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IIFT International Business and Management Review Journal

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IIFT International Business and Management Review is a biannual peer-reviewed journal from the Indian Institute of Foreign Trade. The Indian Institute of Foreign Trade (IIFT), a deemed to be university, was set up in 1963 by the Ministry of Commerce & Industry, Government of India, as an Institution with a focus on imparting knowledge through research and training in international business and trade. It ranks among the top 10 Business Schools in the country for the past two decades and earned AACSB Accreditation.

IIFT International Business and Management Review tends to highlight the significance of emerging issues on national and international front, addressing challenges and reflecting opportunities relating to International business and management. The interdependence among businesses in a liberalized world increase the intricacies of business practices and make way for a wide range of business research problems. This journal will cater to all those research questions that are arising in the new challenging business world intersected with the cross-border issues. The Covid-19 pandemic has completely changed the dynamics of international markets and how they function. This brings a turnaround in theories, models and phenomena which are obsolete and not applicable to the world hit by a pandemic. Therefore, it makes more sense now to introduce the International Business and Management Review Journal as it will be addressing all the contemporary issues in International Business. It is an open access journal under a Creative Commons License (CC-BY-NC).

Aims and Scope

The journal aims at bringing together managerial issues, practices and innovations which are useful to scholars, educators, managers, consumers, other societal stakeholders and policy makers around the world. It aims to play a significant role in shaping the content and boundaries of the management discipline while simultaneously covering the international scope of businesses. With the aim of impacting the management education and industry practices, *IIFT International Business and Management Review* (IBMR) publishes innovative empirical and conceptual articles with advance knowledge of management and international business, and provides the readers with broad-spectrum of high-quality papers on evolving trends, insights and philosophies in management. All articles appearing in the journal will be peer reviewed to ensure academic rigor and practical relevance and will publish studies from all geographical regions. Discussion of newer forms of cross-border business activity, such as strategic alliances and global sourcing, is also encouraged. IBMR also aims to advance the exploration of issues that include the implications of customer orientation in multinational business, cross-cultural market segmentation and market research.

The journal welcomes submissions pertaining to various multidisciplinary studies such as –

- Accounting and Finance
- International Business & Strategic Management
- Marketing & Sales
- Corporate Governance, Business Ethics and Law
- Human Resource Management Organizational Behavior
- Managerial Economics
- Entrepreneurship & Business Ventures
- Operations Management & Supply Chain
- Management Information Systems

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Editorial

The global economy currently is characterised by quick shifts in the global politics, realignment of political groups. The trend in global value chain, supply chains, fiscal strictness, and evolving policy farmeowrks. emerging economies like India, have harboured these shifts to both complex challenges and strategic opportunities. Foreign tarde agreements, bilateral discussions, trade patterns have diversified. New digital and sustainability standards and green finance have emerge worldwide.

This has necessitated scholars, academics, policymakers, and researchers to engage with evidence-based insights and forward-looking perspectives. In this transforming environment, global value chains are being redesigned. Sustainability and resilience alongside efficiency being redefined. Firms are rethinking market diversification strategies, sourcing models, logistics networks. India's dedicated effort towards export competitiveness, manufacturing, and technology-led growth are well designed.

Sustained progress will require stronger regulatory clarity, institutional capacity, and continuous innovation. Digital transformation remains a further decisive force. It will shape future global business. Artificial intelligence, fintech applications, data governance, and digital public infrastructure are redefining market behaviour and organisational strategies.

This transformation brings new efficiencies. It raises concerns around privacy. Other efforts too like skill readiness, and responsible use of technology. Sustainability, has moved from the verges to the centre of global economic debate. green mobility transitions, Climate-related risks, and environmental compliance requirements are influencing trade. For Indian enterprises larger corporations as well as MSMEs are embedding sustainability into business models. it is indispensable for accessing global markets and maintaining competitiveness.

This issue of IIFT-IBMR brings together research contributions that examine these dynamic shifts across international business, trade, finance, marketing, and sustainability. The papers featured here offer analytical clarity and practical insights that can support decision-making in a volatile global landscape. As an institution committed to advancing knowledge in international trade and management, IIFT continues to encourage scholarship that bridges theory and practice, and contributes meaningfully to India's economic and strategic discourse.

I extend my sincere appreciation to all authors, reviewers, and contributors for their dedication and scholarly rigour. Your work strengthens the journal's mission of promoting high-quality research and supporting informed dialogue on matters of global relevance.

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Adoption of Artificial Intelligence in Contemporary Human Resource Management

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Abstract

This research examines the implementation of artificial intelligence (AI) to improve and advance human resource management (HRM) practices, along with the possibilities for future integration of various human and AI methodologies. The research is a narrative literature review, utilising recent studies, case examples, articles and pertinent literature regarding AI and HRM within the last 5 years from 2020 to 2024 (including 2024). Additionally, the article highlights the beneficial effects of AI on HRM practices and processes, providing an informative view on how AI enhances strategic HRM methods and boosts organisational performance through AI adoption.

Keywords

Artificial intelligence, human resource practices, organisational performance, positive impact, strategic human resource management

Introduction

Background

The swift progress in artificial intelligence (AI) has transformed multiple sectors, and human resource management (HRM) is likewise affected. With the ongoing evolution of AI, its ability to change HRM practices and processes is becoming more apparent. The incorporation of AI in modern HRM practices has generated significant interest and discussion because of its ability to transform conventional

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HR processes and decision-making. The convergence of AI and HRM offers a thrilling chance to rethink conventional HR methods and adapt them to the requirements of the digital era (Sakka et al., 2022). This study aims to offer important perspectives on the changing environment of HRM practices and the role of AI in influencing the future of work by examining the possibilities of AI in HRM

The impetus for performing a narrative literature review on 'The Adoption of Artificial Intelligence in Contemporary Human Resource Management' arises from the increasing acknowledgement of AI as a revolutionary influence in the work environment. As companies aim to stay competitive in a more digital environment, it is crucial to know how AI can improve HR practices. Furthermore, the incorporation of AI technologies in HRM offers both opportunities and challenges that require careful investigation. For example, although AI can enhance hiring processes and elevate employee experiences, it also brings up ethical issues related to bias and data privacy. This research intends to consolidate existing literature regarding AI implementation in HRM. In doing so, it aims to offer valuable perspectives for HR experts and companies aiming to manage the intricacies of AI incorporation in their employee management strategies.

Research Problem

As organisations adopt AI technologies to enhance HRM practices, it is essential to comprehend the consequences of this integration. This investigation aims to examine the incorporation of AI in HRM and its beneficial effects on the workplace, specifically highlighting the advantages, obstacles and future consequences. Through an in-depth exploration of the qualitative dimensions of this adoption, the study seeks to reveal important insights that can assist organisations in successfully managing the incorporation of AI into modern HRM environments.

Rationale of the Research

Many research efforts have been carried out to examine AI and its effects on HRM. Nevertheless, the discussion about the positive integration of AI in HRM remains limited. This is due to the fact that merging AI with HRM, or closing the gap between humans and AI, would help organisations by improving productivity, performance, effectiveness and efficiency.

Research Objectives

1. To critically examine the positive impact of AI on workplaces with a focus on HRM practices.
2. To identify the advantages of AI integration in key HRM functions.
3. To highlight challenges and propose recommendations for optimising AI use in HRM.
4. To identify the advantages of AI in major HRM practices.

5. To highlight the possible challenges with recommendations for future studies for the best approaches to utilising AI in HRM.

Literature Review

The integration of AI in modern human resource management (HRM) has generated considerable interest in both scholarly research and practical organisational environments. This study seeks to analyse and consolidate the current literature regarding the incorporation of AI in HRM practices, highlighting its effects, the favourable outcomes of the integration, advantages, obstacles, and possibilities for transforming HRM procedures.

Many researchers have highlighted the revolutionary effect of AI on HRM practices. Jedrzejowska (2024) stated that AI technologies can simplify repetitive HR functions, like reviewing resumes and sourcing candidates, enabling HR professionals to concentrate on strategic, high-impact activities. Likewise, Faqihi and Miah (2023) emphasised AI's impact on improving talent management and employee engagement by analysing extensive data sets to recognise trends and forecast workforce developments.

Numerous articles exist that thoroughly examine the transformative impact of AI on HR functions, such as recruitment, training, talent management and retention. Their research provides important insights into the convergence of AI and HR management currently, along with the expected influence on the HR workforce moving forward. Sousa and Dias (2020) claim that top business intelligence providers are working to incorporate business intelligence and data analytics features into HRM systems. The authors emphasise the strategic aim of positioning HR as a crucial value-enhancing department in the organisation through the integration of business intelligence.

On the other hand, worries have been expressed about the ethical and legal consequences of AI implementation in HRM. Vivek (2023) has stated that employing AI in hiring and selection could unintentionally reinforce biases found in historical data, resulting in unfair outcomes. Additionally, concerns about the transparency and accountability of algorithmic decision-making have sparked discussions, highlighting the necessity for ethical principles and regulatory structures to oversee the integration of AI in HRM.

The investigation of AI implementation in HRM also examines the changing responsibilities of HR professionals in the age of AI. Further, it is emphasised that it is important for HR professionals to cultivate data literacy and analytical abilities to proficiently utilise AI technologies in decision-making. In addition, the reassessment of HR roles and duties in overseeing AI-based processes and promoting a culture of trust and openness has been a central topic in academic discussions (Ekuma, 2024).

The literature highlights the capacity of AI to transform HRM practices by facilitating individualised employee experiences, predictive analytics for workforce management and the automation of standard administrative duties

(Sathyaseelan & Srinivasan, 2024). Nonetheless, the effective incorporation of AI in HRM depends on tackling issues concerning data privacy, cybersecurity and the ethical application of AI technologies in sensitive HR procedures (Naturalista et al., 2024).

Methodology

This methodology for a literature review on the 'Adoption of Artificial Intelligence in Contemporary Human Resource Management' is crafted to enable a thorough and organised examination of existing academic literature, providing meaningful insights into AI and HRM practices.

The research design of this study utilises a thorough literature review approach to systematically examine and integrate the existing academic literature concerning AI and HRM. The main research goal is to examine how AI (positive impact) is being adopted to support and improve HRM practices by leveraging AI and exploring the potential future integration of human and AI methodologies.

The process of gathering data entails thorough searches of scholarly databases, academic journals, conference proceedings and trustworthy online platforms. Databases like Scopus, Research Gate, Google Scholar and major academic publisher platforms were employed to gather data from peer-reviewed articles, book chapters and research papers concerning the role of AI in HRM. A thorough examination of the overall papers found a total of 30 empirical and peer-reviewed studies concerning AI in HRM, highlighting a wide variety of research themes and methodologies. The literature review and analysis encompass a collection of articles, carefully examining their contributions to grasping AI's impact on HRM. Additionally, the research encompasses significant recent publications from the years 2023 and 2024 as well.

Taking into account the inclusion and exclusion criteria, the inclusion criteria consist of academic works published in English, peer-reviewed articles and works published within a defined period (2020–2024) to guarantee relevance and precision. Only literature specifically focused on AI and HRM, encompassing its advantages, integration difficulties and benefits, is included. Grey literature and studies not pertaining to the research topic are explicitly excluded.

Following this, a thorough thematic and content analysis of the gathered literature was conducted to pinpoint common themes, emerging trends and varying viewpoints on AI and HRM. Thematic analysis techniques are used to derive essential insights, theoretical models and conclusions from the literature.

Thematic analysis included coding the examined studies into categories like ethical AI implementation, recruitment automation and HR analytics. NVivo 14 software was utilised to maintain uniform coding and recognise developing patterns.

Results and Discussions

Recruitment and Talent Acquisition

The literature demonstrates a fundamental change in hiring and talent acquisition due to the emergence of AI. AI-enabled applicant tracking systems (ATSs) are recognised for their effectiveness in resume evaluation, yet there are worries about their dependence on keywords and the risk of reinforcing biases (Albassam, 2023). Moreover, Koivunen et al. (2022) highlight that while chatbots for candidate communication are lauded for their convenience, the impersonal aspects of these interactions and their effects on the candidate experience need additional investigation. AI is capable of producing analytical reports regarding candidate evaluations for every job listing and assists in forming a historical database of candidates, which may be leveraged by various HR functions such as learning and development or performance management if the candidate becomes part of the organisation (Aroloye, 2024). AI's potential to develop a historical database of candidates is encouraging, but it is essential to examine the ethical aspects of data privacy and the lasting effects these databases may have on job prospects.

Employee Onboarding

The influence of AI on employee onboarding is complex. Utilising AI can enhance the onboarding process for new employees in a company (Marr, 2023). Engaging AI-powered orientation modules provides a creative method for introducing new employees to the company culture.

Moreover, AI-driven onboarding platforms can aid in familiarising new employees with their teams and departments. This might include virtual introductions, team presentations and individual video calls with important coworkers and supervisors. Organisations can enhance the onboarding experience for new hires by leveraging AI capabilities to make it more engaging, informative and personalised (Stefanic, 2024). Nevertheless, the research indicates a lack of comprehension regarding how these digital interactions influence the social integration of new hires. The effectiveness of AI in simplifying documentation is evident; however, there is a risk that it may render the onboarding process impersonal or fail to recognise the subtleties of human discernment during this important stage.

Performance Management

The advanced AI technologies offer fresh possibilities for HRM, enhancing overall organisational effectiveness and revealing broader prospects for performance management (Hemalatha et al., 2021). HR specialists can utilise AI-driven tools to track and evaluate employees' performance and productivity from the outset (Al Samman & Obaidly, 2024). AI technologies such as big data, machine learning and predictive analytics assess employee performance and

compensate them equitably (Mer & Virdi, 2022). This method seeks to reduce biases between line managers and their staff in organisations, tackling instances where employees feel they are evaluated unfairly in performance reviews due to their rapport with managers. Moreover, AI can act as a feedback and feedforward tool to enhance performance appraisal review processes as well as the entire performance management and evaluation framework (Nyathani, 2023). Bauer et al. (2023) state that by using AI to ease the tone of feedback and feedforward, and applying natural language processing (NLP) to evaluate input from line managers, peers and employees, organisations can discover important trends and areas needing enhancement. Garg et al. (2021) indicated that NLP refers to the capability of machines to interact with humans in their native language, along with their proficiency in understanding spoken and written content and formulating appropriate responses to human input.

Talent Management

Talent management plays an essential role in HRM, and AI can be efficiently applied in this field. It covers the full range of an employee's experience, such as hiring, retention, advancement, growth, succession planning and opportunities (Surve & Singh, 2024). AI can be incorporated into the recruitment and talent acquisition process to preserve and monitor historical records of employees, such as their training, skills, preferences, learning styles and advancements. This can be associated with AI for learning and development, tying it to performance management to develop customised learning trajectories based on performance evaluations and anticipatory insights (Takyar & Takyar, 2023). This approach allows organisations to greatly minimise the time required for annual training needs assessments and pinpoint skill deficiencies, thus simplifying the process of sourcing training options. Additionally, this method can be utilised to create customised career trajectories, retention strategies and advancement plans for high achievers and skilled personnel, effectively reducing talent attrition within the organisation (Urme, 2023). Additionally, training powered by AI transforms organisations into knowledge-centric entities that can address individual training requirements and enhance the quality of learning (Chen, 2022)

HR Analytical Data and Insights

As per Sangu et al. (2024), HRM professionals can utilise algorithms and robotics to assess HR data, enhancing human abilities and instigating changes in operational frameworks by uncovering relevant patterns, trends and correlations. This promotes data-informed choices and allows predictive analytics to estimate upcoming workforce needs, turnover rates and skill deficiencies. Consequently, HR can proactively tackle organisational challenges and enhance performance by anticipating workforce needs and possible issues. However, the literature demands

a more thorough scrutiny of the assumptions that support these predictive models, the potential for algorithmic bias and the clarity of AI-generated decisions.

Employee Engagement

HRM experts employ AI-driven surveys as analytical instruments to evaluate employee satisfaction and engagement rates (Sari et al., 2020). Studies show that employees can gain from AI through the automation of repetitive tasks, enhancing their access to tools and resources for analysing performance, and ultimately boosting organisational efficiency and customer experiences, along with rethinking products or business models (Gaani & Chhibber, 2022). Different AI tools, such as chatbots, are utilised to boost employee engagement by facilitating instant feedback and communication, thus improving involvement and quickly resolving issues. The literature review indicates that the depth and genuineness of insights obtained through AI tools relative to traditional methods are not completely grasped. The influence of AI on the qualitative dimensions of employee engagement is still a topic that requires more investigation.

The Advantages of Implementing AI in HRM Practices

The incorporation of AI into HRM offers numerous benefits that could transform HR practices and improve organisational results (Mer, 2023). As stated by Luz and Olaoye (2024), utilising AI allows HR professionals to enhance processes, improve employee experiences and increase operational efficiency, thus transforming the HR domain in today's work environment. AI transformation aims to redefine HRM within their organisations. The broad range of benefits linked to the use of AI aims to improve the efficiency of HR personnel and raise the standard of services in organisations (Abdulla, 2024).

