Digital Economy and Financial Empowerment: The Mediating Role of Infrastructure, Innovation, and Competitive Advantage

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ABSTRACT

MSMEs are a vital pillar of Indonesia's economy, especially as digital transformation becomes increasingly important for strengthening competitiveness. This study examines the influence of financial empowerment and the digital economy on the performance of micro, small, and medium enterprises in Indonesia, with digital infrastructure, digital financial technology innovation, and competitive advantage as mediating variables. The research addresses how access to finance and digital transformation shape business sustainability in an increasingly competitive environment. Using a quantitative approach with Structural Equation Modeling (SEM-PLS), data were collected from 100 MSMEs through questionnaires, documentation, and observation. The analysis demonstrates that financial empowerment and the digital economy directly affect MSME performance and indirectly through the mediating roles of infrastructure, innovation, and competitiveness. Digital payments, cloud-based financial systems, and fintech lending improve efficiency, transparency, and market expansion, while competitive advantage strengthens MSMEs' ability to adapt and differentiate in the digital era. The findings highlight that MSMEs leveraging financial access and digital technologies are better positioned to achieve sustainable growth and competitiveness, contributing significantly to Indonesia's economic development.

***Keywords**: Competitive Advantage, Digital Economy, Digital Infrastructure, Financial Empowerment, Fintech Innovation, MSME Performance.*

ABSTRAK

UMKM merupakan pilar vital perekonomian Indonesia, terutama karena transformasi digital menjadi semakin penting untuk memperkuat daya saing. Penelitian ini mengkaji pengaruh pemberdayaan finansial dan ekonomi digital terhadap kinerja Usaha Mikro, Kecil, dan Menengah di Indonesia, dengan infrastruktur digital, inovasi teknologi keuangan digital, serta keunggulan kompetitif sebagai variabel mediasi. Fokus penelitian diarahkan pada bagaimana akses keuangan dan transformasi digital membentuk keberlanjutan usaha di tengah persaingan yang semakin ketat. Metode yang digunakan adalah pendekatan kuantitatif dengan Structural Equation Modeling (SEM-PLS), dengan data diperoleh dari 100 UMKM melalui kuesioner, dokumentasi, dan observasi. Hasil analisis menunjukkan bahwa pemberdayaan finansial dan ekonomi digital berpengaruh langsung terhadap kinerja UMKM, serta secara tidak langsung melalui peran mediasi infrastruktur digital, inovasi teknologi, dan keunggulan kompetitif. Pemanfaatan pembayaran digital, sistem keuangan berbasis cloud, dan pembiayaan fintech terbukti meningkatkan efisiensi, transparansi, dan perluasan pasar. Keunggulan kompetitif juga memperkuat kemampuan UMKM dalam beradaptasi dan melakukan diferensiasi di era digital. Temuan ini menegaskan bahwa UMKM dengan akses finansial dan pemanfaatan

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teknologi digital memiliki peluang lebih besar untuk mencapai pertumbuhan berkelanjutan dan memperkuat kontribusi terhadap pembangunan ekonomi nasional.

***Kata kunci**: Keunggulan Kompetitif, Ekonomi Digital, Infrastruktur Digital, Pemberdayaan Finansial, Inovasi Fintech, Kinerja UMKM.*

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) have long been recognized as primary drivers of economic activity. Their empowerment is essential to strengthen local economies and contribute significantly to Gross Regional Domestic Product (GRDP), which supports sustainable national growth (Putro et al., 2023). MSME development should therefore extend beyond short-term profit goals and move toward a sustainable vision that enables enterprises to meet broader societal needs and drive long-term economic expansion (Arijanto & Perkasa, 2020; Risdwiyanto et al., 2023; Shailendra, 2024).

The acceleration of the digital economy has created opportunities for MSMEs to access broader markets, improve efficiency, and increase financial transparency. However, earlier studies often focused on digital adoption or financial inclusion independently, without considering the interaction between financial empowerment, digital infrastructure availability, fintech innovation, and competitive advantage as key mediators of MSME performance (Amrullah et al., 2023; Andreas, 2024). Existing research also highlights the importance of financial literacy and digital readiness, yet empirical models that explain how financial empowerment and the digital economy jointly influence MSME performance remain limited. This gap is particularly evident in Indonesia where infrastructure inequality and uneven digital capabilities hinder MSME transformation (Putro et al., 2023).

