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Original Article

Digital HRM and Employee Innovation in Digital Workplace: Mediating Role of Psychological Safety

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Abstract: Digital transformation has intensified the need for organisations to foster employee innovation while managing the behavioural implications of technology adoption. However, existing research has largely focused on the efficiency outcomes of Digital Human Resource Management, with limited attention to its psychological and behavioural effects. This study examines the effect of Digital Human Resource Management on employee innovation, with psychological safety as a mediating variable in the digital workplace. A quantitative explanatory design was employed using cross-sectional survey data collected from employees of PT XYZ who actively use digital HR systems. Data were analysed using Partial Least Squares Structural Equation Modelling to test direct and indirect relationships among variables. The results show that Digital Human Resource Management has a positive and significant effect on employee innovation and psychological safety. Psychological safety also has a significant positive effect on employee innovation. Furthermore, psychological safety partially mediates the relationship between Digital Human Resource Management and employee innovation, indicating both direct and indirect effects. The model demonstrates moderate explanatory power, suggesting that Digital HRM and psychological safety jointly influence innovation outcomes. These findings indicate that digital HR practices enhance innovation not only through technological support but also by creating a work environment that enables employees to express ideas and take risks. The study concludes that the effectiveness of Digital HRM depends on its alignment with employees' psychological conditions. Organisations should integrate technological systems with supportive work environments to achieve sustainable innovation.

Keywords: Digital HRM; Employee Innovation; Psychological Safety; Digital Workplace; Innovative Work Behaviour.

1. Introduction

The current phase of digital disruption imposes continuous pressure on organisations to sustain competitiveness through innovation. Digital transformation reshapes industries, alters value creation mechanisms, and accelerates organisational change. Empirical evidence shows that firms must respond

strategically to digital disruption by reconfiguring internal capabilities and operational processes (Högberg & Willermark, 2023). Within this context, innovation is no longer optional but a structural requirement for organisational survival. However, innovation does not emerge solely from technological investment or financial capital. It depends fundamentally on the quality, adaptability, and engagement of human resources. This condition places Human Resource Management at the centre of organisational transformation. Contemporary Human Resource Management has shifted from an administrative function toward a strategic role that supports organisational performance, innovation, and long-term sustainability. The integration of digital technologies into HR practices has led to the emergence of Digital Human Resource Management.

This concept refers to the use of digital tools, analytics, and platforms to manage recruitment, training, performance evaluation, and talent development in a more integrated and data-driven manner (Strohmeier, 2020; Halid et al., 2020). The adoption of artificial intelligence and advanced analytics further strengthens HR capabilities by enabling predictive decision-making and improving workforce planning (Venugopal et al., 2024). In addition, the growing digital maturity of HR systems has been identified as a critical determinant of organisational adaptability and innovation capacity (Shahiduzzaman, 2025). Despite these advancements, existing studies often interpret Digital HRM primarily as a mechanism for efficiency improvement. This narrow perspective overlooks its broader strategic role in shaping employee behaviour and fostering innovation. Bibliometric evidence indicates that research on Digital HRM is expanding, yet significant gaps remain in understanding its behavioural and psychological implications (Alam, 2025). In particular, limited attention has been paid to how digital HR practices influence individual-level employee innovation. This gap is critical because employee-driven innovation represents a key source of competitive advantage in knowledge-based economies.

Employee innovation, often conceptualised as innovative work behaviour, refers to the generation, promotion, and implementation of new ideas that contribute to organisational improvement (Hock-Doepgen et al., 2025; Zahra et al., 2026). Prior studies confirm that such behaviour is not only shaped by structural factors but also by psychological conditions within the workplace. Social exchange theory suggests that employees are more likely to engage in creative and innovative activities when they perceive supportive and trustworthy organisational environments (Dhir & Vallabh, 2025). Among these psychological conditions, psychological safety has emerged as a central construct. Psychological safety refers to an individual's perception that the work environment allows open expression without fear of negative consequences. It enables employees to share ideas, admit mistakes, and take interpersonal risks. Empirical studies consistently show that psychological safety enhances creativity, learning, and collaborative problem solving (Dong et al., 2025; Madsgaard & Svellingen, 2025). It also plays a critical role in fostering resilient, adaptive teams, particularly in complex, high-pressure environments (Ndirangu-Mugo, 2025). These findings indicate that psychological safety is not merely a comfort factor but a strategic resource that supports innovation and organisational effectiveness. The relevance of psychological safety becomes more pronounced in the digital workplace.

