Exploring the impact of e-HRM on organizational performance: A mediated model

Ahmed Mohammed Alomari[a*]

[a]*PhD Student, Faculty of Economics and Management, Department of Business Administration, King Abdulaziz University, Saudi Arabia*

C H R O N I C L E	A B S T R A C T
	This study examined the nexus between electronic human resource management (e-HRM), employee engagement and organizational performance in small- and medium-sized Saudi firms. In total, 180 participants were randomly selected using convenience sampling. Structural equation model-partial least squares SEM-PLS, was applied for analysis purposes. The outcomes of this study show that there is no statistically significant relationship between organizational performance and e-HRM. E-HRM and employee engagement, as well as employee engagement and organizational performance, have a strong beneficial association. The results highlight the necessity of establishing efficient E-HRM procedures as a strategy to raise employee engagement and promote organizational performance.

1. Introduction

In today's dynamic and competitive business environment, organizations are increasingly recognizing the critical role of effective tools and strategies in achieving sustainable success and maintaining a competitive edge (Qahtani & Alsmairat, 2023). With the rapid advancement of technology, Electronic Human Resource Management (E-HRM) has emerged as a transformative approach, revolutionizing traditional HRM practices and enabling organizations to leverage technology to enhance efficiency, effectiveness, and strategic decision-making (McDonald et al., 2017). E-HRM refers to the integration of information technology (IT) into various Human Resource Management (HRM) functions and processes, including recruitment and selection, training and development, performance management, and employee engagement (Nyathi & Kekwaletswe, 2023). By leveraging technology, E-HRM aims to improve the accuracy, accessibility, and timeliness of Human Resource (HR) data, streamline HR processes, and enhance the overall HRM experience of both employees and managers. Researchers and practitioners have shown a great deal of interest in the relationship between e-HRM and organizational success (Nyathi & Kekwaletswe, 2022). While some studies have provided solid evidence that e-HRM practices can enhance organizational performance, others have produced conflicting or inconclusive findings (Marler & Fisher, 2013; Müller et al., 2018; Strohmeier & Kabst, 2014). This variation in results emphasizes the need for additional research to fully understand how E-HRM and organizational success are related. Employee engagement, defined as the emotional commitment and active involvement of employees in their work and the organization, has emerged as a critical factor influencing organizational success. Engaged employees are more likely to exhibit higher levels of motivation, productivity, job satisfaction, organizational commitment, and discretionary efforts. Consequently, organizations with highly engaged employees tend to experience lower turnover rates, higher customer satisfaction, increased innovation, and improved financial performance. Despite the growing recognition of the importance of employee engagement and increasing adoption of e-HRM practices, limited research has examined the interplay between these two constructs and their combined impact on organizational performance. Understanding how E-

HRM influences employee engagement and how this engagement, in turn, affects organizational performance, is essential for organizations aiming to maximize the potential of their human capital and drive sustainable success. Therefore, this study investigates the relationship between e-HRM, employee engagement, and organizational performance in the context of small and medium-sized enterprises (SMEs) in Saudi Arabia. SMEs play a significant role in a country's economic development and job creation, and their success is crucial for the overall growth of the economy. However, there is a dearth of empirical research focusing specifically on e-HRM, employee engagement, and organizational performance in the context of SMEs in Saudi Arabia. By narrowing the research focus to SMEs in Saudi Arabia, this study aims to address the research gap in the existing literature and provide valuable insights relevant to the specific organizational and cultural context of the country. Understanding the unique challenges and opportunities faced by SMEs in implementing e-HRM practices and fostering employee engagement is essential for developing tailored HRM strategies that can drive organizational performance and contribute to the growth and sustainability of these businesses.

2. Literature review

2.1 E-HRM systems

Since the 1990s, the integration of internet technology in HRM systems, aiming to facilitate and support HR practices and administrative tasks that were previously reliant on human efforts, has been defined as E-HRM. The HR department's practices that can be encompassed within electronic management systems include labor force planning and predicting possible demands, tracking job applications, managing staffing data, fostering social relations among employees, providing labor training and development, and handling salary issues and promotions. Marler and Parry (2016) provided a comprehensive definition of e-HRM, stating that it is a collection of computerized and electronic networking configurations that enable practical HRM activities, such as policies, services, and practices, through the control of communication and information creation within or across organizational boundaries. Multiple academics and researchers have emphasized the use of the internet for fulfilling HRM duties when defining e-HRM, supporting the notion that e-HRM combines IT and HRM activities to enhance human resource management in firms and organizations (Qahtani & Alsmairat, 2023). The primary objective of e-HRM is to make HRM practices uniquely distinctive, efficient, and consistent, thereby creating long-term opportunities for targeted users within and across firms and organizations. It possesses the ability to simplify the process of achieving organizational goals, enrich and support them, and accelerate the accomplishment of organizational objectives (Bondarouk et al., 2016). In this study, we explore the different roles and benefits of e-HRM systems through discussing the operational, relational and transformational e-HRM.

