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# SMART STRATEGIC HUMAN RESOURCE MANAGEMENT 4.0 PRACTICES FOR ORGANIZATIONAL OPERATIONAL PERFORMANCE: MEDIATING ROLE OF STRATEGIC ORIENTATION

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## ABSTRACT

***This study examines the intricate relationships between smart strategic human resource management 4.0 (SHRM 4.0) practices, strategic orientations, and operational performance in organizations. Leveraging a sample of 268 HR professionals in the banking industry in Saudi Arabia, the research employs advanced statistical analyses, including structural equation modeling and mediating hypothesis testing. The findings reveal a significant direct impact of smart SHRM 4.0 practices on strategic orientations, establishing its role in fostering customer, competitor, and technology-focused organizational strategies. Notably, technology orientation emerges as a substantial mediator, shedding light on the transformative potential of technology alignment in shaping an organization's operational performance. However, the study challenges conventional assumptions by demonstrating that customer orientation does not significantly mediate the relationship between smart SHRM 4.0 practices and operational performance. These significant insights contribute to the evolving discourse on HRM in the digital age, emphasizing the need for a holistic approach to strategic alignment, where technological advancements play a pivotal role. The study's implications extend to HR practitioners, scholars, and decision-makers, offering valuable guidance on leveraging SHRM 4.0 for strategic excellence. As organizations navigate the complexities of the contemporary business landscape, this research provides potential insights into optimizing HR practices and integrating technology to achieve sustained operational success.***

**KEYWORDS:** Industry 4.0, Smart SHRM, SHRM 4.0, Strategic Orientation, Organizational Performance.

## 1. INTRODUCTION

Worldwide business operations have undergone significant transformations attributed to the disruptive advanced technologies associated with the Fourth Industrial Revolution, commonly referred to as Industry 4.0 (IR4) (Alaloul et al., 2018; Koh et al., 2019; Saleem et al., 2025). These IR4 advanced technologies integrated by artificial intelligence (AI), big data analytics, cloud computing, Internet of Things (IoT), cyber-physical systems, and robots (Saleem et al., 2025), play which wide role to optimize efficiency and effectiveness of the business operations (Chun et al., 2019; Salvadorinho et al., 2024). Within this current paradigm shift, smart strategic human resource management (SHRM) has adopted IR4 technologies, utilizing automation to streamline HR functions and reengineer traditional HR processes (Rath et al., 2024). Several existing studies reported the revolutionary role of IR4 in HRM, which is shaping a new concept called Smart Strategic Human Resource Management 4.0 (SHRM4.0) practices. For instance, a recent empirical study by Pillai and Srivastava (2023) and Bandari (2019) demonstrated that Smart SHRM4.0 practices support the identification of applications of advanced technology (i.e., big data analytics, AI, machine learning, and automation) and their integration in traditional HRM processes. Practically, SHRM 4.0 involves leveraging advanced technologies, including IR4, such as HR analytics, IoT, big data analytics, and robotics, facilitated by a seamless 5G network, to design and monitor HR functions within the organization (Saleem et al., 2025). For instance, Samarasinghe and Medis (2020) defined smart SHRM 4.0 practices as encompassing AI-driven recruitment, personalized AI-based performance management, virtual training and development, and HR predictions. Similarly, Rana and Sharma (2019) outlined that the smart SHRM 4.0 is an advanced approach to HRM that harnesses the capabilities of IR4 advanced technologies and strategic principles to optimize HR practices and contribute to organizational operational success. In addition, Puhovichova and Jankelova (2020) witnessed that it focuses on enhancing efficiency, decision-making, and employee experience through the strategic use of smart technologies within an organization. Recently, Ammirato et al. (2023) discussed the importance of IR4 in managing an organization's human capital, aligning HR practices and policies with its overall strategic objectives to contribute to organizational goals and enhance competitive advantage. Smart SHRM 4.0 is also dedicated to advancing workforce management for the next generation of an organization by utilizing AI and IoT (Kusý, 2021; Budhwar et al., 2023; Chukwuka & Dibie, 2024).

However, prior studies witnessed that organizations in this era of competition are potentially strategizing candidate verification, addressing employee queries, and managing attendance by utilizing IR4 (Pathak and Solanki, 2021). Thereby, employees receive personalized training through augmented reality, gamification, video streaming, and chatbots (Mahmoud, 2021; Oyewole et al., 2024). Smart SHRM 4.0, with its strategic orientation, can utilize technology to address employee issues and grievances compassionately (Ammirato et al., 2023). Integrating IR4 technologies enhances the efficiency of various HR functions through strategic orientation practices and the overall management of the employee lifecycle within the organization (Srivastava et al., 2022). Existing studies highlight the advantages of smart SHRM 4.0 in talent management (Pillai and Srivastava, 2022), diverse workforce management, achieving operational performance (Lestari and Juwana, 2022), and developing strategic orientation capabilities (Asoba and Mefi, 2021). Therefore, limited studies have investigated and concluded on the impact of smart SHRM 4.0 on the operational performance of banks through strategic orientation practices.

Empirically, the current research on organizational operational performance, when implementing strategic orientation practices, primarily focuses on adopting new technology and innovation. However, existing empirical studies have limited insight into the overall role of IR4 in an organization's SHRM practices (Yu et al., 2023). Moreover, adopting IR4 technologies for HRM often involves adopting a singular technical perspective. There is a need for further exploration of the intersection between the adoption of HRM and IR4 technologies (Pillai and Srivastava, 2023; Liboni et al., 2019). Thus, a dearth of studies systematically examines the real-world implementation and impact of smart SHRM 4.0 practices on an organization's performance. The existing literature often lacks comprehensive empirical evidence on how these practices translate into tangible operational performance outcomes, such as increased productivity, employee satisfaction, and overall organizational efficiency. On the practical front, it was discussed that there is a gap in understanding the significant role of strategic orientation as a mediator in the relationship between Smart SHRM

4.0 and organizational operational performance. While Jamal et al. (2021) suggest that strategic orientation plays a crucial intermediary role, practical insights into how organizations can effectively integrate this strategic mindset into their HRM practices remain limited. Addressing these gaps requires in-depth empirical studies beyond theoretical discussions, providing concrete evidence on the challenges, successes, and optimal strategies for implementing Smart SHRM 4.0 practices. In this view, the present study proposed a model that suggests examining and validating the hypothetical relationships between smart SHRM4.0, strategic customer orientation, competitor orientation, technology orientation, and operational performance, relying on the socio-technical theory and resource-based view. The socio-technical theory is employed to comprehend the factors associated with SHRM 4.0, considering its exploration of technology acceptance from both technical and social perspectives (Pillai and Srivastava, 2023). Barzani et al. (2024) stated that this theory is widely used in investigating the adoption factors of IR4.

