

THE INFLUENCE OF INTERNAL COMMUNICATION, KNOWLEDGE MANAGEMENT AND DIGITAL COMPETENCE ON EMPLOYEE WORK EFFECTIVENESS IN THE IMPLEMENTATION OF ELECTRONIC LAND CERTIFICATES

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Abstract

This study analyzes the influence of Internal Communication, Knowledge Management, and Digital Competence on Employee Work Effectiveness in the implementation of Electronic Land Certificates at the Madiun City Land Office. The research was motivated by indications of suboptimal internal communication, unstructured knowledge management, and varying levels of employee digital competence. This study employed a quantitative approach with a causal design. The population consisted of 68 employees of the Madiun City Land Office involved in the implementation of Electronic Land Certificates, using a saturated sampling technique. Data were collected through questionnaires and analyzed using multiple linear regression with SPSS. The results showed that Internal Communication, Knowledge Management, and Digital Competence have a positive and significant effect on Employee Work Effectiveness, both partially and simultaneously. Digital Competence was the most dominant variable, followed by Knowledge Management and Internal Communication. These findings emphasize the importance of strengthening these three factors to support the digital transformation of land services. Suggestions include the need for structured digital competence improvement programs, strengthening knowledge management systems, and sustainable improvement of internal communication quality.

Keywords: Internal Communication, Knowledge Management, Digital Competence, Employee Work Effectiveness, Electronic Land Certificates.

A. INTRODUCTION

Digital transformation has become a primary agenda for bureaucratic reform in various countries, including Indonesia, in line with public demands for fast, easy, and transparent public services. Based on the UN E-Government Survey 2024, Indonesia successfully ranked 64th out of 193 UN member states, climbing 13 positions from 77th place in 2022, and for the first time,

entered the Very High E-Government Development Index (VHEGDI) category with a score of 0.7991. This achievement reflects the Indonesian government's tangible efforts in developing and implementing an Electronic-Based Government System (SPBE) through Presidential Regulation Number 95 of 2018.

One tangible manifestation of digital transformation in Indonesia's public sector is the implementation of the Electronic Certificate program in the land sector, regulated through Minister of ATR/Head of BPN Regulation Number 1 of 2021. In 2024, all land offices throughout Indonesia began implementing the electronic certificate system. As of July 2025, BPN recorded that it has issued more than 5,151,000 electronic certificates, with the land certificate migration program from physical to electronic having reached 28 percent.

The Madiun City Land Office is one of the institutions at the forefront of the Electronic Certificate implementation. Madiun City was recorded as the first region in East Java to officially launch the Electronic Land Certificate service on February 29, 2024 (ANTARA News, 2024), with the validity and mapping achievement for 68,923 land parcels reaching 99.16% in 2023 (East Java Provincial Government, 2023). This makes the Madiun City Land Office a pilot example of digital land service implementation in East Java. To date, the Madiun City Land Office has issued 5,546 electronic certificates, supported by the Land Office Computerization System (KKP) and 31 operational computer units. Nevertheless, there are still technical constraints in the form of intermittent network disruptions that occasionally hinder the certificate issuance process.

The success of public sector organizations in carrying out their duties and functions is largely determined by the quality of their human resources. In the era of digital transformation, the demands on employee work effectiveness continue to increase along with changes in work systems, service procedures, and the information technology infrastructure used. Work effectiveness is the level of success of an individual in carrying out work and achieving predetermined goals through the optimal utilization of available resources (Hasibuan, 2020).

To obtain a preliminary overview of the condition of employee work effectiveness, the researcher conducted a preliminary survey (pre-survey) involving 29 employees of the Madiun City Land Office who are involved in the implementation of the Electronic Certificate service.

The pre-survey results indicate that employee work effectiveness still faces challenges. Regarding the work effectiveness variable, 20.7% of respondents admitted that their work quality was disrupted due to a lack of information support, knowledge, and technical skills, and 17.2% of respondents stated that daily work targets were difficult to achieve since the digital system was implemented. Regarding the internal communication variable, the average score was 2.97, with 41.4% of respondents giving low ratings to the indicator of feedback from superiors. Regarding the knowledge management variable, the average score was 2.90, with 41.4% of respondents giving low ratings to the indicator of documentation and storage of technical knowledge. Regarding the digital competence variable, 48.3% of respondents admitted that they were not yet confident in utilizing all system features, and 34.5% still found it difficult to resolve technical issues independently.

This study uses the Resource-Based View (RBV) as the grand theory, which emphasizes the importance of an organization's internal resources and capabilities as the primary determinants of competitive advantage and organizational performance (Barney, 1991). This theory is derived into two middle-range theories, namely the Knowledge-Based View (KBV), which places knowledge as the most primary resource (Grant, 1996), and Organizational Learning Theory (OLT), which explains how organizations learn and adapt to change (Senge, 1990).

