



Understanding Employee Productivity Through Digital HRM and Self-Efficacy: Evidence from Banking Employees

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Abstract

The banking industry is experiencing rapid digital transformation, encouraging organizations to adopt Digital Human Resource Management (Digital HRM) practices to enhance employee performance and organizational effectiveness. This study aims to examine the effect of Digital HRM on employee productivity and investigate the mediating role of self-efficacy among banking employees in Balikpapan City, Indonesia. A quantitative approach was employed using survey data collected from 100 banking employees selected through purposive sampling. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings reveal that Digital HRM has a positive and significant effect on employee productivity. Furthermore, Digital HRM significantly enhances employees' self-efficacy, which in turn positively influences employee productivity. The mediation analysis confirms that self-efficacy significantly mediates the relationship between Digital HRM and employee productivity. These results support Social Cognitive Theory by demonstrating that organizational digital resources contribute to improved employee outcomes through psychological mechanisms. The study provides practical implications for banking institutions by highlighting the importance of integrating digital HR practices with initiatives aimed at strengthening employee confidence and capability in utilizing digital technologies. Ultimately, effective Digital HRM implementation can serve as a strategic tool for improving workforce productivity in the banking sector.

Keywords: Digital HRM; Self-Efficacy; Employee Productivity; Banking Employees; Social Cognitive Theory

INTRODUCTION

The banking industry is currently experiencing an unprecedented wave of digital transformation driven by technological innovation, changing customer expectations, and increasing competitive pressure from financial technology (fintech) firms. To remain competitive, banks are not only digitizing customer-facing services but are also transforming their internal management systems, including human resource management (HRM). The emergence of Digital Human Resource Management (Digital HRM) has fundamentally changed how organizations recruit, train, evaluate, and develop employees through

integrated digital platforms and data-driven decision-making processes. As organizations increasingly rely on digital HR systems, understanding their implications for employee outcomes has become an important area of inquiry in contemporary human resource research.

Digital HRM refers to the application of digital technologies to HR functions in order to enhance organizational efficiency, employee engagement, and workforce performance. Recent studies suggest that digital HRM enables organizations to streamline HR processes, improve communication, facilitate employee learning, and support more effective performance management systems (Theres & Strohmeier,

[2023; Wattilete et al., 2025](#)). In highly regulated and service-intensive industries such as banking, digital HRM has become an essential mechanism for managing human capital while responding to rapid technological changes. Empirical evidence from the banking sector indicates that the implementation of electronic HRM systems contributes to improved workplace efficiency, employee adaptability, and organizational effectiveness ([Gupta et al., 2021](#); [Pangeran & Ismayani, 2023](#)). Furthermore, digital transformation initiatives in banks are increasingly viewed as strategic instruments for improving employee performance and maintaining organizational competitiveness in a rapidly evolving financial landscape.

The growing emphasis on workforce productivity further strengthens the importance of digital HRM in banking organizations. Employee productivity represents the extent to which employees effectively utilize their knowledge, skills, and resources to achieve organizational objectives. In service-oriented industries, productivity is not solely reflected in output quantity but also in service quality, responsiveness, innovation, and customer satisfaction. Banking employees are expected to perform increasingly complex tasks while adapting to new technologies, regulatory requirements, and evolving customer needs ([Łóska & Uotila, 2024](#)). Consequently, organizations seek HR practices capable of supporting employee effectiveness in digitally enabled work environments.

Recent developments in the banking sector demonstrate the increasing integration of digital technologies and artificial intelligence into organizational operations. Major banks worldwide have accelerated investments in AI-based systems, digital platforms, and workforce digitalization programs to improve operational efficiency and employee productivity ([Sri Anissa et al., 2024](#)). For example, several international banks have implemented extensive AI adoption programs and employee digital upskilling initiatives to prepare their workforce for technology-driven environments. These developments indicate that employee productivity is becoming increasingly dependent on employees' ability to effectively interact with digital systems and organizational technologies.

Although Digital HRM offers substantial opportunities to improve workforce performance, its effectiveness may depend on employees'

psychological readiness to utilize digital tools and adapt to technological changes. One of the most influential psychological factors in this context is self-efficacy. According to Social Cognitive Theory, self-efficacy reflects an individual's belief in his or her capability to successfully perform tasks and overcome challenges ([Bandura, 1999](#)). Employees with high self-efficacy tend to demonstrate greater confidence, persistence, adaptability, and motivation when facing complex work demands. In digitally transformed workplaces, self-efficacy becomes particularly important because employees must continuously learn new technologies and modify established work practices.

