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TECHNOLOGY-BASED HRM MODEL ON DIGITAL COMPETENCE AND SERVICE PERFORMANCE OF VILLAGE APPARATUS

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Abstract
This study examines the influence of technology-based human resource management and organizational factors on digital competence and service performance of village apparatus, as well as the mediating role of digital competence. The research employs a quantitative explanatory approach with data collected through structured questionnaires distributed to village officials in Brebes Regency involved in public service delivery. The sample was selected using purposive sampling, and data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS software. The results indicate that technology-based human resource management has a significant positive effect on both digital competence and service performance. However, organizational facilities do not have a significant effect on either digital competence or service performance. Furthermore, digital competence does not significantly influence service performance and does not function as a mediating variable. These findings reveal the existence of a skill–implementation gap, where digital capabilities are not effectively translated into improved service outcomes. The study contributes to the development of a human-centered digital transformation model, emphasizing that human resource management plays a more critical role than technological availability in improving public service performance. The findings provide practical implications for local governments in designing effective digital transformation strategies that prioritize human resource development and organizational integration.

Keywords: Digital Competence, Human Resource Management, Service Performance, Village Apparatus, Digital Transformation.

1. Introduction

Digital transformation has become a strategic imperative in the public sector, including village governance, driven by increasing demands for efficient, transparent, and technology-based services. While digitalization is expected to enhance service delivery and governance quality, its effectiveness depends not only on technology adoption but also on the readiness of human resources and organizational systems (Ndou et al., 2023; Siswanti et al., 2024). However, a significant gap persists between technological availability and the ability of village apparatus to utilize digital tools effectively. Empirical evidence indicates that limited digital competence, weak organizational integration, and resistance to change remain major challenges in optimizing digital public

services (Komna & Mpungose, 2024; Guan & Yu, 2025). In the Indonesian context, these challenges are particularly evident at the village level, where disparities in human resource capacity and institutional readiness lead to suboptimal service performance (Geohansa et al., 2025; Furqana et al., 2023).

The urgency of this research is driven by several critical factors. First, the Indonesian government has been actively promoting digital transformation across all levels of governance through various policy initiatives, including the Smart Village program and the digitalization of village fund management. However, the success of these initiatives heavily depends on the capacity of village apparatus to effectively utilize digital tools and integrate them into their daily work processes. Second, village governments play a crucial role as the frontline of public service delivery, directly serving the needs of rural communities. Any inefficiency or failure in service delivery at this level has immediate and tangible impacts on citizen welfare and satisfaction. Third, the COVID-19 pandemic has accelerated the need for digital public services, exposing the vulnerabilities of traditional service delivery models and highlighting the importance of digital readiness among public servants. Fourth, despite the growing body of literature on digital transformation in the public sector, there remains limited empirical evidence on the specific mechanisms through which technology-based human resource management and organizational factors influence the service performance of village apparatus, particularly in the Indonesian context. Fifth, the role of digital competence as a mediating variable in the relationship between organizational enablers and service performance remains inconclusive across empirical studies, indicating a research gap that needs to be addressed.

Previous studies have shown that digital transformation improves organizational performance when supported by human resource readiness and institutional capacity (Ndou et al., 2023; Siswanti et al., 2024). Technology-based human resource management (e-HRM) has been identified as a key factor in enhancing employee capability and organizational outcomes in digital environments (Espina-Romero et al., 2025; Mulyani & Rulandari, 2024). In addition, digital competence plays an important role in enabling individuals to utilize technology effectively, although its impact on performance remains inconsistent depending on organizational support and implementation mechanisms (Maizon et al., 2025; Fitri et al., 2024; Guan & Yu, 2025). Organizational factors, including infrastructure, leadership, and policy support, are also considered important in facilitating digital transformation (Kwiliński et al., 2023; Nakagawa, 2025). These factors create an enabling environment that supports the development and application of digital competence within organizational processes. Research has also demonstrated that digital transformation enhances organizational agility and firm performance when supported by appropriate organizational capabilities (Cuong et al., 2025). Furthermore, digital transformation in service performance evaluation has been shown to improve service quality and efficiency in public organizations (Ginting et al., 2025). Human resource development strategies play a critical role in preparing public servants for the demands of digital governance, with training and capacity building programs being essential components of successful transformation (Nugroho, 2025). Organizational readiness, including leadership commitment, infrastructure adequacy, and cultural preparedness, has been identified as a key predictor of digital transformation success (Espina-Romero et al., 2024). Predictors of digital competence in organizations include individual factors such as attitudes toward technology and organizational factors such as training and support (Carvalho et al., 2023).

The role of digital competence in improving service quality has been confirmed, with digital skills enabling public servants to deliver more efficient and responsive services (Ingsih et al., 2024). Finally, the digital transformation of land services in Indonesia has demonstrated both the potential and challenges of digitalizing public services at the local level (Kusmiarto et al., 2021). Transformational leadership in public organizations has also been shown to facilitate digital transformation and improve organizational performance (Khotimah et al., 2025).