2.2 Operational e-HRM

The administrative role of e-HRM has been confirmed by researchers, who have demonstrated its ability to automate HRM procedures and enhance the efficiency of HR department outcomes. This role is based on an "automate style" of information technology management (Kamble et al., 2020). E-HRM systems go beyond administrative tasks and have the potential to minimize costs and maximize efficiency in routine operational activities such as e-access control, payroll, attendance management, and worker record administration (De Alwis et al., 2022;). These systems serve to document HRM achievements in a standardized manner, facilitating data retrieval when needed, like electronic bookkeeping. Strohmeier and Kabst, (2014) state that leveraging an electronic information system to automate administrative practices and provide data for organizational decision-making assists organizations in sustaining their competitive advantage and improving performance.

2.3 Relational e-HRM

Relational e-HRM is aimed at enhancing communication between HR professionals and their clients, such as managers, employees, and job seekers, through web-based technology. This focus on communication serves to improve customer service and strengthen relationship management efforts (Strohmeier, 2013). According to Bissola and Imperatori, (2014), this system extends technology-based relationship development from customer ties to employee relationships, boosting transparency in HR relations and developing trust between employees and management.

2.4 Transformational e-HRM system

This approach views e-HRM systems as analytical systems that provide a wealth of information to enhance the quality of HR-related decisions. This information can be readily accessed by the organization to drive successful decision-making, enabling HRM to contribute strategically and become a strategic partner. Many researchers have concluded that e-HRM systems serve as strategic tools, improving HRM orientation and actively contributing to organizational sustainable performance(Reddington, 2008). When HR professionals adopt e-HRM systems, they allocate more time to strategic actions, focusing on their responsibilities as business partners and engaging in organizational strategic management practices. This shift in proficiency is directed towards corporate issues. Nonetheless, e-HRM has had a positive impact on HR planning, assisting professionals in implementing strategic decisions. Numerous studies have highlighted the strategic potential of e-HRM, aiming to transform HRM from administrative employees to strategic partners and supporting long-term organizational strategy progress (Qahtani

& Alsmairat, 2023, Panayotopoulou et al., 2007; Reddick, 2009). The focus of literature has shifted from studying operational effects to relational and transformational effects (Bondarouk et al., 2016).

Besides, successful implementation of e-HRM systems primarily depends on people, as human impressions and perspectives play a major role in the process. Factors such as confidence in technology skills, trust, and change management actively promote the success of e-HRM. Additionally, innovative and visionary leaders, along with effective communication about the system's usefulness, ultimately encourage its adoption (Bondarouk et al., 2016). Moreover, Marler and Parry (2016) and Qahtani and Alsmairat (2023) stated that user involvement and contribution during the development and implementation of e-HRM are of immense importance for a successful e-HRM experience. Regarding effective e-HRM adoption, training has been discussed in the literature, but no clear outcomes have been reported. Some academics advise increasing levels of technical knowledge and skills for HR professionals, while others disregard this aspect. In a meta-analysis study conducted by Zhou et al., (2022) on e-HRM systems in multinational corporations, they examined antecedents, consequences, and moderators from the perspective of the Information Systems literature. The study concluded that most e-HRM investigations focused on system adoption and end-user satisfaction with e-HRM. Furthermore, Marler and Fisher, (2013) examined forty e-HRM studies conducted between 1999 and 2011. They aimed to apply an evidence-based framework and investigate the relationship between e-HRM and strategic HRM. The findings indicated limited systematic evidence connecting e-HRM to strategic outcomes.

