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Harnessing Digital Financial Services: Unlocking the Path to Enhanced Financial Performance and Inclusivity in Indonesia's Banking Sector

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Abstrak

- **Tujuan**: Penelitian ini bertujuan untuk menganalisis dampak layanan keuangan digital, inklusi keuangan digital, dan penggunaan layanan terhadap kinerja keuangan bank-bank swasta nasional di Indonesia. Penelitian ini mengidentifikasi dimensi-dimensi inklusi keuangan yang paling signifikan dalam mempengaruhi kinerja keuangan bank.
- **Desain/Metodologi/Pendekatan**: Penelitian ini menggunakan pendekatan kuantitatif dengan data panel dari 43 bank yang terdaftar di Indonesia selama periode 2019 hingga 2024. Analisis regresi dilakukan untuk mengeksplorasi hubungan antara variabel-variabel independen seperti layanan keuangan digital, aksesibilitas, ketersediaan, dan penggunaan layanan terhadap kinerja keuangan yang diukur dengan Return on Assets (ROA).
- **Temuan**: Hasil penelitian menunjukkan bahwa penggunaan layanan keuangan digital dan aksesibilitas layanan memiliki pengaruh positif yang signifikan terhadap kinerja keuangan bank, sedangkan ketersediaan infrastruktur fisik seperti kantor cabang dan ATM tidak berpengaruh signifikan terhadap kinerja keuangan. Layanan keuangan digital yang lebih banyak digunakan dan lebih mudah diakses oleh masyarakat berkontribusi pada peningkatan profitabilitas dan efisiensi operasional bank.
- **Batasan Penelitian/Dampak**: Batasan dari penelitian ini meliputi keterbatasan data yang hanya mencakup bank-bank swasta nasional di Indonesia selama periode yang terbatas, sehingga hasil penelitian ini mungkin tidak sepenuhnya mencerminkan kondisi sektor perbankan di luar cakupan ini. Penelitian ini juga menyarankan penelitian lanjutan yang dapat mengeksplorasi faktor-faktor lain yang dapat mempengaruhi kinerja keuangan bank, seperti literasi digital dan kebijakan regulasi yang mendukung adopsi teknologi.
- **Implikasi Praktis**: Temuan penelitian ini dapat diterapkan oleh praktisi perbankan dan pembuat kebijakan untuk merancang strategi yang lebih efektif dalam mengoptimalkan infrastruktur digital dan inklusi keuangan guna meningkatkan kinerja bank. Bank harus meningkatkan layanan digital dan memastikan akses yang lebih luas bagi masyarakat untuk memanfaatkan layanan perbankan secara maksimal.

- **Keaslian/Nilai**: Penelitian ini memberikan kontribusi unik dalam memahami hubungan antara inklusi keuangan digital dan kinerja keuangan bank di Indonesia, khususnya dengan mempertimbangkan aksesibilitas, ketersediaan, dan penggunaan layanan. Penelitian ini juga memperkaya literatur yang ada dengan memberikan bukti empiris mengenai pentingnya transformasi digital dalam perbankan untuk meningkatkan kinerja keuangan.
- **Jenis Makalah**: Makalah penelitian

Kata Kunci: Layanan Keuangan Digital, Aksesibilitas, Ketersediaan, Penggunaan Layanan, Kinerja Keuangan, Inklusi Keuangan.

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Abstract

- ***Purpose****: This study aims to analyze the impact of digital financial services, digital financial inclusion, and service usage on the financial performance of national private commercial banks in Indonesia. The research identifies the dimensions of financial inclusion that most significantly affect the financial performance of banks.*
- ***Design/Methodology/Approach****: This study adopts a quantitative approach using panel data from 43 banks listed in Indonesia during the period from 2019 to 2024. Regression analysis is conducted to explore the relationship between independent variables, such as digital financial services, accessibility, availability, and service usage, on financial performance, measured by Return on Assets (ROA).*
- ***Findings****: The results indicate that the usage of digital financial services and the accessibility of services have a significant positive effect on financial performance, while the availability of physical infrastructure, such as bank branches and ATMs, does not significantly affect financial performance. Increased usage of digital financial services and greater accessibility for the public contribute to enhanced profitability and operational efficiency in banks.*
- ***Research Limitations/Implications****: The limitations of this study include the scope of data, which is limited to national private commercial banks in Indonesia over a specific period, meaning the findings may not fully reflect the banking sector outside of this scope. This study also suggests further research to explore additional factors that may influence bank financial performance, such as digital literacy and regulatory policies that support technology adoption.*
- ***Practical Implications****: The findings of this study can be applied by banking practitioners and policymakers to design more effective strategies for optimizing digital infrastructure and financial inclusion to enhance bank performance. Banks should focus on improving digital services and ensuring broader access to banking services for the public to maximize their utilization.*
- ***Originality/Value****: This study makes a unique contribution by deepening the understanding of the relationship between digital financial inclusion and bank financial performance in Indonesia, particularly by considering accessibility, availability, and service usage. It enriches the existing literature by providing empirical evidence on the importance of digital transformation in banking to improve financial performance.*
- **Paper Type**: Research Paper

Keywords*: Digital Financial Services, Accessibility, Availability, Service Usage, Financial Performance, Financial Inclusion.*

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Introduction

The rapid development of digital technology has significantly impacted various sectors, including banking. Traditional banks now face major challenges adapting to this rapid change. Digital transformation involves using information technology for banking services and has introduced digital-based banking. Although this technology offers opportunities to enhance operational efficiency and extend service reach, many banks are struggling to compete with more agile and innovative fintech companies. In this context, the Indonesian banking sector's main challenge is utilizing digital technology to improve financial performance without neglecting financial inclusion, an increasingly relevant aspect amidst growing public awareness of financial services.

This trend is evident in the growing use of digital payments and fintech, which are changing the way people transact and manage finances. For example, the use of digital wallets and e-money increased significantly from IDR 1,165 trillion in 2020 to IDR 3,940 trillion in 2024, reflecting the rapid growth of digital financial services (Berijalan, 2023). To remain competitive and relevant in meeting the needs of an increasingly digitized society, the banking sector must adapt to these changes. Digital financial services, such as fintech and digital payments, have significantly altered how Indonesians transact and manage finances. This growth is fueled by high internet and smartphone penetration, driving the use of digital payments, such as e-money and digital wallets (Binus, 2024; Nobel, 2023).

This phenomenon provides society with various benefits, including expanded access to financial services, improved transaction efficiency in terms of time and costs, and innovations such as mobile banking, digital lending, and app-based investing. In the financial inclusion dimension, three main indicators to consider are accessibility, availability, and usage of services. Accessibility refers to how easily people can obtain financial services, and availability refers to how widely financial services are available in various locations, both physically and digitally. Service usage measures the extent to which people actively utilize available financial services (BCA, 2023).

Digital transformation in the financial sector improves banks' financial performance by increasing operational efficiency, profitability, and the customer base while fostering customer loyalty. Banks that successfully adopt digital financial services, such as mobile banking and QRIS, can improve their financial performance by lowering operational costs and expanding their market reach (Jibaku & Jamie, 2023). Therefore, to support financial inclusion and improve financial performance in this digital era, the banking sector needs to optimize the use of digital services.

Digital financial services, such as mobile and internet banking and fintech, have made it easier and more efficient for people to access banking products and services, including those who were previously unbanked. This increased accessibility is a major factor in promoting financial inclusion, allowing more people, especially those in remote areas, to access banking services. Digital technology allows banks to open accounts online, transfer funds, and make bill payments without customers needing to visit a branch in person. This increases efficiency and reduces banks' operational costs (Sedera et al., 2022; Uli Irawati, 2012).

