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Does Digital Competence Improve Employee Performance? The Role of Smart Digital Services Mediation in the Public Sector

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Abstract

This study examines the role of digital competence in improving employee performance, with smart digital services as a mediating variable in the public sector. Previous studies have largely focused on the direct relationship between competence and digital performance, with limited attention to the mediation mechanisms of smart digital services in government agencies. This study addresses this gap by proposing an integrated model that is tested in the context of provincial government. The object of this study was employees of the Regional Secretariat of Central Java Province, with a total of 142 respondents selected using proportional random sampling. The results of the study show that digital competence has a significant positive effect on employee performance, both directly and indirectly through smart digital services. Smart digital services partially mediate the relationship between digital competencies and employee performance, highlighting their strategic role in supporting digital transformation in the public sector. This research contributes theoretically by expanding the digital competency literature through a mediation mechanism model and provides practical implications for public organizations in strengthening digital capacity to improve performance.

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INTRODUCTION

The main transformation has become a strategic imperative for public sector organizations around the world. The rapid development of information and communication technology (ICT) has forced government agencies to adopt digital systems in administrative processes, public service delivery, and decision-making mechanisms (Wirtz et al., 2021). The digitalization of the public sector is also seen as an important step towards adaptive and transparent governance in the face of increasingly complex societal needs (Ali Assegaf, 2025). The application of digital technology in the public sector is expected to be able to improve efficiency, transparency, and quality of services to the community. However, this transformation requires not only a change in the system but also the readiness of the human resources in it (Ingsih et al., 2024). Many state civil servants still do not have adequate digital competencies to operate technology-based systems and manage government data effectively (Sakti et al., 2024). However, technological advances alone do not guarantee an improvement in organizational performance; they must be supported by the readiness of human resources, especially digital competencies among state civil servants.

In the context of public administration, state civil servants play an important role in implementing digital reform. The use of digital-based systems by the state civil servants allows for the creation of more efficient, transparent, and accountable work processes (Dini & Kasmari, 2025). Several studies show that employees with strong digital competencies are better able to adapt to digital work systems, manage data effectively, and provide services efficiently (Hammad et al., 2025). Therefore, strengthening the digital competence of the state civil servants is an urgent need so that digital transformation not only focuses on technology, but also results in improving employee performance and the quality of public services (Kashive & Raina, 2025). However, empirical findings regarding the relationship between digital competencies and employee performance remain inconclusive. According to Latip et al. (2025) it is shown that the digitization of public services has a positive impact on citizen satisfaction and transparency, but this kind of literature still rarely discusses the role of the internal mechanisms of smart digital services as a link between individual digital competencies and organizational performance outputs. The difference in findings by Akarsu et al. (2025) shows that there are other variables that act as a connecting mechanism between digital competence and employee performance. This inconsistency shows the existence of intervention variables that affect how digital competencies are transformed into performance outcomes (David et al., 2024). However, research that specifically places smart digital services as a mediating variable in the context of the regional public sector is still relatively limited. Therefore, this study seeks to fill this gap by analyzing the role of smart digital services in mediating the relationship between digital competencies and employee performance.

This condition also occurs in Central Java Province which is known to be highly committed to bureaucratic reform and public service innovation (Efendi et al., 2022). The provincial government has launched various programs such as LaporGub Central Java and e-office to speed up bureaucracy and improve service quality (Kurniasari et al., 2021). Despite these efforts, service delivery remains uneven due to limited digital literacy, system complexity, and the partial utilization of available digital services. This phenomenon suggests that digital competence alone may not be enough without the support of an effective and smart digital service system. The implementation is not optimal because some employees still have difficulty using digital applications and have not been able to utilize technology to the fullest (Wulandari et al., 2025). According to Bridle (2023), public service problems in Central Java include low digital literacy of employees, lack of continuous training, and weak integration between institutions. This condition causes public services to be slow, inefficient, and have not satisfied the community. The Ombudsman's report also highlights public complaints related to service delays and incompatibility of digital systems with user needs.

Digital transformation in the public sector requires not only the availability of technological infrastructure, but also the readiness of human resources as the main implementers of public policies and services (Kristiansen & Aas, 2024). Smart digital services require state civil servants who have adequate digital competencies so that the system implemented can be utilized optimally. Without strong digital competency support, the implementation of digital services has the potential to be ineffective and only administrative. The quality of public services is highly dependent on effective human resources in utilizing technology, as stated by (Lee & Meng, 2021). Digital competencies include the ability to use digital devices, understand data-based systems, and adapt to technological innovations (Vuorikari et al., 2022). Employees with high digital competence can speed up the administrative process, improve data accuracy, and provide fast service (Saerang & Nelwan, 2024). On the other hand, the limitation of digital competencies has the potential to hinder performance and lower the quality standards of public services (Sutalhis & Novaria, 2024).