2.5 E-HRM and organizational performance

Organizational performance can be evaluated through various indicators such as employee engagement, customer satisfaction, productivity, performance quality, earnings maintenance, profit processing, and business development (Hussain et al., 2023). While financial aspects are often the main focus for business owners and financial personnel when assessing organizational performance by calculating project operations' financial gains. Non-financial factors like job satisfaction and employee engagement also play a pivotal role in achieving long-term commitment outcomes for the business. Recognizing employees' attitudes is vital in supporting organizational profitability, as high levels of engagement motivate employees to dedicate themselves to the organization, leading to significant competitive advantages. Additionally, deeply engaged employees tend to have higher retention rates and lower absenteeism and turnover rates. Furthermore, the successful adoption of E-HRM has been closely correlated with improvements in operational performance within organizations (Nyathi & Kekwaletswe, 2023). By utilizing electronic management systems, E-HRM streamlines administrative processes such as personnel planning, recruitment, training, payroll, and attendance tracking, leading to enhanced operational efficiency and reduced administrative burdens (McDonald et al., 2017). As a result, HR professionals can devote more time to strategic initiatives, becoming strategic partners and promoting better alignment with organizational goals. E-HRM systems also facilitate improved communication and information sharing, fostering greater coordination and collaboration between staff members and teams, which contributes to a more effective and engaged workforce. Ultimately, E-HRM's positive impact on operational performance can lead to better customer service, increased productivity, and the attainment of long-term competitive advantages. Various studies have investigated the relationship between E-HRM and organizational performance. For example, Cheng & Zou (2021) conducted a meta-analysis that revealed a positive relationship between E-HRM and organizational performance across different countries, with technology factors, organizational factors, people, and social factors being identified as critical success factors for E-HRM implementation. Additionally, research by Muqaddam and Hossain (2021) found a positive and significant impact of E-Compensation and E-Performance Appraisal on operational performance in the Bangladeshi Garment Industry. In another study, Ahmed and Ogalo (2019) explored the effect of E-HRM on the organizational performance of a manufacturing business in Bangladesh and found that E-HRM had a positive and significant effect on organizational performance. Similarly, Iqbal et al., (2018) studied the impact of E-HRM on labor productivity and found a significant and positive direct impact. Overall, the effective implementation of E-HRM can lead to improved organizational performance, cost reduction benefits, increased HR productivity, and the reorientation of HR experts to more strategic roles, thus driving overall success and competitiveness for the organization (Ageron et al., 2020; Ahmed & Ogalo, 2019; Ardolino et al., 2018; Kamble et al., 2020; Njoku et al., 2019). Based on previous premises, the following hypothesis is suggested:

H₁: *E-HRM influences positively and significantly the organizational performance of SMEs in Saudi Arabia.*

2.6 E-HRM and Employee engagement

Employee engagement has been widely defined as the emotional, cognitive, and intellectual commitment an employee has towards their organization, representing the strength of the relationship between them and the alignment between work performance and organizational outcomes, such as strategies and goals (Amhalhal et al., 2016; Svensson et al., 2021). Yalabik et al. (2017) also defined it as the clear perception of the connection between an employee and their work. The positive relationship between employee engagement and organizational sustainable performance is well-established, leading to decreased turnover rates, absenteeism, and accidents, while improving overall employee and organizational performance. Engaged employees demonstrate excitement, satisfaction, and dedication to their work, which strengthens their relationships with their employer (Bizri et al., 2021; Molinillo et al., 2021). However, several studies provide contrasting viewpoints on how employee engagement affects corporate success. For instance, Halbesleben and Wheeler, (2008) discovered that engagement had

only a minimal impact on organizational performance in a study involving 587 American workers. A Gallup organization study also revealed low to moderate correlations between engagement and organizational performance. A recent study by Imran et al. (2021) investigated the impact of E-HRM on Employee Engagement in the banking sector. They found that the use of E-HRM, specifically E-Performance Appraisal and E-Compensation, significantly enhanced employee engagement among bank employees in Sukkur and Khairpur districts. The study involved approximately 300 employees from private branch banks, and the data were analyzed using Regression Analysis. Another study by Ahmed et al. (2020) examined the effect of employee engagement on organizational performance, mediated by knowledge sharing, in higher educational institutions. The results revealed a significant and positive impact of employee engagement on organizational performance, and knowledge sharing partially mediated this association. Overall, the study shows how E-HRM has a beneficial effect on employee engagement and how that affects organizational performance. This information can help businesses increase their overall effectiveness and productivity. Nonetheless, the direct connection between E-HRM, employee engagement, or the direct connection between E-HRM and organizational success has been made clear by recent studies. This study, however, focuses on the employee engagement's mediating role between E-HRM and organizational success. E-HRM plays a vital part in increasing employee engagement inside an organization thanks to its digital and automated capabilities. E-HRM improves communication, cooperation, and information sharing among employees, leading to a more engaged workforce by reducing administrative processes and freeing up HR practitioners to focus on strategic projects. Employees that are emotionally, cognitively, and intellectually committed to the business are more productive, have lower turnover rates, and take fewer sick days. Their greater commitment to corporate objectives and agreement with business tactics help to improve overall organizational performance. Therefore, the following hypothesis is suggested:

H₂: *E-HRM influences positively and significantly the employee engagement in SMEs in Saudi Arabia.*
H₃: *Employee engagement influences positively and significantly the organizational performance of SMEs in Saudi Arabia.*
H₄: *Employee engagement mediates the relationship between E-HRM and significantly the organizational performance of SMEs in Saudi Arabia.*

3. Research Methodology

This study examined the relationship between employee engagement and organizational performance and how E-HRM impacts it. In this study, a quantitative research methodology was mainly employed. For this investigation, the sample was chosen through convenience sampling. The small- and medium-sized Saudi businesses were the target market. 180 people will make up the sample size, who were chosen based on the resources and time that were available. Google Forms was used as the main data gathering tool for this study's online survey. An online survey provides a convenient and efficient means of gathering data from geographically dispersed populations. The survey was designed based on a 5-point Likert scale. The structural equation model-partial least squares (SEM-PLS) tool was used to analyze the data. SEM-PLS is suitable for analyzing complex models with latent variables, allowing for the assessment of direct, indirect, and moderated effects. It provides flexibility in modeling and is suitable for exploratory studies.

4. Results

4.1 Measurement Model Assessment

The measurement model assessment revealed strong internal consistency and reliability for the e-HRM, employee engagement, and organizational performance constructs.

Table 1
Validity and reliability assessment

Constructs	Items	Loading	Mean	SD
E-HRM (*Cronbach's α= 0.898; CR=0.925; AVE=0.713*)	EHRM1	0.887	4.676	0.629
	EHRM2	0.886	4.647	0.762
	EHRM3	0.867	4.735	0.656
	EHRM4	0.838	4.559	0.914
	EHRM5	0.734	4.412	1.003
Employee Engagement (*Cronbach α= 0.941 ; CR=0.955 ; AVE=0.810*)	EME1	0.908	4.412	0.809
	EME2	0.923	4.324	0.865
	EME3	0.854	4.206	0.932
	EME4	0.918	4.235	0.909
	EME5	0.895	4.500	1.036
Organizational Performance: (*Cronbach's α=0.963; CR=0.972; AVE=0.872*)	OP1	0.937	4.265	1.038
	OP2	0.957	4.324	0.931
	OP3	0.925	4.441	0.945
	OP4	0.905	4.294	0.986
	OP5	0.945	4.324	1.021

The measurement items consistently capture and measure the underlying concepts, demonstrating the reliability of the measurement model The Cronbach's alpha values for E-HRM (0.898), Employees' Engagement (0.941), and Organizational

Performance (0.963) exceed the recommended threshold of 0.7, indicating good to excellent internal consistency (Hair et al., 2019).To assess the construct validity, all of the items' factor loading scores must be over 0.7 (Hair. et al., 2017), which is the case for all the items. Additionally, with composite reliability values of 0.925, 0.955, and 0.972, respectively, the constructs of e-HRM, employee engagement, and organizational performance all demonstrated high levels of reliability. High composite reliability values supported the validity of the data gathered for further analysis and interpretation by fostering confidence in the precision and consistency of the measurement model(Sarstedt et al., 2022). The convergent validity of the measurement model is revealed by Average Variance Extracted (AVE) analysis. Indicating adequate convergent validity, the AVE values for e-HRM (0.713), employee engagement (0.810), and organizational performance (0.872) all exceeded the suggested threshold of 0.5 (Hair et al., 2019). All these conditions are met as the results show in Table 1.

4.2 Hypotheses Testing

Testing hypotheses is a critical step in empirical research that assesses the importance and reliability of claimed correlations. To ascertain the importance of these correlations, the resampling method known as bootstrapping is frequently utilized in PLS analysis (Hair et al. 2019). Researchers can ascertain the statistical significance of the correlations by comparing these p-values to a predetermined significance level. Following the advice of Sarstedt et al. (2022), the bootstrapping process was used to produce consistent coefficient estimates using 5000 subsamples. Furthermore, the R-square values for the variables in the model indicate the proportion of variance explained by the predictors. The employee engagement variable has an R-square value of 0.475, indicating that approximately 47.5% of the variance in employee engagement can be explained by the predictors included in the model. This finding suggests a moderate level of explanatory power. On the other hand, the Organizational Performance variable has a higher R-square value of 0.893, indicating that approximately 89.3% of the variance in organizational performance can be explained by the predictors in the model. This indicates a high level of explanatory power. Fig. 2 and Table 2 summarize the results.