However, despite the increased accessibility of banking services, the availability of banking facilities remains a challenge. For instance, while many banks have developed mobile banking apps, some regions in Indonesia still lack widespread branch offices or ATMs. Availability is important so services can be easily accessed by all levels of society (Ahamed et al., 2021).). Additionally, the use of digital banking services is an important indicator of successful financial inclusion, as reflected by the volume of transactions or savings deposited in bank accounts (Tambunan & Aziza, 2024)

Although digital financial services are growing, and accessibility and availability are increasing, the financial performance of banks is still affected by how effectively the public uses these services. Banks in Indonesia, particularly National Private Commercial Banks, demonstrate significant variation in performance regarding the adoption of digital services and financial inclusion. Those that optimized digital service use and improved accessibility and availability experienced a significant increase in profitability. In contrast, banks that fail to quickly adapt to digital and financial inclusion trends often have difficulty optimizing their financial performance. The decline in the number of banks and branches in Indonesia's National Private Commercial Banks points to the challenge of maintaining financial performance despite rapid technological advancements (Hussain, 2024; Jajah et al., 2020).

One key issue is that, despite increasing digital accessibility, many banks have yet to utilize fintech's potential to reduce operational costs or access wider markets. Therefore, despite higher technology adoption, banks that cannot properly manage challenges in digital financial service availability and use may have difficulty maintaining financial performance in the long term (Rahmadani & Husaini, 2017;Hussain, 2024).

To overcome these challenges, banks must develop strategies that focus on inclusive digitalization. This means increasing accessibility and ensuring that all segments of society can access and use these services effectively. The further development of mobile banking and digital applications should be accompanied by the strengthening of digital infrastructure and the education of the public on the benefits of and how to use digital financial services. By doing so, banks can increase financial inclusion, which directly impacts their financial performance (İslamoglu & Bayrakli, 2022).

Previous studies have shown that digital financial services have a positive impact on banking financial performance. Bousrih (2023) and

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Miroshnichenko (2025), for example, found that digital banking can enhance bank profitability by reducing operational costs. On the other hand, digital financial services have also proven to be transformative in driving financial inclusion, particularly in developing countries. Services such as mobile banking and e-money platforms enable millions of previously unserved individuals to access financial services, as seen in India and Kenya (Saini & Saha, 2024). Compared to conventional banking, digital services tend to be more efficient and affordable, thus opening financial services to the unbanked population (Agyekum et al., 2015). The ease and convenience of digital services such as internet banking and mobile payments are crucial factors that drive adoption, especially among groups with low financial literacy (Hegde & Kavyashree, 2024; Songling et al., 2018). Furthermore, digital financial services can empower economic development through access to credit, savings, and insurance, which ultimately contributes to poverty reduction and improved welfare (Mpofu, 2024).

However, the integration of digital financial services into the financial system also presents several challenges that need to be anticipated. Hegde & Kavyashree (2024) and Sedera et al. (2022) emphasize that although digital technology improves access and availability of services, its impact on financial performance is not always significant, particularly for banks that have not fully digitalized. Infrastructure limitations and weak internet connectivity in many developing regions hinder the adoption of digital services, despite their great potential to expand financial inclusion (Mpofu, 2024). In addition, security and trust issues, particularly concerning data privacy, can reduce user interest, especially for those who are not familiar with digital platforms (Serang, 2024). Low digital literacy also limits the effective use of services, necessitating more targeted educational programs to increase user engagement (Miroshnichenko, 2025; Serang, 2024). At the same time, the rapid development of digital financial services often outpaces regulatory capacity, raising concerns about consumer protection and the stability of the financial system (Mpofu, 2024; Serang, 2024). Nonetheless, digital financial services still hold the potential to enhance bank performance through customer base expansion and operational efficiency improvements. However, the increasing presence of fintech and non-bank digital service providers creates competitive pressure that pushes banks to continuously innovate and improve their service offerings (Mpofu, 2024). Therefore, optimizing the benefits of digital services requires strengthening infrastructure, improving digital literacy, and developing a comprehensive regulatory framework to protect consumers and maintain stability.

Although the literature widely recognizes the benefits of technology, discussions about how the concept of digital financial inclusion conceptually bridges digital services and bank profitability are still relatively limited. Digital financial inclusion is not merely a social indicator, but a strategic mechanism that connects technological capabilities with operational efficiency and revenue generation. This mechanism can be understood through three core constructs: accessibility, availability, and usage.

First, accessibility theoretically expands the bank's customer base to previously underserved segments (the unbanked). By lowering entry barriers through digital channels, banks can gather low-cost retail deposits in significant volumes. This mechanism strengthens funding structure and improves Net Interest Margin (NIM), a key component of profitability. Without digital accessibility, banks tend to remain locked in saturated markets with high customer acquisition costs.

Second, availability refers to the ubiquitous availability of services without geographical limitations. From a financial performance perspective, digital availability can substitute for the expansion of capital-intensive physical infrastructure, such as branch openings and ATM provisioning. Shifting interactions from physical channels to digital channels reduces overhead operational costs, improves efficiency ratios, and ultimately enhances Return on Assets (ROA). Therefore, availability is not only related to customer convenience but also serves as a cost-efficiency mechanism for banks.

Third, usage reflects the level of customer activity that directly determines revenue generation. Access and availability do not generate economic value unless they are followed by active usage. The frequency of digital service usage correlates positively with increased fee-based income from payments, transfers, and other value-added services. From the Resource-Based View (RBV) perspective, active usage represents intangible assets that have the potential to create competitive advantage and sustainable cash flow.

However, empirical evidence shows a paradox: increased digital adoption is not always followed by improved financial performance. Some banks face a productivity paradox, where large technology investments do not immediately lead to higher profitability due to low usage rates or inefficiency in managing accessibility. In some regions, the burden of physical infrastructure remains high, indicating that digital availability has not fully optimized cost structures.

In response to competitive pressures and industry transformation, banks are integrating digital financial services as a key strategy to enhance financial performance. Theoretically, digitalization should drive operational efficiency while expanding the customer base (accessibility) with low marginal costs. However, the reality shows a gap between technology adoption and performance outcomes. Although private banks have invested heavily in digital infrastructure and mobile banking applications, not all have succeeded in converting these investments into higher profitability (ROA). In fact, some banks face inefficiencies due to the dual burden of maintaining costly physical infrastructure (branches/ATMs), especially in remote areas just to ensure service availability while financing the development of digital systems.

The inconsistency of these findings highlights an unresolved research issue in the literature. Previous studies tend to be inconclusive: some argue that digital services automatically improve performance through cost efficiency, while others suggest that without active adoption and adequate digital literacy, digital infrastructure availability can become a sunk cost that does

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not contribute to revenue. The key knowledge gap lies in the limited understanding of the specific mechanisms of digital financial inclusion that influence profitability: whether it is driven by mere service availability, ease of access, or the intensity of its usage.

Most of the previous research still treats financial inclusion as a single variable or focuses on just one aspect of technology. This approach fails to capture the nuance that the dimensions of financial inclusion (accessibility, availability, and usage) can asymmetrically impact bank financial statements. For example, high physical availability can increase operational costs, while high usage of digital services tends to drive up fee-based income. Without distinguishing these dimensions, bank management will find it difficult to formulate appropriate resource allocation strategies.

Therefore, this study aims to bridge this gap through a comprehensive analysis of the impact of digital financial services and the dimensions of digital financial inclusion (accessibility, availability, and usage) on the financial performance of national private banks in Indonesia. The novelty of this research lies in the effort to deconstruct digital financial inclusion not merely as a descriptive variable but as a causal determinant that affects profitability through cost efficiency and revenue diversification channels. The research findings are expected to provide empirical evidence to banks and regulators that digital financial inclusion is a profitability-enhancing strategy, not merely a regulatory compliance requirement.

