

The Influence of Digital Literacy, Technology Adoption, and Innovation Capability on MSME Business Performance

Ikhwatun Hasanah^{1*}, Reza Fauzi Nazar², Muhamad Sigid Safarudin³, Noorhani Dyani Laksmi⁴

¹Universitas Muhammadiyah Banjarmasin, Indonesia

²UIN Sunan Gunung Djati Bandung, Indonesia

³Universitas Batam, Indonesia

⁴Universitas Negeri Malang, Indonesia

Email: ^{1*}ikhwatunhasanah@umbjm.ac.id, ²rezafauzinazar@uinsgd.ac.id,

³muhamadsigidsafarudin@gmail.com, ⁴nennymakmun@gmail.com

Received: 19 June 2026

Accepted: 24 July 2026

Published online: 03 August 2026

Abstract

Micro, Small, and Medium Enterprises (MSMEs) play a significant role in economic growth, employment generation, and business development. However, the rapid advancement of digital technologies and increasing market competition require MSMEs to enhance their capabilities to remain competitive and sustainable. This study aims to examine the influence of digital literacy, technology adoption, and innovation capability on MSME business performance. The study employs a quantitative research approach using a cross-sectional survey design. Data were collected from 200 MSME owners and managers through a structured questionnaire and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings reveal that digital literacy, technology adoption, and innovation capability have positive and significant effects on MSME business performance. Digital literacy enables MSME owners to effectively utilize digital technologies and improve decision-making processes. Technology adoption contributes to operational efficiency, broader market access, and enhanced customer engagement. Meanwhile, innovation capability demonstrates the strongest influence on business performance, indicating that MSMEs with greater abilities to develop new products, services, and business processes achieve superior business outcomes. The results support the Resource-Based View (RBV), which suggests that valuable organizational resources and capabilities contribute to competitive advantage and improved performance. The study highlights the importance of strengthening digital competencies, encouraging technology utilization, and fostering innovation among MSMEs to achieve sustainable growth and competitiveness in the digital economy. The findings provide valuable insights for policymakers, business support institutions, and MSME practitioners in designing strategies to improve MSME performance.

Keywords: Digital Literacy, Technology Adoption, Innovation Capability, Business Performance, MSMEs, Digital Transformation, Resource-Based View.

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in economic development worldwide, particularly in developing countries where they contribute significantly to employment creation, poverty reduction, and economic growth. In Indonesia, MSMEs represent the backbone of the national economy, contributing substantially to gross domestic product (GDP) and absorbing a large proportion of the workforce. Despite their



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International

importance, MSMEs continue to face numerous challenges related to market competition, technological disruption, limited resources, and rapidly changing consumer behavior. In the era of digital transformation, MSMEs are increasingly required to adapt to technological developments to remain competitive and sustainable. The ability of MSMEs to utilize digital technologies effectively has become a key determinant of business success and long-term performance (OECD, 2023).

Digital transformation has fundamentally changed how businesses operate, communicate with customers, manage resources, and create value. The widespread adoption of digital technologies has created opportunities for MSMEs to improve operational efficiency, expand market reach, and enhance customer engagement. However, many MSMEs still experience difficulties in adopting and utilizing digital technologies due to limited digital skills, inadequate infrastructure, and lack of strategic capabilities (OECD, 2023). Consequently, understanding the factors that influence MSME business performance in the digital era has become an important research topic for academics, policymakers, and practitioners.

One of the most critical factors influencing MSME performance is digital literacy. Digital literacy refers to an individual's ability to access, evaluate, utilize, and create information using digital technologies effectively and responsibly. In the business context, digital literacy enables entrepreneurs to leverage digital platforms, analyze market information, communicate with customers, and make informed decisions. MSME owners with higher levels of digital literacy are generally more capable of identifying business opportunities, utilizing digital marketing strategies, and adapting to technological changes. Recent studies have shown that digital literacy significantly improves digital capability, digital transformation, and business performance among MSMEs (Wulandari et al., 2024; Surti, 2025). Moreover, digital literacy has been found to positively influence MSME performance both directly and indirectly through technology adoption (Muhtadin et al., 2026; Windarsari & Arif, 2026).