Moreover, the manuscript encompasses sections on literature review, hypothesis development, and a conceptual model. The subsequent segment delves into the research method, encompassing data collection, analysis, and results. Additionally, the concluding section of the manuscript offers a discussion, highlights contributions, outlines future research directions, addresses limitations, and concludes with a summary.

## 2. THEORETICAL FOUNDATIONS AND HYPOTHESES DEVELOPMENT

### *2.1. Socio-Technical System Theory*

Socio-technical system theory serves as the foundational theory for navigating organizational change in the context of new technology (Sony and Naik, 2020), encompassing two key dimensions (Smart SHRM 4.0 and performance of the organization) (Pillai and Srivastava,2023). Initially, Emery and Trist (1996) discussed how the socio-technical system theory aims to explore the relationships among pivotal elements, incorporating the social aspects of the organizational environment, such as customers, suppliers, and employees, and all stakeholders contribute to the organization's performance. Additionally, involves skilled and technical development mechanisms for employees that convert inputs into outputs, enhancing organizational operational performance (Shoaib and Saleem, 2023; Budhwar et al., 2023). Socio-technical system theory elucidates the adoption of diverse IR4 technologies, such as cloud computing, IoT, and AI (Yu et al., 2023). It offers insights into the implications of adopting and integrating new technologies within the organizational context (Chowdhury et al., 2022).

Furthermore, the socio-technical system theory suggests the association between social and technical elements within organizations, making it ideal for understanding the mediating role of strategic orientation in technology adoption. In this era of modernization, the organizations use strategic orientation to determine their direction which connects their technological objectives to human elements and organizational aspects (Knox, 2024). Hence, strategic orientation widely supports in implementation of Industry 4.0 technologies including AI and IoT depends on this alignment because it verifies that technological progress supports both organizational culture and workforce abilities (Pillai & Srivastava, 2023; Shoaib & Saleem, 2023). The theory posits that a clear strategic orientation guides how technology is adopted, fostering employee engagement and optimizing performance (Emery & Trist, 1996). Organizations that implement advanced and novel technologies achieve better results through strategic orientation which directs technology implementation to meet operational needs and human requirements (Yu et al., 2023; Tortorella et al., 2023). Hence, socio-technical theory highlights how strategic orientation ensures technology adoption aligns with broader organizational objectives, facilitating successful transformation.

Recently, prior studies have suggested that socio-technical theory is employed to analyze the factors impacting the adoption of smart SHRM 4.0 (Pillai and Srivastava, 2023; Tortorella et al., 2023). Socio-technical systems theory is widely acknowledged for studying the integration of new technologies and IR4 within organizations (Davies et al., 2017). Additionally, socio-technical system theory investigates strategic behaviors and interactions within entrepreneurial systems and technical innovation. Thereby, Imran and Kantola (2019) and Sony and Naik (2020) highlighted that the socio-technical system theory supports successful organizational changes related to new technologies, emphasizing the interplay between technology and human elements, prioritizing both human values and productivity.

However, smart SHRM 4.0 practices, encompassing advanced technologies and data analytics, play a pivotal role in enhancing an organization's ability to deliver superior customer

experiences (Münch et al., 2022). These technological practices enable the development of a workforce that is skilled and attuned to customer preferences and demands. For instance, Ciriello et al. (2024) noted that the use of AI-powered tools in HRM can facilitate the analysis of customer feedback, allowing for the tailoring of products and services to meet evolving customer expectations.

Research by Cho and Choi (2021) highlights the significance of aligning internal processes, including human resources, with customer-oriented strategies. Smart SHRM 4.0 practices support this alignment by fostering a customer-centric culture within the organization. Furthermore, implementing advanced HR technologies ensures employees have the necessary skills and information to respond effectively to customer needs. This synergy between HRM 4.0 practices and strategic customer orientation results in enhanced customer satisfaction, loyalty, and organizational success (Zaini et al., 2020). Adopting SHRM 4.0 practices has become a strategic imperative for delivering exceptional customer value and maintaining a competitive advantage in today's dynamic business landscape. Due to the novelty of smart SHRM 4.0, there have been limited previous studies that have investigated and concluded the link between smart SHRM 4.0 and customer orientation strategies (Sharma et al., 2022). Thus, we posed the following hypothesis to bridge the abovementioned empirical gaps.

H1: Smart SHRM 4.0 practices significantly and positively impact strategic customer orientation.

In the era of HRM 4.0, advanced technologies empower organizations to gather and analyze data not only on market trends but also on competitors' talent strategies and capabilities. Smart SHRM 4.0 practices facilitate the acquisition of competitive intelligence, enabling organizations to optimize their workforce strategies in response to industry dynamics (Pillai and Srivastava, 2023). For instance, using predictive analytics in HRM can help anticipate talent trends in the job market and align recruitment strategies accordingly (Liboni et al., 2019). An empirical study by Fregnan et al. (2020) highlights the significance of competitor orientation in attaining sustainable competitive advantages. HRM 4.0 practices contribute to this orientation by providing real-time insights into competitors' skills, capabilities, and organizational structures (Hecklau et al., 2017). By leveraging HR technologies, organizations can tailor their human resource strategies to outperform rivals in talent acquisition, development, and retention (Srivastava et al., 2022). The adoption of smart SHRM 4.0 practices has limited research studies investigating competitor orientation, enabling organizations to proactively adapt and respond to competitive challenges in today's dynamic business environment. Therefore, we posed the following hypothesis, which aims to bridge the abovementioned empirical gaps by exploring the direct impact of smart SHRM 4.0 on competitor orientation strategies.