Digital transformation introduces new forms of work characterised by high complexity, rapid change, and intensive collaboration. Employees are required to continuously update their skills, interact across digital platforms, and adapt to evolving job roles. While digital technologies enhance efficiency and connectivity, they also create new challenges, including digital stress, role ambiguity, and increased performance pressure (Gupta et al., 2025). Ethical concerns related to data privacy, algorithmic bias, and employee monitoring further complicate the digital work environment (Liu & Zhang, 2025). These challenges highlight the importance of integrating psychological considerations into digital HR systems. In such environments, psychological safety functions as a key enabling mechanism. It reduces fear of failure and encourages proactive engagement in innovation-related activities. Employees who perceive psychological safety are more willing to experiment, collaborate, and contribute novel ideas. Conversely, low psychological safety leads to risk avoidance, reduced knowledge sharing, and limited innovation. Empirical evidence confirms that psychological safety mediates the relationship between organisational factors and innovative behaviour (Imran et al., 2025; Dhir & Vallabh, 2025). This suggests that organisational systems, including Digital HRM, influence innovation outcomes indirectly through psychological processes.

Digital HRM has the potential to shape psychological safety through several mechanisms. First, digital platforms enhance transparency in communication and decision-making. Second, data-driven performance systems can increase perceptions of fairness and objectivity. Third, digital learning systems support continuous skill development and reduce uncertainty related to job demands. However, these positive effects depend on how digital systems are designed and implemented. Poorly designed systems may increase surveillance concerns, reduce autonomy, and undermine trust. Therefore, the impact of Digital HRM on innovation cannot be fully understood without considering its psychological consequences. Furthermore, organisational factors such as leadership, communication practices, and HR policies play a critical role in strengthening psychological safety within digital environments. Participative leadership and open communication systems encourage employee involvement and trust (Imran et al., 2025). Digital

training platforms, collaborative tools, and feedback systems can reinforce inclusive and supportive work cultures when implemented effectively. These mechanisms align with the Ability–Motivation–Opportunity framework, in which digital HR practices enhance employee capabilities, foster motivation through supportive environments, and create opportunities for innovative action.

Despite growing interest in digital transformation and innovation, empirical research that integrates Digital HRM, psychological safety, and employee innovation remains limited. Existing studies tend to examine these constructs separately, which restricts a comprehensive understanding of their interrelationships. This gap is particularly relevant in the context of the digital workplace, where technological and psychological factors interact dynamically. Therefore, this study aims to analyse the effect of Digital Human Resource Management on employee innovation, with psychological safety as a mediating variable in the digital workplace. By integrating perspectives from HRM, organisational behaviour, and digital transformation, this study seeks to provide a more comprehensive explanation of how digital HR practices influence innovation outcomes through psychological mechanisms. This approach contributes to both theory and practice by highlighting the importance of aligning digital systems with human psychological needs to achieve sustainable innovation.

2. Literature Review

2.1. Digital Human Resource Management as a Strategic Capability

Digital Human Resource Management represents a structural shift from administrative HR practices to data-driven and technology-enabled systems. It integrates digital platforms, analytics, and artificial intelligence into core HR functions such as recruitment, training, performance evaluation, and talent management (Strohmeier, 2020; Halid et al., 2020). This transformation increases process efficiency, improves decision quality, and enables real-time workforce management (Venugopal et al., 2024). Recent evidence further shows that digital maturity in HR systems enhances organisational adaptability and supports innovation-oriented strategies (Shahiduzzaman, 2025). However, the literature reveals a dominant focus on operational outcomes such as efficiency, cost reduction, and performance optimisation. Bibliometric analysis indicates that research on Digital HRM remains fragmented, with limited integration of behavioural and psychological perspectives (Alam, 2025). This creates a conceptual imbalance. Digital HRM is often treated as a technical system rather than a socio-technical mechanism that shapes employee behaviour. In the context of digital transformation, this limitation becomes critical because employee responses to digital systems determine the success of organisational innovation. In addition, the rapid adoption of digital technologies introduces new ethical and organisational challenges. Issues related to algorithmic bias, data privacy, and employee monitoring can influence trust and perceived fairness within organisations (Liu & Zhang, 2025). These concerns suggest that Digital HRM may produce both enabling and constraining effects on employee behaviour. Therefore, its impact cannot be fully understood without examining underlying psychological mechanisms.

