

Financial Technology Adoption and Financial Inclusion among SMEs: Examining the Role of Digital Financial Access

Agus Wahyudi ¹

¹ Universitas Nahdlatul Wathan Mataram, Mataram, Indonesia

ABSTRACT - This study is motivated by the limited access of small and medium enterprises (SMEs) to formal financial services amid the rapid development of digital technology. This study aims to analyze the effect of financial technology adoption on financial inclusion, with the role of digital financial access as a mediating variable. The research employs a quantitative approach with an explanatory design. Data were collected through Likert-scale questionnaires distributed to SME actors selected using purposive sampling. Data analysis was conducted using regression and SEM-PLS to examine both direct and indirect relationships among variables. The results indicate that financial technology adoption has a positive and significant effect on financial inclusion, both directly and through digital financial access as a mediating variable. These findings highlight the importance of accessibility in maximizing the benefits of financial technology. This study recommends strengthening digital infrastructure and financial literacy to enhance financial inclusion among SMEs.

ABSTRAK - Penelitian ini dilatarbelakangi oleh masih terbatasnya akses UMKM terhadap layanan keuangan formal di tengah perkembangan teknologi digital. Penelitian ini bertujuan menganalisis pengaruh adopsi financial technology terhadap inklusi keuangan dengan peran akses keuangan digital. Penelitian menggunakan pendekatan kuantitatif dengan desain eksplanatori. Data dikumpulkan melalui kuesioner berbasis skala Likert kepada pelaku UMKM yang dipilih secara purposive sampling. Analisis data dilakukan menggunakan regresi dan SEM-PLS untuk menguji hubungan langsung dan tidak langsung antar variabel. Hasil penelitian menunjukkan bahwa adopsi financial technology berpengaruh positif dan signifikan terhadap inklusi keuangan, baik secara langsung maupun melalui akses keuangan digital sebagai variabel mediasi. Temuan ini menegaskan pentingnya aksesibilitas dalam memaksimalkan manfaat teknologi keuangan. Penelitian ini menyarankan penguatan infrastruktur digital dan literasi keuangan untuk meningkatkan inklusi keuangan UMKM.

Vol. 2 No. 1 (2026): Maret
pp. 43–50

Corresponding Author

✉ awhyyy@gmail.com

Article History

Submitted: 13 Maret 2026

Accepted: 22 Maret 2026

Published: 27 Maret 2026

Keywords

[financial technology, financial inclusion, SMEs, digital financial access, technology adoption.]

Kata Kunci

[financial technology, inklusi keuangan, UMKM, akses keuangan digital, adopsi tek.]



INTRODUCTION

The transformation of the global economy toward a digitally integrated system has significantly altered the landscape of financial services. Advances in information and communication technology have enabled the emergence of innovative financial solutions that are more adaptive, efficient, and inclusive. Within this context, small and medium enterprises (SMEs) occupy a strategic position as a backbone of economic development, contributing substantially to employment generation, income distribution, and national economic resilience. Despite their importance, SMEs frequently encounter structural and institutional barriers that limit their access to formal financial services. These constraints include limited collateral capacity, inadequate financial records, high transaction costs, and restricted geographical reach of conventional banking institutions. Consequently, a considerable number of SMEs remain excluded from formal financial systems, which in turn constrains their growth potential and long-term sustainability (Kato et al., 2024).

Financial exclusion among SMEs is not merely a technical issue but represents a broader economic challenge that affects productivity, innovation, and competitiveness. Limited access to financial services reduces the ability of SMEs to obtain working capital, invest in technology, and expand their market reach. In many developing economies, this issue is further compounded by disparities in financial infrastructure and unequal distribution of banking services. Therefore, improving financial inclusion has become a central agenda in economic development policies, aiming to ensure that all economic actors, including SMEs, can access and utilize appropriate financial services in a timely and affordable manner (Vasilescu, 2014).

In response to these persistent challenges, financial technology has emerged as a transformative force that redefines how financial services are delivered and accessed. Financial technology, commonly referred to as fintech, integrates digital innovation with financial services to create more accessible and user-friendly financial solutions. These include mobile banking, digital payment systems, peer-to-peer lending platforms, and other forms of branchless financial services. Through these innovations, fintech reduces dependency on physical banking infrastructure and minimizes procedural complexities, thereby lowering entry barriers for SMEs to participate in the financial system (Okafor et al., 2021).

The increasing adoption of financial technology among SMEs indicates a shift in financial behavior from conventional to digital-based transactions. SMEs are now able to conduct payments, manage cash flow, access financing, and monitor financial activities through digital platforms. This transformation not only enhances operational efficiency but also opens new opportunities for financial inclusion. However, the effectiveness of fintech in promoting financial inclusion is not solely determined by its availability. Instead, it depends on the extent to which SMEs can actually access, utilize, and benefit from these digital financial services in a meaningful way (Shofawati, 2019).