Table 2
Hypotheses test

| Path Relationships	(β)	Standard deviation	T Statistics	p-values
Hypothesis 1				
E-HRM → Organizational performance	-0.082	0.125	0.661	0.509
Hypothesis 2				
E-HRM → Employee engagement	0.689	0.230	2.997	**0.003**
Hypothesis 3				
Employee engagement → Organizational performance	0.224	0.104	9.638	**0.000**
Hypothesis 4				
E-HRM → Employee engagement → Organizational performance	0.689	0.235	2.931	**0.003**
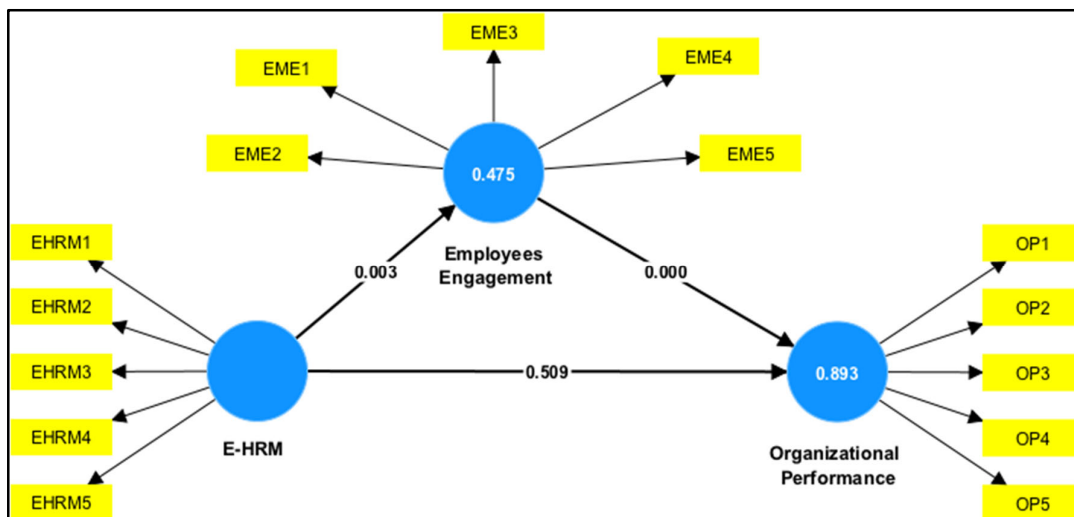
Fig. 1. Research Path Model

The path coefficients between E-HRM and Organizational Performance indicate a weak negative relationship with a value of -0.082. However, this relationship is not statistically significant as the p-value is greater than the predetermined significance

level. Therefore, the evidence suggests that E-HRM does not have a direct impact on Organizational Performance in the examined context. It is important to note that the coefficients -0.021, 0.125, 0.661, and 0.509 correspond to the standard errors, t-values, and p-values respectively, which are necessary for assessing the statistical significance of the relationship. Furthermore, the association between e-HRM and Employee Engagement explored in Hypothesis 2. The path coefficient of 0.689 indicated a strong positive relationship between these variables. This relationship was statistically significant, as evidenced by the t-value of 2.997, which had a p-value of 0.003. These results support hypothesis 2, suggesting that e-HRM has a positive impact on Employee Engagement in the context examined. It is worth noting that the standard error of 0.230 reflects the precision of the coefficient estimate. This significant and positive relationship implies that implementing e-HRM practices can effectively enhance employee engagement levels within the organization. Moreover, Hypothesis 3 examined the relationship between Employee Engagement and organizational performance. The path coefficient of 0.224 suggests a positive relationship between the variables. Furthermore, the t-value of 9.638 was highly significant at a p-value of 0.000, indicating strong statistical significance. Therefore, the evidence strongly supports Hypothesis 3, indicating that Employee Engagement has a positive impact on Organizational Performance in the examined context. This significant positive relationship suggests that higher levels of employee engagement are associated with improved organizational performance. This finding highlights the importance of fostering employee engagement to enhance overall organizational effectiveness and success. Finally, Hypothesis 4 explored the mediating relationship between E-HRM, Employee Engagement, and Organizational Performance. The path coefficient of 0.689 indicates a strong positive direct relationship between E-HRM and Employee Engagement. Additionally, the path coefficient of 0.235 signifies a positive relationship between Employee Engagement and Organizational Performance. Both of these relationships are statistically significant, as indicated by the t-value of 2.931 and p-value of 0.003. These results support Hypothesis 4, suggesting that e-HRM has a positive indirect impact on Organizational Performance through its influence on Employee Engagement in the examined context. Therefore, the findings suggest that e-HRM positively affects Employee Engagement, which in turn positively influences Organizational Performance. These results highlight the importance of implementing effective e-HRM practices to foster employee engagement and improve organizational performance.

