

The Role of Digital Literacy and the Business Community in Driving MSME Growth through Process Digitalization

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Abstract

Sustainable growth is both a challenge and a strategic goal for MSMEs amid technological disruption and global market dynamics. This study aims to analyze the effects of information technology literacy, business communities, business incubation, product creativity and innovation, and access to capital on sustainable growth, with process digitalization as a mediating variable. The conceptual model integrates internal and external resource approaches within the framework of digital transformation. This study uses an explanatory quantitative approach with Structural Equation Modeling–Partial Least Squares (SEM-PLS) analysis. A total of 125 MSMEs in Tambaksari District, Surabaya, were selected through purposive sampling. Data were collected using a Likert-scale questionnaire and analyzed with SmartPLS 4.0. Findings show that process digitalization significantly affects sustainable MSME growth. Information technology literacy and involvement in business communities have indirect effects through digitalization. In contrast, business incubation, product innovation, and access to capital show no significant direct effects. The model has an R^2 value of 71.5% for sustainable growth and 61.6% for process digitalization. These results highlight the importance of enhancing digital capabilities and fostering collaborative ecosystems through business communities. Digitalization emerges not just as a tool, but as a key driver of MSME sustainability in the digital era.

Keywords: MSMEs, Sustainable Growth, Process Digitalization, Information Technology Literacy, Business Community

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Introduction

Micro, Small, and Medium Enterprises (MSMEs) are a strategic sector in Indonesia's economic structure (Hakim et al., 2024). According to data from the Ministry of Cooperatives and Small and Medium Enterprises in 2023, the number of MSMEs in Indonesia reached over 65 million business units, or approximately 99.9% of the total national business entities (Kurniawati et al., 2024). This sector not only dominates in terms of quantity but also makes a significant contribution to the national Gross Domestic Product (GDP) of over 60%, and absorbs approximately 97% of the total workforce in Indonesia (Hayati et al., 2024). The role of SMEs has become even more critical in maintaining economic stability amid global crises such as the COVID-19 pandemic, geopolitical conflicts, inflationary pressures, and the threat of recession, which directly impact the real sector (Devita et al., 2024).

However, despite their significant contributions, SMEs still face serious challenges related to business resilience and sustainability (Sulistyanto et al., 2025). According to various surveys, many SMEs experience stagnation or even close down within less than five years of being established. This indicates that sustainable growth in the context of SMEs remains a complex and unresolved structural issue (Yakob et al., 2021). Sustainable growth is not merely about increasing revenue or expanding physical operations but encompasses aspects such as the ability to adapt to market and technological changes, resilience to disruptions, sustainability in managing economic, social, and environmental resources, and the continuity of innovation to remain relevant amid changing times (Moşteanu, 2024).

With the rapid development of technology and digital penetration across various sectors, digital transformation has become a strategic approach increasingly emphasized by the government, the business world, and various economic development institutions (Alfie et al., 2024). The digitalization of SME business processes includes the integration of technology into activities such as digital marketing through social media, cashless transactions and e-wallets, application-based financial recording systems, digital inventory management, and technology-based customer service (Pratiwi & Maulidya, 2025). This transformation is not only important for efficiency but also opens up broader market access, simplifies financial reporting, and enhances business competitiveness (Weir & Ali, 2024).

However, the implementation of digitalization cannot be viewed as an instant or one-size-fits-all solution. Many SMEs still face challenges in adopting digital technology, whether due to limitations in knowledge and skills, initial investment costs, or resistance to change (Omowole et al., 2024). Therefore, it is important to view the digitalization of processes not as an independent variable but as an intervening variable whose success is greatly influenced by other factors that shape the readiness and maturity of the business (Hendrawan et al., 2024).

One key factor believed to be highly influential is information technology literacy (Hokmabadi et al., 2024). SMEs with basic skills in operating computers, smartphones, and understanding digital applications such as online cash register systems, sales tracking, and social media promotion tend to adopt and adapt to digital transformation needs more quickly (Rakib et al., 2024). However, digital literacy alone is insufficient. Business communities also play a crucial role in strengthening SMEs' adaptive capacity (Gbadebo, 2024). Through communities, business owners gain access to up-to-date information, best practices, and

collaborative networks that accelerate the learning process and technology adoption (Lestari et al., 2024).