Based on the phenomena, research gap, and pre-survey data presented above, this study aims to analyze the influence of Internal Communication, Knowledge Management, and Digital Competence on Employee Work Effectiveness in the implementation of Electronic Certificates at the Madiun City Land Office. The proposed hypotheses are: (H₁) Internal Communication has a positive and significant effect on Employee Work Effectiveness; (H₂) Knowledge Management has a positive and significant effect on Employee Work Effectiveness; (H₃) Digital Competence has a positive and significant effect on Employee Work Effectiveness.

B. METHOD

Research Design

This study used a quantitative causal design to test hypotheses empirically through numerical measurement and statistical analysis. The survey method with questionnaires was the primary data collection tool.

Research Location and Time

Research was conducted at the Madiun City Land Office (Jl. Dr. Soetomo No.11, Madiun), selected as the first East Java region to launch electronic land certificates. The study ran for four months (June-September 2026).

Population, Sample, and Sampling Technique

The population comprised 68 employees involved in Electronic Certificate services, including Administration, Survey and Mapping, Rights Determination and Registration, and other sections. As the population was small (<100), saturated sampling was used, including all members (Sugiyono, 2017).

Variables and Operational Definitions

Three independent variables and one dependent variable were used. Internal Communication (X_1) is the process of information exchange within the organization, measured by information clarity, timeliness, openness, feedback, and coordination (Pace & Faules, 2018; Goldhaber, 2017). Knowledge Management (X_2) is the systematic process of creating, storing, sharing, and applying knowledge (Dalkir, 2017; Nonaka & Takeuchi, 1995). Digital Competence (X_3) is the ability to use digital technology effectively, safely, and responsibly (European Commission, 2013; Ferrari, 2013). Employee Work Effectiveness (Y) is the level of success in achieving organizational goals (Hasibuan, 2020; Robbins & Judge, 2022).

Data Collection Techniques

Questionnaires were distributed, online (Google Forms). A 4-point Likert scale was used (Strongly Agree=4 to Strongly Disagree=1). Documentation was also used for secondary data (profiles, organizational structure, employee data).

Research Instrument

The questionnaire comprised 76 items: 24 for Internal Communication, 16 for Knowledge Management, 21 for Digital Competence, and 15 for Employee Work Effectiveness. All items were positive (favorable) statements.

Data Analysis Techniques

Validity testing used Pearson Product Moment ($r_{\text{count}} > r_{\text{table}} 0.239; df=66$). Reliability used Cronbach's Alpha (>0.70). Classical assumption tests included normality (Kolmogorov-Smirnov >0.05), multicollinearity (Tolerance >0.10 , VIF <10), and heteroscedasticity (Glejser >0.05). Hypothesis testing used multiple linear regression, t-test (partial), F-test (simultaneous), and coefficient of determination (R^2) (Ghozali, 2018).

C. RESULTS AND DISCUSSIONS

Respondent Description

The respondents in this study totaled 68 people with the following characteristics. Based on gender, respondents were dominated by women with 40 people (58.82%), while male respondents were 28 people (41.18%). Based on education level, the majority of respondents had a bachelor's degree (S1) with 34 people (50.00%), followed by Diploma with 17 people (25.00%), high school with 13 people (19.12%), and master's degree (S2) with 4 people (5.88%). Based on length of work, the most respondents were in the category of less than 3 years with 29 people (42.65%), followed by 3-5 years with 16 people (23.53%), 6-10 years with 13 people (19.12%), and more than 10 years with 10 people (14.71%). Based on age, the 25-35 year age group was the largest with 31 respondents (45.6%), followed by the 36-45 year age group with 19 respondents (27.9%), respondents aged over 45 years with 15 people (22.1%), and the 17-25 year age group with 3 people (4.4%).

Validity and Reliability Test Results

All 76 items were valid ($r_{\text{count}} > 0.239; p < 0.05$). Reliability coefficients were excellent: Internal Communication (0.883), Knowledge Management (0.862), Digital Competence (0.821), and Employee Work Effectiveness (0.817).

Table 1. Reliability Test Results

Variable	Cronbach's Alpha	Standardized Alpha	Number of Items	Decision
Internal Communication (X ₁)	0.883	0.884	24	Reliable

Variable	Cronbach's Alpha	Standardized Alpha	Number of Items	Decision
Knowledge Management (X ₂)	0.862	0.859	16	Reliable
Digital Competence (X ₃)	0.821	0.823	21	Reliable
Employee Work Effectiveness (Y)	0.817	0.820	15	Reliable

Source: SPSS Output Processed (2026)

Classical Assumption Test Results

Normality: Kolmogorov-Smirnov (0.200) and Shapiro-Wilk (0.247) >0.05. Multicollinearity: Tolerance values (X₁=0.731, X₂=0.507, X₃=0.655) all >0.10; VIF values (1.368, 1.971, 1.526) all <10. Heteroscedasticity: Glejser test significance (0.710, 0.071, 0.750) all >0.05. All assumptions were met.