5. Discussion

This study examined the impact of e-HRM on organizational performance by focusing on the mediating role of employee engagement. Interesting insights into the associations between e-HRM, employee engagement, and organizational success are shown by the analysis of data gathered from SMEs in Saudi Arabia. The results of this study contradict Hypothesis 1, which suggests an association between e-HRM and business performance. Implementing diverse technological tools and processes is a key component of e-HRM and must be carefully integrated into the corporate context (Qahtani & Alsmairat, 2023). However, other elements that were not considered in this study, such as leadership style, organizational culture, and competitive pressures, may impact the effectiveness of E-HRM in improving organizational performance (Nyathi & Kekwaletswe, 2023). The observed non-significant connection between E-HRM and these unexplained factors may be the result of their interaction.

By contrast, Hypothesis 2 suggests a positive relationship between e-HRM and employee engagement, which was confirmed by the findings. According to previous studies (Imran et al., 2021; Nyathi & Kekwaletswe, 2022), this conclusion is in line with the positive impact of E-HRM on employee attitudes and behaviors. According to (McDonald et al., 2017), e-HRM provides employees with access to information, services, and communication channels that encourage them to interact with their jobs and the organization. These technological tools provide workers with more control over their work, improve job satisfaction, and encourage commitment and loyalty.

Regarding Hypothesis 3, which examines the relationship between employee engagement and organizational performance, the findings show a significant positive relationship. This result is consistent with earlier study (Smith & Bititci, 2017) that emphasize the crucial role of employee engagement in fostering organizational success. Engaged workers are more likely to display better levels of productivity, innovation, customer satisfaction, and organizational citizenship behaviors, all of which promote organizational success. Organizations should, therefore, prioritize strategies that encourage employee engagement to improve performance. Finally, Hypothesis 4 explored how employee engagement influences the relationship between organizational success and e-HRM. The findings show a substantial positive correlation, indicating that employee engagement mediates the link between organizational success and e-HRM, to some extent. This conclusion is supported by earlier research highlighting the mediating effect of employee engagement in various HR practices and organizational results. E-HRM has a favorable impact on employee engagement, which, in turn, enhances organizational performance. As a crucial tool for maximizing the effects of e-HRM on organizational performance, organizations should concentrate on encouraging employee engagement.

6. Implications

The practical implications of this study are noteworthy for organizations seeking to enhance their performance. While the direct impact of e-HRM on organizational performance may not be significant, the positive relationship between e-HRM and employee engagement (Hypothesis 2) suggests that organizations should focus on leveraging e-HRM practices to foster

employee engagement. By effectively utilizing technological tools and practices, organizations can empower employees, improve their job satisfaction, and create a sense of commitment and loyalty. This can be achieved by providing access to information, resources, and communication channels that facilitate engagement with work and the organization. Consequently, organizations should prioritize the implementation of e-HRM strategies that promote employee engagement, as this can have a direct impact on enhancing organizational performance. By investing in E-HRM practices that promote engagement, organizations can create a work environment that motivates employees, fosters their commitment, and ultimately leads to improved performance outcomes.

7. Conclusion

This study examines the nexus between e-HRM, employee engagement, and organizational performance. The outcomes reveal a non-significant direct association between e-HRM and organizational performance, highlighting the complex nature of this association. However, a significant positive relationship was found between e-HRM and employee engagement as well as between employee engagement and organizational performance. These findings emphasize the importance of fostering employee engagement through effective e-HRM practices to enhance organizational performance. The limitations of this study must be acknowledged. First, the data collected relied on self-report measures, which may have introduced a common method bias. Future research should consider using objective performance measures to strengthen the validity of the findings. Additionally, this study focuses on a specific industry and geographical location, limiting the generalizability of the results. Future studies should include diverse industries and cultural contexts to enhance external validity. Furthermore, other unexplored factors, such as leadership style, organizational culture, and competitive pressures, could also influence the relationships examined. Future research should consider these factors to provide a more comprehensive understanding of the complex interplay between e-HRM, employee engagement, and organizational performance.