Despite these contributions, most previous studies have examined digital competence, human resource management, and organizational performance separately. Limited research has developed an integrative model that simultaneously analyzes these variables within a unified framework, particularly in the context of village governance. Furthermore, the role of digital competence as a mediating variable remains inconclusive across empirical studies. The research gap in this study lies in the limited understanding of how technology-based human resource management and organizational factors influence the service performance of village apparatus through the mediating mechanism of digital competence. While individual studies have examined the direct effects of these variables, the indirect pathways through which organizational enablers translate into improved performance remain underexplored. Additionally, most previous studies have focused on urban or corporate settings, leaving a significant gap in knowledge regarding the dynamics of digital transformation in rural village governance contexts.

The novelty of this research lies in the integration of several aspects. First, this study focuses on village governance in Indonesia, which represents a unique context characterized by diverse geographical conditions, varying levels of infrastructure development, and distinct socio-cultural characteristics. Second, this study develops an integrative model that simultaneously examines the influence of technology-based human resource management and organizational factors on digital competence and service performance, providing a more comprehensive understanding of the mechanisms underlying digital transformation in the public sector. Third, this study positions digital competence as a mediating variable, enabling the examination of indirect pathways through which organizational enablers influence service performance. Fourth, this research contributes to the development of a human-centered digital transformation perspective, emphasizing that human resource management plays a more critical role than technological availability in improving public service performance.

The purpose of this study is to analyze the influence of technology-based human resource management and organizational factors on digital competence and service performance of village apparatus, as well as to examine the mediating role of digital competence. Specifically, this research aims to: (1) analyze the effect of technology-based human resource management on digital competence; (2) analyze the effect of technology-based human resource management on service performance; (3) analyze the effect of organizational factors on digital competence; (4) analyze the effect of organizational factors on service performance; (5) analyze the effect of digital competence on service performance; and (6) analyze the mediating role of digital competence in the relationships between technology-based human resource management, organizational factors, and service performance. Based on the theoretical and empirical review, this study proposes a structural model to explain the relationships among these variables using Structural Equation Modeling (SEM).

The contribution of this research is multifaceted. From a theoretical perspective, this research contributes to the development of literature on digital transformation in the

public sector by proposing and testing an integrative model that links technology-based human resource management, organizational factors, digital competence, and service performance. The findings contribute to the understanding of how digital competence mediates the relationship between organizational enablers and service performance, thereby extending the application of technology acceptance and organizational readiness theories to the context of village governance. From a practical perspective, this study provides actionable insights for policymakers, village government leaders, and human resource practitioners in designing and implementing digital transformation strategies that prioritize human resource development and organizational readiness. The findings may also inform the design of training programs, capacity building initiatives, and policy frameworks that support the development of digital competence among village apparatus. Furthermore, the research serves as a reference for future studies exploring the dynamics of digital transformation in public sector organizations.

2. Theoretical Background

2.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), is one of the most widely used theoretical frameworks for understanding and predicting technology adoption behavior. TAM posits that an individual's behavioral intention to use a technology is determined by two primary beliefs: perceived usefulness and perceived ease of use. Perceived usefulness refers to the degree to which a person believes that using a particular system would enhance their job performance, while perceived ease of use refers to the degree to which a person believes that using a particular system would be free of effort. In the context of village governance, TAM provides a robust framework for understanding how village apparatus perceive and adopt digital technologies in their daily work processes. When village officials perceive digital tools as useful for improving service delivery and easy to use, they are more likely to integrate them into their work routines, thereby enhancing their digital competence and overall service performance. TAM has been extensively validated across various contexts and continues to serve as a foundational theory in information systems research (Venkatesh et al., 2003; Scherer et al., 2019).

2.2 Human Resource Management Theory

Human Resource Management (HRM) theory emphasizes the strategic role of human resources in achieving organizational objectives. In the digital era, HRM has evolved to encompass technology-based practices that leverage digital tools for recruitment, training, performance evaluation, and employee development (Ulrich, 1997; Wright & McMahan, 2011). Technology-based HRM (e-HRM) refers to the application of information technology to support and enhance HRM functions, enabling more efficient and effective management of human capital (Bondarouk & Ruel, 2013). In the public sector context, e-HRM is particularly relevant as it enables organizations to systematically develop employee capabilities, including digital competence, through structured training programs, performance feedback, and career development opportunities. When effectively implemented, e-HRM contributes to improved employee performance and organizational outcomes (Marler & Fisher, 2013). The strategic human resource management perspective also highlights the importance of aligning HRM practices with organizational goals, including digital transformation objectives, to ensure that human resources are adequately prepared to meet evolving demands (Krishnan,

2020). In village governance, e-HRM practices can support the development of digital competence among village apparatus, thereby enhancing their capacity to deliver high-quality public services.

