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DETERMINANTS OF MSME FINANCIAL PERFORMANCE IN THE DIGITAL ERA: THE INFLUENCE OF E-COMMERCE, ACCOUNTING INFORMATION SYSTEMS, AND FINANCIAL LITERACY

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Abstract
This study aims to analyze the effect of e-commerce, accounting information systems, and financial literacy on the financial performance of Micro, Small, and Medium Enterprises (MSMEs) in Semarang City. The study employed a quantitative approach using a survey method. The population consisted of MSME owners in Semarang City, with 40 respondents selected through purposive sampling. Primary data were collected using a five-point Likert-scale questionnaire and analyzed using multiple linear regression with SPSS software. The results indicate that e-commerce has a positive and significant effect on MSMEs' financial performance (Sig. = 0.044). Accounting information systems also have a positive and significant effect (Sig. = 0.000) and represent the most influential variable in improving financial performance. Meanwhile, financial literacy does not have a significant effect on financial performance (Sig. = 0.739). Simultaneously, e-commerce, accounting information systems, and financial literacy significantly affect MSMEs' financial performance, as indicated by an F-value of 13.702 with a significance level of 0.000. The Adjusted R Square value of 0.494 indicates that these three variables explain 49.4% of the variation in MSMEs' financial performance, while the remaining 50.6% is explained by other factors outside the research model. The findings suggest that optimizing the use of e-commerce and implementing effective accounting information systems are essential strategies for improving the financial performance of MSMEs in Semarang City.

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INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are a key pillar of the Indonesian economy, absorbing a large workforce, increasing community incomes, and contributing to national economic growth. In addition to their role as drivers of regional economies, MSMEs also demonstrate relatively strong resilience in the face of various economic dynamics. However, the development of MSMEs still faces various challenges, particularly in improving financial performance as an indicator of business success. Financial performance is a crucial measure for assessing MSMEs' ability to manage resources, generate profits, maintain liquidity, and maintain business sustainability (Kasmir, 2018).

The development of digital technology has significantly transformed the business model of MSMEs. The use of e-commerce provides opportunities for businesses to expand market reach, improve transaction efficiency, and accelerate communication with consumers. Digitalization of marketing through various online platforms allows MSMEs to reach customers without geographic limitations, potentially increasing sales volume and revenue. Therefore, the ability of MSMEs to utilize e-commerce is one factor that can improve a company's competitiveness and financial performance.

In addition to marketing digitalization, accounting information systems (AIS) also play a crucial role in business management. Accounting information systems provide accurate, relevant, and timely financial information, assisting business owners in preparing financial reports, controlling operational activities, and supporting more effective decision-making. Implementing a sound accounting information system will improve the quality of financial information, enabling more rational business decisions and impacting the financial performance of MSMEs.

Another equally important factor is financial literacy. Financial literacy reflects a business owner's ability to understand financial concepts, manage cash flow, develop financial plans, and make appropriate investment and financing decisions. A high level of financial literacy enables MSMEs to manage business capital efficiently, thereby increasing profitability and business sustainability. Conversely, low financial literacy often leads to errors in financial management, which can negatively impact business performance.

Several previous studies have shown that e-commerce, accounting information systems, and financial literacy are related to MSME performance, but the results are still inconsistent. Research by Andriani et al. (2025) showed that e-commerce and accounting information systems significantly influence MSME financial performance. Similarly, research by Terisiana et al. (2023) found that both variables positively influence MSME financial performance. Conversely, Putrie and Ariani (2024) reported that accounting information systems had no significant effect on MSME performance, while e-commerce and financial literacy did. Research by Wahyuni et al. (2021) also found that accounting information systems had no significant effect on MSME performance, while e-commerce and financial literacy had a positive effect.

The discrepancies in these research results indicate a persistent research gap, particularly regarding the influence of accounting information systems on the financial performance of MSMEs. Furthermore, the characteristics of MSMEs in each region vary, necessitating further research to obtain more comprehensive empirical evidence. Semarang, as one of the centers of economic growth in Central Java, has a growing number of MSMEs and is facing increasing demands for digital transformation. This makes Semarang a relevant location to examine the influence of e-commerce, accounting information systems, and financial literacy on MSME financial performance.

Based on the above description, this study aims to analyze the influence of e-commerce, accounting information systems, and financial literacy on the financial performance of MSMEs in Semarang City. The results are expected to contribute to the development of literature on MSME management and serve as a consideration for business actors and stakeholders in formulating strategies to improve financial performance through the use of digital technology, the implementation of accounting information systems, and improving financial literacy.