Some bureaus within the Regional Secretariat of Central Java Province still show dependence on manual systems and have not made optimal use of smart digital services (Brida, 2023). Previous research has shown that digital competencies have a positive effect on smart digital services and employee performance in the public sector in Central Java (Ingsih et al., 2024). According to Velsberg et al. (2020), smart digital services powered by technologies such as the Internet of Things (IoT) and artificial intelligence play a crucial role in creating efficient and responsive public services. Therefore,

digital competence and smart digital services are two main factors that are interrelated in improving the performance of the apparatus in Central Java.

Based on these conditions, this study proposes smart digital services as a mediating variable that bridges digital competence and employee performance. Smart digital services refer to integrated, data-driven, and user- oriented digital systems designed to efficiently support organizational processes. The novelty of this research lies in the study of smart digital services as a mediation mechanism, which has been relatively underexplored in previous public sector studies.
The novelty of this research lies in the placement of smart digital services as a mediating variable in the relationship between digital competence and employee performance. Most previous studies have only examined the direct influence of competency on performance, without examining how digital service systems act as a mechanism for converting competencies into performance outputs. Thus, this study offers an integrative perspective between individual readiness and organizational system readiness in the digital transformation of the public sector.

Innovation theory diffusion describes how new ideas and technologies are adopted in social systems, as it is put forward emphasizing that the success of innovation in an organization is largely determined by the way in which the process of diffusion of innovation is received by individuals and groups in a given social system. Rogers divides the diffusion process into five stages: knowledge, persuasion, decision, implementation, and confirmation. In the context of the public sector, the diffusion of innovation theory helps explain why digital systems are not adopted uniformly despite similar institutional mandates. According to Hradecky et al. (2022) the success of diffusion is determined not only by the relative superiority of innovation, but also by the readiness of the individual and the support of the organization to technological change. In the context of public organizations, this theory provides a basis for understanding the acceptance of digital technology by the apparatus through the development of digital competencies. According to Hartiyanti & Kartika (2025), explained that the application of diffusion innovation theory in the public sector helps to delineate the level of resistance to digital transformation and the importance of digital competency training in accelerating technology adoption.

Smart digital services are a form of public service that utilizes digital technology in an integrated manner to increase effectiveness, efficiency, transparency, and collaboration between work units. This service is supported by the use of information systems, artificial intelligence, and data-based technology that allows the service process to be more responsive and adaptive to user needs (Para-González et al., 2025). In the public sector, smart digital services play an important role as an important instrument in supporting employee performance through simplification of work processes and reduction of administrative burdens. Research by (David et al., 2023) also confirms that the acceptance of digital innovation is influenced by the perception of benefits, ease of use, and readiness of human resources. Employees with higher digital competencies are more likely to perceive digital systems as advantageous and less complex, facilitating effective adoption and utilization (Azwir et al., 2025). Thus, the relevant innovation diffusion theory is used as the basis for research on the influence of digital competence on the implementation of smart digital services and its impact on employee performance within the Regional Secretariat of Central Java Province.Digital competence is defined as a person's ability to use information and communication technologies effectively to support the execution of tasks and the achievement of organizational goals (Lee & Meng, 2021). According to Vuorikari et al. (2022) digital competencies, it includes three main components, namely technological knowledge, technical skills, and attitudes towards technological change.

In the context of public services, employees who have high digital competence are able to adapt to system changes, improve work efficiency, and provide faster and more accurate services (Ingsih et al., 2024). Research by Chasbiandani (2019) also found that employees with good digital skills have higher productivity and work effectiveness than employees who are not skilled in using digital systems. Meanwhile Afdila & Adnan (2023) emphasized that mastery of digital technology accelerates bureaucratic processes and increases public accountability. Meanwhile Umamy et al. (2025) it shows that the lack of digital competencies has a bad impact on employee performance, as they have difficulty adapting to the newly introduced technology-based work system. This condition shows that the lack of digital capabilities hinders the process of adopting innovations in the work environment. As a result, productivity and work effectiveness can decrease significantly.

A global-scale study conducted by Tuoi & Thanh (2023) concluded that proficiency in digital competencies has a positive impact on the productivity and efficiency of government organizations. In addition, Elisnawati et al. (2023) it shows that digital competencies not only encourage the improvement of individual performance, but also strengthen the culture of innovation in the work environment. Thus, mastery of digital competencies is seen as an absolute requirement for state civil servants to achieve optimal performance in the digital era (Parapat et al., 2020). Employees with high digital competence tend to perform tasks more efficiently, adapt quickly to system changes, and collaborate effectively through digital platforms. Therefore, the following hypothesis is proposed.
H1: Digital competence has a positive and significant influence on employee performance.

