is a continuous variable and estimates the US education level required to understand the text on a first reading. Higher FOG index score indicates lower readability of the paragraph and report.
<i>ARI</i>	Readability index, which is a continuous variable and estimates the US education level required to understand the text on a first reading. Higher ARI index score indicates lower readability of the paragraph and report.
<i>CLI</i>	Readability index, which is a continuous variable and estimates the US education level required to understand the text on a first reading. Higher CLI index score indicates lower readability of the paragraph and report.
<i>Length</i>	Readability index, which is an indicator variable, equals 1 if the natural logarithm of the number of paragraphs in an ESG report is greater than industry median in the year, 0 otherwise. Followed by Chen, Srinidhi, Tsang and Yu (2016).
<i>FOG_high</i>	Indicator variable, equals 1 if FOG index is greater than median in the year, and 0 otherwise.
<i>ARI_high</i>	Indicator variable, equals 1 if ARI index is greater than median in the year, and 0 otherwise.
<i>Gap_Fog</i>	ESG gap, indicator variable. Equals 1 when a firm have low ESG disclosure score but high Fog Index; or when a firm have high ESG disclosure score but low Fog Index, 0 otherwise. High/low ESG disclosure score is defined whether a firm's disclosure score is above/below the median. High/low Fog Index is defined whether Fog Index in paragraph level is above/below the median.
<i>Gap_ARI</i>	ESG gap, indicator variable. Equals 1 when a firm have low ESG disclosure score but high ARI; or when a firm have high ESG disclosure score but low ARI, 0 otherwise. High/low ESG disclosure score is defined whether a firm's disclosure score is above/below the median. High/low ARI is defined whether ARI in paragraph level is above/below the median.
<i>Gap_CLI</i>	ESG gap, indicator variable. Equals 1 when a firm have low ESG disclosure score but high CLI; or when a firm have high ESG disclosure score but low CLI, 0

	<p>otherwise.</p> <p>High/low ESG disclosure score is defined whether a firm's disclosure score is above/below the median.</p> <p>High/low CLI is defined whether CLI in paragraph level is above/below the median.</p>
<i>Gap_Length</i>	<p>ESG gap, indicator variable. Equals 1 when a firm have low ESG disclosure score but short ESG report; or when a firm have high ESG disclosure score but long ESG report, 0 otherwise.</p> <p>High/low ESG disclosure score is defined whether a firm's disclosure score is above/below the median.</p> <p>Long/short ESG report is defined whether the length of an ESG report is above/below the median.</p>
<i>ESG_Score</i>	A firm's aggregated ESG scores rated by Bloomberg database. The ESG scores range from 0 to 100, with a higher score representing better ESG performance.
<i>Auditfees</i>	Natural logarithm of total audit fees.
<i>Auditlag</i>	The number of days between the firm's fiscal year-end date and the audit report date.
<i>Size</i>	Natural logarithm of total assets.
<i>ROA</i>	The ratio of net income to total assets.
<i>Lev</i>	The ratio of total liability to total assets.
<i>Rec</i>	The ratio of accounts receivable to total assets.
<i>INVENT</i>	The ratio of total inventory to total assets.
<i>CAPINT</i>	The ratio of property, plant and equipment to total assets.
<i>BDIND</i>	Percentage of board members who are outside directors.
<i>Boardsize</i>	Natural logarithm of the number of board of directors.
<i>MB</i>	The ratio of market value of total assets to book value of total assets.
<i>Growth</i>	Annual revenue growth rate from year t-1 to year t. Calculated as the difference between the current year's revenue and last year's revenue scaled by last year's revenue.
<i>Top10</i>	Indicator variable, which equals 1 if large auditors include the Big 4/Big 5 plus the top 6 national audit firms, and 0 otherwise. The top 6 national audit firms are those whose audit fees are ranked in the top 6 according to CICPA annual statistics.
<i>Switch_Firm</i>	Indicator variable, which equals 1 if firms switch audit firms, and 0 otherwise.
<i>Switch_CPA</i>	Indicator variable, which equals 1 if firms switch CPA's who sign on the financial

	statements, and 0 otherwise.
<i>SOE</i>	Indicator variable, which equals 1 if firms are owned by governments, and 0 otherwise.
<i>Loss</i>	Indicator variable, which equals 1 if reported net income was negative, and 0 otherwise.
<i>Lloss</i>	Indicator variable, which equals 1 if reported net income in the previous year was negative, and 0 otherwise.
<i>EA</i>	Indicator variable, which equals 1 if an ESG report is audited by third-party, 0 otherwise.

Notes: The score of readability index is calculated at both paragraph level and report level. For paragraph level, the score is calculated through evaluating the readability of one paragraph.

Internal Carbon Pricing and Firm Performance

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Extended Abstract:

In recent years, several firms have come under scrutiny regarding their carbon footprint. The cost of carbon emissions has risen significantly and has prompted firms to take action to mitigate carbon risks. Internal carbon pricing (ICP) is one such tool firms use to estimate the cost of their GHG emissions. Firms include this cost for analyzing the profitability of their projects and investments. It can help firms identify low-carbon alternatives. Prior studies on this subject have examined what factors determine the adoption of ICP (Bento & Gianfrate, 2020) and how ICP affects a firm's GHG emission level (Zhu et al., 2022). However, there is a lack of studies examining the impact of ICP on firm performance. This study attempts to fill this gap. Our sample consists of U.S. firms for the years 2016 to 2022. We examine the short-term effect of ICP through an event study using the event windows of 5, 11, 15, and 21 days. We observe that in the short term, there is a significant rise in the stock returns of these firms. We further analyze the effect of ICP on ROA and ROE by using a matched sample. We use propensity score matching to match the firms based on size, tangibility, leverage, market-to-book ratio, and market share. We find a positive and significant association between ICP and firm performance. For robustness, we also use inverse probability weighing and entropy balancing to generate a matched sample. Our results are robust to the method of matching used.

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[ID:136]

ESG Criteria Implementation and its affect On Tax System Deformation Pursuing to achieve the Tax System Sustainability-A Case Study Of Slovakia and Germany

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In general, it is expected the tax system has a direct impact on the economic, social and environmental pillars of sustainability. This study examines the deformations of the tax system in the contemporary global environment from behavioural perspective. The objective of this study is to identify and analyse selected aspects of the tax system and tax policy of the Slovak Republic and Germany and whether discovered tax deformations could be eliminated by the thorough process of ESG criteria implementation. The research results shall lead to proposals for augmenting tax legislation or its creation. The process of tax reform implementation if compliant to ESG criteria could fulfil the concept of responsible management. The process of identifying, defining and understanding tax system deformations should lead to a high quality legal tax norms, user-friendly tax environment, and indeed, creating instruments of effective tax control resulting in tax efficiency and tax effectiveness, thus in tax system sustainability. A tax system shall be fair, just and sustainable. Yet, imperfections of the tax system do occur. These deformations are abused by taxpayers in a legal or illegal way. The sample of the companies of various degrees of ESG criteria policy implementation is studied and the results are evaluated.

The methodology of the case study is utilised to demonstrate tax anomalies found in the enterprises resulting to tax evasions or avoidances. Finally, the systematization of theoretical concepts have resulted in the new clear definition of the studied phenomena.

Key words: Tax system, ESG criteria, tax deformation, deformation index, tax revenue

[ID:149]

How do Sustainable Investors respond to Monetary Policy Stances during Crisis and Tranquil Periods: A TVP-VAR Connectedness Approach

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Abstract

Since the first green bond issued by the World Bank in 2008, a significant increase in the capitalization of the sustainable market has been observed, where climate bonds recorded \$201.7 billions of USD by the end of 2022 which main issuer have been government entities. On the other hand, ESG equity (exchange traded funds) investing has accounted for more than \$3trillion USD as of the 2023Q1, where the iShares Global Clean Energy ETF (ICLN) stands as one of the largest renewable energy funds with almost \$3 billion in assets. Besides its increasing importance to accomplish the UN Sustainable Development Goals, little research has been done on the impact of monetary policy operations on the nascent sustainable and even narrower on the monetary policy changes to support the transition to a sustainable economy. This research aims to identify the way in which the sustainable and green finance markets have responded to monetary policy stances such as interest rates during contractionary and expansionary policies. The MSCI Global Sustainable Development Goals ETF and, the Standard & Poors Green Bond Index and Solactive Green Index, are used as best proxies of the sustainable and green finance markets, respectively. As monetary policy measures are used the 2-Year and 10-Year Treasury Bond Yields, the Fed Fund Futures Rate (FFFR), and the Volatility Index (VIX) is used to capture the whole financial market volatility [Benchimol, Saadon Segev, 2023]. Daily data was

considered from January 2018 to August 2023, and split in three subperiods: pre-pandemic (January 2018 to January 2020), during pandemic (January 2020 to August 2022), and after pandemic (August 2022 to August 2023). The response of sustainable investing during tranquil and crisis periods is measured by the Time Varying Parameter VAR (TVP-VAR) approach [Diebold & Yilmaz; 2009, 2014, 2015]. Results show that under a contemporaneous approach, the SDG ETF is statistically significant explained by the 2YTB, 10YTB, and the VIX variables. Quantile regressions are performed to face for non-linear relationships along the distribution of SDG ETF which means that in upper quantiles the relationships are mostly heterogeneous [Benchimol, Saadon & Segev, 2023]. Following [Chen, 2023] a VAR model with 8 lags was fitted based on the AIC metric. Finally, the TVP-VAR network connectedness was estimated for the whole period of study and the three subperiods. The whole period network shows that SDG was a net receiver of volatility spillovers which information was mostly transmitted by VIX, 2YTB, 10YTB and the Solgreen index. Also, it is detected that SDG transmitted information to the Fed Fund Future Rate. In the pre-pandemic period when a contractionary monetary policy stance was performed, SDG was a net receiver which spillovers came mostly from VIX, 2YTB and 10YTB. However, during pandemic, it is registered a disconnection between the green and sustainable finance markets, where spillovers now came from the Fed Fund Future Rate. It is important to note that the FFFR has become now the most important transmitter of volatility spillovers even to the 2YTB and 10YTB. Finally, in the last subperiod related to after pandemic, the sustainable and green finance markets have now become net transmitters of volatility spillovers, where SDG is fed by information of 10YTB and that from the green bond indices.

So, given the network connectedness results, it can be concluded that during the crisis period when central banks are adopting expansionary stances, the green and sustainable finance markets are passive awaiting for information which mostly is coming from the future rates. While in tranquil periods characterized by contractionary stances as observed in interest rate increases, the SDG and green finance markets are more active as transmitters and receivers of volatility spillovers mainly to the 2YTB and FFFR rates. An important feature is that the 10YTB within the interest rates market is the main transmitter of volatility to SDG, which is explained by the reason that as SDG are long-term horizon strategies then they respond in a more volatile and sensitive way to long-term yields. Implications of the study results are that economic agents

willing to invest in the SDG market could require higher compensations than traditional investments because of a still uncertainty on the benefits of adopting sustainable actions by organizations and governments. What could happen if sustainable actions are not achieving UN Sustainable Development goals?

Keywords: Sustainable Development, green finance, monetary policy, TVP-VAR, connectedness.

[ID:150]

Empirical Testing of Asset Pricing Models: A Study of Indian Stock Market

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Asset-pricing models predict the relationship between expected returns and risk. This study on Empirical Testing of Asset Pricing Models-A Study of Indian Stock Market is based on firms listed on BSE-500 for the period of 223 months from June 2001 to December 2019. Asset-pricing models are evaluated on a portfolio constructed using two variables: Investment and Profitability. The study demonstrates that the Fama-French three-factor model consistently surpasses the CAPM in accurately forecasting stock returns in the Indian market. The Carhart four-factor model demonstrates marginal enhancements in certain instances, particularly in portfolios with substantial investment. The data demonstrate a clear correlation between investment and stock returns as well as between profitability and stock returns. The Fama-French three-factor model is superior to CAPM in the Indian stock market setting. Nevertheless, the Carhart model does not exhibit a substantial advantage over the Fama- French model, indicating the necessity of investigating additional variables that could impact stock returns in the Indian market. To summarize, this study provides a comprehensive and meticulous examination of asset pricing models in the Indian context, making a substantial contribution to the comprehension of stock market dynamics in emerging economies.

Keywords: CAPM; Fama-French Three Factor Model; Carhart Model; Investment; Profitability.

Track 10: Marketing & Sales

[ID:23]

When Does Food Waste Matter the Most?

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ABSTRACT

One of the most important elements of sustainable development is reducing food waste at the consumer level. In a 2015 report, the UN stated an ambitious goal of reducing food waste by 50% by 2030. Food waste occurs when food appropriate for human consumption is discarded and left spoiled for whatever reason. The current research extends the Theory of Planned Behavior by comprehensively testing the model with additional constructs including packaging strategy, utilitarian benefits and conspicuous generosity and attempts to explain consumer's foodwasting behavior. Utilitarian benefits include saving time and maintaining freshness due to health concerns. Conspicuous generosity on the other hand refers to one's desire to signal his/her goodness by being over-generous. Using survey data from almost 300 respondents, a three stage least squares multiple regression analysis is conducted. The findings show that bulk packages invoke over purchase of food products. In addition, when individuals have high perceived utilitarian food waste benefits as well as holiday generosity, they will engage in higher food waste behavior. Theoretical and policy implications of the results are discussed.

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[ID:25]

Consumer Rights and Consumer Behavior in Slovakia: A Comprehensive Analysis of the Relationship and Implications

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Abstract

This research paper investigates the relationship between consumer rights and consumer behavior in Slovakia, aiming to provide a comprehensive analysis of their interplay and implications. Consumer rights encompass the legal and ethical entitlements granted to consumers, ensuring their protection and fair treatment in the marketplace. Understanding how consumer rights influence consumer behavior is crucial for policymakers, businesses, and consumers themselves. Through a mixed-methods approach, including survey and focus group discussions, this study explores the existing framework of consumer rights in Slovakia, identifies the factors influencing consumer behavior, and examines the impact of consumer rights on purchasing decisions in context of trust in Slovak products, trust in foreign products and making informed purchasing decisions. The paper also uncovers the challenges faced by consumers in exercising their rights and provides recommendations to enhance consumer rights awareness, education, and enforcement. By shedding light on the relationship between consumer rights and consumer behavior, this study aims to contribute to the promotion of a fair, transparent, and consumer-friendly marketplace in Slovakia.

Keywords: consumer rights, consumer behavior, Slovak consumer

Introduction

Consumer rights play a crucial role in shaping consumer behavior and ensuring fair and ethical market practices. The relationship between consumer rights and consumer behavior has garnered significant attention from researchers, policymakers, businesses, and consumer advocacy groups. Understanding this relationship is vital for establishing effective consumer protection policies and promoting a healthy marketplace.

In the context of Slovakia, a country located in Central Europe, consumer rights have undergone notable developments over the years. After Slovakia's accession to the European Union in 2004, the country has been aligning its consumer protection policies with EU directives and regulations. This alignment aims to provide a consistent and harmonized framework that safeguards consumer interests and fosters confidence in the market.

Consumer behavior in Slovakia has also experienced shifts due to various socio-economic factors, technological advancements, and changing market dynamics. Factors such as income levels, cultural influences, consumer education, and the availability of information significantly impact how consumers make purchasing decisions and interact with businesses. Understanding the relationship between consumer rights and consumer behavior in Slovakia can provide valuable insights into the effectiveness of existing consumer protection policies and highlight areas for improvement.

Despite the importance of this topic, there is a need for a comprehensive analysis that explores the relationship between consumer rights and consumer behavior in Slovakia. This paper aims to bridge this gap by conducting a thorough examination of the implications of consumer rights on consumer behavior patterns in the country. By exploring the legal framework, consumer protection policies, and consumer behavior trends, this study seeks to contribute to the existing body of knowledge on consumer rights and behavior.

The findings of this research will be beneficial for policymakers in evaluating the effectiveness of consumer protection regulations, businesses in understanding consumer expectations and preferences, and consumer advocacy groups in advocating for stronger consumer rights.

Moreover, the insights gained from this study can guide the formulation of evidence-based strategies that promote fair market practices and empower consumers in Slovakia.

In the subsequent sections, this paper will delve into a review of the relevant literature, examining the definition and evolution of consumer rights, the legal framework in Slovakia, and the factors influencing consumer behavior. The research design, data collection methods, and analysis techniques employed in this study will also be discussed. The subsequent chapters will present the analysis of the relationship between consumer rights and consumer behavior in Slovakia, along with the implications of this relationship for businesses and consumer advocacy groups.

By conducting this comprehensive analysis, this research aims to provide valuable insights into the complex interplay between consumer rights and consumer behavior in Slovakia, thereby contributing to the understanding of consumer dynamics in the country and informing future policy interventions.

1. Understanding Consumer Rights

Consumer rights encompass a set of entitlements and protections designed to safeguard consumers' interests and ensure fair and ethical practices in the marketplace. These rights have evolved over time, responding to the changing needs and demands of consumers in various jurisdictions. Understanding the definition, legal framework, and consumer protection policies related to consumer rights is crucial for assessing their impact on consumer behavior. This section provides an overview of the concept of consumer rights, with a focus on the context of Slovakia.

Consumer rights can be defined as the legal and moral entitlements that individuals have as consumers, guaranteeing them certain expectations and protections when engaging in economic transactions (Smyczek, 2019). These rights typically include the right to safety, right to be informed, right to choose, right to be heard, right to redress, and right to consumer education (United Nations, 1985). They aim to ensure that consumers have access to safe and quality products, accurate information, fair pricing, and avenues for resolving disputes.

In the context of Slovakia, consumer rights have experienced significant developments, particularly after the country's accession to the European Union (EU) in 2004. As an EU member state, Slovakia has aligned its consumer protection policies with EU directives and regulations.

The EU's consumer rights framework provides a comprehensive set of rules that govern consumer transactions and establish minimum standards of protection across member states (European Commission, 2021). This alignment has facilitated the harmonization of consumer rights within Slovakia, contributing to a more consistent and integrated market.

The legal framework for consumer rights in Slovakia consists of both domestic legislation and EU regulations. The Act on Consumer Protection, enacted in 2014, serves as the primary legislation governing consumer rights and protection in the country (The National Council of the Slovak Republic, 2014). This act transposes the relevant EU directives into national law, ensuring that consumers in Slovakia benefit from a consistent level of protection as consumers in other EU member states.

Additionally, Slovakia has established institutions responsible for overseeing and enforcing consumer rights. The Slovak Trade Inspection (<https://www.soi.sk>) is the main authority responsible for monitoring compliance with consumer protection laws and regulations (<https://www.soi.sk>). This institution plays a crucial role in investigating consumer complaints, conducting inspections, and imposing penalties on businesses that violate consumer rights.

In Slovakia, consumer protection policies aim to safeguard consumer rights and create a fair marketplace. These policies encompass a range of measures, including information campaigns, consumer education programs, and mechanisms for resolving consumer disputes. The Slovak government, in collaboration with consumer advocacy organizations, plays an active role in formulating and implementing these policies.

One notable initiative is the establishment of the European Consumer Centre Slovakia, which serves as a resource center for consumers, providing information, guidance, and legal assistance (<https://esc-sr.sk/en/>). This organization actively advocates for consumer rights, conducts research on consumer behavior and market practices, and represents consumer interests in policy discussions.

The implementation of consumer protection policies in Slovakia has been influenced by EU guidelines and best practices, aiming to ensure consistency with the broader European framework. These policies are continuously evaluated and updated to address emerging challenges and protect consumers in an evolving marketplace.

Consumer rights form the foundation of consumer protection, guaranteeing individuals certain entitlements and protections when engaging in economic activities. In Slovakia, these rights have

evolved in line with EU directives and regulations, which have been transposed into domestic legislation. The legal framework, including the Act on Consumer Protection, establishes the rights and obligations of consumers and businesses. Moreover, consumer protection policies and institutions, such as the Slovak Trade Inspection and the Slovak Consumer Center, play a crucial role in enforcing consumer rights and providing support to consumers.

2. The Dynamics of Consumer Behavior

Consumer behavior refers to the study of individuals or groups and the processes they undertake when selecting, purchasing, using, and disposing of goods, services, ideas, or experiences (Solomon, 2019). Understanding consumer behavior is crucial for businesses to effectively market their products or services and develop strategies that align with consumer preferences. This section explores the factors influencing consumer behavior, consumer behavior models, and consumer behavior trends in the context of Slovakia.

Consumer behavior is influenced by a multitude of factors that can be broadly categorized into internal and external factors. Internal factors encompass individual characteristics, attitudes, perceptions, motivations, and lifestyle choices (Schiffman et al., 2020). External factors include social, cultural, economic, and technological influences that shape consumer behavior (Kotler et al., 2021).

In Slovakia, consumer behavior is influenced by several key factors. Socio-economic factors, such as income levels, occupation, and education, play a significant role in shaping consumer preferences and purchasing power. Cultural influences, including values, beliefs, and norms, also impact consumer behavior. The cultural diversity within Slovakia, with various ethnic groups and regional differences, contributes to a rich and diverse consumer landscape.

Furthermore, technological advancements have transformed consumer behavior in recent years. The widespread adoption of digital technologies, internet access, and social media platforms has revolutionized the way consumers gather information, make purchasing decisions, and interact with businesses. The convenience of online shopping, the availability of product reviews and comparisons, and personalized advertising have become integral parts of the consumer experience in Slovakia (Musova et al., 2021).

Several models have been developed to explain and understand consumer behavior. One commonly used model is the stimulus-response model, which suggests that consumer behavior is

influenced by external stimuli that elicit certain responses (Kotler et al., 2021). This model emphasizes the role of marketing efforts, such as advertising and promotions, in shaping consumer behavior.

Another widely recognized model is the consumer decision-making process. This model consists of several stages, including problem recognition, information search, evaluation of alternatives, purchase decision, and post-purchase evaluation (Solomon, 2019). Understanding these stages helps businesses identify opportunities to influence consumer behavior and develop effective marketing strategies.

Consumer behavior in Slovakia has witnessed notable changes in recent years. Economic transformations, EU integration, and globalization have influenced consumer attitudes, preferences, and purchasing behavior. The transition from a centrally planned economy to a market-oriented system has expanded consumer choices, offering a wider range of products and services (Olšovský, et al, 2022).

Slovak consumers exhibit diverse behavior patterns. While price remains an important factor, quality, brand reputation, and product attributes also influence purchasing decisions. Moreover, consumers in Slovakia value personalized experiences, excellent customer service, and social responsibility initiatives undertaken by businesses (Kliestikova et al., 2019).

