

The Moderating Effect of Human Resource Information Systems on the Relationship between Organizational Performance and Human Resource Management in Commercial Banks in Saudi Arabia

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Abstract

This research endeavour was undertaken to assess the influence of Human Resource Management (HRM) practices on the Organizational Performance (OP) within the banking sector of Saudi Arabia. A secondary objective was to scrutinize the moderating effect of Human Resource Information Systems (HRIS) on the structural interplay between HRM practices and OP. Employing a quantitative methodology, data were gathered from 12 distinct banks operating in Saudi Arabia, with a sample comprising 297 assistant managers. The response rate obtained was deemed satisfactory, and Partial Least Square – Structural Equation Modelling (PLS-SEM) served as the analytical tool for data examination. The outcomes demonstrated a statistically significant and positive acceptance of the structural association between HRM practices and OP. Furthermore, the investigation discerned that HRIS significantly and positively moderates the linkage between HRM practices and OP. These noteworthy findings contribute to the enrichment of existing knowledge within this domain. The impetus behind this study was to furnish valuable insights for both scholarly advancement and practical applications, particularly in fostering optimal Organizational Performance, a pivotal determinant within the banking sector.

Keywords: Organizational Performance, Human Resource Management, Human Resource Information System, Smart PLS.

Introduction

Enhancing the performance of the banking sector is indispensable for bolstering the financial framework of any nation (Goswami & Gulati, 2022). Ensuring the reliability of banking performance is imperative for cultivating favourable public

sentiments regarding financial matters. Augmented banking performance facilitates market growth and fosters sustainability in operational endeavours (Zhao et al., 2022). A well-functioning financial sector is pivotal for strategic market expansion, thereby necessitating a concerted focus on enhancing financial sector performance to optimize financial transactions (Odwaro et al., 2022). A stable approach to financial sector operations contributes significantly to a nation's economic prosperity. Strategic national operations mandate an upsurge in financial sector effectiveness (Zhang et al., 2022). Human resource practices play a pivotal role in augmenting strategic advancements within the financial sector. Globally, the banking sector continuously evolves to provide dependable services essential for societal advancement (Demirgüç-Kunt et al., 2021). However, the employees within the banking sector bear significant responsibility for strategically enhancing its performance. Improving financial sector performance can catalyse business growth with enhanced reliability (Rahman, 2021). Continuous advancements across all sectors, including banking, necessitate appropriate training for employees to refine their skills and competencies.

The banking sector in Saudi Arabia plays a significant role, with common business development approaches prevalent among the populace (Al Zaidanin & Al Zaidanin, 2021). In such an environment, there is a pressing need for the public to enhance their business performance. The advancement of the business culture in Saudi Arabia is intricately linked with its banking system (Zhou et al., 2021). Banks in the Saudi Arabian region offer various schemes aimed at benefiting the public. Public access to investment opportunities further aids in developing their business strategies (Ramzan et al., 2021). It is imperative to provide comprehensive training to bank employees to optimize overall performance. Continuous refinement of strategic approaches to enhance employee performance is essential (Kitigin et al., 2021). Training sessions and workshops focusing on employee skill development play a crucial role in enhancing their strategic performance. Furthermore, improving HRM culture is vital for enhancing overall performance (Rehman et al., 2021). Employees should be encouraged to adopt better strategies to promote business development while operating strategically. Consequently, it falls upon management to enhance organizational performance, thereby fostering improved business development

(Azmi et al., 2021). Challenges related to practice within the Saudi Arabian banking sector have been identified, which impede overall OP.