According to Duggal (2024), instead of focusing on the drawbacks, people can focus on the benefits of AI, understanding its potential to enhance their mental faculties, improve engagement with customers and staff, and provide them the chance to focus on advanced tasks and enhance their skills to broaden their abilities. Moreover, AI offers staff greater flexibility, allowing them to discover new areas that enhance motivation, education and the quick implementation of fresh knowledge, thereby boosting satisfaction and preventing boredom in the workplace (Luhana et al., 2023). These results are set to generate a beneficial return on investment for the organisation while enhancing both employee happiness and customer satisfaction. Additionally, the incorporation of AI is expected to improve the overall quality of decision-making processes.

Elaborating on the possible benefits of integrating AI into HRM practices highlights the significant influence it can exert on organisational dynamics as well as the career development and contentment of employees (Ganatra & Pandya, 2023). This focus on the beneficial aspects of AI aims to shift attention to the opportunities that AI brings in transforming HRM practices and cultivating a more vibrant and effective work setting.

Implications

While integrating AI into HRM offers advantages, it is crucial to carefully tackle the possible challenges, such as system biases and ethical implications, as numerous researchers have agreed that AI might face difficulties in recognising emotions or biases (Tuffaha, 2023). Nonetheless, Chen and Ibrahim (2023) emphasised that many organisations have successfully incorporated emotions into AI analysis. AI systems have been employed to examine and modify customer and employee reactions according to emotions, in addition to serving educational functions. The optimal method includes blending the knowledge of HRM experts with the benefits of AI, acknowledging that some facets still need human supervision rather than total reliance on AI (Li, 2024). Thorough testing, monitoring and evaluation of AI systems are essential, along with incorporating insights from people of various generations who have valuable knowledge and skills, while also tackling the main worry of HRM professionals concerning the potential rise in layoffs. AI recruitment tools can show algorithmic bias by depending on historical data that disproportionately highlights predominant gender or ethnic groups, like biased keyword filtering or imperfect facial recognition models.

Conclusions and Recommendations

Conclusion

The incorporation of AI would significantly enhance HRM procedures and enable HRM professionals to boost organisational productivity and the efficiency of HRM services (Sakka et al., 2022). Nonetheless, it is crucial to take into account the subsequent suggestions to tackle the difficulties. AI technology should be employed mindfully, emphasising transparency in line with organisational guidelines. Consequently, organisations must assess the AI algorithms they plan to implement and modify them as necessary

Recommendations

Organisations must promote transparency and ethical management when implementing AI in HRM. Ongoing surveillance, staff education and equitable algorithms must steer execution. HRM experts need to create distinct legal and ethical guidelines, perform bias evaluations and promote interdisciplinary teamwork to achieve responsible and effective AI incorporation in HR operations.

- *Promote transparency*: Keep updated on optimal practices for applying AI in HRM and pinpoint successful strategies for collecting data to enhance AI algorithms.
- *Provide training*: Deliver ongoing education for HRM professionals and employees (end users) on the safe and effective use of AI in HRM.

- *Observe and assess*: Evaluate the application of HRM practices, track employee advantages, and guarantee proper updating and improvement.
- *Responsible and equitable AI utilisation*: Adhere to a legal and moral structure to reduce biases and prevent discriminatory results.

Declaration of Conflicting Interests

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Service Quality and Customer Satisfaction with Special Reference to Restaurants

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Abstract

In the food service industry, both the quality of products and the standard of service are vital in determining customer perceptions and satisfaction levels. This study aims to explore the major factors that affect service quality in Indian restaurants and examine their influence on customer satisfaction (Berezina, 2010, *International Journal of Contemporary Hospitality Management*, *24*[7], 99–1010). The study seeks to assess service quality and customer satisfaction levels through the application of factor analysis, correlation and regression techniques. Data were collected from 630 randomly selected customers, and the analysis was conducted using IBM SPSS Statistics 24 and AMOS (Adriatico, Razalan, Pagbilao, Afalla, & Dela Cruz, 2022, *Academic Journal of Interdisciplinary Studies*, *11*[3], 30). The key service quality dimensions were classified into four categories: Process-related (take-away order system, order tracking, food preparation time), people-related (customer focus, peer influence, special attention to customer needs), physical environment (walking space, restaurant design, directional signage) and performance-related (food temperature, presentation, portion size) (Abdul Razak, Mohd Aminuddin, & Ghazali, 2019, *Progressing Beyond and Better: Leading Businesses for a Sustainable Future*, European Publisher). Weighted means were employed to describe service quality and customer satisfaction, while multiple regression analysis was used to determine the predictors of satisfaction. A structured model was then developed to offer a framework for enhancing service quality in the restaurant sector. Focusing on these critical dimensions

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enables businesses to improve customer satisfaction, foster loyalty and achieve sustained success.

Keywords

Customer satisfaction, food service, service quality factors, physical environment, people, performance

Introduction

The restaurant sector inside the hospitality industry is undergoing a range of transformations in an exceedingly competitive landscape. Customers are now placing better emphasis on factors such as the quality of food (FQ), the excellence of restaurant services (RSQ) and the overall physical environment (PEQ) provided by fast food establishments. A single disappointing encounter can prompt consumers to swiftly switch to alternatives. As a result, fast food restaurants are compelled not only to draw in fresh patrons but also to maintain the loyalty of their current clientele. Within Pakistani culture, there is an increasing inclination to frequent fast food restaurants for social gatherings with friends, family and colleagues (Berezina, 2010). Quality holds significant importance, especially when assessing the service quality of food, as it constitutes a crucial component of any product. The success of organisations hinges on their ability to attract a satisfactory customer base. Service quality becomes a distinguishing factor in comparison to other services, as it directly contributes to customer contentment. In essence, customer satisfaction emerges as the pivotal determinant for the success of firms that prioritise service quality as their foremost factor for achieving success (Hsinkuang et al., 2019). The progression of information technology holds a significant role in driving both societal advancement and economic expansion. It serves as a substance for innovation and the emergence of new ventures. The utilisation of computers and interconnected systems has dramatically amplified both the volume and speed of information processing. The evolution of the Internet has brought about a transformation in the way businesses communicate, while also establishing a foundation for electronic commerce, thereby reshaping approaches to marketing, advertising and product distribution. The continual evolution of information technology has revolutionised operational paradigms across various sectors, including the hospitality industry. Within the realm of lodging, the implementation of technological solutions has been acknowledged for its contribution to gaining a competitive edge, enhancing productivity, improving financial performance and expanding guest services (Ali et al., 2015). It is widely recognised that within the service industry, customers possess a restricted set of criteria to assess the quality of services, in contrast to products. This situation is particularly evident in the hospitality sector, where the tangible cues of the physical environment and the perceived pricing play a significant role in evaluating service excellence and cultivating customer contentment. In connection with this, a study by Martin and his associates in 2008 underscored that the emotions encountered within a service environment have the potential to

influence a customer's perceptions and judgments regarding their level of satisfaction. Hence, considering the standpoint of service providers, enhancing the physical environment can enhance perceptions of value for the price and can evoke emotional responses in customers, ultimately leading to an augmentation in customer satisfaction (Adriatico et al., 2022). Scholars have approached the concept of customer satisfaction from various angles. The optimal method for assessing satisfaction has been a subject of considerable debate. This prompts an inquiry: Does the methodology for gauging customer satisfaction hold significance? Specifically, could the determinants of customer satisfaction yield different outcomes based on the chosen conceptualisation and measurement of satisfaction? Furthermore, this study explores whether the relationship between customer satisfaction and customer-related outcomes, such as word of mouth, depends on the measurement approach used. To address this, it examines two alternative metrics for assessing customer satisfaction—overall satisfaction and relative satisfaction. Notably, a relative approach might offer a more potent indicator of repeat purchases. Nevertheless, it is worth noting that only a limited number of studies have thus far delved into the realm of relative satisfaction (Abdul Razak et al., 2019). If we consider the problems, then restaurant owners face tasks in inventory management, including uncontrolled stock waste, employee theft and inconsistent warehouse locations. To avoid losses, it is crucial to identify and prevent internal theft. Franchise restaurants often have numerous places or warehouses, making it problematic to address issues at different locations. To retain customers, a persistent approach, an easy customer experience and social media engagement are essential. Retaining customers is crucial for producing revenue and retaining customers. What factors are considered by consumers with special reference to service quality in tune with performance factors? (Murad, 2015). The key critical problems identified in the literature include the inconsistent impact of service quality dimensions (tangibility, reliability, empathy, assurance, responsiveness) on customer satisfaction across different demographics and restaurant types, as highlighted in studies like Abdul Razak et al. (2019) and Murad (2015). Additionally, demographic factors such as age significantly influence service quality perception, as seen in Lee et al.'s (2012) findings, making it challenging to apply a uniform strategy. The gap between online and offline service satisfaction, particularly in light of increasing digital services, poses another issue, as noted by Zibarzani et al. (2022). Furthermore, post-pandemic challenges, including the need for service innovation, are evident in studies like Villanueva et al. (2023), where restaurants struggle to meet evolving customer expectations. Based on these problems, the research objectives are to identify key service quality dimensions that consistently impact customer satisfaction across demographics, examine how demographic factors influence service quality perception, explore the relationship between online and offline service quality, and develop strategies for service quality innovation in the post-pandemic restaurant environment (Putta, 2023). Based on the observation, in the fast food sector within the hospitality industry, rapid transformations driven by competitive pressures and evolving customer expectations demand an understanding of critical service quality dimensions—food quality, service

excellence and the physical environment—that influence customer satisfaction. However, there is a gap in how these factors affect satisfaction across demographics, particularly in the context of Pakistani culture, where fast food establishments have become popular for social gatherings. This study aims to address these gaps by exploring the influence of various service quality dimensions on customer satisfaction, using the SERVQUAL framework to examine both online and offline service experiences. The study is significant for fast food restaurant managers as it provides insights for retaining customers by enhancing service quality, especially in the post-pandemic era, where customer expectations and competitive dynamics have shifted. Using a survey-based methodology, this research seeks to generate findings that inform strategies for achieving sustained customer satisfaction and loyalty. The structure of this article is organised to systematically address the research objectives. The second section provides a comprehensive review of the relevant literature, discussing the role of service quality dimensions such as food quality, service excellence and physical environment in driving customer satisfaction, with specific reference to the fast food industry and cultural context in Pakistan. The third section details the methodology, explaining the research design, sampling techniques and data collection methods, specifically the application of the SERVQUAL framework to measure both online and offline service quality perceptions. The fourth section presents the empirical findings, examining how different service quality factors impact customer satisfaction across various demographic groups and analysing the relationship between customer satisfaction and loyalty. The fifth section discusses the implications of the findings, offering insights into how fast food restaurants can enhance service quality and retain customers amid evolving post-pandemic challenges. Finally, the sixth section concludes the article, summarising the study's contributions, limitations and suggestions for future research directions.

Literature Review

In this section, the relationship between service quality dimensions and customer satisfaction in the fast food sector is examined, with a focus on identifying gaps and critically assessing existing findings. Studies, such as those by Adriatico et al. (2022), reveal that while fast-casual dining establishments meet customer expectations to a degree, service quality alone may not be a reliable predictor of customer loyalty, highlighting the need for a broader approach to understanding satisfaction. Abdul Razak et al. (2019) find responsiveness and tangibility as primary drivers of satisfaction in Malaysian local restaurants, whereas other dimensions like reliability and assurance are less influential, raising questions about the consistency of these service factors across different settings and cultures.

Murad (2015) further emphasises that customer loyalty in Pakistani restaurants is significantly impacted by specific service dimensions, yet the study's focus on limited demographic groups suggests that broader conclusions may require more diverse sampling. Research by Rajput and Gahfoor (2020) identifies revisit

intention as a key outcome of satisfaction in fast food contexts, yet they observe that word-of-mouth influence on revisit intentions is weak, challenging assumptions about social influence in customer retention strategies. Similarly, Putta (2023) demonstrates that tangible factors most strongly influence satisfaction, but the study lacks an examination of how other factors, like empathy or assurance, perform over time. Moreover, studies such as Villanueva et al. (2023) and Zibarzani et al. (2022) reveal emerging post-pandemic challenges, such as the increased demand for innovation and the growing influence of online service quality. However, the limited scope of these studies to specific geographical areas underscores the need for broader, cross-cultural research to generalise findings. Hsinkuang et al. (2019) and Harr (2008) address demographic variations in service quality perception, particularly highlighting differences in senior versus younger customer satisfaction in dining settings. Yet, these studies primarily focus on high-end dining experiences, limiting their applicability to fast food or fast-casual sectors. This review identifies a critical need for further research on the interplay between online and offline service quality factors, particularly given the increasingly digital landscape of customer engagement post-pandemic. Moreover, demographic diversity in sampling remains limited, which hinders generalisability across cultural and age groups. The literature also indicates gaps in understanding relative satisfaction, as proposed by Dick and Basu (1994), as a potentially more accurate predictor of repeat business. This critical review suggests that future studies should not only examine these gaps but also incorporate multi-dimensional analyses to better capture the nuanced influences on customer satisfaction and loyalty in fast food settings. Adriatico et al. (2022) assess service quality and customer satisfaction in two fast-casual dining restaurants located in Nueva Vizcaya, Philippines. Using a modified SERVQUAL instrument and weighted mean analysis, the research measured both service quality and satisfaction levels. The findings revealed that the fast-casual restaurants successfully met customer expectations, delivering commendable service quality. Key factors influencing customer satisfaction included the restaurant's physical design, pricing of products and responsiveness of the staff (Adriatico et al., 2022). Abdul Razak et al. (2019) report that the restaurant business has evolved due to changing customer preferences and demands. Entrepreneurs must be flexible and adaptable to meet these changes to maintain customer satisfaction and loyalty. This study investigates key dimensions of service quality in local restaurants in Bukit Jelutong, Malaysia. A survey of 238 customers revealed that only responsiveness and tangibility were supported, while assurance, empathy, price and reliability were significant. This suggests further investigation into service quality factors and suggests that managers consider strategies to sustain and maintain customer satisfaction (Abdul Razak et al., 2019). Murad (2015) examines service quality and its impact on customer satisfaction in the Pakistani restaurant industry. The study explores how various dimensions of service quality influence customer loyalty and perception. Using a questionnaire-based approach, data were collected from 152 respondents representing diverse demographic backgrounds. The findings indicate a significant relationship between service quality factors—tangibles, assurance, responsiveness, reliability and empathy—and customer satisfaction. Given the rapid growth of the

restaurant industry in Pakistan, maintaining high levels of service quality and customer satisfaction is essential to ensure a positive and enjoyable dining experience (Murad, 2015). Rajput and Gahfoor (2020) examine the positive relationship between food quality, restaurant service quality, physical environment quality and customer satisfaction with revisit intention in fast food restaurants. Data were collected from 433 customers, and the findings indicate that word of mouth does not positively moderate the relationship between customer satisfaction and revisit intentions. The study underscores the importance of revisit intention as a crucial behavioural response in fast food restaurants (Rajput & Gahfoor, 2020). Putta (2023) found a significant positive relationship between service quality and customer satisfaction in restaurants. Tangible service quality had the most influence on customer satisfaction, followed by food quality, menu, reliability, assurance, responsiveness and empathy. Villanueva et al. (2023) report that the COVID-19 pandemic has led to a decline in fast-food restaurants, but innovation and recovery are crucial for their recovery. A study examining service quality, customer satisfaction and loyalty in Pasay City, Philippines, found that fast-food restaurants met customer expectations, but innovation had the lowest rating among other dimensions. The study suggests implementing innovative strategies to adapt to the new normal setting and remeasure service quality to develop innovative strategies without compromising customer satisfaction (Villanueva et al., 2023). Hsinkuang et al. (2019) review existing literature on customer satisfaction and key influencing factors within the restaurant service context through a meta-analysis approach. A conceptual framework was developed to examine the interrelationships among these factors. The meta-analysis incorporated 35 research studies published in leading tourism and hospitality journals and was tested using data from 334 respondents across three traditional restaurants in Ho Chi Minh City, Vietnam. The results highlight that the accuracy of meta-analytic findings holds significant implications for both academic research and industry practice, offering valuable insights and directions for future studies (Hsinkuang et al., 2019). Harr (2008) explores customer satisfaction in Singapore's fine dining restaurants, focusing on service dimensions such as assurance, empathy and tangibles. The findings suggest that these dimensions positively influence customer satisfaction, and recommendations are made for restaurateurs to improve their services to achieve higher levels of satisfaction . Alaa and Som (2015) examine staff restaurant processes and their relationship with service quality (SQ) and total quality management (TQM) in the hotel industry. It introduces a new SQ measurement model that incorporates staff performance, making it more comprehensive and better reflecting actual SQ situations (Alaa & Som, 2015). Zibarzani et al. (2022) aim to explore consumer satisfaction and preferences for restaurants during the COVID-19 crisis using online reviews. A hybrid approach was developed, combining clustering, supervised learning and text mining techniques. Decision trees were used to cluster customer preferences, while latent Dirichlet allocation (LDA) was employed for textual data analysis. A theoretical model was constructed to examine the relationships between restaurant quality factors and customer satisfaction using partial least squares (PLS) techniques. The study evaluated this

approach using a data set from the TripAdvisor platform. Future research directions are suggested based on the study's limitations (Zibarzani et al., 2022). Zygiaris et al. (2022) examine the impact of service quality on customer satisfaction in the post-pandemic auto care industry. The study found that empathy, reliability, assurance, responsiveness and tangibles significantly contribute to customer satisfaction. Workshops must recognise these factors and provide personal attention, friendly greetings, timely delivery and clear communication of services. Proper service quality is aided by prompt services (Zygiaris et al., 2022). Zhou et al. (2019) investigate the influence of service quality on customer satisfaction in the post-pandemic auto care industry. The findings reveal that empathy, reliability, assurance, responsiveness and tangibles all play a significant role in shaping customer satisfaction. Auto care workshops should focus on these key factors by offering personalised attention, friendly interactions, timely service delivery and clear communication about their offerings. Maintaining high service quality is further strengthened through efficient and prompt service (Zhou et al., 2019). Lee et al. (2012) explore how senior citizens perceive restaurant services and how their perceptions differ from those of younger customers. The findings reveal notable differences in satisfaction levels between older and younger diners, although no significant relationship was found between satisfaction and perceived service quality. The research provides valuable insights for restaurant managers and can guide the development of effective marketing strategies aimed at attracting and retaining senior customers (Lee et al., 2012). Hong and Prybutok (2008) aim to develop a model and metrics to measure service quality in fast-food restaurants (FFRs). The modified SERVPERF instrument was administered to college students at a south-western university. The study found that five dimensions positively influence service quality perception, and that service quality and customer satisfaction are important antecedents of customer intention. However, no significant relationship was found between service quality and customer satisfaction. Food quality is a significant factor in satisfaction. FFR managers should focus on monitoring and improving service quality and food quality to drive repurchases (Hong & Prybutok, 2008). Zibarzani et al. (2022), using a data set gathered from the TripAdvisor platform, assessed the proposed methodology. Considering the study's limitations, the results of the two-stage methodology were analysed, and recommendations for future research were provided (Zibarzani et al., 2022).Managers should prioritise key food quality characteristics that enhance customer satisfaction and encourage repeat business in the restaurant industry. Namkung and Jang (2007) argue that social conformity theory falls short when consumers experience quality and satisfaction, as word of mouth does not impact their intention to revisit. Rajput and Gahfoor (2020) evaluated an approach using TripAdvisor data set, discussed outcomes and suggested future research directions (Zibarzani et al., 2022). The hypotheses in your research on service quality and customer satisfaction are supported by multiple studies in the literature.