2.3 Digital Competence Framework

Digital competence refers to the ability to use digital technologies effectively and confidently for learning, work, and participation in society (Ilomäki et al., 2016). The European Commission's DigComp framework identifies five key areas of digital competence: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving (Carretero et al., 2017). In the public sector context, digital competence encompasses not only technical skills but also the ability to critically evaluate digital information, communicate effectively through digital channels, and solve problems using digital tools (Ala-Mutka, 2011). For village apparatus, digital competence is essential for performing their duties in a digitalized service environment, including managing digital records, providing online services, and engaging with citizens through digital platforms. Research has shown that digital competence is a key determinant of successful digital transformation, enabling individuals to adapt to new technologies and leverage them for improved performance (Oberländer et al., 2020). However, the development of digital competence depends on various organizational and individual factors, including training, support, and personal attitudes toward technology.

2.4 Organizational Readiness Theory

Organizational readiness theory emphasizes the importance of organizational preparedness in facilitating successful change initiatives, including digital transformation (Weiner, 2009). Organizational readiness refers to the extent to which organizational members are psychologically and behaviorally prepared to implement a change, including their beliefs in their collective capability to execute the change successfully. In the context of digital transformation, organizational readiness encompasses various factors, including leadership commitment, infrastructure adequacy, policy support, and organizational culture (Lokuge et al., 2019). When organizations are ready for change, they are better able to support employees in developing new capabilities, such as digital competence, and integrating them into work processes (Luthans et al., 2016). The concept of readiness extends to the availability of organizational facilities, including technological infrastructure, financial resources, and institutional support, which create an enabling environment for digital transformation. In village governance, organizational readiness is particularly critical given the resource constraints and infrastructural challenges that characterize many rural areas (Geohansa et al., 2025). When village governments are well-prepared for digital transformation, they are better able to support their apparatus in developing digital competence and improving service performance.

2.5 Review of Previous Research

The relationship between technology-based human resource management and digital competence has been examined in several studies. Espina-Romero et al. (2025) found that digital human resource management significantly enhances digital competencies in organizations, as e-HRM practices provide structured opportunities for skill development and continuous learning. Similarly, Mulyani and Rulandari (2024) demonstrated that technology-based HRM practices in the Indonesian public sector contribute to improved employee capability and organizational outcomes in digital environments. Research by

Carvalho et al. (2023) identified that organizational factors, including training and support, are key predictors of digital competence in organizations. Ingsih et al. (2024) confirmed the role of digital competence in improving service quality, with digital skills enabling public servants to deliver more efficient and responsive services. However, Fitri et al. (2024) found that the impact of digital competence on performance remains inconsistent depending on organizational support and implementation mechanisms, suggesting the need for further investigation.

The influence of organizational factors on digital competence and performance has also been extensively studied. Kwiliński et al. (2023) and Nakagawa (2025) emphasized the importance of infrastructure, leadership, and policy support in facilitating digital transformation. Espina-Romero et al. (2024) identified organizational readiness, including leadership commitment, infrastructure adequacy, and cultural preparedness, as key predictors of digital transformation success. Cuong et al. (2025) demonstrated that digital transformation enhances organizational agility and firm performance when supported by appropriate organizational capabilities. Ginting et al. (2025) showed that digital transformation in service performance evaluation improves service quality and efficiency in public organizations. However, studies by Komna and Mpungose (2024) and Guan and Yu (2025) found that limited digital competence, weak organizational integration, and resistance to change remain major challenges in optimizing digital public services, indicating that organizational factors alone are insufficient without corresponding human resource development.

The mediating role of digital competence in the relationship between organizational enablers and performance has received limited attention in previous research. While individual studies have examined the direct effects of HRM practices and organizational factors on performance, the indirect pathways through which these organizational enablers translate into improved performance remain underexplored (Maizon et al., 2025; Nugroho, 2025). Research in the Indonesian context has highlighted the challenges of digital transformation at the village level, where disparities in human resource capacity and institutional readiness lead to suboptimal service performance (Furqana et al., 2023; Geohansa et al., 2025). Khotimah et al. (2025) emphasized the role of transformational leadership in facilitating digital transformation and improving organizational performance. Kusmiarto et al. (2021) demonstrated both the potential and challenges of digitalizing public services at the local level in Indonesia. These findings collectively suggest that digital competence may serve as a key mediating mechanism through which organizational enablers influence service performance, although empirical evidence remains limited.

2.6 Hypothesis Development

2.6.1 The Influence of Technology-Based Human Resource Management on Digital Competence

Technology-based human resource management (e-HRM) encompasses the application of digital tools to support and enhance HRM functions, including recruitment, training, performance evaluation, and employee development. According to strategic HRM theory, e-HRM practices enable organizations to systematically develop employee capabilities through structured training programs, continuous learning opportunities, and performance feedback mechanisms (Bondarouk & Ruel, 2013). In the context of digital transformation, e-HRM plays a critical role in building digital competence among employees by providing them with the necessary knowledge, skills, and support to

effectively utilize digital technologies (Espina-Romero et al., 2025). When organizations implement e-HRM practices, they create an environment that encourages learning and skill development, thereby enhancing employees' digital competence. Mulyani and Rulandari (2024) demonstrated that technology-based HRM practices in the Indonesian public sector significantly contribute to improved employee capability. Therefore, it is hypothesized that:

H1: Technology-based Human Resource Management has a positive effect on Digital Competence