Numerous scholars have made substantial contributions to fostering a culture of advancement within the banking sector, aiming to enhance its performance. Khan and Ghayas (2022) advocate for proactive management initiatives within the banking sector to adapt to evolving trends and meet market demands effectively. The recruitment of dynamic individuals by the HRM department is crucial for fostering performance in a strategic and effective manner (Msuya & Kumar, 2022). Ab Shatar et al. (2021) emphasize the critical importance of significantly advancing banking culture to alleviate constraints on organizational performance. Naseer et al. (2021) stress the necessity for strategic enhancements in banking performance to align with contemporary trends, essential for achieving organizational efficiency. Ahmad et al. (2020) argue for the adoption of effective policies by top bank management to critically enhance banking sector performance. Salman et al. (2020) assert that banking sector performance is pivotal for improving organizational goals and achieving strategic performance milestones. Kurdi and Alshurideh (2020) advocate for reliable policies within banking management to pave the way for advancements in the market. Musa et al. (2020) highlight the need for future studies to explore the influence of HRIS on banking sector performance.

The present study aimed to assess the impact of HRM on OP within the Saudi Arabian banking sector and to examine the moderating influence of HRIS on the structural relationship between HRM and OP. Utilizing quantitative data collected from 12 banks in Saudi Arabia, a sample of 297 assistant managers was surveyed. The study achieved an appropriate response rate, employing PLS-SEM for data analysis. Results indicated a significantly positive acceptance of the structural relationship between HRM and OP. Additionally, the study identified HRIS as a significant moderator in the relationship between HRM and OP. These findings contribute significantly to existing knowledge in the field. The study's motivation was to enrich scholarly understanding and provide actionable insights for practitioners aiming to enhance OP, a critical factor within the banking sector. While the study acknowledges certain limitations, it offers directions for future research. Its structure encompasses a literature review, methodology, findings, discussion, implications, and future research avenues.

Literature Review

Organizational Performance

Organizational performance epitomizes a firm's holistic achievement of strategic objectives within the market domain (Bacha et al., 2021). Given the competitive landscape, contemporary enterprises necessitate robust strategies to navigate their organizational milieu effectively (Bătae et al., 2021). The dynamic nature of policy formulation engenders fluctuations in the performance trajectories of numerous organizations over time (Shakil et al., 2021). Modern organizational management operates with strategic acumen to optimize performance outcomes. Within the banking sector, financial performance assumes paramount importance, wherein the provision of products and financial services to clientele is pivotal (Batrancea, 2021). Attaining a substantial market share and targeting pertinent demographics underscore the trajectory of organizational success (Shaba, 2021). Consequently, fostering a competitive market environment emerges as a strategic imperative to realize organizational objectives effectively.

Human Resource Management

HRM endeavours to optimize the integration of human resources within organizations to attain their objectives effectively (Batrancea, 2021). Employees play a critical role in the performance of any organization, with modern enterprises continually fostering employee motivation to align with strategic goals (Shaba, 2021). It falls upon the HRM department to furnish management with requisite resources to support goal attainment. Strategic enhancements in organizational culture can pave the path for the successful realization of objectives (Siddique et al., 2021). However, optimizing HRM practices involves leveraging organizational goals effectively. The performance of the HR department serves as a pivotal metric for organizational success, offering a reliable pathway to operational efficacy (Al Zaidanin & Al Zaidanin, 2021). Moreover, the maintenance of organizational culture performance stability necessitates concerted efforts from team management and the HRM department (Alam et al., 2021).

Human Resource Information System

HRIS functions as a comprehensive system engineered to acquire, store, manipulate, analyse, and disseminate HR-related data within organizational contexts (Votto et al., 2021). It represents an integrated framework designed to consolidate and analyse data pertinent to an organization's HR operations, bridging the gap between HR functions and technological infrastructure, thereby facilitating streamlined HR practices (Sumaryati et al., 2020). This integration results in more efficient management and oversight of HR expenditures, replacing traditional manual methods of data aggregation and storage. The widespread adoption of HRIS reflects its efficacy in managing a multitude of HR functions, as acknowledged by a majority of organizations (Alkayed & Omar, 2023). Comprising both hardware and software components, HRIS operates within established policies and procedures, enabling the storage and processing of extensive datasets and records, including employee profiles, organizational projections, and system-generated performance evaluations (Qader et al., 2021). Serving as a performance management tool, HRIS promotes transparency in organizational operations.