H2: Smart SHRM 4.0 practices significantly and positively impact strategic competitor orientation.

In the context of smart SHRM 4.0, technologies such as IoT, AI, machine learning, and data analytics are revolutionizing HR practices within organizations. Smart SHRM 4.0 practices encompass integrating these technologies into talent management, workforce planning, and decision-making processes (Da Silva et al., 2022). For instance, Imperatori et al. (2019) suggested that utilizing advanced analytics in SHRM enables organizations to forecast future skill requirements and implement strategic workforce planning. Researchers like Bendle and Vandenbosch (2014) and O'Dwyerv and Gilmore (2019) argue that a strong orientation toward technology is crucial for organizations to adapt and thrive in the modern business environment. Adopting SHRM 4.0 practices exemplifies this orientation by embracing cutting-edge technologies to enhance HR processes (Da Silva et al., 2022). By incorporating technology into recruitment, training, and performance management, organizations can improve efficiency, reduce costs, and gain a strategic advantage (Ed-Dafali et al., 2023). Therefore, limited studies investigated and justified the adoption of smart SHRM 4.0 practices that align with and reinforce a strategic technology orientation, ensuring organizations stay at the forefront of technological advancements in the HR domain. Therefore, we posed the following hypothesis to address the abovementioned empirical gaps.

H3: Smart SHRM 4.0 practices significantly and positively impact strategic technology orientation.

### *2.2. Strategic Orientation*

Strategic orientation in smart SHRM 4.0 revolves around aligning HR practices with organizational goals, particularly in the era of IR4 technologies. Existing studies (e.g., Sutanto et al., 2023) mentioned that in the realm of HRM 4.0, strategic orientation undergoes a transformative evolution, aligning with the principles and capabilities offered by advanced

technologies. The core tenet of strategic orientation in smart SHRM 4.0 practices is leveraging technology to enhance HR functions strategically, which contributes to improved organizational operational performance. Smart SHRM 4.0 integrates cutting-edge technologies, including data analytics, machine learning, AI, IoT, and automation, into traditional HR practices (Samarasinghe and Medis, 2020).

In smart SHRM 4.0, strategic orientation involves aligning HR practices with the organization's dynamic needs in the digital age. This includes utilizing AI for predictive hiring, implementing data analytics for workforce planning, and incorporating automation for routine HR tasks (Strohmeier, 2020). Strategic orientation in smart SHRM 4.0 emphasizes the importance of agility and adaptability in HR strategies, ensuring they evolve in tandem with technological advancements and organizational needs. Prior studies have widely discussed how HRM's strategic integration and innovation become drivers of efficiency, innovation, and employee engagement (Agarwal et al., 2023; Abasaheb and Subashini, 2024). The seamless alignment of HR practices with organizational objectives ensures a responsive and future-ready workforce, which in turn leads to improved productivity, reduced costs, and enhanced organizational agility (Pillai and Srivastava, 2023).

The realm of strategic orientation practices research captivates both industry practitioners and academic scholars, particularly in the continually evolving, technology-driven business landscape (Kamarudin et al., 2022; Nayal et al., 2023). Existing empirical studies delve into the correlation between IR4 and strategic orientation (Pillai and Srivastava, 2022). Strategic orientation represents an organization's ability to deploy, adopt, integrate, and reconfigure internal and external competencies in response to constant environmental changes (Shamim et al., 2023). Research examines the role of strategic orientation in adopting IR4 technology to enhance organizational operational performance (Imperatori et al., 2019). Accordingly, Wang et al. (2012) demonstrated that conceptualizing and implementing novel business processes, combined with a strategic orientation, enables organizations to compete and thrive in dynamic environments, ultimately leading to exceptional organizational performance. Furthermore, organizational performance encompasses achievements such as employee satisfaction, competitor performance, and technology orientation practices (Wang et al., 2022).

Moreover, a recent study conducted by Pillai and Srivastava (2023) examines the relationship between SHRM 4.0, strategic orientation, and organizational performance. This theoretical research asserts that specific HRM practices contribute to the development of a strategic orientation, which, in turn, enhances an organization's operational performance (Nayal et al., 2022). However, the empirical exploration of the association between smart SHRM 4.0, strategic orientation, and their impact on organizational operational performance is lacking in existing research (Pillai and Srivastava, 2022). To address this literature gap, we propose investigating the utilization of smart SHRM 4.0 and its influence on strategic orientation in achieving organizational operational performance. Therefore, we presented the following hypotheses.

H4: Strategic customer orientation significantly and positively impacts firms' operational performance.

H5: Strategic competitor orientation significantly and positively impacts firms' operational performance.

H6: Strategic technology orientation significantly and positively impacts firms' operational performance.

### *2.3. Mediating Role Of Strategic Customer Orientation, Strategic Competitor Orientation, And Strategic Technology Orientation*

Testing strategic orientation (i.e., strategic customer orientation, strategic competitor orientation, and strategic technology orientation as mediating variables in organizational operational performance is crucial for understanding the significant pathways through which smart SHRM 4.0 impacts outcomes. These orientations represent key strategic dimensions that can drive organizational success when aligned with Smart SHRM 4.0 practices. Strategic customer orientation emphasizes customer-centric HR strategies (Fang et al., 2020), focuses on competitive analysis (Malik, 2019), and strategic technology orientation highlights the integration of technology (Pillai et al., 2022), all of which contribute to enhanced organizational operational performance. Examining these mediating variables provides a comprehensive view, offering insights into the specific mechanisms influencing the overall effectiveness of Smart SHRM 4.0 in organizational contexts. Previously, Liboni et al. (2019) explored the mediating role of strategic orientation and confirmed that examining mediating roles provides a comprehensive understanding of the intricate relationship between organizational strategic orientation and operational

performance. Another empirical study by Borodako et al. (2022) noted that the mediating factors of strategic orientation underscore the importance of aligning HR practices with customer-centric, competitive, and technology-oriented approaches to achieve optimal organizational outcomes. Therefore, the empirical gaps in existing research on integrating smart SHRM 4.0, strategic customer orientation, strategic competitor orientation, and strategic technology orientation lie in the limited exploration of the combined impact of these variables on organizational operational performance. The current literature lacks empirical evidence on the interconnected dynamics and mediating roles, necessitating a comprehensive investigation to fill this research gap. Therefore, we posed the following mediating hypotheses.