2.6.2 The Influence of Technology-Based Human Resource Management on Service Performance

Technology-based human resource management is expected to directly influence service performance by enhancing employee capabilities and organizational effectiveness. According to the strategic human resource management perspective, HRM practices that are aligned with organizational goals contribute to improved employee performance and organizational outcomes (Wright & McMahan, 2011). When organizations implement e-HRM practices, they can more effectively identify skill gaps, provide targeted training, and evaluate performance, all of which contribute to improved service delivery (Marler & Fisher, 2013). In the public sector context, e-HRM enables village governments to systematically develop the capacity of their apparatus to deliver high-quality services to citizens (Nugroho, 2025). Research by Siswanti et al. (2024) and Ndou et al. (2023) has shown that digital transformation supported by human resource readiness leads to improved organizational performance. Therefore, it is hypothesized that:

H2: Technology-based Human Resource Management has a positive effect on Service Performance

2.6.3 The Influence of Organizational Factors on Digital Competence

Organizational factors, including infrastructure adequacy, leadership support, and policy frameworks, are considered essential for facilitating digital competence development. According to organizational readiness theory, employees are more likely to develop new capabilities when they are supported by adequate resources, leadership commitment, and an enabling policy environment (Weiner, 2009; Lokuge et al., 2019). In the context of digital transformation, the availability of organizational facilities, including technological infrastructure and institutional support, creates the conditions necessary for employees to learn and apply digital skills (Kwiliński et al., 2023; Nakagawa, 2025). Research by Espina-Romero et al. (2024) identified organizational readiness, including leadership commitment and infrastructure adequacy, as a key predictor of digital transformation success. However, studies have also shown that organizational factors alone may not guarantee digital competence development without corresponding individual and organizational capabilities (Carvalho et al., 2023; Maizon et al., 2025). Therefore, it is hypothesized that:

H3: Organizational Factors have a positive effect on Digital Competence

2.6.4 The Influence of Organizational Factors on Service Performance

Organizational factors are expected to directly influence service performance by creating an enabling environment for effective service delivery. When village governments possess adequate infrastructure, supportive leadership, and enabling

policies, they are better equipped to deliver high-quality public services (Ginting et al., 2025). Organizational readiness theory suggests that the availability of resources and institutional support enhances the collective capability of organizational members to execute their tasks effectively (Weiner, 2009). In the digital era, organizational factors such as technological infrastructure and policy support enable public servants to leverage digital tools for improved service delivery (Cuong et al., 2025; Khotimah et al., 2025). However, research by Guan and Yu (2025) and Komna and Mpungose (2024) suggests that organizational factors alone may be insufficient without corresponding human resource development. Therefore, it is hypothesized that:

H4: Organizational Factors have a positive effect on Service Performance

2.6.5 The Influence of Digital Competence on Service Performance

Digital competence refers to the ability to effectively utilize digital technologies for professional tasks and responsibilities. According to the Technology Acceptance Model, when individuals possess the necessary digital skills and confidence, they are better able to leverage technology to enhance their job performance (Davis, 1989; Venkatesh et al., 2003). In the public sector context, digital competence enables village apparatus to efficiently manage digital records, provide online services, and engage with citizens through digital platforms, all of which contribute to improved service delivery (Ingsih et al., 2024). Research by Maizon et al. (2025) and Fitri et al. (2024) has demonstrated that digital competence positively influences employee performance. However, studies have also shown that the impact of digital competence on performance may be inconsistent depending on organizational support and implementation mechanisms (Oberländer et al., 2020). Therefore, it is hypothesized that:

H5: Digital Competence has a positive effect on Service Performance

2.6.6 The Mediating Role of Digital Competence

Digital competence is expected to mediate the relationships between technology-based human resource management and service performance, as well as between organizational factors and service performance. According to the skill acquisition perspective, e-HRM practices and organizational factors create the conditions for skill development, which in turn translates into improved performance (Bondarouk & Ruel, 2013). When village governments provide technology-based HRM practices and supportive organizational facilities, they enable their apparatus to develop digital competence, which subsequently enhances service delivery (Espina-Romero et al., 2025; Nugroho, 2025). The mediating role of digital competence reflects the concept that organizational enablers influence performance through the development of individual capabilities (Maizon et al., 2025). However, research on the mediating role of digital competence in the context of village governance remains limited. Therefore, it is hypothesized that:

H6: Digital Competence mediates the relationship between Technology-based Human Resource Management and Service Performance

H7: Digital Competence mediates the relationship between Organizational Factors and Service Performance

3. Methods

3.1 Research Design

This study employs a quantitative explanatory research design to examine the causal relationships among technology-based human resource management, organizational

factors, digital competence, and service performance of village apparatus. This approach is appropriate for testing theoretical models and analyzing relationships among latent variables. The quantitative approach is considered appropriate because the study aims to empirically test the proposed hypotheses using statistical analysis of numerical data derived from questionnaire responses. The explanatory research design enables the examination of causal relationships between independent variables (Technology-based Human Resource Management and Organizational Factors), mediating variable (Digital Competence), and dependent variable (Service Performance). The research was conducted in Brebes Regency, Indonesia, focusing on village apparatus involved in public service delivery.