Hypotheses Development

HRM and Organizational Performance

HR practitioners deploy strategies aimed at improving OP (Qader et al., 2021). Extensive research has delved into the correlation between Human Resource Management (HRM) and OP, yielding three principal observations. Firstly, HRM practices, particularly those fostering employee dedication, serve as crucial benchmarks for organizational outcomes (Heslina & Syahrini, 2021). Secondly, these investigations conceptualize HRM practices holistically, underlining the collective impact of synergistic practices on enhancing OP (Votto et al., 2021). Thirdly, while some studies scrutinize HRM practices within specific sectors like automotive and steel manufacturing, others encompass diverse industries, regions, or nations (Sumaryati et al., 2020). These studies yield robust findings, supporting the formulated hypothesis:

H₁: *HRM is a significant positive predictor of OP.*

Moderating Effect of HRIS Between HRM and OP

HR information serves as a pivotal enabler in facilitating managerial decision-making processes, thereby guiding judicious HR selections (Sarfraz et al., 2023). As HR assumes the role of a strategic business partner within organizational frameworks, its active contribution to the realization of organizational objectives becomes imperative. To fulfil this role effectively, HR must deploy suitable tools (Sun et al., 2023). For instance, within knowledge-intensive organizational contexts, HRM must prioritize strategies aimed at retaining employees possessing rare and valuable expertise (Hensellek et al., 2023). In the landscape of a knowledge-intensive economy, IT empowers organizations to operate with greater efficiency and attain a competitive advantage. Consequently, organizations are increasingly turning to HRIS to enhance the effective management of human assets (Hasibuan, 2022). The adoption of HRIS has witnessed a notable upsurge across various sectors. Given that HR-specific regulations and competitive pressures impact every organization, HRIS assumes a pivotal role in supporting strategic planning endeavours (Raza & Khan, 2022). It accomplishes this by processing and furnishing information pertinent to both current and anticipated workforce demand and supply. HRIS assists employers in formulating suitable strategies in response to the dynamic competitive milieu (Rahmatullah et al., 2022; Sari et al., 2021). Furthermore, it facilitates the adjustment of compensation and reward structures, the determination of optimal levels of training investment, and the accurate forecasting of salary growth as market conditions evolve. Consequently, it is posited that:

H₂: HRIS significantly moderates between HRM and OP.

A theoretical framework has been formulated to empirically assess the hypotheses (see Figure 1).

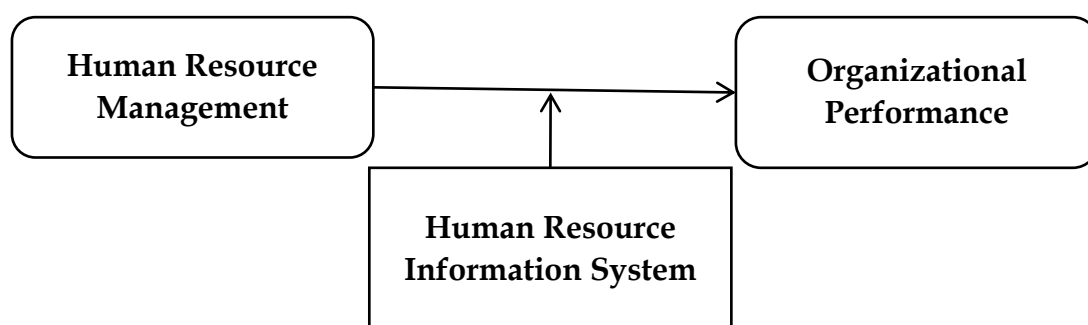


Figure 1: Theoretical Framework.