With the growing influence of digital technologies, online shopping has gained popularity among Slovak consumers. E-commerce platforms and mobile applications have provided convenience, accessibility, and a seamless shopping experience. Additionally, consumers actively engage in online product research, reading reviews, and seeking recommendations from peers before making purchasing decisions. (Mitríková et al., 2021).

3. Relationship Between Consumer Rights and Consumer Behavior

The relationship between consumer rights and consumer behavior is a topic of significant interest and importance. Consumer rights regulations and protections can have a profound impact on consumer behavior patterns, influencing purchasing decisions, brand loyalty, and engagement with businesses. Understanding the relationship between consumer rights and consumer behavior in the context of Slovakia provides valuable insights into the effectiveness of consumer protection policies and their implications for the marketplace.

Research has shown that consumer rights play a crucial role in shaping consumer behavior. When consumers are aware of their rights and confident in the protections afforded to them, they tend to exhibit more positive behavior towards businesses. Studies have found that consumer trust, satisfaction, and loyalty increase when consumers perceive that their rights are respected and protected (Chang et al., 2022). On the other hand, when consumer rights are violated or perceived to be insufficiently protected, it can lead to negative consumer attitudes, distrust, and disengagement from businesses. (Henry, 2010).

In the context of Slovakia, consumer rights regulations and their enforcement have a direct impact on consumer behavior. The existence of comprehensive consumer rights legislation, such as the Act on Consumer Protection, provides a legal framework that sets expectations and standards for businesses in their interactions with consumers.

When consumers are confident that their rights are protected and have recourse in case of violations, they are more likely to engage in positive behavior, such as making informed purchasing decisions and maintaining long-term relationships with businesses (Shahzad et al., 2023).

Consumer rights also influence consumer behavior through their impact on trust and perceived risk. Consumers who have confidence in the legal protections and remedies available to them are more likely to trust businesses and perceive lower levels of risk when making purchases (Soleimani, 2022). This trust and perceived risk reduction positively influence consumer behavior, leading to increased engagement, repeat purchases, and positive word-of-mouth recommendations. Furthermore, consumer rights can shape consumer behavior by fostering a sense of empowerment and enabling consumers to assert their rights. When consumers are aware of their rights and understand how to exercise them, they are more likely to actively seek information, compare options, and make informed choices (Chang et al., 2022). This empowered behavior can drive competition among businesses, leading to improved product quality, better customer service, and fairer pricing.

It is important for businesses and policymakers to recognize the symbiotic relationship between consumer rights and consumer behavior. Effective consumer rights regulations not only protect consumers but also contribute to a healthy and competitive marketplace. Businesses that

prioritize consumer rights and engage in fair and ethical practices are more likely to attract and retain customers, leading to long-term success and sustainable growth (Nusantara et al., 2023).

4. Methodology

This section describes the research design and methodology employed to investigate the relationship between consumer rights and consumer behavior in Slovakia. A mixed-methods approach, consisting of a representative survey and focus group discussions, was utilized to provide a comprehensive analysis of their interplay and implications.

The mixed-methods design was chosen to leverage the strengths of both quantitative and qualitative data collection methods, allowing for a deeper understanding of the complex relationship between consumer rights and consumer behavior. The integration of a survey and focus group discussions allowed for triangulation and convergence of findings, enhancing the validity and reliability of the research.

The target population for this study consisted of consumers in Slovakia. A representative sample of 1000 respondents was selected using probability sampling techniques. Probability sampling was employed to ensure a random selection of participants. To achieve a diverse and balanced sample, participants were selected based on demographic factors such as age, gender, income level, and geographical location. Inclusion criteria required participants to be regular consumers in Slovakia, regardless of their specific product preferences or purchasing patterns.

A structured survey questionnaire was developed to gather quantitative data on consumer rights and behavior. The questionnaire consisted of multiple-choice questions and Likert-scale items which were designed to capture relevant variables related to consumer rights awareness, understanding, and experiences, as well as factors influencing consumer behavior. Focus group discussions were conducted to facilitate interactive group dynamics and generate collective insights on consumer rights and behavior. Participants were grouped based on demographic characteristics, such as age and gender, to ensure a diverse representation of perspectives. An experienced moderator facilitated the discussions using a predefined discussion guide. The guide included broad topics and probing questions to explore participants' experiences, opinions, and suggestions related to consumer rights. The discussions were audio or video recorded to capture detailed interactions and subsequently transcribed for analysis.

This comprehensive research was conducted as a part of VEGA Project 1/0737/20 on Consumer behavior and Consumer Literacy in 2022. Ethical guidelines and procedures were followed throughout the research process. Informed consent was obtained from all participants before their participation in survey and focus group discussions. Confidentiality and anonymity were ensured during data collection, analysis, and reporting. The research also complied with all relevant ethical guidelines and regulations, protecting the rights and privacy of the participants.

5. Research results

The research results investigate the impact of being informed about consumer rights on purchasing decisions, particularly in the context of trust in Slovak products and trust in foreign products. It aims to understand how being an informed consumer play a role in trusting domestic vs foreign products. By examining this relationship, the study aims to identify whether consumers' trust in product origin affects their purchasing decisions and how consumer rights can influence these choices.

Moreover, the study emphasizes the importance of making informed purchasing decisions. It aims to explore how being informed about consumer rights contributes to empowering consumers with information and knowledge that enables them to make well-informed choices. By understanding the role of consumer rights in facilitating informed decision-making, the study seeks to highlight the significance of consumer protection measures in ensuring fair and transparent transactions.

Table 1

It is important to me to buy Slovak products

Gender	Absolutely agree	Agree	Do not agree	Absolutely do not agree	Do Not know	Total
male	25.1%	46.2%	19%	4.3%	5.5%	494
female	27.3%	44.1%	20.4%	4.0%	4.3%	506

Table 1 showcases the responses to the statement "It is important to me to buy Slovak products" based on gender. In total there were 494 male respondents and 506 were females. The data reveals that among males, 25.1% absolutely agree with the statement, while 46.2% agree with it. On the other hand, 19% of males do not agree, and a small percentage of 4.3% absolutely do not

agree. Additionally, 5.5% of male respondents expressed their uncertainty by selecting "Do Not know." Among females, 27.3% absolutely agree with the statement, and a slightly lower percentage of 44.1% agree with it. Similarly to males, 20.4% of females do not agree, and 4.0% absolutely do not agree. A small percentage of 4.3% of female respondents also indicated their uncertainty by selecting "Do Not know."

This table provides insights into the opinions of both male and female respondents regarding the importance of purchasing Slovak products. It is interesting to observe the variations in responses between genders are very low, close to similar, which indicates not difference between attitudes or preferences towards buying products made in Slovakia.

Table 2
I prefer foreign products

Gender	Absolutely agree	Agree	Do not agree	Absolutely do not agree	Do Not know	Total
male	10.3%	27.5%	40.7%	12.8%	8.7%	494
female	8.3%	24.9%	45.3%	12.8%	8.7%	506

Table 2 presents the responses of individuals based on gender regarding their preference for foreign products. The table provides a breakdown of the responses into five categories:

"Absolutely agree," "Agree," "Do not agree," "Absolutely do not agree," and "Do Not know."

Among the male respondents, 10.3% absolutely agree that they prefer foreign products, while 27.5% agree with this preference. On the other hand, 40.7% of males do not agree with the statement, and 12.8% absolutely do not agree. Additionally, 8.7% of male respondents indicate that they do not know their stance on this matter. The total number of male respondents is 494. For female respondents, 8.3% absolutely agree that they prefer foreign products, while 24.9% agree with this statement. A larger proportion, 45.3%, do not agree with the preference for foreign products, and 12.8% absolutely do not agree. Similar to male respondents, 8.7% of females are uncertain about their stance on this issue. The total number of female respondents is 506.

Overall, the table suggests that there is a range of opinions regarding the preference for foreign products among both male and female respondents. While a portion of both genders expresses

agreement or strong agreement with this preference, there are also substantial proportions that do not agree or are uncertain about their stance on the matter.

Table 3

I am not an informed consumer; I do not search for information about products

Gender	Absolutely agree	Agree	Do not agree	Absolutely do not agree	Do Not know	Total
male	18.8%	37%	25.5%	13.4%	5.3%	494
female	17.8%	35.6%	45.3%	29.1%	13.8%	506

Table 3 shows insights into the attitudes of male and female participants regarding their level of consumer knowledge and information-seeking habits. The data suggests that a significant proportion of both male and female respondents have reservations about being uninformed consumers who do not actively seek information about products. Among males, 18.8% absolutely agree with this statement, while 37% agree to some extent. In contrast, a slightly lower percentage of females, 17.8%, absolutely agree, and 35.6% agree. Interestingly, a noteworthy gender difference emerges when examining the disagreement with the statement. Among females, a significantly higher percentage (45.3%) do not agree with the notion of being uninformed consumers, compared to males (25.5%). Moreover, 29.1% of females absolutely do not agree, whereas only 13.4% of males hold the same view. The table also includes a category for participants who selected "Do Not know" as their response. This group represents individuals who may not be certain about their level of consumer knowledge or may require more information to form an opinion. In this case, 5.3% of males and 13.8% of females fall into this category.

Table 4

Testing the relationship between consumer rights and consumer behavior

	I prefer foreign products	It is important to me to buy Slovak products	I do not search for information about products
I am well informed about my consumer Rights	$\chi^2 (4, N = 1000), p = 0.029$	$\chi^2 (4, N = 1000), p = 0.03$	$\chi^2 (4, N = 1000), p = 0.021$
I know where to search for information about my consumer Rights	$\chi^2 (4, N = 1000), p = 0.56$	$\chi^2 (4, N = 1000), p = 0.87$	$\chi^2 (4, N = 1000), p = 0.045$

The two statements "I am well informed about my consumer rights" and "I know where to search for information about my consumer rights" were measured on a yes/no scale. This measurement approach was employed to assess the level of consumer literacy, specifically regarding knowledge and awareness of consumer rights. 65% of Slovak consumers agreed they were well informed about their consumer rights and 59% of Slovak consumers say they know where to search for information about their consumer rights. In order to examine if there is a relationship between consumer rights and trust in Slovak products, trust in foreign products and making informed purchasing decisions, chi square tests were performed. We can see a strong relationship between being well informed about consumer rights and buying Slovak and foreign products. Those consumers who consider themselves well informed about their rights say it is important for them to buy Slovak products ($X^2(4, N = 1000), p = 0.03$). On the other hand, those who are not so well informed prefer buying foreign products ($X^2(4, N = 1000), p = 0.029$). Those consumers who do not search for information about products do not consider themselves for being informed about their consumer rights as the p value indicates ($X^2(4, N = 1000), p = 0.021$). The same group of consumers (who do not search for information about products) also show that they do not know where to search for information about their consumer rights ($X^2(4, N = 1000), p = 0.045$). The chi square tests have not shown any relationship between the preference of foreign or Slovak products and knowing where to search for information about consumer rights.

6. Discussion

Understanding consumer behavior patterns is essential for businesses to effectively target and engage with their target audience. In the context of Slovakia, analyzing consumer behavior trends provides insights into the preferences, motivations, and decision-making processes of consumers in the country.

The present research focused on assessing the level of consumer literacy and exploring its relationship with consumer behavior among Slovak consumers. By measuring two key aspects of consumer rights awareness, namely being well informed about consumer rights and knowing where to search for related information, the study provided valuable insights into the dynamics between consumer rights and preferences for foreign and domestic products.

The findings revealed that a significant proportion of Slovak consumers demonstrated awareness of their consumer rights, with a notable percentage considering themselves well informed and knowing where to access information. The study further established a strong relationship between consumer rights awareness and purchasing preferences. Consumers who were well informed about their rights showed a higher tendency to prioritize purchasing Slovak products, while those with less awareness leaned towards foreign products.

Additionally, the study emphasized the importance of information-seeking behavior. Consumers who did not actively search for information about products were less likely to consider themselves well informed about their consumer rights and displayed a lack of knowledge regarding information sources. This highlights the significance of proactive consumer engagement in ensuring rights awareness and informed decision-making.

It is worth noting that no significant relationship was found between product preferences and knowledge of specific information sources about consumer rights. This indicates that while consumer rights awareness may influence product preferences, it does not necessarily correlate with knowledge of where to seek relevant information.

These findings contribute to the existing body of knowledge on consumer behavior and underscore the importance of consumer rights education and information dissemination. The study suggests that promoting consumer literacy and providing accessible information channels can empower consumers, foster informed decision-making, and potentially contribute to the growth of domestic markets.

Consumer rights regulations and their influence on consumer behavior have significant implications for businesses operating in Slovakia. Understanding these implications is crucial for businesses to adapt their strategies, enhance customer relationships, and ensure long-term success. Firstly, businesses need to prioritize ethical and fair business practices that align with consumer rights. Businesses should also invest in customer education and engagement. Educating consumers about their rights, as well as the quality and safety standards of products or services, can empower them to make informed decisions. Furthermore, businesses should adopt customer-centric strategies that prioritize customer satisfaction and post-purchase support. In the digital age, businesses must also consider the implications of consumer rights on online transactions. Providing secure payment systems, protecting consumer data privacy, and ensuring transparent terms and conditions are essential for fostering consumer trust in e-commerce.

environments (Ahmed and Lee, 2021). Moreover, businesses should monitor consumer behavior trends and adapt their marketing strategies accordingly. Understanding consumer preferences, needs, and motivations allows businesses to tailor their products, services, and marketing messages to effectively engage with their target audience. Ultimately, businesses that prioritize consumer rights and incorporate them into their core values and operations are more likely to gain a competitive advantage. By fostering positive consumer experiences, building trust, and ensuring compliance with consumer protection regulations, businesses can establish long-term relationships with customers, foster brand loyalty, and sustain growth in the Slovak market.

Consumer advocacy groups play a vital role in safeguarding consumer rights and advocating for fair market practices. The relationship between consumer rights and consumer behavior has important implications for consumer advocacy groups in Slovakia. Understanding these implications can guide the efforts of consumer advocacy groups in promoting and protecting consumer interests. Consumer advocacy groups can use consumer behavior insights to identify areas where consumer rights are being violated or compromised. Consumer advocacy groups can also play a crucial role in empowering consumers by providing information, guidance, and support. By disseminating information about consumer rights and protection regulations, these groups can ensure that consumers are well-informed and aware of their rights. Furthermore, consumer advocacy groups can contribute to consumer education and financial literacy initiatives. By providing resources, workshops, and educational materials, these groups can enhance consumers' understanding of their rights, improve their ability to make informed financial decisions, and equip them with the necessary skills to navigate the marketplace effectively. Consumer advocacy groups in Slovakia play a crucial role in promoting and protecting consumer rights. The relationship between consumer rights and consumer behavior presents several implications for these groups. By utilizing consumer behavior insights, empowering consumers through information and support, collaborating with regulatory bodies, fostering collective action, and promoting consumer education, advocacy groups can effectively advocate for stronger consumer rights and contribute to a fair and transparent marketplace in Slovakia.

Future research in this area could explore additional factors that influence consumer behavior and assess the effectiveness of consumer rights education programs in promoting informed decision-making and supporting domestic industries.

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Measuring Companies' Sustainable Marketing Orientation in the Service Industry in Italy

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Abstract

Sustainability has become increasingly central to organizations in the European Union and worldwide. The 2030 Agenda for sustainable development, established by the United Nations in 2015, emphasizes sustainability as a major focus globally. The EU considers sustainability such a crucial pillar, as reflected in the Next Generation EU and Recovery Plan funds Programs (European Commission, 2022). The University of Rome "Tor Vergata" includes sustainability among its main pillars for the National Project on Departments of Excellence, which will be implemented during the five-year period 2023-2027. For a university that places such a strong emphasis on sustainability, it is important to assess and raise awareness regarding its observance by the players involved in teaching activities and the corporate entities they represent. Despite the existence of sustainability literature in marketing, there is a lack of research on managerial perceptions and perspectives regarding sustainability marketing (Kemper and Ballantine, 2019; Peattie, 2015; McDonagh and Prothero, 2014). Additionally, there is a dearth of specific research

on the service industry related to sustainability marketing orientation. This paper aims to assess the sustainable marketing orientation of marketing and communication managers in the service industry in Italy, exploring the extent to which managers incorporate sustainability into their marketing strategies. The study employs a questionnaire, adapted from the scale developed by Lučić (2020), which considers sustainable marketing orientation as multidimensional, encompassing strategic integration, societal engagement, and ethical capabilities. The objective is to gauge the level of strategic involvement with sustainability. The sample consists of +30 respondents, managers, and professionals from relevant Italian companies (or Italian branches of multinationals) across various sectors in services (Media & Entertainment, Sports, and Food & Beverage services) that present themselves as "sustainability-oriented" and cooperate with the Master's Degrees in Economics Communication and Media Management, as well as the Master's in Sports Marketing and Management, at the Department of Management and Law, Tor Vergata University of Rome. The selected companies are identified as benchmarks in their respective sectors, according to the following reports: Deloitte Football 2021; Employee Institute Report

2023; Fastest Growing Companies in Europe, 2019; Bea Italia Event Agencies 2022; Most Valuable Italian Brands 2022; Market Cap in Italy 2022; Communications Companies by Market Cap 2022; Doxa Reputation 2022; Employers Institute 2023; Global Brands Interbrand 2023. This research will give a concrete contribution by clustering the respondent companies into four categories, ranging from most to least oriented to sustainability, based on specific criteria. This categorization will offer valuable insights for policy makers, academia, and businesses, enabling them to identify best practices from the most sustainable firms and guide others towards enhancing their sustainability efforts in marketing strategies.

Keywords

Marketing Management; Sustainability Strategy; Marketing Orientation; Service Industry; Ita

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Narrative Review on the Relevance of Social Media Stars in Influencing Consumer Purchase Intentions

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Abstract

Due to the pervasiveness of information technology and internet use, social media influencers have developed as an additional endorser with a strong dynamic impact over people's decision-making. Social media is currently a medium for online communication with a big societal influence, which encourages firms to step up their social media marketing. The current study reviews the existing research work on understanding the relevance of Social Media Stars in influencing Consumer Purchase Intentions. As a result, the present study proposes a model which tries to display the perceived characteristics of the SMI's which might influence the Purchase Intention of the consumers.

Keywords: *Social Media Influencers, Consumer Purchase Intentions, Influencer Marketing, Branding, Social Media Marketing*

1. Introduction

The role of social media influencers has received some attention due to the recent developments in the field of marketing. Influencer marketing places a strong emphasis on spending money on

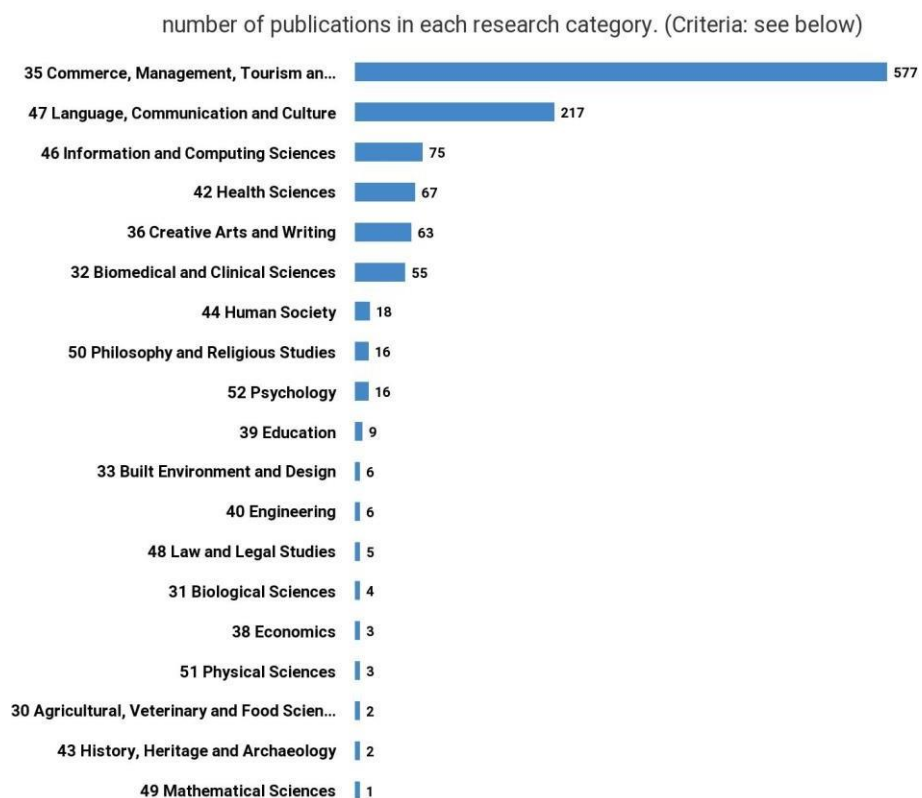
influencers who can inspire firms to sell to a specific target audience (Smart Insights, 2017). The social media influencers have evolved into an extra endorser with a powerful dynamic influence over people's decision-making as a result of the pervasive information technology and internet usage (Alshurideh et al., 2019; Freberg et al., 2011).

Currently, social media is an online communication tool with a significant social impact (Dân & Nam 2018), which motivates businesses to increase their social media marketing efforts. According to earlier study, traditional marketing channels including radio, television, and magazines are currently unstable and ineffectual as a result of the internet's impact on the market (Opreana & Vinerean, 2015; Tiago & Verissimo, 2014). Furthermore, consumers trusted product suggestions from social media influencers more than those from their families or friends, which led to 40% of customers buying the products used by influencers (Sekhon et al., 2016).

Social media use makes it easier to share information about a company and its brand (Nofal et al., 2020; AL-Sous et al., 2022). Furthermore, according to Nisar and Whitehead (2016) and Zhang et al. (2017), social media increases customer trust and loyalty while also enhancing brand recognition and value. In addition to raising sales and developing long-term relationships with customers, social media also enhances customer buy intentions (Tawnih et al., 2021). In line with these earlier findings, Tan (2017) suggested using social media influencers (SMIs) to boost consumers' purchase intentions.

Social media influencers were those who frequently engaged in a particular topic on social media, actively used their accounts, and shared fresh material (Loeper et al., 2014). Influencers on social media frequently utilise things that fit their lifestyle and post reviews of them there. According to Munukka et al. (2016), an influencer may give a positive review of a product that would appeal to consumers and persuade them to buy it. Additionally, they offered the most recent information and had the power to change the attitudes and actions of customers (Liu et al., 2015). Given the growing popularity of social media influencer marketing in Indonesia, many analysts predicted that the number of social media influencers will rise over time.