Multiple Linear Regression Analysis Results

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	Durbin-Watson
1	0.762	0.581	0.562	4.419	1.216

Source: SPSS Output Processed (2026)

The R value of 0.762 indicates a strong relationship between the combination of independent variables and the dependent variable. R Square of 0.581 means that 58.1% of the variation in Employee Work Effectiveness can be explained by the three independent variables in the model, while the remaining 41.9% is explained by other factors outside the model.

Table 3. ANOVA Results

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Regression	1734.518	3	578.173	29.603	< 0.001
Residual	1249.996	64	19.531		

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Total	2984.515	67			

Source: SPSS Output Processed (2026)

Table 4. Multiple Linear Regression Coefficients

Variable	B	Std. Error	Beta	t	Sig.
Constant	2.835	5.163		0.549	0.585
Internal Communication (X ₁)	0.149	0.056	0.254	2.681	0.009
Knowledge Management (X ₂)	0.242	0.090	0.307	2.700	0.009
Digital Competence (X ₃)	0.337	0.084	0.403	4.033	< 0.001

Source: SPSS Output Processed (2026)

The regression equation obtained was: $Y = 2.835 + 0.149X_1 + 0.242X_2 + 0.337X_3 + e$

Hypothesis Test Results

Table 5. t-Test Results (Partial)

Variable	t Count	t Table	Sig.	Decision
Internal Communication (X ₁)	2.681	1.998	0.009	Significant
Knowledge Management (X ₂)	2.700	1.998	0.009	Significant
Digital Competence (X ₃)	4.033	1.998	< 0.001	Significant

Source: SPSS Output Processed (2026)

Based on the t-test results, H₁ was accepted because Internal Communication had a positive and significant effect on Employee Work Effectiveness (t count 2.681 > t table 1.998; Sig. 0.009 < 0.05). H₂ was accepted because Knowledge Management had a positive and significant effect on Employee Work Effectiveness (t count 2.700 > t table 1.998; Sig. 0.009 < 0.05). H₃ was accepted because Digital Competence had a positive and significant effect on Employee Work Effectiveness (t count 4.033 > t table 1.998; Sig. < 0.001).

Table 6. F-Test Results (Simultaneous)

F Count	F Table	Sig.	Decision
29.603	2.75	< 0.001	Significant

Source: SPSS Output Processed (2026)

The F-test results showed that Internal Communication, Knowledge Management, and Digital Competence simultaneously had a significant effect on Employee Work Effectiveness (F count 29.603 > F table 2.75; Sig. < 0.001).

Discussion

The Influence of Internal Communication on Employee Work Effectiveness

The results showed that Internal Communication had a positive and significant effect on Employee Work Effectiveness. This finding aligns with Isabella et al. (2025) who proved that internal communication plays a positive role and influences the improvement of work effectiveness and employee performance at the Food Security Office of Jambi Province. Febianti and Kusdinar (2020) also found a positive and significant relationship between internal communication and employee work effectiveness at the Archives and Library Office of Sumedang Regency. Alamsyah et al. (2024) reinforced this finding by finding that internal communication significantly affects employee work effectiveness at the High Prosecutor's Office of North Maluku.

The influence of Internal Communication on Employee Work Effectiveness begins with the process of conveying clear information regarding Electronic Land Certificate policies and procedures. Clarity of information about system updates, procedural changes, and service standards enables employees to respond to changes quickly and accurately. Communication openness creates a participative work atmosphere where employees feel free to express ideas and problems encountered. Feedback from superiors and colleagues helps employees correct mistakes more quickly and improve work quality. Inter-departmental coordination enables effective information exchange and cross-unit work can be completed more quickly and accurately. These results support Resource-Based View (RBV) which views internal communication as a strategic intangible resource that is difficult to imitate and has value for the organization (Barney, 1991).

The Influence of Knowledge Management on Employee Work Effectiveness

The results showed that Knowledge Management had a positive and significant effect on Employee Work Effectiveness. This finding aligns with Zulfia and Dede Sunaryo (2025) who proved that knowledge management has a significant influence in shaping work effectiveness, because knowledge management enables individuals to solve problems, design strategies in a planned manner, and make decisions more intelligently. Indrayani et al. (2023) also reported that knowledge management has a positive and significant effect on organizational effectiveness and performance.