MSMEs must adapt to the rapid shift from manual to digital systems as the global economy evolves. The rise of digital technologies, especially e-commerce, demands business integration into the digital ecosystem to improve performance (Amrullah et al., 2023; Yang et al., 2023; Mastuti et al., 2024). Alongside digitalization, access to financing and effective financial management are crucial to reduce costs, enhance efficiency, and support reinvestment for business growth. These capabilities allow MSMEs to evolve from low-margin, small-scale operations into more profitable and scalable enterprises (Andreas, 2024).

Financial empowerment in the digital economy requires strengthening financial literacy and skills among employees responsible for financial operations. This approach supports healthier financial decision-making and ensures more stable financial conditions that contribute to sustained growth and competitiveness (Kadiyono & Ashriyana, 2024). Additionally, innovation in business processes is vital to maximize digital transformation. Enhancing operational connectivity, including digital transactions and customer service, enables MSMEs to improve performance, expand market reach, and optimize financial outcomes (Mohamad et al., 2022).

Infrastructure availability remains a foundational enabler for digital financial transformation. Adequate and accessible digital infrastructure is required to translate empowerment programs into tangible improvements in MSME resilience and independence. Strong infrastructure facilitates the transition to larger-scale, financially stronger enterprises with lower operational risks (Ratmono & Zuhrohtun, 2023; Faeni & Wibisana, 2024).

Digital-based empowerment also enhances competitive advantage. MSMEs that adopt digital tools can differentiate themselves through better customer experience, efficient digital payment systems, and innovative business models. This strengthens their position in increasingly competitive markets and supports their role as contributors to national economic resilience and GRDP growth (Susanti & Wati, 2023; Lestari, 2024).

Despite these opportunities, major challenges persist. In 2023, Indonesia had approximately 66 million MSMEs, a significant increase from the previous year, yet only about 10 per cent have successfully transformed digitally to improve performance. Most still struggle due to a lack of adequate infrastructure, limited innovation, and insufficient financial empowerment. According to the Ministry of Finance of the Republic of Indonesia (2022), these shortcomings delay competitive enhancement and constrain MSME contributions to economic acceleration.

The core issue lies in the limited ability of Indonesian MSMEs to leverage digitalization and financial empowerment to build sustained competitiveness. Without strong infrastructure, innovation capabilities, and a strategic competitive position, MSMEs remain stuck in small-scale operations and struggle to contribute significantly to economic resilience. Addressing this requires not only identifying direct causal effects but also understanding the mediating mechanisms that explain the influence of financial and digital factors on MSME performance.

This study responds to these issues by developing and empirically testing a conceptual model that integrates financial empowerment, digital economy, digital infrastructure, fintech innovation, and competitive advantage as determinants of MSME performance in Indonesia. Theoretical contributions lie in addressing the research gap where financial inclusion and digital adoption have often been studied separately, while practical contributions provide insights for policymakers, financial institutions, and MSME practitioners to formulate strategies that foster digital inclusion and reduce performance disparities. The purpose of this study is to investigate the influence of financial empowerment and the digital economy on the performance of MSMEs in Indonesia, with a specific focus on the mediating roles of digital infrastructure, fintech innovation, and competitive advantage. This research aims to explain the mechanisms through which financial and digital factors jointly strengthen MSME competitiveness and ensure long-term sustainability in the digital era.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Financial Empowerment, Digital Economy, and MSME Performance

Financial empowerment provides individuals and business actors with knowledge, resources, and skills to manage finances effectively, aiming to enhance stability, economic opportunities, and welfare (Widyawati et al., 2023). In MSMEs, this includes financial education, access to funding, income growth, and the use of digital technologies to support management (Menne, 2023). The digital economy leverages the internet, software, and platforms to optimize economic activities, characterized by IT integration, digital ecosystems, and ongoing automation (Sukarno et al., 2020; Hernita, 2021). MSME performance, reflecting revenue growth, competitiveness, sustainability, and economic impact, can be improved through technology adoption, innovation, human resource development, and financing access (Aziz & Long, 2023; Astuti et al., 2023).

Financial empowerment can be considered a fundamental factor that drives MSME performance. Access to financial resources, such as credit and loans, enables MSMEs to increase their operational capacity, expand their businesses, and improve their competitiveness (Ahmed & Saif, 2024). With proper financial empowerment, MSMEs can manage their finances more efficiently and transparently, which will improve the management of company resources and operations. According to Bahl et al. (2023), financial education and better access to financing facilitate sustainable growth for MSMEs, enabling them to overcome challenges and reach their full potential. In addition, financial empowerment also influences how MSMEs can adapt to rapid market changes and compete with large companies (Menne, 2023).