In addition to these two aspects, business incubation provided by the government and private institutions in the form of training, mentoring, and business assistance also plays a role in strengthening the managerial structure and business strategy of MSMEs (Mauludi et al., 2025). Product creativity and innovation are also important dimensions in ensuring business sustainability amid dynamic competition, as today's consumers do not only buy products based on function, but also value, uniqueness, and experience (Jusuf, 2022). Lastly, access to capital, whether from formal financial institutions or government financing programs, is a key enabler for business expansion, purchasing production equipment, or developing technology (de Barros et al., 2025). However, capital that is not accompanied by digital readiness and strategy can become a source of waste rather than growth (OECD, 2022).

Considering all of the above factors, this study focuses on empirically analyzing how information technology literacy, business communities, business incubation, product creativity and innovation, and access to capital influence the sustainable growth of MSMEs, with process digitization as a mediating variable that bridges the relationship between inputs and outcomes (Sieg et al., 2023). With this approach, it is hoped that a more comprehensive understanding of the critical factors determining the success of SMEs will be obtained, enabling them not only to survive but also to grow sustainably amid the challenges of the digital economy (Mmari, 2023).

Academically, this study is expected to enrich theories related to SME growth, particularly in the context of digital transformation integration and community-based approaches. Meanwhile, from a practical perspective, the results of this research are expected to provide strategic input for the government, policymakers, SME support institutions, and financial and technology industry players in designing more targeted, contextual, and long-term impactful SME empowerment programs. In an increasingly uncertain and rapidly changing business environment, SMEs are not only required to grow but also to grow intelligently, adaptively, and sustainably.

Methodology

Research Type and Approach

This study uses an explanatory quantitative approach, which aims to explain the causal relationship between variables that influence the sustainable growth of MSMEs, with process digitization as an intervening variable. The explanatory approach was chosen because it allows researchers to not only describe phenomena, but also test hypotheses of cause-and-effect relationships between latent variables simultaneously through structural models.

Research Location and Population

The population in this study consists of SME actors in Tambaksari District, Surabaya, who have been operating their businesses for at least one year and have adopted digital technologies in their business processes, such as social media, online marketplaces, or digital financial recording applications. The sampling

technique employed is purposive sampling, resulting in a total of 125 respondents who meet the specified inclusion criteria.

Research Instruments

Data was collected through a closed questionnaire, which was compiled based on indicators from each research variable construct. The questionnaire used a five-point Likert scale, with the following score range:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

The questionnaire consists of 28 statements representing seven main constructs, namely:

- Information Technology Literacy (LTI)
- Business Community (KB)
- Business Incubation (IB)
- Product Creativity & Innovation (KIP)
- Access to Capital (AP)
- Process Digitalization (DP)
- Sustainable Growth of MSMEs (SGU)

Before being widely used, the instrument was tested for reliability and validity.

Validity and Reliability Tests

Validity Test

Validity was tested using Pearson's product-moment correlation analysis between item scores and total scores. With 125 respondents, the r table value at a 5% significance level was 0.176. All items had calculated r values > 0.176 , meaning all questions were valid and suitable for further analysis.

Reliability Test

A Cronbach's Alpha value of 0.971 was obtained, indicating a very high level of internal consistency (≥ 0.70). Thus, all items in the questionnaire were deemed reliable.

Data Analysis Techniques

Data analysis was conducted using Structural Equation Modeling based on Partial Least Squares (SEM-PLS) via the SmartPLS 4.0 software. SEM-PLS was chosen because it can test complex conceptual models with latent variables and mediating effects, and does not require normal data distribution.

The analysis was conducted in two stages:

- Evaluation of the outer model to test convergent validity (factor loadings > 0.7 and AVE > 0.5) and construct reliability (CR and Cronbach's Alpha > 0.7).
- Evaluation of the inner model to test the coefficient of determination (R^2), the significance of the influence between variables (t-statistic value > 1.96 and p-value < 0.05), and the direct and indirect influence between constructs through the bootstrapping technique.