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Literature review and hypothesis development

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a theoretical framework used to understand how users accept and adopt new technologies, including digital banking services. Introduced by Fred Davis in 1986, TAM states that perceived usefulness and perceived ease of use are the two main factors that influence user acceptance of technology. Perceived usefulness is defined as the user's belief that the technology will improve their performance or efficiency at work. Perceived ease of use is defined as the extent to which the user believes using the technology is effortless (Davis, 1989). In the context of digital banking, TAM suggests that bank customers' adoption of technologies such as mobile banking, QRIS, and internet banking is strongly influenced by these technologies' perceived benefits and ease of use (Setyaningrat, 2023).

The TAM is relevant in explaining how the use of digital financial services affects the financial performance of banks. If customers perceive digital services as convenient and beneficial, they will adopt them at higher rates, which can increase transactions and the customer base. An increase in transactions can improve bank financial performance through increased profitability and operational efficiency (Wijaya, 2022). Ababio et al., (2023) research also shows that the ease of use and benefits of digital banking positively contribute to customer interest in digital

banking services. Therefore, TAM can be used to analyze how acceptance of digital services affects bank financial performance, particularly in a society that is increasingly adopting digital financial services.

Resource-Based View (RBV)

The Resource-Based View (RBV) theory, introduced by Wernerfelt (1984), posits that a firm's resources and capabilities are essential for achieving a competitive advantage and improving performance. The RBV emphasizes managing a firm's resources, including assets that competitors find difficult to replicate, to create sustainable competitive advantages. In banking, adopting digital technologies and financial services is a strategic move that can give banks a competitive edge. These technologies improve efficiency, expand the customer base, and reduce operational costs (Barney, 2001). Technologies such as mobile banking, e-wallets, and QRIS affect banks' financial performance by improving customer service and expanding market reach (Widyandri & Laila, 2022).

According to the RBV, banks that successfully adopt and manage digital technologies will be able to improve their financial performance more effectively. Investments in digital infrastructure and software supporting digital banking services, for example, can improve operational efficiency and accelerate digital transformation, ultimately driving profitability growth (Miroshnichenko, 2025). In Indonesia, major banks' digital transformation, which involved investing in information technology and software, has been shown to improve financial performance by increasing cost efficiency and the number of recorded transactions (Tambunan & Aziza, 2024). Therefore, RBV theory can explain how applying digital technology in banking as a strategic resource improves banks' financial performance by strengthening their competitiveness and increasing their operational capacity.

The Effect of Digital Financial Services on Banking Financial Performance

The significant positive impact of digital financial services on the financial performance of the banking sector has been widely discussed in various literature. These services, which include technologies such as mobile and internet banking and fintech innovations, have improved operational efficiency, profitability, and customer satisfaction at global banks. Research shows that digital financial services improve operational efficiency by automating routine tasks and reducing the need for physical infrastructure. This reduces costs and allows banks to allocate resources more effectively (Ali et al., 2024; Melati, 2024). Additionally, digital banking platforms have increased customer deposits and transactions, directly impacting bank profitability, as evidenced in emerging economies (Abdul Aziz et al., 2024; Hussain, 2024a) Digitalization improves customer experience by providing faster, safer, and more convenient services, driving customer loyalty and satisfaction (Bayrakli & Islamoglu, 2022; Megawati & Kertiriasih, 2024). Integrating digital financial services helps banks remain competitive in a rapidly evolving market by attracting new customers and introducing innovative products and services (Bousrih, 2023; Ramzan et al., 2021).

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While the benefits of digital financial services on banks' financial performance are supported by various studies, there are also challenges and limitations that need to be addressed. Adopting digital services requires significant initial investments in technology and infrastructure, which can strain banks' financial resources in the short term (Tambunan & Aziza, 2024) Additionally, not all digital services have uniformly positive impacts. For instance, research in Indonesia indicates that ATM and e-money usage negatively influences banking performance (Megawati & Kertiriasih, 2024). In addition, rapid technological change requires continuous investment in digital infrastructure and financial literacy to ensure sustainable growth and address emerging security challenges (Aziz et al., 2024). Based on the existing literature, the following research hypothesis can be proposed:

Hypothesis 1: Digital financial services affect the financial performance of banks.

The Effect of Accessibility in Financial Inclusion on Banking Financial Performance

Studies have shown a significant positive relationship between accessibility in financial inclusion and the financial performance of the banking sector. Financial inclusion involves providing wider access to financial services for previously marginalized populations. This can improve bank stability and profitability. Studies indicate that increased access to banking services, including mobile banking and digital platforms, can expand a bank's customer base, provide a steadier source of funds by increasing the number of small depositors, and minimize the volatility of funds from deposits (Ahamed et al., 2021). In Indonesia, Sedera et al., (2022) found that greater accessibility to financial services improved banks' profitability because more individuals who lacked access previously could join the banking system. This strengthened the depositor base and improved banks' financial stability.

Financial inclusion affects not only the depositor base, but also improves banks' efficiency and profitability by expanding their customer base and enabling them to offer a wide range of financial products and services. In developing countries, the digitization of financial services plays an important role in improving the operational efficiency and profitability of banks (Aziz et al., 2024). In West Africa, financial inclusion has been shown to positively impact bank performance in the long term, especially in countries with low GDP per capita. There, banks can achieve higher profits by expanding services to underserved areas (Vitenu-Sackey, 2019). However, increasing access to financial services can also increase banks' risk profiles, necessitating appropriate risk management policies. For instance, financial inclusion increases bank profitability in Pakistan but also increases risk, indicating the need for effective risk management (Ahmed et al., 2024). Based on this literature review, the following hypotheses can be proposed:

Hypothesis 2: Accessibility in financial inclusion affects the financial performance of banks.

Effect of Availability in Financial Inclusion on Financial Performance of Banks

Financial inclusion plays an important role in improving the financial performance of the banking sector. Availability refers to financial services that are accessible to all segments of society, including previously marginalized or underserved groups. Widespread access to financial services enables banks to

expand their customer base, increase deposit rates, and secure a steadier source of funds. Research shows that increased banking service availability contributes to bank profitability by providing more opportunities to offer financial products, such as credit and savings, which increases bank income (Sedera et al., 2022; Vitenu-Sackey, 2019). Increased availability allows banks to reduce their reliance on unstable sources of funds, which lowers the risk of earnings volatility and makes it easier for banks to plan stable long-term investment strategies (Ahamed et al., 2021). Additionally, integrating digital financial services, such as mobile banking and e-wallets, accelerates service availability. This reduces transaction costs and improves service efficiency, especially in developing countries with limited traditional banking infrastructure (Aziz et al., 2024).

However, this increased availability provides not only profitability benefits but also has the potential to increase operational risks if not managed properly. For instance, as banks serve more customers, they must manage risks related to customer credibility and fund management more effectively. While greater customer diversification reduces reliance on certain customer segments, it can also increase exposure to potential loan defaults if risk management is not carefully executed (Shihadeh, 2019).Research in Kenya has also shown that the development of non-branch-based banking channels, such as the use of digital technologies, can increase service availabilities which in turn positively affect banks' financial performance, provided there is support from supportive policies and appropriate regulations to protect consumers (Dzombo et al., 2018). Based on this literature review, the research hypotheses that can be proposed are:

Hypothesis 3: Availability in financial inclusion affects the financial performance of banks.

The Effect of Service Usage in Financial Inclusion on Banking Financial Performance

Financial inclusion, defined as the active use of banking services by previously underserved or marginalized communities, significantly impacts the financial performance of the banking sector. Increased use of financial services, such as savings, credit, and digital payment services, expands the customer base and increases transaction volumes. These factors directly contribute to increased bank profitability. For instance, Sedera et al., (2022) found that using digital financial services positively affects bank profitability in Indonesia by expanding the customer base and increasing customer transactions. As more people actively use financial services, banks benefit from transaction fees and fee-based income, thereby increasing their overall revenue and profitability.