In addition, social media influencers frequently spoke with customers more frequently than businesses did (De Veirman et al., 2017). According to Solomon (2017), social media influencers shaped how consumers perceived a product. Additionally, it was consistent with a study by Ateke (2013) that found that influencers' use of brand imagery for products increased as perception of those products increased. Additionally, Godey et al. (2016) claimed that the use of social media influencers in marketing would lead to a positive relationship with the brand image because information shared on social media was more potentially able to influence consumers' behaviours and intentions to make purchases (Labrecque et al., 2013).



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Criteria: '(influencer marketing) AND (social media)' in title and abstract; Publication Type is Article.

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Figure 1 - Research on Social Media Influencer in each Category

During the last 10 years, it is evident from the above diagram that much of the research work carried out in various sectors, namely Commerce, Management, Tourism; Language, Communication and Culture; Information and Computer Science; Health Sciences; Create Arts and Writing, had focused on undersanding the relevance of Social Media Influencers towards Consumer Purchase Intentions.

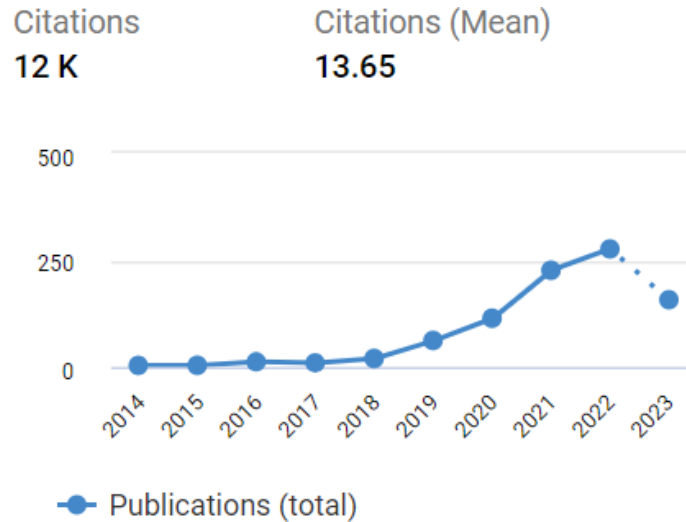


Figure 2 - Publications in the field of Social Media Influencers during the past 10 years

A scrutiny of the research work shows a steady rise in the publications in the area of social media influencers year on year which have started to yield a better understanding on the concepts that are going to shape this new upcoming marketing revolution.

2. Methodology

The objective of this interpretive-qualitative research is to discuss the state of the literature (Freda N. Gonot-Schoupinsky et al., 2022) on a specific topic and encourage further discussion among researchers (Grant and Booth, 2009). It employs bibliometric analysis and narrative review as part of its methodology (Green et al., 2006; Pan, 2008). We conducted a non- systematic literature review to understand the breadth of the scope.

3. Review of Literature

3.1 Social Media Marketing

According to Paris et al. (2010) and Elbanna et al. (2019), social media is "a secured generation of web development and design, that aims to facilitate communication, sources information sharing, interoperability and collaboration on the World Wide Web." Consumers often spend more than 330 minutes per day participating on social media platforms. In particular for Indian SMEs, these platforms have already developed into simple tools for the formation of online contact between consumers and businesses, or between consumers themselves across the World at any time (Harris et al., 2008; Rana et al., 2019).

According to social media marketing statistics, 80% of online marketers believe that social media influencers are trustworthy advocates who help their companies grow (Dhanesh & Duthler, 2019). The research supports the ability of social media influencers to influence consumers' intentions to make purchases. According to marketing studies, 50% of businesses

employ social media influencers to market their products or services (Forbes, 2017). To interact with customers directly, however, businesses also maintain the blogosphere and launch their own blogs. Recent research has mostly focused on the vloggers' (video bloggers) motivation and function in the enterprises through their behaviours and effects (Wang & Chuan, 2011).

When Kumar et al. (2020) discovered that integrated marketing promotional messages can be successful in influencing customers' views about product image and result in consumption behaviours, they provided an example of the significance of social media marketing.

People are drawn to social media for a variety of reasons. Malik et al. (2016) studied the advantages that Facebook users obtained from social media participation based on the Uses and Gratification Theory. They specifically identified six different forms of satisfactions from sharing images in their online study of 368 Facebook users. They discovered that attachment, attention seeking, habit, knowledge sharing, disclosure, and social influence can all lead to user delight.

Additionally, Agarwal and Karahanna (2000) discovered that consumers enter a state of cognitive absorption (CA) when they are intensely engaged with information technology. According to Agarwal and Karahanna (2000), there are many reasons why CA encourages users to use social media. Social media, for example, allows for temporal dissociation, which reduces the user's awareness of the passage of time. Additionally, social media offers users a targeted immersion experience that enables them to escape the unpleasant realities of life. Third, successful interactions between a user and the software through social media can increase enjoyment. Finally, social media can satiate users' curiosity by offering novelty and wonder. Social media gives users a sense of control.

Despite the fact that many people find social media appealing, it can have a detrimental impact on people's mental health. For instance, Dhir et al. (2018) discovered that social media fatigue may be brought on by unrestrained usage of such platforms and that social media fatigue may increase levels of anxiety and depression among adolescents in India. However, according to Knowles et al. (2020), social media is rapidly being utilised to help businesses and customers communicate. When Kumar et al. (2020) discovered that integrated marketing promotional messages can be successful in influencing consumer perceptions about product image and result in consumption behaviours, they provided an example of the significance of social media in marketing.

3.2 Influencer Marketing

When done properly, influencer marketing can be incredibly effective. Gucci, an Italian fashion house, launched its new fragrance line Gucci Bloom in 2019 with the use of influencer marketing. Gucci worked with 23 artists to provide very imaginative imagery on Instagram that was an artistic representation of the floral world surrounding the fragrance. With 135 pieces of content produced, the campaign was able to reach approximately 750,000 followers and significantly increase awareness. Even Gucci used some of the output on its Facebook page and website (Michael Haenlein, 2020).

Influencers excel at producing material that customers engage with, which aids in its social media virality while brands frequently struggle to produce interesting social media content. Top influencers can charge over six figures for a single social media post in exchange for having this reach, and collectively they can make millions of dollars a year (McCoole, 2018). This has caused a surge in the number of individuals working in the sector, especially young people who view it as a simple and rewarding summer job (Lorenz, 2018). Ad agencies, clearinghouses, and talent brokers with a focus on the industry are growing along with influencer marketing, according to a review¹ that found roughly 1,300 influencer agencies alone.

Since many shops feel this new kind of marketing can result in increased revenues, influencer marketing has become a crucial component of their digital marketing plans. According to a market study by Chung-Wha (Chloe) Ki et al. (2020), 86% of brand marketers employed influencer marketing in their advertising efforts in 2017 and 92% of them thought it was successful. In 2018, over 89% of these marketers claimed that their ROI from influencer marketing was superior to or on par with that of other marketing channels. Additionally, it was discovered that content produced by SMI was 6.9 times more effective than content produced in a studio (Ki and Kim, 2019).

Because of the effects of these SMIs, 42% of marketers said they want to employ influencer marketing as an ongoing strategy rather than as a one-off tactical initiative. Influencer marketing's global market size surpassed 148 million in 2019, an increase of roughly 7.95% from 2018, and it is anticipated that this figure would surpass US\$373 million by 2027 (Statista, 2020).

3.3 Social Media Influencers in Consumer Purchase Intentions

Xin Jean Lim et al. (2017) conducted a study on the efficacy of social media influencers, concentrating on source legitimacy, source attractiveness, product match-up, and meaning transfer. It has been suggested that consumer behaviour can act as a mediator between external and endogenous interactions.

Atika Hermanda et al.'s research from 2019 revealed how social media influencers affected customers' perceptions of brands, their own selves, and their propensity to buy cosmetics. The third entity that informed the social media audience about cosmetic items was the social media influencers. People who shared the same self-concept as the influencers frequently saw them as consumption role models. The improvement of one's own self-concept and brand image had an impact on purchase intention. They would use a cross sectional design for their study and distribute the findings from online questionnaires on social media. However, their research showed that, in contrast to the company image, social media influencers and one's own self-concept had a considerable negative impact on purchase intention.

A research model based on the theory of persuasion was created by Hisashi Masuda et al. in 2022 to examine the relative importance of the parasocial interaction. The study took into account three characterizations (trustworthiness, perceived expertise, and parasocial relationship) as well as three personal characteristics (attitude homophily, physical attractiveness, and social attractiveness) as antecedents of purchase intention. Through a survey of respondents who had purchased goods or services after viewing influencer-made YouTube adverts, data had been

gathered. According to the study, parasocial relationships were highly associated to the three personal qualities and had a significantly positive impact on purchase intentions when compared to other characterizations. In addition, consumers' perceived influencer types had a big impact on how parasocial relationships formed. The poll revealed that social media influencer marketing techniques need to be adjusted based on individual characteristics, influencer kinds, and personal traits.

Barween Al Kurdi et al. (2022) investigate the impact of various influencer qualities on both the attitude and intention of consumers. This research also looks at the moderating function of vloggers as a new, developing marketing tool. The study employed a quantitative research approach to gather data from TikTok users, which has grown to be a more popular web platform for short films, in order to carry out the research and accomplish its main goal. With the exception of the influence of source relatability on consumer attitude and the moderating role of vloggers on consumer intention, the PLS-SEM method is used in the analysis phase, and the results demonstrate a strong influence of the hypothesised research model.

The influence of social media influencers (SMIs) on consumers' shopping decisions was explored by Nida AL-Sous et al. in 2023 by looking into the elements influencing consumers' purchase intentions. Facebook users who participated in the study were asked to complete an online survey in order to provide data. As a result, the study highlighted a number of important variables related to SMIs that have an impact on customers' purchasing intentions in the Jordanian setting. In light of this, the main variables influencing client purchase intention through SMIs were investigated. Using data from 390 Jordanian Facebook users, a model was constructed, empirically tested, and validated using structural equation modelling (SEM). The findings confirmed that Information Quality (IQ) and Trustworthiness (TRU) had a significant impact on consumers' attitudes towards a brand and, as a result, their purchase intentions.

The influence of SMIs' credibility, as shown by their dependability, attractiveness, and knowledge, as well as the moderating impacts of materialism, on followers' purchase intentions was studied by Kian Yeik Koay et al. in 2022. The study also revealed that followers' purchasing intentions are significantly predicted by SMIs' knowledge and dependability. Additionally, materialism has a considerable moderating impact on the link between beauty and purchase intention. Notably, when materialism is high, the effect of attractiveness on purchase intention is stronger.

Partial least squares (PLS-SEM) was utilised for data analysis in a survey performed by Hashed Mabkhot et al. (2022) with 312 respondents in the Eastern Region of Saudi Arabia. According to the study's findings, there is a substantial relationship between purchase intentions and SMIs, and credibility was found to be an important mediating factor. Additionally, the results help us analyse consumer behaviour.

Jason Weismueller et al.'s (2020) investigation focused on the role that advertising transparency and source authenticity play in the relationship between social media influencer endorsements and purchase intention. The suggested theory contends that source credibility subdimensions of attractiveness, trustworthiness, and expertise—subdimensions that favourably affect consumer purchase intention—are significantly impacted by advertisement disclosure. Evidence from 306 German Instagram users between the ages of 18 and 34 shows that source expertise, source

trustworthiness, and source attractiveness all significantly increase the likelihood that a consumer will make a purchase. Advertising disclosure, on the other hand, has an indirect impact on consumer purchase intention by affecting source attractiveness. The findings also show that the number of followers has a favourable impact on source attractiveness, source credibility, and purchase intention.

4. Underlying Theories

4.1 Social Learning Theory: Academic research has extensively used Bandura et al.'s (1963) social learning theory, particularly in the disciplines of communication and advertising (Bush et al. 1999). According to King and Multon (1996) and Martin and Bush (2000), it serves as a theoretical framework to present theories of socialisation agents that can forecast consumer habits. According to the social learning hypothesis (Subramanian and Subramanian 1995; Moschis and Churchill 1978), an individual acquires motivation and subsequently displays a positive attitude via socialisation agents through either direct or indirect social interaction.

This idea has been used in earlier marketing research to analyse consumer behaviour through a variety of socialisation agents, including celebrities, family, and peers. For instance, Makgosa (2010) demonstrated that the social learning theory can adequately account for how celebrities influence consumer behaviour. Makgosa asserts that social learning theory is recommended as a contextual foundation for understanding social media influencers, who represent a novel type of independent third-party endorser (i.e., the concept is somewhat similar to celebrity endorsement) and who have the ability to affect audience attitudes and decision-making through the use of social media. According to the social learning theory, the attitudes of respondents and the success of social media influencers in marketing the products have a significant impact on a person's intention to buy a product.

4.2 Theory of Persuasion : A method called persuasion aims to alter someone's mindset or behaviour. The elaboration likelihood model (ELM), which is used by one school of persuasion theory, divides persuasion into two different paths: central, having a greater elaboration likely, and peripheral, with a lower elaboration likelihood (Petty and Cacioppo, 1983). In the central route, a person evaluates the information presented in relation to how well it supports their values; in the peripheral route, a person evaluates the communication source's attractiveness without giving it much thought. According to this ELM route theory, communication that does not call for serious consideration by individual value systems is better suited for the periphery route (Petty and Cacioppo, 1983).

This side path is designed to encourage greater heuristic-based persuasion, where attitudes or beliefs are manipulated by arguments that characterise the information sources as credible. According to studies (Bacev-Giles and Haji, 2017), people generate good views of social media targets based on very few cues. Following are some ways social media influencers can be approached using the persuasion theory: The followers' perception of the influencer (such as whether they are trustworthy) has an impact on their behavioural intentions, such as their intention to make a purchase. When followers believe an influencer is reliable, they spend more money. Based on their observations of the influencer's personal qualities, such as attractiveness, followers build an impression of the influencer's reliability in their thoughts.

4.3 Transformational Leadership Theory: According to this hypothesis (BM Bass and RE Riggio, 2006), leaders are crucial in inspiring and motivating their subordinates. A transformational leadership approach in the context of social media influencers involves influencers that have the capacity to establish a vision, motivate their followers, and have a beneficial effect on their audience. They have the power to increase engagement, foster trust, and effectively change consumer behaviour.

4.4 Social Exchange Theory: According to Peter Blau (1964), this theory is concerned with the connections and interactions between people. The social exchange theory can be used in the context of social media influencers to comprehend the dynamics between influencers and their followers. It investigates how influencers and their audience exchange value in the form of knowledge, entertainment, or product recommendations. In order to keep up a profitable relationship with their followers, influencers must offer valuable content and interact with them.

4.5 Contingency Theory: According to this view, there isn't a single management strategy that works for everyone. Effective management techniques, on the other hand, depend on the unique context and circumstances (L Donaldson, 2001). The contingency hypothesis suggests that social media influencers' management tactics should be adapted to their platform, industry, and target audience. Influencers must modify their content, engagement tactics, and brand partnerships in response to the preferences and actions of their audience.

4.6 Stakeholder Theory: According to this concept, it is crucial to take into account the interests of all parties participating in a system or organisation (Bidhan L. Parmar, 2010). Influencers on social media must manage their interactions with a variety of stakeholders, such as their fans, brands, platforms, and regulatory organisations. Maintaining long-term success as an influencer requires an understanding of and ability to balance the demands and expectations of these stakeholders.

4.7 Social Identity Theory: Henri Tajfel and John Turner's (1979) social identity theory investigates how group attachments help people form a sense of self and a social identity. This theory may be used in the context of social media influencers to comprehend how influencers construct and manage their online personas as well as how their followers develop a sense of community and identification with the influencer.

4.8 Expectancy Theory: Victor H. Vroom's (1964) expectancy theory postulates that people are motivated to behave a certain manner based on their expectations of the outcome. This theory can be used to analyse how social media influencers encourage their followers to interact with their content by raising the expectations of amusement, education, or social connection.

5. Proposed Model

Figure 3 – Proposed Model

6. Discussions

The study focuses on understanding the relevance of Social Media Influencer (SMI) in influencing Consumer Purchase Intentions. Therefore, the paper proposes a research model based on the extensive literature review built on the basis of the underlying theories mentioned in the paper. The proposed model tries to display the perceived characteristics of the SMI's which might influence the Purchase Intention of the consumers, namely;

Brand Image - Brand associations created by SMI's embedded in consumer memory serve as a reflection of how consumers feel about brands.

Self Concept - Character or personality that moulds one's self-perception and affects their consumption behaviour. Therefore, the customer determines the character or personality of the brand as such, based on the SMI.

Communication – Marketers believe that the new social media platforms can inform consumers about products that might originate from less reputable and credible sources. The buyers express their purpose to purchase something, for instance, they thoroughly examine nearby communication sources and information shared by SMI's.

Credibility – Credibility may also be described as the attribute of being trusted or having the capacity to be believed. It is the assessment of a SMI's trustworthiness given by a perceiver.

Attractiveness - An aesthetically appealing SMI is more likely to increase consumer acceptance of the recommended product. Consumers' perceptions of a SMI's perceived appeal are integrally tied to its physical qualities, including its wisdom, beauty, wholesomeness, psychographic traits, and sportsmanship. As a result, the degree of the endorser's attractiveness determines how well the endorsements work at influencing consumers' behavioural intentions.

Product Match-up – SMI's on social media who represent a company must be a good fit for the attributes of the goods they are promoting. A successful pairing will lead to favourable attitudes towards the endorsed brand.

Meaning transfer – Endorsement as a transfer of meaning from the SMI's personal and professional environment to a specific product, which has a direct impact on how customers develop their sense of self through consumption. Marketers think that people like buying things that their idols support.

Information Quality – People would use social media platforms to look for information of all kinds, and the calibre of the material they found seemed to be directly related to how reliable they felt the information they were looking for was. The calibre of the information shared by an SMI will impact the degree of readers' trust in it, their awareness of the company, and their intent to make a purchase.

Trustworthiness - When a SMI is regarded as reliable, followers are more likely to believe the information they are given about the product endorsements. Additionally, a SMI who consistently

posts educational content will establish emotional ties with his or her followers and favourably influence them to purchase the suggested goods or businesses. Higher levels of brand credibility and brand attitude are related with endorsers who are regarded as reliable, and this leads to higher levels of buy intention for such brands.

Expertise – Customers are more likely to purchase products recommended by SMI's who possess a specific level of product expertise and understanding. The same is true for consumers who see internet reviews as valuable and likely to affect their decision to purchase the reviewed products when they believe the reviewers are reliable and skilled.

Therefore, the study narrates about the growing importance of Social Media Marketing and about the role of Social Media Influencers who acts as an endorser for a brand and finally influencers consumer purchase.

7. Limitations and Scope for Further Research

The study had considered limited number research papers which were published in the area of Social Media Influencers, influencing Consumer Purchase Intentions. Another limitation is that only a few dimensions were taken into consideration for the development of the model. Hence, further researches can consider utilizing a mixed method so that the factors influencing consumers' purchase intentions through Social Media Influencer's could be understood more in- depth.

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Branded Service Encounters, Service Failures, Brand Congruence, Consumer Expectations, AI, ChatGPT

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Introduction

Imagine that you have just been seated at a western-style barbeque restaurant your server, who is dressed in cowboy boots and jeans, introduces himself with a country accent. Initially, you are delighted that the server's style and personality match the atmosphere of the restaurant.

However, as the meal progresses, you begin to notice that he is not doing a great job...your order got messed up, your food came out cold, and your drinks are not being refilled. How would you react to this poor service? More specifically, would the fact that your server's personality is congruent with the barbeque restaurant's brand image make you more or less forgiving of the service failures?

The growing importance of branded service encounters has led to increased research attention in recent years. Multiple studies have shown that consumers respond more positively to brands when frontline service providers' behavior and personality align with a brand's positioning (Siriani et al. 2013; Ward and Dahl 2014). For example, Siriani et al. (2013) found that participants rated sophisticated brands higher when represented by sophisticated (vs. rugged) employees, and vice versa. Ward and Dahl (2014) showed that salespeople with appearances matching an aspirational brand image could better influence consumer purchases. However, are brand-congruent service providers always beneficial? This research examines consumer responses to service failures involving brand-congruent versus incongruent service providers. Across two studies, we discovered that consumer evaluations of brands decrease more significantly after experiencing service failures with brand-congruent (vs. incongruent) service providers.

To explain these findings, we propose that consumers' positive expectations of service performance lead them to dismiss negative encounters as isolated events, creating a buffer for overall brand judgments; however, this buffer weakens when the service provider aligns with the brand, resulting in lower evaluations for congruent providers in the context of service failure. Specifically, consumers generally have positive expectations of service performance (Folkes and Patrick 2003; Johnson 1996). These positive expectations and perceptions of service performance lead consumers to consider negative service encounters less diagnostic and dismiss them as one-off events (Brannon and Samper, 2018). Such dismissal typically creates a buffer between negative service encounters and overall brand judgments (Hess 2008). However, we theorize that this buffer is less likely to hold when the service provider aligns with the brand. We base this assertion on psychology research indicating that people do not dismiss individuals when their behavior and character match a social group's stereotype (Weber and Crocker 1983). Similarly, we hypothesize that when a service provider aligns with a brand, consumers will be less likely to dismiss a negative service encounter and more likely to generalize it to the brand. This leads to lower brand evaluations for congruent service providers in the context of service failure.

This research contributes to the literature on service providers and brand alignment in three ways. First, while prior research shows that consumers evaluate brand-congruent service providers more favorably (Sirianni et al., 2013), we uncover a "dark side" of brand-aligned service providers in the context of service failure. This finding highlights potential risks when

service providers embody a brand image and their performance is suboptimal, leading to negative customer perceptions. Second, our research builds on previous work investigating how consumers make inferences regarding negative service experiences (Folkes & Patrick, 2003). Our results demonstrate that the tendency to dismiss negative service experiences is moderated by the service provider's brand alignment, amplifying the impact of negative experiences. Finally, our study adds to the literature on consumer responses to service failure (e.g., Hess et al., 2003), showing that brands may recover faster from service failures when employees are non-aligned with the brand. This suggests that using non-brand-aligned service providers in certain situations could mitigate the negative consequences of service failure and improve customer trust and satisfaction.

