

THE IMPACT OF PRODUCT INNOVATION AND DIGITAL FINANCIAL INCLUSION ON THE FINANCIAL PERFORMANCE OF SMES WITH HUMAN CAPITAL AS A MODERATOR

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Article History	ABSTRACT
Received: December 3, 2025	Purpose: This study aims to determine the effect of product innovation, digital financial inclusion, and human capital on the financial performance of MSMEs.
Revised & Accepted: December 11, 2025	Method: This study used a quantitative approach with primary data collection through the distribution of Google Form based questionnaires to MSME actors in the Special Region of Yogyakarta. Of the total 213 respondents who filled out the questionnaire, 194 data sets were deemed suitable for use as research samples.
Available online: April 1, 2026	Finding: The results show that product innovation and digital financial inclusion have a positive and significant effect on the financial performance of MSMEs in Yogyakarta. Both factors are able to increase competitiveness, productivity, and financial stability of businesses. Meanwhile, human capital does not play a role as a moderating variable in both relationships. The quality of MSME human resources, which is still focused on basic operational capabilities, makes it unable to optimally support innovation and the use of digital financial services.
Keywords: Product Innovation, Digital Financial Inclusion, Human Capital, Financial Performance	Novelty: The integration of digital financial inclusion variables into an analytical model that examines the financial performance of MSMEs. Different from previous studies that focused more on financial literacy, technology adoption, or digital innovation in general, this study specifically includes digital financial inclusion.

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are the backbone of the economy in facing the ever-evolving dynamics and global competition (Kemendag, 2024). MSMEs contribute to job creation and support the regional economy, making them the main focus of national economic development. According to data from the Ministry of Cooperatives (2024), in 2024 Indonesia had more than 65 million MSMEs, which are a strategic sector that absorbs more than 97% of the workforce and contributes more than 60% to the Gross Domestic Product (GDP). This is proof that MSMEs have succeeded in stabilizing the economy by creating job opportunities and distributing income (Ichwan & Nursyamsiah, 2019). MSMEs absorb a large number of workers from the lower-middle class and even reduce the unemployment rate (Ilmi, 2021).

Although it is an important sector, MSMEs face challenges in improving their financial performance (Susanti et al., 2024). Financial performance is a measure of the ability of MSMEs to manage their finances to achieve desired financial results (Putri et al., 2023). The activities of MSME actors will have an impact on financial performance; if performance is not optimal, it will result in low income (Mulyanti & Nurhayati, 2022). The implications of financial performance can affect the financial health and even the sustainability of MSME actors' businesses (Orobia et al., 2020). Finances are considered good when MSMEs are able to generate stable profits, manage their debts, and have a strong financial position.

The Yogyakarta government is striving to encourage the growth of MSMEs to be more productive in order to maximize their potential (Ayem & Wahidah, 2021). MSMEs in Yogyakarta play a crucial role in absorbing labor and driving economic growth, accounting for 79% of the total

workforce (cnbcindonesia.com, 2022). This stems from quality human resources and the availability of affordable raw materials. However, many MSMEs in Yogyakarta have not been able to transform their businesses due to a lack of knowledge and innovation skills. As a result, the sustainability of MSME businesses is under threat (Sunardi et al., 2020).

Business continuity depends on how quickly and responsively business actors respond to continuous change. Innovation is known to be crucial for MSMEs to compete in a dynamic market (Antoni & Karlin, 2024). Hadi (2023) states that the ability of business actors to produce innovative new products enables improved performance and competitive advantage. Product innovation is a key element that enables MSMEs to increase productivity and has a direct impact on performance (Guiné et al., 2020). It is important to recognize the strategic role of product innovation as a catalyst for growth, not only in terms of new product development but also operational efficiency and customer service (Rita et al., 2021; Umar et al., 2023).