Digital competencies play an important role in supporting the successful implementation of smart digital services. Employees who have strong digital skills can understand system mechanisms, manage digital data, and maximize the use of information technology for the provision of public services (Saerang & Nelwan, 2024). Research by Ingsih et al. (2024) proves that digital competencies have a significant influence on an organization's capacity to implement smart digital services in the public sector. According to Ahmed (2025) the bureaucracy digital competencies accelerate the implementation of artificial intelligence-based service systems and the Internet of Things (IoT), which improves the efficiency and transparency of public services. This is in line with the results of research Zhao et al. (2021) which states that the development of digital competencies among public employees strengthens the effectiveness of digital communication between agencies. The implementation of smart digital services allows employees to complete tasks faster and more accurately through an integrated work system. Digitization of work processes reduces reliance on manual procedures thereby increasing productivity and quality of employee performance. Thus, smart digital services not only

function as a technological tool, but also as an organizational mechanism that supports the achievement of optimal employee performance. In Central Java Province, the low digital literacy of employees is one of the causes of the implementation of a suboptimal digital system. Thus, improving digital competence is a strategic step in creating public services that are smart, collaborative, and adaptive to technological changes.
H2: Digital competence has a positive and significant influence on smart digital services.

Smart digital services function to improve the efficiency and quality of work of equipment by utilizing an integrated digital system. According to the application Velsberg et al. (2020) smart digital services supported by AI and IoT technology are able to reduce administrative workload and improve the responsiveness of public services. Referring to Sari & Nugroho (2023), it is shown that the implementation of digital systems in public services increases the effectiveness, accuracy, and job satisfaction of employees. Research by Ingsih et al. (2024) also explains that smart digital services have a positive influence on employee performance in public organizations. In the context of bureaucratic digitalization, it is explained Efendi et al. (2022) that employee performance is greatly influenced by the ability to adapt to the digital work system, skills in using service applications, and cross- sectional collaboration through digital platforms. This argument is reinforced by Ali Assegaf (2025) the addition that employees with high digital skills tend to perform better because they are able to utilize technology to speed up work and minimize errors. In addition, (2024) it was found that the digitization of public services contributes to increasing employee work motivation because of a work system that is more transparent, efficient, and accessible. Based on the opinion of Kumar et al. (2024), it was found that the integration of digital technology in the public service system is able to increase productivity by up to 35% and reduce the rate of human error. In line with research Efendi et al. (2022) adaptation to digital work systems plays an important role in increasing work motivation and team collaboration. Therefore, the implementation of smart digital services not only impacts organizational efficiency, but also improves the performance of individual employees.
H3:Smart digital services have a positive and significant influence on employee performance.

Several international studies show that the influence of digital competencies on performance is not always direct, but can be through the mediation mechanism of technology variables or digital systems. Referring to research Ingsih et al. (2024) on public officials in Central Java, it was stated that digital competence has a significant influence on employee performance through smart digital services. Research by Gou Zhou et al. (2025) shows that digital transformation improves employee performance through increased competence, learning motivation, and the provision of work autonomy. This shows that indirect pathways are very possible in the context of the influence of digitalization on performance. The Bridging Digital Gaps in Smart City Governance study Aldhi et al. (2025) also supports the idea of mediation, where managerial digital readiness mediates the influence of technological capabilities and digital skills on public sector performance in the context of city governance. Another study by Yunita et al. (2024) confirming that organizations that develop smart digital services based on employees' digital competencies show a 20-30% increase in performance compared to those that do not. Thus, smart digital services are not only a technological tool, but also an instrument that strengthens employees' ability to adapt to the modern digital work system. Digital competencies may not directly translate into performance without an adequate organizational system. Smart digital services serve as a support mechanism that allows employees to utilize their competencies effectively.
H4:Digital Competence has a positive and significant influence on employee performance through smart digital services.