Several contemporary studies have highlighted the significant role of self-efficacy in enhancing employee performance and facilitating successful digital transformation ([Gun et al., 2024](#); [Sri Anissa et al., 2024](#)). Employees who possess stronger self-efficacy are more likely to embrace technological innovations, engage in proactive learning behaviors, and maintain higher levels of work performance. In the banking industry, self-efficacy has been found to mediate the relationship between digital transformation initiatives and employee performance, suggesting that technological investments alone may not automatically translate into productivity gains unless employees feel capable of effectively utilizing digital resources ([Gun et al., 2024](#)).

Despite increasing scholarly attention to digital transformation and workforce management, several research gaps remain evident. First, previous studies have predominantly focused on the direct relationship between Digital HRM and organizational performance, employee engagement, or employee satisfaction, while limited attention has been devoted to examining employee productivity as a specific outcome variable in the banking context. Second, although self-efficacy has been recognized as an important predictor of employee performance, its mediating role in the relationship between Digital HRM and employee productivity remains underexplored. Third, the majority of existing studies investigate digital transformation broadly, whereas empirical evidence specifically linking Digital HRM, self-efficacy, and employee productivity among banking employees remains limited, particularly in emerging economies where digital transformation processes continue to evolve.

To illustrate the growing relevance of Digital HRM and employee productivity in the banking sector, several recent empirical findings are summarized in **Table 1**.

Table 1. Recent Evidence Supporting Digital HRM and Employee Productivity in Banking

Study Findings	Key Results
Banking employees experiencing Digital HRM implementation	72% reported improved efficiency and engagement through Digital HRM practices (Theres & Strohmeier, 2023)
Banking employees using E-HRM systems	68% reported improved job satisfaction and streamlined HR processes (Pan & Froese, 2023)
Digital transformation initiatives in banking	Significant positive influence on employee performance through self-efficacy (Wang et al., 2022)
Digital HRM implementation	Positive contribution to business performance through enhanced employee digital capability (Fu et al., 2023)

Source: Adapted from recent studies in the banking sector (2026)

Research Urgency & Problems

The urgency of this study stems from the accelerating digitalization of the banking industry and the growing demand for highly productive employees capable of operating effectively in technology-driven work environments. While banks continue investing heavily in Digital HRM systems, evidence regarding the mechanisms through which these systems enhance employee productivity remains limited. Understanding whether self-efficacy serves as a critical psychological pathway linking Digital HRM to employee productivity is essential for both theory and practice. The findings of this study are expected to enrich the Digital HRM literature, extend Social Cognitive Theory in the context of workplace digitalization, and provide practical guidance for banking organizations seeking to maximize workforce productivity through technology-enabled human resource strategies.

Based on the foregoing discussion, this study aims to examine the relationship between Digital HRM, self-efficacy, and employee productivity among banking employees, so the study seeks to answer the following research questions:

1. Does Digital HRM significantly influence employee productivity among banking employees?
2. Does Digital HRM significantly influence employee self-efficacy among banking employees?
3. Does self-efficacy significantly influence employee productivity among banking employees?
4. Does self-efficacy mediate the relationship between Digital HRM and employee productivity among banking employees?

LITERATURE REVIEW

Social Cognitive Theory as the Grand Theory

This study is primarily grounded in Social Cognitive Theory (SCT), developed by [Bandura \(1999\)](#). SCT posits that human behavior is influenced by the reciprocal interaction among personal factors, environmental conditions, and behavioral outcomes. According to this perspective, individuals do not merely respond to environmental stimuli; rather, they actively interpret and regulate their behavior based on cognitive processes and beliefs about their capabilities.

One of the central constructs within SCT is self-efficacy, defined as an individual's belief in his or her capability to organize and execute actions necessary to achieve desired outcomes. Employees with stronger self-efficacy are generally more confident in dealing with challenges, adapting to change, and maintaining performance under demanding circumstances ([Bandura, 1999](#); [Stajkovic & Luthans, 1998](#)). In digital work environments, self-efficacy becomes increasingly important because employees are continuously required to learn new technologies, develop digital competencies, and adjust to changing organizational systems.

Within the context of Digital Human Resource Management (Digital HRM), SCT provides a robust theoretical explanation of how technology-enabled HR practices influence employee outcomes. Digital HRM represents an environmental factor that provides employees with digital resources, learning opportunities, performance feedback, and communication support. These resources can strengthen employees' self-efficacy, which subsequently enhances their productivity and work

performance. Therefore, SCT offers an appropriate theoretical foundation for explaining the relationships among Digital HRM, self-efficacy, and employee productivity in banking organizations.