2.2. Employee Innovation in the Digital Workplace

Employee innovation, often conceptualised as innovative work behaviour, refers to the generation, promotion, and implementation of new ideas that improve organisational processes and outcomes (Hock-Doepgen et al., 2025; Zahra et al., 2026). It represents a micro-level driver of organisational innovation and competitive advantage. Empirical studies confirm that innovative work behaviour contributes to business model innovation, organisational performance, and long-term sustainability. In the digital workplace, the nature of innovation has evolved. Digital technologies facilitate collaboration, knowledge sharing, and rapid experimentation. At the same time, they increase task complexity and require higher cognitive and adaptive capabilities from employees (Högberg & Willermark, 2023). This dual effect creates a paradox. While digital tools enable innovation, they also impose new demands that may inhibit employee engagement in innovative activities. Prior research identifies several organisational determinants of employee innovation, including leadership, organisational support, and digital infrastructure. For instance, digital integration and organisational climate significantly influence innovative behaviour by shaping access to knowledge and opportunities for collaboration (Zahra et al., 2026). However, these structural factors alone do not fully explain why employees choose to engage in innovation. This suggests the need to incorporate psychological variables into the analysis.

2.3. Psychological Safety as a Mediating Mechanism

Psychological safety refers to an individual's perception that the work environment allows open expression without fear of negative consequences. It is widely recognised as a critical factor influencing learning, collaboration, and creativity (Dong et al., 2025; Madsgaard & Svellingen, 2025). In organisational settings, psychological safety enables employees to take interpersonal risks, such as proposing new ideas

or challenging existing practices. Empirical studies consistently demonstrate a positive relationship between psychological safety and innovative behaviour. Employees who perceive high psychological safety are more likely to share knowledge, experiment with new approaches, and engage in creative problem solving (Dhir & Vallabh, 2025). Leadership research further confirms that psychological safety mediates the relationship between organisational practices and employee innovation (Imran et al., 2025). These findings support the argument that innovation is not only a function of resources and structures but also of psychological conditions. The importance of psychological safety becomes more pronounced in complex and dynamic environments.

Digital workplaces are characterised by rapid change, high uncertainty, and continuous interaction across teams. In such contexts, psychological safety reduces fear of failure and supports adaptive behaviour. It also facilitates trust and collaboration, which are essential for innovation processes (Ndirangu-Mugo, 2025). Nevertheless, the literature also highlights that psychological safety is sensitive to contextual factors. Digital environments may simultaneously enhance and undermine psychological safety. On one hand, digital platforms improve communication transparency and accessibility. On the other hand, constant connectivity, performance monitoring, and digital stress can increase anxiety and reduce perceived safety (Gupta et al., 2025). This dual effect suggests that psychological safety is shaped by how digital systems are designed and implemented.

2.4. Linking Digital HRM, Psychological Safety, and Employee Innovation

The integration of Digital HRM and psychological safety provides a more comprehensive explanation of employee innovation in the digital workplace. Digital HRM can influence psychological safety through multiple mechanisms. Transparent communication systems, fair performance evaluations, and accessible learning platforms can enhance trust and reduce uncertainty. These factors create conditions that encourage employees to engage in innovative behaviour. From a theoretical perspective, this relationship can be explained through social exchange theory and the Ability–Motivation–Opportunity framework. Digital HRM enhances employee ability through access to information and skill development. It strengthens motivation by fostering supportive, fair environments. It also provides opportunities for innovation through collaborative digital platforms. Psychological safety operates as a critical mechanism that translates these organisational conditions into behavioural outcomes.