The conceptual framework scheme in this study can be described as follows:

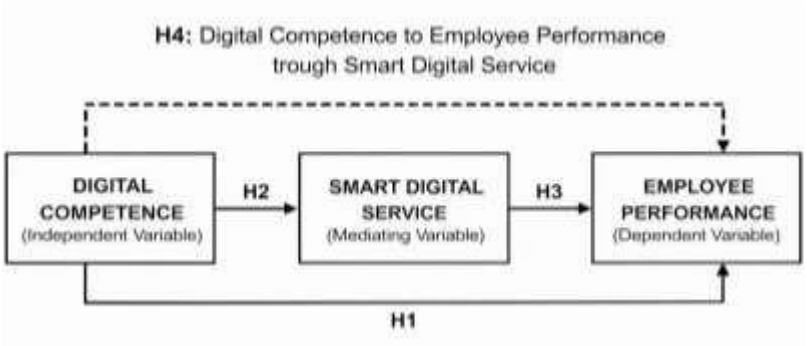

Figure 1. Conceptual framework

METHODS

This research was conducted in Central Java from October 2025 to November 2025. The object of the research is at the Regional Secretariat of Central Java Province. The research population includes state civil servants in all bureaus of the Regional Secretariat of Central Java Province. The sampling technique used was proportional random sampling so that a data sample of 142 employees was obtained. This research was conducted using a quantitative research technique approach. The data analysis in this study uses the Structural Equation Model (SEM) with Smart PLS 4 software.

The data of this study was obtained through the distribution of a closed questionnaire to the respondents. The determination of the

number of samples in this study refers to the minimum requirements of the SEM-PLS analysis, which is ten times the number of indicators used (Jimoh, 2025). With 14 research indicators, the minimum number of respondents needed is 140 respondents. A sample of 142 respondents has met these criteria, so the research model has an adequate level of feasibility and statistical strength (Basit et al., 2025). During the data collection process, this study faced several obstacles, including the limited time of respondents due to the busyness of the state civil servants, as well as variations in the level of respondents' understanding of digital-based questionnaire instruments. These obstacles have the potential to affect respondents' perception in providing answers, even though they have been minimized through explanations and assistance in filling out questionnaires.

Each statement is measured using a Likert scale of 1 7 points (Chasbiandani, 2019). The questionnaire consists of several parts, namely instructions for filling out and consent to participate, as well as respondent demographic data, and research statements. All data is guaranteed confidentiality and participation is voluntary (Creswell & Creswell, 2018).

The research instrument includes three main variables, namely digital competence, smart digital services, and employee performance. The digital competency variable is adapted from (Touron et al., 2018), which emphasizes the ability of individuals to use technology to work effectively (Van Laar et al., 2017). The variable of smart digital services refers to indicators developed by (Velsberg et al., 2020), which include effectiveness, efficiency, transparency, and collaboration in public services. Meanwhile, employee performance measurement is carried out using five indicators, which are in line with the opinion of Armstrong & Taylor (2020) that performance is influenced by competencies and effective work systems.

Digital competence is measured through indicators of information literacy, digital communication, content creation, cybersecurity awareness, and problem-solving skills. Smart digital services are measured using indicators of effectiveness, efficiency, transparency, and system integration. Employee performance is assessed through indicators of work quality, quantity, punctuality, effectiveness, and adaptability.

The operational definition is the elaboration of variables in detail into dimensions and indicators to facilitate measurement in quantitative research (Suhartini, 2023). This study uses 14 indicators consisting of 5 indicators of digital competence (information literacy, digital communication, digital content creation, cybersecurity, and problem solving), 4 indicators of smart digital services (effectiveness, efficiency, transparency, and system integration), and 5 employee performance indicators (quality, quantity, timeliness, accuracy, and adaptability). Each indicator was measured using a Likert scale of 1 7 to capture respondents' perception of the implementation of digital systems in the work environment. The following is a table of operational definitions of independent and dependent variables in this study:

Table 2. Operational Definition

Variabel	Operational Definition	Indicator	Indicator Notation
Digital Competence	Employees' ability to understand, use, and manage information technology and digital tools effectively to support work implementation and increase productivity (Spante et al., 2018)	Information Communication Kreasi digital Security Troubleshooting	X1 X2 X3 X4 X5
Smart digital services	The implementation of a public service system based on digital technology designed to improve efficiency, transparency, accuracy, and quality of interaction between government agencies and the community (Indah et al., 2025)	Effectiveness Efficiency Transparency Collaboration	Z1 Z2 Z3 Z4
Employee performance	Refers to the work results or work achievements achieved by individuals. This includes the extent to which employees have succeeded in meeting or exceeding the set targets, the quality of the work produced, and the efficiency and effectiveness in carrying out their duties (Syahadatina et al., 2023)	Quality Quantity Maximum Accuracy Independence	Y1 Y2 Y3 Y4 Y5

RESULTS AND DISCUSSION

Demographic Characteristics of Respondents

Based on the opinion of Sugiyono (2019), the characteristics of respondents include basic identities such as gender, age, education, and length of employment, which serve to provide a comprehensive picture of respondents. On the other hand, Sekaran & Bougie (2016) also stated that demographic characteristics are basic information that explains the background of respondents to understand the context of the research data and strengthen the validity of the results.