3.2 Population and Sample

The population of this study consists of all village apparatus in Brebes Regency involved in public service activities. The sample was selected using purposive sampling, with inclusion criteria limited to active village apparatus involved in public service delivery and having experience in using digital systems. The purposive sampling approach ensures that the selected respondents possess the characteristics necessary to adequately address the research objectives, particularly regarding their experience with digital systems and public service delivery. The unit of analysis is the individual, as this study focuses on measuring latent constructs such as digital competence and service performance at the individual level. The sample size was determined based on the minimum requirements for Structural Equation Modeling–Partial Least Squares (SEM-PLS) analysis, which typically requires a minimum of 100–200 observations for reliable statistical inference.

3.3 Data Collection Techniques

The data consist of both primary and secondary sources. Primary data were collected through structured questionnaires distributed to village officials in Brebes Regency, including both leaders and staff involved in public service activities. Secondary data were obtained from policy documents and relevant literature to support contextual analysis. The questionnaire was developed based on validated indicators from previous studies and measured using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The instrument captures respondents' perceptions of human resource management practices, organizational support, digital competence, and service performance. The questionnaire was pre-tested to ensure clarity, comprehensibility, and reliability prior to full-scale data collection. Data collection was conducted over a period of time to obtain a sufficient number of respondents meeting the purposive sampling criteria.

3.4 Operational Definition and Variable Measurement

Table 1. Operational Definition and Measurement of Variables

Variable	Type	Definition	Indicators	Scale
Technology-based Human Resource Management (X_1)	Independent	Application of digital tools to support and enhance HRM functions, including recruitment,	E-recruitment, e-training, e-performance evaluation, e-compensation, e-career development	Likert 1–5

Variable	Type	Definition	Indicators	Scale
		training, performance evaluation, and employee development		
Organizational Factors (X_2)	Independent	Organizational characteristics that create an enabling environment for digital transformation, including infrastructure, leadership, and policy support	Infrastructure adequacy, leadership support, policy framework, organizational culture, resource availability	Likert 1–5
Digital Competence (Z)	Mediating	Ability to use digital technologies effectively and confidently for learning, work, and participation in society	Information and data literacy, communication and collaboration, digital content creation, safety, problem-solving	Likert 1–5
Service Performance (Y)	Dependent	Effectiveness and efficiency of village apparatus in delivering public services to citizens	Service quality, service speed, service accuracy, responsiveness, citizen satisfaction	Likert 1–5

Source: Developed for this research (2026)

3.5 Data Analysis Techniques

Data analysis was conducted using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS software. This method was chosen due to its ability to analyze complex relationships among latent variables, its suitability for non-normal data, and its effectiveness in predictive research models. PLS-SEM is appropriate for this study as it enables the simultaneous testing of several hypotheses, accounting for both direct and indirect effects between variables, and is robust for complex models with multiple constructs.

The analysis was performed in two stages. First, the measurement model (outer model) was evaluated through convergent validity, discriminant validity, composite reliability, and Cronbach's alpha. Convergent validity is assessed through loading factor values (> 0.70 ideal, 0.50–0.60 acceptable) and Average Variance Extracted (AVE > 0.50). Discriminant validity is evaluated by comparing cross-loadings and ensuring the square

root of AVE exceeds correlations between constructs. Reliability is confirmed if Composite Reliability and Cronbach's Alpha values exceed 0.70.

Table 2. Rule of Thumb for Measurement Model Evaluation

Validity and Reliability	Parameter	Rule of Thumb
Convergent Validity	Loading Factor	> 0.70
	Average Variance Extracted (AVE)	> 0.50
	Communality	> 0.50
Discriminant Validity	Cross Loading	> 0.70 for each variable
	Square Root of AVE and Latent Variable Correlations	Square Root of AVE > Correlation between latent variables
Reliability	Cronbach's Alpha	> 0.70
	Composite Reliability	> 0.70

Second, the structural model (inner model) was evaluated using path coefficients, R-square (R^2) values, and hypothesis testing through bootstrapping procedures to determine the significance of relationships among variables. The R-Square value measures how well the model explains the variation in the dependent variables (0.67 = strong, 0.33 = moderate, 0.19 = weak). Hypothesis testing is conducted using bootstrapping to generate path coefficients and t-statistics, with significance criteria of t-statistic > 1.96 and p-value < 0.05. Indirect effect testing through mediation is also performed using bootstrapping to examine the significance of intervening variable effects with the same significance criteria.

4. Results and Discussion

4.1 Descriptive Statistics

Table 3. Descriptive Statistics of Research Variables

Variable	Mean	Std. Dev	Min	Max
MSDM	4.31	0.055	1	5
FO	4.34	0.048	1	5
KD	4.11	0.059	1	5
KL	4.31	0.045	1	5

Source: SmartPLS Output (2026)

Based on Table 1, all variables are categorized at a high level. Organizational facilities (FO) have the highest mean value (4.34), followed by human resource management (MSDM) and service performance (KL) (4.31), while digital competence (KD) has a slightly lower mean (4.11). These findings indicate that village apparatus generally perceive the organizational condition as favorable in terms of human resource management, facilities, and service performance. However, the relatively lower value of digital competence suggests that digital capabilities are not yet fully optimized compared to other aspects. The low standard deviation values indicate homogeneous responses, reflecting consistent perceptions among respondents.