H7: Strategic customer orientation mediates the relationship between smart SHRM 4.0 practices and firms' operational performance.

H8: Strategic competitor orientation mediates the relationship between smart SHRM 4.0 practices and firms' operational performance.

H9: Strategic technology orientation mediates the relationship between smart SHRM 4.0 practices and firms' operational performance.

## 3. CONCEPTUAL FRAMEWORK DEVELOPMENT

The development of the conceptual framework integrates dimensions from strategic orientation (i.e., strategic customer orientation, strategic competitor orientation, and strategic technology orientation) and socio-technical system theory (i.e., adoption of Smart SHRM 4.0, operational, market, and financial performance). Therefore, the conceptual framework is presented in Figure 1.

First, strategic customer orientation, competitor orientation, and strategic technology orientation, derived from strategic orientation, provide a foundational understanding of how organizations position themselves in the market using different strategic approaches (Tseng et al., 2019). By incorporating the traditional typology of defenders, analyzers, reactors, and prospectors, along with a multidimensional conceptualization that includes customer, competitor, and technology orientation, the framework captures organizations' diverse strategies for adapting to their organizational environment. Second, Smart SHRM 4.0's operational performance was derived from socio-technical system theory (Pillai and Srivastava, 2023), which emphasizes the interaction between strategic, social, and technical systems within organizations. Socio-technical system theory accounts for identifying and adopting technology from both technological and social perspectives, and is implemented within the framework of customer, competitor, and technology orientation, aligning seamlessly with the principles of smart SHRM 4.0 (Fregnan et al., 2020).

However, in the context of smart SHRM 4.0, the conceptual framework recognizes the transformational impact of IR4 technologies on HR practices within the organizational setting, ultimately shaping the organization's overall performance. This technological integration within the organization is not viewed in isolation but is considered within the broader context of strategic orientation and the socio-technical environment (Sony and Naik, 2020).

The relationship between these three components (i.e., Smart HRM 4.0, strategic orientation, operational performance) forms the foundation of the conceptual framework of the present study. It posits that strategic orientation influences how organizations adopt smart SHRM 4.0 practices, and the successful implementation of HRM 4.0 is contingent on understanding and managing the socio-technical dynamics within the organization.

By synthesizing insights from smart SHRM 4.0, strategic orientation, and organizational performance, the conceptual framework provides a comprehensive framework for examining the intricate relationships between strategy, technology, and social systems in relation to performance in contemporary organizations. This comprehensive perspective is essential for organizations seeking to navigate the complexities of HRM in the era of IR4.

*Figure 1: Conceptual Framework.*

## 4. METHOD

### *4.1. Research Instrument Design*

In examining the impact of smart SHRM 4.0 on organizational operational performance, the present study identified and established the measurement items in three phases. First, an extensive literature review process was conducted to identify and utilize corresponding indicators for the constructs. For instance, (i) four items for strategic customer orientation, (ii) three items for strategic competitor orientation, (iii) four items for strategic technology orientation items were adopted from (Tseng et al., 2019), (IV) four items for smart SHRM 4.0, and (V) nine items for organizational operational performance items were adapted from (Pillai and Srivastava, 2023). In the second phase, three experts from the HR department of the banks and two senior academicians in HR were recruited to perform pre-testing of the measurement items. Thus, the experts' feedback was knowledgeably considered to maximize the reliability and validity of the constructs and their indicators. In the third phase, a pilot study was conducted with 35 respondents who had sufficient information about SCM4.0 and 4IR and held senior positions in a bank. The pilot study results, with $\alpha > 0.7$ for the measurement indicators, suggest an acceptable level of internal consistency and reliability. In this view, the present study achieved an α value greater than 0.7 for all constructs and their measurement instruments. After obtaining satisfactory pilot testing results, this study conducted a full-scale data collection. Notably, all measurement instruments were assessed using a seven-point Likert scale, ranging from 1 (strongly agree) to 7 (strongly disagree). Thus, the measurement items and their statistical values are presented in Table 2.

### *4.2. Sampling And Data Collection*

The data for the present study were collected from the banking industry in Saudi Arabia. Within nine weeks, 268 responses were received. All participants held senior HR positions in the banking industry and were well-versed in information technology-enabled services in HRM, powered by innovative SHRM 4.0 features. Practically, the informants were required to have at least one year of work experience in smart SHRM 4.0, following a comprehensive understanding of IR 4.0 technologies implemented in their firm. Therefore, a cover letter stating the objectives of the present study was forwarded along with the finalized questionnaire to the targeted respondents from different banks in Jeddah, Saudi Arabia. The participant composition consisted of senior HR professionals (n = 113), HR directors (n = 65), HR heads (n = 43), and IT professionals involved with the HR department (n = 47). The gender distribution in this study comprised 173 male respondents and 95 female respondents. Therefore, n=203 banks reported partially using some SHRM 4.0 practices, while n=65 banks indicated active adoption of SHRM 4.0 practices.

### *4.3. Measurement Model's Validity And Reliability*

The reliability and validity of the measurement model were thoroughly tested for the study's determinants (Saleem et al., 2022). As indicated in Table 1, all the constructs exhibited Cronbach's alpha (α) and composite reliability (CR) values exceeding 0.70, confirming high internal consistency. The reliability measures α and CR indicate acceptable internal consistency, suggesting that the items within the smart SHRM 4.0, specifically those related to strategic customer, competitor, and

technology orientation, reliably measure the intended concept. In summary, the reliability and validity measures generally support the adequacy of the measurement model.