LITERATURE REVIEW

Resource-Based View (RBV)

This research is based on the Resource-Based View (RBV), which states that a company's competitive advantage is achieved through the management of valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). In the context of MSMEs, the ability to utilize e-commerce, implement accounting information systems, and possess financial literacy are strategic resources that can improve operational efficiency, decision-making quality, and a company's financial performance. Therefore, the better an MSME's ability to manage these resources, the greater the company's chances of achieving optimal financial performance (Barney, 1991; Wernerfelt, 1984).

Financial Performance of MSMEs

Financial performance reflects a company's financial condition, indicating its success in managing economic resources over a specific period. Financial performance is measured to determine a company's effectiveness in generating profits, maintaining liquidity, meeting obligations, and increasing company value (Kasmir, 2018). For MSMEs, financial performance is a crucial indicator because it reflects the company's ability to maintain business continuity amidst increasingly competitive conditions.

According to Kasmir (2018), financial performance indicators include liquidity ratios, activity ratios, solvency ratios, and profitability ratios. These four indicators provide information on a company's ability to meet short-term obligations, asset utilization effectiveness, funding structure, and profitgenerating capacity. In this study, financial performance is measured using indicators of capital growth, sales growth, company conditions, and market and marketing developments as used in previous studies.

E-Commerce

E-commerce is the buying and selling of goods and services conducted electronically using the internet. Advances in information technology have made e-commerce a marketing strategy capable of expanding market share, lowering transaction costs, and improving a company's operational efficiency. Laudon and Traver (2022) stated that e-commerce enables companies to build business relationships more quickly, effectively, and efficiently through the use of digital technology. For MSMEs, the use of e-commerce not only increases market access but also speeds up the customer service process, resulting in increased sales.

Research by Andriani et al. (2025) demonstrated that e-commerce positively impacts the financial performance of MSMEs. Similar results were also found by Terisiana et al. (2023), Putrie and Ariani (2024), and Zairina and Pabulo (2023), who demonstrated that the use of e-commerce can increase competitiveness and improve business performance. In this study, e-commerce indicators included internet access, ease of access to information, human resource capabilities, and managerial responsibility.

Accounting Information System

An accounting information system (AIS) is a system used to collect, record, process, store, and present financial information to support an organization's decision-making process. According to Romney and Steinbart (2021), an accounting information system functions to produce accurate, relevant, and timely information, thereby improving the effectiveness of internal controls and the efficiency of a company's operations. Implementing an accounting information system in MSMEs helps business owners record transactions, prepare financial reports, control cash flow, and evaluate business conditions. Quality financial information will help business owners determine appropriate business strategies, thereby improving financial performance.

Research by Terisiana et al. (2023) found that accounting information systems significantly influence the financial performance of MSMEs. However, research by Putrie and Ariani (2024) and Wahyuni et al. (2021) showed different results, namely that accounting information systems had no significant effect on MSME performance. These differences in research findings indicate that the effectiveness of accounting information system implementation is still influenced by the characteristics of MSMEs in each region.

The accounting information system indicators in this study include the quality of financial information, information accuracy, support for decision making, internal control, and system effectiveness.

Financial Literacy

Financial literacy is an individual's ability to understand financial concepts and use that knowledge to make effective financial decisions. According to the OECD (2020), financial literacy encompasses the knowledge, skills, attitudes, and behaviors necessary to achieve financial well-being. In MSMEs, financial literacy helps entrepreneurs manage capital, prepare budgets, maintain financial records, control expenses, and make informed investment decisions. A high level of financial literacy will enhance entrepreneurs' ability to maintain financial stability, thus contributing to improved company performance.

Research by Zairina and Pabulo (2023), Putrie and Ariani (2024), and Wahyuni et al. (2021) shows that financial literacy positively impacts MSME performance. Business owners with a good understanding of finance tend to be more able to manage financial resources effectively, resulting in better business performance. In this study, financial literacy indicators include accounting understanding, financial management, business performance, and decision-making skills.

The Influence of E-Commerce on the Financial Performance of MSMEs

E-commerce is a form of digital technology that enables businesses to conduct electronic transactions, expand market access, improve operational efficiency, and accelerate customer service. Utilizing e-commerce provides opportunities for MSMEs to reach a wider consumer base without being limited by geographic location, potentially increasing sales volume and business revenue. From a Resource-Based View (RBV) perspective, the ability to utilize digital technology is a strategic resource that can create competitive advantage and improve company performance.

Previous research has shown that e-commerce implementation can improve the performance of MSMEs. Andriani et al. (2025) demonstrated that e-commerce significantly impacts the financial performance of MSMEs. Similar results were also found by Terisiana et al. (2023), Putrie and Ariani (2024), and Zairina and Pabulo (2023), who stated that the higher the utilization of e-commerce, the better the performance of MSMEs. Based on the theory and results of previous research, the following hypothesis is formulated.

H1: E-commerce has a positive and significant impact on the financial performance of MSMEs.