The digital economy has proven to be a key driver in improving SME performance by providing easier access to global markets, improving financial transparency, and reducing operational costs (Nurjanah & Hasanah, 2021). Technologies such as e-commerce platforms, digital payment systems, and the use of cloud computing enable SMEs to

operate more efficiently and expand their markets. For example, the use of e-commerce can provide MSMEs with direct access to a wider market, while digital payment systems enable faster and more secure transactions, increasing customer trust and operational efficiency (Sukarno et al., 2020). Research by Andreas et al. (2024) also indicates that digital transformation in Indonesian MSMEs is closely related to improvements in their performance in terms of productivity and profitability.

H1: Financial empowerment has a positive and significant effect on MSME performance.
H2: Digital economy has a positive and significant effect on MSME performance.

Financial Empowerment, Digital Economy, and Digital Infrastructure

Digital infrastructure comprises hardware, software, networks, and ICT-based services that underpin the development of the digital economy (Indrawati, 2024). It provides the foundation for MSMEs to integrate digital tools in business processes. Core components include telecommunications networks, cloud systems, hardware and software, cybersecurity, and blockchain technology (Maksum et al., 2020). Strong financial empowerment enables MSMEs to invest in digital infrastructure that is essential for their operations. According to Faeni et al. (2024), with adequate financial resources, MSMEs can access digital hardware and software that support business sustainability. This digital infrastructure, which includes cloud-based financial management systems and digital payment solutions, is essential for improving efficiency and reducing MSME operational costs (Tyoso et al., 2023). In addition, financial empowerment also enables MSMEs to overcome challenges related to digital infrastructure development, which often become barriers for MSMEs in adopting new technologies (Ratmono et al., 2023).

The digital economy directly influences the readiness and ability of MSMEs to adopt the digital infrastructure necessary to support their operations. Research by Hidayat et al. (2022) shows that the growth of the digital economy drives the development of digital infrastructure, such as electronic payment systems, e-commerce platforms, and cloud services, which are necessary for MSMEs to improve operational efficiency. Digital infrastructure enables MSMEs to optimise resource management, access global markets, and improve cost efficiency (Indrawati, 2024). With the support of the digital economy, MSMEs are better prepared to innovate and compete in markets that increasingly rely on digital technology.

H3: Financial empowerment has a positive and significant effect on the digital infrastructure.
H4: Digital economy has a positive and significant effect on the digital infrastructure.

Digital Financial Technology, Competitive Advantage, and MSME Performance

Digital financial technology (fintech) represents technological innovations that provide financial services more quickly, inclusively, and efficiently. These solutions reshape how individuals and organizations access, manage, and utilize financial services (Bahl et al., 2023). Types of fintech innovations include digital payment systems (e-wallets, QR code payments, and gateways), digital lending platforms such as peer-to-peer lending, investment technologies like automated investing and crowdfunding, personal financial management applications, and credit financing apps (Anatan, 2023). Competitive advantage is the ability of firms to generate greater value compared to competitors, thereby sustaining profitability and market position (Susiang, 2024). This advantage may stem from cost leadership, product/service differentiation, innovation, or operational excellence (Thamrin, 2023).

Innovations in digital financial technology, such as digital payment systems, peer-to-peer lending, and blockchain-based investment platforms, have a direct impact on SME performance. Bahl et al. (2023) show that the adoption of digital financial technology by SMEs can reduce operational costs and improve transaction efficiency. In addition, this technology also improves transparency and accuracy in financial management, which in

turn increases customer and investor confidence. Fintech innovations provide MSMEs with easier access to financing, enabling them to expand their businesses and innovate more quickly (Khaddam, 2020). Therefore, innovation in digital financial technology plays an important role in improving MSME performance.

A strong competitive advantage enables MSMEs to improve their performance in a more sustainable manner. For example, MSMEs that successfully create product differentiation, improve customer service, and reduce operational costs can outperform their competitors, including large companies (Taleb et al., 2023). Product innovation and operational efficiency, which are forms of competitive advantage, enable MSMEs to survive in highly competitive markets and increase profitability (Susiang, 2024). Therefore, competitive advantage plays an important role in improving MSME performance, giving them a stronger position to adapt to market changes.