Theory

Branded Service Encounters

The services marketing literature has increasingly recognized the pivotal role of service providers as extensions of company brands, stressing the importance of delivering a consistent brand experience across all customer touchpoints, including interactions with service providers (Barlow & Stewart, 2004; Bitner, 1992). Thus, several studies have explored the relationship

between service providers' behavior, appearance, and the customer's experience with the company or brand (Humphreys & Williams, 1996; Lynch & De Chernatony, 2007; Barlow & Stewart, 2004; Bolton et al., 2022; Wang & Lang, 2019; Ward & Dahl, 2014). Findings suggest that service providers act as vital brand ambassadors, embodying and communicating the brand values to customers (Sirianni et al., 2013). For instance, Zhang et al. (2020) found that the actions of frontline service employees can significantly affect customers' perceptions of the company, particularly when the employees' behaviors are inconsistent with the firm's values, such as environmentally responsible practices. Furthermore, studies have demonstrated that the physical appearance and behavior of service providers also plays a critical role in influencing customer evaluations (Lee & Yi, 2018; Sirianni et al., 2013). Moreover, research underscores the importance of authenticity in service providers' language use, as it can enhance the customer experience and contribute to the overall perception of the brand's authenticity (Kraak & Holmqvist, 2017).

The importance of brand-congruent service providers is increasingly recognized in the services marketing literature (Lee & Yi, 2018; Sirianni et al., 2013). Branded service encounters emphasize the strategic alignment of frontline service employees' behavior with the firm's brand positioning (Sirianni et al., 2013). The congruence between a service provider's characteristics and the brand personality enhances brand affect by confirming customers' prior expectations about the service provider as a brand representative (Lee & Yi, 2018; Sirianni et al., 2013). For instance, customers may evaluate a sophisticated restaurant more favorably when the service provider exhibits sophistication and professionalism, which align with the brand's values and positioning (Sirianni et al., 2013). Similarly, when the appearance of service providers matches the image of an aspirational brand, they are better able to influence consumers make a purchase. Further, service employees' language use that aligns with the service's authenticity can strengthen the customer experience (Kraak & Holmqvist, 2017). In sum, prior research has found that brand-congruent service providers can increase customer evaluations of a service experience. By contrast, brand-incongruent service providers tend to lower customer evaluations. In the next section, we explore how customers might respond to a service failure by a brand-congruent (vs. incongruent) service provider.

Consumer Expectations and Positivity Bias in Services

Previous research has demonstrated that consumers generally have positive expectations about service performance (Brannon & Samper, 2018; Folkes and Patrick, 2003; Fornell et al., 1996; Johnson et al., 1995). As such, they are more likely to dismiss negative (vs. positive) service encounters as one-off events. For instance, consumers are less likely to generalize negative (vs. positive) experiences with a service provider to their evaluations of the rest of the employees in the company (Folkes and Patrick, 2003). Similarly, Brannon and Samper (2018) found that consumers were more likely to dismiss the negative (vs. positive) service experiences of their conversation partners as one-time anomalies, but only when they had generally positive

expectations of the service. This positive expectation bias has been attributed to the fact that people are more critical of information that is inconsistent with their general beliefs and expectations, while uncritically accepting of information that is consistent with these beliefs and expectations (Ditto and Lopez, 1992; Ditto et al., 1998). Thus, prior work indicates that positive expectation bias in services often provides brands with a buffer that insulates them from the fallout of service failures. Such a buffer may make it easier to successfully recover from such failures.

Critically, we argue that the buffering effect of positive expectations will be mitigated when the service failure involves a brand congruent (vs. incongruent) service provider. In particular, we posit that when a consumer encounters a service failure involving a brand congruent service provider, it becomes more difficult for the consumer to dismiss the negative experience as a one-off event or attribute it to factors unrelated to the brand. This is because a brand congruent service provider is perceived as being more representative of the brand's values and characteristics. As a result, the negative experience may be considered more diagnostic of the brand's overall performance.

On the other hand, if the service provider is brand incongruent, consumers may be more likely to engage in subtyping, as suggested by Weber and Crocker's (1983) theory. According to their research, when people encounter information that is inconsistent with their existing beliefs, they tend to create a new, separate category (subtype) for this inconsistent information, rather than revising their original beliefs. In the context of a service failure with a brand incongruent service provider, consumers could attribute the negative experience to the specific serviceprovider rather than the brand as a whole, creating a subtype for this inconsistent information. In this case, consumers may perceive the service failure as a result of the incongruent service provider's individual performance, rather than an indication of the brand's overall service quality. This subtyping process helps maintain the consumer's generally positive expectations about the brand, buffering the brand from negative evaluations. Based on these arguments, we hypothesize the following:

Hypothesis 1: Following a service failure, participant evaluations will experience a more pronounced decline when the service provider is brand-congruent as opposed to brand-incongruent.

Study 1

Participants and Design

In a study involving 72 participants, the researchers aimed to investigate the impact of a service failure on participant evaluations in the context of two different restaurant settings - sophisticated and rugged. The study employed a 2 (brand personality: sophisticated vs. rugged, between) x 2

(customer evaluation: pre- vs. post-failure, within) design.

Participants were randomly assigned to receive information about either a sophisticated restaurant (The Luxe, Founded in 1957, Description: The Luxe is set in a sleek, stylish urban setting and offers a variety of foods for those who want a taste of exclusive cuisine, including steaks, seafood, and appetizers) or a rugged restaurant (The Old Western Ranch House, Founded in 1957, Description: The Old Western Ranch House is set on a working ranch and offers a variety of food for those who want a taste of the Old West, including steaks, seafood, and appetizers).

In both conditions, participants were asked to imagine an interaction with a sophisticated server, James: "You are seated at [restaurant name] and your waiter comes over and introduces himself with a friendly smile. 'Hello, my name is James and I'll be serving you today.' You notice that James is dressed in a nice suit with a bow tie and has a charming English accent. 'May I start you all off with a drink?' continues James." After being presented with the scenario, participants responded to three pre-failure evaluation items of the restaurant (How likely would you be to recommend this restaurant to a friend? How would you rate the overall quality of this restaurant? How would you rate the atmosphere at this restaurant? 1 = not at all; 7 = very much so).

Subsequently, participants were asked to imagine a service failure involving James: "After taking your order, James returns to the kitchen. After 20 minutes have passed, you start to wonder where your drink is. When James finally returns, he brings you the wrong drink. 'Oops!' he says and takes the drink back in a hurry. James also messes up your food order, bringing you undercooked meat and the wrong side dish. 'Sorry about that,' says James in his English accent, taking the food back to the kitchen. After finally bringing out the correct food order, James leaves and rarely comes back to check on you." After the service failure scenario, participants responded to the same three post-evaluation items for the restaurant.

Results and Discussion

A mixed ANOVA found a significant 2-way interaction ($F(1, 70) = 5.17, p = .03$). Evaluations of the sophisticated restaurant (The Luxe) decreased by 2.4 points following the service failure, whereas evaluations of the rugged restaurant (The Old Western Ranch House) decreased by 1.6 points.

The study provided evidence in support of the main hypothesis, which posited that participant evaluations would decrease to a greater extent following a service failure when the service provider is brand-congruent (i.e., sophisticated server in a sophisticated restaurant) compared to when the service provider is brand-incongruent (i.e., sophisticated server in a rugged restaurant). The findings revealed that evaluations of the sophisticated restaurant (The Luxe) decreased more following the service failure than evaluations of the rugged restaurant (The Old Western Ranch House). This result is consistent with Weber and Crocker's (1983) theory of subtyping, suggesting that participants in the brand-incongruent condition were more likely to engage in subtyping and attribute the service failure to the specific server rather than the overall brand. In contrast, participants in the brand-congruent condition found it more difficult to dismiss

the negative experience as a one-off event, leading to a greater decrease in their evaluations of the restaurant. This study contributes to the understanding of the role of consumer expectations and service provider brand congruence in shaping customer evaluations after service failures.

Study 2

Participants and Design

In a second study involving 130 participants, the design was expanded to include a between-subjects service provider condition. The study had a 2 (brand personality: sophisticated vs. rugged, between) x 2 (provider personality: sophisticated vs. rugged, between) x 2 (customer evaluation: pre- vs. post-failure, within) design.

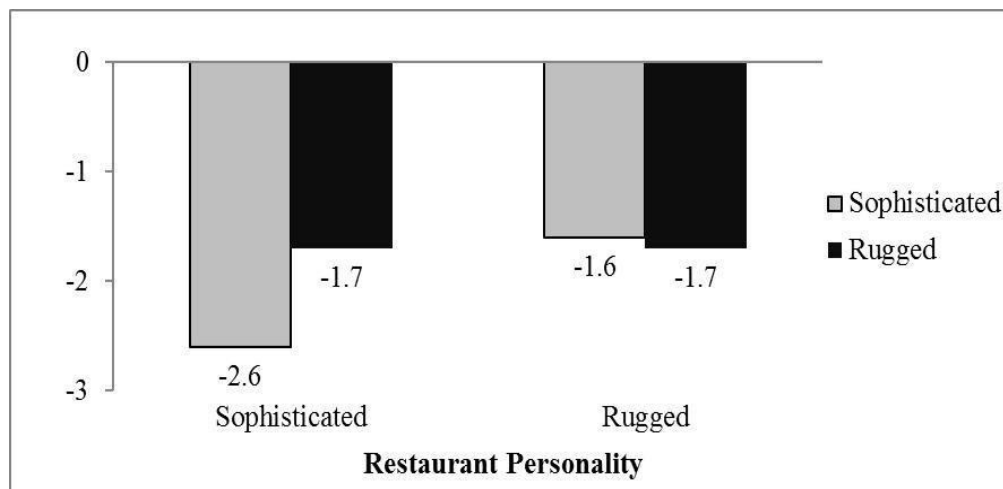
To manipulate the restaurant conditions, participants were randomly given information about a sophisticated restaurant (The Luxe) or a rugged restaurant (The Old Western Ranch House), similar to the first study. In addition to the restaurant manipulation, participants were randomly assigned to imagine an interaction with either a sophisticated server or a rugged server. In the sophisticated server scenario, participants imagined: "You are seated at [restaurant name] and your waiter comes over and introduces himself with a friendly smile. 'Hello, my name is James and I'll be serving you today.' You notice that James is dressed in a nice suit with a bowtie and has a charming English accent. 'May I start you all off with a drink?' continues James." In the rugged server scenario, participants imagined: "You are seated at [restaurant name] and your waiter comes over and introduces himself with a friendly smile. 'Howdy, my name is James and I'll be serving ya'll today.' You notice that James is dressed in cowboy jeans and shirt and has a country accent. 'May I start ya'll off with a drink?' continues James."

After reading their respective scenarios, participants responded to the same three pre-failure evaluation items as in the first study. Subsequently, all participants were asked to imagine the same service failure scenario used in the first study, involving a delay in receiving their drink, receiving the wrong drink, and issues with their food order. Finally, participants responded to the same three post-failure evaluation items for the restaurant.

Results and Discussion

The results of the second study were analyzed using a mixed ANOVA, which revealed a significant 3-way interaction ($F(1, 126) = 4.34, p = .04$). Several planned follow-up contrasts were performed to understand the effects of the different conditions on customer evaluations.

Figure 1 – Pre- vs. Post-Failure Evaluations



Consistent with the findings in Study 1, there was a significant contrast between sophisticated server personalities in the sophisticated (vs. rugged) restaurant condition ($p < .05$) such that evaluations of the sophisticated restaurant declined by 2.6 points compared to 1.6 points for the rugged restaurant. By contrast, there was a non-significant contrast between rugged server personalities in the sophisticated (vs. rugged) restaurant condition ($p > .05$). Next, there was a significant contrast between sophisticated (vs. rugged) server personalities in the sophisticated restaurant condition ($p < .05$), such that evaluations of the sophisticated server declined by 2.6 points compared to 1.7 points for the rugged server. On the other hand, there was a non-significant contrast between sophisticated (vs. rugged) server personalities in the rugged restaurant condition ($p > .05$).

The results of this second study replicate and extend the findings from Study 1, providing additional support for the main hypothesis. In both studies, we observed a greater decline in evaluations for the sophisticated restaurant when the service failure involved a sophisticated server, as compared to the rugged restaurant. This pattern of results is consistent with our predictions based on Weber and Crocker's (1983) theory of subtyping.

However, it is important to acknowledge that some contrasts in the second study were not significant. These non-significant findings suggest that the effects of service provider personality may not be as clear-cut as initially anticipated, particularly in the rugged restaurant condition. In the general discussion, we will address these limitations and explore potential reasons for the mixed results, as well as discuss possible avenues for future research to further elucidate the role of service provider personality in the context of service failures and brand evaluations.

General Discussion

In this research, we set out to investigate the role of brand and service provider personality in shaping consumer evaluations following service failures. Drawing on Weber and Crocker's

(1983) theory of subtyping, we predicted that consumers with generally positive expectations of service performance would evaluate brands more negatively when the service provider was brand congruent (vs. incongruent) following a service failure. Across two studies, our findings provided support for our main hypothesis.

In Study 1, we found that participants' evaluations of a sophisticated restaurant declined to a greater extent following a service failure when the server was sophisticated, compared to evaluations of a rugged restaurant. This finding was consistent with our prediction that brand congruent service providers make it more difficult for consumers to dismiss the negative experience as a one-off event, thereby leading to a more negative evaluation of the brand.

Study 2 extended these findings by introducing a between-subjects manipulation of service provider personality. Our results replicated the pattern observed in Study 1, with a greater decline in evaluations for the sophisticated restaurant when the service failure involved a sophisticated server, compared to the rugged restaurant. However, some contrasts were not significant, suggesting that the effects of service provider personality may not be as straightforward as initially anticipated.

Limitations and future research

Although our research provides valuable insights into the role of brand and service provider personality congruence in consumer evaluations following service failures, it is important to acknowledge the limitations of our findings. In particular, some of the contrasts in Study 2 were not significant, which may be due to a few reasons. One possible explanation for the non-significant contrasts is that customers may be more forgiving of service failures involving a rugged server personality at a rugged restaurant. This could be because consumers perceive the rugged server personality as more in line with the casual, down-to-earth atmosphere of the rugged restaurant, and may therefore have lower expectations for service performance in such settings. As a result, consumers might be more likely to excuse service failures in these contexts, leading to smaller differences in evaluations between the congruent and incongruent conditions.

Another possibility is that the nature of the service failure itself may have influenced the non-significant contrasts. It could be that the service failure scenarios used in our studies were not equally relevant or impactful for both the sophisticated and rugged conditions. Future research could benefit from examining the effects of different types of service failures, as well as the extent to which they are perceived as being diagnostic of the brand's overall performance.

Future research could also investigate the role of service recovery efforts in mitigating the negative impact of service failures on consumer evaluations, particularly in the context of brand and service provider personality congruence. It would be interesting to examine whether effective service recovery strategies could offset the negative effects of service failures involving congruent service providers, and if the effectiveness of these strategies varies depending on the degree of brand and

service provider personality congruence.

Managerial Implications

The findings from our studies offer several important managerial implications for service providers operating in various contexts, as they challenge some conventional wisdom around having service providers that are congruent with the brand personality. First, our results indicate that service recovery may be easier following a failure with a non-congruent service provider. This insight suggests that, in some cases, having a service provider with a personality that differs from the brand personality could help buffer the brand from negative evaluations following service failures. Managers might consider employing a mix of service providers with different personalities, which could potentially allow for more effective service recovery strategies.

Second, given the inherent advantages of having brand-congruent service providers, it is important for managers to implement safeguards to prevent customers from attributing service failures to the restaurant or service brand. For instance, managers could invest in additional employee training and support systems to reduce the likelihood of service failures. Additionally, managers could encourage open communication channels between service providers and customers to ensure that customers' concerns are addressed promptly and effectively, thus mitigating the negative impact of service failures. Finally, our findings raise the question of how to balance the benefits of brand congruence with the potential drawbacks associated with service failures. Managers might consider tailoring their service provider selection and training processes to align with their brand values while also taking into account the potential risks associated with congruence in the context of service failures. For example, organizations could provide targeted training for service providers to ensure that they are equipped to handle service failures effectively, regardless of their congruence with the brand personality. This approach could help maintain a consistent brand experience while also mitigating the potential negative effects of service failures on customer evaluations.

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[ID:82]

The Emergence of Sustainable Production & Consumption Practices and Its influence on Purchase Intention of Consumer in Smart Retailing: The Mediating role of Perceived Usefulness and Brand Attachment

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Abstract

The evolution of smart retailing technologies is gradually covering the practitioner and academic insights through the fast-progressing information and communication technologies. The paper focuses on the adaptability of smart retailing mechanism in the sustainable production and consumption practices and its influence on purchase intention of consumer in an omnichannel retailing. The paper presents a systematic literature of sustainable production and consumption practices that empirically uses PLS-SEM analysis with the objective to evaluate the influence of sustainable consumption and production practices on purchase intention of consumer taking 409 respondents in the final survey. Additionally, the study inscribes perceived usefulness and the brand attachment as the mediating constructs in the conceptual model. The paper concludes by depicting the positive relation between the sustainable production and consumption practices on the purchase intention of the consumer. The paper discusses the future scope of the work by suggesting the research that can be ensured on the specific retail touchpoints of the omnichannel retail.

Keyword: Smart retailing, Sustainable Production and Consumption, Omnichannel Retailing, Personalization, Marketing, Perceived Usefulness, Brand Attachment

[ID:148]

Reconfiguration of Real Estate Business: Sunset and Booming Growth of Shopping Malls in Industrialized Economies via-a-vis Developing Countries

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Abstract

The fast pace of traffic in online shopping has gained exponential increase during the COVID-19 pandemic. The United States has witnessed the disappearance of about 300 shopping malls due

to lack of foot traffic, fading fashionable styles, fall in entertainment appeal and less traffic in food court. However, developing countries have registered a spurt of growth in building new shopping malls across the country. According to Cushman & Wakefield 2023 report, India's top five most expensive main streets of Khan Market and Connaught Place in Delhi, Linking Road in Mumbai, Galleria Market in Gurugram, and Park Street in Kolkata are booming in business. Singapore and the UAE thrive on shopping malls due to a heavy inflow of tourists only for the specific purpose of shopping. New York's Fifth Avenue, Milan's Via Montenapoleone, Hong Kong's Tsim Sha Tsui. London's New Bond Street and the Avenue des Champs-Élysées in Paris are ranked top five on a global scale. Rents across the world have grown by about 5% and India's Khan Market in Delhi fetches \$217 per square foot annually. This paper analyzes the economics of real estate business due to the disappearance of shopping malls in select countries and their growth in developing countries. The irrelevance of huge defunct stadiums built for staging the Olympics is another factor for consideration in the necessary reconfiguration of the real estate sector.

Key words: Real Estate, Shopping Malls, Lease Rentals, Online Shopping

[ID:151]

Mapping the Domain of Smart Tourism: Bibliometric Insights and Literature Review

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Smart tourism, an intersection of information and communication technologies with the travel and hospitality industry, has gained substantial attention in recent years due to its potential to revolutionize the tourism experience. This paper presents a comprehensive bibliometric analysis and literature review focusing on the emerging domain of smart tourism. This study employs bibliometric techniques to analyze scholarly publications, identify key trends, and map the intellectual landscape of smart tourism research. The literature review delves into various facets of smart tourism, including technological innovations, implementation challenges, economic impacts, user experiences, and sustainability considerations. By synthesizing and critically evaluating a wide array of academic contributions, this paper offers insights into the evolution of smart tourism, highlights key research themes, identifies gaps in the current knowledge, and outlines future research directions. The findings of this study contribute to a deeper understanding of the conceptual underpinnings and practical implications of smart tourism, providing a valuable resource for researchers, practitioners, and policymakers in this burgeoning field.

Key Words : Smart Tourism; Literature Review; Bibliometric; Tourism technology, Innovation

[ID:127]

Sales Enablement in b2b context: An exploratory case study on implementation and key areas

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Abstract

Sales organizations in recent years have faced a complex array of operational challenges, ranging from the shift towards remote work to fluctuating customer expectations and increasing market competition. To navigate these issues, many Business-to-Business (B2B) firms have adopted sales enablement strategies, a field gaining both practitioner and academic attention but lacking a standardized definition. Employing a two-step analytical approach, this study aims to elucidate the concept of sales enablement. It accomplishes this first by conducting a comprehensive analysis of existing definitions within the practitioner landscape and second by exploring its practical application through a single case study. Our findings significantly advance the existing body of knowledge by identifying three key elements essential for effective sales enablement implementation: alignment, integration, and processes. In contrast to the prevalent focus on technology as the cornerstone of sales enablement, our study reveals a more nuanced perspective. It posits that while technology is an important facilitator, the key themes of effective sales enablement are alignment among people, integration of organizational resources, and streamlined processes. These insights provide valuable contributions to both the academic literature and practical application of sales enablement, offering a multifaceted understanding that extends beyond mere technological focus to encompass human and process-oriented dynamics.

Keyword: Sales enablement, sales operation, business-to-business, sales strategy.

Track 11: Sector Specific Management

Higher Education as a Catalyst for Sustainable Development- Montclair State University and Place-Based Community Engagement

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Higher Education Institutions (HEIs) can serve as facilitators of social change and development (Brennan, King, & Lebeau, 2004), and are well positioned to support research and advocacy to generate positive impact in society. A focus on supporting social development and change has become even more critical as society adjusts to challenges posed by changing ecosystems and depleting natural resources, which can exacerbate social issues such as poverty and inequalities (Filho, 2011). There has been a growing engagement among HEIs to embed the UN Sustainable Development Goals (SDGs) into various facets of teaching, research, and community engagement to address these challenges and support sustainable development (Alaoui, 2021).

The UN SDGs provide a robust framework for universities to embed a sustainability agenda into their mission and engage various stakeholders to build more inclusive and resilient communities. For example, Arizona State University launched a multi-stakeholder initiative and received recognition for its performance against the SDGs (Alaoui, 2021). Such initiatives give universities the ability to not only expand and train human capital aligned with the sustainable development agenda but also implement the agenda locally. In this vein, we discuss the case of Montclair State University's (MSU) efforts in serving as a catalyst for change and development in the neighboring community of Paterson, New Jersey.

Montclair State University and Paterson

Founded in 1908, MSU is the second largest public university in the US state of New Jersey, with 21,000 students and 1,800 faculty. Under new leadership and a seasoned Center for Community Engagement, MSU has expanded its emphasis on public service, launching several ambitious initiatives to support communities like Paterson.