4.2 Measurement Model Evaluation

4.2.1 Convergent Validity

Convergent validity was assessed using outer loading values and Average Variance Extracted (AVE). The results are summarized in Table 2.

Table 4. Outer Loading Summary

Variable	Indicator Range	Loading Range
MSDM	X1–X4	0.54 – 0.68
FO	X2	0.59 – 0.65
KD	Z1–Z5	0.59 – 0.68
KL	Y1	0.48 – 0.68

Source: SmartPLS Output (2026)

Most indicators fall within an acceptable range close to or above 0.60. Although some values are slightly below the ideal threshold of 0.70, they are still acceptable in exploratory research and do not significantly affect construct validity. These results indicate that the indicators adequately represent their respective latent constructs and can be used for further analysis.

4.2.2 Reliability and AVE

Table 5. Construct Reliability and Validity

Variable	AVE	Composite Reliability	Cronbach Alpha
MSDM	0.513889	0.668056	0.663194
FO	0.547917	0.637500	0.606250
KD	0.604861	0.674306	0.668750
KL	0.522917	0.658333	0.647222

Source: SmartPLS Output (2026)

All variables have AVE values above 0.50, indicating adequate convergent validity. Composite reliability and Cronbach's alpha values are within acceptable ranges, suggesting that the constructs have sufficient internal consistency. Thus, the measurement model is considered valid and reliable for structural model analysis.

4.3 Structural Model Evaluation

4.3.1 Coefficient of Determination (R^2)

Table 6. R-Square Values

Endogenous Variable	R-Square
Digital Competence (KD)	0.938
Service Performance (KL)	0.799

Source: SmartPLS Output (2026)

The R-square values indicate that 93.8% of the variance in digital competence is explained by MSDM and FO, while 79.9% of service performance is explained by MSDM, FO, and KD. These values demonstrate strong explanatory power of the model.

4.3.2 Hypothesis Testing

Table 7. Path Coefficients and Hypothesis Testing

Relationship	Beta	P-Value	Result
MSDM → KD	0.975	0.000	Supported
FO → KD	-0.007	0.969	Not Supported
MSDM → KL	1.229	0.001	Supported

Relationship	Beta	P-Value	Result
FO → KL	-0.292	0.186	Not Supported
KD → KL	-0.063	0.847	Not Supported

Source: SmartPLS Output (2026)

A relationship is considered significant when the p-value is less than 0.05. The results show that human resource management is the only variable that has a significant effect on both digital competence and service performance.

4.3.3 Structural Model

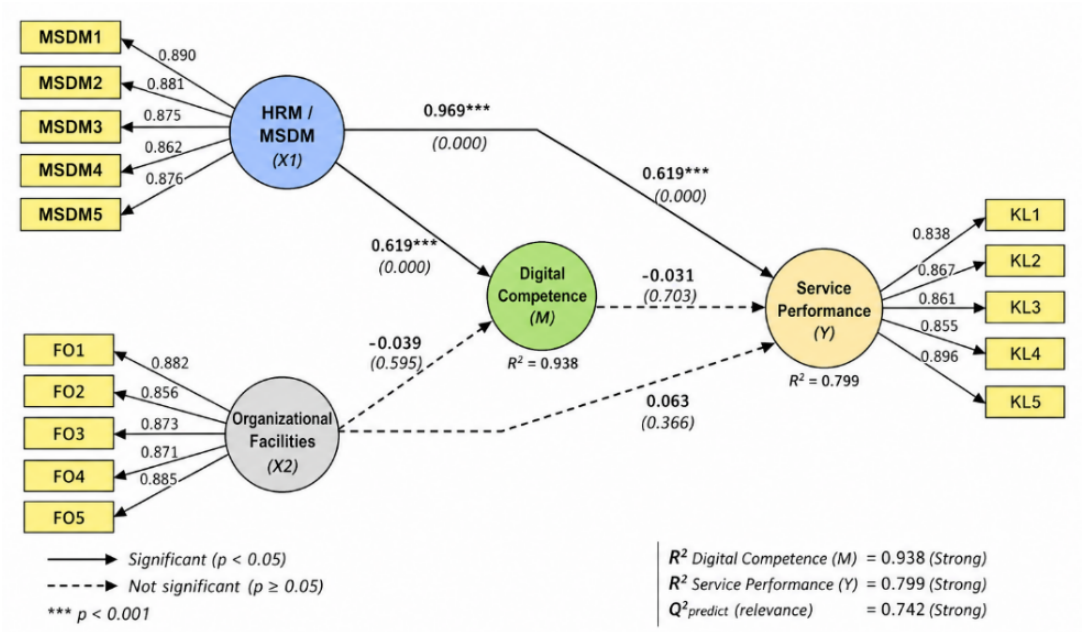

Figure 1. Structural Model (SEM-PLS Results)
Source: SmartPLS Output (2026)

Figure 1 illustrates that human resource management significantly influences both digital competence and service performance, while other relationships are not statistically significant. Solid lines represent significant relationships, whereas dashed lines indicate non-significant paths.