Table 1. Demographic characteristics of respondents

Variabel	Frequency	%
Gender		
Male	33	23,2
Female	109	76,8
Age		
20-30	120	84,5
31-40	14	9,9
41-50	6	4,2
51-60	2	1,4
Education		
<D3	18	12,7
Bachelor	117	82,4
Magister	7	4,9
Field of Work		
General Bureau	50	35,2
Legal Bureau	5	3,5
Organization Bureau	26	18,3
Bureau of Economics	15	10,6
Community Welfare Bureau	17	12
Regional Development Administration Bureau	2	1,4
Goods/Services Procurement Administration Bureau	19	13,4
Bureau of Infrastructure and Natural Resources	4	2,8
Bureau of Government, Regional Autonomy, and Cooperation	4	2,8
Length of Work		
<10	125	88
11-20	10	7
21-30	5	3,5
31-40	2	1,4
>41	**0**	0

Source: Primary data, 2025.

Descriptively, the respondents in this study were dominated by women as many as 109 respondents. Based on age, the majority of respondents aged 20-30 years are 120 respondents. Based on education, 116 respondents were dominated by respondents with bachelor's education. Meanwhile, based on the field of work, most general bureaus have 50 respondents. Finally, based on the length of work, 125 respondents were dominated by 125 respondents who worked <10 years.

Common Method Bias (CMB)

In this study, Common Method Bias (CMB) testing was performed to ensure that the data obtained was not distorted due to the use of the same measurement method for all variables. The Common Method Bias (CMB) test in this study used SPSS shoftware using Harman's Single Factor Test.

Table 3. Common Method Bias Test (CMB) Results

Total Variance Explained						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.607	47.195	47.195	6.057	43.261	43.261
2	1.259	8.991	56.186			
3	.843	6.024	62.210			
4	.788	5.630	67.840			
5	.631	4.506	72.346			
6	.625	4.467	76.813			
7	.582	4.159	80.972			
8	.501	3.580	84.552			
9	.490	3.498	88.050			
10	.436	3.115	91.165			
11	.373	2.667	93.832			
12	.362	2.585	96.417			
13	.262	1.873	98.290			
14	.239	1.710	100.000			

Extraction Method: Principal Axis Factoring.

Source: Primary data, 2025.

Based on the results of the analysis on the *Total Variance Explained* table, it was found that the first factor had an eigenvalue of 6,607 and explained 47,195% of the total variance. Meanwhile, after extraction (*Extraction Sums of Squared Loadings*), the value of the variance described by the first factor is 43.261%. This value is below the 50% threshold, which means there is no single dominant factor that explains most of the data variance. Thus, it can be concluded that the data of this study is free from the issue of Common Method Bias (CMB) and can be used for further analysis (Fuller et al., 2016).

Measurement model testing was carried out to evaluate the validity and reliability of indicators in measuring latent constructs. Referring to Hair and Alamer (2022), the measurement model aims to assess the relationship between latent variables and their indicators. Evaluation was carried out through convergent validity, discriminant validity, and reliability tests.

Convergent validity indicates the extent to which the indicator is able to represent the constructed being measured. In SEM-PLS, the convergent validity is assessed based on the value of the loading factor > 0.70 (Mulya & Luhur, 2025). In this study, all items in each construction met the criteria of convergent validity. In this study, the convergent validity can be seen in Table 4.

Table.4 Convergent validity test Results

	Digital Competencies	Employee Performance	Smart Digital Services
X1	0,874		
X2	0,868		
X3	0,825		
X4	0,799		
X5	0,874		
Y1		0,878	
Y2		0,884	
Y3		0,791	
Y4		0,875	
Y5		0,702	

Z1			0,812
Z2			0,902
Z3			0,879
Z4			0,906

Source: Primary data, 2025.

According to Mulya and Luhur (2025) the indicator is declared valid if it has *a loading factor* value of > 0.7. Based on Table 4, all indicators in the variables of Digital Competence, Smart Digital Services, and Employee Performance have a loading factor above 0.70 with the highest value of 0.906. Thus, all indicators are declared valid and able to adequately explain the construct.

Discriminant validity aims to ensure that each construct is empirically different from the other (Islami et al., 2025). Testing can be done using the Fornell-Larcker Criterion approach. In this study, the results of the Discriminant Validity Test can be seen in Table 5.

Table 5. Discriminant Validity Test Results

	Digital Competencies	Employee Performance	Smart Digital Services
Digital Competencies	0,849		
Employee Performance	0,790	0,829	
Smart Digital Services	0,880	0,767	0,875

Source: Primary data, 2025

The results of the discriminant validity test showed that the root value of the AVE of each construct was greater than the correlation between constructs (Islami et al., 2025). Thus, all constructions have good discrimination.