In the technological era, the focus of financial inclusion has shifted to digital financial inclusion (Soekarno & Setiawati, 2020). Digital financial inclusion refers to a new model that utilizes digital technology by encouraging innovation to provide financial services from traditional financial systems (Zhang et al., 2023). The development of digital financial inclusion has made payment methods easier and more efficient for MSME players in running their businesses. Cash payment methods carry security risks and portability issues, while digital financial inclusion provides faster and safer payment methods. Therefore, digital financial inclusion is referred to as one of the main foundations of sustainable development because an inclusive financial system creates the basis for long-term economic growth, creates job opportunities, helps MSMEs in raising funds, maintains financial stability, and achieves other national goals (Soejachmoen, 2016).

The emergence of digital financial inclusion has led to more companies accepting financial resources. Meanwhile, MSMEs often face rejection when applying for loans because they are unable to meet collateral requirements. The results of the 2022 National Survey of Financial Literacy and Inclusion show that financial inclusion has increased to 85.10% compared to 2019. In 2024, the Financial Services Authority is targeting a financial inclusion index of 90%. Meanwhile, based on World Bank data in 2021, Indonesia has 97.74 million unbanked adults. Indonesia ranks fourth in terms of the number of individuals of legal age who do not have a bank account, accounting for 48% of the adult population.

Human resources are an important asset for driving competitive advantage. This means that human capital must meet certain criteria. A quick understanding of opportunities in the global market requires human capital (Baier-Fuentes et al., 2018). Resources derived from human capital as individuals cannot be replaced by machines (Tyas Hastuti & Dewi, 2019). The higher the level of financial knowledge, the better the business management (Dewi & EDT, 2023). More experience and knowledge possessed by MSME players has an impact on opportunities for growth and even competition in the market, thereby ensuring sustainability. Businesses that engage in sustainability activities experience less significant declines than those without sustainability activities (Hwang et al., 2021).

Financial performance, especially in MSMEs, has become a significant issue that must be addressed to encourage business improvement (Suyanto, 2024). Research conducted by (Safitri, 2024) shows that digital financial inclusion has a significant positive effect on financial performance. This study was conducted to examine financial performance issues by applying them to MSMEs.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Dynamic Capability Theory

The theory of dynamic capability (DCT) is one of the theories that has developed in the field of strategic management. Teece et al. (1997) the pioneers of this theory, define DCT as the utilization of various resources and company competition to redesign and reconfigure processes in order to respond to ever-changing market demands. This theory focuses on an organization's ability to adapt and respond quickly to environmental changes. In other words, dynamic capability encompasses the

management of a company's capabilities and resources with the overall goal of gaining competitive advantage (Arranz et al., 2020).

The dynamic capability theory emerged as a response to the limitations of the Resource-Based View (RBV), which can be traced back to the work of Penrose in 1957 (Ferreira et al., 2021). Dynamic capability explains how companies can maintain competitive advantage in dynamic markets. Dynamic capabilities enable companies to exploit accumulated knowledge and competencies as well as new competencies and recalibration processes to take advantage of opportunities (O'Reilly & Tushman, 2008). This shows that dynamic capabilities have accumulated capabilities that are very important for growth and performance. Dynamic capabilities have a positive effect on performance (Pundziene et al., 2021).

Product Innovation

Product innovation is one of the key elements in businesses that focus on product improvement as a competitive advantage in a competitive market. The product innovation process involves developing new ideas into products that have added value and advantages over products on the market. The success of product innovation can be seen from the launch of new products and the degree of novelty of the product and buyer perception of whether the new product is acceptable in the market (Turulja & Bajgoric, 2019). In the context of dynamic capabilities, innovation is one of the specific internal competencies. MSMEs continue to innovate in terms of products and provide significant added value for MSME players.

Innovation is not only used as a tool for survival, but also as a strategy to ensure the sustainability and competitiveness of MSMEs amid market dynamics. According to research conducted by Turulja & Bajgoric (2019), Jannah et al (2019), Taufiq et al (2020), (Mariatza & Simbolon, 2021) innovation has a positive effect on MSME performance. The research explains that the application of product innovation is one of the factors supporting the success of MSME players in running their businesses. Based on this explanation, the following hypothesis can be formulated:

H1: Product innovation has a positive impact on the financial performance of MSMEs.