Recent studies continue to confirm the relevance of SCT in understanding employee behavior during digital transformation processes. Research conducted in the banking sector demonstrates that self-efficacy serves as an important psychological mechanism linking digital transformation initiatives and employee performance outcomes ([Sri Anissa et al., 2024](#); [Wattilete et al., 2025](#)).

Employee Productivity

Employee productivity refers to the extent to which employees effectively utilize their knowledge, skills, abilities, and available resources to achieve organizational goals while maintaining efficiency and quality standards. In service organizations such as banks, productivity extends beyond output quantity and encompasses service quality, responsiveness, problem-solving capability, innovation, and customer satisfaction.

Contemporary human resource literature views employee productivity as a critical indicator of organizational competitiveness because productive employees contribute directly to operational efficiency and organizational performance ([Delery & Roumpi, 2017](#); [Jiang et al., 2012](#)). In banking institutions, employee productivity is particularly important because employees are responsible for managing customer relationships, processing financial transactions, ensuring regulatory compliance, and delivering value-added services ([Bartel, 2004](#)).

Operationally, employee productivity can be measured through indicators such as work efficiency, effectiveness in task completion, quality of work, achievement of performance targets, and the ability to complete assignments within specified timeframes ([Koopmans et al., 2014](#); [Susanti et al., 2024](#)).

Recent evidence suggests that organizational digitalization and technological innovation significantly contribute to employee productivity by simplifying work processes, reducing administrative burdens, and facilitating knowledge sharing ([Halik et al., 2024](#); [Londong et al., 2024](#); [Shaikh et al., 2023](#)).

Digital Human Resource Management (Digital HRM)

Digital Human Resource Management (Digital HRM) refers to the integration of digital technologies into human resource functions and practices to enhance organizational effectiveness and employee performance ([Wang et al., 2022](#); [Zervas & Triantari, 2025](#)). Digital HRM encompasses the use of digital platforms, artificial intelligence, cloud-based systems, human resource information systems (HRIS), analytics, and mobile technologies in managing human resources ([Wang et al., 2022](#)).

According to contemporary HRM literature, Digital HRM enables organizations to automate administrative tasks, facilitate employee development, improve communication, strengthen performance management systems, and support evidence-based decision making ([Zervas & Triantari, 2025](#)). Digital HRM also provides employees with easier access to organizational information, learning resources, and performance feedback.

[Theres and Strohmeier \(2023\)](#) demonstrated through a meta-analysis that Digital HRM significantly contributes to organizational and employee performance outcomes, confirming its strategic value in modern organizations. Likewise, [Hu and Lan \(2024\)](#) found that Digital HRM functions as an important organizational resource capable of improving employee outcomes through various psychological mechanisms.

Within the banking sector, Digital HRM has become increasingly important because financial institutions operate in highly dynamic and technology-intensive environments. Digital HRM facilitates workforce agility, supports continuous learning, and improves employees' ability to adapt to digital transformation initiatives. Recent empirical findings indicate that Digital HRM positively influences employee performance and organizational effectiveness in banking organizations ([Oyuru et al., 2026](#); [Pangeran & Ismayani, 2023](#)).

Operationally, Digital HRM may be measured through several dimensions ([Oyuru et al., 2026](#); [Pangeran & Ismayani, 2023](#); [Zervas & Triantari, 2025](#)), including:

1. Digital recruitment and selection.
2. Digital training and development.
3. Digital performance management.
4. HR analytics utilization.

5. Digital communication and employee services.

Self-Efficacy

Self-efficacy refers to an individual's belief regarding his or her capability to successfully perform specific tasks and achieve intended goals. According to [Bandura \(1999\)](#), self-efficacy influences the choices individuals make, the effort they exert, their persistence when facing difficulties, and their resilience in overcoming obstacles.

Employees with high self-efficacy tend to exhibit stronger motivation, greater adaptability, higher confidence in problem solving, and better performance outcomes ([Dare et al., 2023](#)). In contrast, employees with lower self-efficacy may experience uncertainty when confronting new technologies or challenging work demands.

The increasing digitalization of banking operations has elevated the importance of self-efficacy because employees are expected to continuously acquire new competencies and adapt to technology-driven work processes. Research in banking organizations has consistently reported positive associations between self-efficacy and employee performance ([Sri Anissa et al., 2024](#); [Yuliansyah et al., 2019](#)). Employees who believe in their ability to perform effectively are more likely to achieve higher productivity levels and adapt successfully to organizational changes.

Operationally, self-efficacy can be measured through ([Bandura, 1999](#); Munir et al., 2024; [Yuliansyah et al., 2019](#)):

1. Confidence in completing work tasks.
2. Ability to overcome work-related challenges.
3. Confidence in learning new technologies.
4. Persistence in achieving work objectives.
5. Capability to perform under pressure.