Research Methodology

The study design encompasses a comprehensive framework delineating the methodologies utilized for data collection and analysis. Frequently employed software programs such as SPSS and Smart PLS are utilized for tasks such as conducting descriptive statistics and estimating models. In this study, data gathering primarily relies on a questionnaire as the principal means. The questionnaire is structured into four distinct sections, exploring three pivotal management topics: (1) HRM, (2) OP, and (3) HRIS. Responses to Sections 2–4 are evaluated using a seven-point Likert scale. The collected data undergoes initial descriptive analysis to facilitate straightforward interpretation, followed by organizing responses based on their frequency. Cronbach's alpha serves as a statistical metric employed to assess the internal consistency and interrelatedness among items within a scale or measure. The recommended alpha value typically ranges from 0.7 to 0.9. According to [Hair et al. \(2019\)](#), Cronbach's alpha functions as an indicator of the reliability of a measurement instrument rather than serving as a statistical test. It evaluates the extent to which the considered items effectively capture a shared and consistent concept.

The research adopts a survey methodology to acquire primary data from the target demographic, composed of branch and assistant managers situated within commercial banks operating in Saudi Arabia. The study disseminates the questionnaire to a sample of 12 operational commercial banks across the country. The sample encompasses 297 participants possessing a thorough comprehension of the internal operations within their respective banks. Employing a random distribution technique, the survey is distributed to 500 respondents.

Findings

In this study, the measurement model underwent comprehensive testing utilizing the Smart PLS software. The data collected from the distribution of 500 meticulously structured surveys to banking personnel in Saudi Arabia underwent thorough and rigorous scrutiny. The assessment instruments utilized in this investigation adeptly captured the intended variables through a combination of established scales and context-

specific items. Leveraging Smart PLS facilitated the modelling and comprehension of intricate relationships between HRM, OP, & HRIS via SEM.

Through the implementation of this thorough methodology, the research endeavours to bolster the reliability and credibility of its findings, thereby making a significant contribution to the comprehension of institutional dynamics in Saudi Arabia. [Figure 2](#) within Smart PLS furnishes a visual depiction of the Measurement Model, with the subsequent elucidation aiming to provide a comprehensive understanding of its constituents and functionality. The study underscores the efficacy of this approach in assessing latent variables with observable consequences.

[Table 2](#) offers an evaluation of the measurement instruments employed in the research, focusing on their validity and reliability, alongside the acceptance rates associated with each measurement scale. Cronbach's alpha, serving as a statistical metric evaluating the internal consistency of a set of items within a construct, signifies the degree to which they measure the same underlying concept. A Cronbach's alpha value of 0.70 is deemed satisfactory ([Cronbach, 1949](#)). The table showcases Cronbach's alpha coefficients for all constructs, ranging from 0.86 to 0.942. These values surpass the established threshold of 0.7, indicating a high level of internal consistency.

Composite reliability serves as an supplementary metric employed to assess the internal consistency and reliability of a measurement tool. It is deemed reliable when its value surpasses 0.7 (see [Table 2](#)). The AVE measures the extent to which constructs explain variation relative to measurement error. Typically, AVE values exceeding 0.50 are deemed satisfactory. As depicted in [Table 1](#), the AVE values range approximately from 0.581 to 0.634. Crucially, all these values surpass the acceptable threshold, indicating a proficient representation of the requisite structures.

Table 1: Validity and Reliability of the Construction.

Variables	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Human Resource Information System	0.86	0.88	0.581
Human Resource Management	0.942	0.944	0.634
Organizational Performance	0.914	0.915	0.593