***Table 1: Measurement Items.***

| Constructs and measurement indicators | Loading |
|---|---|
| Smart SHRM 4.0<br>*(a =0.743)*<br>*(CR = 0.833)* | |
| "We regularly use SHRM 4.0 for performing various HR functions." | 0.649 |
| "We regularly use SHRM 4.0 for better communication and employee attraction." | 0.706 |
| "We regularly use SHRM 4.0 for talent management and employee engagement." | 0.804 |
| "We use SHRM 4.0 for managing employee retention and employee productivity." | 0.813 |
| Strategic customer orientation<br>*(a =0.853)*<br>*(CR = 0.901)* | |
| "Our objectives are driven primarily by customer satisfaction." | 0.828 |
| "Our strategy for competitive advantage is based on our understanding of our customers' needs." | 0.851 |
| "Our market strategies are driven by our understanding of possibilities for creating value for our customers." | 0.811 |
| "We constantly monitor our level of commitment and orientation toward customers." | 0.843 |
| Strategic competitor orientation<br>*(a =0.876)*<br>*(CR = 0.924)* | |
| "We respond rapidly to competitive actions that threaten us." | 0.889 |
| "We target customers and customer groups in which we have or can develop a competitive advantage." | 0.895 |
| "Top management regularly discusses competitors' strengths and strategies." | 0.901 |
| Strategic technology orientation<br>*(a =0.902)*<br>*(CR = 0.932)* | |
| "We build upon proven technological breakthroughs made by ourselves." | 0.899 |
| "We emphasize technological superiority to differentiate our new products." | 0.873 |
| "We strive to achieve technological leadership in the market we compete in." | 0.896 |
| "We aggressively adopt new technologies in their early phases of introduction." | 0.848 |
| Operational performance<br>*(a =0.963)*<br>*(CR = 0.969)* | |
| "Better relationship management and employees." | 0.836 |
| "Improved ability to attract employees." | 0.873 |
| "Improved employee retention ability." | 0.887 |
| "Better quality of services and products." | 0.882 |
| "Increased return on investment." | 0.917 |
| "Increased profitability." | 0.867 |
| "Increased productivity." | 0.866 |
| "Increased market value." | 0.892 |
| "Increased market share." | 0.897 |

***Cronbach's Alpha, A, Composite Reliability (CR), Average Variance Extracted (AVE)***

### *4.4. Discriminant Validity*

Discriminant validity is crucial in research to ensure that different constructs in a study are genuinely distinct and do not measure the same underlying concept (Saleem et al., 2023). It examines whether a measure differs from other measures in the study, helping researchers establish that the constructs are unique and not interchangeable. High discriminant validity ensures that the study's findings accurately reflect the intended concepts, minimizing the risk of misinterpretation. Thus, the Fornell-Larcker criterion indicates that the constructs have discriminant validity as the square root of the AVE for each construct is more significant than its correlations with other constructs. On the other hand, the diagonal values represent the square root of the AVE for each construct. The AVE values are more significant than the off-diagonal correlations for each construct, suggesting that discriminant validity is established. Therefore, the results are presented in Table 2.

***Table 2: Fornell-Larcker Criterion And AVE.***

| | AVE | CO | CU | OP | SHRM 4.0 | TEC |
|---|---|---|---|---|---|---|
| CO | 0.695 | 0.895 | | | | |
| CU | 0.801 | 0.812 | 0.833 | | | |
| OP | 0.774 | 0.835 | 0.746 | 0.880 | | |
| SHRM 4.0 | 0.557 | 0.629 | 0.748 | 0.593 | 0.746 | |
| TEC | 0.773 | 0.855 | 0.781 | 0.800 | 0.594 | 0.879 |

***CO = Competitor Orientation, CU = Customer Orientation, TEC=Technology Orientation OP= Operational Performance, SHRM 4.0=Smart Human Resource Management***

### *4.5. Direct Hypotheses*

To validate the proposed direct and indirect relationship between SHRM4.0, strategic customer, competitor, technology orientation, and organizational operational performance, this study employed a structural equation modeling test. Thus, the direct hypotheses results are presented in Table 3 and Figure 2.

However, Hypothesis (H1) reveals that smart SHRM 4.0 has a significant positive impact on strategic customer orientation. Thus, the statistical results show (t-value = 25.115; p < 0.000), confirming that H1 is supported. The findings of the present study suggest that the elevated levels of smart SHRM4.0 are associated with the heightened focus on customer orientation, emphasizing the impactful connection between modern HR practices and customer-centric strategies. Hypothesis (H2) demonstrates a significant and positive impact of smart SHRM4.0 on strategic competitor orientation (t-value=20.101; p < 0.000), indicating that H2 is supported. Smart SHRM4.0 implementation is correlated with a heightened emphasis on competitor orientation, highlighting the impact of advanced HR practices on fostering competitiveness and strategic awareness in response to industry rivals. Hypothesis (H3) indicated that the smart SHRM4.0 has a significant positive impact on strategic technology orientation (t-value = 15.370; p < 0.000), supporting the assertion that H3 is valid. Empowering smart SHRM 4.0 is linked to an augmented focus on technology orientation, emphasizing the pivotal role of advanced HR practices in fostering technological understanding and responsiveness. Hypothesis (H4) indicates an insignificant positive impact of strategic customer orientation on organizational operational performance (t-value=0.445; p > 0.50). Hence, H4 is not supported. The findings from this hypothesis suggest that, contrary to common assumptions, the findings challenge the direct contribution of customer-oriented approaches to enhanced operational outcomes. Hypothesis (H5) demonstrates a statistically significant positive impact of strategic competitor orientation on organizational operational performance (t-value=2.949; p < 0.001). Thus, H5 is supported. This suggests that organizations that emphasize competitor-focused strategies experience a positive impact on their overall performance, highlighting the importance of competitive awareness in achieving organizational success. Finally, Hypothesis (H6) reveals a highly significant positive effect of strategic technology orientation on organizational operational performance (t-value 9.878; p < 0.000). Therefore, H6 is supported. This implies that organizations emphasizing technological strategies experience a substantial positive impact on their overall performance.