Additionally, the wider use of financial services increases the stability of banks' sources of funds because banks can rely on diversified funds from individual customers rather than funds from more volatile sources. This gives banks more flexibility in planning long-term investments and improves operational efficiency (Ahamed et al., 2021). Higher use of financial services is also associated with better risk management because diversification of customer portfolios reduces dependence on certain segments and the risk of loan defaults (Shihadeh, 2019) Furthermore, Aziz et al., (2024) found that digital financial inclusion (DFI)

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accelerates the adoption of financial services in developing countries. This improves operational efficiency and provides long-term benefits for banks that successfully integrate digital services with traditional banking systems.

However, although using financial inclusion services can improve banks' financial performance, there are some challenges that need to be considered. For example, increased use of financial services may bring new risks, particularly exposure to bad debts, if lending practices are not prudent (Ahmed et al., 2024). Additionally, sufficient investment in supportive infrastructure and regulations is necessary to enable the smooth operation of these services without increasing potential losses for banks. Therefore, it is important to develop strategies that balance growth with effective risk management. Based on this literature review, the following hypotheses can be proposed:

Hypothesis 4: Increased use of services in financial inclusion affects the financial performance of banks.

Research Method

v Based on the research topic regarding the effect of digital financial services and service usage in financial inclusion on bank financial performance, this research methodology can be designed with a quantitative approach using secondary data from the annual reports of National Private Commercial Banks listed on the Indonesia Stock Exchange (IDX) in the 2019-2024 period. The data collection method used is documentation and literature study, with data obtained from bank annual reports and related official websites. The data used in this study include financial performance variables measured using Return on Assets (ROA), which is an indicator of profitability, and independent variables that include digital financial services (mobile banking, internet banking, SMS banking, phone banking), accessibility (calculated using Third Party Funds per 1,000 population), availability (measured by the number of offices and ATMs per 100,000 population), and service usage (calculated based on financing per 1,000 GDP values).

Table 1. Variables and Measurement

No	Variable	Formula	Reference
1	Financial Performance	$ROA = \frac{Net\ income}{Total\ Asset} x\ 100\%$	(Achmad Febrianto, 2025; Ni Nyoman Sawitri, 2023; Sasongko & Rachma, 2021)
2	Digital Financial Services	$ROC : wj = \frac{1}{n} \sum_{k=0}^{n} \binom{n}{k}$	(Madobi & Umar, 2021; Sholihaningtias, 2023).

3	Accessibility	$= \frac{Total\ DPK}{Number\ of\ residents} x\ 1000$	(Ahamed et al., 2021; Sedera et al., 2022; Thakshila, 2021).
4	Availability	$= \frac{Number\ of\ office + ATM}{Number\ of\ residents} x\ 100.000$	(Al Eitan, 2022; Rao, 2016)
5	Service Usage	$= \frac{Total\ Financing}{GDP\ Value} x\ 1000$	(Aziz et al., 2024; Megawati & Kertiriasih, 2024)

Source: summary of various sources

In data analysis, panel data regression techniques are used with estimation models, including the common effect model (CEM), fixed effect model (FEM), and random effect model (REM). The Chow test, Hausman test, and Lagrange multiplier test are used to select the best model, which helps determine the appropriate approach for testing the relationship between the variables under study. To test the hypothesis, t-tests and coefficient of determination (R^2) tests were conducted to evaluate how well the regression model explains variation in the dependent variable. The study's results are expected to clarify how dimensions of digital financial services accessibility, availability, and usage affect banks' financial performance. This study aims to contribute to the literature on financial inclusion and banking digitalization in Indonesia.

Results and Discussion

Results

To better understand the characteristics of the data used in this study, a descriptive statistical analysis was conducted on several key variables: financial performance, digital financial services, accessibility, availability, and service usage. Table 2 presents the descriptive statistics results, including the mean values for each variable. These results provide an overview of the data distribution and show the central tendency for each analyzed variable. These descriptive statistical results offer initial insights into the factors influencing bank financial performance.

Table 2. Descriptive Statistics Results

	Financial Performance	**Financial Services Digital**	**Accessibility**	**Availability**	**Service Usage**
Mean	0.824148	0.863630	18.173260	0.921185	6.990222

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Median	1.040000	1.000000	18.140000	0.110000	6.830000
Maximum	4.780000	1.000000	22.10000	7.280000	10.57000
Minimum	-15.89000	0.060000	10.51000	0.010000	1.360000
Std. Dev	2.592021	0.257266	1.894512	1.937316	1.768010
Observation	258	258	258	258	258

source: data processing results

Based on the descriptive statistical analysis conducted on several key variables affecting bank financial performance, digital financial services, accessibility, availability, and service usage, the following results can be interpreted:

Financial Performance

The average ROA for the period from 2019 to 2024 is 0.82, indicating that national private commercial banks performed quite well, according to the category established by SEBI No. 13/24/DPNP 2011 (0.5% < ROA < 1.25%). Bank Amar Indonesia achieved the maximum ROA value of 4.78% in 2023, indicating an optimal ability to manage assets. Conversely, Bank Jago's ROA reached a minimum value of -15.89% in 2019, indicating a lack of ability to generate profits from assets. The high standard deviation value of 2.59 indicates significant variation in the performance of the studied banks.

Digital Financial Services

With an average value of 0.86 for the 2019-2024 period, digital financial services indicates that most banks have adopted digital financial services, particularly mobile and internet banking. A maximum digital financial services value of 1 indicates that some banks provide complete digital services. A minimum digital financial services value of 0.06 shows that Bank Oke Indonesia only offered phone banking services in 2019. A standard deviation of 0.25 shows that variation in digital service adoption is relatively low.

Accessibility

The average accessibility score over the studied period is 18.17, indicating a fairly good level of accessibility. However, there is a significant disparity between large and small banks. Bank BCA received a maximum score of 22.10, indicating a high level of customer trust and extensive infrastructure. In contrast, banks with a minimum score of 10.51, such as KB Bukopin, experienced a decline in customer trust. The standard deviation of 1.89 indicates a relatively low variation in accessibility and a more stable distribution.

Availability

With an average availability value of 0.92 from 2019 to 2024, it is clear that financial services are still not widely available compared to their maximum

potential. The disparity between urban and rural areas is the main cause of this difference, as areas with better banking infrastructure tend to have higher availability values. Bank BCA achieves the maximum availability value of 7.28, while digital banks such as Bank Jago, which rely on e-channel services without physical infrastructure, achieve the minimum value of 0.01. The high standard deviation value of 1.93 reflects the uneven distribution of financial services.

Service Usage

With an average service utilization of 6.99 over the 2019-2024 period, the banking sector in Indonesia shows great potential for supporting financial inclusion. However, there is still disparity between banks with maximum and minimum values. Bank BCA achieved the maximum value of 10.57 by successfully utilizing financial inclusion through digital services and access expansion. In contrast, KB Bukopin achieved the minimum value of 1.36 in 2022, indicating limited use of financial services at the bank. The relatively low standard deviation value of 1.76 indicates stable data distribution with no values significantly different from the mean.

The results of the descriptive statistical analysis show that although there are variations in the use and accessibility of financial services, large banks with more developed digital infrastructure and services tend to have better financial performance, while banks with smaller or limited capacity in technology adoption face challenges in improving their financial performance.

Discussion

This study uses panel data regression analysis to measure the effect of variables such as digital financial services, accessibility, availability, and service usage on banks' financial performance, as represented by return on assets (ROA). Table 3 presents the regression results, including the coefficient, standard error, t-statistic, and probability of each variable, to evaluate its contribution to the performance of national private commercial banks in Indonesia. These results are important for understanding the relationship between banking digitalization and financial performance, as well as for providing insight into the factors influencing bank efficiency and profitability amidst intense competition.