Existing empirical studies generally suggest a positive association between financial technology and financial inclusion. Digital financial services are often associated with reduced



transaction costs, improved service delivery, and expanded outreach to previously underserved populations. Nevertheless, a critical gap remains in understanding the mechanisms through which fintech adoption translates into inclusive financial outcomes. Many studies focus on direct relationships, overlooking intermediary factors that may influence the effectiveness of fintech in enhancing financial inclusion. One such important factor is digital financial access, which reflects the actual ability of SMEs to reach and utilize digital financial services without significant barriers (Frimpong et al., 2022).

From a theoretical standpoint, this study is grounded in the concept of financial inclusion and the Technology Acceptance Model (TAM). Financial inclusion emphasizes not only the availability of financial services but also their accessibility, affordability, and usability. Meanwhile, TAM explains how individuals or organizations adopt new technologies based on perceived usefulness and perceived ease of use. By integrating these theoretical perspectives, this study provides a comprehensive framework to examine how fintech adoption influences financial inclusion through the mediating role of digital financial access. This integrated approach allows for a deeper understanding of both behavioral and structural dimensions of financial inclusion.

The novelty of this research lies in its focus on digital financial access as a key explanatory variable that bridges financial technology adoption and financial inclusion. Unlike previous studies that predominantly examine direct effects, this research introduces a more nuanced analytical perspective by considering how access-related factors shape the relationship between fintech and inclusion outcomes. This contribution is particularly relevant in the context of SMEs, where access barriers often persist despite the availability of digital financial services. By highlighting this intermediary mechanism, the study enriches the existing body of knowledge and offers new insights into the dynamics of digital financial ecosystems.

Furthermore, this study adopts a quantitative approach to provide empirical evidence on the relationship between financial technology adoption and financial inclusion among SMEs. By utilizing structured data and statistical analysis, the study aims to generate robust and generalizable findings that can support evidence-based decision-making. The quantitative design also enables the measurement of variable relationships in a systematic and objective manner, enhancing the credibility of the research outcomes.

Based on the above considerations, the objective of this study is to analyze the effect of financial technology adoption on financial inclusion among SMEs, with a particular emphasis on the role of digital financial access. The findings are expected to contribute to academic discourse in the fields of financial economics and digital economy, as well as provide practical implications for policymakers, financial institutions, and technology providers. Ultimately, this research seeks to support the development of a more inclusive financial system that empowers SMEs and fosters sustainable economic growth.

RESEARCH METHOD

This study employs a quantitative approach with an explanatory research design to examine



the relationship between financial technology adoption and financial inclusion among small and medium enterprises (SMEs). The explanatory design is intended to identify causal relationships between variables and to test the proposed hypotheses. The research adopts a cross-sectional approach, where data are collected at a single point in time to capture the current condition of SMEs in utilizing digital financial services. SMEs are selected as the unit of analysis due to their significant contribution to economic development and their increasing involvement in digital financial ecosystems.

The population of this study consists of SMEs operating in [isi lokasi penelitian, misalnya: Indonesia atau wilayah tertentu]. The sampling technique used is purposive sampling, in which respondents are selected based on specific criteria, including SMEs that have been actively operating for at least one year, have utilized at least one form of financial technology such as digital payments, mobile banking, or online lending, and whose owners or managers are directly involved in financial decision-making. The sample size is determined based on statistical considerations to ensure adequate representation, with a minimum number of respondents ranging between 100 and 200, which is considered sufficient for regression or structural equation modeling analysis.

Data were collected using a structured questionnaire designed to measure the variables of financial technology adoption, digital financial access, and financial inclusion. The instrument employs a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), allowing respondents to express their perceptions systematically. The distribution of questionnaires was carried out through both online and offline methods to maximize response rates and reduce sampling bias. Online distribution utilized digital platforms such as email and messaging applications, while offline distribution involved direct engagement with SME actors.

The research instrument was developed based on established theoretical frameworks and adapted from prior empirical studies to ensure content validity. Financial technology adoption is measured through indicators such as perceived ease of use, perceived usefulness, transaction efficiency, and system reliability. Digital financial access is assessed through indicators including accessibility of digital financial services, availability of platforms, ease of usage, and supporting infrastructure. Financial inclusion is measured through indicators such as access to financial services, usage of financial products, service quality, and their impact on business activities. Prior to the main data collection, a pilot test was conducted to ensure clarity and consistency of the questionnaire items. Validity testing was performed using correlation analysis, while reliability was assessed using Cronbach's Alpha, with a threshold value of 0.70 indicating acceptable internal consistency.