Result and Discussion

Result

Reliability Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.971	28

Figure 1. Reliability Statistic

A reliability test was conducted to determine whether all statements in the questionnaire used in this study could provide consistent results. The test results showed that Cronbach's Alpha value was 0.971 from 28 items. This value is considered very high, as according to theory, a Cronbach's Alpha value ≥ 0.70 is already considered reliable. The closer the value is to 1, the stronger the reliability or consistency between items.

Table 1. Reliability and Validity of Variables

Variable	Cronbach's Alpha	Composite Reliability	AVE
Access to Capital (AP)	0.816	0.878	0.644
Process Digitalization (DP)	0.838	0.892	0.673
Business Incubation (IB)	0.797	0.868	0.622
Business Community (KB)	0.859	0.904	0.703
Product Creativity & Innovation (KIP)	0.869	0.911	0.718
Information Technology Literacy (LTI)	0.965	0.974	0.904
Sustainable Growth of MSMEs (SGU)	0.833	0.889	0.668

Source: Processed primary data using SmartPLS 4.0 (2025)

Thus, it can be concluded that all items in the questionnaire used in this study have a very good level of internal consistency. This means that the questions asked to respondents are interrelated in measuring the same topic or variable. Therefore, this instrument is suitable for further analysis, such as validity testing, path analysis, and structural equation modeling (SEM-PLS).

Validity Testing

Validity testing was conducted to determine whether each item in the questionnaire was truly capable of measuring what it was intended to measure. In this study, Pearson's correlation analysis (Product Moment) was used between the scores of each question item and the total score of the variable. The criterion used in this validity test is that if the correlation value (calculated r) $>$ table r , then the item is considered valid. With a total of 125 respondents, the table r value is 0.176 (at a significance level of 0.05).

Table 2. Item Validity Test Results

	r Counted	r Table (N=125)	Information
LTI1	0.948	0.176	Valid
LTI2	0.915	0.176	Valid
LTI3	0.891	0.176	Valid
LTI4	0.893	0.176	Valid
KB1	0.829	0.176	Valid
KB2	0.8	0.176	Valid
KB3	0.778	0.176	Valid
KB4	0.77	0.176	Valid
IB1	0.698	0.176	Valid
IB2	0.669	0.176	Valid
IB3	0.764	0.176	Valid
IB4	0.74	0.176	Valid
KIP1	0.744	0.176	Valid
KIP2	0.704	0.176	Valid
KIP3	0.764	0.176	Valid
KIP4	0.804	0.176	Valid
AP1	0.709	0.176	Valid
AP2	0.71	0.176	Valid
AP3	0.661	0.176	Valid
AP4	0.751	0.176	Valid
DP1	0.69	0.176	Valid
DP2	0.629	0.176	Valid
DP3	0.71	0.176	Valid
DP4	0.845	0.176	Valid
SGU1	0.789	0.176	Valid
SGU2	0.844	0.176	Valid
SGU3	0.682	0.176	Valid
SGU4	0.744	0.176	Valid

Source: Processed primary data using SmartPLS 4.0 (2025)

The test results show that all items have Pearson correlation values greater than r table and are significant at a significance level of 0.01 (2-tailed). For example, item LTI1 has a correlation with the total score of 0.948, item KB1 has a correlation of 0.829, and item AP3 has a correlation of 0.661, all of which are well above the minimum limit of 0.176. Thus, all items in the questionnaire are deemed valid, as each demonstrates a significant and strong relationship with the total score. This means that each statement item can accurately represent the construct or variable being measured.