H5: Digital financial technology innovation has a positive and significant effect on MSME performance.
H6: Competitive advantage has a positive and significant effect on MSME performance.

The Mediating Role of Digital Infrastructure, Fintech, and Competitive Advantage

Digital Infrastructure serves as an important mediator in the relationship between financial empowerment and SME performance. Financial empowerment enables SMEs to invest in the necessary digital infrastructure, which in turn improves their operational efficiency and competitiveness. Research by Faeni et al. (2024) reveals that digital infrastructure plays an important role in ensuring that financial empowerment can be translated into better performance. MSMEs with access to good digital infrastructure can utilise technology to increase productivity and reduce costs, which directly contributes to their performance (Tyoso et al., 2023).

Digital financial technology innovation plays a mediating role in the influence of financial empowerment on SME performance. With increased access to digital financial technology, SMEs can improve operational efficiency, financial transparency, and access to financing. Fintech innovations such as peer-to-peer lending and digital wallets enable MSMEs to obtain capital at a lower cost and more quickly, which in turn improves their performance (Khaddam, 2020). Therefore, fintech innovation is an important factor in bridging financial empowerment and MSME performance.

Competitive advantage is an important mediator in the effect of financial empowerment on SME performance. With access to better financing and technology, SMEs can enhance their competitive advantage through product differentiation and improved customer service. A strong competitive advantage enables SMEs to compete more effectively, even with large companies (Susiang, 2024). Competitive advantage driven by financial empowerment will strengthen the ability of SMEs to improve their performance in the long term.

H7: Digital infrastructure mediates the effect of financial empowerment on MSME performance.
H8: Digital financial technology innovations mediates the effect of financial empowerment on MSME performance.
H9: Competitive advantage mediates the effect of financial empowerment on MSME performance.

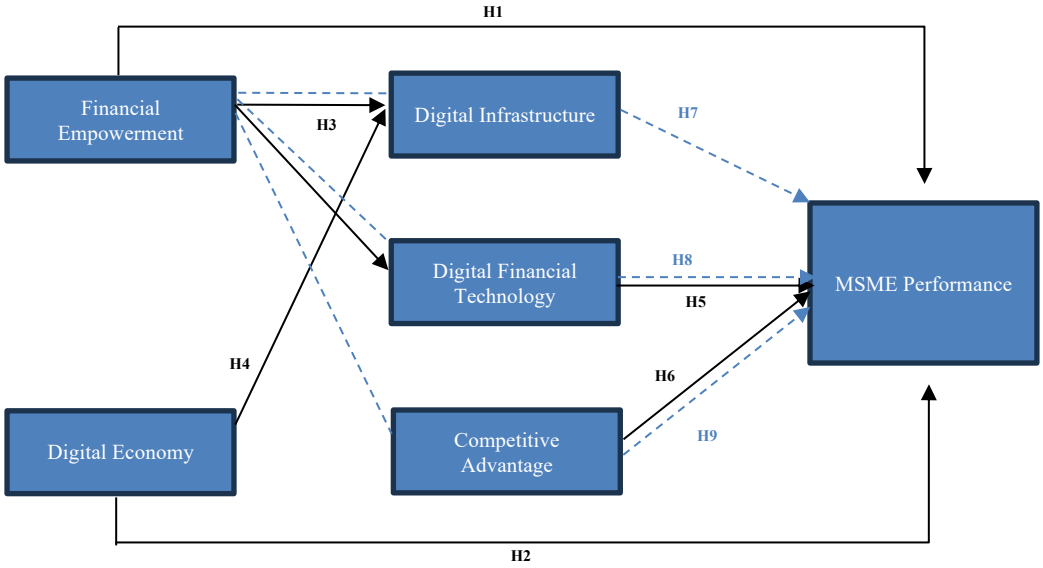

Figure 1. Conceptual Framework

The conceptual framework illustrated in Figure 1 outlines a complex set of relationships designed to investigate the drivers of MSME Performance. The model posits that two primary exogenous factors, financial empowerment and the digital economy, are expected to have a direct positive impact on MSME Performance. Beyond these direct effects, the model proposes that both financial empowerment and the digital economy exert indirect influence through three key endogenous variables: digital infrastructure, digital financial technology, and competitive advantage. Each of these mediating variables is hypothesized to, in turn, positively influence MSME Performance. In essence, this model seeks to comprehensively test how macro-level financial support and digital ecosystem adoption are translated through technological infrastructure and market positioning to enhance the resilience and success of MSME.