4.3.4 Mediation Analysis

Table 8. Indirect Effect (Mediation Test)

Path	Beta	P-Value	Result
MSDM → KD → KL	-0.061	0.847	Not Significant
FO → KD → KL	-0.000	0.969	Not Significant

Source: SmartPLS Output (2026)

The results indicate that digital competence does not mediate the relationship between human resource management, organizational facilities, and service performance.

4.4 Discussion

The results indicate that all constructs meet acceptable validity and reliability criteria, allowing further interpretation of the structural relationships. Although several indicators exhibit outer loading values slightly below the recommended threshold of 0.70, these values remain acceptable within exploratory research contexts and do not significantly affect construct validity. Descriptive analysis indicates that respondents are

predominantly experienced village apparatus who have been actively engaged in digital-based public service activities. The high mean values across all variables suggest that human resource management, organizational facilities, digital competence, and service performance are generally perceived to be in favorable conditions. However, these findings also imply that positive perceptions of organizational readiness do not necessarily translate into effective performance outcomes, highlighting the importance of examining the structural relationships among variables in greater depth. This highlights the need to further examine the causal relationships identified in the structural model, particularly in explaining the gap between perceived readiness and actual performance outcomes. These findings suggest that, despite the overall positive perception of organizational readiness and digital capability, the effectiveness of digital transformation may not solely depend on the availability of resources or perceived readiness, but rather on how these elements are integrated into operational processes.

The structural model evaluation reveals that human resource management (MSDM) has a positive and significant effect on digital competence ($\beta = 0.975$; $p < 0.05$), indicating that effective HR practices play a crucial role in improving the digital capabilities of village apparatus. This finding is consistent with previous studies that emphasize the importance of digital human resource management in enhancing employee competencies and organizational outcomes (Espina-Romero et al., 2025; Mulyani & Rulandari, 2024). In addition, HRM also has a significant positive effect on service performance ($\beta = 1.229$; $p < 0.05$), demonstrating that HR management is the primary driver of service quality improvement. This result supports prior research highlighting that human resource capability is a key determinant of performance in digital transformation contexts (Fitri et al., 2024; Cuong et al., 2025).

In contrast, organizational facilities (FO) do not have a significant effect on digital competence ($\beta = -0.007$; $p > 0.05$) nor on service performance ($\beta = -0.292$; $p > 0.05$). This finding suggests that the availability of infrastructure and technology alone is not sufficient to improve performance, which aligns with studies indicating that technological investment must be accompanied by effective implementation and management strategies (Guan & Yu, 2025; Kwiliński et al., 2023). Furthermore, digital competence does not have a significant effect on service performance ($\beta = -0.063$; $p > 0.05$). This result highlights a critical skill–implementation gap, where digital skills possessed by village apparatus are not yet effectively translated into improved service delivery. This finding contrasts with previous studies that report a significant relationship between digital competence and performance (Maizon et al., 2025; Ingsih et al., 2024), suggesting that the impact of digital competence may depend on organizational integration and contextual factors.

The structural model results indicate strong explanatory power, with digital competence explained by 93.8% of the variance and service performance explained by 79.9%. These findings suggest that the proposed model is robust in explaining the relationships among variables, despite the presence of several non-significant paths. The mediation analysis confirms that digital competence does not act as a mediating variable in the relationship between human resource management and service performance, nor between organizational facilities and service performance. This is due to the non-significant direct effect of digital competence on service performance, which does not meet the statistical criteria for mediation.

From a theoretical perspective, these findings reinforce the human-centered digital transformation perspective, which emphasizes that human resource management plays a

more critical role than technological availability in determining organizational performance (Espina-Romero et al., 2025; Kwiliński et al., 2023). This perspective challenges the traditional technology-driven paradigm and highlights the importance of human capability in digital environments. The insignificant effect of organizational facilities further indicates that technology functions only as an enabling factor rather than a determinant of performance. Without proper human resource management and integration into work processes, technological investments may not yield meaningful improvements in service outcomes. Moreover, the absence of a significant relationship between digital competence and service performance suggests that digital skills must be integrated into organizational systems to generate measurable performance improvements. This implies that digital transformation should be approached as a holistic process involving alignment between human resources, technology, and organizational processes.

Compared to previous studies, this research provides a contrasting perspective by demonstrating that digital competence does not always lead to improved performance. This highlights the importance of contextual factors, particularly in public sector organizations at the village level, where structural and institutional limitations may affect the effectiveness of digital transformation. The main contribution of this study lies in demonstrating that human resource management plays a dominant role in improving service performance, while digital competence and organizational facilities act as supporting factors. This finding provides important implications for policy and practice, particularly in prioritizing human resource development in digital transformation strategies.

