

THE INFLUENCE OF DIGITAL LEADERSHIP AND EMPLOYEE DIGITAL COMPETENCY ON HUMAN RESOURCE PERFORMANCE THROUGH E-HRM TRANSFORMATION: A STUDY OF SAMSAT EMPLOYEES' PERCEPTIONS

Mahdaliyah Fitri ¹⁾, Sry Rosita ²⁾, Tona Aurora Lubis ³⁾

^{1,2,3)} Faculty Economics and Business, Universitas Jambi, Jambi, Indonesia

Corresponding author: tonalubis@unja.ac.id

Abstract

Digital transformation has become an important part of bureaucratic reform aimed at improving organizational efficiency and the quality of public services. This study aims to analyze the influence of digital leadership and employee digital competence on public service human resource performance, as well as examine the mediating role of electronic Human Resource Management (e-HRM) transformation in the SAMSAT Office of Jambi City. The study employed an explanatory quantitative approach using a survey method involving all employees of UPTD PPD SAMSAT Kota Jambi, totaling 80 respondents, through a total sampling technique. Data were collected using a Likert-scale questionnaire and analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The results show that digital leadership has a positive and significant effect on human resource performance, but it does not have a significant effect on e-HRM transformation. Employee digital competence has a negative effect on human resource performance, but it has a positive and significant effect on e-HRM transformation. Furthermore, e-HRM transformation positively affects human resource performance. In the mediation analysis, e-HRM transformation does not mediate the relationship between digital leadership and human resource performance, but it significantly mediates the relationship between employee digital competence and human resource performance. These findings indicate that improving digital competence will be more effective in enhancing performance when supported by the implementation of an integrated e-HRM system. This study contributes to the development of digital-based public sector human resource management studies and provides practical recommendations for improving the quality of public services.

Keywords: Digital Leadership, Digital Competence, E-HRM, Human Resource Performance, Public Service

Introduction

Digital transformation has become an important agenda in bureaucratic reform aimed at improving organizational efficiency and the quality of public services. Digital government does not only depend on technological infrastructure but also on the readiness of human resources and leadership capable of directing organizational change. In this context, electronic Human Resource Management (e-HRM) plays a crucial role in supporting more transparent, efficient, and data-driven HR governance. According to the Organisation for Economic Co-operation and Development (2021), the success of digital bureaucracy requires the development of employees' digital skills as well as adaptive leadership to promote a technology-based work culture. Other studies also emphasize that digital leadership is a key factor in coordinating digital transformation programs in the public sector.

The pressure of digital transformation is also experienced by regional public service units, including SAMSAT (Sistem Administrasi Manunggal Satu Atap), which manages motor vehicle tax services. The increasing number of motor vehicles demands faster, more accurate, and more responsive services. Data from Statistics Indonesia (BPS) Jambi Province (2024) show that the number of motor vehicles in Jambi Province increased from around 1.2 million units in 2019 to more than 1.6 million units in 2024. This condition increases the complexity of services at UPTD PPD SAMSAT Kota Jambi, which operates various service channels such as the main office, SAMSAT Drive Thru, Mobile SAMSAT, and the online e-SAMSAT service.

In response to these demands, SAMSAT Kota Jambi has begun implementing an e-HRM system, including digital attendance, system-based performance appraisal, online training, and electronic personnel administration. Various studies indicate that the implementation of e-HRM can improve organizational efficiency and employee performance through stronger data management, improved HR service quality, and higher employee engagement. However, the success of such systems is strongly influenced by digital leadership and employees' digital competence.

Digital leadership functions as a driver of organizational transformation and the creation of a technology-based work culture. Meanwhile, employees' digital competence becomes an essential prerequisite for ensuring that digital systems are utilized optimally to support productivity and the quality of public services. Nevertheless, most previous studies have examined these factors separately, and relatively few have investigated the mediating role of e-HRM in linking digital leadership, digital competence, and public service performance.

Based on these considerations, this study aims to analyze the influence of digital leadership and employees' digital competence on the human resource performance of public services, as well as to examine the mediating role of e-HRM transformation in the context of motor vehicle tax services at SAMSAT Kota Jambi. This research is expected to contribute to the development of digital-based public sector human resource management studies and provide practical recommendations for improving the quality of public services.

