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The Effect Of Digitalization of Financial Services on The Financial Performance of Commercial Banks Listed on The Indonesia Stock Exchange

Muhammad Anugrah Ardhana[1], Giovani Vitria Manai'[2], Mardian Pabendan[3], Firsty Wulan Purnawiranty[4]

[1,2,3,4] Universitas Andi Djemma

Abstract

This study aims to analyze the Influence of Financial Services Digitalization on the Financial Performance of Commercial Banks Listed on the Indonesia Stock Exchange (IDX). The background of this research is due to the rapid transformation of banking services towards digital, where almost all commercial banks are competing to provide services that can be accessed through digital applications to increase operational efficiency and competitiveness in the midst of competition in the banking industry. The author uses a quantitative approach with secondary data in the form of annual reports of three state-owned commercial banks, namely Bank Negara Indonesia (BNI), Bank Rakyat Indonesia (BRI), and Bank Mandiri, during the 2023-2025 period. Financial Services Digitalization (variable X) is measured through the growth in the number of users of digital banking applications, while Financial Performance (variable Y) is measured through the average value of Return On Assets (ROA) and Return On Equity(ROE). The data were analyzed using simple linear regression with the help of the SPSS program. The results of the study show that Financial Services Digitalization has a positive and significant effect on Financial Performance, with a determination coefficient value (R-2.) of 0.679, meaning that the financial services digitalization variable is able to explain 67.9% of the variation in the Financial Performance of commercial banks listed on the Indonesia Stock Exchange, while the rest is influenced by other factors outside this research model.

Keywords: *Financial Service Digitalization; Financial Performance; ROA; ROE; Commercial Banks.*

✉ Corresponding author :
Email Address : anugrah@unanda.ac.id

INTRODUCTION

Banking in Indonesia continues to grow rapidly, driven by increasingly sophisticated technological advances and increasing public needs for more practical financial services. Almost all commercial banks listed on the Indonesia Stock Exchange (IDX), compete with each other to present digital application services that can be accessed by the public, such as *mobile banking* and *internet banking*, in order to improve operational efficiency and maintain

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competitiveness between commercial banks which now no longer rely on the number of physical branch offices, but on excellence in digital services. Thus, banks are competing to invest in technological infrastructure to maintain market share in the capital market.

In the midst of this growth, the author sees challenges in maintaining the performance of financial services digitalization to remain stable and efficient. Digitalization can affect a bank's financial performance through increased operational efficiency, cost reduction, and increased customer satisfaction. However, not all banks are able to adopt technology well, so some banks have the potential to experience difficulties in carrying out the transformation, which can negatively affect the company's profitability and financial stability.

According to Mutmainah and Apriadi (2025), the digitalization of financial services is a crucial aspect for banks, not only to improve operational efficiency, but also to form customer satisfaction and loyalty in the midst of modern banking competition. Hidayat (2025) explained that the digitization of financial services refers to the process of transforming conventional financial services to be digital-based, so that they can be accessed through electronic devices such as mobile phones, computers and the internet, including *mobile banking*, e-wallets, fintech lending so that digital investment platforms. Based on these opinions, the author concludes that the digitization of financial services is the process of transforming conventional banking services into a digital format that can be accessed independently by customers through electronic devices and internet networks.

Financial performance is an important variable that reflects the success of banks in managing resources efficiently and effectively to achieve financial goals. Cristine and Winarti (2022) explained that one of the important indicators in assessing the financial performance of banking companies is the profitability ratio, namely *Return On Assets* (ROA) and *Return On Equity* (ROE), which measure the company's ability to earn profits from total assets and from capital invested by shareholders, respectively. Hutabarat (2021) added that financial performance assessment aims to determine the level of profitability, liquidity, solvency, and business stability of a company.