Digital Financial Inclusion

Digital financial inclusion is the integration of digital technology used in the provision of financial services with the aim of increasing accessibility and affordability for all groups. Affordable financial services for small businesses in accessing capital are a form of increasing income and reducing poverty. Financial inclusion refers to access to financial services aimed at improving the welfare of service users. Within the framework of dynamic capability theory, financial inclusion is categorized as an external specific competency. Effective management of this competency enables MSME actors to achieve the expected competitive advantage.

With easier access to financial services, MSME players have the opportunity to obtain the capital needed to run and develop every business process. These views are in line with research by Sanistasya et al (2018), Septiani & Wuryani (2020), Frimpong et al (2022), Safitri (2024), which confirms that financial inclusion plays an important role in improving the performance of MSMEs. Financial inclusion helps MSMEs not only survive amid global competition, but also expand their business scale. Based on this explanation, the following hypothesis can be formulated:

H2: Digital financial inclusion has a positive impact on the financial performance of MSMEs.

Human Capital

Human capital is an intangible asset in the form of a combination of knowledge, skills, innovation, and task completion skills to generate economic value (Rahayu et al., 2022). Human capital has implications for a country's economic development. By improving human resources, countries can promote sustainable economic growth. Investment in human capital is expected to increase productivity, innovation, and competitiveness in the global market. Human capital strengthens the impact of product innovation on the financial performance of MSMEs by increasing the organization's capacity to manage and implement innovation effectively. A workforce with

adequate skills and knowledge can accelerate the adoption of new technologies, tailor products to market needs, and create innovative solutions.

In the context of Dynamic Capabilities Theory (DCT), human capital enables organizations to dynamically integrate and reconfigure resources to create sustainable innovation, which ultimately improves the competitiveness and financial performance of MSMEs. Based on this explanation, the following hypothesis can be formulated:

H3: Human capital positive influence strengthens the impact of product innovation on the financial performance of MSMEs.

Human capital can also strengthen the impact of digital financial inclusion on the financial performance of MSMEs by improving the workforce's ability to effectively utilize financial technology. A skilled and knowledgeable workforce is better able to adopt digital financial services, enabling MSMEs to access financial resources, manage transactions, and improve operational efficiency. In the context of Dynamic Capabilities Theory, human capital enables organizations to dynamically integrate and reconfigure digital resources to maximize the benefits of financial inclusion, which ultimately contributes to improved SME financial performance. Based on this explanation, the following hypothesis can be formulated:

H4: Human capital positive influence strengthens the impact of digital financial inclusion on the financial performance of MSMEs.

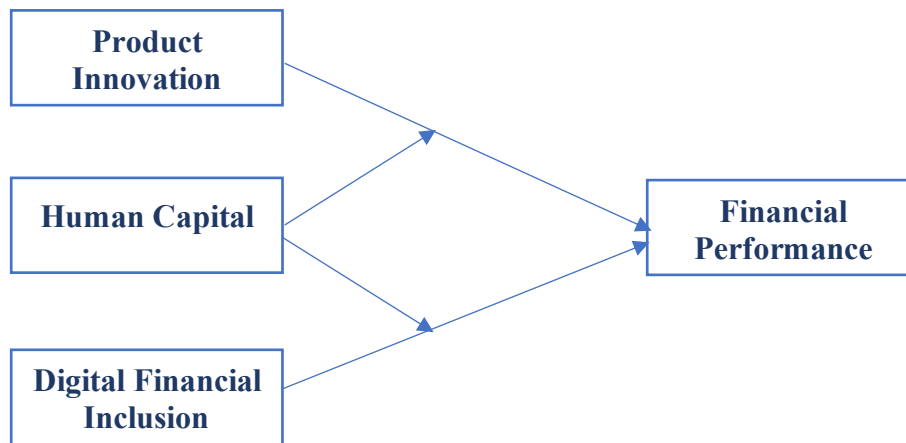


Figure 1. Thingking Framework

METHODS

This study uses a quantitative approach with primary data obtained through the distribution of Google Form questionnaires to MSME actors in Yogyakarta. The distribution was carried out randomly to reach various types of MSMEs, so that the respondents involved were business actors who were willing to fill out the questionnaire voluntarily. From a total of 213 respondents successfully collected through the distribution of Google Form questionnaires to MSME actors in Yogyakarta, only 194 respondents could be used in the study because they met the data eligibility criteria, such as completeness of answers and suitability with the research requirements. The entire analysis process, from data quality testing and classical assumption testing to hypothesis testing, was conducted using SPSS version 27.

