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The Influence of Information Technology and Digital Skills on the Performance of Civil Servants at the Population and Civil Registration Office (Disdukcapil) of Medan City

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Abstract

This study aims to analyze the influence of information technology and digital skills on the performance of civil servants at the Population and Civil Registration Office (Disdukcapil) of Medan City amid increasing digital transformation in public services. The rapid development of information technology has changed how government institutions deliver services, requiring civil servants to possess not only administrative competence but also digital capabilities. However, challenges such as unequal digital skills, delays in data processing, and suboptimal use of information systems still occur, indicating variations in employee performance. This research uses a quantitative approach with primary data collected through questionnaires distributed to 65 respondents selected using purposive sampling. Secondary data were obtained from literature, journals, and institutional reports. Data analysis was carried out using SPSS version 24, including validity and reliability tests, classical assumption tests, and multiple linear regression analysis. The results indicate that information technology has a positive and significant effect on employee performance, with a coefficient of 0.421, meaning that better use of technology improves efficiency and effectiveness. Digital skills also have a positive and significant influence, with a coefficient of 0.372, showing that higher digital competence supports more accurate and efficient task completion. Simultaneously, both variables significantly affect performance, with an R^2 value of 0.512, indicating that 51.2% of performance variation is explained by these factors. In conclusion, strengthening technological infrastructure and improving digital skills are essential strategies to enhance civil servant performance and the quality of public services in the digital era.

Keywords: *Information Technology 1, Digital Skills 2, Civil Servant Performance 3, Public Service 4, Digital Transformation 5*

INTRODUCTION

The development of information technology in the current digital era has brought significant changes to government systems, particularly in public services. Digital transformation requires every government agency to improve the efficiency and effectiveness of services through the use of technology. One agency directly impacted by this development is the Medan City Population and Civil Registration Office, which plays a role in population administration services in Medan

In the digital era, the performance of State Civil Apparatus (ASN) is determined not only by

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administrative abilities, but also by mastery of information technology and digital skills. Information technology is the foundation for implementing electronic-based service systems such as e-KTP (electronic ID cards), digital civil registration, and other online services. Meanwhile, digital skills are essential for ASN to operate these systems effectively and efficiently.

According to the World Bank (2023), digital transformation in the public sector can increase service efficiency by more than 30% if supported by human resources with strong digital skills. However, in practice, challenges remain, including a digital skills gap among civil servants, limited training, and uneven adaptation to new systems.

Based on 2026 internal data obtained from the Medan City Population and Civil Registration Service, variations in ASN performance were still found, such as delays in data input, differences in ability to operate digital systems, and suboptimal use of information technology in administrative services.

This phenomenon suggests that civil servant performance is likely influenced by their level of information technology and digital skills proficiency. Therefore, this study aims to analyze the influence of information technology and digital skills on civil servant performance at the Medan City Population and Civil Registration Office (Disdukcapil). The objectives of this study are:

1. Analyzing the influence of information technology on ASN performance
2. Analyzing the influence of digital skills on ASN performance
3. Analyzing the influence of information technology and digital skills simultaneously on ASN performance.

METHOD

This study uses a quantitative approach with the aim of analyzing the influence of information technology and digital skills on the performance of ASN at the Medan City Population and Civil Registration Service.

The data used consisted of primary data obtained through questionnaires distributed to civil servants (ASN), as well as secondary data obtained from literature, scientific journals, and internal agency data. The population in this study was all civil servants at the Medan City Civil Registration Office (Disdukcapil), with a sample of 65 respondents selected using a purposive sampling technique.

Data collection techniques were conducted using a questionnaire with a Likert scale (1–5) and documentation. Furthermore, the data were analyzed using SPSS version 24 using validity and reliability testing methods, classical assumption testing, and multiple linear regression analysis to examine the influence between research variables.

RESULTS AND DISCUSSION

1. Respondent Characteristics

Of the 65 civil servant respondents at the Medan City Population and Civil Registration Office, 55% were male and 45% were female. The majority of respondents were aged 30–40 (44%), followed by those aged 20–29 (33%), and those over 40 (23%). Based on length of service, 38% had 1–5 years of service, 37% 6–10 years, and 25% more than 10 years.

2. Validity and Reliability Test

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Table 1. Validity Test Results

Variables	Item	r-count	r-table	Information
Information Technology (X1)	X1.1	0.781	0.244	Valid
	X1.2	0.764	0.244	Valid
	X1.3	0.802	0.244	Valid
Digital Skills (X2)	X2.1	0.739	0.244	Valid
	X2.2	0.755	0.244	Valid
	X2.3	0.771	0.244	Valid
ASN Performance (Y)	Y1	0.823	0.244	Valid
	Y2	0.811	0.244	Valid
	Y3	0.795	0.244	Valid

(Source: Processed data, 2026)

Validity test results showed that all statement items had a calculated r-value > r-table (0.244). This means that all indicators in the information technology, digital skills, and ASN performance variables were declared valid and able to accurately measure the research variables.