Table 3. Outer Loading Items

	AP	DP	IB	KB	KIP	LTI	SGU
AP1	0.830						
AP2	0.792						
AP3	0.816						

	AP	DP	IB	KB	KIP	LTI	SGU
AP4	0.770						
DP1		0.801					
DP2		0.754					
DP3		0.884					
DP4		0.838					
IB1			0.753				
IB2			0.768				
IB3			0.836				
IB4			0.797				
KB1				0.872			
KB2				0.853			
KB3				0.814			
KB4				0.813			
KIP1					0.828		
KIP2					0.829		
KIP3					0.858		
KIP4					0.874		
LTI1						0.973	
LTI2						0.958	
LTI3						0.814	
LTI4						0.925	
SGU1							0.832
SGU2							0.897
SGU3							0.763
SGU4							0.770

Table 4. R-Square of Variable

Endogenous Variable	R-Square	Information
Digitalisasi Proses (DP)	0.715	Moderate
Sustainable Growth UMKM (SGU)	0.616	Moderate

Source: Processed primary data using SmartPLS 4.0 (2025)

Based on Table 4, the analysis results show that the Process Digitalization (DP) variable has an R-Square value of 0.715. This means that 71.5% of the variation in the level of MSME process digitalization can be explained by the five exogenous variables in the model, namely LTI, KB, IB, KIP, and AP. The remaining 28.5% is explained by other variables not included in the model. This value falls into the moderate to strong category, indicating that the model has good predictive power for process digitalization in SMEs.

Meanwhile, the Sustainable Growth of SMEs (SGU) variable has an R-Square value of 0.616, meaning that 61.6% of the variation in sustainable growth of SMEs

can be explained by the direct influence of Process Digitalization, as well as the indirect influence of other exogenous variables. The remaining 38.4% is explained by factors outside the model. This R-Square value also falls into the moderate category, based on Chin's (1998) classification, which states that R^2 values of 0.67 (strong), 0.33 (moderate), and 0.19 (weak).

Overall, this structural model shows that process digitalization is a key variable in bridging the influence of technological literacy and business environment support on the sustainability of SME growth. The validity of the model, as reflected in the R-Square value, indicates that the developed model structure is suitable for explaining the dynamics of digital transformation and the sustainability of micro, small, and medium enterprises.