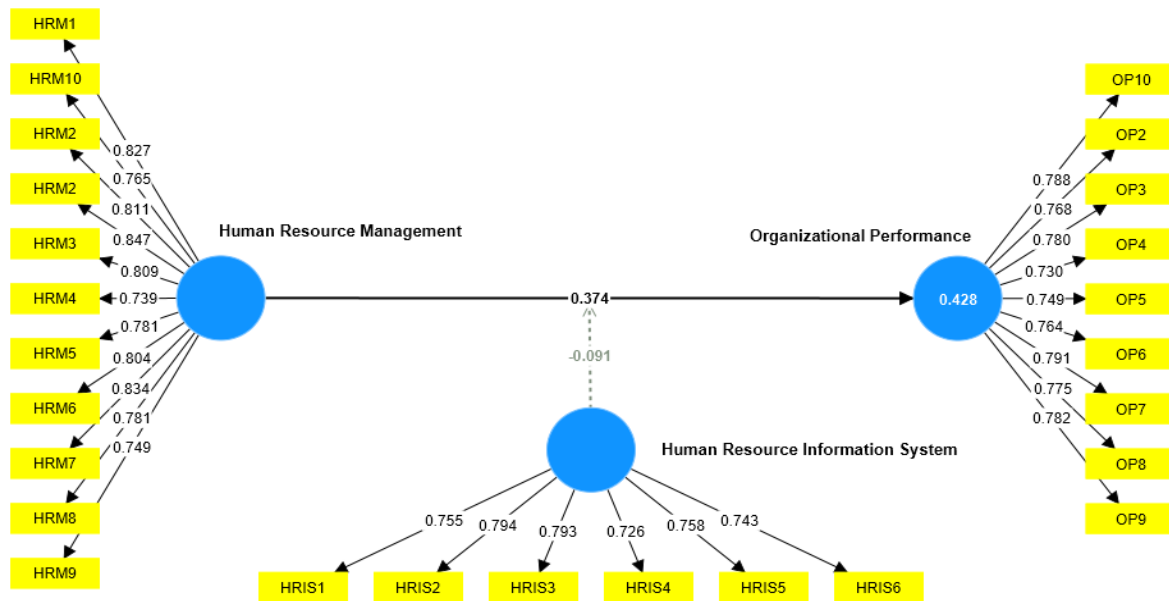


Figure 2: Model of Measurement.

Table 2 exhibits the outer weightings corresponding to the assessment inquiries associated with the variables of HRM, OP, and HRIS. The loadings illustrated in the analysis signify the magnitude of the association between each item and its underlying concept. The outer loadings of the evaluation items for all constructs, comprising HRM, OP, and HRIS, either meet or exceed the stipulated threshold of 0.7. This suggests that each measurement item adeptly captures and portrays its corresponding concept with a high degree of reliability.

Table 3 displays the outcomes of the Fornell-Larcker criteria, a commonly utilized method in SEM, employed to evaluate the discriminant validity of constructs. This assessment scrutinizes the interconnections among the three focal concepts under investigation: HRIS, HRM, and OP. Each cell within the table showcases the square root of the AVE for the corresponding construct. The diagonal elements denote the proportion of variance explained by each construct independently, whereas the off-diagonal elements delineate the associations or correlations between the constructs.

The Fornell-Larcker criteria validate the distinctiveness of HRIS, HRM, and OP as separate entities within the research, confirming their individuality. The assessment, displayed in Table 4, demonstrates that the diagonal elements (square roots of AVE) for HRIS, HRM, and OP exceed their corresponding off-diagonal elements, affirming their discriminant validity.

Table 2: Outer Loadings of Items.

Items	Human Resource Information System	Human Resource Management	Organizational Performance
HRIS1	0.755		
HRIS2	0.794		
HRIS3	0.793		
HRIS4	0.726		
HRIS5	0.758		
HRIS6	0.743		
HRM1		0.827	
HRM10		0.765	
HRM2		0.847	
HRM2		0.811	
HRM3		0.809	
HRM4		0.739	
HRM5		0.781	
HRM6		0.804	
HRM7		0.834	
HRM8		0.781	
HRM9		0.749	
OP10			0.788
OP2			0.768
OP3			0.78
OP4			0.73
OP5			0.749
OP6			0.764
OP7			0.791
OP8			0.775
OP9			0.782''

Table 3: Fornell-Larcker Criteria.

Variables	Human Resource Information System	Human Resource Management	Organizational Performance
Human Resource Information System	0.762		
Human Resource Management	0.536	0.796	
Organizational Performance	0.503	0.604	0.77

Figure 3 portrays the SMA, a widely employed method in the Saudi banking sector, aimed at elucidating and quantifying the relationships among the three principal variables: HRM, OP, and HRIS. SMA, a statistical technique inherent to SEM, serves to investigate and quantify connections between latent variables or constructs. Within this framework, we examine the interrelationships among HRIS, OP, and HRM. Path analysis, employed in the visual representations, elucidates the strength and direction of these connections. Figure 3 visually represents the findings, delineating the variables that directly influence others and the extent of their impact.