H_1: There is no association between service quality factors with respect to demographic factors.

This hypothesis is partially aligned with Lee et al.'s (2012) study, which found no significant relationship between satisfaction and perceived service quality among senior citizens, indicating that service quality perception may not always be influenced by demographic factors. Similarly, Harr (2008) suggested that service dimensions like assurance and empathy have a positive impact on customer satisfaction across demographics, but did not emphasise strong demographic variance.

H_2: There is an effect of demographic factors on service quality factors.

Contrarily, studies like Abdul Razak et al. (2019) indicated that responsiveness and tangibility were the only factors supported across demographics, while other factors like reliability and assurance differed. This suggests that demographic factors can influence how customers perceive service quality, as shown by differences in expectations across regions or age groups.

H_3: There are positively associated service quality factors with respect to online and offline service quality satisfaction.

Zibarzani et al. (2022) explored online reviews to evaluate customer satisfaction and highlighted that online service quality (e.g., response time, clarity) is a significant predictor of customer satisfaction, much like traditional service dimensions. Additionally, Zhou et al. (2019) confirmed a positive relationship between e-service quality and customer satisfaction in telecom settings, supporting this hypothesis across different service contexts.

Methodology

In this section, a quantitative approach is adopted to examine the relationship between service quality dimensions and customer satisfaction within the Indian restaurant industry. The study utilises a descriptive survey design supported by a structured questionnaire based on the SERVQUAL model. This model assesses five key dimensions of service quality: Tangibility, reliability, responsiveness, assurance and empathy. The questionnaire includes both demographic items (such as age, gender, income level and dining frequency) and Likert-scale statements (ranging from 1 to 5) to measure customer perceptions of service quality and satisfaction. Data will be collected through a combination of online and offline surveys to ensure participation from respondents with and without Internet access. Online surveys will be distributed through Google Forms, while paper-based questionnaires will be provided in select restaurants (Simonin, 1999). For analysis, we have used IBM SPSS Statistics 24 and AMOS. Descriptive statistics will summarise respondent demographics and overall service quality perceptions. Factor analysis will identify key service quality dimensions, while multiple regression analysis will examine the predictive relationships between these dimensions and customer satisfaction. Correlation analysis will further explore the impact of demographic factors on

service quality perceptions. The study targets customers across India, specifically those who have recently dined in or ordered from restaurants. A stratified random sampling method will ensure diverse representation across demographic segments and restaurant types (e.g., fast food, casual dining, fine dining), aiming for a sample size of 600–650 respondents. Data collection will focus on metropolitan areas like Delhi, Mumbai, Bengaluru and Hyderabad to capture a range of cultural and dining preferences. Alternative methods could also be considered for a broader understanding of customer satisfaction dynamics. For instance, a qualitative approach, such as in-depth interviews or focus groups, would allow for detailed insights into individual customer experiences. Additionally, longitudinal studies could track customer satisfaction over time, providing insights into how service quality perceptions evolve with changing dining trends (Robson et al., 2008). In addition, to ensure the model's validity and reliability, we assessed the scale's ability to accurately capture the intended construct. In other words, this indicates that the measurement items adequately represent the underlying concept (Sekaran, 2006). Content validity was established in two stages. First, the questionnaire items were reviewed and refined by several marketing experts to ensure clarity and relevance. Second, constructive feedback on the comprehensibility of the items was obtained from 100 respondents who completed the questionnaire. Factor analysis was then used to assign the items to their corresponding factors (Fornell & Larcker, 1981). Composite reliability (CR) p is calculated for each construct using PLS structural equation modelling and Cronbach's coefficient α (Cronbach, 1951).

Results and Discussion

In Table 1, Cronbach's alpha was used to assess the internal reliability of the four items that are process-related factors, people-related factors, the physical environment of the restaurant and performance factors. Cronbach's alpha for the overall scale was 0.82, according to the results. The final reliability of the resulting four-item scale was considered acceptable, $\alpha = 0.82$.

In Table 2, researchers obtained data from 630 respondents in this study, 274 (43.5%) of whom were female and 356 (56.5%) were male. The bulk of investors was between the ages of 19 and 33, with 305 (48.4%) respondents falling into this category. Only 27 (4.3%) of those polled were between the ages of 29 and 33. More than 122 (19.4%) responders were over the age of 34. Researchers

Table 1. Results and Interpretation of Reliability Statistics.

Questions	No. of Items	Reliability Result
Process-related factors	8	0.794
People-related factors	9	0.778
Physical environment of restaurant	10	0.845
Performance factors	10	0.880

Source: Self-constructed from the questionnaire data.

Table 2. Results and Interpretation of Demographic Factors.

Sr. No.	Demographic Factors	Descriptions	Responses	%
1	Gender	Male	356	56.5
		Female	274	43.5
		Total	630	100.0
2	Age	Below 18	68	10.8
		19–23	305	48.4
		24–28	108	17.1
		29–33	27	4.3
		34 and more	122	19.4
		Total	630	100.0
3	Marital status	In relationship	21	3.3
		Married	222	35.2
		Unmarried	387	61.4
		Total	630	100.0
4	Occupation	Salaried	169	26.8
		Businessman	94	14.9
		Professional	109	17.3
		Retired	258	41.0
		Total	630	100.0
5	Monthly income	Below 30,000	413	65.6
		30,000–50,000	105	16.7
		50,000–70,000	55	8.7
		70,000 or more	57	9.0
		Total	630	100.0

Source: Self-constructed from the questionnaire data.

discovered that the bulk of respondents, 387 (61.4%), were unmarried, followed by married respondents, 222 (35.2%), when they examined the marital status of the respondents. Only 21 (3.3%) of the respondents were in a relationship. In terms of occupation, 258 (41%) of respondents were retired, followed by salaried people (169) (26.8%). In the case of the monthly income majority, 413 (65.6%) of respondents had a monthly income of less than ₹30,000, followed by 105 (16.7%) with a monthly income of ₹30,000–₹50,000. There were 57 (9%) respondents earning ₹70,000 or higher.

In Table 3, customers' perceptions of restaurant dining experiences—shaped by products, facilities and ambience—are closely tied to their emotions and psychological needs. The concepts of customer satisfaction and service quality have long been central to restaurant industry management. Research on these key drivers of business success has evolved considerably within the tourism and

Table 3. Results and Interpretation of Weighted Average Means of Service Quality Factors.

Particulars (Process-related Factors)	NI	SI	MI	I	VI	WAM
Customer side application system	13	24	64	270	259	4.17
Restaurant side application system	9	28	82	283	228	4.1
Payment system (UPI, cash, net banking and others)	9	23	70	160	368	4.35
Delivery system for take-away orders	14	34	71	220	291	4.17
Rewards, offers and discount coupons	35	27	75	270	223	3.98
Order tracking system	13	16	62	239	300	4.26
Serving style and facilities	3	18	51	219	339	4.39
Time for food preparation	10	14	38	186	382	4.45
Particulars (People-related Factors)	**NI**	**SI**	**MI**	**I**	**VI**	**WAM**
Welcome staff	14	30	86	227	273	4.13
Employee behaviour	10	3	38	165	414	4.54
Experienced employee	7	25	95	224	279	4.17
Make you feel special	7	25	100	251	247	4.12
Focus on customers' special request	13	8	47	218	344	4.38
Peer group influence	14	29	140	293	154	3.86
Past experience of consumers	8	29	56	264	273	4.21
Celebrities endorsement	42	41	160	237	150	3.65
Provide ease of selection to customers	13	12	94	252	259	4.16
Particulars (Physical Environment of Restaurant)	**NI**	**SI**	**MI**	**I**	**VI**	**WAM**
Lighting, temperature and aroma	7	4	50	202	367	4.46
Background music	10	20	115	289	196	4.01
Interior design	4	20	95	205	306	4.252381
Seating arrangements	11	12	40	182	385	4.45

(Table 3 continued)

(Table 3 continued)

Particulars (Physical Environment of Restaurant)	NI	SI	MI	I	VI	WAM
Signals for direction	13	31	98	227	261	4.09
Walking space	15	19	77	241	278	4.18
Location	5	5	53	161	406	4.52
Overall environment and safety	12	11	36	190	381	4.45
Parking facilities	6	10	45	162	407	4.51
Architecture of restaurant	6	23	74	269	258	4.19
Particulars (Performance Factors)	NI	SI	MI	I	VI	WAM
Quality of food	1	4	11	69	545	4.83
Taste of food	4	2	22	133	469	4.68
Healthy	3	4	39	106	478	4.66
Portion size of food in restaurant	8	21	43	229	329	4.34
Served at appropriate temperature	18	12	40	229	331	4.33
Food presentation	0	20	54	255	301	4.32
Provide better value for money	7	9	62	187	365	4.41
Services during waiting time	6	12	60	217	335	4.36
Hygiene/cleanliness	6	11	23	129	461	4.63
Gratuitous performance	4	10	53	212	351	4.42

Source: Self-constructed from the questionnaire data.

Note: The yellow-shaded cells highlight the service quality factors that received the highest Weighted Average Mean (WAM) within their respective categories. These values represent the most influential or most strongly perceived factors by customers in shaping their restaurant dining experience. By shading these top-scoring items, the table allows readers to quickly identify the dimensions of service quality that customers consider most important whether related to processes, people, physical environment, or performance. Emphasising these top-ranked variables makes it easier to interpret the results and recognise key priority areas for restaurant managers seeking to improve customer satisfaction and overall service quality.

hospitality sectors. In particular, the hotel and tourism industries place strong emphasis on delivering exceptional customer service, recognising it as a vital source of competitive advantage (Shyju et al., 2023). The ability of an organisation to satisfy quality benchmarks and surpass customer expectations of service quality is essential to the survival and development of the tourism and hospitality industries. Since 2006, there has been a continuous increase in the number of

publications on the service quality factors in the restaurant industry, highlighting the importance of the study topic once again in this article (Hair et al., 2016).

Before developing the model, several validation tools were applied to ensure its robustness. The convergent validity of the measurement model (outer model) was assessed using CR to evaluate internal consistency, individual indicator reliability and average variance extracted (AVE) (Nunnally, 1978). Indicator reliability measures the extent to which an item's variance is explained by its corresponding construct. Outer loadings were used to assess this reliability. Higher loadings (e.g., 0.70 or above) indicate strong shared variance between the item and its construct. The CR values for all latent variables were found to exceed 0.80, confirming a high level of internal consistency (Fornell & Larcker, 1981).

In Figure 1, the researcher has selected 12 factors from the 37 factors in the preceding picture, which correspond to restaurant service quality factors. The researchers chose service quality parameters to establish, which factors the restaurant sector must consider for maximum customer satisfaction. Researchers conducted factor analysis to discover the 12 factors that are important. ChatGPT said: The study identifies four key dimensions influencing customer satisfaction. Process-related factors include the take-away order system, order tracking system and food preparation time. People-related factors involve attention to customers' special requests, the influence of peer groups and efforts to make customers feel valued. Physical environment factors encompass walking space, restaurant architecture and directional signage. Performance-related factors refer to appropriate food temperature, food presentation and portion size. The findings reveal that the take-away order system is a particularly significant factor for customers, highlighting the need for restaurants to focus on enhancing the efficiency and quality of their take-away services. The order tracking system is also an important factor, because they are considered, and time for the food and its preparation is a significant factor. People-related elements in the industry must focus on particular requests and comments from customers to make them feel like special clients. While visiting a restaurant, the staff of the restaurant must focus on it; thus, the restaurant sector must provide training to employees on how to manage clients in the restaurant. If we look at the physical environment of the restaurant, we can see that walking space, restaurant architecture and directional signals are all highly important considerations for the restaurant sector. When we go to a restaurant, we focus on the walking space, the signal for the parking direction and the signal in the restaurant at that location. So here the restaurant has to focus on the food preparation and the temperature of the food; if it is cold, then they do not like the food, so they have to concentrate more on the food and their time.

In Figure 2, customer satisfaction encompasses pleasure and well-being. Consumer satisfaction grows as a result of receiving what the consumer expects from the service. Customer satisfaction is widely studied in the fields of consumer behaviour and social psychology. Customer satisfaction is defined as 'the customer's particular assessment of the consumption experience, based on convinced associations between the customer's perceptions and objective product characteristics' (Pizam et al., 2016). Customer satisfaction is the degree to which a consumption experience elicits positive emotions. Customer satisfaction is
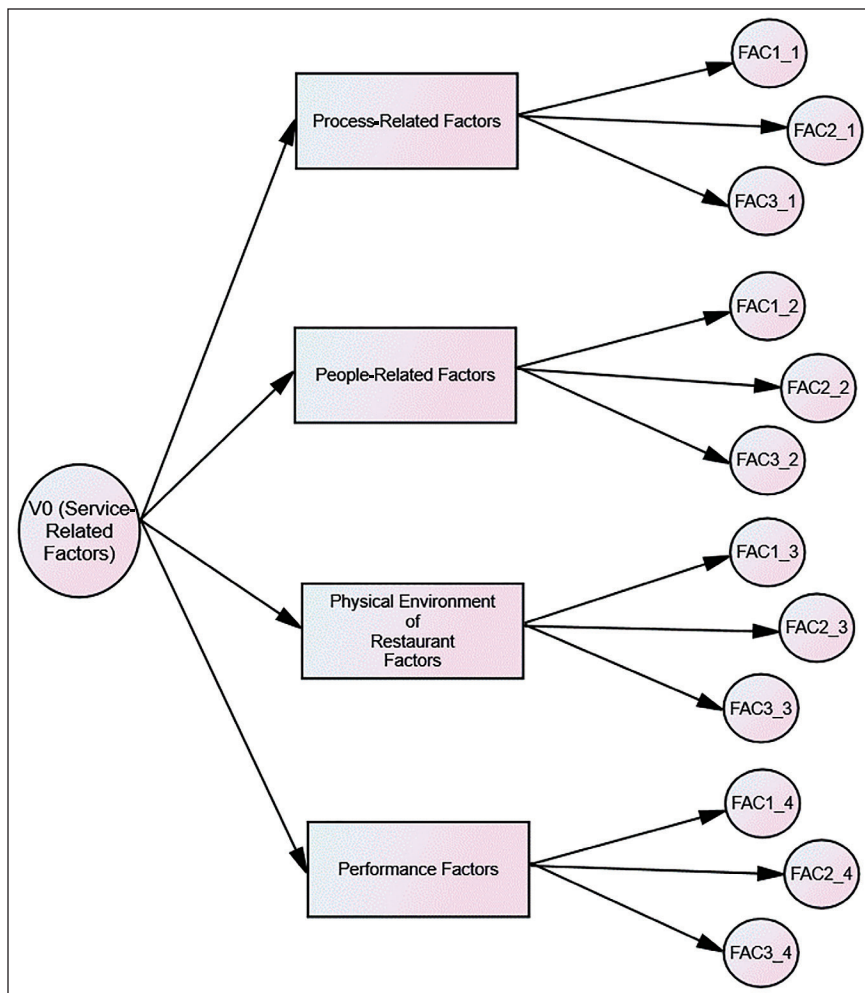
Figure 1. Result of Factor Analysis with Reference to Restaurant.