Reliability tests are used to ensure that indicators in construction have internal consistency and measure the same concept. According to Henseler et al. (2016), reliability indicates the extent to which each indicator is able to produce consistent measurement results against the latent variables it represents. This test was carried out using Cronbach's Alpha and Composite Reliability (CR) values. In this study, the Reliability Test can be seen in Table 6.

Table 6. Reliability Test Results

	Cronbach Alpha	Composite reliability (rho_a)	Composite reliability (rho_c)
Digital Competencies	0,902	0,903	0,928
Employee Performance	0,885	0,899	0,916
Smart Digital Services	0,898	0,900	0,929

Source: Primary data, 2025.

Based on Table 6, Cronbach's Alpha values range from 0.885 0.902 and Composite Reliability between 0.916 0.929. All values are above the minimum limit, so that all constructs are declared reliable and internally consistent.

Structural Model Test (Inner Model)

The deep model is applied to analyze the relationships between latent constructs, with reference to the theories that have been developed, as described by (Narimawati & Sarwono, 2024). The tests used in this study include the determination test (R^2) and the hypothesis test.

The R^2 test has the function of evaluating how well independent variables can explain dependent variables (Sciendo, 2024). If R is 0.75, it means that the model has excellent predictive power, while 0.50 indicates moderate predictability, and 0.25 indicates weak predictive power. In this study, the R^2 test can be seen in Table 7.

Table 7. R^2 Test Results

	R-Square	R-Square Adjusted
Employee Performance	0,647	0,642
Smart Digital Services	0,774	0,773

Source: Primary data, 2025.

Based on the results of the R^2 test, the R^2 value for the Smart Digital Services variable is 0.774, while the R^2 for the Employee Performance variable is 0.647. This value shows that the Digital Competency variable is able to explain 77.4% of the variation of Smart Digital Services, while Digital Competence and Smart Digital Services together are able to explain 64.7% of the variation in Employee Performance. Referring to the guidelines (Hair et al., 2021), an R^2 value above 0.50 indicates that the model has strong predictive capabilities. This means that the research model is quite well constructed in explaining the relationship between hypothetical latent variables (Sihombing, 2025).

Uji Hypothesis

According to Sekaran & Bougie (2020), hypothesis testing serves as a systematic mechanism used to test initial assumptions, so that decision-making is objective and scientifically accountable. In this study, the hypothesis was evaluated through the Structural Equation Modeling (SEM) approach based on Partial Least Square (PLS) by utilizing the SmartPLS version 4 application, in order to identify the direction and level of significance of the relationship between variables in the research model which aims to determine the direction and significance of the relationship between variables in the research model. The results of the hypothesis test show that all intervariable relationship paths achieve a t-statistical value above 1.96 and a p-value below 0.05 (Lubis et al., 2025), so it can be concluded that all hypotheses are statistically acceptable and have a significant influence.

Table 8. Hypothesis Test Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values
Digital Competencies -> Employee Performance	0,510	0,505	0,129	3,967	0,000
Digital Competencies -> Smart Digital Services	0,880	0,878	0,033	26,972	0,000
Smart Digital Services -> Employee Performance	0,318	0,322	0,130	2,448	0,014
Digital Competencies -> Smart Digital Services -> Employee Performance	0,280	0,283	0,116	2,416	0,016

Source: Primary data, 2025.

Based on Table 7. The results of the hypothesis test, all hypotheses proposed in this study were accepted because each had a *t-statistical value* greater than 1.96 and *a p-value* of less than 0.05. This shows that all hypotheses of the relationship between variables, namely between digital competence on employee performance, digital competence on smart digital services, smart digital services on employee performance, and the influence of digital competence on employee performance through smart digital services, have a positive and significant effect. Thus, the results of this study prove that the conceptual model developed by the researcher has strong empirical support and is in accordance with the theories and findings of previous research that are the basis of this research.

Discussion

These findings confirm that digital competence is an important determinant of employee performance in the public sector. Employees with higher digital skills can perform tasks more efficiently and adapt to digital systems more effectively. However, mediation analysis highlights that competence alone is not enough; Organizational systems play a crucial role in enabling performance.

Based on descriptive data, the majority of respondents (84.5%) were aged 20 30 years old and 88% had a working period of less than 10 years. This condition shows that the digital transformation in the Central Java Regional Secretariat is dominated by the young generation of ASN. However, even though demographically adaptive to technology, there is still a variation in the use of digital systems between bureaus,

especially in bureaus that still rely on manual procedures. This strengthens the argument that the readiness of digital service systems is a key factor in ensuring that digital competencies can be implemented optimally.