***Table 3: Path Coefficient***

| Direct Paths | β | t-value | p-value | Decision |
|---|---|---|---|---|
| SHRM4.0 → Strategic customer orientation | 0.748 | 25.115 | 0.000 | H1-Supported |
| SHRM4.0 → Strategic competitor orientation | 0.629 | 20.101 | 0.000 | H2-Supported |
| SHRM4.0 → Strategic technology orientation | 0.594 | 15.37 | 0.000 | H3-Supported |
| Strategic customer orientation → Organizational operational performance | 0.026 | 0.445 | 0.656 | H4-Not-Supported |
| Strategic competitor orientation → Organizational operational performance | 0.229 | 2.949 | 0.003 | H5-Supported |
| Strategic technology orientation → Organizational operational performance | 0.684 | 9.878 | 0.000 | H6-Supported |

### *4.6. Mediating Hypotheses*

After validating the direct hypotheses, the present study examined the mediating role of strategic customer, competitor, and technology orientation in the relationship between smart SHRM 4.0 practices and operational performance. Overall, the statistical results of the mediating hypotheses are presented below.

Hypothesis (H8) indicates that customer orientation fails to mediate the relationship between smart SHRM 4.0 and operational performance (t-value = 0.442; p-value> 0.50), suggesting that H7 is not supported. The findings from this mediating hypothesis suggest that the influence of smart SHRM 4.0 on organizational operational performance remains unchanged, primarily due to

the mediating role of strategic customer orientation. Hypothesis (H8) demonstrates that strategic competitor orientation mediates the relationship between smart SHRM 4.0 and operational performance (t-value = 2.908; p-value 0.003). Thus, H8 is supported. This implies that organizational focus on competitors plays a noteworthy role in influencing the impact of smart SHRM 4.0 practices on operational performance. Finally, Hypothesis (H9) reveals that the strategic technology orientation mediates the relationship between smart SHRM 4.0 and operational performance (t-value = 8.411; p-value = 0.000); therefore, H9 is supported. This highlights the crucial role of technological focus in shaping the implications of smart SHRM 4.0 practices in the service sector. Furthermore, the results of the mediating hypotheses are presented in Table 4.

***Table 4: Mediating Hypotheses.***

| Indirect Paths | β | t-value | p-value | Decision |
|---|---|---|---|---|
| Smart SHRM4.0 → Strategic customer orientation → Organizational operational performance | 0.019 | 0.442 | 0.659 | H7-Not-Supported |
| Smart SHRM4.0 → Strategic competitor orientation → Organizational operational performance | 0.144 | 2.908 | 0.004 | H8-Supported |
| Smart SHRM4.0 → Strategic technology orientation → Organizational operational performance | 0.406 | 8.411 | 0.000 | H9-Supported |

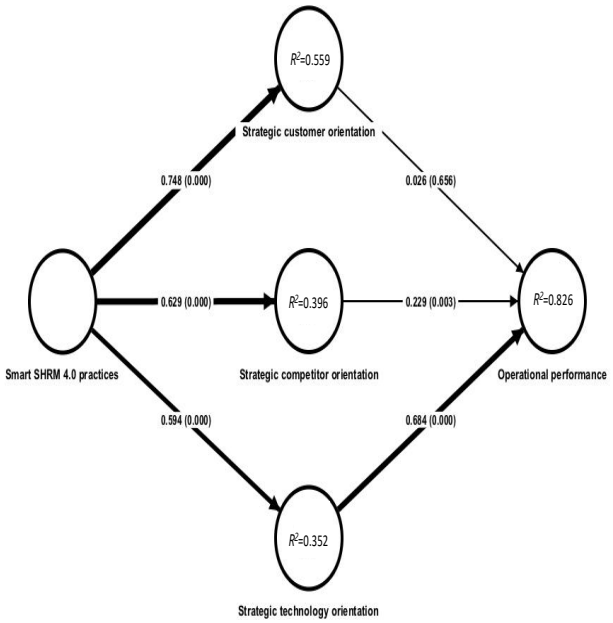


***Figure 2: Structural Model.***

For further validation of the complex model, the present study performed the explanatory power of the structural model using of R2 value in the dependent variables, demonstrating 55.9% of the variance in strategic customer orientation, 39.6% of strategic competitor orientation, 35.2% of strategic technology orientation, and 82.6% variance of organizational operational performance, confirming its predictive validity (Saleem et al., 2023).

## 5. DISCUSSION

The present study's findings explore the complex relationship between smart SHRM 4.0 practices, strategic orientations, and operational performance in the banking industry. This area has been less explored in previous empirical studies. Hence, the findings from the present study guide the banking industry on how to strategically integrate modern SHRM technologies, aligning with customer-centric, competitor-focused, and technology-driven orientations.

First, the direct paths (H1-H3) suggest that the smart SHRM4.0 practices have a significant positive impact on strategic customer, competitor, and technology orientation of the banking industry. This indicates that integrating advanced SHRM technologies transforms organizations' strategies, aligning them with customer needs, competitive dynamics, and technological advancements. The findings from the present study were previously supported by Jabeen et al. (2025), who confirmed a significant impact of SHRM 4.0 on strategic orientation. SHRM 4.0 catalyzes strategic evolution, enabling organizations to stay attuned to market

demands and technological trends (Samarasinghe and Medis, 2020). Accordingly, a past study by Puhovichova and Jankelova (2020) found that higher levels of technology orientation indicate that organizations leveraging smart SHRM 4.0 are adept at embracing and integrating new technologies, thereby positioning themselves as industry leaders in innovation. Due to the novelty of the concept, particularly in the banking industry, there have been limited past studies that have explored its impact on strategic orientation factors.