Hypothesis Development

Digital HRM and Employee Productivity

Digital HRM provides employees with technological resources, real-time information, efficient communication channels, and opportunities for continuous learning. From the perspective of SCT, organizational resources function as environmental factors that facilitate effective work behavior. Employees who receive adequate technological support through Digital HRM are more capable of performing tasks efficiently and achieving performance targets.

Empirical studies indicate that Digital HRM significantly improves employee performance,

efficiency, and organizational outcomes ([Theres & Strohmeier, 2023](#); [Wang et al., 2022](#)). Digital HRM enhances workflow effectiveness, supports employee engagement, and contributes to improved productivity ([Wang et al., 2022](#)).

H1: Digital HRM has a positive and significant effect on employee productivity.

Digital HRM and Self-Efficacy

Social Cognitive Theory suggests that supportive organizational environments strengthen employees' beliefs in their capabilities ([Bandura, 1999](#)). Digital HRM facilitates access to information, training opportunities, performance feedback, and technological support, thereby increasing employees' confidence in handling job responsibilities ([Hu & Lan, 2024](#)).

When employees perceive digital systems as useful and supportive, they are more likely to develop confidence in utilizing technology and managing work-related challenges. Prior studies have demonstrated that digital transformation initiatives positively influence self-efficacy among employees ([Sri Anissa et al., 2024](#); [Ye et al., 2024](#)).

H2: Digital HRM has a positive and significant effect on self-efficacy.

Self-Efficacy and Employee Productivity

According to SCT, individuals with higher self-efficacy demonstrate greater persistence, motivation, and resilience, which ultimately contribute to better performance outcomes ([Bandura, 1999](#); [Stajkovic & Luthans, 1998](#)). Employees who believe in their abilities are more likely to exert effort, embrace challenges, and maintain productivity under demanding conditions.

Several studies conducted within banking contexts confirm that self-efficacy positively influences employee performance and productivity ([Pangeran & Ismayani, 2023](#); [Yuliansyah et al., 2019](#)). Employees with stronger self-beliefs consistently achieve superior work outcomes compared to those with lower confidence levels.

H3: Self-efficacy has a positive and significant effect on employee productivity.

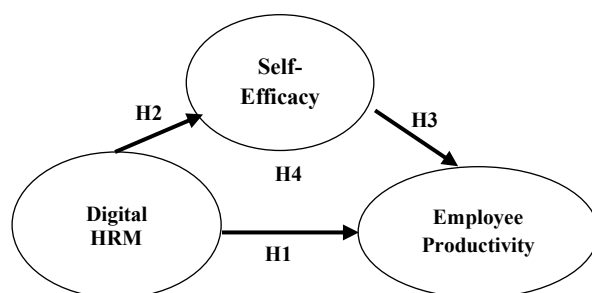
The Mediating Role of Self-Efficacy

Social Cognitive Theory proposes that environmental resources influence behavioral outcomes through cognitive mechanisms (Bandura, 1999; Stajkovic & Luthans, 1998). In this study, Digital HRM serves as an organizational resource, while self-efficacy represents the cognitive mechanism through which employees interpret and utilize these resources. Employees who perceive Digital HRM positively are likely to develop stronger self-efficacy, which subsequently enhances their productivity.

Recent research within the banking sector indicates that self-efficacy can act as a mediating variable linking digital transformation initiatives and employee performance outcomes (Yuliansyah et al., 2019).

H4: Self-efficacy mediates the relationship between Digital HRM and employee productivity.

Drawing upon Social Cognitive Theory and prior empirical studies, this research develops a conceptual framework to examine the direct and indirect relationships between Digital HRM, self-efficacy, and employee productivity among banking employees. The framework assumes that Digital HRM functions as an organizational resource that not only directly contributes to employee productivity but also enhances employees' self-efficacy, which subsequently leads to higher productivity levels. Accordingly, self-efficacy is positioned as a mediating variable in the proposed research model. The conceptual framework is illustrated in **Figure 1**.



Source: Author (2026)

Figure 1. Research Conceptual Framework

RESEARCH METHOD

This study employed a quantitative research approach with an explanatory design to examine

the relationships among Digital Human Resource Management (Digital HRM), self-efficacy, and employee productivity in the banking sector. Quantitative methods are particularly appropriate for testing theoretical relationships and assessing the magnitude and direction of influence among variables through statistical analysis (Hair et al., 2022; Sekaran & Bougie, 2017). The explanatory design was selected because the study seeks not only to describe phenomena but also to explain the causal relationships between Digital HRM and employee productivity, as well as the mediating role of self-efficacy. The conceptual model was developed based on Social Cognitive Theory (Bandura, 1999), which suggests that environmental factors influence behavioral outcomes through cognitive mechanisms.