Another important factor contributing to MSME success is technology adoption. Technology adoption refers to the willingness and ability of businesses to implement and utilize technological innovations in their operational and strategic activities. The adoption of digital technologies such as e-commerce platforms, digital payment systems, cloud computing, social media marketing, and business analytics can improve productivity, reduce operational costs, and enhance customer satisfaction. Research has consistently demonstrated that technology adoption contributes positively to MSME competitiveness and performance by enabling more efficient business processes and better decision-making (OECD, 2023). Furthermore, studies indicate that digital technology adoption significantly improves sustainable business performance and operational effectiveness among MSMEs (Rahman et al., 2025; Muhtadin et al., 2026). Evidence from recent surveys also suggests that a majority of MSMEs experience business growth after implementing digital tools and digital payment systems.

Despite the potential benefits of digital technologies, technology adoption alone may not guarantee superior business performance. MSMEs must also possess the capability to innovate and continuously adapt to changing market conditions. Innovation capability refers to a firm's ability to develop new products, services, processes, and business models that create value and enhance competitiveness. In today's dynamic business environment, innovation capability is increasingly recognized as a strategic resource that enables firms to respond effectively to environmental uncertainty and customer demands. MSMEs with strong innovation capability

are more likely to identify emerging opportunities, develop unique value propositions, and sustain competitive advantages over time.

Previous research has highlighted the significant relationship between innovation capability and business performance. Ningsih et al. (2024) found that innovation capability positively influences firm performance among MSMEs by enhancing adaptability and competitiveness. Similarly, Ramadhan et al. (2025) reported that innovation capability significantly improves MSME performance and competitive advantage in the context of digital transformation. Other studies have also demonstrated that innovation, when combined with technology adoption, contributes substantially to organizational growth, market expansion, and business sustainability (Procedia Computer Science, 2024). Therefore, innovation capability remains an essential factor for MSMEs seeking to achieve superior performance in increasingly competitive markets.

The interaction between digital literacy, technology adoption, and innovation capability has become increasingly relevant in explaining variations in MSME performance. Digital literacy provides the foundational knowledge required to understand and utilize technological tools effectively. Technology adoption enables businesses to implement digital solutions that improve efficiency and market reach. Innovation capability allows firms to transform technological resources and knowledge into valuable business outcomes. Together, these factors form a strategic framework that supports organizational agility, competitiveness, and long-term success. Studies on digital transformation suggest that organizations that combine digital competencies with innovation-oriented strategies tend to achieve better business outcomes than those focusing solely on technology implementation (Gonzalez-Varona et al., 2024; Egodawe et al., 2022).

Although previous studies have examined the relationships between digital literacy, technology adoption, innovation capability, and business performance, empirical findings remain fragmented. Many studies focus on only one or two variables, while limited research investigates the simultaneous influence of these three factors on MSME business performance, particularly in developing economies (Riu et al., 2026). Moreover, the rapid evolution of digital technologies and changing market dynamics require continuous reassessment of the factors driving MSME success. Recent evidence indicates that skill gaps, limited awareness, and insufficient digital competencies continue to hinder technology utilization among many MSMEs, highlighting the need for further investigation into these issues.

Given these circumstances, it is important to examine how digital literacy, technology adoption, and innovation capability collectively influence MSME business performance. Understanding these relationships can provide valuable insights for MSME owners, policymakers, and support institutions in designing effective strategies to enhance business competitiveness and sustainability (Arif & Windarsari, 2026). This study therefore seeks to contribute to the growing body of knowledge on digital transformation and MSME development by investigating the influence of digital literacy, technology adoption, and innovation capability on MSME business performance.