Table 3. Panel Data Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-21.98075	3.868872	-5.681251	0.0000
Digital Financial Services	0.984257	0.828512	1.188091	0.2376
Accessibility	0.529103	0.227896	2.321345	0.0221

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Availability	-0.840010	0.685448	-1.225518	0.2232
Service Usage	1.876332	0.362402	5.178221	0.0000
R-squared	0.689234			
Adjusted R-squared	0.543289			

Source: data processing results

The regression equation model formed:

Banking Financial performance = -21.98075 + 0.984257 * Digital Financial Services + 0.528103 * Accessibility - 0.840010 * Availability + 1.876332 * Service Usage

This regression model is used to analyze the impact of Digital Financial Services (DFS), accessibility, availability, and service usage on bank financial performance, as proxied by ROA. The estimation results show that DFS and service usage have significant positive coefficients of 0.984257 and 1.876332, respectively. These findings indicate that strengthening digital services, along with increasing transaction intensity and active usage of banking services, is directly correlated with improved bank profitability and efficiency.

Additionally, accessibility also has a positive effect on ROA, with a coefficient of 0.529103. This means that the easier it is for the public to access banking services, the greater the potential for banks to increase profitability through expanded customer bases and improved intermediation. On the other hand, the availability variable shows a negative coefficient of -0.840010. This indicates that an increase in physical infrastructure, such as adding branch offices or ATMs, tends to be associated with a decrease in ROA. The economic implication is that the operational costs of maintaining physical facilities can suppress efficiency, making the strategy of developing more efficient digital services more relevant than physical expansion.

Overall, the model shows that enhancing digital service capabilities, particularly strengthening service usage, plays a greater role in driving bank financial performance compared to adding physical infrastructure. In other words, improved profitability is more determined by how actively customers use banking services rather than merely the presence of physical networks.

In terms of explanatory power, this model explains bank financial performance quite well, with over 69% of the variation in ROA explained by the variables in the model. However, the lower adjusted R-squared value suggests that, although the model is adequate, there may still be other important factors that have not been accounted for or the selection of independent variables could be refined. Therefore, further research is still needed to identify additional determinants that could more comprehensively explain the variation in bank financial performance.

Another interesting finding is that DFS is not significant in influencing ROA, which theoretically contradicts the ideal scenario of the Technology Acceptance Model (TAM), where technological benefits should drive performance

improvement. This insignificance points to a "Productivity Paradox" in the Indonesian banking sector: the presence of digital services (e.g., mobile banking) does not automatically result in profitability. One plausible explanation is that the initial investment in digital infrastructure requires substantial capital expenditure (CapEx), which burdens short-term profitability until economies of scale are achieved. Moreover, barriers during the adoption phase, such as user resistance or low digital literacy in certain segments, may cause digital technology to function more as a cost center rather than a profit center due to suboptimal utilization.

In line with this, the availability of physical infrastructure (branches and ATMs) also proves insignificant in relation to performance. In fact, the negative coefficient further strengthens the argument that, in the digital era, physical assets are losing relevance as profitability drivers and may instead become operational burdens (overhead costs). This signals a structural shift: banks can no longer rely on physical expansion as a primary strategy for improving performance.

In contrast to infrastructure, service usage emerged as the strongest determinant of financial performance. This finding provides strong empirical support for the Resource-Based View (RBV), which emphasizes that valuable, rare, and inimitable strategic resources are key to competitive advantage. In this context, active usage by customers, reflected in transaction volume and financing activity, represents a strategic resource that effectively converts digital infrastructure into revenue. Service usage drives fee-based income and interest income, which directly impact ROA. Unlike the DFS variable, which mainly reflects platform availability, the usage variable represents the economic realization of that platform. This is why banks with high usage rates tend to have better profitability: they successfully convert technological investments into revenue streams.

Furthermore, the significant and positive effect of accessibility confirms that digital financial inclusion is not merely a social agenda but a strategic mechanism. Broader access enables banks to gather low-cost Third-Party Funds (CASA/DPK) from the unbanked population, strengthening intermediation functions and expanding the productive asset base.

Thus, this study emphasizes that the key to profitability in the digital era does not lie in owning technology (DFS) or expanding physical infrastructure (availability), but in how effectively that technology is accessed (accessibility) and, more importantly, actively used (usage). The strategic implication is that banks must not stop at the "go digital" phase (simply providing apps) but shift to a "go active" strategy, which involves encouraging transaction frequency and customer engagement. Without enhancing perceived usefulness and perceived ease of use (according to TAM) to trigger active usage, digital investments are at risk of becoming sunk costs that do not provide real contributions to the bank's financial performance.

Effect of Digital Financial Services on Financial Performance

The t-test results indicate that Digital Financial Services (DFS) do not have a significant effect on bank financial performance (tcount 1.188 < ttable 1.656; probability = 0.2376 > 0.05). Consequently, Hypothesis 1 is rejected. This empirical evidence explicitly contradicts the general assumption that digitization

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automatically equates to profitability. Instead, it highlights a "digital adoption paradox" within National Private Commercial Banks in Indonesia.

This insignificance suggests that the mere availability of digital platforms (mobile banking, internet banking) acts primarily as a cost center rather than a profit driver in the short term. Implementing DFS requires substantial initial capital expenditure (CapEx) for infrastructure and cybersecurity, which weighs on the Return on Assets (ROA) before economies of scale are achieved. This finding aligns with Rahmadani (2023) and Kolawole et al. (2024), who argue that technology adoption does not yield immediate financial gains if user adoption is suboptimal or if the bank is still in the heavy investment phase.

From a theoretical perspective, this result offers a nuanced view of the Technology Acceptance Model (TAM). While TAM posits that technology drives performance through usefulness, this study reveals a gap between deployment and impact. The non-significance of the DFS variable when contrasted with the highly significant Service Usage variable indicates that the existence of digital features alone is insufficient. Profitability is not driven by the platform (DFS), but by the volume of activity (Usage) on that platform. Therefore, banks that simply "go digital" without successful strategies to drive active usage will face operational burdens without corresponding revenue growth, confirming the findings of Sudaryanti et al. (2018) regarding the lag in technology impact.

Effect of Accessibility on Financial Performance

The t-test results on the effect of accessibility on financial performance demonstrate that the t-count value (2.321345) exceeds the t-table value (1.656659), with a probability of 0.0221, which is less than 0.05. This finding suggests that enhanced accessibility to financial services exerts a substantial influence on the financial performance of banking institutions. In light of the findings, the present study finds support for the second hypothesis and rejects the null hypothesis. This outcome indicates that the accessibility of financial services exerts a substantial influence on the financial performance of banks. This finding aligns with the Aggressive Credit Expansion theory, which posits that enhanced financial accessibility, encompassing the collection of third-party funds, furnishes banking institutions with ample resources to augment credit provision and enhance profitability. Financial accessibility signifies individuals' capacity to access formal financial services and products that can address their quotidian financial requirements. Enhanced accessibility has been demonstrated to not only improve individual welfare but also to have the potential to improve economic conditions in areas that were previously difficult to reach by formal financial services (Laila & Sihotang, 2022).

This finding is further corroborated by extant research. Rahmadani (2023) demonstrated that Third Party Funds, an indicator of accessibility, exert a substantial influence on bank financial performance. In a similar vein, Widyandri & Laila (2022) asserted that accessibility, as gauged by Third Party Funds, exerts a substantial influence on financial performance. Moreover, research conducted by Laila & Sihotang (2022), Sedera et al. (2022), and Dienillah et al. (2018) indicates that financial inclusion exerts a favorable influence on financial performance. This

underscores the significance of access to formal financial services in enhancing the financial performance of banking institutions.

However, contradictory results have been reported in certain studies. Jaya et al. (2019) found that financial inclusion and accessibility have no significant effect on public financial service education. This finding suggests that the success of accessibility is contingent on other supporting factors, such as financial literacy and education, which are essential for ensuring that financial accessibility is utilized in an optimal manner.