Source: Self-constructed from the questionnaire data.

defined as 'a comparison of the level of product or service performance, quality, or other outcomes perceived by the consumer with an evaluative standard' (Westbrook & Oliver, 1991). Customer satisfaction is defined as a customer's comprehensive opinion of an experience. Client satisfaction is a result of meeting the needs of the client. Customer satisfaction leads to increased recurrent purchase behaviour and referral intent (Prayag et al., 2017). Dissatisfied consumers are uncertain to return to the place (Alegre & Garau, 2010). A satisfying restaurant experience can increase the consumer's desire to return. Customers generate positive word of mouth when they are satisfied with the brand and also receive excellent core offerings and high-quality service (Sivadas & Jindal, 2017).
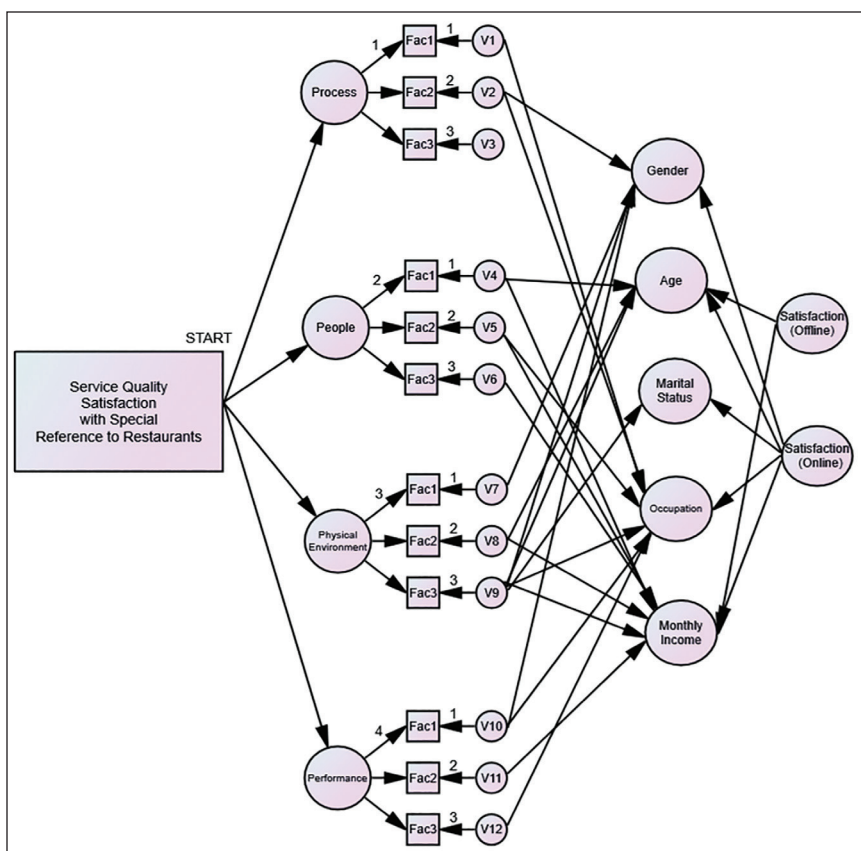
Figure 2. Demographic Factors and Its Impact on Service-related Factors in Tune with Restaurant.

Source: Self-constructed from the questionnaire data.

Conclusion

This study provides critical insights into the service quality dimensions that drive customer satisfaction in the restaurant industry, specifically in the Indian context. By examining factors like take-away order management, customer attentiveness to special requests, physical layout and food presentation, the study sheds light on the multi-dimensional nature of service quality and its strong link to customer satisfaction. This research is significant as it addresses key operational aspects—process-related factors, people-related factors, physical environment and performance factors—that are often overlooked but are crucial for enhancing customer satisfaction in a competitive market. First, process-related factors: System for take-away orders, order tracking system and time for food preparation. Take-away orders: It is crucial to have a system in place for managing take-away orders. Orders placed over the phone, online through a website or app or in person

at the restaurant may all fall under this category. This procedure can be made more efficient to assure accuracy and client satisfaction. Order management software: It is critical to implement software that keeps track of orders from the time they are placed until they are delivered or picked up. By doing so, errors may be avoided, orders can be tracked, and customers can get real-time updates on their orders. Kitchen efficiency: The amount of time spent cooking is crucial. To ensure that orders are produced fast without sacrificing quality, the kitchen staff should be well-trained, and workflows should be optimised. Second, people-related factors: Focus on customers' special requests, peer group influence and making you feel special. Focus on special requests: The dining experience can be greatly improved by making sure staff members pay attention to and meet clients' special requests or dietary restrictions. Peer group influence: To account for peer group dynamics, consider seating configurations that accommodate various groups, such as families, couples or bigger gatherings. Making customers feel special: Giving customers individualised care, such as remembering their names and preferences, may establish a deep emotional bond and make clients feel appreciated. Third, physical environment of restaurant: Walking space, architecture of the restaurant and signals for direction. Walking space: Make sure there is enough room among tables or sitting places so that customers and staff may move about without feeling crowded. For customers with disabilities, accessibility can be further enhanced by providing enough walking space. Architecture and interior design: The restaurant's architecture and interior design should align with its theme, concept and target demographic. The ambience created by the decor, lighting and layout should complement the dining experience. Directional signage: Directional signage may enhance both the customer experience and safety by clearly and strategically placing signs that point to the toilets, emergency exits and particular parts of the restaurant. Fourth, performance factors: Food served at an appropriate temperature. Food presentation: Portion size of food in the restaurant. Food served at appropriate temperature: Temperature control: Food safety and flavour both depend on serving it at the proper temperature. Cold meals ought to be chilled, and hot dishes ought to be heated. This covers the right temperatures for cooking, serving and storing. Food presentation: Plating and garnishing: A diner's opinion of a dish can be significantly influenced by how it is presented on the plate. A meal can be more aesthetically pleasing by paying attention to the plating, garnishing and arrangement of its components. Portion size: Portion sizes should match the menu's description and cost while also satisfying customer expectations. The perception of value and consumer satisfaction might be affected by excessively large or small amounts. One limitation of this study is its geographic scope, as data collection was restricted to major Indian metropolitan areas. Future research could broaden this scope to include rural and semi-urban areas to explore any regional variations in service quality perceptions. Another limitation is the exclusive use of a quantitative survey design, which, while providing valuable statistical insights, may not capture the nuanced, qualitative aspects of customer experiences. Future studies could adopt a mixed-methods approach, integrating qualitative interviews or focus groups to explore customer sentiments more deeply. Additionally, the study's focus on the SERVQUAL model and its

traditional dimensions of service quality might not fully account for emerging customer expectations, particularly regarding digital service integration and sustainability practices. As the restaurant industry continues to evolve, future research should explore how digital innovations, eco-friendly practices and customisation options affect customer satisfaction. In conclusion, this study not only offers actionable insights for restaurant managers aiming to enhance service quality but also sets a foundation for further research into the dynamic relationship between service quality dimensions and customer satisfaction in diverse dining contexts. Overall satisfaction level with respect to the restaurant online and offline.

Pleasant and content feelings are components of customer satisfaction. When clients receive the service as expected, customer satisfaction grows. Customer happiness is a topic that is extensively studied in social psychology and consumer behaviour. 'The customer's subjective assessment of the consumption experience, grounded on certain associations between the customer's perceptions and the objective characteristics of the product', is how customer satisfaction is defined (Pizam et al., 2016). Customer satisfaction measures how positively a purchasing experience makes the consumer feel. 'A comparison of the level of product or service performance, quality, or other outcomes perceived by the consumer with an evaluative standard' is how customer satisfaction is defined (Westbrook & Oliver, 1991). Customer satisfaction is defined as a customer's objective assessment of a particular experience. The result of meeting the needs of the consumer is customer satisfaction. Customers who are satisfied are more likely to make repeat purchases and recommend products to others (Prayag et al., 2017). Unhappy customers are hesitant to visit the establishment again (Alegre & Garau, 2010). A positive dining experience can increase a customer's desire to return. Customers who are satisfied with the brand and also desire a great core offering and high-quality service create positive word-of-mouth marketing (Sivadas & Jindal, 2017).

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Authors' Contributions

Conceptualisation: SV, AH and NT; Methodology: SV; Formal analysis: SV; Investigation: SV and NT; Data curation: SV and AH; Writing – original draft: SV; SV; Writing – review & editing: NT and SV; Visualisation: NT and SV; Supervision: SV; Project administration: NT and AH.

Consent for Publication

Yes.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author, SV, upon reasonable request.

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Benefits and Challenges in Complying Regulations on Labelling of Packaged Foods in Southeast Asia: A Short Review

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Abstract

Packaging and labelling of processed foods are one of the most important aspects. It contains important information for consumers to make purchase decisions. In addition, food brand owners make claims on their food packages like nutrient content and function, marketing and other claims like '100% natural' or organic, 'No MSG' and so on. Regulatory compliances not only help in mitigating risks, improving operations, and boosting reputation and brand image, but also helps the brand owners avoid penalties, builds trust and ensures sustainable growth by complying with the standards and regulations. While refining the efficiency of operations and data security, compliance with regulations can definitely help minimise the risk of penalties, lawsuits and tarnishing of reputation. On the other side, if the regulations are not harmonised, the monitoring mechanism and implementation system are inadequate, which stops consumers from receiving clear and easy-to-get information, which is required for making purchase decisions and to safeguard them from health issues arising from consuming unhealthy and poor-quality food.

This short review provides information about the current food package labelling policies, their benefits, and the various challenges faced by the international brand owners in the Southeast Asia region in complying with the regulatory standards on packaging and labelling of food products. The review also highlights some of the important issues faced by the consumer due to non-compliance of the regulatory standards on food packaging and labelling by the industry in the Southeast Asia.

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Keywords

Challenges, food packaging, labelling, consumer, regulatory compliance, Southeast Asia

Introduction

The package labelling is a vital component of any food package. Any food package has multiple functions to perform. It protects and preserves the product, informs the consumer about various ingredients present in the packaged food, its shelf life and traceability. It also alerts and warns about the quality of food, its freshness, safety and so on, while making purchase decisions. In addition, the brand owners make various nutritional and marketing claims like '100% natural' or 'organic', 'No MSG' and so on. Regardless of the age, gender and profession, the nutritional label on any packaged food appeals to the eyes of the consumer and helps them to make quick decisions and manage their healthy diet by viewing the information like ingredients, quality, quantity, serving size, expiry date, calories, safety and so on. Consumers are becoming more intent on knowing what they are consuming and the nutritional value they are getting. The label of packaged food helps the retail consumer to enhance the acceptance level and the desire to try new foods. Thus, the information provided on the food packaging label should be simple, concise and clear to attract the consumer and improve their purchase intention. Due to increased cultural exchange between the countries and increased economic interdependency, in recent past, a variety of foods has been moving through international trade. The researchers have found that the effective food label providing a recipe, a list of the ingredients, history and others, minimises the information gaps and increases food acceptance by global consumers. Thus, the matters regarding various issues arising due to improper or non-standard labelling are becoming noticeable globally (Azizan et al., 2024; Juikar & Warkar, 2023; Kasapila & Shaarani, 2011; Khalid, 2015; Lwin, 2015; Othman, 2007; Schulz, 2013; Tee, 2002).

Likewise, the solid waste generated from post-consumer food packaging material in Southeast Asia is a great concern due to the growing environmental burden posed by post-consumer waste. As the demand for sustainable packaging materials is growing day by day, the local governments in Southeast Asia have started implementing various food packaging regulations to help reduce the environmental impact posed by food packaging materials. They are encouraging brand owners to implement eco-friendly practices. In the future, food labelling seems to shift dramatically as consumer choices and regulatory compliance are evolving rapidly (Juikar & Warkar, 2023; Schulz, 2013).

Similarly, due to various diet-related diseases like diabetes, coronary heart disease and cancer, which are increasingly becoming a threat to public health. The pre-packaged food labelling being a key to successful foreign food trade, and the debates, such as differences in formats, size, verifiability, information provided and regulatory authorities, are increasing the challenges and concerns on the usefulness of the various prevalent regulations on packaged food labelling (Kasapila & Shaarani, 2011; Khalid, 2015; Tee, 2002).

With the increase in global trade, rising economic interdependency, and regulatory compliance for food packaging and labelling are becoming more and more crucial. Thus, regulatory compliance should ensure food safety and provide clear information to consumers, and also reduce the environmental burden. This is especially relevant in the Southeast, where international business and consumer demand are growing. The Southeast Asia region is approximately 4.5 million sq. km, earmarked geographically south of China, east of India and north of Australia, and includes Laos, Vietnam, Malaysia, Singapore, Cambodia, Thailand, Brunei, Myanmar, the Philippines, Indonesia and Timor-Leste. The population of this region is over 699 million, which is almost 8.5% of the world's total population. The regulators in the region of Southeast Asia have made various food packaging and labelling regulations in their respective countries. Most of the South Asian countries are complying with the eminent Codex guidelines when formulating their food packaging regulations. However, these regulations widely differ across the countries in this region, specifically with respect to the regulatory framework and also on the objectives, scopes and definitions of health claims (Azizan et al., 2024; Kasapila & Shaarani, 2011; Khalid, 2015; Othman, 2007; Schulz, 2013; Tan et al., 2015; Tee, 2002).

Due to the differences in country-wise regulations, the food packages need to be tested multiple times when they travel worldwide. On many occasions, the cost and time spent on testing the food packages either delays its supply or the product never reaches the destination market. Harmonisation of the food packaging regulations is likely to overcome this difficulty by streamlining the import–export procedures and will certainly improve the international food trade (Kasapila & Shaarani, 2011).

Various scientific and research organisations, namely the International Organization for Standardization, World Trade Organization (WTO), Codex Alimentarius Commission, International Union of Food Science and Technology and Global Harmonisation Initiative, on the international level, are working together, ceaselessly and encouraging countries in the region to reduce the differences in packaged-food labelling and to improve the synchronisation of packaged-food standards globally. They have formulated guidelines based on Codex Alimentarius standards, codes and related texts, which are recognised and endorsed in the WTO's agreements on the applications of sanitary and phytosanitary measures and technical barriers to trade. These guidelines elaborate on the regional requirements for labelling to be used for pre-packaged food products. The World Health Organization recommends that governments introduce front-of-pack nutrition labelling as a non-communicable diseases (NCDs) prevention programme. Providing such information on the front of food packaging panels in an easy format will assist consumers in purchasing healthy foods in an increasingly obesogenic environment. The efforts made by these organisations are definitely going to help in the harmonisation of food packaging and labelling regulations and to help improve public health, including world food trade (Kasapila & Shaarani, 2011; Khalid, 2015; Lwin, 2015; Pettigrew et al., 2022; Tee, 2002).

Benefits of Harmonising Food Packaging Standards

Most food products with distinct characteristics like local origin, traditional methods of making, better nutritional content, sustainability benefits and ethical considerations are liked by consumers. Thus, the food label is now a prominent way of communication between brand owners and consumers, which plays a vital role in purchase decisions. Some of the benefits of harmonising the food packaging standards are discussed below (Azizan et al., 2024; Kasapila & Shaarani, 2011; Khalid, 2015; Schulz, 2013):

1. Benefits to the consumers

    a. Consumers will benefit globally from the harmonisation of food packaging standards, as multiple regional recipes will be made available internationally by fulfilling their desire to get a global taste.
    b. They can also easily compare the nutrition values of competitors' foods and have nutritious food options, and the advantage of increased health benefits.
    c. Consumers will have the availability of uniform and easy-to-use nutritional information.
    d. Consumers will have the availability of better options for healthy, nutritious and safe food, improved diet and better purchasing power.
    e. Consumers will also benefit from a reduced rate of chronic disease, and thus reduced medical costs.

2. Benefits to brand owners

    a. Harmonisation of food packaging standards will enable brand owners to comply with a single set of internationally harmonised regulations instead of managing the various national standards.
    b. The brand owners will gain entry to new markets and opportunities for trading in international trade.
    c. It will have consistency in nutritional profile and presentation.
    d. Improved product quality as a result of increased global competition.
    e. Simplified import–export procedure and thus reduced trading costs. Ultimately, they will have improved profit figures.

3. Benefits to the government

    a. The governments will also benefit from better economic growth due to the effective increase in trade and improved public health.
    b. Improved food export figures and increased gross domestic product (GDP).
    c. Better public health as a result of the reduced rate of chronic disease.

Common Challenges in Harmonising the Standards on Packaged Food Labelling

Harmonisation of the standards on packaged food labelling will certainly help brand owners, consumers and the government. However, harmonisation of these regulations may also give rise to some challenges.

Various technical and regulatory challenges in food labelling are being regularly addressed by the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU) and other similar committees. Guidelines are also set and amended from time to time by the Codex Committee on Food Labelling (CCFL) to help the consumers make their purchase decisions. However, despite their efforts, there are multiple challenges in food labelling. These challenges are discussed below (Kasapila & Shaarani, 2011; Khalid, 2015; Lwin, 2015; Pettigrew et al., 2022; Tee, 2002).

1. Compliance with regulatory authorities

    a. The food labelling regulations, being country-specific, complying with these diversified standards is challenging for many multinational food brand owners and manufacturers, as these regulations are frequently updated.
    b. In addition, difficulty in regularly updating the food packaging standards, the need for a sufficient number of accredited laboratories, redesigning and validating food packaging materials, reinforcing administrative set-ups, and experienced manpower, create effective collaboration and knowledge sharing among stakeholders, and efficiently monitoring the surveillance and enforcement of the adopted standards, as these are also some of the additional challenges.