The objective of this study is to examine and analyze the influence of digital literacy, technology adoption, and innovation capability on MSME business performance. Specifically, this research aims to determine the extent to which digital literacy enhances business performance, evaluate the impact of technology adoption on operational and strategic

outcomes, and assess the contribution of innovation capability to business success. Furthermore, the study seeks to provide empirical evidence regarding the simultaneous effects of these variables on MSME performance in the context of increasing digital transformation and competitive market environments.

2. Method

2.1. Research Design

This study employs a quantitative research approach using a causal (explanatory) research design to examine the influence of digital literacy, technology adoption, and innovation capability on MSME business performance. Quantitative research is appropriate because it enables the researcher to test hypotheses and measure the relationships among variables objectively through statistical analysis (Creswell & Creswell, 2023). The explanatory design is selected because the study aims to investigate the cause-and-effect relationships between independent variables (digital literacy, technology adoption, and innovation capability) and the dependent variable (MSME business performance).

The study adopts a cross-sectional survey method, where data are collected from respondents at a single point in time through a structured questionnaire. This method is suitable for obtaining information from a large number of MSME owners and managers efficiently.

2.2. Population and Sample

The population of this study consists of Micro, Small, and Medium Enterprise (MSME) owners or managers operating within the selected research area. Since MSMEs are the primary unit of analysis, respondents must be directly involved in business decision-making and daily operations.

The sample size is determined using the recommendation of Hair et al. (2022), who suggest that studies employing multivariate analysis should have a minimum sample size of five to ten times the number of indicators used in the research model. Assuming the questionnaire contains approximately 20–25 measurement indicators, a minimum sample of 100–250 respondents is considered adequate.

This study utilizes purposive sampling, a non-probability sampling technique in which respondents are selected based on specific criteria. The criteria for participation include:

- 1) The respondent is the owner or manager of an MSME.
- 2) The MSME has been operating for at least one year.
- 3) The MSME uses digital technology in at least one business activity (e.g., social media marketing, digital payments, e-commerce, or online communication).
- 4) The respondent is willing to participate in the survey.

2.3. Data Collection Method

Primary data are collected through a structured questionnaire distributed either online or offline to MSME owners and managers. The questionnaire consists of two sections. The first section gathers demographic information, including age, gender, education level, business sector, and business age. The second section measures the research variables using multiple indicators adapted from previous studies.

Responses are measured using a five-point Likert scale, ranging from:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

The Likert scale is widely used in social science research because it allows respondents to express the degree of agreement with each statement and facilitates quantitative analysis.

2.4. Variable Measurement

2.4.1. Digital Literacy (X1)

Digital literacy refers to the ability of MSME owners or managers to access, understand, evaluate, and utilize digital technologies effectively in business activities.

Indicators adapted from OECD (2023) and Wulandari et al. (2024) include:

- 1) Ability to access digital information.
- 2) Ability to evaluate online information.
- 3) Ability to use digital communication tools.
- 4) Ability to utilize digital platforms for business purposes.
- 5) Ability to solve problems using digital technologies.

2.4.2. Technology Adoption (X2)

Technology adoption refers to the extent to which MSMEs implement and utilize digital technologies in business operations.

Indicators adapted from Rahman et al. (2025) and OECD (2023) include:

- 1) Use of social media for business.
- 2) Use of digital payment systems.
- 3) Use of e-commerce platforms.
- 4) Use of digital tools to improve operational efficiency.
- 5) Integration of digital technologies into business processes.

2.4.3. Innovation Capability (X3)

Innovation capability refers to the ability of MSMEs to generate, implement, and manage new ideas, products, services, or processes.

Indicators adapted from Ningsih et al. (2024) include:

- 1) Ability to develop new products or services.
- 2) Ability to improve existing products or services.
- 3) Ability to implement new business processes.
- 4) Ability to respond to market changes creatively.
- 5) Ability to encourage innovative thinking within the business.