This study makes an important contribution to the extant literature by showing that financial services accessibility has a significant impact on banks' financial performance. This finding aligns with the extant literature that underscores the significance of access to formal financial services in enhancing banks' financial performance. Additionally, it emphasizes the significance of cultivating an inclusive financial infrastructure, a strategy that enables financial institutions to more effectively serve under-served segments of society. While digital technology has facilitated enhanced access to financial services, challenges persist, particularly in remote regions. The adoption of financial services in these regions is impeded by various barriers, including but not limited to: limited financial literacy, inadequate telecommunications infrastructure, and high transaction costs. Nonetheless, technology-based services, such as mobile banking, have contributed to mitigating this disparity, despite their inconsistent adoption rates.

This research lends further credence to the notion that technology-based financial inclusion strategies should be complemented with traditional approaches to ensure more equitable and inclusive access, particularly in underserved areas. Therefore, it is recommended that banks expand their financial services in remote areas through the development of adequate digital infrastructure and the expansion of the network of financial agents. Moreover, enhancing financial literacy should be a priority to ensure that the accessibility provided can be optimally utilized by the community. This, in turn, can strengthen the positive impact of accessibility on financial inclusion and overall bank performance.

The findings of this study demonstrate that enhancing the accessibility of financial services can substantially enhance banks' financial performance. However, the efficacy of such accessibility is contingent upon the presence of additional supporting factors, including the existence of adequate infrastructure and a high level of financial literacy among the population. Consequently, to optimize the beneficial impact of accessibility, a concerted effort is required from the government, financial institutions, and the public to enhance digital infrastructure, expand the network of financial agents, and improve financial literacy. Further research is necessary to explore the relationship between accessibility, financial inclusion, and the financial performance of banks in various contexts.

Effect of Availability on Financial Performance

The t-test results on the effect of availability demonstrate that the t-calculated value (-1.225518) is less than the t-table value (-1.656659). The probability of this result is 0.2232, which is greater than 0.05. This finding suggests that the availability of physical infrastructure, such as branches and ATMs, does not have a substantial

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impact on bank financial performance. In light of the findings, it can be concluded that hypothesis H3 is to be rejected and that H0 is to be accepted. This indicates that the availability of financial services exerts no considerable influence on the financial performance of banks. This finding contradicts the extant theory and previous research, which suggests that availability defined as access to branches and automated teller machines (ATMs) should improve bank financial performance by enhancing bank stability and profitability through expanding the customer base and increasing deposit levels (Sarma, 2012; Widyandri, 2022).

This research aligns with the findings of a study by Widyaningsih and Hersugondo (2021), which determined that the number of ATMs has no substantial impact on bank profitability, and in some cases, may even exert a negative influence. Rahmadani' research (2023) and the findings of research conducted in Jordan by Al Eitan et al. (2022) demonstrated that the number of branches and ATMs does not exert a significant influence on bank profitability. This finding indicates that, while physical availability is crucial for ensuring the public's access to financial services, other factors, such as technology integration and digitalization adoption, play a more significant role in determining the financial performance of banks.

However, the findings of this study contradict those of the study by Sedera et al., (2022), which found that the number of bank branches has a significant contribution to the increase in Return on Assets (ROA). In a similar vein, Widyandri & Laila, (2022) study corroborated the notion that the branch network exerts a favorable influence on the financial performance of banking institutions. Research by Jajah, (2020) in Sub-Saharan Africa also demonstrates that infrastructure, such as automated teller machines (ATMs) and commercial branches, exerts an influence on the profitability of banking institutions.

Recent phenomena indicate a shift in the pattern of financial services usage. While physical infrastructure, such as branches and ATMs, remains significant, particularly in rural and remote regions, the advancement of banking digitization has led to a reduction in people's reliance on physical infrastructure. The advent of digital services, such as mobile banking and electronic wallets, has effectively mitigated the constraints imposed by physical infrastructure limitations. However, significant challenges persist, particularly in regions characterized by limited technological adoption. The limited availability of internet access, the deficient digital literacy skills of the populace, and the inadequate telecommunications infrastructure are all significant impediments to the expansion of the adoption of digital services in these regions.

In order to address these challenges, financial institutions must adapt their availability strategies to align with the evolving needs of the community and the technological advancements that are continually emerging. The enhancement of digital infrastructure, the augmentation of digital literacy, and the integration of physical and digital services will facilitate banks in expanding their customer base, particularly in remote regions. Consequently, the accessibility of financial services can be more equitably distributed across all societal strata, promote financial inclusion, and expedite the ongoing digital transformation within the banking sector.

The findings of this study demonstrate that the availability of banking branches and ATMs does not exert a substantial influence on the financial

performance of banks. However, this finding reflects a shift in the pattern of financial service usage that is increasingly dependent on digital technology. Therefore, it is incumbent upon banking institutions to recalibrate their availability strategies by incorporating technological advancements and community requirements. Moreover, these institutions must enhance their digital infrastructure and promote financial literacy to ensure inclusive and sustainable access to finance.

The Effect of the Use of Financial Services on Financial Performance

The findings of the t-test on the impact of financial service usage demonstrate that the value of t (count) (5.178221) exceeds t (table) (1.656659), with a probability of 0.0000, which is less than 0.05. This finding suggests that the utilization of financial services exerts a substantial influence on the financial performance of banking institutions. In light of the findings, hypothesis H4 is endorsed, while H0 is refuted. This indicates that the utilization of financial services, including an augmentation in financing and other financial transactions, exerts a favorable influence on the financial performance of banking institutions. This study aligns with the Resource-Based View theory, which posits that the utilization of financial services, such as augmented financing, constitutes an internal resource that can enhance bank efficiency and profitability. Within the banking sector, an augmentation in financing can result in an escalation in interest income, thereby exerting a direct and substantial influence on the bank's financial performance.

The utilization of financial services in the financial inclusion dimension is indicative of the extent to which these services are employed by the public. The increased utilization of financial services, including savings, credit, and digital payment systems, has been identified as a pivotal factor in the expansion of the customer base and the augmentation of transaction volume. This, in turn, has a direct and substantial impact on enhancing bank profitability. This finding aligns with the prevailing understanding that the greater the utilization of financial services, the greater the potential to diversify assets and expand the bank's customer base (Thakshila, 2021). Furthermore, the findings of Sedera et al. (2022) demonstrate that the implementation of digital financial services in Indonesia exerts a favorable influence on bank profitability. This is achieved by means of augmenting the customer base and increasing transactions conducted by customers.

This finding is further corroborated by the research of Ahamed et al., (2021) which demonstrates that financial inclusion, as measured by service usage dimensions such as the number of deposit and loan accounts per 1,000 adult population, exerts a direct impact on banks' operational efficiency. Greater use of financial services has been demonstrated to increase the stability of banks' sources of funds. This is due to the fact that banks can rely on more diversified funds from individual customers compared to funds obtained from other, more volatile sources. This development confers a degree of flexibility on banking institutions, enabling them to meticulously plan long-term investments and enhance operational efficiency. Furthermore, an increased utilization of financial services has been demonstrated to be associated with enhanced risk management. This association can be attributed, at least in part, to the diversification of customer portfolios, a

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strategy that has been shown to reduce dependence on specific customer segments and mitigate the risk of loan defaults (Shihadeh, 2019).

Nevertheless, while the utilization of financial inclusion services has the potential to enhance banking institutions' financial performance, it is imperative to acknowledge the challenges that must be addressed. Increased use of financial services may also introduce new risks, particularly related to exposure to bad debts if lending practices are not prudent (Ahmed et al., 2024) Consequently, it is imperative for financial institutions to formulate strategies that strike a balance between fostering growth and implementing effective risk management measures. Furthermore, the findings of Aziz et al. (2024) demonstrate that the integration of digital financial systems into financial services in developing countries has a significant impact on the adoption of such services. This integration has been shown to enhance operational efficiency and to yield long-term benefits for banking institutions that effectively combine digital services with traditional banking systems.