The influence of Knowledge Management on Employee Work Effectiveness begins with the knowledge creation process that enables employees to generate new knowledge through work experience, learning, discussion, and innovation. Knowledge storage plays a role in maintaining the continuity of organizational knowledge so that it is not lost when employee turnover occurs. Knowledge sharing allows knowledge possessed by individuals to spread throughout the organization so that it can be utilized collectively. Knowledge application is the stage where knowledge that has been created, stored, and shared is actually used in work activities. These results support Knowledge-Based View (KBV) which places knowledge as the most important resource for the organization (Grant, 1996).

The Influence of Digital Competence on Employee Work Effectiveness

The results showed that Digital Competence had a positive and significant effect on Employee Work Effectiveness and was the most dominant variable. This finding aligns with Ashdaq and Mandasari (2022) who showed that digital competence has a positive and significant effect on the work effectiveness of human resources in public institutions. Badani et al. (2025) also found that digital competence is the most dominant factor and has a significant positive effect on employee work effectiveness compared to mere system availability.

The influence of Digital Competence on Employee Work Effectiveness begins with information and data literacy abilities that enable employees to search, access, understand, evaluate, and manage digital information accurately. Digital communication and collaboration enable employees to use digital technology to communicate, share information, and collaborate with colleagues. Digital content creation relates to the employee's ability to create, manage,

update, and utilize digital documents or content. Digital safety is an important aspect because land systems contain data and documents that have legal value. Problem-solving enables employees to identify technology needs, overcome technical obstacles, and utilize digital technology to complete work more effectively. The dominance of digital competence in explaining employee work effectiveness is in line with the character of Electronic Land Certificate implementation which directly depends on system use, data management, digital communication, information security, and technology problem-solving. These results support Organizational Learning Theory (OLT) which explains how organizations learn, adapt, and change behavior based on experience and new information (Senge, 1990).

The Simultaneous Influence of Internal Communication, Knowledge Management, and Digital Competence on Employee Work Effectiveness

The three variables work through complementary mechanisms in supporting employee work effectiveness in Electronic Land Certificate implementation. Internal Communication ensures information flows to those who need it. Knowledge Management transforms experience and information into reusable knowledge resources. Digital Competence enables employees to apply that information and knowledge in electronic systems. Weakness in one element can reduce the benefits of other elements. Good digital competence will not produce optimal effectiveness if procedural information is delayed or knowledge regarding case handling is not well documented. Conversely, effective internal communication and good knowledge management will not produce maximum results without being supported by adequate digital competence to operate the Electronic Land Certificate system. These results support Resource-Based View (RBV) which views the three variables as strategic internal resources that must be managed to improve work effectiveness (Barney, 1991).

D. CONCLUSIONS

Based on data analysis and hypothesis testing, it is concluded that Internal Communication, Knowledge Management, and Digital Competence positively and significantly affect Employee Work Effectiveness, both partially and simultaneously, in the implementation of Electronic Land Certificates at the Madiun City Land Office. Digital

Competence is the most dominant influence, followed by Knowledge Management and Internal Communication. This indicates that in digital-based Electronic Certificate implementation, mastery of digital competence is the key factor most determining work effectiveness, while knowledge management and internal communication remain important complementary supporting factors.

Study limitations include respondents limited to one land office, and only three independent variables analyzed. Other variables such as leadership, work motivation, organizational culture, and workload may also affect work effectiveness.

E. SUGGESTIONS

For the Madiun City Land Office, it is recommended to design a structured and sustainable digital competence improvement program, especially in the aspects of technical problem-solving and confidence in utilizing system features, through practical training, technical problem-solving simulations, and regular technical mentoring. The organization also needs to strengthen the knowledge storage and access system, especially in the aspect of documentation and storage of technical knowledge, through strengthening documentation systems, creating knowledge databases, knowledge-sharing culture, and utilizing information technology to support sustainable knowledge management. In addition, the Madiun City Land Office needs to improve the quality of internal communication, especially in the aspects of timeliness of information delivery and feedback from superiors, through more structured information updates, regular coordination forums, and consistent two-way feedback mechanisms.

For future researchers, it is recommended to develop this topic by adding other variables such as leadership, work motivation, organizational culture, or workload that also potentially affect Employee Work Effectiveness. Future research can use qualitative or mixed methods approaches to gain a deeper understanding of factors affecting employee work effectiveness, as well as expanding the research object to other land offices or different public sector organizations to test the consistency of research results.

For employees, it is recommended to proactively improve digital competence through self-learning, attending training, and actively utilizing various features of the Electronic Land Certificate system. Employees are also expected to be more active in knowledge and experience sharing activities with colleagues, both through informal discussions, coordination forums, and structured knowledge-sharing activities, as well as building open and constructive communication with superiors and colleagues, and developing proactive and adaptive attitudes towards continuously evolving technological and procedural changes.

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