2.4.4. MSME Business Performance (Y)

Business performance refers to the achievement of organizational objectives related to growth, profitability, productivity, and competitiveness.

Indicators adapted from Rahman et al. (2025) include:

- 1) Sales growth.
- 2) Profit growth.
- 3) Customer growth.
- 4) Market expansion.

Overall business performance improvement.

2.5. Operational Definition of Variables

Table 1. Definition Variables

Variable	Definition	Indicators
Digital Literacy (X1)	The ability to access, understand, evaluate, and utilize digital technologies effectively for business purposes.	Accessing information, evaluating information, digital communication, digital platform usage, digital problem-solving
Technology Adoption (X2)	The extent to which MSMEs implement and utilize digital technologies in business operations.	Social media usage, digital payments, e-commerce utilization, operational digitalization, technology integration
Innovation Capability (X3)	The ability to generate and implement innovative ideas, products, services, and processes.	Product innovation, service innovation, process innovation, creative response, innovative culture
Business Performance (Y)	The achievement of organizational goals in terms of growth, profitability, and competitiveness.	Sales growth, profit growth, customer growth, market expansion, overall performance

2.6. Data Analysis Technique

The collected data will be analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. PLS-SEM is appropriate because it can analyze complex relationships among multiple latent variables and is suitable for exploratory and predictive research involving relatively small to medium sample sizes (Hair et al., 2022).

The analysis consists of two stages:

2.6.1. Measurement Model Evaluation (Outer Model)

The outer model is evaluated to assess the validity and reliability of the measurement instruments through:

- 1) **Convergent Validity**
 - Outer loading ≥ 0.70
 - Average Variance Extracted (AVE) ≥ 0.50
- 2) **Discriminant Validity**
 - Fornell-Larcker Criterion
 - Heterotrait-Monotrait Ratio (HTMT) < 0.90
- 3) **Reliability**
 - Cronbach's Alpha ≥ 0.70
 - Composite Reliability ≥ 0.70

2.6.2. Structural Model Evaluation (Inner Model)

The inner model is assessed through:

- 1) **Coefficient of Determination (R^2)**
 - Measures the predictive power of the model.

2) Effect Size (f^2)

- Evaluates the contribution of each independent variable.

3) Predictive Relevance (Q^2)

- Assesses the predictive capability of the model.

4) Hypothesis Testing

- Using Bootstrapping procedures.
- Significance level: 5%.
- Decision criteria:
 - t-statistic > 1.96
 - p-value < 0.05

If the t-statistic exceeds 1.96 and the p-value is below 0.05, the hypothesis is accepted.

2.7. Research Framework

The conceptual framework of this study is presented as follows:

- Digital Literacy (X1) → Business Performance (Y)
- Technology Adoption (X2) → Business Performance (Y)
- Innovation Capability (X3) → Business Performance (Y)

The model proposes that digital literacy, technology adoption, and innovation capability individually and collectively influence MSME business performance.

2.8. Ethical Considerations

Participation in this study is voluntary. Respondents will be informed about the purpose of the research and assured that all information provided will be kept confidential and used solely for academic purposes. No personal identifying information will be disclosed in the research findings. Informed consent will be obtained from all participants before data collection.

3. Results and Discussion

3.1. Respondent Profile

Table 1. Respondent Characteristics (N = 200)

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	98	49.0
	Female	102	51.0
Age	< 25 years	32	16.0
	25–35 years	76	38.0
	36–45 years	58	29.0
	> 45 years	34	17.0
Education	High School	80	40.0
	Diploma	42	21.0
	Bachelor's Degree	70	35.0
	Postgraduate	8	4.0
Business Age	1–3 years	64	32.0
	4–6 years	71	35.5

> 6 years	65	32.5
-----------	----	------

Source: Data Analysis

Table 1 shows that female respondents slightly dominate the sample (51%). Most MSME owners are between 25–35 years old (38%), indicating that the majority of respondents belong to the productive entrepreneurial age group. Additionally, most businesses have been operating for more than four years, suggesting that respondents have sufficient experience in managing their businesses.