Despite the prevalence of studies that support these findings, there are studies that demonstrate contradictory results. Research by Rahmadani, (2023) indicates that the utilization of financial services does not invariably exert a substantial influence on bank financial performance, across both conventional banks and Islamic banks. This finding suggests that the impact of service usage on bank financial performance may vary depending on the context and type of bank, including both conventional and Islamic banks.

The findings of this study demonstrate that the utilization of financial services exerts a substantial impact on bank financial performance, with an augmentation in the volume of financing and other financial transactions serving as a pivotal factor contributing to bank profitability. However, to maximize the impact of these initiatives, it is imperative for financial institutions to prioritize the enhancement of individuals' financial literacy, the expansion of comprehensive digital infrastructure, and the provision of more inclusive service offerings. By taking this action, financial institutions can guarantee that the utilization of financial services will result in a sustainable, positive impact on their financial performance.

Conclusions

The findings of the research indicate that factors associated with financial inclusion, particularly digital financial services, accessibility, availability, and service usage, exert disparate influences on the financial performance of national private commercial banks in Indonesia. The utilization of financial services has been demonstrated to exert a substantial impact on the financial performance of banking institutions. An escalation in transaction volume and financing activities has been shown to enhance profitability and operational efficiency in such institutions. This finding aligns with the tenets of the Resource-Based View theory, which posits that the utilization of financial services, including financing, can function as a strategic asset that enhances financial performance by augmenting interest income and efficiency. Concurrently, the findings of the examination of the repercussions of digital financial services indicate that while digital technology possesses the capability to enhance operational efficiency and broaden market reach, its impact

on banks' financial performance has been negligible. This may be attributable to suboptimal adoption factors or infrastructure challenges in certain regions.

Conversely, enhanced accessibility to financial services has been demonstrated to exert a substantial positive influence on the financial performance of banking institutions. This is achieved by expanding the customer base and providing a more stable source of funds. While the availability of branches and ATMs has been demonstrated to have a negligible effect on financial performance, as measured in this study, the increasing adoption of digital technology indicates a gradual replacement of physical infrastructure with digital services. However, significant challenges persist in regions with limited technology adoption.

This study offers significant insights into the impact of financial inclusion on banks' financial performance. The findings indicate that the effect is contingent on the manner in which technology is adopted and implemented by banking institutions. In order to maximize the positive impact on financial performance, it is essential to consider factors such as financial literacy, digital infrastructure, and a more inclusive financial inclusion strategy. Consequently, to achieve enhanced and sustainable financial inclusion, financial institutions must fortify the development of digital infrastructure, enhance individuals' financial literacy, and persist in innovating services that align more closely with the diverse market demands. Further research is necessary to explore the factors that influence the adoption of digital financial services and its impact on the financial performance of banks in various market segments.

The results of the study on the effect of financial inclusion on the financial performance of national private commercial banks indicate several policy recommendations that could be implemented to enhance the financial performance of banks through the strengthening of financial inclusion. In the contemporary financial landscape, it is imperative for banking institutions to expedite the implementation and integration of digital financial services. Such services encompass mobile banking and internet banking, which have been shown to enhance operational efficiency and broaden market reach. Despite the findings that technology adoption has not exerted a substantial direct influence on financial performance in certain instances, the significance of digitalization in expediting access and broadening the customer base cannot be disregarded, particularly in the context of accelerated technological advancement. Consequently, it is imperative for financial institutions to fortify their digital infrastructure, including internet and mobile banking networks, in regions with constrained technological access. Moreover, they should proactively introduce innovative products that prioritize inclusivity.

Secondly, to enhance the accessibility of financial services, it is imperative that banks prioritize the expansion of infrastructure in under-served regions. While the utilization of physical infrastructure, including branch offices and ATMs, did not demonstrate a substantial impact on financial performance in this study, the presence of such infrastructure remains crucial for facilitating access to financial services in remote areas with limited digital connectivity. Therefore, it is imperative that integration between physical and digital services be implemented as a more

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inclusive strategy to ensure that all levels of society have equal access to financial services.

Thirdly, financial literacy should be prioritized as a fundamental component of financial inclusion policy. Financial institutions, including banks, should prioritize the development and implementation of comprehensive financial education and training programs within the community, particularly in regions where the adoption of digital financial services remains limited. The enhancement of financial literacy among the populace is instrumental in fostering comprehension of the advantages inherent in banking services, thereby facilitating an augmentation in the adoption rate of financial services. This, in turn, has the potential to enhance the financial performance of banking institutions.

Fourthly, financial institutions must cultivate risk diversification policies to effectively manage the ramifications of financial inclusion expansion. While the pursuit of financial inclusion may result in the expansion of the customer base and the augmentation of stable resources for banking institutions, it concomitantly engenders an escalation in operational risks, particularly in instances where banking institutions are unable to effectively manage risks associated with bad debts and financing. Consequently, effective risk management should be incorporated into the financial inclusion strategy, taking into account the credit quality and risk management capacity of banking institutions.

Fifthly, in order to accelerate digital transformation, the government can play a more active role by developing policies that support the development of telecommunications infrastructure in areas with low technology penetration. The government can also provide incentives for investment in the digital finance sector. To that end, the government, banking institutions, and technology providers must engage in collaborative efforts to establish a sustainable financial inclusion ecosystem.

In order to optimize the beneficial impact of financial inclusion on the financial performance of banking institutions, a collaborative effort among various stakeholders, including banking institutions, governments, and communities, is imperative. It is evident that comprehensive policies encompassing infrastructure development, enhancement of financial literacy, and innovation in banking services will fortify financial inclusion and enhance banks' financial performance in a sustainable manner.

References

Abdul Aziz, S., Abdul Razak, L., Slesman, L. Y., & Abduh, M. (2024). The Impact of Digital Financial Inclusion on Bank Profitability: Evidence from Developing Countries. *Jurnal Manajemen Teori Dan Terapan|Journal of Theory and Applied Management*, *17*(2), 203–215. https://doi.org/10.20473/jmtt.v17i2.57508

Achmad Febrianto, A. A. N. (2025). Return on Asset Analysis in Assessing Performance: Transforming Organizational Financial Performance. . *Journal of Educational Management Research*, *4*(3), 686–696.

Agyekum, C. K., Haifeng, H., Agyeiwaa, A., Agyekum, C. K., Haifeng, H., & Agyeiwaa, A. (2015). Consumer perception of product quality. *Microeconomics and Macroeconomics*, *3*(2), 25–29.

Ahamed, M. M., Ho, S. J., Mallick, S. K., & Matousek, R. (2021). Inclusive banking, financial regulation and bank performance: Cross-country evidence. *Journal of Banking & Finance*, *124*, 106055. https://doi.org/10.1016/j.jbankfin.2021.106055

Ahmed, Q. N., Rizvi, S. A. A., Raza, H., Khan, A. S., & Ahmed, B. (2024). Pathways to Prosperity: Unpacking Financial Inclusion's Influence on Bank Performance and Risk. *Qlantic Journal of Social Sciences*, *5*(3), 182–190. https://doi.org/10.55737/qjss.537390528

Al Eitan, S. , et al. (2022). Bank Branch and ATM Availability and Their Impact on Bank Performance: A Study from Jordan. *Journal of Financial Economics*, *15*(4), 35–49.