Hypothesis Testing

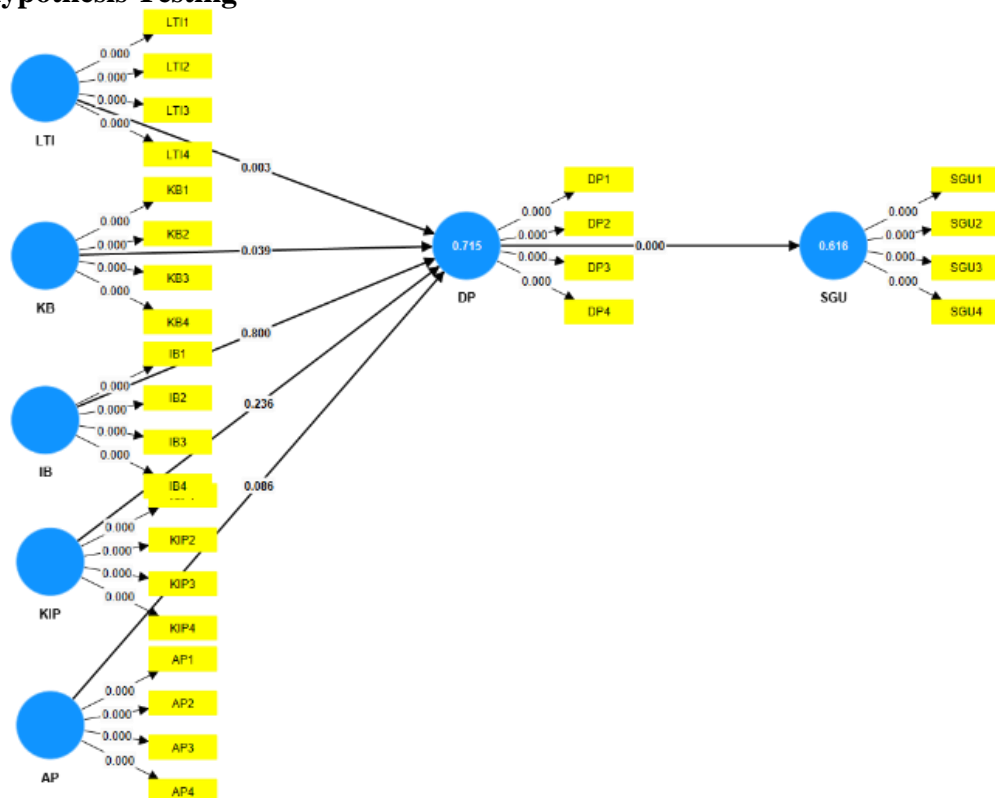


Figure 2. Research Model

Based on Figure 2, this research model illustrates the structural relationship between five exogenous variables, namely Information Technology Literacy (LTI), Business Community (KB), Business Incubation (IB), Product Creativity and Innovation (KIP), and Access to Capital (AP), on two endogenous variables, namely Process Digitalization (DP) as the intervening variable and Sustainable Growth of SMEs (SGU) as the final outcome variable.

The direction of the arrows in the model indicates the assumed direction of influence between constructs. If the path coefficient value is positive and statistically significant, this indicates that an increase in the exogenous variable will be followed by an increase in the endogenous variable it influences. The significance level of the relationship between variables is tested based on the P-Value and T-Statistic, where the relationship is considered significant if P-Value <

0.05 and T-Statistic > 1.96. The following are the results of the hypothesis testing conducted (Table 5)

Table 5. Bootsstrapping

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics	P values
AP → DP → SGU	0.144	0.138	0.085	1.688	0.091
IB → DP → SGU	0.022	0.031	0.086	0.250	0.802
KB → DP → SGU	0.208	0.224	0.105	1.986	0.047
KIP → DP → SGU	-0.104	-0.092	0.089	1.172	0.241
LTI → DP → SGU	0.411	0.384	0.137	3.003	0.003

Source: Processed primary data using SmartPLS 4.0 (2025)

Based on the table above, the results of the statistical analysis show that of the five mediation paths for Sustainable Growth of MSMEs (SGU), only two paths were found to have a statistically significant indirect effect. The first path is the indirect effect of the Business Community (KB) on SGU through Process Digitalization (DP), with a T-statistic value of 1.986 and a path coefficient of 0.208. The second pathway is the indirect effect of Information Technology Literacy (LTI) on SGU through DP, with a T-statistic value of 3.003 and a pathway coefficient of 0.411.

These results indicate that both the business community and information technology literacy have a significant influence on the sustainable growth of SMEs through the mediating role of process digitalization. Conversely, the other mediation paths, namely from Access to Capital (AP), Business Incubation (IB), and Product Creativity & Innovation (KIP) to SGU through DP, did not show a significant influence, with T-Statistic values of 1.688, 0.250, and 1.172, respectively. Thus, it can be concluded that only the KB → DP → SGU and LTI → DP → SGU pathways meet the statistical significance criteria, i.e., T-Statistic > 1.96 and p-value < 0.05. Therefore, only the hypotheses for these two pathways are accepted as they meet the established statistical criteria.

Discussion

The results of the structural model testing show that of the five independent variables studied, not all independent variables analyzed in this study contribute significantly to the sustainable growth of MSMEs. Of the five variables tested, only two variables, namely information technology literacy and business community, have a significant indirect effect on the sustainable growth of MSMEs, through process digitalization as an intervening variable. Meanwhile, business incubation, product creativity and innovation, and access to capital did not show significant influence, either directly or indirectly, on growth.

The finding that information technology literacy has an indirect influence through process digitalization reinforces the argument that mastery of technology is the main foundation in the digital transformation process of MSMEs, such as in accessing, understanding, and utilizing digital technology in daily business activities. Information technology, which includes the ability to use software, digital applications, and understanding of the virtual world, has proven to be an

important foundation in facing the era of digital transformation. Information technology literacy can enhance operational efficiency, expand marketing reach through digital platforms, and accelerate adaptation to evolving consumer trends and behaviors.