However, the existing literature does not fully integrate these constructs into a unified model. Most studies examine Digital HRM in relation to organisational performance or efficiency, without considering psychological mediators. Similarly, research on psychological safety often focuses on leadership or team dynamics, with limited attention to digital HR systems. Studies on employee innovation tend to emphasise structural or cultural factors, while overlooking the role of digital HR practices. This fragmentation creates a clear research gap. There is limited empirical evidence on how Digital HRM influences employee innovation through psychological safety, particularly in the context of the digital workplace. Furthermore, the potential dual effects of digital systems, both enabling and constraining psychological safety, remain underexplored.

Thus, three key gaps can be identified. First, the behavioural implications of Digital HRM remain insufficiently examined, especially at the individual level. Second, the mediating role of psychological safety in digital HR contexts remains empirically unvalidated. Third, there is limited integration of technological and psychological perspectives in explaining employee innovation. This study addresses these gaps by developing and testing a model linking Digital HRM, psychological safety, and employee innovation in the digital workplace. It contributes to the literature by positioning psychological safety as a central mechanism that explains how digital HR practices influence innovative behaviour. It also extends existing research by integrating perspectives on digital transformation and organisational behaviour into a single analytical framework. By doing so, this study provides a more comprehensive understanding of innovation in the digital era. It highlights that technological advancement alone is insufficient. Organisations must align digital systems with human psychological needs to achieve sustainable innovation outcomes. Four hypotheses were formulated:

H1: Digital Human Resource Management has a positive effect on employee innovation.
H2: Digital Human Resource Management has a positive effect on psychological safety.
H3: Psychological safety has a positive effect on employee innovation.
H4: Psychological safety mediates the relationship between Digital Human Resource Management and employee innovation.

3. Materials and Methods

This study employs a quantitative, explanatory research design to test causal relationships among variables. The design follows established methodological principles that emphasise hypothesis testing and objective measurement of constructs (Creswell, 2014). A quantitative strategy is appropriate because the study examines the statistical relationships between Digital Human Resource Management, psychological

safety, and employee innovation using measurable indicators. The study applies a cross-sectional design. Data were collected at a single point in time to capture employees' perceptions of digital HR practices and their psychological conditions within the workplace. This design allows the identification of structural relationships among variables, although it does not capture temporal changes.

The empirical setting is PT XYZ, an organisation that has implemented digital-based human resource systems. These systems include e-recruitment, e-learning platforms, digital performance appraisal, and internal communication tools. The organisation was selected because it operates in a dynamic environment that requires continuous innovation and relies on digital technologies in HR processes. This context provides a relevant setting to examine the interaction between digital systems and employee behaviour. The target population consists of all permanent employees directly involved in digital work processes at PT XYZ. A purposive sampling technique was employed to ensure that respondents possess relevant experience with Digital HRM practices. The selection criteria include employees who have worked in the organisation for at least one year and who actively use digital HR systems in their daily tasks. These criteria ensure that respondents have sufficient exposure to evaluate the constructs under study.

The sample size was determined based on Structural Equation Modelling requirements. According to standard guidelines, the minimum sample size should range from 5 to 10 times the number of indicators in the measurement model. Based on this criterion, the study targeted 120-200 respondents to ensure adequate statistical power and stable parameter estimation. The study includes three main variables. Digital Human Resource Management is treated as the independent variable, psychological safety as the mediating variable, and employee innovation as the dependent variable. Data were collected using a structured questionnaire distributed through an online platform. The instrument was developed by adapting measurement scales from prior validated studies to ensure content validity.

All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Before full data collection, a pilot test was conducted to assess the instrument's validity and reliability. Construct validity was evaluated through item loadings, while reliability was assessed using internal consistency measures. Only items that met established thresholds were retained for analysis. Data analysis was conducted using Partial Least Squares Structural Equation Modelling. This method is suitable for complex models involving mediation and does not require strict assumptions of multivariate normality. It enables simultaneous assessment of the measurement and structural models, including both direct and indirect effects among variables.