Before regarding the relationship between digitalization and financial performance, previous banking still showed mixed results. Indriani et al. (2022) found that *internet banking* did not have a significant effect on the ROA, ROE, or NIM of conventional banking, which is suspected to be due to the increase in fintech adoption that has not been offset by an increase in the number of customers using it. Ramadan (2024) also found that the digitalization of services has a negative and insignificant effect on the profitability of Islamic banks. In contrast to Sari (2024) found that *financial technology* has a positive and significant effect on the ROA of banking companies listed on the IDX, and Hidayat (2025) found that *internet banking* and *mobile banking simultaneously* have a positive and significant effect on the financial performance of state-owned banks. This difference in the results of previous research prompted the author to re-examine the influence of financial services digitalization on financial performance, by focusing the research object on three state-owned commercial banks listed on the IDX, namely BNI, BRI and Bank Mandiri during the 2023-2025 period.

Based on the description above, the formulation of the problem in this study is whether the digitization of financial services affects the financial performance of commercial banks listed on the Indonesia Stock Exchange. In line with the formulation of the problem, this study aims to find out and analyze the influence of financial services digitalization on the financial performance of commercial banks listed on the Indonesia Stock Exchange. The author suspects that the digitization of financial services has a significant effect on the financial performance of commercial banks listed on the Indonesia Stock Exchange.

LITERATURE RIVIEW

Financial Service Digitalization

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Financial services digitalization is the process of changing traditional banking services into digital-based ones, allowing people to access them independently through electronic devices like smartphones or computers and the internet (Hidayat, 2025). This change includes new ideas like mobile banking, digital wallets, and loans that use technology (fintech lending). Financial service digitalization refers to the process of changing regular banking services into a digital form that can be used by people on their electronic devices without needing to go to a physical bank. With banks competing more closely than ever, going digital is not something they can choose to ignore—it's something they must do.Digital tools help banks perform better financially, speed up their internal operations, and make it simpler for them to show their products to customers. In this study, the level of financial service digitalization is measured by how quickly the number of people using digital banking apps is growing (Megawati & Kertiriasih, 2024).

Financial Performance

Financial performance is a key factor for the continued success of a business both internally and externally (Sukri, 2025). Financial performance shows how well management is doing in making the company more valuable and in providing benefits to the people who have an interest in the company. It's not a final result, but a continuous analysis to check if the company has done its work following good financial practices and rules (Maspupah, 2025). In this study, financial performance is measured using Return on Assets (ROA) and Return on Equity (ROE), as done by Christine and Winarti (2022).ROA shows how well a bank makes profit from its total assets, while ROE shows how much return is generated for the shareholders' equity.

