
The Impact of Digital Information System Use on Employee Work Effectiveness

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ABSTRACT

KEYWORDS

transformation, systems digital information, effectiveness work, performance employees, organizations public.

This study is conducted in response to the rapid development of digital transformation in public sector organizations, which requires the integration of digital information systems to improve employee performance and service quality. The objective of this research is to analyze the level of digital information system usage, examine employee work effectiveness, and determine the influence of digital systems on work effectiveness at the Investment and One-Stop Integrated Service Office (DPMPTSP) of Samarinda City. This study employs a quantitative approach using a survey method with purposive sampling, involving 60 employees as respondents. Data were collected through questionnaires, observation, and documentation, and analyzed using validity, reliability, normality tests, and simple linear regression. The results indicate that the use of digital information systems has a positive and significant effect on employee work effectiveness, with a regression coefficient of 0.678 and a significance value of 0.000. The coefficient of determination (R^2) shows that 53.7% of work effectiveness is influenced by digital system usage. The implementation of digital systems improves productivity, accuracy, and efficiency in completing tasks. In conclusion, digital information systems play a crucial role in enhancing employee work effectiveness and organizational performance, supporting the success of digital transformation in public service institutions.

INTRODUCTION

Development of information and communication technology in the digital era has brought significant changes to organizational work patterns, both in the private and public sectors (Vial, 2019; Westerman et al., 2014). Digital transformation is no longer understood solely as the use of technology, but has become an organizational strategy to increase operational efficiency, service quality, as well as institutional competitiveness (Ananda et al., 2024; Arieska, 2024; Batee et al., 2025). Modern organizations are required to be capable of integrating digital technology into work processes in order to adapt to increasingly fast and complex environmental dynamics (Bayhaqi & al., 2025; Daud, 2024; Davenport, 2018).

Digital transformation in the public sector has become an important issue because public demands for fast, transparent, and accountable services continue to increase (Drucker, 2015). Governments are required to provide technology-based services to minimize lengthy bureaucratic processes, as well as to improve the effectiveness of administrative performance (Faizah et al., 2024; Gilang et al., 2024; Jogiyanto, 2017). The implementation of digital information systems is one concrete form of digital transformation that aims to accelerate

administrative processes, improve data accuracy, and support information-based decision-making (Kane et al., 2015; Laudon & Laudon, 2022).

The use of digital information systems enables employees to manage their work more efficiently through the automation of work processes, data integration, and easy access to real-time information (Mahmudah et al., 2025; Nadia & Nasution, 2024; Nisa & Riofita, 2025). Digital systems also help reduce manual errors, improve inter-unit coordination, and accelerate task completion within organizations (O'Brien & Marakas, 2017; Porter & Heppelmann, 2015). Thus, the utilization of information technology has great potential to improve employee work effectiveness as a primary organizational resource (Purwati & al., 2025; Reis et al., 2018).

Employee work effectiveness is an important indicator in evaluating an organization's success in achieving its established goals (Sutabri, 2016; Turban et al., 2018; Wulan et al., 2024). Employees who work effectively are able to complete tasks on time, produce optimal-quality work, and demonstrate high productivity. However, work effectiveness is not only influenced by individual abilities, but also by the support of work systems, including the utilization of digital technology in organizational activities (Saryadi, 2025; Sinambela & Depari, 2025; Suma, 2024).

The Department of Investment and One-Stop Integrated Services (DPMPTSP) of Samarinda City, as a public service agency, has implemented various digital information systems to support licensing and administrative service processes (Bharadwaj et al., 2013; Davis, 1989). Service digitalization is expected to improve service quality for the public while simultaneously supporting improvements in employee performance (DeLone & McLean, 2003; Mangkunegara, 2017). However, the level of digital technology utilization by employees, as well as its influence on work effectiveness, still needs to be empirically examined (Robbins & Judge, 2017).

Based on the above description, research on the influence of digital information system use on employee work effectiveness becomes relevant to conduct. This research is expected to provide an empirical description of the extent to which digital transformation has been achieved through the use of digital information systems and its capability to improve employee work effectiveness in public sector organizations. At the same time, it may serve as evaluation material for the development of organizational digitalization policies in the future.