2. Packaging constraints

    a. The space on the food package is limited. So, it is very difficult to accommodate all the mandatory information in specific formats and in a specific language, their font size, pictures and so on. Similarly, it is too difficult to ensure that these labels are not misleading, easily visible, clear and aesthetically presentable.

3. Accuracy of nutritional information

    a. Providing complete nutritional information accurately and concisely is necessary for customers to make quick and right purchase decisions. However, due to differences in the quality and quantity of ingredients used, processing techniques and serving sizes, authenticating particular nutritional information is difficult. In addition, it is not easy to validate the quality and consistency of the nutritional values across the different lot sizes of the same product.

4. Marketing and advertising claims

    a. Many brand owners, especially multinationals, include various claims like health, sustainability, organic status and so on. The consumers are inclined to underestimate the information, like the calorie content of fast food that has the 'healthy' claim, and thus overeat. It becomes challenging to validate and authenticate on the food labels, as time and cost are involved to get it tested by authorised organisations.

5. Linguistic and cultural barriers

a.   Globally, the linguistic and cultural variations make food labelling challenging, as translating any information into various languages accurately is a difficult task.

6.   Allergy labelling

a.   Consumers having food intolerance or allergies, for them, appropriate allergy labelling is very important. It is challenging to identify and provide all the potential allergic information in the case of many processed foods, which are made up of many ingredients. In addition, maintaining the strict protocols and traceability across the distribution channel to avoid accidental allergen exposure is also challenging.

7.   Educating consumers

a.   Various symbols, nutritional information and emblems are provided on food labels. While purchasing packaged food products, many times, consumers may find it difficult to understand food labels that are too technical or scientific in nature. The customers in the region have different understanding levels and are language dependent. Thus, educating consumers so that they can properly interpret these symbols and technical information, and providing clear, concise and standardised information to improve their understanding and decision-making is a difficult task.

8.   Increased cost towards harmonisation, compliance and monitoring

a.   Increased cost to brand owners: The increased costs of compliance, implementation and monitoring of the internationally harmonised regulations and increased expenditure due to the cost towards training for familiarisation with the regulations will have to be borne by the brand owners, which will be compensated by increasing the cost.

b.   Increased cost to consumers: Consumers will also have to pay higher food prices due to the added cost of harmonisation by the brand owners.

c.   Increased cost to government: Government has to bear the burden of expenditure due to additional costs for harmonisation, costs for enforcement and monitoring, costs of surveillance and compliance, and costs for educating the consumers to improve their understanding.

9.   Risk of cross-contamination and spread of food-borne illness

a.   The harmonisation of food labelling standardisation and its compliance globally may result in global food safety issues, as contaminated or infected food may become a vehicle for food-borne pathogens. And food trade may become a mechanism for the spread of food-borne illnesses to consumers in global markets. 80%–90% of cases of salmonellosis, an acute diarrhoea, have been shown to be imported cases as a result of food contamination.

In addition, various instances have shown that the standard harmonisation process is very complex due to issues like differing levels of development capacities in some of the countries. This will hamper the progress of harmonising the standard. Moreover, the harmonisation of food labelling standards, such as the labelling of pre-packaged food, applies to a plethora of products and is meant for a diverse population of consumers. Therefore, the food packaging regulations need to be

harmonised, keeping in mind the future scenario driven by innovations in the food industry and the changing purchasing habits of the modern consumer. For instance, most of the consumers are now buying their food products online. These consumers have the same need for clear, essential information as those who shop in their local supermarket. As such, the aim of internationalising food standards should primarily be to create legislation that is flexible enough to be easily adapted as consumer trends evolve, and wide-reaching in its approach to ensure that there is consistency in the approach (Khalid, 2015).

Conclusion

Diverse packaged food labelling standards and regulations have been published and implemented in various countries in Southeast Asia. The current food packaging and labelling regulations in the Southeast Asia region are preventing consumers from the benefits of fulfilling their fundamental right to get clear and accessible information for improved purchase decisions. These regulations have also created many concerns and challenges for multinational brand owners in trading among the countries. Now it is high time to frame the globally harmonised guidelines for food packaging and labelling regulations to improve global food safety. The globally harmonised standards will help the brand owners with increased global trading potential, which will ultimately help consumers and the government. However, while harmonising these standards, some of the challenges that may arise, as discussed in this article, need to be addressed to increase the benefits of harmonisation.

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India–Singapore Trade and Investment Relations Within the Framework of India's Act East Policy

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Abstract

Singapore is among India's most significant trade and investment partners in the Association of Southeast Asian Nations (ASEAN). Bilateral economic exchanges have expanded strongly in recent decades, especially after the conclusion of the India–Singapore Comprehensive Economic Cooperation Agreement (CECA) in 2005. The role and position of Singapore have been increasingly affirmed in its relationship with India since India launched the Look East Policy in 1991 and upgraded it to the Act East Policy in 2014. It has good trade and investment relationships, and Singapore acts as a gateway and bridge connecting India with other ASEAN countries. In this study, the authors analyse the two countries' existing cooperation mechanisms and frameworks, and the results of trade and investment between them.

Introduction

Trade and investment ties between India and Singapore have thrived over the past three decades, particularly within India's Act East Policy framework. Initially launched in the early 1990s as the Look East Policy and later upgraded to the Act East Policy in 2014, this policy aims to strengthen economic, strategic and cultural ties with Southeast Asian countries, with Singapore being one of the most important strategic partners. With its strategic position as Asia's leading financial centre, Singapore has become an attractive destination for Indian businesses

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seeking opportunities to expand into international markets. The two countries have established strong trade and investment relations driven by numerous bilateral agreements. The signing of the India–Singapore Comprehensive Economic Cooperation Agreement (CECA) in 2005 marked a significant milestone, providing a legal foundation for promoting trade in goods (TIG), services and investment between the two nations.

The close relationship between India and Singapore has its roots in solid ties of trade, culture and people-to-people connections that span over a millennium. The more modern aspect of this relationship is often attributed to Sir Stamford Raffles, who established a trading post in Singapore in 1819 along the Strait of Malacca, which later became a British crown colony and administered Kolkata until 1867. These colonial-era linkages entrench the use of English, shape administrative practices and support the presence of an Indian community in Singapore. Following Singapore's independence in 1965, India was among the earliest countries to extend diplomatic recognition.

The end of the Cold War and India's balance of payments crisis in 1991 created strong incentives for New Delhi to recalibrate its external economic strategy. The collapse of the Soviet Union reduced India's traditional economic and political anchor, while the crisis underscored the limitations of a state-led, import-substitution industrialisation model. Economic reforms and gradual liberalisation were therefore combined with an external reorientation towards dynamic Asian economies. In this context, Indian Prime Minister P. V. Narasimha Rao introduced the 'Look East Policy' to strengthen political and economic cooperation with the Association of Southeast Asian Nations (ASEAN) region, and Singapore quickly emerged as one of India's most responsive partners.

The relationship between India and Singapore is based on shared values, common approaches, economic opportunities and a convergence of interests on critical issues. The two sides maintain close political dialogue and defence cooperation, have steadily broadened their economic and technological partnership, and nurture extensive cultural and people-to-people linkages. Their interaction is structured through more than 20 standing mechanisms, ranging from high-level dialogues and ministerial forums to regular military exercises and sectoral working groups. Both countries converge on many international issues and are members of several forums, including the East Asia Summit, G20, Commonwealth of Nations, Indian Ocean Rim Association (IORA) and Indian Ocean Naval Symposium (IONS), which helps align their positions on key international and maritime issues.

India's Act East Policy represents a significant shift in the country's foreign policy strategy. It marks a major paradigm shift, reflecting a strategic reorientation towards East and Southeast Asia. The Act East Policy has emerged as an essential diplomatic initiative and a crucial driving force in India's foreign relations.

Trade and Investment Cooperation Framework Between India and Singapore

The substantial growth in India–Singapore trade and investment has been underpinned by a comprehensive set of bilateral and regional cooperation

frameworks. These frameworks and mechanisms create a favourable environment for businesses from both countries and play a crucial role in promoting bilateral economic development. The agreements signed between India and Singapore reflect the increasing overall cooperation, providing a broader framework for government-to-government interactions and trade and investment exchanges. Essential trade and investment cooperation frameworks between India and Singapore include the CECA (2005), the Double Taxation Avoidance Agreement (DTAA) (1994, with an amended protocol in 2011), the India–Singapore Strategic Partnership Framework (2015), the cooperation in the FinTech sector (2018), and the FinTech Cooperation Agreement between the Monetary Authority of Singapore (MAS) and the International Financial Services Centres Authority (IFSCA). In addition to these primary instruments, cooperation has been strengthened through sector-specific agreements in strategic areas, as well as through regular economic summits and institutionalized policy dialogues that support coordination and implementation. At the regional level, the ASEAN–India Free Trade Agreement (AIFTA), signed in 2009, and particularly its Trade in Goods (TIG) Agreement, has significantly influenced trade and investment linkages between India and Singapore.

India–Singapore CECA

The CECA between India and Singapore, signed in 2005, is one of the most significant frameworks in the trade and investment relationship between the two countries. CECA consists of 16 chapters, addressing key issues such as TIG, rules of origin, customs cooperation, mutual recognition agreements on standards and technical regulations, as well as food safety and sanitary measures, investment protection, trade in services, air services, movement of natural persons, e-commerce, intellectual property rights (IPR), science and technology, education, communication, dispute settlement and implementation procedures.

CECA between India and Singapore has four main components. First, it establishes a free trade area for goods with a phased tariff reduction and elimination schedule. Second, it liberalises and disciplines trade in services by offering improved market access and national treatment commitments. Third, it creates a more protective and predictable framework for cross-border investment, including standards on expropriation, dispute settlement and investor rights. Fourth, it links these commitments to tax cooperation through the DTAA, thus mitigating the risk of double taxation and encouraging cross-border capital flows.

TIG

CECA has reduced tariffs on various goods, facilitating easier import and export between the two ountries. As a result, Indian products such as chemicals, petroleum and machinery have gained more accessible access to the Singaporean market, and vice versa.

Trade in Services

The agreement has expanded opportunities for Indian and Singaporean service companies in finance, education and professional services. This enhances trade exchanges and fosters collaboration in high-value-added service sectors.

Investment

CECA include provisions for investment protection and encourages businesses to invest in each other's countries, creating a stable and reliable investment environment. Singaporean companies have invested significantly in sectors such as real estate, information technology (IT) and infrastructure development in India.

DTAA

The DTAA is a written agreement between two countries to ensure that their residents are not taxed twice on the same income in different countries. The DTAA between India and Singapore provides tax benefits to residents of both countries, improving bilateral relations.

India–Singapore Strategic Partnership Framework

In 2015, during the Indian Prime Minister Narendra Modi's visit to Singapore to mark the 50th anniversary of diplomatic relations, the two countries decided to elevate their relationship to a Strategic Partnership. Prime Minister Narendra Modi and Singaporean Prime Minister Lee Hsien Loong signed a Joint Declaration establishing a 'Strategic Partnership' between the two nations to take their bilateral relations to new heights. This framework extends beyond economic cooperation to include other areas such as defence, culture and science and technology. The primary goal of economic and trade cooperation under this framework is to enhance bilateral trade and direct investment between the two countries. In economic terms, the Strategic Partnership Framework seeks to deepen trade and investment linkages and to strengthen financial cooperation, especially in support of infrastructure development in India and greater financial residence. To operationalise this, the two countries agreed to establish a regular financial dialogue and created a Joint Working Group (JWG) between India's Ministry of Commerce and Industry and Singapore's Ministry of Trade and Industry to address bilateral trade and investment issues.

Beyond bilateral cooperation frameworks, the trade and investment relationship between India and Singapore is also significantly influenced by multilateral cooperation frameworks between India and ASEAN countries. Notable examples include the ASEAN–India Framework Agreement on Comprehensive Economic Cooperation (2003), the ASEAN–India TIG Agreement (2009) and the ASEAN–India Investment and Services Agreement (2014).

India–Singapore Trade Relations

The trade relationship between India and Singapore within the framework of India's Act East Policy is a prime example of the increasingly deep economic and strategic cooperation between the two nations. The Act East Policy, upgraded from the original Look East Policy in 2014, aims to strengthen relations with

Southeast Asian countries. Singapore is one of India's most important strategic partners in the region. This article analyses India–Singapore trade relations before and after the implementation of the Act East Policy in 2014.

India–Singapore Trade Relations Before the Act East Policy

Singapore was the first ASEAN country to sign a trade agreement with India, and the two nations' historically strong economic ties have contributed to the growth of their trade relations. The India–Singapore CECA played a significant role in promoting bilateral trade. This section analyses trade outcomes between the two countries from the signing of CECA in 2005 until 2013.

Tracking India–Singapore trade results from 2004 to 2013 shows a positive trend. Notably, after the signing of CECA in 2005, bilateral trade witnessed significant growth. During this period, total trade between the two countries rapidly increased from $5.9 billion in 2004 to $23.78 billion in 2011, a fourfold rise (Table 1). However, bilateral trade slightly declined between 2011 and 2013, dropping from $23.78 billion in 2011 to $21.22 billion in 2013. This fluctuation was largely due to changes in India's export performance to Singapore, while imports from Singapore remained relatively stable. A deeper analysis reveals that the decline was primarily driven by exports of mineral fuels, mineral oils and products of their distillation, as well as bituminous substances and minerals (Chapter 27). India's exports in this category surged in 2011 but gradually decreased in the following years. The global economic recovery after the 2008–2009 financial crisis led to increased demand for fuel and mineral oils. Economic recovery in developed and developing countries has created a higher demand for energy products. Additionally, the sharp rise in crude oil prices in 2010–2011, which remained high before declining in late 2014, provided opportunities for Indian producers to boost export revenues from petroleum products.

From 2004 to 2013, India maintained a trade surplus with Singapore, steadily increasing from $0.92 billion to $7.16 billion by 2013. Singapore's economy, which heavily relies on trade and imports most of its products due to limited natural resources, generated a high demand for industrial, technological and pharmaceutical products from India, contributing to India's trade surplus. During this period, India's primary exports to Singapore included mineral fuels, oils and ships and boats.

During 2004–2013, Singapore consistently ranked as India's top trading partner in ASEAN, accounting for approximately 26.5%–41.1% of total trade between India and ASEAN. However, the share of trade between India and Singapore began to decline after 2009, when India signed the AIFTA on TIG. The signing of this free trade agreement boosted trade between India and other ASEAN countries, increasing India's trade with ASEAN from $41.87 billion in 2009 to $52.6 billion and further to $74.83 billion by 2011. While the FTA stimulated trade between India and other ASEAN nations, it also decreased Singapore's share of total trade between India and ASEAN.

Table 1. India–Singapore Trade Results for the Period 2004–2013.

Year	India Imports from Singapore	India Exports to Singapore	India–Singapore Trade	India Trade Surplus/ Deficit	India– ASEAN Trade	Share in Total Trade Between India and ASEAN
2004	2.49	3.42	5.91	0.92	16.10	36.7%
2005	3.16	5.43	8.59	2.27	20.92	41.1%
2006	5.18	6.13	11.31	0.94	28.67	39.5%
2007	6.90	6.39	13.29	(0.51)	34.86	38.1%
2008	8.30	8.85	17.16	0.55	46.13	37.2%
2009	6.14	6.83	12.97	0.69	41.87	31.0%
2010	7.26	9.07	16.33	1.80	52.60	31.0%
2011	8.16	15.63	23.78	7.47	74.83	31.8%
2012	7.80	13.55	21.35	5.76	75.03	28.5%
2013	7.03	14.19	21.22	7.16	80.19	26.5%

Source: Compiled from the http://trademap.org database.

Notes: Unit: Billion USD. ASEAN: Association of Southeast Asian Nations.

India–Singapore Trade Relations After the Act East Policy

In September 2014, Prime Minister Narendra Modi rebranded the Look East Policy as the Act East Policy, signalling a proactive approach to affirming India's role and position in Asia through closer ties with Southeast Asian countries. The India–ASEAN relationship was elevated to a comprehensive strategic partnership in 2022, demonstrating the seriousness and commitment of both sides in promoting cooperation and addressing shared challenges.

From 2014 to 2022, bilateral trade between India and Singapore showed an upward trend, underscoring Singapore's significant role in India's Act East Policy. Total trade between the two countries more than doubled, rising from $16.7 billion in 2014 to $36.25 billion in 2022 (Table 2). During this period, India's exports to Singapore remained relatively stable, while imports from Singapore significantly increased, particularly from $7.23 billion in 2017 to $14.48 billion in 2018. This growth was primarily driven by increased imports in sectors such as electrical machinery and equipment (Chapter 85), mechanical appliances (Chapter 84), organic chemicals (Chapter 29) and mineral fuels and oils (Chapter 27), reflecting India's rising demand for machinery and production equipment.

India's trade with Singapore accounts for a substantial share of its trade with the ASEAN region. Between 2014 and 2017, Indonesia surpassed Singapore as India's top trading partner in ASEAN. However, from 2018 to 2021, Singapore reclaimed its position as India's leading partner, with rapid export growth from Singapore to India. Trade data from this period indicate a shift in India's trade balance with Singapore, moving from a surplus (2014–2017) to a deficit (2018–2022), reflecting changing demand dynamics between the two countries.

Table 2. India–Singapore Trade Results for the Period 2014–2022.