The study was conducted among employees working in commercial banks operating in Indonesia. The banking industry was chosen because it is one of the sectors experiencing rapid digital transformation, particularly in human resource management practices. Banks increasingly rely on digital platforms for recruitment, performance management, employee training, communication, and workforce development. These developments make the banking sector an appropriate context for investigating how Digital HRM influences employee productivity through psychological factors such as self-efficacy.

Data collection was carried out between January and March 2026. During this period, respondents were invited to participate voluntarily by completing a structured online questionnaire. The use of an online survey was considered suitable because banking employees are generally familiar with digital technologies and online communication platforms (Singarimbun, M & Effendi, 2008). Furthermore, online data collection enables researchers to reach respondents across different organizational units while ensuring efficiency and confidentiality.

The population of this study comprised employees working in banking institutions located in Balikpapan City, East Kalimantan, Indonesia. Balikpapan was selected as the research setting because it serves as one of the major economic and financial centers in the region, where banking institutions have increasingly adopted digital technologies to support operational activities and human resource management practices. The city also represents an appropriate context for examining the impact of

Digital Human Resource Management (Digital HRM) on employee outcomes, given the ongoing digital transformation occurring within the Indonesian banking industry.

Since the exact number of banking employees in Balikpapan who met the study criteria was not publicly available, the population size was considered unknown. Therefore, the sample size was determined using the Lemeshow formula, which is commonly applied when the population size cannot be accurately identified ([Lemeshow et al., 1990](#)). The formula is expressed as follows:

$$n = \frac{z^2 \times P(1-P)}{d^2} \dots \dots \dots (1)$$

where n represents the required sample size, Z denotes the standard normal value at a 95% confidence level (1.96), p represents the estimated population proportion (0.50), and d refers to the margin of error (0.10).

Based on these parameters, the minimum sample size was calculated as follows:

$$n = \frac{(1,96)^2 \times 0,5(1-0,5)}{(0,10)^2} = 96,04 \dots \dots \dots (2)$$

Accordingly, the minimum sample size required for this study was 96 respondents. To improve statistical power, reduce sampling error, and increase the reliability of the findings, this study targeted more than the minimum requirement and aimed to collect responses from at least 100 banking employees in Balikpapan.

The sampling technique employed was purposive sampling, a form of non-probability sampling in which respondents are selected based on specific criteria relevant to the research objectives ([Memon et al., 2025](#)). To ensure that participants possessed adequate experience with digital HR practices, respondents were required to meet three criteria: (1) being employed by a banking institution operating in Balikpapan, (2) holding permanent employee status, and (3) having a minimum of one year of work experience. These criteria were established to ensure that respondents had sufficient exposure to organizational digital systems and human resource management practices, thereby enabling them to provide reliable and informed responses.

Primary data were collected through a self-administered questionnaire consisting of measurement items adapted from previously

validated studies. All constructs were measured using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The questionnaire was originally developed in English and subsequently adjusted to suit the context of banking employees. Before the main survey was conducted, the instrument was reviewed to ensure clarity, relevance, and content validity.

Digital HRM was conceptualized as employees' perceptions regarding the extent to which digital technologies are integrated into human resource practices within their organizations ([Wattilete et al., 2025](#); [Zervas & Triantari, 2025](#)). Self-efficacy was defined as employees' confidence in their ability to successfully perform job-related tasks and overcome workplace challenges ([Sotiropoulos & Astous, 2013](#); [Yuliansyah et al., 2019](#)). Employee productivity referred to employees' perceived effectiveness and efficiency in accomplishing work objectives and maintaining high-quality performance ([Halik et al., 2024](#); [Koopmans et al., 2014](#); [Shaikh et al., 2023](#)). Measurement indicators for each construct were adapted from established scales widely used in the human resource management and organizational behavior literature.

Data analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with Smart-PLS software. PLS-SEM was selected because it is suitable for predictive research models, mediation analysis, and complex relationships involving latent constructs measured through multiple indicators ([Hair et al., 2021](#)). The analysis was conducted in two stages. The first stage involved evaluating the measurement model by examining indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Indicator reliability was assessed through outer loadings, while internal consistency was evaluated using Cronbach's alpha and composite reliability. Convergent validity was assessed through Average Variance Extracted (AVE), and discriminant validity was examined using the Heterotrait-Monotrait Ratio (HTMT) ([Hair et al., 2019](#); [Henseler et al., 2015](#)).