Based on the research background that has been described, the problem formulation in this study is as follows: What is the level of digital information system use at the Department of Investment and One-Stop Integrated Services (DPMPTSP) of Samarinda City? What is the level of employee work effectiveness at the Department? Does the use of digital information systems significantly influence employee work effectiveness at the Department of Investment and One-Stop Integrated Services (DPMPTSP) of Samarinda City?

Based on the formulated problems, the objectives of this study are as follows: to analyze the level of digital information system use at the Department of Investment and One-Stop Integrated Services (DPMPTSP) of Samarinda City; to determine the level of employee work effectiveness; and to analyze the influence of digital information system use on employee work effectiveness at the Department.

This research is expected to contribute to the development of knowledge in management and information systems, especially in relation to digital transformation, the utilization of digital information systems, and employee work effectiveness in public sector organizations.

The results of this study are also expected to serve as consideration material for organizations in improving the quality of digital information system implementation to support enhanced employee work effectiveness and public service quality. Furthermore, this research may serve as a scientific reference for students, researchers, and academics in developing further studies related to digital transformation, digital information systems, and organizational performance in the digital era.

METHOD

This research used a quantitative approach with a survey method. The quantitative approach was used to test the causal relationship between the use of digital information systems as the independent variable and employee work effectiveness as the dependent variable through statistical analysis.

The research was conducted at the Department of Investment and One-Stop Integrated Services (DPMPTSP) of Samarinda City, East Kalimantan. The selection of the research location was based on the consideration that the agency had implemented digital-based service systems in administrative and public service processes.

The research was conducted from January to March 2026, which included the stages of preparation, data collection, data processing, and the compilation of the research report.

The population of the study consisted of all employees involved in the use of digital information systems at DPMPTSP Samarinda City.

The sampling technique used was purposive sampling, with the following criteria: Active employees, employees who used digital information systems in their work, and employees who were willing to become research respondents.

Table 1. Research Population and Sample

Information	Amount
Population	85 Employees
Sample	60 Respondents
Sampling Techniques	Purposive Sampling

Table 2. Research Variables

Variables	Code	Type
Digital Information System	X	Independent Variables
Work Effectiveness	Y	Dependent Variable

Table 3. Operational Definition of Variables

Variables	Indicator	Description	Scale
Digital Information System	Ease of use	The system is easy for employees to understand	Likert 1–5
	Access speed	Faster data search process	Likert 1–5
	Accuracy of information	The information generated is accurate	Likert 1–5
	System integration	Interconnected systems	Likert 1–5
Work Effectiveness	Productivity	Work completion increases	Likert 1–5

Punctuality	Task completed on target	Likert 1–5
Quality of work	Work results meet standards	Likert 1–5
Target achievement	Organizational targets achieved	Likert 1–5

Data collection techniques used include:

1. The questionnaire uses a five-level Likert scale.
2. Observation, to see the use of digital information systems.
3. Documentation, in the form of organizational data and work reports.

Data analysis was carried out using statistical applications with the following stages:

Table 4. Data Analysis Techniques

Analysis Stage	Objective
Validity Test	Assess the appropriateness of the question items
Reliability Test	Testing the consistency of respondents' answers
Normality Test	Knowing the data distribution
Simple Linear Regression	Testing the influence of variable X on Y
t-test	Testing the significance of the influence
Coefficient of Determination (R ²)	Measuring the contribution of influence

The analysis model used in this study is simple linear regression with the equation:

$$Y = a + bX + e$$

Description:

Y = Work Effectiveness
X = Digital Information System
a = Constant
b = Regression coefficient
e = Research error

RESULTS AND DISCUSSION

Respondent Overview

The respondents in this study were 60 employees at the Samarinda City Investment and One-Stop Integrated Services Agency (DPMPTSP) who use digital information systems in carrying out their work.