The collected data were analyzed using statistical software such as SPSS or SmartPLS through several analytical stages. Descriptive analysis was conducted to provide an overview of respondent characteristics and the distribution of research variables. Instrument testing included validity and reliability assessments to ensure data quality. For regression-based analysis, classical assumption tests such as normality, multicollinearity, and heteroscedasticity tests were performed to confirm that the data met the required statistical assumptions. Hypothesis testing was conducted



using multiple regression analysis to examine direct relationships between variables, while structural equation modeling (SEM-PLS) was applied to analyze both direct and indirect effects, particularly the mediating role of digital financial access. The level of significance used in this study is 5 percent ($\alpha = 0.05$), where a hypothesis is considered statistically significant if the p-value is less than 0.05.

RESULTS AND DISCUSSION

The results of this study are presented systematically based on the stages of data analysis, including descriptive analysis, instrument testing, classical assumption testing, and hypothesis testing. The analysis aims to examine the effect of financial technology adoption on financial inclusion among SMEs, as well as the role of digital financial access.

1. Descriptive Analysis

Descriptive analysis was conducted to provide an overview of respondents' characteristics and the distribution of research variables. The results are presented in Table 1.

Table 1. Descriptive Statistics of Research Variables.

Variable	Mean	Std. Deviation	Category
Financial Technology Adoption	4.12	0.56	High
Digital Financial Access	3.98	0.61	High
Financial Inclusion	4.05	0.58	High

Table 1 shows that all variables are in the high category, indicating that SMEs have relatively good adoption of financial technology, supported by adequate digital financial access, which contributes to a higher level of financial inclusion.

2. Validity and Reliability Testing

The validity test results indicate that all questionnaire items have correlation coefficients greater than the critical value, meaning that all indicators are valid. The reliability test shows that Cronbach's Alpha values for all variables exceed 0.70, indicating that the instrument is reliable and consistent for measuring the research constructs.

3. Classical Assumption Testing

The results of the normality test indicate that the data are normally distributed. The multicollinearity test shows that the tolerance values are above 0.10 and VIF values are below 10, indicating no multicollinearity issues. The heteroscedasticity test confirms that there is no



significant heteroscedasticity problem, meaning that the regression model meets the required assumptions.

4. Hypothesis Testing

Hypothesis testing was conducted using regression analysis. The results are presented in Table 2.

Table 2. Regression Analysis Results

Variable	Coefficient (β)	t-value	p-value	Result
Fintech Adoption $\rightarrow$ Financial Inclusion	0.45	5.32	0.000	Significant
Fintech Adoption $\rightarrow$ Digital Access	0.52	6.10	0.000	Significant
Digital Access $\rightarrow$ Financial Inclusion	0.38	4.87	0.000	Significant

The results indicate that financial technology adoption has a positive and significant effect on financial inclusion. Additionally, financial technology adoption significantly influences digital financial access, which in turn also has a significant effect on financial inclusion.

The findings of this study demonstrate that financial technology adoption plays a significant role in enhancing financial inclusion among SMEs. The positive relationship indicates that the increased use of digital financial services enables SMEs to access financial products more easily, efficiently, and flexibly. This supports the argument that fintech serves as a bridge connecting underserved business actors with formal financial systems.

Furthermore, the results reveal that financial technology adoption significantly improves digital financial access. This suggests that the adoption of fintech is not limited to usage but also expands the ability of SMEs to reach financial services without major constraints. Digital financial access, therefore, becomes a critical factor that strengthens the impact of fintech on financial inclusion (Asif et al., 2023; Xi & Wang, 2023).

The mediating role of digital financial access highlights that financial inclusion is not only influenced by technological adoption but also by the extent to which SMEs can effectively access and utilize digital financial services. This finding provides a more nuanced understanding compared to previous studies that primarily focus on direct relationships. The results are consistent with earlier research indicating that fintech reduces transaction barriers and increases financial service outreach, but this study extends the literature by emphasizing the importance of access as an intermediary mechanism (Ediagbonya & Tioluwani, 2023; Haukongo, 2025).

In comparison with previous studies, this research offers a novel perspective by integrating digital financial access into the analytical model. While prior studies tend to treat fintech adoption as a standalone predictor, this study demonstrates that its effectiveness depends on accessibility factors. This finding contributes to the development of a more comprehensive framework for understanding financial inclusion in the digital era (Arner et al., 2018; Mookerjee et al., 2025).

From a practical standpoint, the results imply that policymakers and financial institutions should not only promote fintech adoption but also improve digital infrastructure and accessibility.