Ali, K. H., Dahham, M. S., & Yaseen, J. M. (2024). The Role of Financial Digitalization in Achieving Efficient Financial Performance Applied Research into Some Banks Listed on the Iraqi Stock Exchange. *International Journal on Economics, Finance and Sustainable Development*, *6*(7), 1–20. https://doi.org/10.31149/ijefsd.v6i7.5291

Barney, J. B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management*. https://doi.org/10.1016/S0149-2063(01)00115-5

Bousrih, J. (2023). The impact of digitalization on the banking sector: Evidence from fintech countries. *Asian Economic and Financial Review*, *13*(4), 269–278. https://doi.org/10.55493/5002.v13i4.4769

Hegde, S., & Kavyashree, K. (2024). Digital Finance Revolution: Evaluating its Effects on Inclusive Financial System. *SDMIMD Journal of Management*, 15–25. https://doi.org/10.18311/sdmimd/2024/41925

Hussain, A. (2024). Influence of Digital Bank Services on the Financial Performance of the Commercial Banks. *Review of Applied Management and Social Sciences*, *7*(1), 43–51. https://doi.org/10.47067/ramss.v7i1.362

Ida Ayu Putu Megawati, & Ni Nengah Rupadi Kertiriasih. (2024). Dampak Layanan Perbankan Digital Terhadap Kinerja Perbankan Di Indonesia. *Jurnal Lentera Bisnis*, *13*(3), 1578–1591. https://doi.org/10.34127/jrlab.v13i3.1205

İslamoglu, M., & Bayrakli, M. (2022). Dijital Bankacılık Hizmetlerinin Bankacılık Sektörünün Finansal Performansına Etkileri. *Finans Ekonomi ve Sosyal Araştırmalar Dergisi*, *7*(3), 403–416. https://doi.org/10.29106/fesa.1127589

Jajah, L. , et al. (2020). The Role of Branchless Banking in Financial Inclusion: Evidence from Sub-Saharan Africa. *African Journal of Finance and Banking*, *14*(2), 32–49.

Madobi, S., & Umar, S. (2021). Enterprise Risk Management Practices and Banks Value: Moderating Effect of Industry Competition.*Business and Economics Journal*. https://www.aambejournal.org/index.php/aambej/article/view/65

Melati, Y. A. (2024). Fintech and financial performance in the banking industry: A literature review. *Asian Journal of Economics and Business Management*, *3*(1), 357–361. https://doi.org/10.53402/ajebm.v3i1.385

Miroshnichenko, O. S. (2025). Financial Inclusion of Banking Services for Consumers in the Context of Digitalization. *Finance: Theory and Practice*, *28*(6), 134–142. https://doi.org/10.26794/2587-5671-2024-28-6-134-142

Mpofu, F. Y. (2024). Industry 4.0 in Finance, Digital Financial Services and Digital Financial Inclusion in Developing Countries: Opportunities, Challenges, and Possible Policy

Cite This As: Dewi Cahyani Pangestuti 2026 Harnessing Digital Financial Services: Unlocking the Path to Enhanced Financial Performance and Inclusivity in Indonesia's Banking Sector . Analysis of The Implementation of Provincial Minimum Wages and Education Levels on Labor Absorption In The Province of Kalimantan. *Ekonomi dan Bisnis*, 13(1), 24-51. doi.org/10.35590/jeb.v13i1.

Responses. *International Journal of Economics and Financial Issues*, *14*(2), 120–135. https://doi.org/10.32479/ijefi.15081

Ni Nyoman Sawitri. (2023). Analysis of Financial Ratio on Financial Performance and Sustainability Report as Intervening Variable. *Atestasi : Jurnal Ilmiah Akuntansi, 6*(2), 661–670.

Ofosu-Mensah Ababio, J., Yiadom, E. B., Sarpong-Kumankoma, E., & Boadi, I. (2023). Financial inclusion: a catalyst for financial system development in emerging and frontier markets. *Journal of Financial Economic Policy*, *15*(6), 530–550. https://doi.org/10.1108/JFEP-06-2023-0155

Rahmadani, A. H. W. (2023). The effect of technology shifting and financial inclusion on banking performance. *International Journal of Banking Studies*, *34*(2), 45–52.

Ramzan, M., Amin, M., & Abbas, M. (2021). How does corporate social responsibility affect financial performance, financial stability, and financial inclusion in the banking sector? Evidence from Pakistan. *Research in International Business*. https://www.sciencedirect.com/science/article/pii/S0275531919301199

Rao, D. T. (2016). *The relationship of macroeconomic factors and financial performance of the five firms listed in the energy and petroleum sector of the NSE*. su-plus.strathmore.edu. https://su-plus.strathmore.edu/handle/11071/4752

Saini, A., & Saha, S. (2024). Digital Finance-Fintech and it's Impact on Financial Inclusion in India. *International Journal of Innovative Science and Research Technology (IJISRT)*, 2048–2057. https://doi.org/10.38124/ijisrt/IJISRT24APR2261

Sasongko, F. N., & Rachma, E. (2021). The Effect of Financial Performance on ROA Projected as Profitability. *Majapahit Journal of Islamic Finance and Management*, *1*(1), 60–74. https://doi.org/10.31538/mjifm.v1i1.5

Sedera, R. M. H., Risfandy, T., & Futri, I. N. (2022). Financial Inclusion and Bank Profitability: Evidence from Indonesia. *Journal of Accounting and Investment*, *23*(3), 398–412. https://doi.org/10.18196/jai.v23i3.14721

Serang, A. E. D. (2024). Banking Digitalization in the Era of Revolution 5.0: Opportunities and Risks for Financial Inclusion. *Nomico*, *1*(9), 13–23. https://doi.org/10.62872/x3ta4h52

Setyaningrat, D. , et al. (2023). The Role of Technology Acceptance Model in Financial Services: Evidence from Indonesian Banks. *Journal of Financial Innovation*, *6*(1), 29–42.

Shihadeh, S. F. , & L. Y. (2019). Risk Management and Performance in the Banking Sector: The Impact of Financial Inclusion. *International Journal of Finance and Economics*, *24*(2), 112–124.

Sholihaningtias, D. N. (2023). Rekomendasi Kelayakan Penerima Kredit Menggunakan Metode TOPSIS dengan Pembobotan ROC. *Jurnal SAINTEKOM*, *13*(1), 88–99. https://doi.org/10.33020/saintekom.v13i1.376

Songling, Y., Ishtiaq, M., & Anwar, M. (2018). Enterprise Risk Management Practices and Firm Performance, the Mediating Role of Competitive Advantage and the Moderating Role of Financial Literacy. In *Journal of Risk and Financial Management* (Vol. 11, Issue 3, p. 35). MDPI AG. https://doi.org/10.3390/jrfm11030035

Tambunan, M., & Aziza, N. (2024). Pengaruh Financial Technology Terhadap Kinerja Keuangan Perbankan. *Owner*, *8*(2), 1491–1498. https://doi.org/10.33395/owner.v8i2.2049

Thakshila, M. (2021). Financial inclusion and access to formal financial services. *Financial Review*, *9*(3), 213–227.

Uli Irawati, S. (2012). *Analisis pengaruh informasi akuntansi dan non akuntansi terhadap initial return pada perusahaan yang melakukan initial public offering di bursa efek indonesia*.

Vitenu-Sackey, P. A. , & L. J. H. (2019). Financial Inclusion and Banks Performance: An Empirical Study of 10 West African Countries Using Panel Cointegration FMOLS Regression Methodology. *European Journal of Business and Management*, *5*(2), 223–251.

Widyandri, D. B., & Laila, N. (2022). Analisis Pengaruh Mobile Banking Dan Keuangan Inklusif Terhadap Kinerja Keuangan Bank Syariah Di Indonesia Periode 2014-2019. *Jurnal Ekonomi Syariah Teori Dan Terapan*, *9*(1), 14. https://doi.org/10.20473/vol9iss20221pp14-24

Wijaya, A. , & S. H. (2022). The Influence of Perceived Usefulness and Ease of Use on E-Banking Adoption. . *International Journal of Banking and Finance*, *34*(2), 145–160.

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