To provide a deeper understanding of these findings, further interpretation is required in the context of organizational practices. In addition to the main findings, this study highlights the importance of aligning digital competence with organizational processes. The absence of a significant relationship between digital competence and service performance indicates that digital transformation has not yet reached the level of operational integration. Although village apparatus possess digital capabilities, these skills are not systematically embedded into daily service workflows. This condition suggests that digital transformation in village governance is still in a transitional phase, where the focus remains on technology adoption rather than process integration. Without clear standard operating procedures, system alignment, and performance integration, digital competence cannot fully contribute to improving service outcomes. From a strategic perspective, digital transformation should be approached as a comprehensive process involving human resource development, organizational restructuring, and process integration. Training programs should emphasize not only technical skills but also practical application in improving service efficiency. Therefore, organizations must ensure that digital competence is integrated into performance management systems. By linking digital capability with measurable service outcomes, digital transformation can generate sustainable improvements in public service delivery.

Despite these contributions, this study has several limitations. First, the use of a survey-based approach may introduce subjective bias in measuring perceptions. Second, the study is limited to a specific regional context, which may affect generalizability. Third, the model does not include other potential variables such as organizational culture or leadership, which may influence service performance.

5. Conclusion

This study examines the influence of technology-based human resource management and organizational factors on digital competence and service performance of village apparatus in Brebes Regency, as well as the mediating role of digital competence. Using Structural Equation Modeling–Partial Least Squares (SEM-PLS) analysis on village apparatus involved in public service delivery, the results show that technology-based human resource management has a significant positive effect on both digital competence and service performance, indicating that effective HRM practices not only enhance employee capabilities but also directly contribute to improved public service outcomes. However, organizational facilities do not have a significant effect on either digital competence or service performance, suggesting that the availability of technological infrastructure alone is insufficient to improve performance without effective human resource management and proper integration into organizational processes. Furthermore, digital competence does not have a significant effect on service performance and does not function as a mediating variable. This finding reveals the presence of a skill–implementation gap, where digital capabilities possessed by village apparatus are not yet effectively translated into improved public service outcomes, indicating that digital skills must be integrated into organizational systems to generate measurable performance improvements.

The theoretical implications of this study contribute to the development of a human-centered digital transformation perspective by demonstrating that human resource management is more critical than technological availability in determining service performance. This finding challenges the traditional technology-driven paradigm and extends the application of strategic HRM theory, technology acceptance model, and organizational readiness theory to the context of village governance. The significant effect of human resource management on both digital competence and service performance confirms that HRM practices aligned with digital transformation goals enable organizations to systematically develop employee capabilities and improve performance outcomes. The non-significant effect of organizational facilities on digital competence and service performance indicates that technology functions only as an enabling factor rather than a determinant of performance, reinforcing the importance of human capability in digital environments. The non-significant mediating role of digital competence provides empirical evidence that digital competence requires organizational integration to generate measurable performance improvements, suggesting that the relationship between digital skills and performance is contingent on contextual and organizational factors.

From a practical perspective, the findings suggest that local governments should prioritize human resource development strategies, including training, capacity building, and performance management, rather than focusing solely on technological investment. Human resource management practices should be designed to systematically develop digital competence through structured training programs, continuous learning opportunities, and performance feedback mechanisms. Organizational support should be directed toward integrating digital systems into daily service processes to ensure effective implementation, including the development of clear standard operating procedures and performance management systems that link digital capability with measurable service outcomes. Policymakers should recognize that digital transformation in village governance is primarily driven by human capability rather than technology alone, and design policies that prioritize human resource development and organizational

integration. Village government leaders should provide leadership support and create an organizational culture that encourages digital competence development and application.

This study has several limitations. First, the use of a survey-based approach may introduce subjective bias in measuring perceptions, as respondents' self-assessments may not fully reflect actual capabilities and performance. Second, the study is limited to a specific regional context (Brebes Regency), which may affect the generalizability of findings to other regions with different socio-cultural, economic, and infrastructural characteristics. Third, the model does not include other potential variables such as organizational culture, digital leadership, or external environmental factors, which may influence service performance and the effectiveness of digital transformation. Fourth, the cross-sectional design captures relationships at a single point in time, which may not reflect dynamic changes in digital competence and service performance over time. Fifth, the measurement of digital competence based on self-reported perceptions may not fully capture the actual technical skills and capabilities of village apparatus.

Future research should broaden the scope by incorporating additional variables such as organizational culture, digital leadership, external environmental factors, and institutional support to provide a more comprehensive understanding of digital transformation in the public sector. It would also be valuable to employ mixed-method approaches, combining quantitative surveys with qualitative interviews and observations, to provide deeper insights into the mechanisms underlying the relationships between HRM, digital competence, and service performance. Comparative studies across different regions or countries could provide insights into how contextual factors influence digital transformation outcomes. Longitudinal studies would enable the examination of how digital competence and service performance evolve over time and how HRM practices influence these changes. Finally, future research could explore the moderating role of organizational culture and leadership in the relationship between digital competence and service performance, as these factors may influence the extent to which digital skills translate into improved performance outcomes.

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