Paterson, America's first planned industrial city, thrived in the 19th and early 20th centuries and was the leading manufacturer of locomotives, firearms, and textiles; by the 1890s, nearly half of the silk manufactured in the US was made in Paterson. However, by the 1960s, only a few mills remained. The departure of manufacturing led Paterson into a period of economic decline, characterized by high unemployment and a divestment of state and local resources.

As this diverse and resilient community reinvents itself in the 21st century, it would benefit from anchor institutions like MSU that could provide stability and foster sustainable development. Below we discuss a subset of these initiatives that will encourage economic and social development in the city and outline key stakeholders.

Muth Museum of Hinchliffe Stadium

Hinchliffe Stadium opened in 1932 as a community venue for sports and other events. Hinchliffe is one of only 2 remaining Negro League stadiums. The 10,000 seat stadium closed in 1997 after decades of neglect, but reopened in 2023 after a \$100 million renovation effort (supporting SDGs 8, 9, and 11).

As part of the stadium's revitalization, a 1977 MSU alumnus, Charles Muth, donated \$5 million for MSU to operate a museum and learning center, giving the University an opportunity to advance SDG 4 through educational outreach in Paterson. The museum supplements state and local investment to create a focal point to drive economic development in Paterson.

Stakeholders involved - MSU alumni, Paterson residents, local PreK-12 and MSU students, government officials, and those interested in preserving African American history and the history of baseball.

One Square Mile

The "One Square Mile" initiative is a coordinated place-based effort focused on Paterson's community development. Place-based economic development strategies include several approaches to incentivize investment in disadvantaged communities, including funding for

infrastructure, workforce development, affordable housing, and more (Yamamura & Koth, 2019). MSU's initiative is supported by a \$1 million commitment from Geraldine R. Dodge Foundation, and will be launched with a pilot project transforming Eastside High School.

Eastside HS will become a University-assisted community school. That will be used as a community hub to address SDGs 2, 3, and 4; serving Paterson by offering healthy meals, healthcare, academic support, mental health services, and other tailored programs. Beyond this pilot project, other initiatives are being planned in consultation with local community members and leaders to further UN SDGs 8 and 10.

Stakeholders involved - The Geraldine R. Dodge Foundation, MSU faculty, local PreK-12 and MSU students, Paterson residents, and local government officials.

Paterson Coalition Against Substance Abuse

Paterson Coalition Against Substance Abuse is a collaborative education effort between MSU and community stakeholders in Paterson. It is funded by a ten-year, \$1.25 million federal Drug- Free Communities grant, launched in 2013 and administered by Family Science and Human Development Professors Robert Reid and Pauline Garcia-Reid. While this grant is set to expire in 2023, Professor Reid received two additional federal grants to continue their prevention work.

This initiative is grounded in the framework of Communities Organizing for Prevention and Empowerment and focuses on increasing community awareness and knowledge by developing and delivering culturally-sensitive information regarding substance abuse, HIV/AIDS, and viral hepatitis, among other topics. It has impacted 30,000 adolescents and young adults in Paterson, furthering UN SDG 3.

Stakeholders involved - MSU Faculty, Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Prevention, Paterson families, civic and faith-based organizations, schools, social service agencies, law enforcement, and media.

Conclusion

While numerous HEIs are incorporating public service as a 'third mission,' these efforts are often ad-hoc and short-term (El-Jardali, Ataya, & Fadallah, 2018). MSU's comprehensive approach towards serving a neighboring community can offer lessons to HEIs considering community engagement strategies to support sustainable development. First, strategic place-based efforts can serve to focus HEI resources and capacities, maximizing impact. Second,

successful community engagement hinges on long-term, sustainable collaboration with multiple stakeholders within and outside the HEI *and* the community being served. Third, historical and cultural awareness of the community being served are hallmarks of effective community focused efforts. Fourth, the UN SDG framework can be used to prioritize efforts and can help uncover additional opportunities for beneficial community initiatives. Lastly, it is important to measure progress made against the UN SDGs to optimize HEI investments into community programs.

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[ID:65]

Unveiling the Crucial Role of Tacit Knowledge in Shaping Competition Within Mexican Higher Education Institutions

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ABSTRACT

The study relies on a quantitative approach and uses a questionnaire to gather data on elements of tacit knowledge in the university environment. The results reveal that promoting values such as peace education and respect is fundamental to the development of tacit knowledge. Additionally, it is observed that the importance of collaboration and organizational wisdom in generating tacit knowledge, as well as the relevance of teachers' technical skills, are significant factors.

In conclusion, it is observed that there is a need to establish channels for adequately identifying tacit intangible assets in universities. It is also suggested that a knowledge management unit can be highly useful for this purpose. It is emphasized that developing capabilities for the externalization of knowledge is essential to fully harness the potential of tacit knowledge in the university environment.

Keywords: *Tacit Knowledge, Universities, Competitiveness.*

INTRODUCTION

The value of knowledge is widely accepted by academics who focus on their research (Chiu & Chen, 2016). For a long time, the development of epistemological concepts centered on understanding cognitive assets has fostered increased engagement with the environment and, above all, greater awareness of elements of reality. According to the perspective of many pioneers in cognitive research, the process of knowledge acquisition must leverage its fundamental components to be more functional, utilizing past experiences, values formed within the organization, and individual skills (Moloud, 2024).

In the field of knowledge management, there has been a significant focus on how organizations can harness knowledge for their benefit (Rubenstein-Montano et al., 2001). This perspective originates from Michael Polanyi's idea that the use of personal experiences within an organization stimulates the growth of cognitive processes (Greenhalgh & Long, 2008). Polanyi (1966) proposed the notion that "We know more than we can tell," meaning that individual experience enriches organizational knowledge in such a way that empirical processes can be carried out that cannot be described in detail (Davenport & Prusak, 1998).

It is in this context that, based on the development of understanding knowledge within organizations and the importance of what is known as cognitive empiricism, it became possible to conceptualize tacit knowledge, which is fully linked to personal experience and practice within organizations (Pérez-Fuillerat et al., 2019).

It is revolutionary to identify the immateriality of knowledge itself and establish criteria that break with existing paradigms in longstanding conceptualizations, some of which have persisted for centuries (Pope, 2003). The new distinction of epistemic elements, specifically those that make up tacit knowledge, allows for the translation of theory into new concepts and ideas (Nonaka, 1994), thereby promoting continuous learning and the effective implementation of individual experiences to address organizational challenges.

In Mexican universities, as well as in higher education institutions around the world, the main mission is to transmit knowledge (Alves & Pinheiro, 2022). However, the university has ceased to be a place for contemplation about the universe and has become a complex, demanding, and competitive business (OECD, 2007), which necessitates maximizing the utilization of elements such as tacit knowledge, despite the difficulty of its identification, as its nature is the understanding of the environment, from the social to the individual's basic needs (Blackman & Kennedy, 2009). In this way, implicit knowledge becomes an effective and efficient resource when used as part of a management strategy (NooriSepher & Keikavoosi-Arani, 2009).

The purpose of the research presented is to analyze the elements that constitute tacit knowledge and the influence they have on the competitive position of Mexican universities based on a section of a knowledge management and competitiveness model.

Through a quantitative approach and the application of change elements, as well as through a theoretical framework that establishes the criteria to be analyzed and identified, a functional research type is established based on literature review to establish search criteria in the real environment. Thus, the generated document has the potential to establish relationships between existing variables and determine their level of influence.

THEORETICAL FRAMEWORK.

Universities are essential institutions for the creation, development, exchange, storage, and dissemination of knowledge through their internal activities such as teaching, research, and social engagement (Pham et al., 2022). By using knowledge management elements, it is possible to enhance organizational performance and yield greater benefits at each of these stages (Yohanitas et al., 2023).

The objective of employing cognitive elements is to have the capacity to gather information directly from experts while also maximizing the use of everyday resources that bring about direct changes in the organization's thinking and actions (Bougoulia & Glykas, 2022). According to Nonaka (1994), this utilization can be integrated into the organizational dynamics in such a way that the generation of usable elements for daily operations directly benefits every member of the organization. However, in most cases, this process tends to be organic and subtle, so individuals may not necessarily be aware of its generation and use.

From an analytical perspective, knowledge that possesses the aforementioned characteristics is referred to as tacit knowledge (Miton & DeDeo, 2022). Its conceptualization, as known today, can be attributed to the work of Polanyi (1958), in which he discusses the challenge of identifying it and developing its fundamental components. This serves as the foundation for contemporary authors and their cognitive perspective on the concept, in which the individual becomes the focus for the development of cognitive experiences through which elements of their experience become tangible, enabling them to adapt to the organization's environment (Gourlay, 2002).

Tacit knowledge can be described as instinctual (Schachtner, 2007) and can become a tool that generates a predominantly subtextual language, enhancing an individual's ability to perceive changes in the environment and minimize potential issues. In other words, individuals who produce tacit knowledge tend to be somewhat more analytical and, to some extent, more rational (Schilcher, 2009). Furthermore, the dissemination, although generally empirical, can be maximized through informal

meetings among group members, transmitting a wealth of experience and interpersonal skills at each moment (Ladinig & Vastag, 2021).

In this way, innovative processes, sources of creativity, and an understanding of the organization's daily life are the outcomes of the distinctive qualities of tacit knowledge (Von Krogh et al., 2000). These elements contribute to change and continuous improvement and have a high capacity for knowledge-producing institutions such as universities.

Tacit knowledge in higher education institutions.

Tacit knowledge within organizations offers a real opportunity to enhance administrative processes by maximizing human elements (Sun & Scott, 2005). This is evident in universities and educational institutions in general, where the role of tacit knowledge is clearly identified and in the process of consolidation (Alves & Pinheiro, 2022). This facilitates a much more efficient observation of continuously generated knowledge, thereby promoting changes that improve organizational autonomy and thought connectivity (Suwanda et al., 2023).

Although, in essence, cognitive development in universities should primarily focus on the explicit, in reality, there are elements produced that remain anonymous, and in some cases, those that manage to come to light are fundamentally in the early stages of development, so formality is not necessarily evident in their dissemination.

Efficiently articulating specialized knowledge is a highly challenging task. For university professors and students, realities can be objectively different, so a minimally processed, highly tacit cognitive element presents an interpretation that is not obvious to an inexperienced individual. Consequently, the professor may arrive at conclusions significantly different from those made by the learner (Perkins, 2006).

This perspective is not surprising; it is simply a necessary part of a reality inherent in human knowledge, where knowledge transmission should align more with a recorded fact than with mere empirical statements.

Regardless of whether the identification of knowledge itself a complex challenge can be, the university, as a producer of tacit knowledge, must focus on working as an essential scaffold to make it as effectively usable as possible. The relationship between knowledge and the organizational culture itself will always be present within highly knowledge-producing institutions (Moghdam, 2021). It is necessary to understand where the organization is heading to enable this cognitive support. Therefore, leaders will have a specific role in developing the appropriate policies for its management, as well as those who provide knowledge to the university.

It all starts with an understanding of culture and its organizational richness. Within this context, values, beliefs, symbols, and behavioral norms shape valuable

cognitive patterns, making it an excellent way to establish elements born from the tacit and put them to work for the benefit of all in the institution (Hofstede, 1991). Consequently, universities will develop elements that will ultimately serve as key functions in university life, both in classrooms and in administration.

Based on the above, the process will strengthen each department and division of the universities where it is implemented. In addition, it will promote the development of organizational maturity elements, which will have a positive impact on the internal system of the institution (Kavalic et al., 2021). Through this, the environment and events that produce tacit knowledge will begin to lay the groundwork for its proper transmission and codification, marking the precursor to explicit knowledge and the ability to generate highly valuable factors capable of creating components of unified recognition (Venkatraman & Venkatraman, 2018).

This serves as a starting point for the development of internal competencies, as well as favoring the modeling of specific skills, which, when directly related to professional activity, can shape first-rate cognitive elements that will be necessary for the creation of a sustainable and developable competitive advantage (Li et al., 2021; Kimmel & Martín, 2015).

METHODOLOGY

The methodological process used in the development of the presented research is focused on the perspective of theoretical-documentary analysis. This method was chosen due to the phenomenology of the study and the harmonious approach of the available theories in relation to secondary data. After analyzing various authors, the collection and identification of the variables and factors that compose it were carried out, and it was valuable to be able to clearly review publications that are at the forefront of knowledge (Jary & Jary, 1991; Reyes & Carmona, 2021).

In addition, the research requires analyzing elements in the reality of universities, so the acquisition of primary data has been carried out with the application of a measurement instrument created from the cognitive elements gathered in the various analyzed theories. The results obtained will be subjected to analysis using quantitative methods. This type of analysis will confirm whether the collected data align with the proposed model, using a deductive approach and establishing methodological criteria of high scientific rigor (Burns & Grove, 2005; Rahman, 2017).

According to Watkins' vision (2018), the construction of hypotheses arises from the proposed model and the possibility of analyzing it through an exploratory factor analysis. Thus, each of the factors that constitute the proposed dimensions was analyzed

under this analytical principle, establishing a multivariate analysis to determine outliers, whose behavior is interesting because they have a broad explanatory value for Mexican universities and their approach to tacit knowledge. Therefore, those variables that received a positive evaluation are noteworthy for the appropriate development of the proposed theoretical application (Yong & Pearce, 2013).

To complement the specific description of the instrument, each of the developed items used the Likert scale for measurement. This scale was chosen because of its ease of response by the study subjects and the level of processing it can achieve through multivariate analysis, favoring the establishment of reliable ordinal patterns. At the same time, the scale has the ability to provide a clear and concise approach based on the instrument's own responses.

The field study collected a total of 210 surveys administered to active teachers, both part-time and full-time, currently working at the University of Guadalajara. This institution was selected because its university model is departmental, unlike the rest of Mexican universities, which allows for a diversity of responses in the questionnaire. Similarly, its selection was also based on convenience sampling.

In order to approach a clear measurement of organizational tacit knowledge, the items from the functional sections focusing on Organizational Values and Beliefs (OVb), derived from the theoretical framework, were taken into account first. Second, Collaboration and Organizational Wisdom (COW), and finally, Technical Skills (TS); the goal is to obtain real insights into each of these elements and facilitate their identification.

EVALUATION OF RESULTS

In order to determine the feasibility of conducting a multivariate analysis on the various items of the questionnaire, we focused on those items that constitute tacit knowledge. To assess the robustness of these elements, a reliability analysis was performed, employing Cronbach's alpha as the chosen metric.

Cronbach's alpha possesses the distinct advantage, as a measure of internal consistency, of encompassing all possible mathematical combinations. This comprehensive approach allows for a clear evaluation of the coherence exhibited by each individual item, facilitating the identification of those items that are most pertinent (Barbera, et al., 2021).

In the conducted analysis, a *Cronbach's alpha* value of 0.955 was obtained for the 18 elements comprising tacit knowledge. Based on this result, it can be confidently asserted that the theoretical elements effectively served their purpose in the primary data collection, rendering the outcome highly satisfactory.

The implications of this result are twofold. Firstly, it suggests that subsequent analyses will be of significance, and secondly, it anticipates a high level of precision. Consequently, the proposed model for tacit knowledge is expected to maintain

appropriate relevance, extending beyond the confirmatory analyses of the exploratory phase. As for forthcoming values, tables displaying the output for various factorial analyses are presented, utilizing the three dimensions outlined in the methodology.

Table 1.

Pure Values of the Factorial Model - Organizational Values and Beliefs Variable.

Organizational and Value Beliefs			
Peace Education (OVB4)	0.812		
Respect (OVB5)		0.792	
Responsability (OVB6)		0.77	
Solidarity (OVB3)		0.728	
Equality (OVB2)			0.667
Justice (OVB1)			0.631

Source: Self elaboration with data from recollection instrument.

The data presented in *Table 1* reveals that the values obtained in the exploratory factorial model establish the primary criterion for organizational values as the need to promote peace education among university members. This is primarily due to the current necessity for universities to establish criteria regarding inclusion and respect for human rights.

Additionally, it can be observed that the factors of Respect, Responsibility, and Solidarity are considered intermediate, indicating that these values are already being practiced by members of the organization. Many specific actions in this regard may be contributing to tacit knowledge in a purely empirical manner.

Furthermore, the issue of equality and justice, where virtually all practices are identified as tacit, raises concerns. This situation may have consequences if actions are not taken to harness and maximize the knowledge being generated outside of the established elements.

Table 2.-

Pure Values of the Factorial Model – Collaboration and Organizational Wisdom.

Collaboration and Organizational Wisdom		
Academic Suggestions (COW1)	0.701	
Collective Necesitties (COW2)	0.777	
Collective Knowledge Facilitations (COW3)	0.731	
Forums (COW4)		0.669

Source: Self elaboration with data from recollection instrument.

Regarding the information presented in Table number 2, the elements of collaboration and organizational wisdom are divided into two distinct groups. The first group includes academic suggestions, collective needs, and the facilitation of collective knowledge. These three aspects promote the development of tacit knowledge through personal experience.

On the other hand, forums, even though their results may not be satisfactory in terms of analysis, can still provide a certain level of tacit knowledge. The issue lies in the improper retention of this knowledge, which hinders its genuine growth.

Lastly, a table is created for the factorial model of technical skills, in which elements related to professors are assessed based on two criteria: their own personal experience in the professional field and the training offered by the university, and its impact on their role as educators.

Table 3.-
Pure Values of the Factorial Model – Technical Skills.

Technical Skills			
Professional Experience (TS1)	0.917		
Teach Experience (TS2)	0.906		
Academic Capabilities (TS3)		0.884	
Professional Capabilities (TS4)		0.801	
Freedom of Teaching (TS5)			0.595

Source: Self elaboration with data from recollection instrument.

Table 3 illustrates that the specific values of professional experience and teaching experience, in other words, pedagogy itself, constitute the most relevant elements of technical skills for the formation of tacit knowledge. It is through these elements that it becomes possible to convey to students the knowledge acquired from both realms and refine it over time.

In terms of academic and professional abilities, which comprise group two, the reality is that they are in an intermediate position, and it is necessary to provide essential training to promote cognitive facilitation. In addition, it is evident that academic freedom is not a determining factor, as was expected since the item refers to the university's capacity to allow thematic content to be taught from a comfortable perspective for the teacher. However, it is not necessarily an activity that promotes the development of tacit knowledge.

CONCLUSIONS

The analysis carried out and presented based on the tables obtained from the statistical software had the purpose of examining the factors that comprise the dimension known as Tacit Knowledge. Firstly, it has led to the conclusion that knowledge produced through experience and everyday life indeed plays a crucial and essential role as a precursor for the competitive development of Mexican universities.

Secondly, it is understood from the analyzed dimensions that there is a clear and significant challenge that requires key attention to further its development. Thus, if an approach is generated with a focal point that demonstrates there are aspects that can be harnessed to develop a pattern of tangibility, in addition to being very specific in their function, it becomes possible to maximize the capabilities of individuals, particularly those within the exchange environment, and thus achieve the externalization of knowledge.

Based on the contextualization of the environment in which the results were obtained, it is evident that there is an imperative need to establish channels for the proper identification of tacit intangible assets. For universities, as thinking organizations, it is highly relevant to establish administrative criteria for managing existing knowledge, and even more so for harnessing the knowledge that everyday experience provides to individuals.

In practice, a knowledge management unit can be of great utility for this purpose. The department in question should take a leading role in the development of formal knowledge within the university and with its stakeholders, primarily assisting in the identification and preservation of tacit knowledge. A specialized unit will provide specific tools for the precise use and transmission of knowledge.

Therefore, competitive precursors do not arise from visible knowledge, but from the knowledge hidden in the depths of the mind of each individual who grows within the country's universities. The main challenge lies in developing capabilities for the externalization of knowledge and the diligent pursuit of direct promotion for the growth of tacit knowledge.

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[ID: 6]
**Management Styles, the Role of Office Manager and
Organizational Effectiveness of private organizations in
jigawa state, Nigeria**

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ABSTRACT

This study examined management styles, the role of office manager and organizational effectiveness of private organization in Jigawa State. Seven specific objectives, six (6), research questions were formulated. The expost-facto design was adopted. The population of the study comprised 1200 office managers of small scale business organization from which sample size of 350 was selected using Krejcie and Morgan formula. Management Styles Questionnaire (MSQ) and the Role of office Managers Questionnaire (RMQ) were used to collect data. These instruments were validated by three research experts and tested to be reliable using Cronbach Alpha, and a reliability coefficient of 0.90 was obtained. A total of 350 copies of the questionnaire were retrieved and found useable. Pearson Product Moment Correlation was used to answer the research questions and also test the six null hypotheses. The result of the analysis of the research questions showed a positive relationship between management styles and the role of office manager in small scale business organization with the exception of autocratic and laissez-faire management styles whose results were negative. Result also showed that participative management style was more positively related with office managers than other management styles. Hence, there is a need for High rank officers of small scale business organization to involve their office managers in decision making so as to improve their performance in their work in order to become more active since they are the backbone of any organization.

Key Words: Management Styles, Role of office manager, Organizational Effectiveness, Private Organization.

The ageing of population and the challenges for social and health care systems: the senior cohousing model and the role of new technologies

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Abstract

The population ageing is in rapid evolution in all countries, producing worrisome consequences and having a strong impact on public welfare systems. Several countries have started facing these problems through the introduction of cohousing facilities according to the senior cohousing model. This model is based on a cohousing community for the elderly where people share a series of facilities and services. However, one of the main obstacles has been represented by high costs for the establishment and maintenance of facilities, which need to combine personalized home environments and services with qualified health and social assistance. These problems are more relevant in extra-urban and rural areas, where the costs of accessing public services – included those related to health – are increased and opportunities of socialization are lower. In recent years, advances in digital technologies and industry 4.0 related technologies have allowed to reconsider many of the solutions adopted, opening room for new and more efficient assistance models. Until now, senior cohousing has been studied mainly from the point of view of architectural features, urban development, social interaction, health, and environmental sustainability. However, few studies focused on this issue with reference to the economic conditions which characterize elder people when facing the need of assistance and medical services. The objective of this study is to identify, thanks to a literature review and the study of recent experiences, the key success factors, by an economic point of view, for senior cohousing facilities regardless of the characteristics of the context in which they are located. In addition, looking at the innovation on telehealth-related technological solutions, this study can provide the basis for an assessment model for evaluating the economic sustainability of senior cohousing solutions.

Keywords: Senior cohousing, population ageing, telehealth, healthcare, industry 4.0.