3.2. Measurement Model Evaluation (Outer Model)

1) Convergent Validity

Table 2. Outer Loadings

Variable	Indicator	Loading
Digital Literacy	DL1	0.812
	DL2	0.857
	DL3	0.831
	DL4	0.875
	DL5	0.803
Technology Adoption	TA1	0.843
	TA2	0.878
	TA3	0.859
	TA4	0.810
	TA5	0.821
Innovation Capability	IC1	0.867
	IC2	0.881
	IC3	0.847
	IC4	0.833
	IC5	0.851
Business Performance	BP1	0.882
	BP2	0.864
	BP3	0.853
	BP4	0.841
	BP5	0.873

Source: Data Analysis

All indicators have loading values above 0.70, indicating satisfactory convergent validity. Therefore, all indicators are retained for further analysis.

2) Reliability and AVE

Table 3. Reliability and Validity Assessment

Variable	Cronbach's Alpha	Composite Reliability	AVE
Digital Literacy	0.891	0.920	0.698
Technology Adoption	0.902	0.928	0.721
Innovation Capability	0.915	0.937	0.748
Business Performance	0.919	0.940	0.758

Source: Data Analysis

All variables have Cronbach's Alpha and Composite Reliability values exceeding 0.70, indicating high internal consistency. AVE values are above 0.50, confirming convergent validity.

3) Discriminant Validity

Table 4. Fornell-Larcker Criterion

Variable	DL	TA	IC	BP
Digital Literacy (DL)	0.836			
Technology Adoption (TA)	0.612	0.849		
Innovation Capability (IC)	0.574	0.646	0.865	
Business Performance (BP)	0.658	0.697	0.731	0.870

Source: Data Analysis

The square root of AVE for each construct is greater than its correlations with other constructs, indicating adequate discriminant validity.

3.3. Structural Model Evaluation (Inner Model)

1) Coefficient of Determination (R^2)

Table 5. Coefficient of Determination

Endogenous Variable	R^2
Business Performance	0.687

Source: Data Analysis

The R^2 value of 0.687 indicates that Digital Literacy, Technology Adoption, and Innovation Capability collectively explain 68.7% of the variance in MSME Business Performance. The remaining 31.3% is explained by factors outside the model.

2) Effect Size (f^2)

Table 6. Effect Size

Relationship	f^2
Digital Literacy → Business Performance	0.154
Technology Adoption → Business Performance	0.223
Innovation Capability → Business Performance	0.296

Source: Data Analysis

Innovation Capability has the strongest effect on Business Performance, followed by Technology Adoption and Digital Literacy. All variables exhibit medium practical effects on business performance.

3) Predictive Relevance (Q^2)

Table 7. Predictive Relevance

Variable	Q^2
Business Performance	0.482

Source: Data Analysis

The Q^2 value exceeds zero, indicating that the model possesses satisfactory predictive relevance.

4) Hypothesis Testing

Table 8. Path Coefficients and Hypothesis Testing

Hypothesis	Relationship	β Coefficient	t- value	p- value	Result
H1	Digital Literacy → Business Performance	0.221	3.284	0.001	Supported
H2	Technology Adoption → Business Performance	0.314	4.856	0.000	Supported
H3	Innovation Capability → Business Performance	0.389	5.921	0.000	Supported

Source: Data Analysis

The results indicate that Digital Literacy has a positive and significant influence on MSME Business Performance ($\beta = 0.221$, $p < 0.05$). Therefore, H1 is supported.

Technology Adoption also positively and significantly affects Business Performance ($\beta = 0.314$, $p < 0.05$). Thus, H2 is supported.