RESEARCH METHODS

This study employed a descriptive quantitative approach to analyze the relationship among research variables using the Structural Equation Modeling (SEM) technique. According to Afthanorhan et al. (2020), SEM is a statistical method designed to test and explain the causal relationships between latent constructs within a conceptual framework.

The population of this study consisted of approximately 20 million MSME units operating in Indonesia in 2023. Given the broad scope of the population, the sample was determined using accidental sampling, which is commonly applied to obtain data directly from available respondents at the research site (Afthanorhan et al., 2020). To calculate the appropriate sample size, the Slovin formula was applied:

$$n = \frac{N}{1 + Ne^2}$$

Substituting the values into the formula produced a minimum sample of 100 MSMEs that had adopted digital financial technologies in 2023. Data collection was carried out through structured questionnaires, documentation review, and direct observation. The use of multiple data collection techniques was intended to enhance the validity of the research findings and to capture a comprehensive view of MSME financial empowerment and digital economy practices in Indonesia.

The measurement of key constructs for MSMEs is based on established indicators from prior literature. Financial empowerment is assessed through the ability to manage finances effectively, achieve financial independence and well-being, and adopt technological and financial innovations (Sopiyah et al., 2020). Digital economy readiness is measured by the availability of digital infrastructure, digital financial inclusion, and the level of digital literacy and participation among MSMEs (Farida & Sutopo, 2023). Digital

infrastructure is evaluated through connectivity, adoption of digital platforms, utilization of digital financial technologies, and the presence of supporting infrastructure, while innovation in digital financial technology focuses on accessibility, technological advancement, security and trust, and inclusivity in financial services (Khaddam, 2020; Tyoso et al., 2023). Competitive advantage is measured using financial performance, market share, innovation capacity, and operational efficiency, whereas MSME performance is assessed through financial outcomes, operational efficiency, and marketing results (Purbasari et al., 2021; Murthi, 2022). Together, these indicators provide a comprehensive framework for evaluating the relationships among financial empowerment, digital economy adoption, fintech innovation, competitive advantage, and MSME performance.

Prior to hypothesis testing, validity and reliability assessments will be conducted to ensure the robustness of the measurement instruments. Data analysis will be performed using the SEM approach supported by SmartPLS software, which is appropriate for predictive modeling and complex structural relationships among latent variables. In addition, an assessment of common method bias will be conducted to minimize potential measurement errors arising from the use of self-reported data. Ethical research principles are maintained throughout the data collection process to ensure respondent confidentiality and voluntary participation. These methodological procedures are expected to improve the credibility of the statistical results and support a more accurate interpretation of the influence of financial empowerment and digital economy on Indonesian MSMEs.

RESULTS

Based on Figure 2, the results of the Structural Equation Modelling (SEM) analysis demonstrate the complex relationships among financial empowerment, digital economy, digital infrastructure, financial technology innovation, competitive advantage, and MSME performance. First, financial empowerment exerts a significant influence on digital infrastructure, digital financial technology innovation, and competitive advantage, indicating that financial literacy and access to capital enable MSMEs to adopt digital solutions and build stronger market positions. In particular, financial empowerment has both direct and mediated effects on MSME performance, highlighting its central role in ensuring resilience and growth.