Year	India Imports from Singapore	India Exports to Singapore	India–Singapore Trade	India Trade Surplus/Deficit	India–ASEAN Trade	Share in Total Trade Between India and ASEAN
2014	7.07	9.68	16.75	2.61	75.75	22.1%
2015	7.40	7.80	15.20	0.40	67.83	22.4%
2016	6.72	7.38	14.10	0.67	64.63	21.8%
2017	7.23	11.60	18.83	4.37	80.75	23.3%
2018	14.48	10.49	24.98	(3.99)	93.76	26.6%
2019	14.89	10.74	25.63	(4.16)	91.29	28.1%
2020	12.31	8.30	20.60	(4.01)	73.65	28.0%
2021	18.20	10.65	28.85	(7.55)	105.52	27.3%
2022	24.42	11.83	36.25	(12.59)	133.35	27.2%

Source: Compiled from the http://trademap.org database.
Notes: Unit: Billion USD. ASEAN: Association of Southeast Asian Nations.

In 2022, bilateral trade continued to flourish, with India's imports from Singapore reaching $24.42 billion and India's exports to Singapore totalling $11.83 billion. India exported 5,198 items to Singapore in 2022, with mineral fuels, mineral oils and related products generating roughly $6.1 billion of the total export revenue. This was followed by nuclear reactors, boilers, machinery, mechanical appliances and parts, contributing $595.71 million. In the same year, India imported 4,211 items from Singapore, totalling $24.42 billion. Nuclear reactors, boilers and machinery represented the largest category at $3.4 billion, followed by electrical machinery and equipment, sound and televisions, valued at $3.1 billion.

India–Singapore Investment Relations

The investment relationship between India and Singapore serves as a crucial economic bridge and a testament to the strong cooperation between these two leading nations in Southeast Asia. Singapore is viewed as a gateway and a guide for India as it navigates the ASEAN market. Singapore has proven to be one of India's most important economic partners and its largest investor.

Singapore's Investment in India

The amended DTAA arrangements, together with CECA, have significantly improved the attractiveness of India as an investment destination for Singapore-based capital. Over the past 23 years, from 2000 to 2023, total investments from Singapore into India exceeded $155 billion (Table 3), accounting for over 23% of

total foreign direct investment (FDI) inflows into the Indian economy. Even during the COVID-19 pandemic, Singapore retained its position as India's largest source of FDI among ASEAN countries, with an inflow of \$15.9 billion in the fiscal year 2022.

This impressive figure not only reflects the trust and commitment of Singaporean investors in the Indian market but also highlights the effectiveness of the economic relationship between the two nations. The exchange of knowledge, skills and resources between India and Singapore creates valuable investment opportunities and promotes sustainable development and close cooperation between the two economies. By strengthening these connections, India and Singapore are solidifying their economic partnership and are paving the way for a prosperous and promising future in the international market.

Another reason behind the significant investment from Singapore into India is the influence of the Indian diaspora, which has played a crucial role in promoting Singapore's investment in India. Singapore has a large and vibrant Indian community, accounting for about 9% of the country's population (CIA, 2021). This creates strong cultural, social and business ties between the two countries. The Indian community has been in Singapore for a long time, contributing to the country's cultural and social development while maintaining close connections with their homeland. Many Indians in Singapore are successful entrepreneurs and investors with extensive business networks in both Singapore and India. They act as essential bridges in fostering investment and economic cooperation. Indians in Singapore are often highly skilled professionals in fields such as IT, healthcare, finance and education, contributing positively to Singapore's economic development. The presence of the Indian diaspora creates strong business and social relationships, helps build cultural bridges and enhances cooperation

Table 3. Investment Data from the Top 10 Countries in India (Cumulative from April 2000 to December 2023).

No.	Countries	Foreign Direct Investment Amount		Proportion (%) (in USD)
		(in INR Crore)	(in USD Million)	
1	Mauritius	1,014,875.54	170,917.73	25.64
2	Singapore	1,055,902.31	155,612.32	23.35
3	USA	429,345.67	63,031.03	9.46
4	Netherlands	302,213.46	46,037.13	6.91
5	Japan	258,627.52	41,474.97	6.22
6	UK	200,823.09	34,793.67	5.22
7	UAE	127,118.25	18,008.21	2.70
8	Cayman Islands	106,859.10	15,139.31	2.27
9	Germany	86,733.84	14,505.66	2.18
10	Cyprus	79,378.05	13,440.68	2.02

Source: Department for Promotion of Industry and Internal Trade (2025) and DPIIT (2023).

between the two countries. This creates a favourable and attractive environment for bilateral investment and economic development activities.

FDI inflows from Singapore to India in 2022 were at $17.2 billion. In 2020, despite the pandemic, Singapore remained the largest source of FDI into India, with FDI inflows of $18.7 billion compared to $14.9 billion received in 2019 (Table 4). In 2020–2021, despite the pandemic, Singapore remained the largest source of FDI into India, with FDI inflows of $17.42 billion compared to $14.67 billion received in 2019–2020.

Singapore has also emerged as a significant source of external commercial borrowing and FDI for India. Over the years, a substantial portion of Singapore's FDI in India has been directed towards manufacturing. Furthermore, service sectors such as finance and insurance, telecommunications, pharmaceutical research and development and information and communication technologies have attracted a considerable share of FDI. A significant portion of Singapore's investment is dedicated to infrastructure development projects, including the upgrading of India's airports and seaports, as well as the development of IT infrastructure and Special Economic Zones (SEZs).

Among Singapore's notable investments, Temasek and Warburg Pincus purchased $500 million shares from existing investors in Ola in a secondary deal in July 2021. Lenskart raised $220 million from Temasek and Falcon Edge Capital, and ShareChat, an Indian content-sharing platform, secured $145 million in new funding from Temasek Holdings and two other investors.

Over 80% of foreign bonds issued by Indian entities are listed on the Singapore Exchange (SGX). Singapore-based investors manage assets worth over $100 billion in India. Temasek Holdings, Singapore's sovereign wealth fund, invested

Table 4. Singapore Investment in India 2013–2023*.

Calendar Year (January-December)	Singapore Investment in India (USD Billion)
2013	3.8
2014	7.0
2015	13.4
2016	9.8
2017	10.8
2018	15.9
2019	14.9
2020	18.73
2021	13.3
2022	17.2
Cumulative Total (Jan 2000-Dec 2023)	155.6

Source: Department for Promotion of Industry and Internal Trade
https://www.dpiit.gov.in/static/uploads/2025/07/be168cacb0001568b67d905aabf374a5.pdf

$400 million in India's National Infrastructure Investment Fund in 2018. Singapore's sovereign fund's current portfolio in India is $13 billion (India High Commission in Singapore, 2023).

More than 440 Singapore-registered companies operate in India, supported by agencies such as Enterprise Singapore, the Economic Development Board and the Singapore Tourism Board, all of which maintain offices in India. Leading Singaporean firms in the Indian market include Development Bank of Singapore (DBS), Flextronics Technologies, The Hub Engineering, Singtel Global, Singapore Technologies Telemedia (STT) Global Data Centres, Lee & White (L&W) Construction, American President Lines (APL) Logistics, Olam Agro, Quest Global Engineering Services and United Overseas Bank. Their activities span banking, logistics, electronics, data centres, telecommunications, agribusiness, engineering services and construction. According to Mr Peter Ong Boon Kwee, the chairperson of Enterprise Singapore, Singaporean companies are increasingly collaborating with Indian corporations and business partners, particularly in tapping opportunities in the development of MedTech, rural technology, e-commerce and smart city projects (*The Economic Times*, 2020).

During Prime Minister Narendra Modi's 2015 visit to Singapore, he invited Singaporean investors to participate more actively in India's transformation, describing Singapore as a 'nursery for India's laboratory' in the effort to build a competitive manufacturing base and modern infrastructure.

India's Investment in Singapore

India's investment in Singapore grew from $0.36 billion in 2004 to a peak of $19.53 billion in 2019 before slightly declining to $18.78 billion in 2022 (Table 5). A notable increase occurred in 2007, with investments reaching $9.67 billion, and the upward trend continued in the following years, culminating in 2019. India's share of investment compared to other Asian countries rose from 0.8% in 2004 to 15.0% in 2009 before gradually decreasing to 4.5% in 2022. From 2007 to 2010, India held a significant portion of Asian investment in Singapore, peaking at 15.0% in 2009. Indian investment in Singapore experienced considerable growth, especially during 2007–2010. However, after 2010, India's share of investment relative to Asia and the world gradually declined. Although Indian investment peaked in 2019, it saw a slight decrease afterwards, with its share compared to other Asian and global countries also trending downwards after the peak period of 2007–2010.

Singapore's open economic regime has been an important pull factor for Indian firms and professionals. The city-state welcomes highly skilled workers in IT, engineering, medicine and finance, and major Indian banks such as the State Bank of India, Industrial Credit and Investment Corporation of India (ICICI), Bank of India and Indian Overseas Bank have long maintained operations there. The presence of Indian companies in Singapore has also grown significantly, with approximately 9,000 Indian companies registered in Singapore (India High Commission in Singapore, 2023). This includes prominent public sector units,

Table 5. Foreign Direct Investment (FDI) in Singapore 2004–2022.

Year	World Investment in Singapore	Asia Investment in Singapore	India Investment in Singapore	India's Share of Asian Countries Investing in Singapore	India's Share of World Countries Investing in Singapore
2004	205.43	46.19	0.36	0.8%	0.17%
2005	240.31	58.07	0.97	1.7%	0.40%
2006	274.94	61.22	1.91	3.1%	0.70%
2007	346.24	78.14	9.67	12.4%	2.79%
2008	378.91	89.23	12.51	14.0%	3.30%
2009	426.49	108.27	16.29	15.0%	3.82%
2010	493.58	125.25	18.21	14.5%	3.69%
2011	521.32	126.86	17.15	13.5%	3.29%
2012	599.96	146.71	17.71	12.1%	2.95%
2013	672.16	163.38	18.88	11.6%	2.81%
2014	825.47	210.59	19.12	9.1%	2.32%
2015	941.02	222.05	17.74	8.0%	1.89%
2016	1,003.62	215.65	13.69	6.4%	1.36%
2017	1,159.33	240.34	16.46	6.8%	1.42%
2018	1,281.77	258.99	19.49	7.5%	1.52%
2019	1,424.63	292.25	19.53	6.7%	1.37%
2020	1,595.30	315.77	15.85	5.0%	0.99%
2021	1,850.48	364.58	18.51	5.1%	1.00%
2022	1,943.56	417.77	18.78	4.5%	0.97%

Source: Compiled from Department of Statistics Singapore (2025), www.singstat.gov.sg.
Note: Unit: Billion USD, %.

banks and trade organisations like India Tourism, Confederation of Indian Industry (CII) and Federation of Indian Chambers of Commerce and Industry (FICCI), all of which have offices in Singapore.

A predictable regulatory framework, efficient infrastructure and a competitive tax regime have encouraged many Indian companies to use Singapore as a base for their manufacturing, services and regional headquarters activities, especially for Asia–Pacific operations. Strong air connectivity and the presence of a large Indian community further reinforce Singapore's attractiveness as an overseas hub for Indian business.

Science and technology cooperation has developed in parallel with these investment ties. The two countries collaborate in aerospace, space programmes, aeronautical engineering, biotechnology and energy. Financial integration has also deepened: crucial index derivatives linked to India's Nifty 50, including Gift Nifty or SGX Nifty, are listed and traded on the SGX (Mayanglambam, 2024).

Looking ahead, India's sustained economic growth, expanding consumer market and emerging opportunities in e-commerce, technology, biotechnology and renewable energy make it an increasingly attractive partner for Singapore investors. Policymakers in Singapore see New Delhi as a major long-term opportunity in their regional economic strategy.

In February 2023, a landmark digital payment linkage between India's Unified Payments Interface (UPI) and Singapore's PayNow was launched. This arrangement enables faster, more cost-effective cross-border remittances and supports small-value retail payments by individuals and businesses in both countries. The PayNow–UPI linkage is expected to lower transaction costs and further facilitate business and people-to-people exchanges.

Conclusion

India and Singapore have built a multifaceted partnership that combines deep historical ties with modern economic and strategic cooperation. Singapore has become one of India's main trading partners in ASEAN and a leading source of FDI, external commercial borrowing and foreign portfolio investment. At the same time, India has emerged as a significant investor in Singapore and increasingly uses the city-state as a springboard for its broader engagement with East and Southeast Asia.

Bilateral relations are sustained by a dense web of institutional linkages, including CECA, the DTAA, the Strategic Partnership Framework, and various sector-specific initiatives in finance, science and technology, education and connectivity. These arrangements have facilitated the rapid expansion of TIG and services, strengthened investment flows, and created new forms of cooperation in areas such as infrastructure, digital finance and smart-city development.

Moreover, there is significant alignment on a wide range of international issues. Both countries are members of several forums, including the G20, the Commonwealth, the East Asia Summit, IORA and IONS. These are solid foundations for further strengthening trade and investment cooperation between the two nations in the future. Jawed Ashraf, India's High Commissioner to Singapore, has praised Singapore's role and position in advancing India's Act East Policy, noting that Singapore has, in many ways, shaped India's engagement with ASEAN. 'In many ways, Singapore has led or shaped India's engagement with ASEAN and beyond, and it is a crucial partner in advancing India's Act East Policy', he remarked.

Declaration of Conflicting Interests

Funding

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The Green HRM Route to Eco-creativity in Healthcare: Two-study Approach

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Abstract

The goal of the study is to examine the interaction between green human resource management (HRM) and green creativity in India's developing healthcare industry. Given that the healthcare industry is one that greatly contributes to waste generation and other environmental risks; thus, targeting this sector in inducing green creativity leads to a number of benefits to the country in terms of economy and ecology. Apart from this, governments', policy makers' and international agencies' current attention on sustainability has justified the necessity of this work. This research work has been designed on a two-study approach, where both qualitative and quantitative approaches were used. Study 1 is qualitative in nature and uses content analysis to explore the sustainability emphasis of private and public hospitals. Study 2 is quantitative and involves empirical data collection from administrative and paramedics' employees in various private hospitals of Delhi NCR. A self-administered questionnaire was used for collecting responses, and a total of 170 responses were analysed using IBM Amos 23.0. Details of the findings have been discussed in the article. The present research work is novel in an attempt at integrating two studies (mixed methodology) with mixed research designs in order to get a deeper understanding of embedded sustainability focus in healthcare organisations, especially in the context of an emerging economy. The study presents many implications for policymakers, professionals, government, sustainable activist and research scholars.

Keywords

Green human resource management, green organisational citizenship, green value, green culture, content analysis, mixed research methodology

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Introduction

5th June is celebrated worldwide as Environment Day. As per the United Nations Brundtland Commission (UNBC) (1987), sustainability is 'meeting the needs of the present without compromising the ability of future generations to meet their own needs'. The main aim of sustainability is to use methods and products which will not harm the environment by releasing any harmful by-products or deplete essential resources (Robinson & Adams, 2008). Reduced consumption of environmental assets and the use of alternative sources, including reducing waste and promoting reuse, can lead to positive changes (Dallas, 2008). But it is high time for us to take a pause and think, highlight, rethink and act, and understand what is at stake. Sustainability is crucial in today's time. Various sectors, including manufacturing to service, are impacting ecology in their own way, and the healthcare sector is not an exception. In recent times, the healthcare sector has been facing immense pressure to calculate its policies with human well-being as well as environmental sustainability. Apart from this, the healthcare industry is one of the resource-intensive industries and is responsible for high-energy (electricity, fossil fuel and others) consumption, waste generation, carbon emission and other environmental degradations.

Hence, we understand that it is important to incorporate sustainable practices into hospitals, including their core and allied operations. All stakeholders have advocated for this at a global level, and as a result, green creativity has emerged for eco-innovation in all industries, including healthcare. Therefore, for sustainable development, every organisational function is accountable. The present study focuses on green human resource management (HRM), green culture, green organisational citizenship (GOCB) and green values in promoting green creativity at the workplace. As a matter of fact, more and more organisations understand the importance, impact and role of green HRM in the adoption of sustainability. While green HRM encompasses all the practices which make the organisation focus on the environment and its related concerns. Ultimately, the green HRM practices lead to the formulation of eco-friendly or environment-friendly practices among employees at the workplace.

This article is structured into several segments and sub-segments. The article is divided into two parts; the first segment deals with introduction followed by the second, which includes literature review and hypothesis development. This is followed by methodology, data analysis, and discussion with implications, future directions and conclusions.

At present, we do not get to choose between sustainability and innovation, especially in the healthcare sector, which consumes vast amounts of energy along with maximum waste generation. It is understood that healthcare works for human well-being, leading to the production of large quantities of waste and pollution. And due to this contrast, there is a pressing need for sustainable practices in the healthcare industry, nationally as well as internationally. Hence, all organisational functions need to come forward as enablers of environmental sustainability at the workplace. However, we still have limited studies and research in this domain providing answers.

This study is bridging the knowledge gap by throwing light on the private health-care sector of India. Delhi, being the capital of India and a metropolitan city, has the top-quality healthcare facilities and services. We chose this region as it provides a large and diversified sample for our study. In addition to this, previous studies have lacked a qualitative and comparative aspect, which is the novelty and value of the present study. Furthermore, this study fills the methodological gap by using a mixed approach (qualitative and quantitative design) within the healthcare domain.