Innovation Capability demonstrates the strongest positive influence on Business Performance ($\beta = 0.389$, $p < 0.05$), indicating that MSMEs with stronger innovation capabilities tend to achieve superior business outcomes. Consequently, H3 is supported.

5) Summary of Hypothesis Testing

Hypothesis	Statement	Result
H1	Digital Literacy positively influences MSME Business Performance	Supported
H2	Technology Adoption positively influences MSME Business Performance	Supported
H3	Innovation Capability positively influences MSME Business Performance	Supported

Source: Data Analysis

All proposed hypotheses are supported. The findings suggest that Digital Literacy, Technology Adoption, and Innovation Capability significantly contribute to improving MSME Business Performance. Among the three variables, Innovation Capability exerts the strongest influence, highlighting the importance of continuous innovation in achieving sustainable business growth and competitiveness.

3.4. Discussion

The purpose of this study was to examine the influence of digital literacy, technology adoption, and innovation capability on MSME business performance. The findings revealed that all three independent variables have a positive and significant effect on business performance. Furthermore, innovation capability was found to have the strongest influence among the variables examined. These results support the Resource-Based View (RBV), which argues that organizations can achieve superior performance by developing valuable and

strategic resources and capabilities (Barney et al., 2021). For MSMEs operating in an increasingly digital and competitive environment, digital literacy, technology adoption, and innovation capability represent critical organizational resources that contribute to sustainable business growth and competitiveness.

The Influence of Digital Literacy on MSME Business Performance

The results indicate that digital literacy has a positive and significant influence on MSME business performance. This finding suggests that MSME owners and managers who possess stronger digital skills are more likely to achieve better business outcomes. Digital literacy enables entrepreneurs to effectively access information, utilize digital tools, communicate with customers, and make informed business decisions. As digital technologies become increasingly integrated into business operations, the ability to understand and utilize these technologies has become a fundamental requirement for business success.

The findings are consistent with previous studies that identified digital literacy as a key driver of organizational performance. Wulandari et al. (2024) found that digital literacy enhances digital capability and contributes significantly to business performance among MSMEs. Similarly, Surti (2025) reported that MSMEs with higher levels of digital competence demonstrate better adaptability and stronger business outcomes compared to businesses with limited digital skills. The present study reinforces these findings by providing additional evidence that digital literacy directly contributes to improved business performance.

From a theoretical perspective, the findings support the Resource-Based View (RBV), which emphasizes the importance of intangible resources in creating competitive advantages. Digital literacy can be considered an intangible asset that enhances the ability of entrepreneurs to utilize available resources efficiently and respond to environmental changes. MSME owners with strong digital literacy are more capable of identifying market opportunities, adopting new technologies, and implementing effective digital marketing strategies. Consequently, they are better positioned to increase productivity, improve customer relationships, and achieve business growth.

In practical terms, the findings suggest that policymakers and business development institutions should prioritize digital literacy training programs for MSME owners. Improving digital competencies may enable entrepreneurs to maximize the benefits of digital transformation and enhance overall business performance.

The Influence of Technology Adoption on MSME Business Performance

The findings further demonstrate that technology adoption has a positive and significant influence on MSME business performance. This result indicates that MSMEs that actively implement and utilize digital technologies tend to experience higher levels of business success. The adoption of technologies such as social media platforms, digital payment systems, e-commerce applications, cloud-based tools, and digital communication platforms can improve operational efficiency, customer engagement, and market accessibility.

This finding aligns with previous research highlighting the importance of technology adoption in enhancing organizational performance. Rahman et al. (2025) found that digital technology adoption contributes significantly to sustainable business performance among MSMEs. Likewise, OECD (2023) emphasized that businesses that integrate digital

technologies into their operations often achieve greater productivity, innovation, and competitiveness. The current study supports these conclusions by demonstrating that technology adoption remains an important determinant of MSME performance in the digital era.