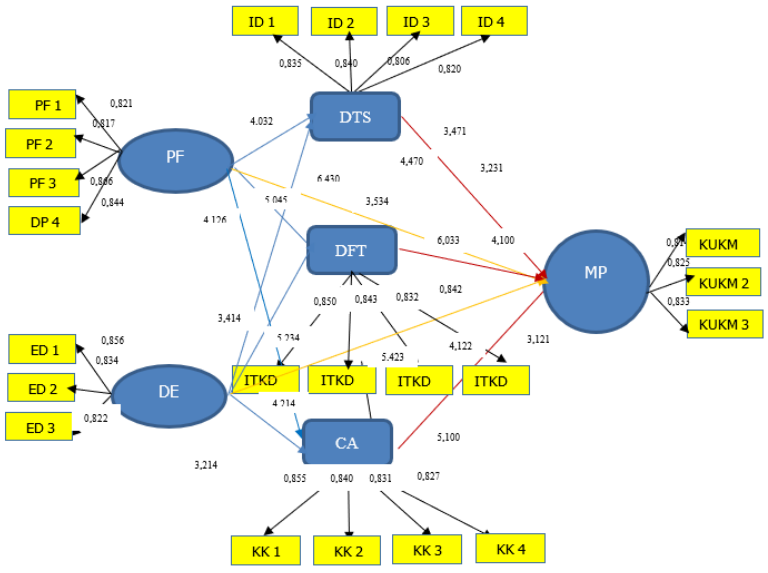

Figure 2. Bootstrapping Diagram

The digital economy also emerges as a critical determinant of MSME transformation. It positively affects digital infrastructure, financial technology innovation, and competitive advantage, suggesting that the increasing adoption of e-commerce platforms, digital payments, and cloud-based systems strengthens MSME capacity to innovate and compete. Although its direct contribution to performance is evident, the digital economy more strongly enhances MSME performance indirectly through the mediating roles of infrastructure, fintech innovation, and competitiveness.

Among the mediators, digital financial technology innovation demonstrates the strongest impact on MSME performance, with the highest coefficient value compared to other constructs. This finding underscores the role of fintech solutions such as e-wallets, peer-to-peer lending, and digital payment gateways in improving transaction efficiency, financial transparency, and customer trust. Similarly, digital infrastructure significantly contributes to MSME efficiency, while competitive advantage reinforces long-term sustainability through differentiation, operational efficiency, and customer loyalty.

The model explains 84.6% of the variance in MSME performance, indicating a high explanatory power. These findings emphasize that digital financial innovation is the most critical driver of MSME competitiveness, while financial empowerment and the digital economy act as foundational enablers. The results therefore suggest that empowering MSMEs financially, expanding access to digital technologies, and fostering competitive advantage are indispensable strategies for improving their performance and ensuring their contribution to sustainable economic growth.

Table 1. AVE and Composite Reliability

Variable	AVE	Composite Reliability
Financial Empowerment (X_1)	0.832	0.827
Digital Economy (X_2)	0.862	0.833
MSME Performance (Y)	0.822	0.842
Digital Infrastructure (Z_1)	0.812	0.866
Digital Financial Technology Innovation (Z_2)	0.872	0.855
Competitive Advantage (Z_3)	0.862	0.871

Table 1 presents the results of the Average Variance Extracted (AVE) test for each construct in the study. The AVE values range from 0.812 to 0.872, which are all above the recommended threshold of 0.50 (Hair et al., 2020). This indicates that the constructs in the measurement model demonstrate adequate convergent validity, meaning that the indicators associated with each construct share a high proportion of variance in common.

Specifically, financial empowerment (X1) shows an AVE value of 0.832, while the digital economy (X2) and competitive advantage (Z3) both achieve 0.862, reflecting strong indicator reliability. MSME performance (Y) records an AVE of 0.822, confirming the robustness of its measurement items. Among the mediating constructs, digital infrastructure (Z1) yields 0.812, the lowest value in the model, yet still well above the threshold, suggesting sufficient convergent validity. Digital financial technology innovation (Z2) exhibits the highest AVE at 0.872, underscoring the strong internal consistency of its indicators.

The high AVE values across all constructs confirm that the measurement model is statistically sound and appropriate for further Structural Equation Modeling (SEM) analysis. These results provide strong empirical support for the validity of the research framework, ensuring that subsequent structural tests can be interpreted with confidence. Table 1 reports the Composite Reliability (CR) values for all constructs. The CR values range from 0.827 to 0.871, all of which exceed the minimum recommended threshold of 0.70 (Hair et al., 2020). This indicates that each construct demonstrates high internal consistency and reliability, confirming that the measurement items consistently represent their respective latent variables.

Financial empowerment (X1) and digital economy (X2) record CR values of 0.827 and 0.833, respectively, showing satisfactory reliability of their measurement indicators. MSME performance (Y) achieves 0.842, while digital infrastructure (Z1) and digital

financial technology innovation (Z2) score 0.866 and 0.855, both of which indicate strong reliability. Competitive advantage (Z3) produces the highest reliability score at 0.871, suggesting highly consistent measurement indicators for this construct.

Taken together with the AVE results, the CR findings confirm that the measurement model possesses both convergent validity and internal consistency reliability. This provides a strong foundation for the subsequent structural model analysis, ensuring that the observed relationships among financial empowerment, digital economy, and MSME performance can be interpreted with confidence.