References

Ageron, B., Bentahar, O., & Gunasekaran, A. (2020). Digital supply chain: challenges and future directions. *In Supply Chain Forum, 21*(3). https://doi.org/10.1080/16258312.2020.1816361

Ahmed, A., & Ogalo, H. S. (2019). From HRM to E-HRM: Contemporary Developments from Scholarly Work. *Annals of Contemporary Developments in Management & HR, 1*(1). https://doi.org/10.33166/acdmhr.2019.01.001

Ahmed, T., Khan, M. S., Thitivesa, D., Siraphatthada, Y., & Phumdara, T. (2020). Impact of employees engagement and knowledge sharing on organizational performance: Study of HR challenges in COVID-19 pandemic. *Human Systems Management, 39*(4). https://doi.org/10.3233/HSM-201052

Amhalhal, A., Anchor, J., & Dastgir, S. (2016). The Effectiveness of the Use of Multiple Performance Measures: The Influence of Organizational Contingencies. *EURAM 15th Annual Conference, 17-20th June 2015, Warsaw Poland*, September.

Ardolino, M., Rapaccini, M., Saccani, N., Gaiardelli, P., Crespi, G., & Ruggeri, C. (2018). The role of digital technologies for the service transformation of industrial companies. *International Journal of Production Research, 56*(6). https://doi.org/10.1080/00207543.2017.1324224

Bissola, R., & Imperatori, B. (2014). The unexpected side of relational e-HRM: Developing trust in the HR department. *Employee Relations, 36*(4). https://doi.org/10.1108/ER-07-2013-0078

Bizri, R., Wahbi, M., & Al Jardali, H. (2021). The impact of CSR best practices on job performance: the mediating roles of affective commitment and work engagement. *Journal of Organizational Effectiveness, 8*(1). https://doi.org/10.1108/JOEPP-01-2020-0015

Bondarouk, T., Parry, E., & Furtmueller, E. (2016). The International Journal of Human Resource Management Electronic HRM: four decades of research on adoption and consequences. *Taylor & Francis, 28*(1).

Cheng, Y., & Zou, Y. (2021). Whether and when e-HRM improves organizational performance: A meta-analysis. In Academy of Management Proceedings (Vol. 2021, No. 1, p. 13990).

De Alwis, A. C., Andrlić, B., & Šostar, M. (2022). The Influence of E-HRM on Modernizing the Role of HRM Context. *Economies, 10*(8). https://doi.org/10.3390/economies10080181

Hair Jr., J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis, 1*(2). https://doi.org/10.1504/ijmda.2017.10008574

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *In European Business Review* (Vol. 31, Issue 1). https://doi.org/10.1108/EBR-11-2018-0203

Halbesleben, J. R. B., & Wheeler, A. R. (2008). The relative roles of engagement and embeddedness in predicting job performance and intention to leave. *Work and Stress, 22*(3). https://doi.org/10.1080/02678370802383962

Hussain, S., Alsmairat, M. A. K., Al-Ma'aitah, N., & Almrayat, S. (2023). Assessing quality performance through seven total quality management practices. *Uncertain Supply Chain Management, 11*(1). https://doi.org/10.5267/j.uscm.2022.12.002

Imran, M., Memon, A. W., Talreja, K., & Bhutto, S. A. (2021). Does E-HRM Advance Employee Engagement ? A Study of Commercial Bank operating in Sukkur and Khairpur District. *Ashwinanokha.Com, 20*(4).

Iqbal, N., Ahmad, M., M.C. Allen, M., & Raziq, M. M. (2018). Does e-HRM improve labour productivity? A study of commercial bank workplaces in Pakistan. *Employee Relations, 40*(2). https://doi.org/10.1108/ER-01-2017-0018

Kamble, S., Gunasekaran, A., & Dhone, N. C. (2020). Industry 4.0 and lean manufacturing practices for sustainable organisational performance in Indian manufacturing companies. *International Journal of Production Research, 58*(5). https://doi.org/10.1080/00207543.2019.1630772

Marler, J. H., & Fisher, S. L. (2013). An evidence-based review of e-HRM and strategic human resource management. In *Human Resource Management Review* (Vol. 23, Issue 1). https://doi.org/10.1016/j.hrmr.2012.06.002