Operational Definitions and Variabel Measurement:

Financial Performance (Y)

Financial performance is a representation of a business's success that can be used as a result of activities within a certain period of time. Representation of a business's success through indicators of profit, sales, growth, and market share.

Product Innovation (X1)

Product innovation is the introduction of a new product or service with significant improvements to its characteristics or purpose, including technological improvements. Product introduction with line extensions, imitation products, and new products.

Digital Financial Inclusion (X2)

Digital financial inclusion Digital financial inclusion refers to services provided digitally, offering microcredit and other financial services to the poor and MSMEs. Digital services can be measured based on access, usage, and quality.

Human Capital (Z)

Human capital is an intangible asset consisting of a combination of knowledge, skills, innovation, and the ability to complete tasks to generate economic value. Intangible assets consist of a combination of knowledge, experience, expertise, and abilities.

RESULT AND DISCUSSION

This study uses a questionnaire with variable indicators measured using validity and reliability tests. In the context of this study, the reliability test was used to examine how reliable the instrument was in collecting relatively similar data across several tests. The reliability test was used to measure consistency or stability over time, so that the questionnaire could be deemed reliable. To determine whether the instrument questions for the variables were reliable or unreliable, a comparison was made between Cronbach's Alpha and the predetermined Alpha of 0,700.

Table 1. Reliability Cronbach's Alpha Coefficient

Variable	Cronbach's Alpha Coefficient	Standard Value	Description
Financial Performance	0,850	0,700	Accepted
Product Innovation	0,764	0,700	Accepted
Digital Financial Inclusion	0,853	0,700	Accepted
Human Capital	0,783	0,700	Accepted

Source: Data Processed

Based on the table, it shows that the reliability test on all variables is reliable. This is because each variable has a minimum Cronbach Alpha value > 0.700, so the questionnaire distributed in the research is reliable and can be used as research data.

t-Test Result

Table 2. t-Test Result

Coefficients ^a	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
Model (Constant)	5.281	.811			6.515	.000
Inovasi Produk (X1)	1.109	.085	.645		13.017	.000
Inklusi Keuangan (X2)	.499	.084	.295		5.956	.000

Source: Data Processed

The results of the first hypothesis show that the significance value of the product innovation variable is $0.00 < 0.05$ with a t-value of $13.017 > 0.1406$. The significance value shows that product innovation has a positive and significant effect on the financial performance of MSMEs in Yogyakarta. The results of the second hypothesis show that the significance value of the digital financial inclusion variable is $0.00 < 0.05$ with a t-value of $5.956 > 0.1406$. The significance value shows that digital financial inclusion has a positive and significant effect on the financial performance of MSMEs in Yogyakarta.

Moderate Regression Analysis (MRA)

Table 3. MRA Result

Coefficients ^a	Unstandardized		Standardized		t	Sig.
	Coefficients		Coefficients			
Model	B	Std. Error	Beta			
X1Z	-.026	.012	-.446		-2.098	.037
X2Z	-.031	.013	-.554		-2.332	.021

Source: Data Processed

The first MRA test results show that the significance of human capital is $0.037 < 0.05$ with a t-value of $-2.098 < 0.1406$, meaning that the human capital variable cannot moderate the positive effect of product innovation on the financial performance of MSMEs in Yogyakarta. The second MRA test results show that the significance of human capital is $0.021 < 0.05$ with a t-value of $-2.332 < 0.1406$, meaning that the human capital variable cannot moderate the positive effect of digital financial inclusion on the financial performance of MSMEs in Yogyakarta.