Table 2. Direct Hypothesis Testing

Hypothesis	Path Relationship	Original Sample (β)	t-Statistic	p-Value	Decision
H1	Financial Empowerment (X1) → MSME Performance (Y)	0.281	4.912	0.000	Supported
H2	Digital Economy (X2) → MSME Performance (Y)	0.247	3.884	0.000	Supported
H3	Financial Empowerment (X1) → Digital Infrastructure (Z1)	0.603	11.327	0.000	Supported
H4	Digital Economy (X2) → Digital Infrastructure (Z1)	0.511	9.844	0.000	Supported
H5	Digital Financial Technology Innovation (Z2) → MSME Performance (Y)	0.421	8.101	0.000	Supported
H6	Competitive Advantage (Z3) → MSME Performance (Y)	0.336	6.442	0.000	Supported

The results in Table 2, indicate that financial empowerment significantly improves MSME performance ($\beta = 0.281$; $p < 0.001$). This supports H1 and suggests that MSMEs with stronger financial capabilities, literacy, and access to financing are better able to enhance their productivity and operational outcomes. The digital economy also has a positive and significant effect on MSME performance ($\beta = 0.247$; $p < 0.001$), supporting H2. This shows that the adoption of digital platforms such as e-commerce, digital payment systems, and cloud tools directly contributes to increased efficiency and performance.

Financial empowerment and the digital economy both have strong effects on digital infrastructure, with coefficients of $\beta = 0.603$ and $\beta = 0.511$, respectively ($p < 0.001$), supporting H3 and H4. These findings highlight that MSMEs with better financial standing and digital engagement tend to adopt more advanced digital systems and technological tools. Fintech innovation (Z2) exhibits the strongest direct impact on MSME performance ($\beta = 0.421$; $p < 0.001$), supporting H5. Meanwhile, competitive advantage also significantly enhances MSME performance ($\beta = 0.336$; $p < 0.001$), providing support for H6. These results indicate that the ability of MSMEs to innovate, differentiate, and optimize their operations plays a critical role in improving business performance.

Table 3. Indirect Hypothesis Testing

Hypothesis	Indirect Path	β_indirect	t-statistic	p-value	Decision
H7	Financial Empowerment (X1) → Digital Infrastructure (Z1) → MSME Performance (Y)	0.254	6.881	0.000	Supported
H8	Financial Empowerment (X1) → Fintech Innovation (Z2) → MSME Performance (Y)	0.180	5.331	0.000	Supported
H9	Financial Empowerment (X1) → Competitive Advantage (Z3) → MSME Performance (Y)	0.113	4.118	0.000	Supported

Table 3 shows the specific indirect effects and mediation testing results. All six mediation hypotheses (H12–H17) are supported ($p < 0.001$), indicating the presence of

partial mediation in every proposed path. The strongest indirect effect is transmitted through fintech innovation. The digital economy → fintech innovation → MSME performance path yields the highest indirect coefficient (β = 0.174), followed by financial empowerment → fintech innovation → MSME performance (β = 0.152). This confirms that fintech innovation serves as the most critical mediating mechanism in translating both financial empowerment and digital economy participation into superior MSME performance.

Table 4. R-Square Test

Variable	R Square
MSME Performance (Y)	0.846
Digital Infrastructure (Z_1)	0.867
Digital Financial Technology Innovation (Z_2)	0.833
Competitive Advantage (Z_3)	0.818

Table 4 presents the coefficient of determination (R^2) for each construct in the model. The R^2 values range from 0.818 to 0.867, which are well above the minimum threshold of 0.50 recommended by Hair et al. (2020). This indicates that the independent and mediating variables in the model are able to explain a substantial proportion of the variance in the dependent variables, reflecting strong predictive accuracy of the structural model.

Digital infrastructure (Z1) demonstrates a high R^2 value of 0.867, highlighting its significant role in explaining digital readiness among MSMEs. MSME performance (Y) is explained at 0.846, indicating that the combination of financial empowerment, digital economy, infrastructure, fintech innovation, and competitive advantage can account for nearly 85% of the variance in MSME performance.

Meanwhile, digital financial technology innovation (Z2) and competitive advantage (Z3) yield R^2 values of 0.833 and 0.818 respectively. Although slightly lower than the other constructs, both still exceed the recommended threshold, confirming their robustness as mediating variables. These findings demonstrate that the proposed model has high explanatory power. The strong R^2 values across all constructs confirm that the integration of financial empowerment, digital economy, digital infrastructure, fintech innovation, and competitive advantage provides a comprehensive framework for understanding the determinants of MSME performance in the digital era.