By adopting this methodology, we gain deeper insights into the dynamics inherent in the Saudi banking sector, thereby advancing our overarching research objectives.

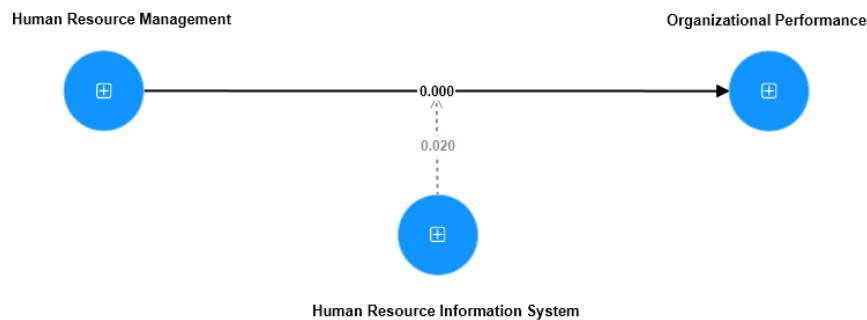


Figure 3: Analysis of a Structural Model.

The first hypothesis seeks to establish a positive correlation between HRM and OP, a proposition supported by the analysis outcomes. The T-statistic of 4.141 indicates a high level of statistical significance, with a p-value of 0, considerably lower than the predetermined threshold of 0.05. This suggests a robust and statistically significant relationship between the implementation of HRM practices and the overall success of our organization.

The second hypothesis investigates the potential moderating role of HRIS in the relationship between HRM and OP. Our findings suggest that HRIS indeed moderates this relationship. The observed path coefficient of -0.09 implies that the inclusion of HRIS may exert a moderating effect, potentially influencing the strength of the direct association between HRM and OP. This moderation effect is statistically significant, evidenced by a T-statistic of 2.336 and a p-value of 0.02, falling below the predetermined significance level of 0.05. Thus, our research indicates that HRIS plays a moderating role in the correlation between HRM and OP, affecting the intensity or direction of this relationship.

In summary, our research data provides evidence supporting both hypotheses, affirming positive and statistically significant associations between HRIS and HRM with OP, while also establishing HRIS as a moderator in the relationship between HRM and OP. These findings offer tailored insights into the dynamics of our research context and the impact of HRIS and HRM on our organization's performance. Details of these results are outlined in [Table 4](#).

Table 4: Path Coefficients.

Relationship	Sample mean	STDEV	T statistics	P values
H ¹	0.367	0.09	4.141	0
H ²	-0.09	0.039	2.336	0.02

Table 5 displays the R-squared values, which serve as indicators of the goodness-of-fit of the regression model concerning OP. In this context, OP acts as the dependent variable, and these values are pivotal in evaluating how effectively the model's independent factors elucidate variations in that variable. The incorporation of these independent variables into the regression model yields an R-squared (R²) value of 0.428. This implies that approximately 42.8% of the variability in OP can be elucidated by the model. Essentially, this model offers a significant explanation (approximately 42.8%) for the variances in OP, attributable to the considered components.

The adjusted R-squared value (R² adjusted) considers the number of independent variables, resulting in a slightly lower value of 0.422. This adjustment aids in mitigating potential overfitting concerns. Despite this modification, the model continues to provide a satisfactory explanation of OP. An adjusted R-squared value of 0.422 strikes a favourable balance between explanatory power and model simplicity.

Table 5: R-Squared.