Smart digital services provide structural support that allows digital competencies to be operationalized. These results are in line with the theory of Innovation Diffusion, where the adoption of innovation becomes effective when individual readiness is supported by a compatible system. In the context of Central Java, the complexity and usability of the system remain a major challenge. As such, simplifying the system interface and ensuring integration across services is an important policy implication.

Based on the results of the hypothesis test, a *t-statistical* value of 3.967 with *a p value* of 0.000 was obtained, which means that digital competence has a positive and significant influence on employee performance within the Regional Secretariat of Central Java Province. The results show that the higher the digital skills possessed by employees, the higher the level of performance they achieve (Indah Sari et al., 2019). The value of the path coefficient of 0.510 shows a fairly strong relationship, which shows that digital competence is one of the dominant factors in determining employee performance in the current era of bureaucratic digitalization.

The explanation of these findings can be attributed to the role of digital competencies that make it easier for employees to adapt more smoothly to technological advances and digital work systems implemented by government agencies. Employees who have solid digital skills are able to utilize information technology to manage data, speed up administrative processes, and improve the accuracy of work results. Additionally, the ability to use digital apps and platforms allows them to collaborate across the bureau, which in turn drives increased productivity. This condition shows that digital competence does not solely function as a technical ability, but also as intellectual capital that strengthens the work effectiveness of employees in the public sector.

The results of this study are in line with the findings Lee & Meng (2021) and Wulandari et al. (2025) which state that digital competence has a positive effect on employee productivity in government agencies. The research Afdila & Adnan (2023) also supports the findings by emphasizing that mastery of digital technology can speed up bureaucratic processes and increase public accountability. On the other hand Umamy et al. (2025) it was found that the limitation of digital competence is one of the causes of the low work effectiveness of state civil servants because they are unable to adapt to the technology-based work system. The research Tuoi & Thanh (2023) also strengthens these results by stating that digital competencies are an important determinant of improving employee performance in the public sector globally.

From the perspective of the Innovation Diffusion Theory (Rogers, 1962), this result explains that employees with high digital competence are faster through the stages of knowledge, persuasion, and implementation in the process of accepting innovation. Digital competencies allow individuals to understand the benefits of technology, feel confident in their convenience, and ultimately apply it in their daily work. Thus, this theory strengthens the empirical evidence that mastery of technology is a prerequisite for improving performance in a modern bureaucratic environment based on digital innovation.

Based on the results of the second hypothesis test, *the t-statistical* value of 26.972 and *the p-value* of 0.000 show that digital competence has a very significant influence on smart digital services. The value of the path coefficient of 0.880 indicates a very strong relationship between the two variables. This means that the higher the digital competence possessed by employees, the more effective the implementation of smart digital services in government agencies (Citraningtyas et al., 2025).

Employees who excel in digital competence are usually better able to understand digital-based systems and applications applied in public services. They can operate software, process data efficiently, and solve technical problems that arise in service systems. This condition optimizes the implementation of smart digital services, because employees can integrate technology into their daily work routines. In addition, high digital literacy encourages the creation of an innovative and adaptive work culture to technological developments, which ultimately makes public services more responsive, transparent, and in accordance with the needs of the community.

These results are consistent with research Ingsih et al. (2024) that proves that employees' digital competencies have a significant influence on the success of the implementation of smart digital services in the public sector in Central Java. The research by Ahmed (2025) also confirms that the improvement of the digital capabilities of the state civil servants is accelerating the adoption of artificial intelligence-based service systems (Artificial Intelligence) and the Internet of Things (IoT), which increases the efficiency and transparency of public services. Similar results were obtained by Zhao et al. (2021) those who found that digital capabilities strengthen the effectiveness of digital communication between agencies and improve the integration of work systems in government.

This result can be explained through Innovation Diffusion Theory, where the success rate of technology diffusion is strongly influenced by individual readiness and organizational support for innovation. Digital competence is a form of individual readiness to accept and implement technological innovations. Employees who understand the benefits and ease of use of digital systems will be faster in the implementation and confirmation stages, so that they are able to realize smart digital services that are efficient and responsive to the community.

The test results showed a *t-statistical value* of 2.448 and *a p-value* of 0.014, which means that smart digital services have a positive and significant effect on employee performance. The path coefficient of 0.318 shows that smart digital services make a real contribution to improving employee work effectiveness.

Smart digital services provide an integrated, efficient, and data-based work system, making it easier for employees to carry out their duties and responsibilities. Through the implementation of digital services, administrative work becomes faster, more accurate, and can be monitored in real-time. Employees are no longer burdened with manual work, as digital systems help in the process of automation and cross-agency collaboration. This has direct implications for increasing productivity and job satisfaction, as well as creating a more professional and transparent work environment.