Based on the above discussion, the present study has tried to answer the following research questions:

- *Study 1: Qualitative study*

  o   RQ1: How are private and public hospitals different in terms of their focus on sustainability and ecology?
  o   RQ2: What are the important sustainability disclosure contents that hospitals are showcasing on their official websites?

- *Study 2: Quantitative study*

  o   RQ3: How do green HRM practices influence green creativity among healthcare professionals?
  o   RQ4: Which green HRM practices are effective in promoting eco-innovation in healthcare settings?
  o   RQ5: To what extent do individual green values moderate the relationship between green HRM and green creativity?
  o   RQ6: How can healthcare organisations strategically align their HR policies and practices with sustainability goals to drive environmental innovation?
  o   RQ7: What are the perceived barriers and enablers to implementing green HRM in healthcare institutions?

Rationale of the Study

Hospitals, being the centres of healing and well-being, are amongst the biggest contributors of environmental deterioration, generating large amounts of both medical, biomedical and non-medical waste. Hence, all over the globe, sustainability in healthcare has become an important focus. The healthcare sector has a crucial impact on environmental degradation and therefore owes the responsibility to adopt preventive measures to minimise the negative impacts of the waste generated. Hospitals have various departments ranging from patient care to residential facilities, including laundry, kitchen and parking lots, contributing to the environmental footprint. When sustainable practices are implemented, hospitals will have the potential to lead by example in addressing waste generation and environmental challenges. While several hospitals have adopted and implemented green practices around the world to create a greener planet, we hope this momentum will gain speed gradually. As of today, there is an increase in the number of

hospitals embracing sustainability and inspiring other industries to rethink and redesign their own green practices. Although there has been extensive research on topics pertaining to green HRM in industries from manufacturing to service, the healthcare sector remains underexplored. This study aims to focus on the private hospitals and their strategies of green HRM.

Literature Review and Hypothesis Development

Green HRM is significant in promoting sustainability at the workplace through HR strategies (Mandip, 2012). Implementation of green HRM will increase the likelihood of organisational environmental sustainability success. These green HRM practices are defined as *HR strategies*, *which improve pro-environmental behaviour* (Kramar, 2014). Thus, HR policies, which help the organisation in achieving goals and protecting the environment from the adverse effects caused by the operations of the organisation, can be called green HRM. Organisations incorporate green HRM practices to strengthen environmental goals and encourage employees to contribute in achieving that goal through appropriate strategies (Jackson et al., 2011). Resultant, green HRM enables the strategic ground for a long-term view of human capital investment by promoting desirable behaviours, recognising employees' contributions and ensuring employees' career development path (Robertson & Barling, 2017). Additionally, organisations endeavour to maximise return on investment (ROI) in their members by actively integrating employee input into organisational outcomes (Jabbour et al., 2015).

There are various ways by which green human resource practices induce green behaviour among employees, such as green culture, green values and green organisational citizenship behaviour (OCB). A number of studies (Harris & Crane, 2002; Holt & Anthony, 2000; Kramar, 2014; Mandip, 2012) have confirmed a significant relationship among all these through various mediation and moderation approaches. Through their attitudes, values, beliefs and activities, members of green culture organisations demonstrate a care for the environment (Roscoe et al., 2019). Here, values mean 'what internal customers (employees) consider moral and ethical for the ecology' (Harris & Crane, 2002; Holt & Anthony, 2000). Studies by Valsiner (2014), Ratner (2017) and Glăveanu and Wagoner (2015) state that culture involves active and selective internalisation of messages by an individual who produces and expresses meaning, which then creates differences between personal and collective culture. While belief reflects the perception of employees towards what counts as right or wrong and as acceptable or unacceptable concerning the environment and its safety (Roscoe et al., 2019). It also influences the actions towards environmental protection (Chang, 2015).

Previous studies have found a significant association between green HRM and green culture (Al-Alawneh et al., 2024; Amini et al., 2024; Dyllick & Hockerts, 2002), depicting that green HRM practices in turn generate a higher degree of green culture in an organisation (Pellegrini et al., 2018). Since it is crucial for coordinating company ideology with employee beliefs and actions, the human

resource department serves as the cornerstone in this (Roscoe et al., 2019). Thus, the following hypothesis has been suggested:

H_1: Green HRM significantly impacts the green culture in organisation.

In addition to having a stronger impact on social and psychological influence than on environmental performance, green culture is associated with organisational citizenship behaviour (Temminck et al., 2015). Further, this also confirmed a positive correlation, and the stronger the green culture, the higher the GOCB (Dumont et al., 2017). Consequently, we see green culture advancing GOCB. Similarly, the human resource department encourages employees and supports pro-environmental efforts (Amini et al., 2024). Hence, green HRM practices foster commitment towards pro-environmental behaviour (Pellegrini et al., 2018).

As mentioned previously, continuous participation and involvement in green initiatives at the workplace by employees will encourage and boost pro-environmental behaviour. In summary, employees will reinforce GOCB when such practices align with their own values. Furthermore, fostering GOCB starts with assisting employees in truly seeing their value. Studies (Daily & Huang, 2001; Jose Chiappetta Jabbour, 2011) stated that there is a rise in GOCB when employees of the organisations take part actively in environmental initiatives. Additionally, employee empowerment is key to ensuring a workplace culture of continuous improvement while reducing bureaucracy and bypassing red-tapism (Roscoe et al., 2019).

H_2: Green culture significantly influences GOCB.

As per Organ (1988), OCB can be understood as *voluntary actions*, which employees perform at the workplace and which go beyond their job descriptions and are not officially awarded, but play a crucial role in supporting how organisations function. On the other hand, green creativity involves the creation of new and innovative green services, products and practices, which are original and add real value (Amabile, 1988). Liu et al. (2019) found that OCB is positively related to green creativity. They conducted a study on a sample of Chinese employees and found that those who engaged in OCB also generated more green creative and innovative ideas than those who did not. Further, OCB provides employees with a sense of ownership and belonging in their workplace, which in turn motivates them to generate creative and new ideas for sustainability.

Similarly, Hsiao and Wang (2020) found that OCB is positively related to green creativity in the hospitality industry in Taiwan. When employees engage in OCB, they experience a sense of intrinsic motivation, which enhances their creativity for sustainability (Hsiao & Wang, 2020). Furthermore, Liu et al. (2020) also opined that OCB is positively related to green creativity. As per them, when employees engage in OCB, they become more committed to their organisation's goals and values, which motivates them to generate creative ideas for sustainability.

In addition, Wu et al. (2021) investigated the relationship in the context of Chinese universities and found that OCB is positively related to green creativity.

OCB gives them a sense of responsibility and accountability towards the environment, which motivates them to generate creative ideas for sustainability. Overall, the literature indicates a positive relationship between OCB and green creativity. This relationship is likely to be influenced by factors such as organisational culture, job satisfaction and employee motivation. Keeping this discussion as pivotal, the following hypothesis is proposed:

H_3: Green organisational citizenship behaviour is positively associated with green creativity.

Green values can be understood as the significance of *individual or group values* in protecting the environment (Mustonen et al., 2016). Hence, these can be called a set of guiding principles, which shape individual attitudes, decisions and behaviours. These values extend beyond awareness, influencing lifestyle choices and ethical considerations. Green values serve as the foundation of sustainability goals and corporate social responsibility, linking personal beliefs and organisational commitment to environmental well-being. Additionally, Li et al. (2020) and Wu et al. (2021) stated that commitment towards the environment increases motivation, which in turn increases creativity and green output.

Over time, various studies (Andersson et al., 2005; Chou, 2014; Kim & Seock, 2019; Schultz et al., 2005) have suggested a direct relationship between green behaviour and green values, but we are yet to understand the moderating or mediating role of green values. Dumont et al. (2017) showed that the organisation which promotes green values will have green culture, which in turn leads to a higher level of GOCB and creativity. Strong green values are interrelated with exhibiting green behaviour addressing environmental challenges (Al-Ghazali & Afsar, 2021). Green values will shape and decide how employees will respond towards sustainability stimuli of organisations. If employees have strong green values, that will translate into their actual behaviour at the workplace. Hence, the following hypothesis has been formulated:

H_4: Green values moderate the relationship between GOCB and green creativity.

Thus, based on the above discussion, the following research model has been proposed.

Method

The present study has adopted the mixed research approach to answer the underlying research questions. Two studies have been conducted for the present research work. Both qualitative as well as quantitative designs were used. For the qualitative research approach, we have used content analysis of official websites, whereas the quantitative research study used a descriptive research design.

Study 1: First, a qualitative research design has been used to study disclosure practices of the healthcare industry, where both public and private hospitals were

Table 1. SCImago Ranking (Public Sector).

S. No.	Name	Inception	City, State	Employee Strength
1	Institute of Liver and Biliary Sciences	2009	New Delhi, Delhi	650
2	Safdarjung Hospital	1939	New Delhi, Delhi	1,100
3	Medical College and Hospital, Kolkata	1835	Kolkata, West Bengal	500
4	Guru Tegh Bahadur Hospital	1979	New Delhi, Delhi	800
5	Government Medical College and Hospital, Chandigarh	1991	Chandigarh	700
6	Lady Hardinge Medical College	1914	New Delhi, Delhi	500

Source: SCImago Institutions Ranking. https://www.scimagoir.com/rankings.php?sector=Health&country=IND

Table 2. SCImago Ranking (Private Sector).

S. No.	Name	Inception	City, State	Employee Strength
1	St. John's Medical College and Hospital	1963	Bengaluru, Karnataka	2,500
2	L. V. Prasad Eye Institute	1987	Hyderabad, Telangana	700
3	Sir Ganga Ram Hospital	1954	New Delhi, Delhi	2,000
4	Seth Gordhandas Sunderdas Medical College and King Edward Memorial Hospital	1926	Mumbai, Maharashtra	800
5	Maharishi Markandeshwar Institute of Medical Sciences and Research	1993	Mullana, Haryana	650

Source: SCImago Institutions Ranking.

selected for comparative purposes. For this study, we have used the SCImago ranking (2023) for Indian hospitals based on research focus. We have identified five private and five public hospitals from the list for our study. There are different types of hospitals that serve the multifaceted needs of society. Therefore, we divided the hospitals into two parts based on the classification between public and private sectors. A total of 10 hospitals were selected for content analysis of environmental disclosure on their official websites. Tables 1 and 2 contain the list of public and private sector hospitals in the SCImago (2023) ranking.

Table 2 presents the list of private sector hospitals taken from the SCImago ranking (2023).

After the selection of hospitals, their respective websites have been explored for disclosure of sustainability practices and initiatives. It has been assumed that

organisations with ecological focus and consideration tend to disclose and emphasise more on sustainability practices on their official websites and other important disclosure documents. Therefore, the website of each selected hospital has been thoroughly explored for sustainability-related disclosures, more specifically, green HRM (green building, green training and any other). Thereafter, content analysis has been performed on the environmental disclosure of every hospital.

Study 2: After qualitative analysis, Study 2 has been conducted using a quantitative research approach. In order to find out the influence of green HRM practices on green creativity of employees, a descriptive research design has been used because of its appropriateness in hypothesis testing.

Sample and Sampling Strategy

The study includes HR, administrative staff and paramedical staff of private hospitals in Delhi NCR. Employees who were on direct payrolls were included in the study, assuming their direct involvement in and relevance to the core functions of hospitals. Purposive sampling technique (non-probability sampling strategy) has been used in order to obtain the required respondents.

Data Collection Procedure

Primary data were collected using a structured questionnaire, prepared from extensive literature review (details of which are given in the following subsection). A total of 200 print questionnaires were distributed to HR, administrative staff and paramedical staff of private hospitals only. Out of these, 20 responses were incomplete and 10 were not returned. Thus, the final sample size consisted of 170 responses. Thus, this sample size is considered appropriate for many research purposes and can yield statistically robust results.

Questionnaire and Measures

The questionnaires contained questions related to green HRM practices, green values and green creativity, allowing participants to provide numerical or categorical responses. There were two sections in the questionnaire. To begin with, the first section consisted of demographic questions to answer, followed by questions on constructs for the study, including green HRM (Saeed et al., 2019), green culture (Marshall et al., 2015; Umrani et al., 2022), GOCB (Hooi et al., 2022; Pham et al., 2018), green value (Hooi et al., 2022) and green creativity (Barczak et al., 2010; Rego et al., 2007). Detailed items of each construct/scale can be seen in Annexure A in the supplementary material.

- *Common method bias (CMB) and non-response bias*: In order to identify and mitigate the CMB, various measures have been taken at the time of questionnaire development. In self-administered questionnaires and data collection instruments, CMB and non-response bias should be addressed properly. For this study, the order of questions and statements has been

counterbalanced during the formulation of the questionnaire (Podsakoff et al., 2003); a few negative statements were also added, anonymity assurance, optimising the length of the questionnaire, establishing the significance of the study among respondents (Yu & Cooper, 1983) and other measures have been taken. Apart from all these, a marker variable (Price Consciousness) was also included in the questionnaire for mitigating CMB impacting study findings.

- *Informed consent*: Respondents were informed about the requirement of the study and its relevance in the present context. Apart from it, they have been given the opportunity to be or not to be a part of the survey process. Respondents who were a part of the study were assured that their confidentiality and the privacy of the data will be maintained. Additionally, if any respondent asked for findings or results of the study, they will be provided with the requisite information after completion of the study.
- *Ethical consideration*: Ethical approval was taken from the Institutional Ethics Committee.

Analysis and Findings

Study 1

The findings of this study reveal that private hospitals in India employ various green HRM practices, including comprehensive training programmes, rewards and recognition, and career development opportunities. These practices are designed to attract and retain skilled healthcare professionals, enhance employee satisfaction and improve organisational performance. These private hospitals struggle with constraints of limited budget and funding, which puts them in a dilemma. However, on the other hand, public hospitals also deal with restricted budgets and bureaucratic interventions that affect the effectiveness and morale of employees. Hospitals from both sectors share similar priorities; however, their approaches differ. Despite the differences, both hospitals value the need for robust green HRM practices.

Table 3 presents the comparative content analysis of public and private hospitals in terms of their sustainability disclosure.

Study 2

Structure equation modelling has been done using Amos 23.0.

Measurement Model. Confirmatory factor analysis (CFA):
To ascertain if the measurement model fitted, Amos 26.0.0 trial version was used to perform CFA with maximum likelihood estimation. A component of CFA was evaluating the factor loadings for every item. All factor loadings were statistically significant ($p < .05$) and ranged from 0.71 to 0.886, demonstrating robust relationships between the observed variables and their respective latent constructs (see Annexure B in the supplementary material). The overall goodness of fit of the model was evaluated using the model fit measures, and all values that fell below

Table 3. Comparative Content Analysis of Public and Private Hospitals in Sustainability Disclosure.

| S. No. | Hospital | Sustainability | Green Human Resource Management (GHRM) | | |
			Green Building	Carbon Footprint	Green Training
1	Institute of Liver and Biliary Sciences	✓	NA	NA	NA
2	Safdarjung Hospital	✓	NA	NA	NA
3	Medical College and Hospital, Kolkata	✓	NA	NA	NA
4	Guru Teg Bahadur Hospital	✓	NA	NA	NA
5	Government Medical College and Hospital, Chandigarh	✓	NA	NA	NA
6.	Lady Hardinge Medical College	NA	NA	NA	NA
7.	St. John's Medical College and Hospital	✓	NA	NA	NA
8.	L. V. Prasad Eye Institute	X	✓	✓	✓
9.	Sir Ganga Ram Hospital	✓	✓	✓	✓
10.	Seth Gordhandas Sunderdas Medical College and King Edward Memorial Hospital	✓	✓	✓	
11	Maharishi Markandeshwar Institute of Medical Sciences and Research	✓	✓	✓	✓

Table 4. Model Fit Measures.

Measure	Estimate	Threshold	Source	Interpretation
CMIN	1,374.847	–	Hu and Bentler (1999)	–
DF	809	–		–
CMIN/DF	1.699	Between 1 and 3		Excellent
CFI	0.915	>0.95		Acceptable
SRMR	0.047	<0.08		Excellent
RMSEA	0.064	<0.06		Acceptable

Note: CFI: Comparative fit index; CMIN: Chi-square minimum discrepancy; DF: Degrees of freedom; RMSEA: Root mean square error of approximation; SRMR: Standardised root mean square residual.

the common acceptability criterion agreed with the threshold values proposed by Hu and Bentler (1999). A satisfactory fit was obtained with the five-component model (green HRM, green value, GOCB, green culture, green creativity) (see Table 4).

Table 5. Reliability and Validity.

	CR	AVE	MSV	MaxR (H)	GHRM	GCL	GOCB	GC	GV
GC	0.894	0.584	0.578	0.895	0.764				
GHRM	0.973	0.654	0.524	0.974	0.724	0.809			
GCL	0.945	0.711	0.446	0.946	0.568	0.604	0.843		
GOCB	0.950	0.730	0.578	0.951	0.760	0.659	0.668	0.854	
GV	0.881	0.711	0.567	0.883	0.753	0.641	0.501	0.662	0.843

Source: Gaskin and James (2019), 'Master Validity Tool', Amos Plugin. Gaskination's StatWiki.