Literature Review

Digital Leadership

Digital leadership refers to the ability of leaders to utilize digital technology to guide organizations in achieving their goals effectively in the era of digital transformation. This leadership is not only related to the use of technology but also involves the ability to build a digital vision, coordinate data-driven work processes, and encourage innovation within the organization. Leaders with strong digital literacy can act as drivers of organizational change by integrating technology into decision-making processes and performance management. In addition, digital leadership includes the ability to set an example in the use of technology, support employees' digital learning, and manage cross-unit collaboration through digital systems (Adie et al., 2024; Organisation for Economic Co-operation and Development, 2021; Juknevičienė et al., 2025). Therefore, digital leadership is an important factor in the success of organizational digital transformation.

Digital Competence

Digital competence refers to an individual's ability to use information and communication technology effectively, safely, and productively in performing their work. This competence includes a combination of knowledge, skills, and attitudes that enable employees to utilize technology to improve performance and service quality. In modern organizations, digital competence is not limited to technical abilities in operating devices or digital applications but also includes information literacy, data security awareness, and the ability to adapt to technological developments. Employees with strong digital competence tend to manage information more efficiently, collaborate through digital platforms, and adapt to continuously evolving work systems (Ingsih et al., 2024; Quttainah & Singh, 2024; Redecker, 2020). Thus, strengthening digital competence is an important factor in supporting successful organizational digital transformation.

Electronic Human Resource Management (e-HRM) Transformation

E-HRM transformation refers to the process of digitalizing human resource management functions through integrated information technology systems. The implementation of e-HRM enables various HR management activities—such as personnel administration, attendance management, performance management, and employee training—to be conducted electronically within a unified system. This transformation aims to improve administrative efficiency, procedural transparency, and data-based decision-making quality. In addition, e-HRM enhances HR service quality through systems that are faster, more accurate, and more accessible for both employees and management. Several studies indicate that the implementation of e-HRM can improve the effectiveness of HR management and encourage organizational behavior change toward a more digital and collaborative work culture (Alomari, 2023; Nyathi & Kekwaletswe, 2024; Shamaileh et al., 2022; El Saeed et al., 2025).

Human Resource Performance

Human resource performance in public services reflects the level of success of employees in carrying out their duties and delivering services to the community effectively and with high quality. In the public sector, performance is measured not only by internal productivity but also by the quality of services perceived by citizens as service users. Indicators of public service performance generally include service timeliness, accuracy and efficiency of work processes, responsiveness to community needs, improvement of service quality, and user satisfaction levels. Strong performance indicates that an organization is able to manage its resources optimally to produce high-quality public services. In organizations undergoing digital transformation, public service performance is strongly influenced by the organization's ability to integrate technology, employee competence, and leadership that promotes innovation and work effectiveness (Ingsih et al., 2024; Wang et al., 2025).

Research Framework

Based on the theoretical explanations, the formulation of the research problem, and the relationships among the variables described earlier, the conceptual framework of this study is as follows:

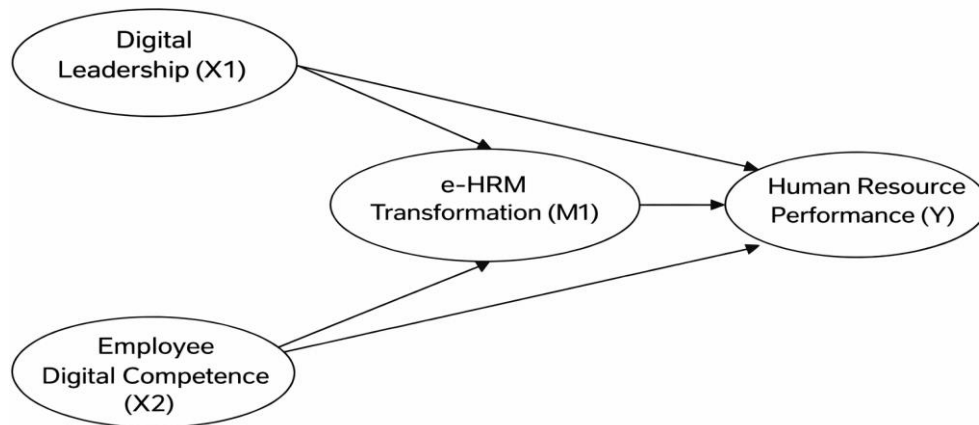


Figure 1. Research Framework

Hypotheses

- H1: Digital Leadership has a positive effect on Human Resource Performance at SAMSAT Kota Jambi.
- H2: Digital Leadership has a positive effect on e-HRM Transformation at SAMSAT Kota Jambi.
- H3: Employee Digital Competence has a positive effect on Human Resource Performance at SAMSAT Kota Jambi.
- H4: Employee Digital Competence has a positive effect on e-HRM Transformation at SAMSAT Kota Jambi.
- H5: e-HRM Transformation has a positive effect on Human Resource Performance at SAMSAT Kota Jambi.
- H6: e-HRM Transformation mediates the effect of Digital Leadership on Human Resource Performance at SAMSAT Kota Jambi.
- H7: e-HRM Transformation mediates the effect of Employee Digital Competence on Human Resource Performance at SAMSAT Kota Jambi.

Methods

This study employs an explanatory quantitative approach aimed at testing causal relationships among variables in the conceptual model. The research was conducted using a cross-sectional design, with data collected through a questionnaire survey using a Likert scale of 1–5 to measure the variables of Digital Leadership (X1), Employee Digital Competence (X2), e-HRM Transformation (M), and Human Resource/Public Service Performance (Y). The research population consisted of all active employees of UPTD PPD SAMSAT Kota Jambi, totaling 80 individuals, including both civil servants (ASN) and contract employees (PTT/Non-Civil Servants). Therefore, the sampling technique used was saturated sampling (total sampling), in which the entire population served as respondents. The data used include primary data obtained from questionnaires and secondary data derived from organizational documents such as organizational structure, service SOPs, and performance documents. Data collection was conducted through both online and offline questionnaire distribution, while ensuring confidentiality and informed consent from respondents.

Data analysis was conducted using descriptive statistics to describe the characteristics of the data, followed by Partial Least Squares–Structural Equation Modeling (PLS-SEM) to test the relationships among variables. The analysis includes the measurement model (outer model) to assess the validity and reliability of indicators (convergent validity, discriminant validity, Average Variance Extracted/AVE, Composite Reliability, and Cronbach’s Alpha), and the structural model (inner model) to evaluate causal relationships through R^2 , Q^2 , and f^2 values. Hypothesis testing was performed using the bootstrapping method to assess the significance of path coefficients, including both direct and indirect effects (mediation) of e-HRM Transformation in the relationship between digital leadership, employee digital competence, and human resource or public service performance.

Results and Discussion

Result

The measurement model was first evaluated to ensure the validity and reliability of the constructs. In research at the stage of instrument development or refinement, a loading factor value of 0.50–0.60 is still considered acceptable. In this study, the minimum threshold for the loading factor was set at 0.50.

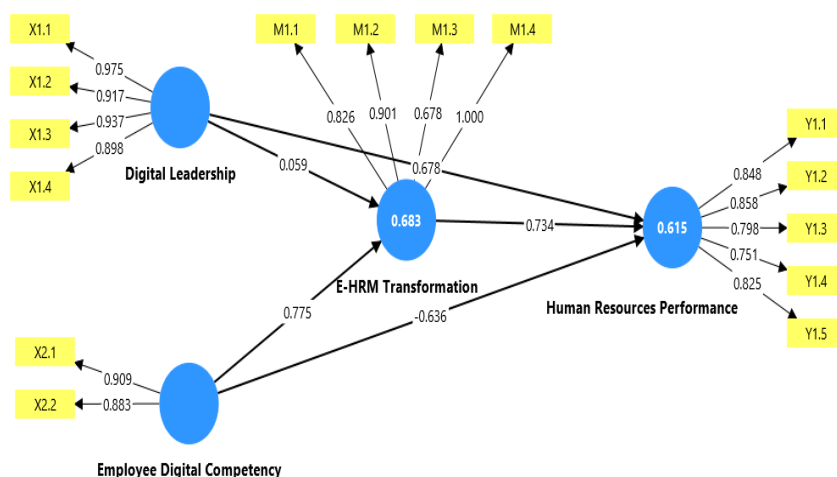


Figure 2. Results of the Second Research Model Calculation

Based on the outer loading results, all indicators have values above 0.50. Indicating that all indicators are valid and represent reflections of their respective research variables.