Introduction

Population ageing is a demographic trend characterized by a continuous increase in the proportion of elderly individuals within a population. This trend is a consequence of declining fertility rates and prolonged life expectancy, and it has profound implications for societies, economies, and public policies worldwide (Harper, 2014).

Historically, societies had a pyramid-shaped age distribution, with a broad base of young individuals tapering off to a smaller apex of elderly individuals. However, over the past century a demographic shift occurred, with the population structure that has undergone significant transformations evolving into an inverted pyramid, where the proportion of elderly individuals is steadily growing.

Despite population ageing is a global phenomenon, its pace and magnitude vary significantly across regions. Developed countries, particularly in Europe and North America, have experienced rapid ageing due to long-standing low fertility rates and extensive healthcare systems. In contrast, some developing regions are also experiencing this trend, albeit at a delayed pace (Gu et al., 2021).

An ageing population presents both challenges and opportunities for economies. While it can strain pension and healthcare systems, it also creates new markets and demands for products and services tailored to elderly consumers. Additionally, older individuals are increasingly remaining in the workforce, contributing to the economy in various capacities (Ackerman and Kanfer, 2020). At the social level, population ageing can lead to shifts in family structures and dynamics. Intergenerational relationships evolve, and caregiving responsibilities become more complex (Seltzer, 2019). Additionally, elderly individuals often need to seek alternative living arrangements and community support systems.

Governments and policymakers are recognizing the need to adapt to these demographic shifts. Initiatives focusing on healthcare, pension reform, lifelong learning, and elder care services are being developed to address the unique needs and challenges of an ageing population.

One model that is gaining increasing attention is that of senior co-housing (Durrett, 2009; Critchlow Rodman, 2013), a concept that emphasizes community, independence, and mutual support. Senior co-housing presents a promising alternative to conventional care settings. Defined by shared spaces, responsibilities, and decision-making, this model empowers seniors to actively engage in shaping their living environment. International examples, such as the 'Læsø Co-Housing for Seniors' in Denmark (Vestergaard and Scanlon, 2014) and the 'Silver Sage Village' in Colorado, USA (Abraham et al., 2006), have demonstrated the positive impact of this approach on residents' well-being and overall satisfaction.

The implementation of the senior co-housing model faces critical economic hurdles (Baldwin et al., 2019; Hacke et al., 2019). Firstly, it necessitates a significant upfront investment for the creation of purpose-built facilities. These establishments must be designed to accommodate the unique needs and preferences of the elderly population. Features such as accessible infrastructure, ergonomic living spaces, and specialized medical facilities amplify the initial capital outlay.

A crucial aspect is the provision of personalized living spaces tailored to the specific requirements of each resident. This customization involves additional costs for fixtures, adaptations, and assistive technologies that contribute to the overall establishment expenses.

In addition, maintenance costs and ongoing operational expenses must be considered.

Sustaining a senior co-housing community entails recurring costs for various services and amenities. These encompass regular maintenance of communal spaces, provision of essential utilities, and upkeep of specialized medical equipment. Moreover, ensuring the well-being and safety of residents necessitates the availability of skilled healthcare and social support staff. These professionals play a pivotal role in providing personalized care, monitoring health conditions, and facilitating social engagement. The associated payroll and benefits expenses constitute a significant portion of the ongoing operational budget.

The economic challenges of implementing senior co-housing are further compounded by the geographic context. Urban areas often have access to a wider range of public services, potentially mitigating costs. In contrast, extra-urban and rural areas face amplified difficulties due to increased distances, limited access to specialized healthcare, and higher transportation expenses for residents.

Finally, also the economic conditions of the elderly population in different regions must be considered. Affordability constraints, income disparities, and access to financial resources play a crucial role in determining the feasibility of senior co-housing initiatives. Tailoring economic models to suit the specific demographics of a given locale is therefore imperative for the success of such projects.

This paper aims to explore the conditions of development of a senior cohousing model, as a type of cohousing community for the elderly where people share a series of facilities and services. Most of the existing literature has studied the benefits of the senior cohousing model by analysing several issues: architectural features and urban development (Hayden, 1979; Fromm, 1991, 2000, 2006; Durrett, 2009), social interaction (Field, 2004; Williams, 2005; Bouma and Voorbij, 2009), health (Kingston et al, 2001; Wells and Laquatra, 2010) and environmental sustainability (Brown, 2004; Jarvis, 2011; Chatterton, 2013). Fewer studies have been conducted considering how technological evolution, and more specifically ICT-related innovation, can affect senior cohousing solutions.

The Senior Cohousing Model: An Overview

Senior cohousing is a form of group living, for age-peer over the age of fifty or so, which clusters individual homes around a common house (Brenton, 2013). The basis for the success of the senior cohousing model, like in a basic model of cohousing community, is necessarily in “intentionality” of people to live together and deal with several daily activities (Field, 2004). The priority of the senior cohousing residents is to aging well together (Critchlow Rodman, 2013). In fact, senior cohousing centers around purposefully designed communities initiated and organized by seniors themselves, tailored to align with their specific requirements, desires, and goals related to health, longevity, and overall quality of life (Durrett, 2009).

Compared to the first senior cohousing facilities appeared in Denmark in the 1970s, nowadays senior cohousing is much more advanced. Currently, many cases of advanced experiences of senior cohousing facilities in different countries can be observed. About them, in the last fifteen years the literature started to analyze characteristics, critical issues, development opportunities and implications for society of cohousing solutions for the elderly (Brenton, 2013; Critchlow Rodman, 2013; Durrett, 2009; Glass and Vander Plaats, 2013; Guan Hong, 2017; Musso et al., 2017; Quigley, 2010; Rhoades, 2018; Ribbe et al. 1997; Rinnan et al. 2018; Roberts and Adams, 2018; Rowles, 2018; Zupančič, 2014; Wells and Laquatra, 2010). One of the most significant experiences is that of the Lewes Community, Delaware (USA) (O'Hanlon, 2019),

which hosts a variety of community-based supports and resources offered by local senior centers, cooperative networks, and other nonprofits. The presence of a favorable natural environment combined with a wide range of services dedicated to the elderly has made this area a particularly attractive environment for them. The result is that currently in the area over 50 percent of the population is over 65 years old (O'Hanlon, 2019).

More recently, innovative technological solutions, such as domotics, sensors and telehealth started to be introduced in senior housing facilities (Morris et al., 2013; Pacis et al., 2018; Ponce et al., 2019; van Hoof et al., 2011). These technologies are connected to the industry 4.0 revolution; therefore they are still in progress. However, they are already expected to bring considerable benefits in favoring autonomy, health, security, mobility, and inclusion of vulnerable people regarding motor and cognitive functions (Ponce et al., 2019).

The Economic Challenges related to Senior Cohousing

As the global population ages, the economic challenges associated with the increasing demand for elderly care are becoming more pressing. Senior co-housing can be seen as a solution in addressing these issues. One of the primary economic benefits of senior co-housing lies in the pooling of resources. By sharing common facilities such as kitchens, living areas, and recreational spaces, residents can significantly reduce their individual living expenses. This can result in substantial cost savings, particularly in comparison to the high costs associated with traditional long-term care facilities or assisted living arrangements.

Furthermore, senior co-housing promotes a culture of mutual support and interdependence. Residents can collaborate on tasks such as meal preparation, household chores, and transportation, effectively reducing the need for paid professional services and potentially reducing the strain on public resources allocated for elderly care.

Additionally, senior co-housing can offer a sustainable solution to the challenge of housing affordability for older adults. By collectively owning or renting a property, residents can benefit from economies of scale and negotiate better terms with property owners or developers.

Considering all these benefits, senior co-housing represents an approach to alleviating the economic challenges associated with the growing demand for elderly care. However, some threats by an economic point of view must be considered. The first challenge lies in acquiring suitable locations, which often comes at a premium. Regulations and land-use restrictions can further complicate the process, necessitating careful negotiation and strategic planning. In addition, architectural design and construction are key steps, which aim at creating a cohesive and accessible living environment for seniors. Incorporating features like universal design principles, accessibility ramps, and adaptable spaces adds to the initial construction costs, as well as shared facilities like communal kitchens, gathering spaces, and recreational areas, which are necessary for the quality of life for residents.

As regards maintenance costs, sustaining a comfortable and safe living environment requires utilities costs, including water, electricity, gas, and maintenance. Employing qualified staff for operational services and healthcare support is integral to the wellbeing of residents. Senior cohousing communities often require access to specialized healthcare services, including geriatric medicine, physical therapy, and home healthcare. Coordinating with local healthcare providers is vital for seamless access to specialized care, emergency services, and wellness programs. Establishing these connections requires ongoing negotiation and coordination efforts.

The provision of social support and community activities is important as well. Promoting an active and socially engaged lifestyle is a core principle of senior cohousing. This entails organizing regular activities, wellness programs, and support groups, which require dedicated staff or volunteers.

To ensure these facilities and services, an adequate financial model for funding is necessary for the economic viability of a cohousing project. Options range from private investments, community shares, grants, and loans. Each model carries distinct financial implications that demand careful consideration.

All the cost-related issues vary depending on the context in which co-housing projects are developed, particularly in the difference between urban and rural settings. While urban areas may offer better access to healthcare and amenities, they often come with higher land and operational costs. Rural locations provide more affordable land options, but they usually face challenges in accessing essential services. Access to specialized care and proximity to hospitals can significantly impact the attractiveness and economic viability of a cohousing project.

Previous studies (Musso et al., 2017) highlighted how aging produces additional costs for the elderly who live in rural areas, and also for their family members who take care of them, and for the institutions. These costs relate to the following aspects: the geographical isolation and the lack of essential services; the risk of social isolation and depression and the consequent worsening of health status; the high living expenses; the costs for care. All these additional costs are aggravated by the lower per capita income, compared to urban areas, that often occurs in many rural areas (Gomes and Lott Dare, 2009).

Digital Technologies and innovation in elderly care systems

The issue of care for the elderly cannot be addressed without taking into consideration the developments of technology and the way in which it is allowing the carrying out of activities and functions that were unthinkable until a few years ago, both in terms of the type of performance and the methods of their development. All this is becoming possible following the development of that branch of technology commonly known as industry 4.0 (Angioni and Musso, 2020; Xu et al., 2018), which is currently represented above all by the introduction of Cyber Physical Systems (CPS), Cloud Computing (CC) and Internet of Things (IoT) (Jasperneite, 2012; Kagermann et al., 2013; Lasi et al. 2014; Hermann et al., 2016; Qin et al., 2016; Li, 2017; Kumari et al., 2018). With reference to the last area, if the IoT initially included radio-frequency identification (RFID) technology, it has then been combined with other technologies such as sensors, actuators, the Global Positioning System (GPS) and mobile devices that work via Wi-Fi, Bluetooth or Near Field Communication (NFC) (Xu et al., 2018). It is above all the advances in RFID and wireless sensor networks (WSN) that have significantly contributed to the development of the IoT, ensuring that Industry 4.0 can combine data analysis, intelligent sensors, and artificial intelligence to optimize every type of process, with real-time coordination between the various subjects involved.

These technologies are currently applied in many different industries, including the healthcare sector. Indeed, a wide range of IoT-based medical devices (such as wearables, sensors, and smartphones) allow monitoring the health status of patients in real time (Anyia and Tawfik, 2017) and in some cases intervening remotely, for example for changes in the dosage of gradual release drugs.

The area in which industry 4.0 intervenes to provide healthcare services to hospitals, clinics and remote healthcare is known as telemedicine (Farahani et al., 2018). In this field,

developments in IT capabilities are giving rise to new applications through artificial intelligence, with new features including the possibility of carrying out predictive assessments based on data collected remotely on vital parameters, position, actions, and movements of the patients being cared for (Szolovits, 2019; Pacis et al., 2018).

Telemedicine technology, created to serve rural communities without access to local medical services, began to appear in the 1960s as an aid to emergency medicine (Nickelson, 1998). Today, telemedicine has become one of the most rapidly changing areas of innovation, with applications in training and education activities, in diagnostics, in operations, in the latter case in combination with robotic surgery, which is also rapidly and profound evolution.

More recently, the California National Telehealth Resource Center (2019) highlighted how telemedicine is emerging as a key component to address the crisis in the American healthcare system, also highlighting how patients diagnosed and treated with the support of telemedicine see reduced mortality rates, complications and length of hospital stays. Furthermore, telemedicine allows to reduce healthcare costs when home monitoring programs can replace high-cost hospital care. The advantages are also at the organizational level, thanks to the optimization of the use of specialized medical personnel and the possibility of making relevant skills available regardless of distances.

Further advantages can also be found in the fact that many telemedicine applications allow patients to play an active role in their healthcare, and this itself can be a stimulus to combat certain pathologies, including those related to ageing. It should not be overlooked that with the use of telemedicine, travel to carry out diagnostics and obtain treatment is reduced, reducing costs and the environmental impact.

Methodology

The research was conducted in two phases. In a first phase, a review of the main senior cohousing experiences at the international level was made through the analysis of four case studies, in order to identify how a senior cohousing project can be structured considering the contextual conditions, both in terms of the economic, urban, social, and cultural framework. Examining cases at an international level is useful for understanding to what extent technological innovation linked to industry 4.0 is applied and with what advantages, considering that applications such as home automation, sensors and telemedicine have begun to be introduced into residential facilities for the elderly very gradually starting from ten years ago (Pacis et al., 2018; Ponce et al., 2019; van Hoof et al., 2011).

The selection of the four cases was carried out through a review of the research conducted in the last five years on the topic in which innovative experiences were reported (Rowles, 2018; Roberts and Adams, 2018; Rhoades, 2018; Rinnan et al., 2018; Burke and Werner, 2019; Angioni and Musso, 2020). Once the most significant cases were identified, in-depth information was obtained from secondary sources, including company reports, websites, documentation available online and additional information from technical reports and specialized press.

To retrieve and classify the relevant information, a text extraction analysis was performed using the TextAnalystTM software. Then, the information emerged have been discussed with experts on the field and specialists in residential facilities for the elderly, with the aim of identifying the most significant cases to be considered. Data collection, analysis and discussion with experts were carried out from May to September 2021.

The second phase of the research has been developed with the aim of investigating the older adults' perception of active ageing and their specific needs and expectations as regards health and social services, in order to verify how much industry 4.0-related innovation can contribute to meeting the needs of the elderly. A qualitative study was carried out based on sixteen in-depth interviews developed over a month period (February 2022).

The qualitative approach has been chosen since it makes possible to gain insights about older adults' perceptions, preferences, physical situation, current habits and expectations regarding health and social conditions. The sample size is in line with prior literature (Morse, 2000), suggesting that for in-depth interviews the sample size usually ranges between eight to ten. In such a qualitative study, the researcher is not concerned about generalization from the sample to the population, as the emphasis is on information adequacy and richness (Kumar et al., 2020).

Since people's needs, lifestyles, and preferences increasingly differ as they become older, the disparities between older adults and their overall implications must be considered (Szmigin and Carrigan, 2001). Hence, the selection criteria for the sample have been set as follows:

- 100% residents in central Italy.
- 50% residents in small/medium-sized towns (less than or equal to 50,000 inhabitants) and 50% living in larger population centers (over 50,000 inhabitants).
- 50% aged 50-60 and 50% aged 61-75.
- 50% coastal residents and 50% inland residents.
- 50% women and 50% men.

Each interview lasted around forty minutes and employed a semi-structured questionnaire based on open-ended questions. Specifically, respondents were investigated on the following issues: perception of ageing and active ageing; the role of physical activity and nutrition in their daily life; perception and needs regarding the sanitary assistance; knowledge and interest in different housing solutions, wishes of social, leisure and territorial services.

The choice to make a comparison between mature and older adults, considering the two age groups as defined in literature, was made to have a term of comparison between the age group currently involved in these practices and the one that will be involved in a few years, allowing to understand both the point of views.

Once completed the interviews, data have been aggregated and analyzed.

The Selected Cases

Case 1- Yuimarl Fuku, Osaka, Japan

The Yuimarl Fuku complex is located in Osaka, Japan, and is part of a chain of elderly residential facilities managed by a private company. Situated in a central urban location, well-connected by public transportation and close to two hospitals, it also provides proximity to supermarkets, commercial areas, and pedestrian pathways leading to a large public park.

With 53 housing units, it accommodates both self-sufficient couples and single elderly individuals, ranging from 30 to 60 square meters. Each unit includes a small kitchen, a bedroom, and a bathroom. All units are wheelchair accessible and equipped with emergency bells in every room. The management is considering advanced solutions such as motion detectors and sensors to enhance efficiency, enabling quicker responses to residents' needs and reducing personnel costs.

Common facilities include a cafeteria open to the public, a common kitchen for residents, and a library. The openness of the cafeteria and library to the public helps prevent isolation. A gardening area is available, appreciated by the residents. The staff, consisting of 9 employees, ensures 24/7 monitoring and assistance. Services provided encompass emergency care, psychological consultations, assistance with daily activities, entertainment programs, and social activities.

The economic model relies on private contributions and partially on state funding due to its recognition as a socially beneficial residence. Residents have the right to stay until the end of their lives, choosing to rent or own their housing unit. The structure's flexibility, especially in organizing activities based on residents' needs and preferences, along with pet-friendly policies, contributes to its success.

While digital technology adoption is currently limited, plans for implementing sensors for resident monitoring indicate a potential for increased efficiency in caregiving services.

Case 2 - Aldeia Lar Sao Jose de Alcalar, Algarve, Portugal

Situated in Algarve, Portugal, this facility was established in the mid-1990s within a 20,000-square-meter parish-owned property. Its primary goal was to address the needs of the elderly, particularly those with low incomes, in a region facing demographic challenges and limited employment opportunities for the younger population.

The residential complex comprises 52 private residences designed to encourage a strong sense of community. Centralized facilities include a kitchen, dining room, guest room, craft workshop, laundry, beauty salon, chapel, offices, and a clinic. Outdoor spaces feature an amphitheatre, cafeteria, and a garden for gardening activities.

Medical assistance is provided by on-site nursing staff and a weekly visiting doctor. Telemedicine and teleassistance solutions are not present, with the clinic equipped only with basic facilities. Housing units are adaptable to various lifestyles, promoting inclusivity. Shared spaces facilitate communal dining and socializing.

Notable is the absence of a formal governance, with a priest designated by the local parish overseeing organization and financial management. Financial resources depend on residents' contributions and parish support.

While the project successfully reduced suicide rates among the elderly in the region, it lacks advanced technologies. The introduction of telemedicine could enhance healthcare services, especially in remote areas, and improve economic sustainability.

Case 3 - 990 Polk, San Francisco, California, USA

Located in California's San Francisco Bay, the 990 Polk complex has been established in 2014 to address the demand for low-income senior housing. The property, formerly owned by the city, was transferred to a private company with the aim of creating affordable housing for seniors. It encompasses 66 apartments catering to seniors aged 62 and above.

Apartments are assigned based on income, with preferences for lower incomes. Design elements prioritize resident independence, including disability-friendly units. Common spaces include a library, computer lab, gym, hair salon, communal room, and public areas. Free healthcare services, physical activities, nutrition lessons, and financial consultations are offered. Advanced smart technologies, including voice-activated devices and remote-

controlled systems, enhance resident living experiences.

Services such as medication reminders, lifestyle analysis, and communication support are provided through technology. The potential for introducing more advanced IoT applications and predictive analytics is noted. While the project shows a good level of technology adoption, there's room for further exploration of the economic benefits of innovations.

Case 4 - Azotea Senior Apartments, Alamogordo, New Mexico, USA

This case involves a newly constructed 60-unit facility in Alamogordo, New Mexico, USA. Designed for families with seniors aged 62 and above, and other family members over 55, the project focuses on providing affordable housing without burdening tenants with high rents or substantial public subsidies.

The buildings are constructed using eco-friendly materials, promoting energy and water efficiency. Shared facilities include a fitness room, library, computer room, common room, and centralized laundry. Outdoor spaces feature gardens, picnic areas, and shaded benches. Emergency communication devices link directly to the city hospital.

Future plans include advanced monitoring solutions, such as video devices and tele-diagnostics. Additional services include transportation, centralized meal services, cleaning assistance, healthcare, and fitness classes. The project's success lies in attractive and economically feasible design solutions, with potential cost reductions through technology adoption.

While the project integrates high-efficiency solutions, it still lacks advanced technology adoption. Future plans include telemonitoring and teleassistance, but there's room for utilizing IoT, telemedicine, and remote diagnostics for further improvements.

Case Study Analysis

Case 1 serves as a notable example of successful elderly care management. The units are designed to be wheelchair-accessible and equipped with emergency bells, emphasizing a commitment to ensuring the residents' safety and comfort. Noteworthy is the management's consideration of advanced solutions, including motion detectors and sensors, to enhance efficiency and response times to residents' needs, potentially reducing personnel costs. The complex also boasts common facilities, with the aim to promote social interaction, helping to prevent isolation among the elderly. A gardening area adds an additional layer of engagement. The staff ensures 24/7 monitoring and assistance, offering a range of services, including emergency care, psychological consultations, assistance with daily activities, and various entertainment and social programs. The economic model of the facility relies on private contributions and partial state funding due to its recognition as a socially beneficial residence. Residents have the right to stay until the end of their lives, with options to rent or own their housing unit, showcasing a flexible and resident-centric approach. While Case 1 demonstrates success in various aspects, digital technology adoption remains limited at present stage. However, future plans for implementing sensors for resident monitoring indicate a potential for increased efficiency in caregiving services. This blend of traditional care and emerging technologies positions the facility at the forefront of adapting to the changing landscape of elderly care, addressing both the physical and emotional well-being of its residents.

Case 2 presents a unique approach to elderly care with a focus on community building and inclusivity. This facility emerged in response to demographic challenges and limited employment opportunities for the younger population in the region. While the clinic has basic

facilities, the absence of advanced telemedicine and teleassistance solutions reveals a technological gap. Despite this gap, it has achieved success in reducing suicide rates among the elderly in the region, emphasizing the power of community support in addressing mental health issues. As the facility continues to evolve, there is a clear opportunity to enhance healthcare services, especially in remote areas, through the introduction of telemedicine. The housing units are designed to be adaptable to various lifestyles, promoting inclusivity and ensuring that residents of different needs can find adequate solutions. Interestingly, Case 2

operates without formal leadership, with a priest designated by the local parish overseeing organizational and financial matters. In fact, financial resources depend on residents' contributions and parish support, creating a community-driven model. This underscores the importance of a community-centred approach and suggests a pathway for integrating advanced technologies to further improve the well-being of residents.