Second, the present study confirmed an insignificant positive impact of strategic customer orientation on the organizational operational performance in H4. This aligns with the previous scholarly work by Zhu and Nakata (2007). Notably, prior empirical studies exhibited that the insignificant impact of strategic customer orientation on organizational operational performance in the Saudi Arabian hotel industry may be attributed to factors such as cultural expectations (Alsharari, 2020), reliance on religious tourism, and limited market differentiation (Singh et al., 2023). In this view, Tajeddini (2011) suggests that customer orientation remains a critical factor in the services sector, and its influence may be diluted due to poor standardized service delivery and a lack of focus on operational efficiency development.

Third, the present study confirmed a significant positive impact of both strategic competitor and technology orientation on the organizational operational performance. The findings align with previous empirical studies that have explored the importance and awareness of strategic orientation in driving the performance of the hotel industry. For instance, Kharabsheh et al. (2015) demonstrated that strategic competitor orientation enhances organizational market responsiveness and adaptability, leading to higher performance. Furthermore, authors noted that a strategic competitor orientation enables organizations to constantly monitor and respond to the actions of direct and indirect competitors, thereby enhancing their ability to differentiate offerings and sustain competitive advantages. In the Saudi Arabian context, the banking sector is rapidly expanding, and under Vision 2030, being attuned to competitor strategies is essential, especially as international brands intensify market competition. Accordingly, strategic technology orientation, digital service delivery, operational efficiency, and advanced innovation are vital in the post-pandemic economic rebound. The significant positive impact found in the present study supports the work of Masa'deh et al. (2018), who emphasized that a strategic technology orientation improves service innovation by adding security and high value for customers, ultimately enhancing organizational outcomes. Furthermore, Espino-Rodríguez and Ramírez-Fierro (2018) also confirmed that strategic technology orientation significantly contributes to both financial and non-financial performance in Saudi Arabian organizations. In the Saudi Arabian banking context, advanced technology has become increasingly central, ranging from mobile concierge services to sophisticated cash flow management systems. The adoption of such technologies aligns with national digital transformation goals, further reinforcing the observed positive impact.

Finally, after validating the direct impact of strategic customer, competitor, and technology orientation on firm performance, the present study also tested their mediating role in the relationship between smart SHRM4.0 and organizational operational performance. Strategic customer orientation does not exhibit a mediating role between smart SHRM4.0 and the operational performance of hotels, challenging the conventional wisdom that customer-centric approaches directly translate into improved operational outcomes. This result suggests that while smart SHRM 4.0 contributes to customer-oriented practices, its impact on operational performance may not be entirely mediated by customer orientation alone. Organizations may need a more holistic strategic approach that encompasses various dimensions beyond customer-centricity. Hence, strategic competitors and technology orientation mediate the relationship between smart SHRM 4.0 and the operational performance of hotels in Saudi Arabia, indicating that hotels with a strong focus on understanding and responding to competitive dynamics experience enhanced operational performance when adopting smart SHRM 4.0 practices. Similarly, strategic technology orientation emerged as a highly significant mediator, highlighting the pivotal role of technological alignment in mediating the relationship between smart SHRM 4.0 and operational performance. This demonstrates the importance of organizations not only adopting technology but also strategically aligning their operations with it, emphasizing the crucial role of technology in achieving operational excellence.

### *5.1. Practical Implications*

The practical implications of this study offer valuable guidance for organizations seeking to

enhance their performance through the adoption of Smart SHRM 4.0 practices and strategic orientations. Firstly, organizations in the service sector should prioritize integrating modern HR technologies to streamline processes, enhance communication, and improve employee overall engagement. Strategic customer, competitor, and technology orientation emerged as critical mediating factors, emphasizing the need for organizations to align their HR strategies with a keen understanding of customer needs, competitive landscapes, and technological advancements. This further suggests the importance of tailoring HR practices to establish strategic value for both internal and external stakeholders. Moreover, this study advocates for a holistic approach to HR management, emphasizing the interconnectedness of technology adoption and strategic orientations. Thus, organizations should invest in training and development programs to upskill HR professionals, ensuring they possess the competencies to navigate the digital landscape and align HR strategies with broader organizational goals. Additionally, practitioners should foster a culture of continuous learning and adaptability within their organizations. This includes staying informed about technological advancements, understanding market dynamics, and being responsive to competitive challenges. Proactive engagement with industry trends and customer needs will enable organizations to position themselves strategically for success.

In addition, this study highlights the transformative role of Smart SHRM 4.0 in harnessing advanced technologies for effective human resource management. Firstly, our research emphasizes the integration of IR4 technologies, such as artificial intelligence, IoT, and big data, into HR practices. This highlights the importance of organizations embracing technological innovations to improve efficiency, accuracy, and overall effectiveness in managing human resources. Identifying Smart SHRM 4.0 practices, including AI-driven recruitment, personalized performance management, and HR analytics, suggests a paradigm shift in HR processes. Organizations are urged to adopt and implement these technologies to streamline HR functions, reduce manual efforts, and leverage data-driven insights for informed decision-making. Notably, the technology-enabled tools, such as chatbots, wearable devices, and augmented reality, are enhancing employee experience and engagement. This implies that organizations need to invest in technologies that not only automate routine tasks but also contribute to creating a tech-savvy and employee-centric workplace. Moreover, the findings suggest that Smart SHRM 4.0 facilitates the seamless integration of different HR functions through IR4 technology. This integration, encompassing areas like recruitment, talent management, and employee well-being, signifies a holistic approach to HR practices that harnesses the potential of emerging technologies. The technological implications of our study extend beyond HRM, emphasizing the broader impact of IR4 on organizational processes and strategies. Organizations must adapt to the evolving technological landscape to stay competitive and resilient in a rapidly changing business environment.