4. Results

The measurement model was first evaluated to ensure the reliability and convergent validity of all constructs before proceeding to structural analysis. Table 1 shows the result of construct validity and reliability testing. The result confirms that the measurement model meets established standards of reliability and convergent validity. Each construct demonstrates high internal consistency, strong indicator reliability, and adequate explanatory power at the latent variable level. First, the Cronbach's Alpha values for all constructs exceed the recommended threshold of 0.70. Digital Human Resource Management shows a value of 0.978, Employee Innovation 0.957, and Psychological Safety 0.961. These values indicate excellent internal consistency among measurement items. The items within each construct consistently capture the same underlying concept, reducing measurement error and strengthening the robustness of the analysis. Second, Composite Reliability values further confirm the constructs' reliability. All values exceed 0.90, with Digital HRM at 0.980, Employee Innovation at 0.961, and Psychological Safety at 0.964. Composite Reliability is considered a more precise indicator than Cronbach's Alpha in SEM because it accounts for each indicator's true loadings.

Table 1. Result of Construct Validity and Reliability

Construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Digital Human Resource Management (X)	0.978	0.980	0.604
Employee Innovation (Y)	0.957	0.961	0.511
Psychological Safety (M)	0.961	0.964	0.519

The high values observed suggest that the indicators strongly represent their respective latent constructs and that the measurement model is stable. Third, convergent validity is assessed through the Average Variance Extracted. All AVE values exceed the minimum threshold of 0.50. Digital HRM records an AVE of 0.604, indicating that more than 60 percent of the variance in its indicators is explained by the latent construct. Employee Innovation and Psychological Safety have AVEs of 0.511 and 0.519, respectively, both

exceeding the acceptable level. These results confirm that each construct explains a substantial portion of the variance in its indicators, supporting the adequacy of the measurement model. From a comparative perspective, Digital HRM exhibits the highest reliability and convergent validity among the constructs. This suggests that the operationalisation of Digital HRM is highly stable and well-defined within the study context. Employee Innovation and Psychological Safety also demonstrate strong psychometric properties, although their AVE values are relatively closer to the minimum threshold. This indicates that while the constructs are valid, there may be greater variability in how respondents perceive these dimensions.

Table 2. Coefficient of Determination (R^2) and Effect Size (f^2)

Variable	R-square (R^2)	Effect Size (f^2)
Employee Innovation (Y)	0.392	0.133
Psychological Safety (M)	0.311	

Table 2 presents the coefficient of determination and effect size, which together assess the explanatory power and substantive impact of the structural model. These metrics provide insight into how well the independent and mediating variables account for variation in the endogenous constructs. The R-square value for Employee Innovation is 0.392. This indicates that 39.2 percent of the variance in employee innovation is explained by Digital Human Resource Management and Psychological Safety. In the context of behavioural and organisational research, this level of explanatory power is considered moderate. It suggests that the model captures a meaningful proportion of the factors that drive employee innovation. However, it also implies that approximately 60.8 percent of the variance remains unexplained. This residual variance may be attributed to other determinants such as leadership style, organisational culture, innovation climate, or individual capabilities, which are not included in the current model.

The R-square value for Psychological Safety is 0.311. This result shows that Digital Human Resource Management explains 31.1 percent of the variance in psychological safety. This level is typically interpreted as weak to moderate. The finding confirms that Digital HRM contributes to shaping employees' perceptions of workplace safety, but it is not the sole determinant. Psychological safety is a complex construct influenced by multiple organisational and interpersonal factors, including leadership behaviour, team dynamics, and communication patterns. Therefore, the moderate explanatory level reflects the partial but significant role of Digital HRM. The effect size (f^2) for Employee Innovation is 0.133. According to standard benchmarks, this value falls within the small-to-approaching-moderate range. This indicates that the combined impact of Digital HRM and Psychological Safety is meaningful but not dominant on Employee Innovation. In practical terms, this suggests that while the model variables significantly influence innovation behaviour, their effect is incremental rather than overwhelming. This aligns with the understanding that innovation is a multifaceted outcome shaped by a combination of structural, technological, and psychological factors.

The absence of an f^2 value for Psychological Safety reflects that it is treated primarily as an endogenous mediating variable influenced by Digital HRM, rather than as a final outcome with multiple predictors in the model. Nevertheless, its R-square value demonstrates that it plays a substantive intermediary role. Thus, the results indicate that the structural model has acceptable predictive relevance and explanatory strength. Digital HRM exerts a measurable influence on both Psychological Safety and Employee Innovation, while Psychological Safety enhances the model's ability to explain innovation outcomes. However, the moderate R-square and effect size values suggest that future research should incorporate additional variables to improve model completeness and predictive accuracy.