Case 3 was established to address the demand for low-income senior housing. Design elements prioritize resident independence, featuring disability-friendly units and common spaces. The complex distinguishes itself by offering free healthcare services, physical activities, nutrition lessons, and financial consultations, creating a holistic approach to eldercare. This case stands out prominently due to its sophisticated incorporation of smart technologies, including voice-activated devices and remote-controlled systems, enhancing the overall living experiences of its residents. However, it's interesting to recognize the potential within the project for incorporating more sophisticated Internet of Things (IoT) applications and predictive analytics. This observation not only underscores the current project's forward-thinking approach but also signals a trajectory poised for sustained growth and innovation. The recognition of this untapped potential suggests that by further embracing cutting-edge technologies, the project has the prospect of reaching new heights, unlocking additional efficiencies, and staying at the forefront of advancements in the realm of elderly care.

Case 4 prioritizes providing affordable housing without burdening tenants with high rents or substantial public subsidies. Constructed using eco-friendly materials, the buildings promote energy and water efficiency, aligning with contemporary sustainability principles. Emergency communication devices directly linked to the city hospital add an additional layer of safety and security for residents. As part of its future plans, the facility aims to incorporate advanced monitoring solutions such as video devices and tele-diagnostics. Additional services include transportation, centralized meal services, cleaning assistance, healthcare, and fitness classes, contributing to a comprehensive approach to elderly care. The project's success lies not only in its attractive and economically feasible design solutions but also in its strategic plans for future technology adoption. While the project has integrated high-efficiency solutions, it acknowledges the need for further advancement, with plans for telemonitoring and teleassistance. This forward-looking approach positions Case 4 as a potential leader in the integration of IoT, telemedicine, and remote diagnostics for further improvements in elderly care services.

These analysed case studies collectively underscore the dynamic landscape of elderly care, revealing a wide spectrum of strategies, outcomes, and areas for improvement. The success of each facility is shaped by factors such as community engagement, flexible housing models, and the strategic use of technology to enhance services. The diversity in approaches across global contexts emphasizes the importance of tailoring elderly care strategies to meet the unique needs of different demographics and communities. As the field continues to evolve, these case studies serve as valuable benchmarks for future innovations and improvements in elderly care practices worldwide.

Perception and needs of elder people

Respondents' values and their overall perception of ageing

Analyzing data collected from interviews, a double perception of aging emerges: the current older adults have stated that they feel younger and fitter than their predecessors. In addition, both mature (50-60 years old) and older participants (61-75 years old) do not recognize themselves in the term 'elderly' with negative connotations. Especially the older group showed a sense of pride and wellbeing towards their age. They do not consider their stage as a 'point of arrival', since they perceive it as a point to be proud of, where people arrive thanks to all the important experiences made in life. "Ageing, the active one, is a way of life that leads you to do things that you never did before...", "I am fully aware of my age and I accept it... each stage allows you to do things that could not be done in others" or "Aging is a continuous change that I perceive day to day... I learned to ask for favors, and I do it serenely". This finding is consistent with Mathur and Moschis (2005) and Moschis et al. (2011), who argued that older and mature adults of today not only have a more active lifestyle, but also, they do not want to feel old. Despite this perspective, societies tend to attribute a negative impact to ageing by associating this concept with decay, loss, inactivity, and dependence (Durrett, 2009). The family situation is a segmenting factor. In fact, senior grandparents support their children and grandchildren in daily activities, and they are often fundamental pillars in their lives. As stated by many older adults, this leads them to an active lifestyle: "We eat when our grandson needs to eat and, when we sit at the table, we adapt ourselves to his meals and snacks", or "I take care of my grand-daughter all afternoons, from when she come back from school until six o'clock when her parents pick her up". On the other hand, people without family or with children who live far away perceive a greater loneliness and relaxation in terms of routine: "I do not have much to do so I was here waiting for your phone call", "I live alone, my daughter lives in London, I left my dogs with her because I was not able to take care of them", "I talk a lot with my animals, they make me company" or "I am single, I do not particularly look for the company of others, I have neighbors but I have few contacts with them, I dedicate myself to my work and to volunteering".

Health is a crucial value, even if, from the data collected, a poor level of prevention in the younger group of respondents emerged. Attention to their own health is rather greater in older age group of respondents. For example, interviewees affirm to control the age-related pathologies of which they are affected or of which they could be affected (e.g. osteoporosis, arthritis), through a slight daily movement and nutrition. This result is related to the fact that older people recognize the importance in late life of taking care of health issues, while the mature target consider the prevention as a slow process, because from their perspective "there is still time to think about the decay due to ageing".

How ageing is perceived by respondents and its dimensions

Analyzing the insights deriving from interviews, it is possible to define three critical dimensions that identify aging from the point of view of older adults: (i) physical level; (ii) psycho cognitive level; (iii) relational level. These three dimensions are closely linked to each other, all supported by the fundamental pillar of socialization.

As regards the physical domain, the body decadence emerges as an important factor: "If I will not be able to get up in the morning by myself... I prefer then not to live anymore" or "I do not want to live 130 years, but I want to live well". Results from interviews showed a sense of fear towards the body changes that may occur in ageing. The reason of that is related to the fact that not only changes are unpredictable, but also physical issues may drive to the alteration of individual and social circumstances.

Sometimes ageing impacts older people's lives to the point of leading them to avoid any physical activity or not to be satisfied with slight physical activities: "In this period I do not feel good, arthritis does not allow me to do activities". Although the benefit of activity is largely recognized, older people often find difficult to practice it. Gyms are not appreciated by older adults, as they perceive them as based on young people needs, with strong physical activities. Especially the older group considers gyms as not comfortable places. On the other side, the younger group reported to practice gentle gymnastics, not only to move but also as a pretext to socialize.

Physical decay is strictly connected to the world of nutrition. However, while the younger group is clearly aware of the importance of a healthy diet in order to promote healthy aging, for the older age group it is important to "listen to your own body", satisfying food preferences and cravings: "I am at that point in life that I can do whatever I want [...], not only negatives aspects of eating junk food should be considered". This group tends to cook homemade dishes getting seasonal products both from local shops and supermarket. In this regard, it is emphasized that food markets also allow socialization moments.

Concerning the psycho-cognitive level, both groups of interviewees stated to take care of their mental health, remaining active not only through intellectual activities, such as reading, but also through practical activities (e.g. cooking, gardening). In order to look after mental health in later life, the interviewees highlighted that especially after retirement, people should invest time in engaging in their own interests and new activities.

Summarizing, the needs that emerged in relation to psycho-cognitive domain can be clustered as follows: (i) long life learning: people in late life would like to attend universities of the third age, would appreciate to share reading moments, attend language courses and technology courses, like those to familiarize with computers, internet, social networks, shopping online; (ii) manual activities: this area includes various courses e.g. cooking, knitting, painting, ceramics or gardening. The aim in doing these courses is not only learning, but also to 'share moments' and a way to 'have goals' and 'take care of something'; (iii) volunteering for people, animals or the territory (green care, cleaning, repairs). These activities emerged as significant factors in many interviews, providing a goal and a sense of usefulness. Especially the older group showed the need to have opportunities to contrast the common stereotype of the older people's purposelessness; (iv) leisure: interviewees appreciate to participate to exhibitions, visit museums and theater, go to cinema and organized travels.

Senior co-housing perceived

The knowledge and interest towards co-housing solutions have been explored. What emerges is that this possibility is still not known on a large scale, but for the ones that are familiar with it, co-housing is considered as a solution in case of need for assistance or in case of loneliness. On the other hand, nursing homes are negatively evaluated by participants, as they are associated to isolation and closeness with unknown people instead of loved ones. Within the older group a preference for hiring a caregiver prevails, even if it requires effort to find the right person. On the other hand, the younger group of the sample did not express preferences about which solution would prefer in case of assistance, but they reported to be reluctant to admit at home some "unknown" person. Overall, in order of preference, the solutions that are considered for assistance in late life are, in order of preference: (i) having help from sons and staying at home, with the concern of not weighting on their families, as previously pointed out by Halaweh et al. (2018); (ii) the possibility of hiring a person for day and night care, despite the difficulty to accept an extraneous at home; (iii) as a last option, admission in retirement houses, without being able to distinguish hospital-like retirement houses from senior co-housing facilities. Although the appeal for co-housing solutions resulted high, strong doubts

about their diffusion and the related economic issues have been expressed.

During interviews, the topic of transports was addressed and it emerged as crucial, especially for older adults who are not equipped to reach city centers, shopping centers and basic services (e.g., hospitals and post offices). In this context, many initiatives that could be adopted have been suggested, such as: (i) to introduce shelters and benches in bus stops; (ii) to develop clear indications of waiting times through light panels; (iii) to remove barriers inside the vehicles, as older interviewees told moderator to have difficulty in getting in and out due to high steps and uncomfortable seats; (iv) to organize dedicated shuttles that pick older people up at home and take them to their destinations; (v) to increase safety of cities, thus favoring evening or winter outings.

Data collected during interviews have allowed a deeper understanding of older adults needs and expectations. As it was previously argued by Mathur and Moschis (2005), the research shows a picture of older adults with a dynamic lifestyle and active interests. At the same time, they are particularly attentive to facilities and services related to the sphere of health and social relationships, confirming what reported by Rosseau (2018) that these domains are strictly connected by two pillars: independence and socialization. Elder people often feel lonely and vulnerable, especially in contexts influenced by distance from families. In these cases, housing projects characterized by strong social integration and based on mutual support, in which common spaces, services and activities require some level of active roles, would be effective solutions, even in small peripheral centers.

Insights collected during the interviews confirmed previous research (Vintilă et al., 2018; Halaweh et al., 2018; Valer et al., 2015) highlighting that the most critical concerns of older people, in addition to feel lonely, is to depend to others. On this aspect, the survey revealed a clear sense of concern when considering solutions that require continuous assistance in the absence of the ability to bear the costs of a resident caregiver. The predominantly adopted solutions, those of hospital-style assisted living residences, are perceived as places that deprive the elderly of their intimacy, forcing them to share spaces and moments of their lives with strangers and, in fact, alienating them from their identity, history, and the values that surround them, often represented by the domestic environment. The alternative perspective of co-housing solutions, although little known and therefore not easily evaluated by the respondents, is seen as more reassuring, even though a difficulty in accepting the idea of abandoning the places of residence to which one is attached and where one has always lived remains. On this matter, the residents in peripheral areas, especially in rural and mountainous zones, are the ones who have expressed the greatest concerns. From discussions on this point, it has emerged that co-housing solutions should be adopted by leveraging existing housing structures, overcoming the idea of physical aggregation in a single place, and embracing the idea of a dispersed residence. The expressed desire invokes the idea of solutions where people can remain in their own home and receive the necessary assistance services, allowing unrestricted access to support personnel for all services and treatments, including healthcare, therapeutic, as well as for cleaning, meal service in cases of non-self-sufficiency.

Within this context, technology emerges as a potential game-changer in elderly care. Wearable health monitors and telemedicine platforms offer opportunities to enhance health, safety, and social connectivity for seniors. Integrating these technologies into housing environments can create socially enriching and technologically empowered spaces. Central to the viability of senior co-housing models is the integration of home automation systems, commonly referred to as domotics. These technologies — leveraging AI, sensors, and connectivity — are able to transform residences into adaptive, responsive environments that cater to the unique needs of

elderly occupants, thereby promoting independence and reducing reliance on external care services residences. While the benefits of senior co-housing and digital innovations are evident, a critical consideration lies in the economic feasibility of implementing these models at scale. The economic sustainability of senior co-housing is highlighted through the cost-saving potential of technology, such as smart home systems and optimized healthcare delivery through telemedicine. In this perspective, senior co-housing can emerge as an economically sustainable solution addressing rising healthcare costs and resource constraints.

Conclusions

The in-depth exploration of elderly care perceptions and needs, complemented by the insights from case studies, offers a comprehensive understanding of the dynamic landscape surrounding aging populations. By examining the experiences and preferences of older adults alongside real-world examples, we gain valuable context and nuance in shaping effective strategies for elderly care.

Surveyed older adults consistently express a dual perception of aging, asserting that they feel younger and fitter than previous generations. This optimistic outlook on aging is mirrored in the cases, where facilities like Yuimarl Fuku in Osaka stand as beacons of commitment to safety, flexible housing, and community engagement. Yuimarl Fuku's success serves as a confirmation of the importance of adapting to the evolving landscape of elderly care.

Health emerges as a central value for respondents, aligning with the emphasis on safety and well-being seen in the case studies. Case 2 amplifies the significance of community building and inclusivity, echoing the importance of familiar environments highlighted in the survey. Although the facility lacks advanced technologies, its success (confirmed by the reduced suicide rates) underscores the power of community support in mental health care.

The exploration of senior co-housing in the context of Case 3 shows a sophisticated integration of smart technologies. Innovation, driven by digital technology and smart living solutions, represents a transformative approach to addressing the evolving needs of an aging population. Through community-centric care and the integration of advanced technologies, there is the potential to create environments that not only enhance well-being for residents, but also ensure the long-term viability and economic sustainability of this model. This aligns with the survey findings emphasizing the importance of mental well-being and engagement in intellectual and practical activities. While this case demonstrates advancements in technology adoption, there is still room for further exploration of the economic benefits of innovation, in line with the survey's concern for the economic feasibility of co-housing models.

In the realm of sustainable housing, Case 4 emphasizes eco-friendly design and affordability. The case acknowledges the need for advanced monitoring solutions, aligning with the survey's recognition of the potential role of technology in addressing the multifaceted needs of the elderly. As with the other cases, Azotea highlights the ongoing challenge of integrating high-efficiency solutions and advanced technology adoption.

The economic feasibility of senior co-housing models is crucial, and the potential for cost savings through technology adoption is highlighted in Case 4. The mobility concerns raised in the survey find a response from this case, given the emphasis on improving infrastructures and solutions for the mobility of older adults. These practical considerations underline the need of adopting a wide range of measures that address not only healthcare needs but also the broader challenges associated with ageing.

In conclusion, the interplay between the survey findings and the case studies underscores the nuanced nature of aging individuals and the multifaceted challenges elderly care. The potential role of technology, coupled with community-centric approaches exemplified in the cases, presents promising avenues for addressing the evolving needs of aging populations. As we navigate the complexities of elderly care, these insights serve as valuable guideposts for developing future innovations and improvements in elderly care practices worldwide.

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The increase in Procrastination due to the use of ICT and their consequences in upper degree at UdG. in Mexico

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Abstract

With all the events that's have taken placed globally, the word procrastination was used like something cultural and it is more common to hear this word in Mexico, we use this word to say "I am going to do these activities later, I have a lot of time".

But with the pandemic emerged various educational phenomenon and also with the use of ICT, this research took place during the pandemic at UDG upper grade in Mexico.

Using the platform Moodle for the activities in home, students should send their homework or activities in the platforms, this helps us to know how they organized their time or if they procrastinate their homework, in such case they will get a lower note.

Various authors mention that procrastination is postpone, delay, some activities and the most important issue is to see these at education, and also at the health field.

Among students has been used frequently the Procrastination-Student rating scale, according Solomon& Rothblum, (1984, pag. 503-509).

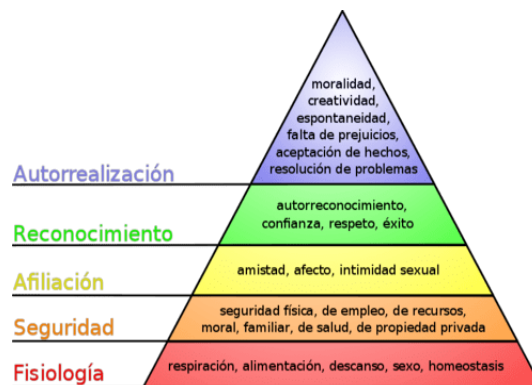
Keywords: *ICT, Procrastination, Moodle in education*

Purpose

Procrastination or Proscanning is when you have a task or a work to do and you decide to do it or deliver it next day.

According to Maslow in the 20th century, the humanist psychologist, mentions the most well-known human behavior and the behavior of each person must have a motivation. In image 1. We can see in each one their objective, which is something cyclical in the human being, for its development Students must set goals or objectives to achieve success in their education and enter in work field also with ICT tools, Information Technology and some tools such as some platforms to help their professional development.

Imagen 1.



Maslow, A. (XX)

Not only Procrastination is more recurrent in education as previously mentioned but also is common in health, economic and family areas.

In the educational field, the Moodle platform is designed to study at distance and also as a complement to activities, the advantage it is that Moodle give a deadline (date and time). Sometimes you can change the deadline, students can send their homework or activities an hour late but it will mark a delay and that will lower points at their final result. This helps us to see their responsibility and planning of each student.

This tool will help us to see the behavior of students in the period of time during pandemic, when we were locked down and we did not have any distraction in home.

If we were in the normal situation, students would try to justify their Procrastination due to various external factors and thus be able to postpone their assignments or homework.

Dewitte, S. and Schouwenburg, HC (2002). " Procrastination, temptations and incentives: The struggle between the present and the future in procrastinators and punctual".

In this research we have 400 students who had face to face classes for only 1 month, due to the pandemic, classes were cancelled and they went into confinement for health safety, the changes they had until 2021, such as their performance, internal factors such as emotions, the confinement, and lack of socialization. And in the second sample the commitment and responsibility were measured without having social distractors.

LITERATURE REVIEW

The word procrastinate comes from the Latin procrastinate which translated means to defer or postpone. In the field of education, Steel and Ferrari (2012) are processes that cause voluntary delay to plan voluntarily.

Various most relevant authors on this topic of procrastination.

Autor	Fecha	Concepto
Stanhope,P	1749/1968	Do not leave for tomorrow what you can do today
Lyly, J	1579	Nothing as dangerous as procrastination
Steel y Ferrari	2013	An insufficiency in the self-regulation processes that causes the voluntary delay of planned activities

Wesley	1994	Procrastinating is quite widespread in all ages, sex,
Kim y Seo	2015	Presents a direct correlation
		with academic results.
West, Mendizábal, Carrière y Lippé	2014	As students get older, they have a greater ability to master those distracting stimuli responsible for procrastinating behaviors.

Own elaboration

Strunk, Cho, Steele and Bridges (2013) whose objective is to delimit the factors involved in procrastination proposing a two-dimensional model, one related to the use of time and another motivational type. As it seen in figure 1. Applied to education.

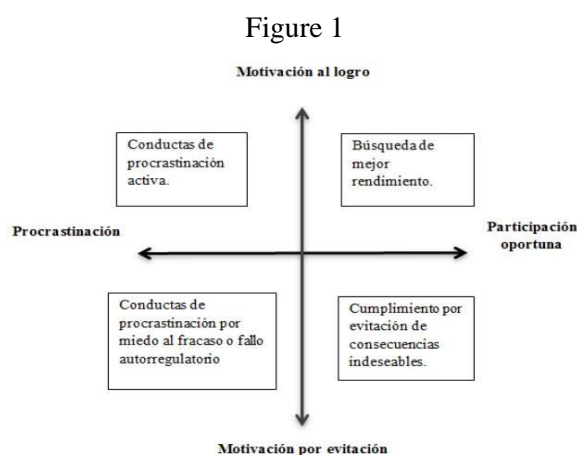


Figure 1. Two-dimensional model for educational procrastination.

According to the Ministry of ICT, they are a resource set of tools, equipment, computer programs, applications, networks and media; that allow the compilation, processing, storage, transmission of information such as: voice, data, text, video and images (Art. 6 Law 1341 of 2009).

Alvarado, L. (2022) the composition of ICT is:

Communication technologies (TC: radio, telephone, television, etc.

Information technologies (IT): all the processes and tools involved in digitizing data.

Education, due to the recent technological changes, has seen the need to incorporate information and communication technologies, ICT, in their classrooms (Morales, A. 2018.

P.71-84)

García, J. (2005) He maintains that ICT can help us to adapt space-time to the person who needs to learn, without the need to be face to face classes, promoting flexible learning.

Thompson, P. (2013) “contrary to popular beliefs that the digital native generation is universally proficient on all digital technology tools, this study showed that the range of technologies students use might be fairly limited” (p.20).

Díaz, F. (2007) that the fact of using ICT does not guarantee innovation or educational quality, as well as inclusion or social equity.

Moodle in education.

Dougiamas, M. 2002 was created by an Australian educator and computer scientist, states that with its original name *Module Object-Oriented Dinamic Learning Environment* (Entorno Modular de Aprendizaje Dinamico Orientada a Objetivos).

Online teaching platforms such as Moodle are also called **LMS**, *Learning Management System*. Various LMS such like Chamilo, e-Doceo, Canvas, Sakai, First-class, etc. The list is very long but Moodle is better.

In Spain those are some of the Universities that use Moodle as an online teaching management system: la Universidad Politécnica de Madrid, la Universidad de Barcelona, in some UNED department, la Universidad de las Palmas de Gran Canaria, Universidad Jaume Ide Castellón, la Universidad de Extremadura, la Universidad Pontificia de Comillas y ESADE, and more.

In international level la Shell, London School of Economics, the State University of New York, Microsoft and University of the United Kingdom (Open University), are some examples of organizations that trust Moodle.

According to the latest Moodle statistics, it currently has a presence in 229 countries, Spain being the 2nd in importance, and has:

- *More than 190,000 registered sites*
- *270 million users*
- *Mexico 8498 total sites (5677 are private and are not shown)*

Image 2 shows how the statistics of use of Moodle are.

Statistics



Registered Moodle sites: <https://stats.moodle.org/sites/>

Image 3 shows all the countries that are registered with Moodle sites.

Top 10 from 239 countries by registrations

Country	Registered sites
United States	12,167
Spain	11,913
Germany	9,910
Mexico	8,498
Brazil	8,172
France	5,897
Russian Federation	5,535
Indonesia	5,429
Colombia	4,766
United Kingdom	4,389

Registered Moodle sites: <https://stats.moodle.org/sites/>

JUSTIFICATION

Which were the factors if there was a decrease or increase in Procrastination in students due to the use of ICT and to know the way of response to the use of the Moodle platform, in the upper grade students of the UdG, Mexico.

RESEARCH QUESTIONS

Which were the factors that influence procrastination in students with the use of ICT and the Moodle platform?

OBJECTIVES

Identify which were the factors that influence procrastination in students, find if existed any social or psychological factor that influenced the development of commitment in time and form.