### *5.2. Theoretical Implications*

Theoretical implications of our study contribute to a broader understanding of the intersection between Smart SHRM 4.0 practices, strategic orientations, and operational performance in the hotel industry. First, the present study enriches the literature on SHRM by introducing the concept of smart SHRM 4.0 and elucidating its intricate relationship with strategic orientations, specifically customer, competitor, and technology orientation. This extends the theoretical foundations of SHRM, recognizing the transformative impact of digital technologies on HR practices. Identifying strategic customer, competitor, and technology orientation as mediating variables in the relationship between Smart SHRM 4.0 and operational performance of organizations adds distinct value to the existing literature. This also demonstrates the interconnectedness of HR strategies with external market dynamics and technological advancements, reinforcing the need for a comprehensive and integrative approach to HRM. By conceptualizing Smart SHRM 4.0, this study contributes to the theoretical discourse on how IR4 technologies reshape HR functions, emphasizing the need for a forward-looking and adaptive HR approach. However, incorporating socio-technical system theory and resource-based view as theoretical frameworks suggests the multifaceted nature of organizational change in response to technological advancements. In addition, this contributes to the theoretical understanding of how organizations can navigate the complexities of implementing smart SHRM 4.0 practices, fostering adaptability, and enhancing their capabilities to achieve sustained performance.

### *5.3. Conclusions*

This study has provided valuable insights into

the complex relationships between SHRM 4.0 practices, strategic orientations, and operational performance within the Saudi Arabian banking sector. By analyzing a sample of 268 HR professionals and utilizing advanced statistical methods such as structural equation modeling (SEM), the research has contributed to the evolving understanding of the role that SHRM 4.0 practices play in shaping organizational strategies and performance outcomes. One of the primary findings of this study is the significant direct relationship between SHRM 4.0 practices and strategic orientations. Specifically, it was found that SHRM 4.0 practices actively foster organizational strategies focused on customer, competitor, and technology orientation. This result emphasizes the critical role that SHRM 4.0 plays in not only enhancing HR functions but also driving broader strategic goals within organizations. As organizations increasingly adopt digital technologies, HR practices that integrate advanced tools and data-driven insights are essential for shaping strategic decisions. This aligns with the growing body of literature suggesting that the digital transformation of HRM is fundamental for achieving organizational excellence in the modern business environment. The research makes a significant contribution through its discovery of technology orientation as the essential factor which connects SHRM 4.0 practices to operational performance results. The research shows that SHRM 4.0 practices which link technology to strategic objectives create substantial organizational performance improvements. This finding echoes the views of several scholars who highlight the importance of integrating technological advancements with organizational strategy to improve efficiency and productivity (Pillai & Srivastava, 2023; Yu et al., 2023). The strategic alignment of SHRM 4.0 practices with organizational technological capabilities becomes essential for achieving full effectiveness through technology orientation mediation. The strategic alignment of HR processes with technological capabilities leads to optimized operations and better employee performance and enhanced operational results. However, this study also challenges conventional wisdom by showing that customer orientation does not mediate the relationship between SHRM 4.0 practices and operational performance, at least within the banking sector context. While customer orientation is often seen as a key mediator in many organizational settings, this research suggests that the direct relationship between SHRM 4.0 practices and customer-focused strategies may be less influential in the banking industry. The findings suggest that factors such as market competition, regulatory frameworks, and customer service practices may play a more dominant role in shaping customer orientation within this sector. This highlights the importance of considering sector-specific variables when examining the mediating effects of strategic orientations and suggests that customer orientation may have varying degrees of impact across different industries. Future research could explore how customer orientation operates as a mediator in other sectors, such as retail or manufacturing, where customer engagement is more central to the business model. The research findings demonstrate how HRM practices continue to transform because of digital technological advancements. HR professionals need to accept digital change by implementing modern HR methods which support organizational strategic objectives through technological solutions. The research indicates that operational performance will improve substantially when HRM functions in sync with business strategy and technological systems. HR professionals need to implement new tools and frameworks which include AI and cloud computing and data analytics to drive organizational transformation.

Theoretically, this study extends the socio-technical systems theory by incorporating strategic orientation as a mediating variable. Traditionally, socio-technical systems theory has emphasized the interaction between social and technical components within organizations. This research adds to that understanding by demonstrating how strategic orientation, especially technology orientation, mediates the relationship between SHRM 4.0 practices and organizational performance. The research demonstrates how strategic alignment enables organizations to achieve lasting success through technology while introducing fresh academic knowledge about digital-era HRM practices that influence organizational results. The research establishes through empirical evidence that strategic orientations function as essential mediators between SHRM 4.0 practices and organizational performance. The research demonstrates that organizations need to adopt a complete HRM system which unites technological elements with human resource management to achieve operational excellence. The research results deliver essential direction to HR experts and academic researchers and business leaders who need to understand how strategic orientations affect SHRM 4.0 implementation across various industries.

### *5.4. Limitations And Future Research Work*

The present study provides valuable insights into the impact of smart SHRM 4.0 practices on an organization's operational performance. It is essential to acknowledge certain limitations that should be considered in interpreting the findings.

First, the study relies on self-reported data from top managers from the HRM and the concerned IT department of the banking industry in Saudi Arabia, which may introduce response bias. Expanding the sample diversity across different sectors and geographic regions would maximize the generalizability of the overall results. Furthermore, the present study has a cross-sectional nature, which limits the ability to establish causality. Future research could employ longitudinal designs for a more in-depth understanding of the relationships over time. The reliance on subjective perceptions of organizational operational performance may introduce a degree of subjectivity, and future research could incorporate objective performance metrics for a more comprehensive analysis.

Second, the study primarily focuses on the mediating role of strategic customer orientation, competitor orientation, and strategic technology orientation. Future research endeavors could explore additional mediating variables or moderators (i.e., organizational culture) that may influence the relationship between Smart SHRM 4.0 practices and operational performance. Moreover, investigating potential contextual factors or industry-specific nuances could provide a better understanding of how Smart SHRM 4.0 practices manifest in various corporate settings.

Third, technological advancements are rapid, and smart SHRM 4.0 practices continue to evolve. Future research should stay abreast of emerging technologies and assess their impact on HRM practices and operational performance. Exploring the implementation challenges and success factors associated with adopting Smart SHRM 4.0 in diverse organizational contexts would contribute valuable insights to academia and industry practitioners. Additionally, the study primarily considers the perspectives of IT and HRM staff. Future research could incorporate multiple stakeholder viewpoints, including those of top management and employees, to provide a more comprehensive understanding of the implications.

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