Reliability testing was based on two main parameters, namely Composite Reliability and Cronbach’s Alpha. Composite reliability is used to estimate the internal consistency of constructs; a construct is considered reliable if its value exceeds 0.70. Meanwhile, Cronbach’s alpha represents the lower bound of reliability; a construct is considered reliable if its value exceeds 0.60. In addition to reliability, the table also presents the Average Variance Extracted (AVE) as an indicator of convergent validity, with a requirement that the AVE value be greater than 0.50. Based on Table 1, all constructs in this study meet the reliability criteria.

Table 1. Cronbach’s Alpha, Composite Reliability dan AVE

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Digital Leadership	0,951	0,971	0,964	0,869
E-HRM Transformation	0,874	0,899	0,917	0,739
Employee Digital Competency	0,755	0,762	0,891	0,803
Human Resources Performance	0,875	0,878	0,909	0,667

The structural model (inner model) testing stage is conducted by examining the R-square value, which represents the result of the model goodness-of-fit test. The R-square value is used to determine the extent to which exogenous variables explain the variation in endogenous constructs within the structural model.

Table 2. R-Square

	R-square	R-square adjusted
E-HRM Transformation	0,683	0,674
Human Resources Performance	0,615	0,600

Based on the table, e-HRM Transformation has an R-square value of 0.683, meaning that 68.3% of its variance is explained by Digital Leadership and Employee Digital Competence, while the remaining 31.7% is influenced by other factors outside the model. Meanwhile, Human Resource Performance has an R-square value of 0.615, indicating that 61.5% of the variation in HR performance is explained by the constructs in the model, while the remaining 38.5% is influenced by other factors outside the model.

The evaluation of goodness of fit in the structural model can also be examined through predictive relevance (Q-square/Q²). The Q² value can be calculated using the following formula:

$$Q^2 = 1 - (1 - R1^2)(1 - R2^2)$$

Thus, the predictive relevance (Q²) value of the model is 0.878 or approximately 87.8%. This high Q² value indicates that the model has very strong predictive capability for the endogenous constructs, namely e-HRM Transformation and Human Resources Performance.

Hypothesis Testing

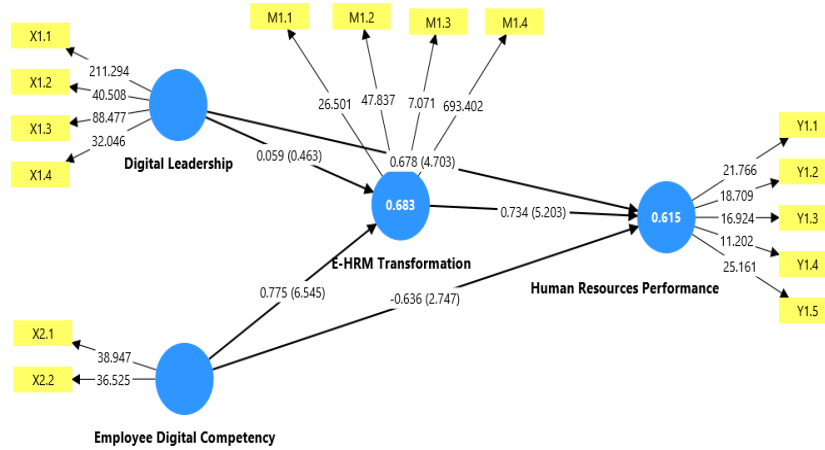


Figure 3. Bootstrapping

The second research model can be explained from the results of testing between variables or hypotheses in this study obtained from bootstrapping. The results of the hypothesis testing are based on the following table:

Table 3. Path Coefficient

	Original sample (O)	Sample mean (M)	STDEV	T statistics	P values
Digital Leadership → Human Resources Performance	0,678	0,678	0,144	4,703	0,000
Digital Leadership → E-HRM Transformation	0,059	0,061	0,128	0,463	0,644
Employee Digital Competency → Human Resources Performance	-0,636	-0,629	0,232	2,747	0,006
Employee Digital Competency → E-HRM Transformation	0,775	0,777	0,118	6,545	0,000
E-HRM Transformation → Human Resources Performance	0,734	0,731	0,141	5,203	0,000
Digital Leadership → E-HRM → Human Resources Performance	0,044	0,044	0,094	0,461	0,645
Employee Digital Competency → E-HRM → Human Resources Performance	0,569	0,570	0,151	3,781	0,000

Based on Table 3, the significance of the relationships between variables is determined by the t-statistics value (>1.96) or p-value (<0.05) (Ghozali, 2006). The results show that Digital Leadership has a positive and significant effect on Human Resource Performance (H1 accepted). However, Digital Leadership does not have a significant effect on e-HRM Transformation (H2 rejected). Furthermore, Employee Digital Competence has a significant but negative effect on Human Resource Performance, meaning that the hypothesis expecting a positive effect is not supported (H3 not supported).

On the other hand, Employee Digital Competence has a positive and significant effect on e-HRM Transformation (H4 accepted), and e-HRM Transformation also has a positive and significant effect on Human Resource Performance (H5 accepted). In the mediation test, e-HRM Transformation does not mediate the effect of Digital Leadership on Human Resource Performance (H6 rejected), but it significantly mediates the effect of Employee Digital Competence on Human Resource Performance (H7 accepted).

Discussion

The results of the study show that Digital Leadership has a positive and significant effect on Human Resource Performance, indicating that leaders’ ability to guide the use of technology can improve work effectiveness and service quality (Wang et al., 2025; Yang et al., 2024). However, Digital Leadership does not have a significant effect on e-HRM Transformation, suggesting that HR digital transformation is more influenced by system readiness and organizational support (OECD, 2021).

Furthermore, Employee Digital Competence has a significant but negative effect on Human Resource Performance, which may be caused by the increased digital workload placed on more digitally competent employees (Ramstedt Stadin et al., 2024). In contrast, Employee Digital Competence has a positive and significant effect on e-HRM Transformation, as digital capability facilitates the implementation of technology-based HR systems (Ingsih et al., 2024).

In addition, e-HRM Transformation has a positive and significant effect on Human Resource Performance, as the digitalization of HR processes improves work efficiency and transparency (Saeed & Ziaulhaq, 2019). In the mediation analysis, e-HRM Transformation does not mediate the effect of Digital Leadership on Human Resource Performance, but it mediates the effect of Employee Digital Competence on Human Resource Performance, indicating that digital competence will be more effective in improving performance when supported by an integrated e-HRM system.

Practical Implications

For SAMSAT Kota Jambi: Strengthening digital leadership, optimizing the implementation of e-HRM, and improving employees' digital competence through targeted training and clear work system support.

For Local Government: Encouraging the development of leadership and digital competence among public officials, as well as strengthening e-HRM as an accountability instrument supported by reliable IT infrastructure.

For Future Researchers: Expanding the research object, incorporating other relevant variables, and applying a mixed methods approach to deepen the analysis.

Conclusion

Based on the research findings, it can be concluded that Digital Leadership has a positive effect on Human Resource Performance at SAMSAT Kota Jambi, but it does not have a significant effect on e-HRM Transformation. Employee Digital Competence was found to have a negative effect on Human Resource Performance, but a positive effect on e-HRM Transformation. Furthermore, e-HRM Transformation has been proven to improve Human Resource Performance.

In the mediation analysis, e-HRM Transformation does not mediate the effect of Digital Leadership on Human Resource Performance, but it mediates the effect of Employee Digital Competence on Human Resource Performance, indicating that digital competence will be more effective in improving performance when supported by an integrated e-HRM system.

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