The Influence of Accounting Information Systems on the Financial Performance of MSMEs

An accounting information system is a system used to collect, process, store, and present financial information needed for decision-making. Accurate and timely financial information helps MSMEs control business activities, evaluate financial conditions, and plan business strategies more effectively. Therefore, implementing a sound accounting information system is expected to increase business management efficiency and improve financial performance.

Research by Terisiana et al. (2023) and Andriani et al. (2025) showed that accounting information systems significantly influence the financial performance of MSMEs. However, Putrie and Ariani (2024) and Wahyuni et al. (2021) obtained different results, namely that accounting information systems did not significantly influence MSME performance. These differences in research results indicate that the influence of accounting information systems on financial performance still requires further testing in the context of MSMEs in Semarang City. Based on this description, the research hypothesis is formulated as follows.

H2: Accounting information systems have a positive and significant effect on the financial performance of MSMEs.

The Influence of Financial Literacy on the Financial Performance of MSMEs

Financial literacy is an individual's ability to understand financial concepts and use them to make informed financial decisions. MSMEs with good financial literacy are better able to develop financial plans, manage cash flow, control operational costs, and make informed investment decisions, thereby improving business sustainability and financial performance.

Research by Putrie and Ariani (2024), Zairina and Pabulo (2023), and Wahyuni et al. (2021) demonstrated that financial literacy positively impacts MSME performance. These results indicate that the higher a business owner's financial literacy, the better their financial management skills, thus improving business performance. Based on these theories and previous research findings, the following hypothesis is formulated.

H3: Financial literacy has a positive and significant effect on the financial performance of MSMEs.

The Influence of E-Commerce, Accounting Information Systems, and Financial Literacy on the Financial Performance of MSMEs

The success of MSMEs in improving financial performance is influenced not only by a single factor, but also by a combination of various resources. The use of e-commerce can expand markets and increase sales, accounting information systems provide quality financial information to support decision-making, and financial literacy enhances the ability of business actors to manage financial resources effectively. The synergy of these three factors is expected to increase operational efficiency and improve MSME financial performance.

Research by Andriani et al. (2025) shows that e-commerce and accounting information systems influence the financial performance of MSMEs, while research by Zairina and Pabulo (2023) proves that financial literacy also influences MSME performance. These findings indicate that all three variables play a significant role in improving MSME financial performance. Based on this description, the research hypothesis is as follows.

H4: E-commerce, accounting information systems, and financial literacy simultaneously have a positive and significant effect on the financial performance of MSMEs

METHODS

This study uses a quantitative approach with a survey method to analyze the influence of e-commerce, accounting information systems, and financial literacy on the financial performance of MSMEs in Semarang City. The quantitative approach was chosen because it aims to examine the relationship between variables through statistical analysis based on data obtained from respondents.

The population in this study was all Micro, Small, and Medium Enterprises (MSMEs) in Semarang City. The research sample was determined using purposive sampling, a sampling technique based on specific criteria. Respondents were MSMEs still actively operating their businesses in Semarang City. Based on these criteria, the sample size used in this study was 40 MSMEs.

This study used primary data obtained directly through questionnaires distributed to respondents. The research instrument was constructed using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), to measure respondents' perceptions of each research variable indicator. Data collection was conducted online using Google Forms, facilitating the distribution and completion of the questionnaires by respondents.

The independent variables in this study consist of e-commerce (X_1), accounting information systems (X_2), and financial literacy (X_3), while the dependent variable is the financial performance of MSMEs (Y). The e-commerce variable is measured through indicators of internet access, ease of obtaining information, human resource capabilities, and managerial responsibility. The accounting information system variable is measured based on the quality of financial information, information accuracy, support for decision-making, internal control, and system effectiveness. The financial literacy variable is measured through accounting understanding, financial management, business performance, and decision-making capabilities. Meanwhile, the financial performance of MSMEs is measured through company conditions, capital growth, sales growth, and market and marketing developments.

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS). The analysis stages included descriptive statistical analysis, instrument quality testing consisting of validity and reliability tests, and classical assumption tests including normality, multicollinearity, and heteroscedasticity tests. Furthermore, hypothesis testing was conducted using multiple linear regression analysis, supplemented by a t-test to examine the partial effect of each independent variable on the dependent variable, an F-test to examine the simultaneous effect of all independent variables, and a coefficient of determination (Adjusted R^2) to determine the model's ability to explain variations in MSME financial performance.

The regression equation used in this study is as follows:

$$\boldsymbol{Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon}$$

Information:

Y = Financial Performance of MSMEs

α = Constant

β_1–β_3 = Regression coefficient

X_1 = E-Commerce

X_2 = Accounting Information System

X_3 = Financial Literacy

ε = Error term.

RESULTS AND DISCUSSION

Descriptive Analysis

Descriptive analysis aims to provide an overview of respondents' perceptions of each research variable. Based on data processing results from 40 respondents, the average values for each variable are presented in Table 1.