Conceptual Framework

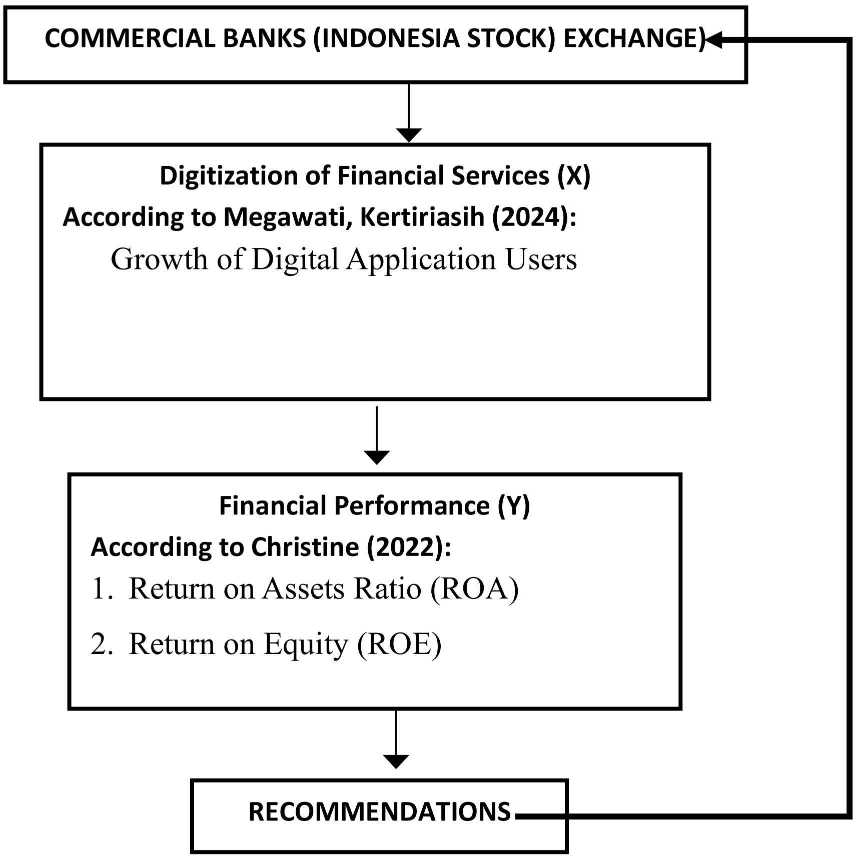

Figure 1. Conseptual Framework

Hypothesis

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It is suspected that the digitization of financial services has a significant effect on the financial performance of commercial banks listed on the Indonesia Stock Exchange.

RESULTS AND DISCUSSION

Deskriptive Statistict

Analysis was carried out on the growth data of digital banking application users as well as the average ROA and ROE of the sample commercial banks during the 2023-2025 period, so that 9 observation data were obtained. The descriptive statistical results of the two research variables are presented in Table 1.

Table 1. Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
X	9	-32.96	43.75	18.7067	21.57106
Y	9	6.42	11.03	9.3389	1.71336
Valid N (listwise)	9				

Source: SPSS data processing results (2026)

Based on Table 1, the Financial Services Digitalization variable (X) measured by the growth of digital application users has a minimum value of -32.96% (BNI, in 2025) and a maximum value of 43.75% (bank Mandiri, in 2023), with a mean value of 18.71% and a standard deviation of 21.57. The standard value of variable deviation X is greater than the average value, indicating a fairly high variation (fluctuation) in the growth of interbank and inter-year digital application users, especially due to a sharp decline in the number of BNI users in 2025).

Normality Test (Kolmogorov-Smirnov)

Before conducting the regression analysis, the author first conducted a classical assumption test to ensure that the regression model met the Best Linear Uniased Estimator (BLUE) qualifications. The results of the normality test with the One-Sample Kolmogorov-Smirnov test are presented in Table 2.

Table 2. Normality Test Results (One-Sample Kolmogorov-Smirnov Test)

Unstandardized Residual

Remarks	Unstandardized Residual
N	9
Kolmogorov-Smirnov Z	0,221
Asymp. Sig. (2-tailed)	0,200

Source: Researcher-processed data (2026)

Table 2 shows the value of Asymp. Sig. (2-tailed) of 0.200 > 0.05. Thus, it can be concluded that the residual data in this study is normally distributed, so that the regression model meets the assumption of normality.

Multicollinearity test

Furthermore, a multicollinearity test was carried out to detect the presence or absence of a strong correlation between independent variables. Since the regression model of this study

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uses only one independent variable, it is technically impossible to have multicollinearity, as shown in Table 3.

Table 3. Multicollinearity Test Results

Models	Tolerance	VIVID	Remarks
Digitization of Financial Services (X)	1.000	1.000	Non-occurrence of Multicolonialism

Source: SPSS data processing results (2026)

The Tolerance value of 1,000 (>1.10) and the VIF value of 1,000 (<10) in Table 3 indicate that the regression model is free from the symptoms of multicolonialism.

Heteroscedasticity test (Glejser)

The heteroscedasticity test is carried out with the Glejser test, which is regressing the residual absolute value to an independent variable. The test results are presented in Table 4.