Table 5. Respondent Characteristics Based on Gender

Gender	Amount	Percentage
Man	32	53%
Woman	28	47%
Total	60	100%

Table 6. Respondent Characteristics Based on Age

Age	Amount	Percentage
20–30 Years	18	30%
31–40 Years	24	40%
41–50 Years	12	20%
>50 Years	6	10%

Total	60	100%
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These results show that most respondents are of productive age and therefore have a relatively good level of technological adaptation.

Research Instrument Test Results

1. Validity Test

Validity testing was conducted by comparing the calculated r-value with the table r-value (0.254). All statement items had a calculated r-value greater than the table r-value, thus being declared valid.

Table 7. Validity Test Results

Variables	Number of Items	Status
Digital Information System	10	Valid
Work Effectiveness	10	Valid

2. Reliability Test

The instrument is declared reliable if the Cronbach Alpha value is > 0.70.

Table 8. Reliability Test Results

Variables	Cronbach Alpha	Information
Digital Information System	0.861	Reliable
Work Effectiveness	0.879	Reliable

These results indicate that the research instrument has good consistency.

Normality Test

Normality test using the Kolmogorov-Smirnov method.

Table 9. Normality Test Results

Variables	Sig.	Information
Residual	0.200	Normally Distributed

The significance value is greater than 0.05 so the data is declared to be normally distributed.

Simple Linear Regression Analysis

Regression analysis was conducted to determine the effect of the use of digital information systems on employee work effectiveness.

Table 10. Linear Regression Analysis Results

Variables	Regression Coefficient	t count	Sig.
Constant	12,315	-	-
Digital Information System (X)	0.678	8,214	0,000

The regression equation is obtained as follows:

$$Y = 12.315 + 0.678X$$

This means that every increase in the use of digital information systems by one unit will increase work effectiveness by 0.678 units.

Hypothesis Test (t-Test)

Based on the analysis results:

1. The calculated t value = 8.214
2. Significance value = 0.000 (< 0.05)

Therefore, the research hypothesis is accepted. The use of digital information systems has a positive and significant impact on employee work effectiveness.

Coefficient of Determination (R²)

Table 11. Coefficient of Determination

<u>Model</u>	<u>R Square</u>
Regression	0.537

The R² value of 0.537 shows that 53.7% of employee work effectiveness is influenced using digital information systems, while 46.3% is influenced by other factors outside the research.

Research results show that the use of digital information systems has a positive and significant influence on employee work effectiveness. These findings indicate that the implementation of digital technology can increase the quality of work execution through easier access to information, acceleration of administrative processes, and integration of organizational work systems.

Digital information systems help employees reduce manual work so that working time becomes more efficient. In addition, the availability of real-time information enables decision-making to be carried out more quickly and accurately. This condition has a direct impact on increasing productivity as well as achieving organizational work targets.

The findings of this study are in line with the Technology Acceptance Model (TAM) theory, which explains that perceived ease of use and perceived usefulness are the main factors in increasing user acceptance of digital systems. When employees feel that information systems provide real benefits for their work, the level of system usage increases and has implications for work effectiveness.

Thus, digital transformation through the implementation of digital information systems not only plays a role as a technological innovation but also becomes an organizational strategy to improve human resource performance in a sustainable manner.

CONCLUSION

Based on the study conducted at the Investment and One-Stop Integrated Service Office (Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu / DPMPTSP) of Samarinda City, the use of digital information systems has been effectively implemented to support administrative activities, data management, and employee services, resulting in a good level of employee work effectiveness, as reflected in improved productivity, timely task completion, and higher-quality outputs. The findings confirm that digital information system use has a positive and significant impact on employee work effectiveness, where more optimal utilization leads to higher effectiveness through easier information access, faster work processes, and integrated data that enhance accurate decision-making. Consequently, digital transformation through such systems plays a crucial role in improving organizational

performance and human resource effectiveness. It is recommended that organizations continue to develop digital information systems sustainably through technological updates, system quality improvements, and service integration, while employees enhance their digital competencies through training to maximize system use. Future research should incorporate additional variables such as digital literacy, organizational culture, job satisfaction, and technological competence, as well as expand the scope to different organizational sectors to deepen understanding of digital transformation and its impact on work effectiveness in the digital era.

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