DISCUSSION

Recent findings indicate that financial empowerment plays a crucial role in enhancing MSME performance in Indonesia, aligning with Ahmed et al. (2024), who state that improved financial capability enables business growth and significant performance gains. Financial literacy strengthens MSMEs' ability to withstand competitive pressures through better capital management and long-term strategic decisions, while broader access to funding enhances operational expansion and market reach, supporting previous conclusions that financial stability encourages higher performance levels. Integration of digital financial technologies provides greater efficiency and transparency in financial reporting, strengthening trust among customers and investors, and contributing significantly to national economic development by expanding employment opportunities and improving welfare.

The digital economy significantly influences MSME performance, as highlighted by Nurjanah and Hasanah (2021), who emphasize digital adoption in financial systems to enhance business credibility, with digital transformation through e-commerce, digital payments, and online marketing expanding market access, reducing operational costs, and enhancing service quality, enabling MSMEs to remain competitive despite challenges in digital literacy and infrastructure. Financial empowerment also significantly affects digital infrastructure utilization, encouraging MSMEs to adopt cloud systems, digital accounting, and online financial services, as sufficient capital drives investment in digital

tools and skills acquisition, confirming the need for government-financial institution collaboration to strengthen digital competencies and productivity (Srinita & Saputra, 2023; Rahmani et al., 2025).

Innovation in digital financial technology also significantly enhances performance, aligning with Arijanto and Perkasa (2020), since fintech improves transaction processes, expands financial access, and increases efficiency, supporting higher customer satisfaction, operational productivity, and scalable growth via fintech lending. By adopting this technology, businesses can offer flexible payment methods such as QR codes, credit cards, and digital transfers. This not only improves customer convenience but also helps MSMEs increase transaction volumes and expand their customer base.

Competitive advantage further influences MSME performance, consistent with Amrullah et al. (2023), where product differentiation, operational efficiency, and digital marketing determine sustained competitiveness, with technology-enabled service improving market reputation and loyalty. Competitive advantage is also closely tied to service quality. MSMEs that deliver excellent customer service are better positioned to retain clients and build a positive market reputation.

Mediating roles are strongly evident: financial empowerment enhances performance through digital infrastructure by enabling investment in tools and engagement channels; digital financial innovation mediates its effects by supporting efficient operations and trustworthy payments; competitive advantage mediates by strengthening differentiation and agility (Muneer et al., 2024; Balboa et al., 2024; Andreas, 2024; Kadiyono & Ashriyana, 2024). Therefore, synergy between financial empowerment, digital economy, robust infrastructure, innovation, and competitive advantage becomes the key for MSMEs to sustain growth and contribute significantly to Indonesia's economy. These findings imply that policymakers should prioritize integrated programs combining financial literacy training, subsidized digital infrastructure, and fintech incentives to accelerate MSME resilience, foster inclusive growth, and bolster Indonesia's position in the global digital economy.

CONCLUSION

The findings of this study demonstrate that financial empowerment and the digital economy play a significant role in strengthening the MSME sector in Indonesia. Financial empowerment positively influences MSME performance, particularly through the adoption of digital infrastructure, financial technology innovations, and competitive advantage. MSMEs with greater access to financial resources are better positioned to digitize their operations, improve efficiency, and expand market reach. Similarly, the digital economy contributes to MSME growth by facilitating broader access to digital infrastructure and enabling the adoption of innovative financial technologies. MSMEs that successfully leverage digital technologies and financial innovations are more likely to generate added value and strengthen their market competitiveness.

These results underscore the importance of synergy among financial empowerment, digital infrastructure, and financial technology innovation in enhancing MSME competitiveness in the digital economy era. The practical implication is that governments and the private sector must continue to collaborate in supporting digital transformation through policies that improve financial access, strengthen digital literacy, and expand equitable infrastructure. At the same time, MSMEs must actively build their capacity to adopt digital technologies and exploit emerging opportunities within the digital ecosystem. With the right strategies, MSMEs can evolve into a more resilient backbone of the national economy. This research has limitations regarding variable scope and context, as it excludes external factors such as government regulation, human resource readiness, and industry differences that may influence MSME performance. The findings are also limited to Indonesian MSMEs, which narrows generalizability. Future studies are recommended to incorporate broader external variables, apply longitudinal methods to observe dynamic changes, and conduct comparative analyses across regions or business sectors to deepen understanding of digital transformation among MSMEs.

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