Table 3. Result of Hypothesis Testing (Direct Effect)

Hypothesis Path	Estimation (β)	Standard Error	T-Statistic	P-Value
Digital HRM (X) → Employee Innovation (Y)	0.407	0.096	4.249	0.000
Digital HRM (X) → Psychological Safety (M)	0.557	0.046	12.212	0.000
Psychological Safety (M) → Employee Innovation (Y)	0.300	0.093	3.243	0.001

Table 3 presents the results of the direct effect hypothesis testing using PLS-SEM. The evaluation focuses on the magnitude of path coefficients, statistical significance, and estimation precision. The relationship between Digital Human Resource Management and Employee Innovation shows a positive coefficient of 0.407. This indicates that improvements in digital HR practices lead to a substantial increase in employee innovation. The T-statistic of 4.249 exceeds the critical value of 1.96, and the p-value is below 0.001, confirming strong statistical significance. The standard error of 0.096 is relatively low, which

indicates stable estimation and reliable parameter precision. This finding supports the argument that digital HR systems enhance employees' ability to generate and implement new ideas by improving access to information, learning opportunities, and collaborative tools. The effect of Digital HRM on Psychological Safety is the strongest among all tested relationships, with a coefficient of 0.557. This result indicates that digital HR practices play a dominant role in shaping employees' perceptions of psychological safety. The T-statistic of 12.212 reflects a very high level of statistical significance, while the p-value confirms that the effect is robust. The small standard error of 0.046 further indicates high estimation accuracy. This finding suggests that transparent digital systems, fair evaluation mechanisms, and structured communication platforms contribute significantly to creating a safe environment where employees feel confident to express ideas and take interpersonal risks.

The relationship between Psychological Safety and Employee Innovation is also positive and statistically significant, with a coefficient of 0.300. Although the magnitude is lower compared to the direct effect of Digital HRM, the effect remains meaningful. The T-statistic of 3.243 exceeds the required threshold, and the p-value of 0.001 confirms significance. The standard error of 0.093 indicates acceptable estimation precision. This result demonstrates that employees who perceive a safe work environment are more likely to engage in innovative behaviour, including proposing ideas, experimenting with new approaches, and contributing to organisational improvement. From a comparative perspective, Digital HRM exerts both direct and indirect influences on Employee Innovation through Psychological Safety. The stronger coefficient for the Digital HRM to Psychological Safety path indicates that psychological conditions are highly sensitive to digital HR practices.

At the same time, the direct path from Digital HRM to Employee Innovation remains substantial, suggesting that digital systems influence innovation through both structural and behavioural mechanisms. All hypothesised direct relationships are supported. The results confirm that Digital HRM functions as a key driver of both psychological safety and employee innovation, while psychological safety serves as an important behavioural factor that enhances innovation outcomes. The combination of significant coefficients, high T-statistics, and low standard errors indicates that the structural model is robust and provides reliable evidence for the proposed relationships.

Table 4. Result of Hypothesis Testing (Indirect Effect)

Hypothesis Path	Estimation (β)	Standard Error	T-Statistic	P-Value
Digital HRM (X) → Psychological Safety (M) → Employee Innovation (Y)	0.167	0.004	39.604	0.000

Table 4 presents the indirect effect analysis, which evaluates the mediating role of psychological safety in the relationship between Digital Human Resource Management and Employee Innovation. The estimated indirect coefficient is 0.167, indicating a positive mediation effect. This result shows that Digital HRM contributes to employee innovation not only directly but also indirectly through enhancing psychological safety. The T-statistic value of 39.604 is exceptionally high and far exceeds the critical threshold of 1.96. This indicates extremely strong statistical significance. The p-value of 0.000 further confirms that the indirect effect is highly significant. The standard error is very small at 0.004, suggesting high precision and stability in the estimation of the indirect path. From a substantive perspective, the magnitude of the indirect effect is moderate when compared to the direct effect of Digital HRM on Employee Innovation. This indicates that psychological safety functions as a partial mediator rather than a full mediator.