The positive effect of technology adoption can be explained through its ability to improve various aspects of business operations. Digital technologies facilitate faster communication, reduce transaction costs, improve data management, and enable businesses to reach broader customer segments. For example, MSMEs that utilize e-commerce platforms can expand beyond local markets and access customers in different regions. Similarly, businesses using digital payment systems can provide greater convenience to customers, resulting in improved customer satisfaction and increased sales opportunities.

The findings are also consistent with the Technology Acceptance Model (TAM), which suggests that organizations are more likely to adopt technologies when they perceive them as useful and beneficial. MSME owners who recognize the advantages of digital technologies are more likely to integrate them into their business processes, thereby improving organizational performance.

From a managerial perspective, the results indicate that MSMEs should continue investing in digital technologies and strengthening their technological capabilities. Governments and supporting institutions may also play a vital role by providing affordable technological infrastructure, training programs, and financial support to facilitate technology adoption among MSMEs.

The Influence of Innovation Capability on MSME Business Performance

Among the variables examined, innovation capability was found to have the strongest positive influence on MSME business performance. This finding indicates that MSMEs with greater innovation capabilities are more likely to achieve superior business outcomes. Innovation capability enables businesses to develop new products, improve existing services, enhance operational processes, and respond effectively to changing customer preferences and market conditions.

The result is consistent with previous studies that identified innovation capability as a critical determinant of organizational success. Ningsih et al. (2024) found that innovation capability significantly enhances firm performance by increasing competitiveness and adaptability. Similarly, Ramadhan et al. (2025) reported that innovation capability strengthens competitive advantage and contributes to improved business growth among MSMEs. The present study confirms that innovation capability remains a powerful predictor of business performance in the context of digital transformation.

The strong influence of innovation capability can be explained by the increasingly dynamic and competitive business environment. Technological advancements, changing consumer preferences, and market uncertainties require MSMEs to continuously innovate in order to survive and grow. Businesses that possess strong innovation capabilities can identify emerging opportunities, develop unique value propositions, and differentiate themselves from competitors. As a result, they are more likely to achieve long-term sustainability and profitability.

From the RBV perspective, innovation capability represents a strategic organizational resource that is difficult for competitors to imitate. Unlike physical assets, innovation capability is developed over time through organizational learning, knowledge accumulation, and experience. Therefore, businesses that successfully cultivate innovation capabilities can establish sustainable competitive advantages that contribute to superior performance.

The findings suggest that MSME owners should foster a culture of innovation within their organizations. Encouraging creativity, supporting experimentation, and continuously seeking opportunities for improvement can help businesses remain competitive in rapidly evolving markets.

4. Conclusion

This study examined the influence of digital literacy, technology adoption, and innovation capability on MSME business performance. The findings revealed that all three variables have a positive and significant effect on business performance, indicating that MSMEs with higher levels of digital literacy, greater adoption of digital technologies, and stronger innovation capabilities tend to achieve better business outcomes. Among the variables studied, innovation capability emerged as the most influential factor, highlighting the importance of continuous innovation in enhancing competitiveness and sustaining business growth. These results support the Resource-Based View (RBV), which emphasizes that valuable organizational resources and capabilities contribute to superior performance and competitive advantage. The study concludes that strengthening digital competencies, encouraging the adoption of digital technologies, and fostering innovation should be strategic priorities for MSMEs seeking to improve their performance in an increasingly digital and competitive business environment. Therefore, policymakers, business support institutions, and MSME owners should collaborate to develop initiatives that enhance digital literacy, facilitate technology adoption, and promote innovation to ensure the long-term sustainability and success of MSMEs.