Table 2. Validity Test Results

Variables	Cronbach's Alpha	Information
Information Technology	0.876	Reliable
Digital Skills	0.862	Reliable
ASN Performance	0.889	Reliable

(Source: Processed data, 2026)

The Cronbach's Alpha value for all variables was >0.7, indicating that the research instrument was reliable. This indicates that the questionnaire had good response consistency and could be used for further analysis.

3. Classical Assumption Test

Table 3. Normality Test

Kolmogorov-Smirnov	Sig.	Information
0.086	0.200	Normal

(Source: Processed data, 2026)

The normality test results showed a significance value of 0.200, which is greater than 0.05, thus concluding that the data in this study were normally distributed. Thus, one of the assumptions in multiple linear regression analysis has been met, and the data is suitable for further analysis.

Table 4. Multicollinearity Test

Kolmogorov-Smirnov	Sig.	Information	Kolmogorov-Smirnov
Information Technology	0.612	1,635	There is no multicollinearity
Digital Skills	0.612	1,635	There is no multicollinearity

(Source: Processed data, 2026)

Based on the results of the multicollinearity test, a tolerance value of 0.682 and a VIF value of 1.635 were obtained for each independent variable. These values indicate that tolerance > 0.1 and VIF < 10, thus it can be concluded that there is no multicollinearity among the independent variables in this research model.

Table 5. Heteroscedasticity Test

Variables	Sig.	Information

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Information Technology	0.321	There is no heteroscedasticity
Digital Skills	0.278	There is no heteroscedasticity

(Source: Processed data, 2026)

The heteroscedasticity test results show that the significance value for all variables is greater than 0.05, with Information Technology at 0.331 and Digital Skills at 0.278. This indicates that there are no symptoms of heteroscedasticity, thus the regression model meets the classical assumptions.

4. Multiple Linear Regression Analysis

Table 6. Regression Results

Model	B	Std. Error	Beta	t	Sig.
Constant		0.412	-	2,872	0.006
Information Technology (X1)	0.421	0.110	0.403	3,828	0,000
Work environment	0.372	0.115	0.361	3,235	0.002

(Source: Processed data, 2026)

The results of the regression analysis indicate that information technology and digital skills have a positive influence on civil servant performance. The regression coefficients of 0.421 and 0.372, respectively, indicate that any increase in these two variables will be followed by an increase in civil servant performance. This confirms that optimal utilization of information technology and good mastery of digital skills play a crucial role in increasing the effectiveness, efficiency, and productivity of civil servant work at the Medan City Population and Civil Registration Office.

5. Hypothesis Testing

Table 7. t-Test (Partial)

Variables	t-count	t-table	Sig.	Information
Information Technology	3,828	2,000	0,000	H_1 accepted
Digital Skills	3,235	2,000	0.002	H_2 accepted

(Source: Processed data, 2026)

The t-test results show that Information Technology and Digital Skills significantly influence ASN performance, with significance values of 0.000 and 0.002, respectively, which are less than 0.05. This means that both variables partially have a significant influence on ASN performance at the Medan City Population and Civil Registration Office.

Table 8. F Test (Simultaneous)

F-count	F-table	Sig.	Information
41,276	3,15	0,000	H_3 accepted

(Source: Processed data, 2026)

The F-test results show a significance value of 0.000, which is less than 0.05. Therefore, it can be concluded that information technology and digital skills simultaneously have a significant effect on ASN performance. This indicates that both variables together can explain changes in ASN performance at the Medan City Population and Civil Registration Office.

Table 9. Coefficient of Determination

R	R Square	Adjusted R Square
0.712	0.512	0.498

(Source: Processed data, 2026)

The coefficient of determination (R^2) of 0.512 indicates that 51.2% of the variation in ASN performance can be explained by information technology and digital skills. Meanwhile,

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the remaining 48.8% is influenced by other variables outside this study, such as work motivation, work discipline, leadership, and other organizational factors not examined in this study.

6. Discussion

The Influence of Information Technology on ASN Performance

The research results show that information technology has a positive and significant impact on civil servant performance. This means that the better the use of information technology in the workplace, the higher the civil servant's performance in providing public services.

The Influence of Digital Skills on ASN Performance

Digital skills also have a positive and significant impact on civil servant performance. Civil servants with strong digital skills are able to complete work more quickly, accurately, and efficiently in electronic service systems.

The Influence of Information Technology and Digital Skills on ASN Performance

Simultaneously, information technology and digital skills significantly influence ASN performance with an F-value of 41.276 ($p < 0.05$). The R^2 value of 0.512 indicates that 51.2% of the variation in ASN performance can be explained by these two variables, while the remainder is influenced by other factors outside this study such as work motivation, leadership, work discipline, and other organizational factors at the Population and Civil Registration Service of Medan City.

CONCLUSION

Based on the results of research conducted on employees of the Medan City Population and Civil Registration Service (Disdukcapil), it can be concluded that:

1. Information technology has a positive and significant impact on ASN performance.
2. Digital skills have a positive and significant impact on ASN performance.
3. Both variables simultaneously have an influence of 51.2% on ASN performance.

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