Table 4. Heterokedasticity Test Results (Glejser Test)

Models	t	Sig.
(Constant)	2,725	0,030
Digitization of Financial Services (X)	-0,355	0,733

Source: SPSS data processing results (2026)

Based on Table 4. The significance value of the Financial Services Digitalization variable (X) was 0.733>0.05, so it can be concluded that there were no symptoms of heterokedasticity in the regression model. With the fulfillment of all these classic assumptions, the regression model in this study was declared feasible (BLUE) to be used to test the influence of Financial Services Digitalization on Financial Performance.

Simple Linear Regression Analysis

The test of the influence of Financial Services Digitalization (X) on Financial Performance (Y) was carried out through simple linear regression analysis. The results of data management with SPSS are presented in Table 5.

Table 5. Results of Simple Linear Regression Analysis and t-Test

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	8.114	.470		17.271	<.001
	X	.065	.017	.824	3.850	.006

Source: SPSS data processing results (2026)

Based on Table 5 above, the regression equation is obtained as follows:

$$Y = 8.114 + 0.065X$$

A constant value of 8.114 indicates that if the digitization of financial services is 0, then the bank's financial performance is estimated at 8.114. The regression coefficient value of 0.065 shows that every 1% increase in the growth of digital application users will increase the bank's financial performance by 0.065 units, assuming other factors remain (ceteris paribus).

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Hypotesis Testing

The results of the t-test showed a calculated t-value of 3.850 with a significance level of 0.006 (<0.05), so H0 was rejected and H1 was accepted. This means that the digitalization of financial services has a positive and significant effect on the financial performance of commercial banks listed on the Indonesia Stock Exchange. The value of the determination coefficient (R Square) obtained was 0.679, which means that the digitization of financial services was able to explain 67.9% of the variation in the financial performance of the sample banks, while the remaining 32.1% was influenced by other factors outside the research model, such as operational cost efficiency, credit risk, interest rate and macroeconomic conditions.

The results of this study prove that the digitization of financial services has a positive and significant effect on the financial performance of commercial banks listed on the Indonesia Stock Exchange. This means that the higher the growth of digital application users of a bank, the better the financial performance produced by the bank. These findings are supported by data on the growth of digital application users followed by the growth of the bank's financial performance, although it is not always linear every year. Bank Rakyat Indonesia (BRI), for example, recorded consistently positive growth in digital application users through the Brimo application, which was 32.49% (2023), 22.18% (2024) and 18.88% (2025), and consistently recorded the highest financial performance among the three sample banks. On the other hand, Bank Negara Indonesia (BNI) experienced a sharp decline in digital application users in 2025 by -32.96%, which is allegedly due to system updates and migration of digital service platforms, and in the same period BNI financial performance was also the lowest among the three sample banks.

The results of this study are in line with Hidayat's (2025) research which found that digital banking services, both through *internet banking* and *mobile banking*, have a positive and significant effect on the financial performance of state-owned banks listed on the Indonesia Stock Exchange. These results are also in line with Sari's (2024) research which found that *financial technology* has a positive and significant effect on the ROA of banking companies. However, the results of this study are different from the findings of Indriani et al. (2022) which stated that *internet banking* has no significant effect on the ROA, ROE or NIM of conventional banking, and is different from the findings of Ramadan (2024) which found that the digitization of services has a negative and insignificant effect on the profitability of Islamic banks. The difference in results, according to the author, can be caused by differences in the object of research, where this study focuses on State-Owned Commercial Banks (SOEs) which generally have a large customer base and a more mature digital infrastructure, so that the growth of digital users is more consistent in contributing to improving financial performance compared to banks in other categories.

The determination coefficient value of 67.9% shows that the digitization of financial services is a fairly dominant factor in explaining the variation in the financial performance of commercial banks listed on the Indonesia Stock Exchange in the 2023-2025 period. However, as much as 32.1% of the variation in financial performance is still influenced by other factors outside the research model, such as operational cost efficiency, asset quality, interest rate benchmark, and general macroeconomic conditions.

METHODOLOGY

This study uses a quantitative approach with a secondary type of data sourced from the annual report of banking companies published through the official website of each bank. Secondary data is chosen because it has gone through an audit and verification process so that the level of reliability and accuracy can be guaranteed. The data collection technique used is a quantified method, namely by collecting data on commercial banks' annual financial statements for the 2023-2025 period.