Additionally, involvement in business communities has been shown to have a significant influence on process digitalization, which in turn contributes to SME growth. This indicates that business communities serve as sources of information, inspiration, and collaboration, which can accelerate the adoption of digital technology among SMEs. Communities provide informal access to practical knowledge, the experiences of fellow entrepreneurs, and opportunities for cooperation, which are crucial for SMEs in navigating the rapidly changing dynamics of the market. Active participation in business networks, both offline and online, encourages SME entrepreneurs to be more responsive to market dynamics and more open to strategic collaboration. Through communities, business actors can share experiences, exchange information about business opportunities, and gain access to training, mentors, and emotional support, which are crucial in facing business challenges. Thus, business communities become an important catalyst in accelerating technology adoption, expanding markets, and enhancing the competitiveness of SMEs amid increasingly complex competition.

Conversely, variables such as business incubation, product creativity and innovation, and access to capital do not show a significant influence in the structural model on the sustainable growth of SMEs. Although these variables are conceptually highly relevant to SME development, their effectiveness appears limited without the support of digital readiness and strong business networks. This indicates that the presence of training or mentoring alone may not necessarily enhance business growth if it is not accompanied by digital literacy and readiness to integrate technology into business processes. Business incubation often has a short-term nature and has not optimally targeted the enhancement of SMEs' digital capacity.

Meanwhile, creativity and product innovation that are not balanced with access to digital markets will struggle to reach a broader consumer base. Similarly, access to capital does not automatically guarantee growth if business operators lack the ability to manage finances digitally or expand their business reach online. These findings underscore the importance of integrating various elements of SME development, which cannot rely solely on one aspect such as capital or training, but must be synergized with improvements in digital capabilities and business operator connectivity.

Overall, the results of this study have important implications for SME empowerment strategies in Indonesia. Technical interventions such as training, capital assistance, or product innovation need to be transformed into strategic interventions that are integrated with improving digital literacy and strengthening communities. Digitalization of processes is not just a tool, but the main catalyst for the growth and sustainability of SMEs in the digital economy era. Therefore, stakeholders from the government, academia, and the private sector need to direct their efforts to empower MSMEs in a more adaptive and digitally oriented manner.

This research also has important implications for the formulation of MSME empowerment strategies. The government, supporting institutions, and relevant stakeholders need to shift the focus of their interventions from a general approach

to a more contextual one, emphasizing the improvement of MSME digital capacity and strengthening an inclusive and sustainable business community ecosystem. Training programs, technology incentives, and the formation of digital communities should be prioritized as the primary approach to accelerating SME growth in the digital transformation era. Thus, empowerment efforts should not only rely on providing resources but also on enhancing the capabilities and connectivity of SME actors in addressing challenges and optimally leveraging digital economic opportunities.

Conclusion

This study aims to analyze the influence of various factors on the sustainable growth of MSMEs by placing process digitization as an intervening variable. Through an explanatory quantitative approach and data processing using the SEM-PLS method on 125 MSME actors in Tambaksari District, Surabaya, it was found that not all factors studied had a significant influence on business growth. Only two variables, namely information technology literacy and involvement in business communities, were found to have a significant indirect influence on SME growth through process digitalization. Information technology literacy serves as the primary foundation in encouraging SME operators to adopt and strategically utilize digital tools. The ability to use technology not only streamlines operational processes but also enables businesses to expand their market reach, enhance productivity, and build more effective relationships with consumers.

Another significant finding is the role of the business community as an important supporting factor in driving digital transformation. The community is not only a forum for sharing experiences and information, but also a catalyst in accelerating the process of technology adoption. Active involvement in the business community helps SME actors gain access to training, mentoring, and collaboration opportunities. Conversely, variables such as business incubation, product creativity and innovation, and access to capital did not show a significant influence on SME growth in the model constructed. Although these three variables are theoretically important, their contribution was not evident in this study due to the lack of integration with the digital capabilities of business operators and the absence of a strong collaborative community-based environment.

Overall, the findings of this study emphasize that in the face of the digital economy era, SME development strategies must be focused on two main pillars: enhancing digital literacy capacity and strengthening business communities. Digital transformation is not merely a technical tool but the primary catalyst in the process of sustainable growth. Therefore, an SME development approach that focuses solely on financing or technical training is no longer sufficient. A more holistic and strategic approach is needed, namely building an adaptive, collaborative SME ecosystem that is capable of digital transformation to survive and thrive in an increasingly competitive and dynamic business environment.

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