METHODOLOGY

This research was made with 400 students in the upper grade of the UDG. In Mexico, Taking the situation of 2019 Covid 19 pandemic to January 2021. Using tools Survey like ICT and Moodle platform for academic performance. In UDG, it is available Moodle platform in all the careers and 90% of students had already used Moodle, research data error used was 10%.

Surveys were applied within the platform to collect information and class, as non-structured interviews with the users

This is mixing research, quantitative and qualitative, so we can know all the factors that influence procrastination at upper degree students.

This research only took in consideration the use of ICT and Moodle platform.

The measurement is on a Likert scale and a numerical scale to know some qualitative and quantitative factors in our hypothesis

H1.- Higher time at home, the lower was the procrastination.

H2.- The students that have Moodle program, they sent their activities on time.

H3.- The students that have calmer at their home they used ICT to complement Moodle platform.

H4.- Higher time in home, procrastination was higher.

Sample determination

Sample estándar error 10.0%

Sample Population number

Sample size for 95%

Sample size for 97%

CÁLCULO DEL TAMAÑO DE UNA MUESTRA

INTRODUZCA EL MARGEN DE ERROR EN LA SIGUIENTE CASILLA
INTRODUZCA EL TAMAÑO DE LA POBLACION EN LA SIGUIENTE CASILLA

10.0%
400

TAMAÑO DE LA MUESTRA PARA NC 95%=
TAMAÑO DE LA MUESTRA PARA NC 97%=

78
91

We all 400 surveys but to obtain the confiability of 97% we only take 91 surveys and this give us the result of the formula

STATISTICAL RELIABILITY

Alfa de Cronbach	No. De elementos
.836	40

Note: Alfa de Cronbach.

ANALYSIS AND DISCUSSION

Hypothesis	Results Chonbach Alpha	CRI	VEI
H1.- Higher time at home, the lower was the procrastination.	0.851	0.889	0.590
H2.- The students that have a Moodle program, they sent their activities on time	0.855	0.885	0.539
H3.- The students that have calmer in their home they used ICT to complement Moodle platform.	0.889	0.890	0.502
H4.- Higher time at home, procrastination was higher	0.732	0.733	0.507

In the results of our hypothesis, we can see that hypothesis H4 Higher time at home, procrastination was higher. Procrastination increased and it was relevant in the last period of 2021, as factors that were detected:

Factors	Percentage en 2019 -july 2021	Percentage de July 2021-January 2022
Psychological factors of confinement	70%	95%
ICT distractors in Entertainment like shows	60%	100%
Procrastination distractors (without justification)	70%	95%
Late upload	2%	70%

Looking on the first period from 2019 to July 2021 there was a commitment and Procrastination was not high.

But in the following period from July 2021 to January 2022 there was an increase in Procrastination due to their lack of interest, commitment, responsibility and there was no justification because they did not do it on time.

LIMITATIONS

This research was made only with the use of Moodle platform, we did not include another platform

Surveys and forums used in the platform for communications were short answers and most of them argued that the pandemic was stressful and or increased their procrastination because they had more free time but they only used ICT for social communication

CONCLUSIONS

Hypothesis H1, H2 and H3 gave us a good result using Alfa de Crombach, that has a bigger responsibility for upload and procrastination it was showed at H4 Higher time at home, procrastination was higher. It was 0.732.

And it was detected during 2019 to July 2021, a low late upload it was our 2%.

In 2021- January 2022, a low late upload was our 70%.

FUTURE RESEARCH

This research will be done with different platforms with the modality of hybrid classes to see the results and be able to make comparisons and it will help us to see which platform is the best, using tools like ICT, include IA and ChatGPT.

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A Multidimensional Analysis of Vaccine Hesitancy and Acceptance: Insights from Singapore and South Africa

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Objective:

This research conducts an extensive examination of vaccine hesitancy and acceptance across diverse population segments in Singapore and South Africa. The primary goals encompass evaluating trust in vaccines, addressing safety concerns, analyzing economic facets like pharmaceutical company profit motives, comparing natural versus vaccine-induced immunity, and exploring concepts of herd immunity and individual responsibility. The study aims to deepen our comprehension of these intricate dynamics, with a focus on mitigating hesitancy.

Methodology:

Our study employed a quantitative approach to investigate vaccine hesitancy and acceptance across diverse population segments in Singapore and South Africa. Data were collected via a well-structured online survey featuring closed-ended questions to quantitatively measure respondents' attitudes, perceptions, and trust levels in vaccines. Descriptive statistics analysis was applied. Ethical considerations were paramount, with participants providing informed consent, and their privacy was strictly upheld. This quantitative approach allowed for a comprehensive examination of vaccine-related attitudes, providing valuable insights into the factors influencing vaccination decisions within these diverse populations.

Key Findings:

- & **Trust in Vaccines (60%):** A significant portion of respondents expressed confidence in vaccines, perceiving them as reliable tools against serious infectious diseases, underscoring their role in public health.
- & **Safety Concerns (40%):** Approximately 40% harboured concerns about vaccine safety, particularly for children, and leaned towards natural immunity.
- & **Profit Motives (55%):** Around 55% were sceptical about pharmaceutical companies profiting from vaccines, perceiving limited direct benefits for the average person.

- & **Collective Responsibility (65%):** Approximately 65% believed in vaccination as a collective action to curb disease spread, emphasizing their role in protecting vulnerable individuals.

Implications:

These findings underscore the enduring trust in vaccines, supporting the need to strengthen positive narratives to bolster vaccine acceptance. Furthermore, they emphasize the necessity of transparent communication to address safety apprehensions and tackle misinformation. Equity in vaccine pricing and distribution emerges as a crucial factor, demanding focused public health policies. The study highlights a strong sense of collective responsibility, advocating its use in public health campaigns to enhance vaccine uptake and community immunity.

Recommendations:

Drawing from these insights, it is recommended to adopt the following approaches:

- (3) **Strengthen Public Health Communication and Transparency:** To combat vaccine hesitancy, it's vital to reinforce public health communication. Develop targeted campaigns that emphasize the safety and efficacy of vaccines, addressing specific safety concerns, particularly for children. Transparency with pharmaceutical companies is key; engage in dialogue to clarify vaccine pricing and profit motives. Educate the public on the extensive research and testing vaccines undergo. Additionally, leverage the strong belief in collective responsibility by launching community-focused vaccination campaigns, highlighting that vaccination is a collective effort to protect vulnerable individuals and achieve herd immunity.
- (4) **Tailor Interventions and Ensure Equitable Access:** Recognize that vaccine hesitancy varies across demographics. Tailor interventions to address specific concerns within these groups, utilizing culturally sensitive communication. Establish mechanisms for monitoring and addressing safety concerns promptly, while ensuring equitable access to vaccines by removing cost and accessibility barriers. Continue research into vaccine hesitancy and acceptance to refine strategies over time. These recommendations collectively aim to foster trust in vaccines, improve safety communication, and promote collective responsibility, ultimately enhancing vaccine acceptance and safeguarding public health.

Conclusion:

This research sheds light on the intricate landscape of vaccine hesitancy and acceptance. While hesitancy persists, a substantial portion remains confident in vaccines. Strategies targeting safety concerns, equitable access, and collective responsibility are pivotal for enhancing vaccine acceptance. By nurturing trust in vaccination programs, policymakers and healthcare providers can bolster public health efforts, safeguarding communities from infectious diseases.

Keywords: trust, vaccine safety, scepticism, natural immunity, collective responsibility.

Impactful Collaboration in Learning and Teaching at a Global University: Building Innovation Teaching Capacity Across Borders

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This presentation is based on the current project which is aimed at exploring collaborative advantage of knowledge transfer and contextualised learning at global campuses of a large Australian university. This longitudinal project includes management scholars in all global campuses of a large Australian university. We have been engaging colleagues and students and bringing them together through innovative teaching techniques, such as an interactive learning space for data display and data visualisation, Distributed Learning (DL), teaching with simulations and enriching learning through contextualised experience and applications. We utilize a qualitative case study approach which is the most appropriate when analysis needs to fully embrace contextual characteristics of the phenomenon under investigation. We study an educational network in global campuses of a large Australian university through the prism of the group created by teaching staff teaching complex strategy subjects for Masters and Bachelor students. Selected strategy subjects were chosen for their pioneering role in the implementation of two-way distributed learning, teaching with business simulations and utilizing one of the most innovative teaching space of the business faculty. The study was based on open-ended interviews. The interview data was analyzed using Leximancer, a software offering a statistical algorithm to analyse text data. Leximancer used its own algorithms to extract the main concepts and ideas by analysing the meanings in certain parts of text. Leximancer allowed us to conduct qualitative analysis by using a quantitative method. This resulted in the understanding how main concepts and themes correlate with one another in the data. The preliminary findings were introduced and discussed during focus groups and workshops at two out of the five campuses where the study respondents were able to comment on the findings and provide additional feedback on the initial themes emerged from interviews. While our findings acknowledge the pedagogical challenges facilitating teaching and learning in multi-site campuses, we identified proactive ways in which teaching team members resolve these challenges and ensure equal involvement of students at all transnational campuses. Participants shared their involvement in curriculum development patterns and reported on their capacity building. Participants shared anecdotal evidence of being empowered through their

collaboration with colleagues in global campuses, e.g., while conducting two-way distributed learning. They also reported that they used their experience and learnt lessons to support their colleagues in other universities. Learning at different campuses and unique socio-economic context allowed various interpretation of common learning tasks and results in additional educational benefits and patterns of learning.

Our study responds to the call for studies which utilize consistent international group-to- group comparisons and transnational student body complexities in the implementation of distributed learning. We contribute to leveraging a global approach to learning and teaching by addressing.

Keywords: global campuses, impactful collaboration, staff empowerment, teaching capacity building

Bridging Theory and Practice in Open Culture Management: Challenges and Strategies in Museums

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Extended Abstract

The article fits into the global discussion on the challenges and opportunities of open culture management for museums in the 21st century, which flares up around the increasing tension between everyone's right to access to and participate in culture and individual exclusive interests (Macmillan, 2021; Yu, 2022). The debate is, however, mainly theoretical and addressed from a predominant legal perspective (Sappa, 2022; Wallace & Euler, 2020). Thus, it calls for interdisciplinary strategies and operative solutions (Roussos & Stamatoudi, 2022). This study builds on a study that reviews the state of the art of open culture in the museum sector at the crossroads of management and copyright law, and designs an exploratory matrix to handle "the open culture dilemma", as the hesitation to open up, i.e. make available cultural resources (e.g., collections) with the least possible restrictions for their reuse. The theoretical matrix posited various degrees of openness and closure, revealing divergence and ambivalence from a managerial and legal perspective.

Purpose

The overall objective of the study is to clarify existing open culture in museums and help them move forward on open culture management. The research aims to bridge the gaps between open culture theory and practice by evaluating and improving the interpretative capacity of the matrix of approaches to open culture management in relation to copyright, which the authors drew from their previous systematic literature review. In doing so, they leveraged the contribution of a panel of experts to improve museums' decision-making about whether to open up and to what extent.

Research Questions

1. How do museum managers perceive the "open culture dilemma"?
2. How can they identify and solve the problems arising on their way to open culture?

Design/methodology/approach

This study updates a preliminary literature review that explored the "open culture dilemma"

from a law and management perspective and upgrades it with a focus group technique. First, the theoretical foundations of the matrix of approaches to open culture management in relation to copyright have been integrated from the perspective of museums' decision makers, devising an evolved formulation of a new two-by-two matrix. Second, the authors discussed the updated matrix in focus group sessions with a panel of key experts from different law and management, to adjust and refine the most relevant managerial-legal issues and problems. The focus group is considered a valuable method to explore a new area in a social context (Kitzinger, 2005). Based on the study objectives, they recruited eight participants through purposive sampling (Gummesson, 2017). The focus group discussion lasted for 90 minutes. Subsequently, they performed a content analysis of the transcript of the information recorded during the focus group to validate and develop the theoretical matrix.

Findings

This study bridges the gap between theory and practice by providing a new matrix that systematises the issues faced by museums in dealing with open culture under management-based (from custodial preservation approach to market service approach) and copyright-based

(from copyright monopoly to copyright balance) approaches. The upgraded two-by-two matrix describes museum managers into four categories: custodian, awaiting, aspiring, and pioneer. Accordingly, museums adhering to the market service approach and achieving copyright balance are considered pioneers in open culture management. On the contrary, managers who adhere to the custodial preservation approach and comply with copyright monopoly are considered custodians. Similarly, managers who achieve copyright balance but are inclined toward a custodial preservation approach are considered to be awaiting. Finally, the managers who adhere to a market-service approach but cannot achieve copyright balance are considered aspiring. The experts provided valuable contributions to elucidate the factors positioning museums in the matrix's quadrants. They also suggested several conditions enabling them to change their positioning and move across different paths to open culture.

Discussion/Implications

The empirical testing and development of the matrix on museums' open culture management translate it into a managerial dashboard, conceived as a tool for museum managers and policymakers wishing to make more informed decisions to progress to open culture over time. It guides museum managers to assess their current position in the matrix, devise and implement effective open culture strategies by addressing specific issues, and monitor their improvements over time.

Research limitations/Future research

The study has certain limitations. Museum managers should qualitatively examine their operating position in the matrix and their improvements in open culture management. Quantitative indicators for each quadrant will be needed to avoid biases. Thus, future research will design a questionnaire or scale inventory to address this limitation and be administered to a larger population.

Originality/value

This research offers new insights into the open culture literature and practice from an

interdisciplinary perspective. To the authors' best knowledge, this study is among the few studies that draw a theoretical model on legal-managerial approaches to open culture and turn it into a dashboard that museums and other relevant stakeholders may use to clarify and potentially improve the positioning in relation to open culture management.

Keywords: Open culture management, Open culture dilemma, copyright law, Museums.

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A Case Study of Public-Private Partnerships under Institutional Logic: A Focus on Residual Control Rights

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Over the years since the implementation of the Act for Promotion of Private Participation in Infrastructure Projects, there has been no shortage of controversies, especially in BOT cases for major public construction. Due to the high cost, high complexity, and long contract duration of large BOT cases, the success or failure of the cases depends on the interaction between the two parties and the contract management. However, there are inherent differences in the institutional logic between the public and private sectors, resulting in conflicts between their actions, and the resolution of disputes depends on the use of the institutional logic of the public and private sectors. However, there are inherent differences in the institutional logic between the public and private sectors, resulting in conflicts between their actions, and the resolution of disputes depends on the use of the residual control rights. We would like to explore how the two parties utilize the residual control under the conflicting institutional logics, as well as its results and problems. This study provides a systematic analytical framework for institutional logic, namely "institutional environment-organizational logic-institutional logic". This study provides a systematic analytical framework for institutional logic, namely "institutional environment-organizational logic-goal behavior. This framework offers a comprehensive institutional analysis and explanation that connects the internal and external environments, addressing the challenges of long-term BOT contracts.

This study adopts a case study approach and selects a BOT case as the target. The case has been constructed and operated for more than ten years, which can be used as a practical case to understand the operation of BOT model in a longitudinal way. The case has been constructed and operated for more than ten years, which can be used as a practical case to understand the operation of BOT model in a longitudinal way. The critical incident technique is adopted in the research strategy. Through semi-structured interviews and with reference to secondary data such as contracts, performance evaluation reports, and organizational regulations, the impact of institutional logic on the operation of a BOT model in a longitudinal way. Through semi-structured interviews and with reference to secondary data such as contracts, performance evaluation reports, and organizational regulations, the impact of institutional logic on the management of interactions and contracts is revealed in the controversial events identified by senior executives from both sides. The study finds that the causes and solutions of disputes are related to the differences in institutional logic between the two parties. The study finds that the causes and solutions of disputes are related to the differences in institutional logic between the two parties.

Decision makers need to select strategies that fit the organization's specific context and goals, and establish a "joint steering committee"-like intermediation practices to facilitate regular communication and establish mutually beneficial mechanism for coexistence. In addition, examining contract discretion with institutional logic, this study finds that under the emerging organizational logic of enterprises (ESG strategy), the organization should be able to make a decision on the basis of the organization's specific context and goals. In addition, examining contract discretion with institutional logic, this study finds that under the emerging organizational logic of enterprises (ESG strategy in this case), the private sector may be positively relaxing contract discretion and accepting demands outside the contract. The private sector may be positively relaxing contract discretion and accepting demands outside the contract.

Keywords: BOT, incomplete contracting theory, residual control rights , institutional Logic

Track 12: Local Track: Singapore

Crossover WISE: A Novel Form of Social Enterprise

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Abstract

Work-integration social enterprises (WISE) are organizations that create social benefits by integrating the disadvantaged unemployed in the labour market, while also generating commercial value from the sales of goods and services. This paper studied the business model of a WISE and, specifically, investigated how the organization developed novel value propositions and delivered and created value for multiple stakeholders. An in-depth qualitative study was conducted of Foreword, a for-profit WISE that employs persons with disabilities, mental health conditions, and special needs. Data was drawn from semi-structured interviews with stakeholders and secondary information about the organization. Based on inductive analyses, we propose a social mission-driven crossover WISE as a novel organizational form where the stakeholder perspective permeates through all the components of the business model. We submit that while these enterprises are agents of social change, so are their beneficiaries. In addition to acting as a social impact amplifier, this phenomenon of dual change agents seems to enhance the organization's sustainability and consequent economic value.

Keywords: Work-integration social enterprise; Business model; Hybrid; Social value; Economic value; Change agent.

{ID:32}

The story of 2 Singapores and why the public policy on Electric Vehicles might not work

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Abstract

Since 2009, the Singapore Government had been studying and then pushing for Electric Vehicles (EVs) to form the bulk of the country's vehicle population (TODAY, 2021). To support the adoption of EVs, the Singapore Government had adopted a multi-pronged strategy involving tax incentives, regulations and standards, and EV charger deployment. Every now and then, government leaders and officials made moving speeches about having more and more EVs on the road even as it builds the supporting infrastructure such as charging stations. There are reasons why the move to EVs may not work in the immediate short-term. After all, many motorists drive their vehicles across the Causeway to neighbouring Malaysia where there aren't as many charging stations. Would anyone risk being stranded on the Malaysian highway, in their EV?

In fact, as recently as August 2019, "then Environment and Water Resources Minister Masagos Zulkifli had questioned the feasibility of EVs, saying the Government has no solution on charging point deployment" (TODAY, 2021).

Those who can afford it might have two types of cars i.e. petrol-driven car for their trips to peninsula Malaysia and an EV for use in Singapore. Secondly, with high prices for EVs (including the ever-rising prices of the Certificate of Entitlement or COE required for car ownership), the take-up rate for EVs might not be so forth-coming. Those who cannot afford an EV at the base or entry-level price of S\$260,000 (including COE) might keep their older, petrol-driven vehicles. Indeed, we can expect some push-back especially from those who cannot afford EVs at their current ridiculous prices in Singapore. Put simply, this is why the public policy on EVs may not succeed initially, reflecting the income disparities of 2 groups of Singaporeans, a microcosm of a far larger phenomenon sometimes called "2 Singapores", a term coined by the Leader of the Opposition in his parliamentary speech on February 22, 2023.

Keywords: Electric Vehicles, Charging Point Deployment, Public Policy fail, 2 Singapores
Income disparities.

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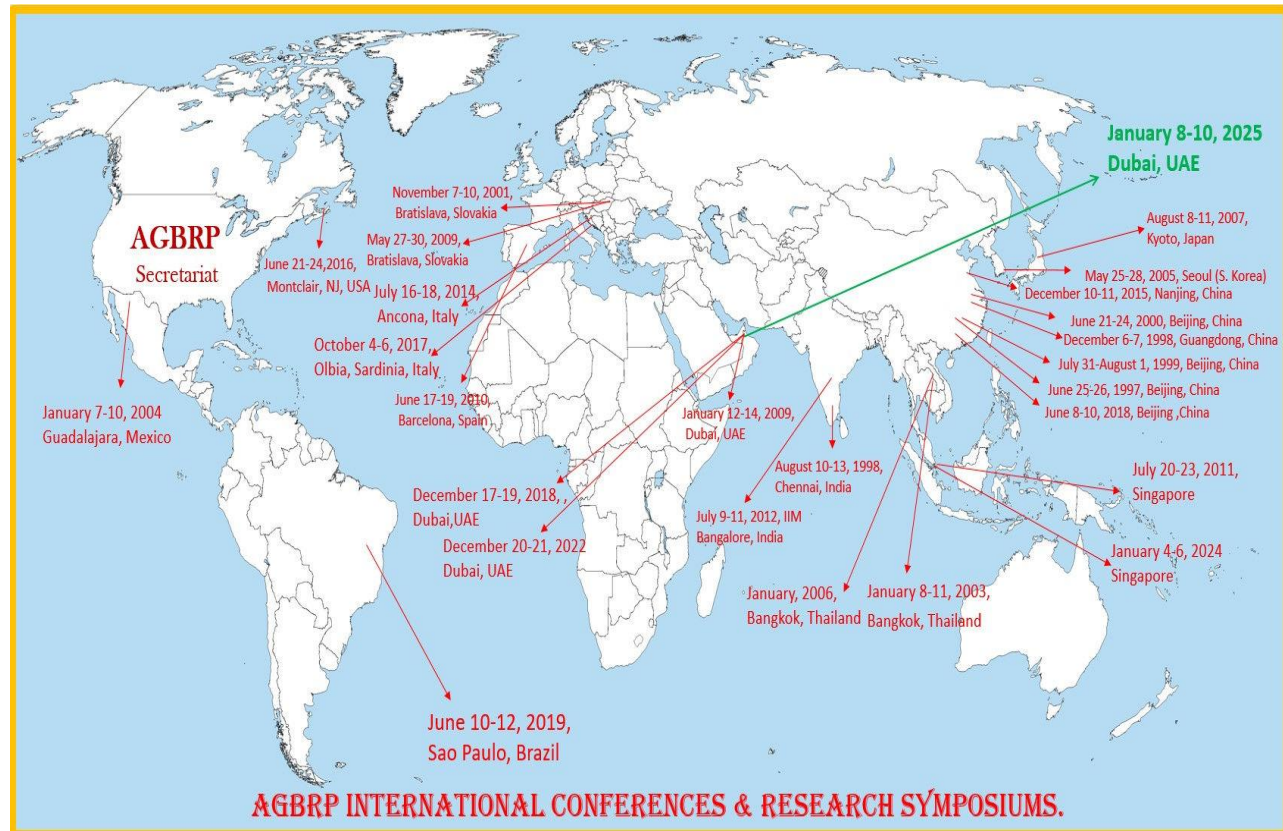
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