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The population of this study is all commercial banks listed on the Indonesia Stock Exchange during the 2023-2025 period, which totals 47 banks (Asrulla et al., 2023). Sample determination was carried out using the puposive sampling technique, which is the determination of samples based on certain criteria that are adjusted to the purpose of the research. The criteria used include: commercial banks that are consistently registered during the study period, publish complete annual financial statements, disclose data on users of digital services (*mobile banking*/*internet banking*), and do not experience operational interruptions from the exchange. Based on these criteria, 3 (three) state-owned commercial banks were obtained as research samples, namely BNI, BRI and Bank Mandiri with an observation period of 3 years so that the total observation was 9.

The Independent Variable (X) in this study is Financial Services Digitalization, which is measured through the annual growth in the number of users of digital banking/ *mobile banking* applications (Megawati & Rupadi, 2024), with the following formula:

$$user\ growth = \frac{user\ year\ t - user\ year\ t-1}{user\ year\ t-1} \times 100\%$$

The dependent variable (Y) is Financial Performance, which is proxied through the average value of *Return On Assets* (ROA) and *Return On Equity* (ROE), with the following formula:

$$ROA = \frac{net\ income}{total\ assets} \times 100\%$$

$$ROE = \frac{net\ income}{total\ equity} \times 100\%$$

The value of the Y variable is the average of the ROA and ROE in the year during the study. The data analysis technique used is quantitative analysis with the help of the Statistical Package For The Social Sciences (SPSS) program, which includes: descriptive statistical analysis to find out the minimum, maximum, average and standard deviation values of each variable; classical assumption test, consisting of normality test with the One-sample Kolmogorov-Smirnov test, multicollinearity test by looking at Tolerance and Variance Inflation Factor (VIF) values, and heterokedasticity test with Glejser test; simple linear regression analysis with equations, where Y is financial performance, α is constant, β is the regression coefficient, X is the digitization of financial services, and ε is the error term; and hypothesis testing through a statistical test of t (partial test) and a determination coefficient (R$Y = \alpha + \beta X + \varepsilon^2$), with decision-making criteria; if the significance value > 0.05, H0 is accepted (no significant effect).

CONCLUSION

Based on the results of the analysis and discussion that have been described above, it can be concluded that the digitization of financial services measured through the growth of digital banking application users has a positive and significant effect on the financial performance of commercial banks listed on the Indonesia Stock Exchange, with a t-value of 3.850 and a significance of 0.006 (<0.05). The regression equation obtained was Y=8.114+0.065X, with a determination coefficient value (R2) of 0.679 which means that the digitization of financial services was able to explain 67.9% of the variation in the financial performance of the sample bank, while the remaining 32.1% was influenced by other factors outside this study model. Thus, the higher the growth of a bank's digital application users, the better the financial performance that the bank is able to achieve.

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The author suggests that commercial banks listed on the Indonesia Stock Exchange continue to improve and expand the range of their digital services, both in terms of features, security, and user convenience and pay attention to the causes of the decline in the number of digital application users as experienced by BNI in 2025, so that the system update strategy can be carried out without significantly reducing the number of active users. For the next researcher, the author suggests expanding the number of samples and observation periods, not limited to state-owned commercial banks and adding other relevant variables such as operational cost efficiency (BOPO), Non-Performing Loans (NPL), and macroeconomic conditions, useful to obtain a more comprehensive research model in explaining the variation in bank financial performance.

IMPLICATION

These results indicate that strengthening the digital service user base remains relevant as part of a performance improvement strategy, but technology investment decisions should not be based solely on the correlation of this small sample. The decline in ROA and ROE shows that the digital system migration process needs to be managed carefully so as not to disrupt short-term performance. Also, policies that drive digitalization need to be accompanied by attention to external factors such as cost efficiency, NPLs and interest rates.

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