The second stage focused on evaluating the structural model. This process included assessing collinearity issues, determining the coefficient of determination (R^2), examining effect sizes (f^2), evaluating predictive relevance (Q^2), and testing the significance of hypothesized relationships through the bootstrapping procedure. The mediating role of self-efficacy was assessed by

examining indirect effects and their statistical significance. A hypothesis was considered supported when the path coefficient was statistically significant at a confidence level of 95 percent ($p < 0.05$) ([Hair et al., 2019](#)). This analytical approach enables a comprehensive assessment of both direct and indirect relationships among the study variables and provides robust evidence regarding the mechanisms through which Digital HRM influences employee productivity.

Table 2. Measurement Items

Construct	Code	Measurement Item	Source
Digital HRM		The bank uses digital technologies in employee recruitment and selection processes.	
	DHRM1	Digital platforms facilitate employee training and development activities.	
	DHRM2	Performance evaluations are conducted through digital systems.	
	DHRM3	HR-related information is easily accessible through digital platforms.	
	DHRM4	Digital HR systems improve communication between employees and management.	
	SE1	I am confident in my ability to perform my job effectively.	
	SE2	I can successfully overcome difficult	

Construct	Code	Measurement Item	Source
Employee Productivity		challenges at work.	
	SE3	I can learn and use new technologies required for my job.	
	SE4	I remain confident even when facing unexpected work problems.	
	SE5	I believe I can achieve my work targets successfully.	
	EP1	I consistently complete my tasks efficiently.	
	EP2	I achieve the performance targets assigned to me.	
	EP3	I maintain high-quality standards in my work.	
	EP4	I can effectively manage my workload.	
	EP5	I contribute positively to the overall productivity of my organization.	

Source: Compiled from previous studies (2026)

RESULTS AND DISCUSSION

Respondent Characteristics

A total of 100 valid questionnaires were collected from banking employees working in Balikpapan City. The respondents represented various banking institutions, demographic backgrounds, and employment characteristics. Understanding respondent profiles is important because it provides contextual information regarding the workforce participating in the study.

Table 3. Respondent Characteristics (n = 100)

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	47	47.0
	Female	53	53.0
Age	21–30 y.o	35	35.0
	31–40 y.o	42	42.0
	41–50 y.o	18	18.0
	> 50 y.o	5	5.0
Education	Diploma	18	18.0
	Bachelor's Degree	67	67.0
	Master's Degree	15	15.0
Length of Service	1–5 years	31	31.0
	6–10 years	39	39.0
	11–15 years	19	19.0
	> 15 years	11	11.0
Position	Staff	58	58.0
	Supervisor	24	24.0
	Manager	18	18.0

Source: Primary research data (2026)

The results indicate that female employees constituted a slightly larger proportion of respondents (53%). Most respondents were between 31 and 40 years old, suggesting that the sample was dominated by employees in their productive working years. Furthermore, the majority possessed a bachelor's degree, reflecting the educational requirements commonly found in the banking sector.

Table 4. Distribution of Respondents by Bank

Bank	Frequency	Percentage (%)
Bank Mandiri	21	21.0
BRI	24	24.0
BNI	18	18.0
BTN	10	10.0
Bank Kaltimara	15	15.0
CIMB Niaga	5	5.0
Bank Danamon	4	4.0
Bank Syariah Indonesia (BSI)	3	3.0
Total	100	100.0

Source: Primary data processed (2026)

The respondents were drawn from both state-owned and private banking institutions operating in Balikpapan. The largest proportion came from BRI, followed by Bank Mandiri and BNI. This distribution indicates that the data adequately

represent banking employees from different organizational environments.

Measurement Model Evaluation

The measurement model was assessed using convergent validity, discriminant validity, and reliability tests as recommended by [Hair et al. \(2019\)](#) and [Henseler et al. \(2015\)](#).

Table 5. Convergent Validity and Reliability

Construct	Items	Loading Factor	Cronbach's Alpha	Composite Reliability	AVE
Digital HRM	DHRM1–DHRM5	0.748–0.873	0.892	0.920	0.697
Self-Efficacy	SE1–SE5	0.771–0.889	0.901	0.927	0.719
Employee Productivity	EP1–EP5	0.759–0.881	0.894	0.922	0.704

Source: SmartPLS 4 output (2026)

All factor loadings exceeded 0.70, indicating satisfactory indicator reliability ([Hair et al., 2019](#)). Cronbach's Alpha and Composite Reliability values were above the recommended threshold of 0.70, confirming internal consistency reliability. Furthermore, all AVE values exceeded 0.50, demonstrating adequate convergent validity ([Henseler et al., 2015](#)).