Digital HRM influences innovation through two mechanisms. First, it directly enhances employees' ability and opportunity to innovate through digital tools and systems. Second, it indirectly strengthens innovation by creating a psychologically safe environment that encourages idea sharing and risk-taking. The strength of the mediation effect highlights the importance of psychological conditions in digital work environments. Even when advanced digital systems are implemented, their effectiveness in promoting innovation depends on whether employees feel safe using them for experimentation and expression. Without psychological safety, the potential of Digital HRM may be limited to efficiency gains rather than behavioural transformation. The results provide strong empirical support for the mediating role of psychological safety. The findings confirm that Digital HRM is not only a technological enabler but also a driver of psychological climate, which in turn shapes employee innovation. This reinforces the importance of integrating human and technological dimensions in organisational strategy.

5. Discussion

The empirical results provide consistent support for the proposed model and offer several theoretical and practical implications. The findings confirm that Digital Human Resource Management exerts a

significant positive effect on employee innovation. This result reinforces the view that digital HR systems extend beyond administrative efficiency and function as strategic enablers of innovation. Digital HRM enhances access to information, facilitates continuous learning, and improves coordination across functions. These mechanisms increase employees' ability and opportunity to generate and implement new ideas, which aligns with prior evidence that digital integration and organisational processes stimulate innovative work behaviour (Zahra et al., 2026). In addition, the result supports the argument that HR digitalisation contributes to organisational performance by strengthening workforce capabilities and responsiveness (Halid et al., 2020; Venugopal et al., 2024). The findings also indicate that Digital HRM has a strong positive effect on psychological safety. This relationship shows the largest coefficient in the structural model, which suggests that digital HR practices play a central role in shaping employees' perceptions of safety. Digital platforms improve transparency, reduce ambiguity in performance evaluation, and enable structured communication. These features contribute to a more predictable and fair work environment, which enhances trust. This result is consistent with the conceptualisation of Digital HRM as a system that integrates technology and human processes to create adaptive and supportive organisational conditions (Strohmeier, 2020; Shahiduzzaman, 2025). It also aligns with prior research highlighting the importance of ethical, well-designed digital systems for maintaining employee well-being and trust (Liu & Zhang, 2025).

The positive relationship between psychological safety and employee innovation further confirms the behavioural mechanism underlying innovation processes. Employees who perceive a safe environment are more willing to express ideas, challenge existing practices, and experiment. This finding is consistent with empirical studies that identify psychological safety as a key determinant of creativity and innovative behaviour (Dhir & Vallabh, 2025). It also supports evidence from organisational and educational contexts that psychological safety enhances learning, collaboration, and adaptive performance (Dong et al., 2025; Madsgaard & Svellingen, 2025). In high-complexity environments such as digital workplaces, the ability to take interpersonal risks becomes critical, and psychological safety reduces the fear associated with failure and evaluation. A central contribution of this study is the confirmation of psychological safety's mediating role. The indirect effect results show that Digital HRM influences employee innovation through psychological safety in addition to its direct effect. This finding provides empirical support for a socio-technical perspective, where technological systems affect behavioural outcomes through psychological mechanisms. The mediation result is consistent with social exchange theory, which suggests that supportive organisational practices foster positive employee attitudes and behaviours. It also aligns with prior research showing that psychological safety mediates the relationship between leadership and innovative behaviour (Imran et al., 2025).

The presence of partial mediation indicates that Digital HRM affects innovation through dual pathways. The direct pathway reflects structural and technological influences, such as access to digital tools and knowledge resources. The indirect pathway reflects behavioural influences, where psychological safety enables employees to utilise these resources effectively. This dual mechanism explains why digital transformation alone does not automatically lead to innovation. Without a supportive psychological environment, employees may underutilise digital systems or avoid risk-taking behaviours. The R-square values provide further insight into the model's explanatory power. The moderate R-square for employee innovation indicates that Digital HRM and psychological safety together explain a substantial portion of the variance, but not all of it. This suggests that innovation remains a multidimensional outcome influenced by additional factors such as organisational culture, leadership style, and innovation climate. This interpretation is consistent with prior studies that emphasise the role of organisational support and contextual conditions in shaping innovative behaviour (Hock-Doepgen et al., 2025). Similarly, the R-square value for psychological safety indicates that Digital HRM is an important but not exclusive determinant. Psychological safety is also shaped by interpersonal relationships and leadership dynamics (Ndirangu-Mugo, 2025).