	R-Square	R-Square Adjusted
Organizational Performance	0.428	0.422

Discussion and Conclusion

The empirical results of the present study substantiated the theoretically proposed connections. Both hypotheses were confirmed to a significant extent. These findings were juxtaposed with prior research insights. [Cooke et al. \(2019\)](#) underscored the imperative for banks' HRM to actively enhance employee performance, emphasizing the strategic significance of fostering learning and achieving strategic performance. Similarly, [YuSheng and Ibrahim \(2020\)](#) highlighted European banks' strategic endeavours to enhance performance by prioritizing the efficiency of banking sector employees, advocating for the provision of requisite resources to bolster their efficacy. [Abdurrahman et al. \(2024\)](#) advocated for training and workshops to augment

employee efficiency, essential for steering organizational performance.

Tandelilin and Usman (2023) emphasized HRIS as indispensable for monitoring employee performance records, stressing the strategic imperative for employees to work strategically and elevate productivity. Bolívar et al. (2023) further iterated the necessity of HRIS for maintaining employee health records, which aids in enhancing performance. Strategic enhancements in HRM practices within the banking sector can propel business performance in a positive trajectory, as highlighted by Neves et al. (2023), who emphasized hiring employees with dynamic capabilities. Corbet et al. (2022) highlighted HRIS's role in monitoring employee performance records, facilitating teamwork-oriented approaches to enhance performance. Arshad Khan and Alhumoudi (2022) underscored the importance of effective bank approaches in fostering a culture of organizational performance through active employee engagement.

In conclusion, the objectives of the present research were realized through empirical data analysis. The findings demonstrated a significant and positive structural relationship between HRM and OP, with HRIS identified as a significant moderator. This study enriches the existing body of knowledge and provides practical insights for practitioners to enhance OP within the banking sector. The contributions of this research are twofold: advancing academic knowledge and informing practical strategies. Addressing existing gaps in the literature, the findings advocate for integrating HRIS into organizational practices to strategically enhance business performance.

Theoretical and Practical Implications

Theoretically, the current research has made a substantial contribution to the literature. Notably, the findings of this study represent novel insights compared to previous research endeavours. Firstly, it has advanced our understanding by asserting that HRM within the banking sector of Saudi Arabia serves as a significant predictor of organizational performance. Prior studies seldom delved into this aspect within the specific context of Saudi Arabia. Furthermore, the study has illuminated the notion that organizational performance can be enhanced through the interventions of the HRM department, a principle applicable beyond the banking sector. Additionally, the

research has introduced a significant moderating variable to the literature by emphasizing the pivotal role of HRIS in moderating the relationship between HRM and OP, a relationship seldom explored within the Saudi Arabian banking sector. This study has contributed to our understanding by demonstrating that HRIS exerts a significant and positive influence on the causal relationship between HR and OP.

From a practical standpoint, the study offers valuable recommendations to enhance banking performance in Saudi Arabia. It underscores the pivotal role of the HRM department in improving banking performance and advocates for the provision of necessary training to employees. This training should align with market demands, enabling employees to strategically navigate the market landscape and enhance their performance. Moreover, the study highlights the importance of providing essential facilities to employees to foster their performance effectively. While strategic leadership is essential for driving OP, it is equally crucial to implement policies aimed at enhancing employee performance efficiency, facilitating strategic growth. Additionally, the study recommends the integration of HRIS into the banking sector of Saudi Arabia, emphasizing its potential to influence employee performance and ultimately OP. Therefore, strategic initiatives should be devised to cultivate an organizational culture conducive to employee performance enhancement.

Future Directions

The empirical examination conducted in this study represents a notable limitation. The reliance on structured questionnaires restricted respondents from offering additional insights, highlighting a potential constraint in the methodology. Thus, future research endeavours should consider employing qualitative data collection methods to enrich the literature further. Additionally, the current study exclusively examined the moderating relationship of HRIS, overlooking the potential influence of other moderating variables. Therefore, it is recommended that future investigations explore the moderating role of variables such as employees' psychological well-being, thereby augmenting the depth of knowledge in this area. Furthermore, the study's focus on the Saudi Arabian context and its sample may limit the generalizability of the findings. To address this limitation, future studies should

aim to gather data from diverse populations to facilitate broader generalizations and enhance the applicability of the research outcomes.

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