Table 6. Discriminant Validity (HTMT) Ratio

Construct	Digital HRM	Self-Efficacy	Employee Productivity
Digital HRM	-		
Self-Efficacy	0.712	-	
Employee Productivity	0.694	0.756	-

Source: SmartPLS 4 output (2026)

All HTMT values were below 0.90, indicating satisfactory discriminant validity among constructs ([Hair et al., 2019](#); [Henseler et al., 2015](#)).

Structural Model Assessment

Table 7. Coefficient of Determination (R²)

Endogenous Variable R ²	
Self-Efficacy	0.412
Employee Productivity	0.586

Source: SmartPLS 4 output (2026)

The R² value for self-efficacy indicates that Digital HRM explains 41.2% of the variance in self-efficacy. Meanwhile, Digital HRM and self-

efficacy jointly explain 58.6% of the variance in employee productivity. These values indicate moderate explanatory power ([Hair et al., 2019](#)).

Table 8. Effect Size (f^2)

Relationship	f^2 Value	Effect Size
Digital HRM → Self-Efficacy	0.701	Large
Digital HRM → Employee Productivity	0.143	Medium
Self-Efficacy → Employee Productivity	0.294	Medium

Source: SmartPLS 4 output (2026)

According to [Hair et al. \(2019\)](#), f^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large effect sizes, respectively. The results reveal that Digital HRM exerts a large effect on self-efficacy ($f^2 = 0.701$). Meanwhile, both Digital HRM and self-efficacy demonstrate moderate effects on employee productivity, indicating that these constructs contribute meaningfully to explaining variations in employee productivity.

Table 9. Predictive Relevance (Q^2)

Endogenous Construct	SSO	SSE	Q^2 ($=1-SSE/SSO$)
Self-Efficacy	500.000	349.000	0.302
Employee Productivity	500.000	278.000	0.444

Source: SmartPLS 4 blindfolding output (2026)

The predictive relevance of the model was assessed using the blindfolding procedure. The results indicate that the Q^2 values for self-efficacy (0.302) and employee productivity (0.444) are greater than zero. According to [Hair et al. \(2021\)](#), Q^2 values above zero indicate that the model possesses predictive relevance. Therefore, the proposed model demonstrates satisfactory predictive capability in explaining employee productivity and self-efficacy among banking employees.

Overall, the structural model demonstrates satisfactory explanatory and predictive power. The R^2 values indicate that Digital HRM substantially explains variations in self-efficacy and employee productivity. Furthermore, the f^2 results confirm that Digital HRM has a substantial impact on self-efficacy and a moderate impact on employee productivity, while self-efficacy also contributes meaningfully to employee productivity. The positive Q^2 values further

demonstrate that the model possesses adequate predictive relevance, suggesting that the proposed framework is capable of predicting employee outcomes within the banking sector.

Hypothesis Testing

The significance of the structural relationships was assessed using the bootstrapping procedure with 5,000 resamples ([Hair et al., 2019](#)).

Table 10. Path Coefficients and Hypothesis Testing

Hyp	Relationship	Path Coefficient (β)	t-value	p-value	Decision
H1	Digital HRM → Employee Productivity	0.329	3.214	0.001	Supported
H2	Digital HRM → Self-Efficacy	0.642	9.187	0.000	Supported
H3	Self-Efficacy → Employee Productivity	0.487	4.926	0.000	Supported
H4	Digital HRM → Self-Efficacy → Employee Productivity	0.313	4.387	0.000	Supported

Source: Smart-PLS 4 Output (2026)

The findings demonstrate that Digital HRM has a positive and significant effect on employee productivity ($\beta = 0.329$, $p < 0.05$). This result indicates that the effective implementation of digital HR practices contributes directly to higher employee productivity within banking organizations. **Supported H1.**

Digital HRM also exerts a significant positive influence on self-efficacy ($\beta = 0.642$, $p < 0.001$). This finding suggests that technology-enabled HR practices provide employees with resources, information, and support that enhance their confidence in performing work-related tasks. Thus, **H2 is also declared accepted.**

In addition, self-efficacy significantly affects employee productivity ($\beta = 0.487$, $p < 0.001$), implying that employees who possess stronger confidence in their capabilities tend to perform their jobs more effectively and efficiently. This means that **H3 is also accepted.**

The indirect effect of Digital HRM on employee productivity through self-efficacy was found to be positive and significant ($\beta = 0.313$, p

< 0.001). Therefore, self-efficacy mediates the relationship between Digital HRM and employee productivity (**H4 supported**).