These findings are in line with research Velsberg et al. (2020) that states that the application of smart digital services based on AI and

IoT technology improves work efficiency and reduces human error. In the view of Sari & Nugroho (2023), it was also found that the digitalization of public services increases the effectiveness and job satisfaction of employees. Meanwhile it added that digitalization encourages increased work motivation because it creates a more transparent and accountable system.

Based on the Innovation Diffusion Theory, the confirmation stage occurs when innovation has been shown to provide tangible benefits to individuals and organizations. Smart digital services are tangible proof that the application of digital technology in the bureaucracy results in increased efficiency, productivity, and job satisfaction. Thus, this theory supports the empirical finding that the acceptance of technological innovation has direct implications for improving employee performance.

The results of the analysis showed that the direct influence of digital competence on employee performance remained significant after including the variable of smart digital services (0.510), while the indirect influence through smart digital services was also significant (0.280). This condition indicates the occurrence of partial mediation. This means that while individual competencies have a direct contribution to performance, the existence of smart digital service systems provides additional structural leverage that strengthens the conversion of competencies into measurable performance outputs.

These findings indicate that digital competencies will have a more optimal impact on performance if integrated in a structured and responsive smart digital services ecosystem. In other words, smart digital services function as a strategic mechanism that operationalizes digital competencies into more tangible performance outputs. This strengthens the argument that the digital transformation of the public sector requires synergy between individual readiness and organizational system readiness.

These findings are consistent with the results of a study Ingsih et al. (2024) that identified smart digital services as a mediator between digital competence and the performance of state civil servants in the public sector. Research Yunita et al. (2024) and Aldhi et al. (2025) also show that the digital readiness of organizations and smart service systems is able to strengthen the relationship between employees' technological capabilities and public sector performance. Research by Gou Zhou et al. (2025) also confirms that digital transformation improves employee performance through increased competence, learning motivation, and regional autonomy.

The Innovation Diffusion Theory explains that smart digital variables reflect the implementation stage as well as confirmation in the process of adopting technological innovation. Digital competence serves as the foundation of technological innovation. Digital competencies serve as a foundation for individuals to embrace such innovations, while smart digital services serve as a practical tool for implementing them in the workplace. As a result, employees who are equipped with high digital capabilities and supported by an effective digital service system will experience a substantial increase in performance, as technological innovations have been fully integrated into their work processes. This means that Digital Competence not only affects Employee Performance directly, but also through the optimization of Smart Digital Services. In other words, the success of digital transformation depends on the synergy between individual competencies and organizational systems. Although the direct influence of digital competence is statistically larger, conceptually smart digital services have a crucial role in strengthening and accelerating the impact of digital competence on employee performance.

CONCLUSIONS AND SUGGESTIONS

Based on the results of the research, it can be concluded that digital competence has been proven to have a positive and significant effect on employee performance, both directly and through digital services as a mediation variable. Smart cigital services act as a strategic mechanism that connects employees' digital capabilities with increased work effectiveness. Thus, the success of digital transformation in the public sector is largely determined by the synergy between employees' digital competencies and the implementation of smart digital services.

Practically, the results of this study provide policy implications for the Central Java Provincial Government to not only focus on digital competency training of state civil servants, but also on strengthening the integration of digital service systems across bureaus. The integration of data-based systems in accordance with the principles of transparency and accountability as stipulated in Law Number 25 of 2009 concerning Public Services is an important foundation in the implementation of smart digital services.

This study implies that improving the digital competence of state civil servants through continuous training, strengthening technology literacy, and optimizing digital services is a strategic step to improve the quality of public services and employee productivity. In addition, adequate organizational support and digital infrastructure are also needed so that digital transformation can run effectively in the government environment. The research model demonstrates strong predictive capabilities and supports the Innovation Diffusion Theory in the context of the digital transformation of the public sector. This research is limited to one agency, namely the Regional Secretariat of Central Java Province, so the results cannot be generalized widely. Data was obtained through a self-report questionnaire which has the potential to cause a bias in respondents' perceptions. In addition, the cross-sectional research design has not been able to capture the dynamics of changes in digital competencies and employee performance in the long term. The variables used are also still limited to digital competencies and smart digital services.

Based on the results of the study, government agencies are advised to improving the digital competence of ASN through continuous and structured training, develop digital services that are integrated, simple, and easy to use., linking performance appraisals with the use of digital system, strengthen policy support and technology infrastructure to ensure the sustainability of digital transformation.

The next research is suggested to expand the scope of objects in various government agencies in order to increase the generalization of results. The use of longitudinal design can provide a more comprehensive picture of the impact of digital transformation over time. In addition, future research may combine survey data with objective performance data to improve the accuracy and strength of empirical findings.

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