The effect of product innovation on the financial performance of MSMEs

The effect of product innovation on the financial performance of MSMEs shows consistency with Dynamic Capability Theory, which states that an organization's ability to innovate and adapt to changes in the business environment is a major factor in maintaining or improving financial performance. When business actors innovate products, they are able to increase competitiveness and provide added value to consumers, thereby having a positive impact on improving financial performance. Thus, the results of this study support the view that product innovation is a form of dynamic capability that contributes to business sustainability. This study is also similar to the research Turulja & Bajgoric (2019), Jannah et al (2019), Taufiq et al (2020), Marietza & Simbolon, (2021) according to the study, innovation has a positive impact on the performance of MSMEs. The study explains that the implementation of product innovation is one of the factors supporting the success of MSME players in running their businesses.

The impact of digital financial inclusion on the financial performance of MSMEs

Digital financial inclusion is an important factor in supporting business sustainability. Digital financial inclusion is defined as ease of access, availability, and use of technology-based financial services. Through the use of these services, MSME players can conduct financial transactions efficiently, thereby increasing productivity and improving financial control. In line with Dynamic Capability Theory, the ability of MSMEs to adopt and utilize digital technology in their financial activities is a form of dynamic capability that enables businesses to adapt to rapid changes in the business environment.

Thus, it can be concluded that digital financial inclusion has a positive and significant impact on the financial performance of MSMEs. The higher the level of utilization of digital financial services, the more efficient the financial management and the stronger the financial position of the business. These views are in line with research by Sanistasya et al (2018), Septiani & Wuryani (2020), Frimpong et al (2022), Safitri (2024), which confirms that financial inclusion plays an important role in improving the performance of MSMEs. Financial inclusion helps MSMEs not only survive amid global competition, but also expand their business scale.

Human capital moderates the effect of product innovation on the financial performance of MSMEs

According to Dynamic Capability Theory, companies with dynamic capabilities can integrate, build, and configure internal competencies to respond to environmental changes. Human capital should be part of dynamic capabilities because it is related to the knowledge and skills that enable organizations to adapt and innovate sustainably. However, the results of this study indicate that human capital in MSMEs does not yet function as an effective dynamic capability. The quality of human resources in most MSMEs in Yogyakarta is still limited to operational capabilities and has not

led to strategic innovation. As a result, human capital has not been able to strengthen the impact of product innovation on the financial performance of MSMEs.

Human capital moderates the effect of digital financial inclusion on the financial performance of MSMEs

The organization's ability to achieve superior performance is highly dependent on its internal capacity to adapt and respond to environmental changes. In this context, human capital is an important part of the dynamic capabilities that help MSME players utilize digital financial services to improve business efficiency and competitiveness. However, the rejection of this hypothesis can be interpreted to mean that the dynamic capabilities possessed by MSMEs are not yet optimal, so that the potential of human capital in strengthening the influence of digital financial inclusion on financial performance is not yet apparent. This is in line with the principle of Dynamic Capability Theory that dynamic capabilities do not only depend on the availability of resources, but also on the extent to which these resources can be integrated and utilized effectively. Although in theory human capital supports the process of adopting and utilizing digital financial technology, empirical conditions show that MSME players still face limitations in strategically applying these capabilities. These findings are in line with Endri (2022) which shows that improvements in human resource capabilities that are not matched by financial capabilities will cause human capital to have a negative impact on performance.

CONCLUSION AND RECOMMENDATIONS

This study indicates that product innovation and digital financial inclusion have a positive and significant effect on the financial performance of MSMEs in Yogyakarta. Product innovation drives increased competitiveness and profits, while the use of digital financial services helps businesses manage transactions more quickly and efficiently. However, human capital is unable to moderate the relationship between product innovation and digital financial inclusion on the financial performance of MSMEs, indicating that the quality of human resources is still limited to basic skills and does not yet optimally support the innovation and digitalization processes. Further research is recommended to expand the geographical scope, increase the number of respondents, and include other variables such as technology adoption, digital capacity, or external environmental factors. This is necessary to make the research findings more comprehensive and generalizable to a broader MSME sector context.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest in this study and that they have no objection to the publication of this manuscript in this journal.

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