Marler, J. H., & Parry, E. (2016). Human resource management, strategic involvement and e-HRM technology. *International Journal of Human Resource Management, 27*(19). https://doi.org/10.1080/09585192.2015.1091980

McDonald, K., Fisher, S., & Connelly, C. E. (2017). e-HRM Systems in Support of "Smart" Workforce Management: An Exploratory Case Study of System Success. *In Electronic HRM in the Smart Era*. https://doi.org/10.1108/978-1-78714-315-920161004

Molinillo, S., Aguilar-Illescas, R., Anaya-Sánchez, R., & Liébana-Cabanillas, F. (2021). Social commerce website design, perceived value and loyalty behavior intentions: The moderating roles of gender, age and frequency of use. *Journal of Retailing and Consumer Services, 63*. https://doi.org/10.1016/j.jretconser.2020.102404

Müller, J. M., Kiel, D., & Voigt, K. I. (2018). What drives the implementation of Industry 4.0? The role of opportunities and challenges in the context of sustainability. *Sustainability (Switzerland), 10*(1). https://doi.org/10.3390/su10010247

Njoku, E., Ruël, H., Rowlands, H., Evans, L., & Murdoch, M. (2019). An Analysis of the Contribution of e-HRM to Sustaining Business Performance. *Advanced Series in Management, 23*. https://doi.org/10.1108/S1877-636120190000023003

Nyathi, M., & Kekwaletswe, R. (2022). The relationship between electronic human resource management and employee job satisfaction in organizational value-creation in Africa: the case of Zimbabwe. African Journal of Economic and Management Studies. https://doi.org/10.1108/AJEMS-06-2022-0244

Nyathi, M., & Kekwaletswe, R. (2023). Realizing employee and organizational performance gains through electronic human resource management use in developing countries. *African Journal of Economic and Management Studies, 14*(1). https://doi.org/10.1108/AJEMS-11-2021-0489

Panayotopoulou, L., Vakola, M., & Galanaki, E. (2007). E-HR adoption and the role of HRM: Evidence from Greece. *Personnel Review*, *36*(2), 277-294.

Qahtani, E. H. A. L., & Alsmairat, M. A. K. (2023). Assisting artificial intelligence adoption drivers in human resources management: a mediation model. *Acta Logistica, 10*(1), 141–150. https://doi.org/10.22306/al.v10i1.371

Reddington, M. (2008). *The Impact of e-HR online Managers and Employees in the UK: Benefits, Problems, and Prospects. In Technology, Outsourcing & Transforming HR.* https://doi.org/10.1016/b978-0-7506-8645-7.50011-8

Reddick, C. G. (2009). Human resources information systems in Texas city governments: Scope and perception of its effectiveness. *Public Personnel Management*, *38*(4), 19-34.

Sarstedt, M., Hair, J. F., Pick, M., Liengaard, B. D., Radomir, L., & Ringle, C. M. (2022). Progress in partial least squares structural equation modeling use in marketing research in the last decade. *Psychology and Marketing, 39*(5). https://doi.org/10.1002/mar.21640

Smith, M., & Bititci, U. S. (2017). Interplay between performance measurement and management, employee engagement and performance. *International Journal of Operations and Production Management, 37*(9). https://doi.org/10.1108/IJOPM-06-2015-0313

Strohmeier, S. (2013). Employee relationship management - Realizing competitive advantage through information technology? *Human Resource Management Review, 23*(1). https://doi.org/10.1016/j.hrmr.2012.06.009

Strohmeier, S., & Kabst, R. (2014). Configurations of e-HRM - an empirical exploration. Employee Relations, 36(4). https://doi.org/10.1108/ER-07-2013-0082

Svensson, P. G., Jeong, S., Shuck, B., & Otto, M. G. (2021). Antecedents and outcomes of employee engagement in sport for development. *Sport Management Review*, *24*(4), 673-696.

Yalabik, Z. Y., Swart, J., Kinnie, N., & van Rossenberg, Y. (2017). Multiple foci of commitment and intention to quit in knowledge-intensive organizations (KIOs): what makes professionals leave? *International Journal of Human Resource Management, 28*(2). https://doi.org/10.1080/09585192.2016.1244918

Zhou, Y., Cheng, Y., Zou, Y., & Liu, G. (2022). e-HRM: A meta-analysis of the antecedents, consequences, and cross-national moderators. *Human Resource Management Review, 32*(4). https://doi.org/10.1016/j.hrmr.2021.100862