5. References

- Arif, H. M., & Windarsari, W. R. (2026). Between Algorithm and Adat: How Bugis-Makassar MSMEs Negotiate AI Marketing Through the Lens of Siri' na Pacce. *Economics and Business Journal (ECBIS)*, 4(3), 897–908. <https://doi.org/10.47353/ecbis.v4i3.308>
- Barney, J. B., Ketchen, D. J., & Wright, M. (2021). Resource-based theory and the future of strategic management. *Journal of Management*, 47(7), 1933–1955.
- Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). Sage Publications.
- Egodawe, M., Sedera, D., & Bui, V. (2022). A systematic review of digital transformation literature (2013–2021) and the development of an overarching apriori model to guide future research.
- Ernawati, Y., Rahmawati, I. Y., Purwidiyanti, W., & Endratno, H. (2024). The influence of financial inclusion, financial literacy, financial management, and financial technology on MSME performance. *Jurnal Ekonomi dan Bisnis Digital*, 3(3), 519–530.

- Gonzalez-Varona, J. M., Lopez-Paredes, A., Poza, D., & Acebes, F. (2024). Building and development of an organizational competence for digital transformation in SMEs. *Journal of Small Business and Enterprise Development*.
- Gómez-Morantes, J. E., Herrera, A., & Camacho, S. (2025). Digital innovation in microenterprises: Current trends and new research avenues.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2022). Partial least squares structural equation modeling (PLS-SEM) using R: A workbook. Springer.
- Muhtadin, I., Arifin, Z., Astrina, F., Hakim, C. B., Munzir, M., & Sudarmanto, E. (2026). The influence of digital entrepreneurship and digital literacy on MSME performance through digital technology adoption in Indonesia. *The ES Economics and Entrepreneurship*, 4(3).
- Ningsih, A., Priscilla, L., & Kaltum, U. (2024). The implication of business digitalization, organizational learning, and innovation capabilities on the firm performance of MSMEs. *Jurnal Manajerial*, 11(2), 255–269.
- OECD. (2023). Digitalisation of SMEs. OECD Publishing.
- OECD. (2023). Financial literacy and digitalisation for SMEs in South East Europe. OECD Publishing.
- Procedia Computer Science. (2024). Analyzing the effect of innovation and strategic planning on MSME performance utilizing technology adoption as a moderator. *Procedia Computer Science*, 245, 500–507.
- Rahman, R., et al. (2025). Adoption of digital technology and financial knowledge: Strategies for achieving sustainable performance of MSMEs. *Journal of Risk and Financial Management*, 18(11), 646.
- Ramadhan, M. H., Kautsar, A., Dewi, R. S., & Fazlurrahman, H. (2025). The effect of innovation and digital capital adoption on MSME performance mediated by competitive advantage. *Transekonomika: Akuntansi, Bisnis dan Keuangan*, 5(6).
- Riu, I. A., Radjab, I., Arif, H. M., Haeruddin, M. I. W., & Aswar, N. F. (2026). Consumer Trust In Influencer-Based Digital Marketing: A Qualitative Study Among Beauty Product Consumers In Makassar City. *Economics and Business Journal (ECBIS)*, 4(2), 533–546. <https://doi.org/10.47353/ecbis.v4i2.378>
- Rombaldo Junior, C., Becker, I., & Johnson, S. (2023). Unaware, unfunded and uneducated: A systematic review of SME cybersecurity.
- Surti. (2025). Implementation gaps and their impact on digital capability and MSME performance. *Journal of Regional Economics Indonesia*, 6(1), 1–18.
- Wulandari, A., Marcelino, D., Suryawardani, B., & Adithya, D. (2024). Digital capability and literacy for MSME transformation: Perspectives of digital and business performance. *Asia Pacific Management and Business Application*, 13(2), 109–128.
- Windarsari, W. R., & Arif, H. M. (2026). Diferensiasi Kualitas Keterlibatan dalam Social Commerce: Analisis Sistematis Trust-Based Engagement terhadap Perilaku Pembelian Berulang. *Kompeten: Jurnal Ilmiah Ekonomi Dan Bisnis*, 4(6), 1692–1702. <https://doi.org/10.57141/kompeten.v4i6.261>