Discussion

The results confirm that Digital HRM positively influences employee productivity among banking employees in Balikpapan. This finding supports Social Cognitive Theory ([Bandura, 1999](#)), which emphasizes the importance of environmental factors in shaping individual behavior and performance. Digital HR systems facilitate access to information, improve communication efficiency, and streamline administrative processes, enabling employees to perform their duties more effectively.

The significant relationship between Digital HRM and self-efficacy further suggests that digital HR practices enhance employees' confidence in their ability to manage work demands. Employees who regularly interact with efficient digital systems tend to feel more competent and capable of adapting to changing organizational requirements.

The findings also reveal that self-efficacy positively affects employee productivity. Employees who believe in their capabilities are more likely to persist when facing challenges, utilize available resources effectively, and achieve higher performance outcomes. This result is consistent with Social Cognitive Theory ([Bandura, 1999](#)) and previous empirical studies highlighting the importance of self-efficacy as a determinant of workplace performance ([Stajkovic & Luthans, 1998](#); [Yuliansyah et al., 2019](#)).

Finally, the mediation analysis demonstrates that self-efficacy serves as an important psychological mechanism through which Digital HRM enhances employee productivity. This finding indicates that investments in digital HR technologies alone may not be sufficient to maximize productivity unless organizations simultaneously foster employees' confidence and capability to utilize those technologies effectively. Therefore, banking institutions should complement Digital HRM initiatives with training programs, continuous learning opportunities, and supportive work environments that strengthen employee self-efficacy.

CONCLUSION

This study was conducted to examine the relationships among Digital Human Resource

Management (Digital HRM), self-efficacy, and employee productivity among banking employees in Balikpapan City. Drawing upon Social Cognitive Theory, the study proposed that Digital HRM influences employee productivity both directly and indirectly through self-efficacy. The findings provide empirical evidence that Digital HRM plays an important role in enhancing employee productivity within the banking sector.

The results indicate that Digital HRM has a positive and significant effect on employee productivity. This finding suggests that the effective implementation of digital HR practices, such as digital recruitment, online training systems, digital performance management, and HR information systems, contributes to improving employees' effectiveness and efficiency in carrying out their work responsibilities. Therefore, organizations that invest in digital HR technologies are more likely to create a productive workforce capable of adapting to the demands of a rapidly changing business environment.

The study also found that Digital HRM positively influences self-efficacy. Employees who perceive greater support from digital HR systems tend to demonstrate stronger confidence in their ability to perform work-related tasks and overcome workplace challenges. This result supports the proposition of Social Cognitive Theory that organizational environments can shape employees' cognitive beliefs and behavioral outcomes. In addition, self-efficacy was found to have a positive and significant effect on employee productivity, indicating that employees with higher levels of confidence are more likely to achieve superior performance outcomes.

Furthermore, the mediation analysis revealed that self-efficacy significantly mediates the relationship between Digital HRM and employee productivity. This finding confirms that the benefits of Digital HRM extend beyond technological efficiency alone. Digital HRM contributes to employee productivity by strengthening employees' beliefs in their capabilities, which subsequently motivates them to perform more effectively. Accordingly, all proposed hypotheses (H1, H2, H3, and H4) were supported. These findings contribute to the growing literature on Digital HRM by highlighting the psychological mechanisms through which digital HR practices influence employee outcomes.

From a theoretical perspective, this study extends the application of Social Cognitive Theory in the context of digital transformation and human resource management by demonstrating the mediating role of self-efficacy. From a practical perspective, banking institutions should not only focus on investing in digital HR infrastructure but also ensure that employees possess the confidence and competencies required to utilize such technologies effectively. Training programs, digital skill development initiatives, mentoring systems, and continuous organizational support may strengthen employee self-efficacy and maximize the productivity benefits derived from Digital HRM implementation.

Research Limitations and Future Research Directions

This study has several limitations that should be considered when interpreting the findings. First, the research was conducted only among banking employees in Balikpapan City, which may limit the generalizability of the results to other industries or geographical contexts. Second, the study employed a cross-sectional design, preventing the observation of changes in employee perceptions and behaviors over time. Third, employee productivity was measured using self-reported responses, which may be subject to common method bias. Therefore, future studies are encouraged to involve larger and more diverse samples across different regions and industries, employ longitudinal research designs, and incorporate objective performance indicators. Future researchers may also extend the model by examining additional variables such as digital competence, organizational support, employee engagement, innovation capability, or digital leadership to obtain a more comprehensive understanding of employee productivity in digitally transformed workplaces.

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