Within a CFA framework, the study rigorously evaluated construct validity and reliability. Convergent validity on the grounds of average variance extracted (AVE), all latent constructs again passed the conventional cut-off level of 0.5 (Fornell & Larcker, 1981) as evidence (by the bold values of Table 5) that the model was operating adequately. Discriminant validity was established by comparing the square root of AVE values (diagonals in Table 5) with inter-construct correlations (below the diagonals), in which the diagonal value of each construct was larger than its correlations with other constructs, demonstrating the discriminant of each construct from the other constructs.

According to Hair et al. (2010), reliability, also known as internal consistency, is another convergent validity metric. The Cronbach's alpha coefficient is a commonly used metric for assessing internal consistency. However, as composite reliability (CR) is regarded as a better option than alpha coefficient, it is typically utilised in comparison with Cronbach's alpha (Chin, 2009; Kumar & Saha, 2017). A construct's CR value needs to be more than 0.7 in order for it to be deemed dependable and internally consistent (Hair et al., 2010; Nunnally, 1978). All latent constructs had CR values significantly higher than the cut-off value of 0.7, indicating the reliability of the constructs (refer to Table 5).

Structural Model.
After the measurement model, the structural model was tested by using 5,000 bootstraps at 95% level of confidence. To scrutinise the association between green HRM and green creativity, the factor scores from the CFA of the measurement model were imputed using AMOS path analysis. As a measure of the hypothesis, green culture and GOCB were tested as mediators and green value as a moderator (see Figure 1). Table 6 provides a thorough breakdown of the regression analysis's findings, including parameter estimates, the crucial ratio (*T* value) and the associated *p* values (Please see Figure 2 for path).

Green HRM is positively related to green culture (estimate = 0.648, $p < .05$) and GOCB (estimate = 0.489, $p < .05$). Green HRM is positively related to green creativity also (estimate = 0.204, $p < .05$). Green culture is positively related to GOCB (estimate = 0.526, $p < .05$) but not related to green creativity (estimate = –0.013, $p > .05$). Therefore, green culture encourages the green organisational citizenship behaviour but does not impact the green creativity. GOCB has a significant impact on green creativity (estimate = 0.217, $p < .05$). Therefore,
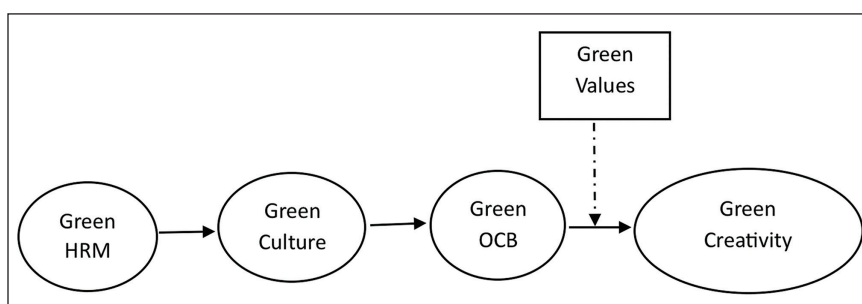
Figure 1. Conceptual Framework.

Note: HRM: Human resource management; OCB: Organisational citizenship.

Table 6. Structural Model Estimates.

			Estimate	S. E.	T Value	p	Label
Green human resource management	→	Green culture	0.648	0.1	10.48	***	apath
Green culture	→	Green organisational citizenship	0.526	0.1	7.04	***	bpath
Green human resource management	→	Green organisational citizenship	0.489	0.1	6.336	***	fpath
Green organisational citizenship	→	Green creativity	0.217	0	5.634	***	dpath
Green value	→	Green creativity	0.274	0.1	4.974	***	epath
Green organisational citizenship*Green value	→	Green creativity	−0.12	0	−3.769	***	lpath
Green human resource management	→	Green creativity	0.204	0.1	3.818	***	cpath
Green culture	→	Green creativity	−0.013	0	−0.296	.8	gpath

Note: ***$p < .001$.

we can conclude that green culture somewhere does not directly influence green creativity but indirectly impacts it, which will be further tested in mediation analysis. The interaction of green value and GOCB has a significant impact on green creativity (estimate = −0.12, $p < .05$). It means green value was moderating the relationship.

Table 7. Mediation and Moderation Analysis (Bootstrapping).

Relationship	Standardised Indirect Effect	Bootstrap Confidence		Standardised Direct Effect	*p* Value	Result
		Lower	Upper			
Med1	−0.008	−0.111	0.097	0.204**	.77	No mediation
Med2	0.106*	0.013	0.264		.011	Partial mediation
SM	0.074**	0.019	0.167		.006	Partial serial mediation
Probing Moderated Indirect Relationships						
Low level of green value	0.146	0.05	0.302		0	Indirect effect improved
High level of green value	0.066	−0.038	0.242		.234	No indirect effect
IOMM	−0.059*	−0.123	−0.01		.021	Moderated mediation

Notes: $**p < .001$; $*p < .05$. IOMM: Index of moderated mediation.

Mediation and Moderation Analysis

Despite being extremely well-liked and frequently applied, the method proposed by Baron and Kenny (1986) has faced criticism in recent times (Preacher & Hayes, 2004) for two primary reasons: inconsistent mediation (MacKinnon et al., 2007) and relatively low statistical power (Fritz & MacKinnon, 2007). When the path coefficient between the predictor and the mediator (a) is negative, resulting to a negative indirect effect (ab), and the total effect is very small and non-significant (even though both direct and indirect effects are individually substantial), inconsistent mediation—though extremely rare—occurs. Owing to the shortcomings of Baron and Kenny's (1986) methodology, the present study, the bootstrapping approach by Preacher and Hayes (2008) was used with 5,000 sub-samples and a 95% bias-corrected confidence interval to estimate the indirect effect in addition to the direct path, as described in the research model. The direct, indirect and total effects—the outcomes of the mediation and moderation analysis—are described in Table 7 and Figure 2. For analysing the effects, the following paths were studied:

Med1=apath*gpath (Mediation of green culture from GreenHRM to green creativity)
Med2=fpath*dpath (Mediation of GOCB from GreenrHRM to green creativity)
SM=apath*bpath*dpath (Serial Mediation of green culture and GOCB from GeenHRM to green creativity)
OneSDbelow=fpath*((Ipath*−0.69021)+dpath)
OneSDabove=fpath*((Ipath*0.69021)+dpath)
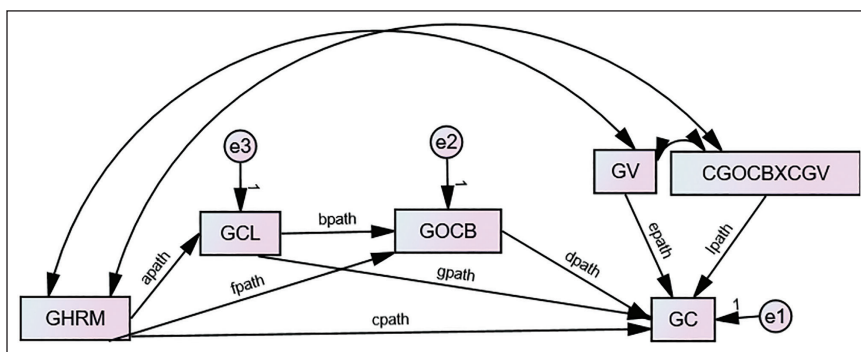IOMM=fpath*Ipath (Interaction of moderated mediation)

Figure 2. Structural Model.

The indirect effect of green HRM on green creativity through green culture was found not significant (estimate = –0.008, p = .77). Hence, we see that green culture is not mediating the relation between green HRM and green creativity. However, the indirect effect of green HRM on green creativity via GOCB is found to be significant (estimate = 0.106*, $p < .05$) including the direct relationship with GOCB as well. Hence, we understand GOCB is not fully but partially mediating between green HRM and GOCB.

The results of the indirect effect of both interceding to green creativity are found to be significant (estimate = 0.074, $p < .05$). Hence, we can say that serial mediation occurs. As per the model, we see green HRM and green creativity are mediated by two variables, green culture and GOCB. Additionally, there is a direct effect of green HRM to green creativity in the presence of green culture and GOCB which are also significant (estimate = 0.204, $p < .05$). Therefore, we can see it as a case of partial serial mediation as green culture and GOCB partially mediate the relation between green HRM and green creativity.

Results show that when the green value is low, the indirect effect was 0.146 and significant ($p < .05$). But at a higher level of green value, the indirect effect was 0.066 and p = .234, which means the relationship became not significant. Now it is required to assess whether the indirect effect was being moderated. As per the index of moderated mediation (IOMM) by Baron and Kenny (1986), to determine whether moderated mediation was occurring, the analysis looks at whether the slope is substantially different from zero. It is –0.059 with p value .021; therefore, green value was moderating the indirect effect from green HRM to green creativity through GOCB. The strength of this indirect effect changes with green value.

Discussion

In the present work, Study 1 aimed to compare the sustainability focus of both private and public healthcare organisations. It is seen that private hospitals have a greater focus on sustainability and their practices compared to public hospitals. The public health sector is largely influenced by complex determinants, namely

occupational conditions and corporate practices. These determinants indirectly influence system inequalities and organisational behaviour (Park et al., 2025). Their websites contain more mentions and disclosures on sustainability practices like green HRM, green building and carbon emissions compared to their counterpart public sector organisations. Private hospitals tend to show more concern towards ecological issues and challenges, possibly due to goodwill, company image, regulatory compliance and competition. Thus, the findings of this study were further extended in Study 2, where employees of private hospitals were included in the sampling for understanding different facets of sustainability in organisational imperatives. Thus, Study 2 aimed to investigate the relationship between green HRM and green creativity in private healthcare setups in Delhi NCR. The above research has included green HRM, which emerged for the first time in 2018 (Renwick et al., 2008). Moreover, our study is an extension to the existing study of green HRM but with a moderating green value on green creativity. Green HRM practices play a critical and most important role in shaping the organisational culture. They do the above by embedding sustainability into the core values and daily operations. Hence, we can say green HRM practices are of utmost importance in making crucial sustainability changes (Yong et al., 2020). The results of our research support our notion that when green HRM is strong, it leads to a stronger green culture (Hooi et al., 2021). Our results are compatible with the findings of many previous studies (Ahmed et al., 2021; Yong et al., 2020), which demonstrated that green culture is an important antecedent for environmental performance. These hospitals have their sustainability reports published on their websites, which state that sustainability reporting offers additional benefits and is embedded in organisations' strategic priorities (Higgins & Coffey, 2016). In strategic parlance, companies use this sustainability reporting as a strategic imperative that is embedded in their important decision-making processes. Thus, apart from the sustainability focus, reporting also offers additional benefits to the companies (hospitals, in this case).

The study also resulted in green HRM practices often leading to the encouragement of employees to go beyond their formal roles. Further, a strong green culture creates social norms, which encourage GOCB. When environmental sustainability becomes a part of organisational identity, employees feel a sense of moral obligation in engaging and demonstrating GOCB. This study verifies the direct effect of green HRM on green creativity. In addition, it also highlights how the implementation of green HRM practices can increase environmental sustainability (Yusoff et al., 2020). However, in a contrary study conducted by Hooi et al. (2022), our finding depicts that as green value increases, the moderating effect weakens, and the relationship becomes insignificant.

Limitations and Future Directions

In the present research, all efforts have been made to minimise the limitations and increase the robustness of the findings. However, it is important to discuss the significant ones. In Study 1, the only official websites were used for content analysis whereas other disclosure documents, such as annual reports, could offer

deeper insights into the sustainability focus of the respective organisations. Second, only SCImago ranking (2023) was used for sampling, whereas other domestic rankings can also be used to select varied hospitals. Additionally, hospitals from other regions could also be used to compare the findings of content analysis for different contextual settings. In Study 2, different industries, cultural context and organisational settings may yield varying results. We could proceed ahead with the analysis of green HRM at all levels of the organisation, which represents a limitation of this study. Further, there could be other variables of green HRM added to the study along with cross-industry and cross-country comparative studies. Additionally, studies could be extended further in longitudinal designs to measure the impacts of variables over time.

Implications and Conclusion

The findings of the study have implications for organisations aiming to foster sustainability and green creativity. Hospitals can leverage green HRM practices to develop a culture of environmental accountability and responsiveness, which can enhance employees' creative contributions to sustainable initiatives. HR departments can play a pivotal role in implementing and promoting green HRM practices that align with the company's sustainability goals. The study suggests the importance of training programmes that focus on promoting green values among employees. Hospitals can invest in training initiatives that emphasise the significance of environmental responsibility and its alignment with creativity. Hospitals should consider including sustainability-related performance metrics in their employee appraisal systems. Recognising and rewarding the employees for their contributions to sustainability and green creativity can motivate further engagement. HR departments should integrate sustainability criteria into recruitment and selection policies. This integration will ensure that selected candidates and employees not only possess the necessary capabilities and skills but also have alignment with the organisation's green values and their jobs.

In conclusion, the study sheds light on the intricate relationship between green HRM practices, green values and green creativity within private hospitals. It underscores the pivotal role of HR departments in fostering a culture of sustainability, where employees are not only encouraged to adopt green values but also exhibit enhanced creative problem-solving abilities related to environmental challenges. The findings emphasise that green HRM practices are more than just a compliance requirement; they serve as catalysts for green creativity. By investing in green HRM initiatives, organisations can inspire employees to generate innovative and creative solutions that contribute to sustainable development. As we move forward, it is essential for both scholars and practitioners to delve deeper into this realm. Future research should explore the nuances of how different green HRM strategies impact various aspects of green creativity and sustainability across diverse organisational contexts. In doing so, we can advance our understanding of how HRM practices can serve as powerful tools in the pursuit of a more environmentally responsible and creative workforce. Ultimately, the

integration of green values into HRM can be a driving force for sustainable innovation in the workplace and beyond.

Authors' Contributions

Shalini Shukla has contributed to idea generation, conceptual framework, questionnaire development and structuring and writing of the article. Hera Fatima Iqbal has contributed to data collection, interpretation and writing section. Ila Pandey did data analysis.

Consent to Participate

Each participant has provided informed consent. They were informed orally as well as in writing about volunteer participation. Respondents were assured of the academic nature of the study and anonymity of their responses.

Data Availability

Data can be made available on reasonable request.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Ethical Considerations

Ethical approval was taken from the Institutional Ethics Committee of the University.

Supplementary Material

Supplementary material for this article is available online.

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Book Review

Dmitri Boreiko, *Understanding Initial Coin Offerings: A New Era of Decentralised Finance,* 2024, Edward Elgar Publishing. ISBN: 9781803921570; 1803921579

Introduction

In *Understanding Initial Coin Offerings: A New Era of Decentralised Finance*, Dmitri Boreiko presents an incisive and timely exploration of one of the most consequential financial innovations of the past decade. Published in 2024 by Edward Elgar, the monograph situates initial coin offerings (ICOs) within the broader architecture of decentralised finance (DeFi), offering both theoretical sophistication and empirical rigour. As digital asset markets mature, Boreiko's study distinguishes itself by eschewing both uncritical optimism and blanket scepticism, instead delivering a measured and analytically robust treatment of ICOs.

Analytical Framework

The book advances a multi-dimensional analytical framework that synthesises insights from financial economics, game theory and institutional analysis. Boreiko's central claim is that ICOs constitute more than a novel method of capital raising; they embody a fundamental reconfiguration of how governance, trust and financial intermediation are structured in decentralised systems. Drawing on a comprehensive data set of ICOs spanning 2016–2022, the author employs econometric techniques to assess determinants of ICO success, investor sentiment and long-run post-ICO performance. This dual emphasis on theoretical framing and empirical substantiation enhances the book's scholarly credibility.

Critical Evaluation

One of the book's most compelling contributions lies in its interrogation of the regulatory void surrounding ICOs. Boreiko demonstrates how the absence of coherent legal frameworks has produced a bifurcated outcome: while certain ICOs have served as catalysts for genuine financial innovation, others have devolved into speculative manias or outright fraudulent schemes. Case studies interwoven throughout the text provide methodological rigour and narrative clarity.

Nevertheless, two areas merit deeper engagement. First, the treatment of geopolitics is relatively limited. While the book acknowledges jurisdictional arbitrage and cross-border regulatory competition, a more systematic analysis of how state actors respond to the erosion of monetary sovereignty would have enriched the argument. Second, although Boreiko's discussion of tokenomics is technically rigorous, its scope could be expanded by incorporating interdisciplinary perspectives from behavioural finance and network theory to better capture the complex dynamics of investor coordination and collective action.

Contribution to the Literature

Boreiko's study significantly advances the academic discourse on ICOs and DeFi. By moving beyond hype-driven narratives, it complements the analytical frameworks of Momtaz (2020) on ICO valuation and Catalini and Gans (2018) on blockchain economics, while simultaneously establishing its own intellectual niche. The book's empirical grounding, coupled with conceptual innovation, makes it a valuable resource for graduate courses in financial innovation, fintech policy and digital asset management.

Conclusion

Understanding Initial Coin Offerings represents a landmark contribution to the literature on DeFi. Its combination of analytical rigour, empirical depth and policy relevance renders it indispensable for academics, regulators and practitioners seeking to navigate the rapidly evolving crypto-financial landscape. Despite some limitations, Boreiko's work sets a benchmark for future research on digital capital markets and challenges us to reconsider foundational assumptions about intermediation, governance and capital formation in an era where algorithmic code increasingly substitutes for contractual law.

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