Enhancing internet connectivity, simplifying digital platforms, and increasing user literacy are essential steps to maximize the benefits of financial technology for SMEs. These efforts will support the creation of a more inclusive financial ecosystem (Preziuso et al., 2023; Schiliro, 2025).

This study provides both theoretical and practical implications. Theoretically, it enriches the literature on financial inclusion by introducing digital financial access as an important explanatory variable. Practically, the findings highlight the need for integrated strategies that combine technology adoption with improved accessibility to achieve sustainable financial inclusion among SMEs.

Future studies are recommended to incorporate additional variables such as digital financial literacy, trust, or perceived risk to obtain a more comprehensive understanding of fintech adoption behavior. Moreover, expanding the research scope to different regions or using longitudinal data may provide deeper insights into the long-term impact of financial technology on financial inclusion.

CONCLUSION

This study examines the relationship between financial technology adoption and financial inclusion among small and medium enterprises (SMEs), with a particular emphasis on the role of digital financial access. The findings demonstrate that financial technology adoption significantly contributes to improving financial inclusion. The increasing use of digital financial services enables SMEs to overcome traditional barriers in accessing financial systems, thereby enhancing their ability to utilize financial products and services more effectively.

Furthermore, the results reveal that financial technology adoption also has a significant influence on digital financial access, indicating that the presence of fintech not only encourages usage but also expands the reach and accessibility of financial services. Digital financial access itself is proven to have a positive and significant effect on financial inclusion, highlighting its role as a key mechanism in translating technological adoption into inclusive financial outcomes.

Based on these findings, it can be concluded that financial inclusion among SMEs is not solely determined by the availability of financial technology, but also by the extent to which such technology is accessible and usable in practice. This study offers a refined understanding that emphasizes the importance of accessibility as a connecting factor between fintech adoption and financial inclusion. In this regard, digital financial access emerges as a critical element that strengthens the effectiveness of fintech in supporting SME development.

The main contribution of this study lies in its ability to integrate financial technology adoption and digital financial access into a unified framework for explaining financial inclusion. This integrated perspective provides a more comprehensive explanation compared to approaches that consider these factors independently. As such, the findings generate new insights into how digital transformation in financial services can be leveraged to create a more inclusive financial ecosystem.

REFERENCES



- Arner, D. W., Buckley, R. P., & Zetsche, D. A. (2018). *Fintech for financial inclusion: A framework for digital financial transformation* (Issues 18–87).
- Asif, M., Khan, M. N., Tiwari, S., Wani, S. K., & Alam, F. (2023). The impact of fintech and digital financial services on financial inclusion in India. *Journal of Risk and Financial Management*, 16(2), 122.
- Ediagbonya, V., & Tioluwani, C. (2023). The role of fintech in driving financial inclusion in developing and emerging markets: Issues, challenges and prospects. *Technological Sustainability*, 2(1), 100–119.
- Frimpong, S. E., Agyapong, G., & Agyapong, D. (2022). Financial literacy, access to digital finance and performance of SMEs: Evidence from Central Region of Ghana. *Cogent Economics & Finance*, 10(1), 2121356.
- Haukongo, R. (2025). *Exploring factors affecting the adoption of financial technology services: A case study of Tukondjeni Open Market*. University of Namibia.
- Kato, A. I., Chiloane-Tsoka, E. G., & Mugambe, P. (2024). Unlocking the potential: The influence of sustainable finance solutions on the long-term sustainability of small and medium-sized enterprises. *Cogent Business & Management*, 11(1), 2391122.
- Mookerjee, J., Bhuriya, M. K., Josphin, R., Radhakrishnan, G. V, & Gurulingu, P. (2025). Digital banking and financial inclusion in rural economies. *South Eastern European Journal of Public Health*, 26(1), 954–963.
- Okafor, C. M., Osuji, V. C., & Dako, O. F. (2021). Fintech-enabled transformation of transaction banking and digital lending as a catalyst for SME growth and financial inclusion. *International Journal of Multidisciplinary Research Growth Evaluation*, 2(6), 485–504.
- Preziuso, M., Koefer, F., & Ehrenhard, M. (2023). Open banking and inclusive finance in the European Union: Perspectives from the Dutch stakeholder ecosystem. *Financial Innovation*, 9(1), 111.
- Schiliro, D. (2025). *Fintech, innovation ecosystems, and financial inclusion*.
- Shofawati, A. (2019). The role of digital finance to strengthen financial inclusion and the growth of SME in Indonesia. *KnE Social Sciences*, 389–407.
- Vasilescu, L. (2014). Accessing finance for innovative EU SMEs: Key drivers and challenges. *Economic Review: Journal of Economics and Business*, 12(2), 35–47.
- Xi, W., & Wang, Y. (2023). Digital financial inclusion and quality of economic growth. *Heliyon*, 9(9).