The findings also highlight the importance of addressing challenges associated with digital transformation. While digital HR systems enhance efficiency and coordination, they may also introduce risks such as digital stress, increased monitoring, and reduced autonomy. Prior research shows that excessive reliance on digital technologies can negatively affect employee well-being if not managed properly (Gupta et al., 2025). Ethical concerns related to data use and algorithmic decision making may also influence perceptions of fairness and trust (Liu & Zhang, 2025). Therefore, the positive effects of Digital HRM on psychological safety depend on careful system design and governance. From a theoretical perspective, this study contributes by integrating Digital HRM, psychological safety, and employee innovation into a single framework. It extends the existing literature, which often examines these constructs separately. The findings support the argument that innovation is shaped by the interaction between technological systems and psychological conditions. This integration addresses gaps identified in prior bibliometric analyses, which highlight the need for more comprehensive models in digital HR research (Alam, 2025).

From a practical perspective, the results suggest that organisations should adopt a balanced approach to digital HR transformation. Investment in digital tools must be accompanied by efforts to create a supportive and inclusive work environment. Managers should prioritise transparent communication, fair evaluation systems, and opportunities for employee participation. Digital platforms should be designed to facilitate collaboration and reduce hierarchical barriers. Training programmes should also focus on both technical skills and psychological readiness for change. Thus, the findings demonstrate that Digital HRM is a critical driver of employee innovation, but its effectiveness depends on the presence of psychological safety. The study shows that technological advancement and human factors are interdependent. Organisations that align digital systems with employee psychological needs are more likely to achieve sustainable innovation and long-term performance.

6. Conclusions

This study examines the relationships among Digital Human Resource Management, psychological safety, and employee innovation in the digital workplace. The findings provide clear evidence that Digital HRM has a positive and significant effect on employee innovation. Digital HR practices enhance access to information, improve coordination, and support continuous learning, thereby strengthening employees' capacity to generate and implement new ideas. The results also confirm that Digital HRM significantly influences psychological safety. Employees who operate within structured, transparent, and technology-enabled HR systems tend to perceive greater safety in expressing ideas and taking interpersonal risks. This finding highlights that digital transformation in HR is not only a technical process but also a mechanism that shapes psychological conditions in the workplace. Furthermore, psychological safety has a direct and positive effect on employee innovation. Employees who feel secure are more willing to experiment, share knowledge, and engage in creative problem-solving. This confirms that innovation is strongly influenced by behavioural and psychological factors, not solely by technological or structural conditions.

A key contribution of this study lies in demonstrating that psychological safety partially mediates the relationship between Digital HRM and employee innovation. This indicates that Digital HRM influences innovation through both direct and indirect pathways. The indirect pathway operates by creating a psychologically safe environment that enables employees to fully utilise digital systems for innovation. The study contributes to the literature by integrating perspectives on digital transformation and organisational behaviour into a unified model. It provides empirical evidence that the effectiveness of digital HR systems depends on their alignment with human psychological needs. This extends existing research that has largely focused on the technical and efficiency aspects of Digital HRM. From a practical standpoint, the findings suggest that organisations should design Digital HRM systems that prioritise transparency, fairness, and employee engagement. Managers should foster open communication, encourage feedback, and create a culture that supports experimentation and learning. Digital transformation strategies should incorporate psychological considerations to maximise their impact on innovation.

Despite its contributions, this study has limitations. The cross-sectional design restricts the ability to capture dynamic changes over time. The model also explains a moderate proportion of variance, suggesting that additional variables, such as leadership style, organisational culture, and employee well-being, may further enhance its explanatory power. Future research should consider longitudinal designs and incorporate broader contextual factors to deepen understanding. In conclusion, Digital Human Resource Management serves as a critical enabler of employee innovation in the digital workplace. However, its effectiveness depends on the presence of psychological safety as a supporting mechanism. Organisations that integrate technological capabilities with a supportive psychological environment are better positioned to achieve sustainable innovation and competitive advantage.

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