Table 1. Descriptive Analysis Results

Variables	Indicator	Mean
E-Commerce	X1.1	4.18
	X1.2	3.87
	X1.3	3.40
	X1.4	3.37
	X1.5	3.88
Accounting Information System	X2.1	3.90
	X2.2	3.60
	X2.3	4.03
	X2.4	3.48
	X2.5	3.68
Financial Literacy	X3.1	3.88
	X3.2	3.83
	X3.3	4.35
	X3.4	3.78
	X3.5	3.33
Financial Performance of MSMEs	Y1	3.75
	Y2	3.63
	Y3	3.90
	Y4	3.62
	Y5	3.65

Source: SPSS 26 output, processed (2026).

Based on Table 1, the e-commerce variable has the highest average value of 4.18 on indicator X1.1, while the lowest value is 3.37 on indicator X1.4. The accounting information system variable obtained the highest average value of 4.03 on indicator X2.3. The financial literacy variable has the highest average value of 4.35 on indicator X3.3, while the MSME financial performance variable obtained the highest average value of 3.90 on indicator Y3. In general, all variables are in the good category, which indicates that respondents have a positive perception of the implementation of e-commerce, accounting information systems, financial literacy, and the condition of their business financial performance.

Multiple Linear Regression Analysis

Multiple linear regression analysis was used to determine the influence of e-commerce, accounting information systems, and financial literacy on the financial performance of MSMEs.

Table 2. Results of Multiple Linear Regression Analysis

Variables	B	Beta	t	Sig.
Constant	5,106	–	2,150	0.038
E-Commerce	0.127	0.275	2,091	0.044
Accounting Information System	0.629	0.674	5,743	0,000
Financial Literacy	-0.035	-0.045	-0.336	0.739

Source: SPSS 26 output, processed (2026).

Based on the results of the regression analysis, the following equation was obtained:

$Y = 5.106 + 0.127X_1 + 0.629X_2 – 0.035X_3$

The equation shows that the constant value of 5.106 indicates that if the variables of e-commerce, accounting information systems, and financial literacy are considered constant, then the financial performance value is 5.106. The e-commerce regression coefficient of 0.127 indicates that increasing e-commerce will improve the financial performance of MSMEs. The accounting information system regression coefficient of 0.629 indicates that the better the implementation of accounting information systems, the higher the financial performance of MSMEs. Meanwhile, the financial literacy regression coefficient of -0.035 indicates a negative relationship, but its effect is not significant on the financial performance of MSMEs.

Hypothesis Testing

Partial Test (t-Test)

Table 3. Hypothesis Test Results (t-Test)

Hypothesis	Variables	t count	Sig.	Decision
H1	E-Commerce → Financial Performance	2,091	0.044	Accepted
H2	Accounting Information Systems → Financial Performance	5,743	0,000	Accepted
H3	Financial Literacy → Financial Performance	-0.336	0.739	Rejected

Source: SPSS 26 output, processed (2026).

Based on Table 3, the e-commerce variable has a significance value of 0.044 < 0.05, thus having a positive and significant effect on the financial performance of MSMEs. Thus, H1 is accepted. The accounting information system variable has a significance value of 0.000 < 0.05, thus having a positive and significant effect on the financial performance of MSMEs. Therefore, H2 is accepted. Meanwhile, the financial literacy variable has a significance value of 0.739 > 0.05, thus having no significant effect on the financial performance of MSMEs. Thus, H3 is rejected.

Simultaneous Test (F Test)

Table 4. F Test Results

F count	F table	Sig.	Decision
13,702	2.86	0,000	H4 Accepted

Source: SPSS 26 output, processed (2026).

The F test results show that the calculated F value is 13.702 with a significance level of 0.000 < 0.05. This value is greater than the F table (2.86), so it can be concluded that e-commerce, accounting information systems, and financial literacy simultaneously have a significant effect on the financial performance of MSMEs. Thus, H4 is accepted.

Coefficient of Determination (Adjusted R^2)

Table 5. Results of the Determination Coefficient

R	R Square	Adjusted R Square	Std. Error
0.730	0.533	0.494	0.979

Source: SPSS 26 output, processed (2026).

The adjusted R-square value of 0.494 indicates that 49.4% of the variation in MSME financial performance can be explained by e-commerce, accounting information systems, and financial literacy. The remaining 50.6% is influenced by factors outside the research model.

DISCUSSION

The Influence of E-Commerce on the Financial Performance of MSMEs

The results of the hypothesis testing indicate that e-commerce has a positive and significant impact on the financial performance of MSMEs in Semarang City. This is evidenced by a significance value of 0.044, which is less than 0.05, thus accepting the first hypothesis. The results of this study indicate that the higher the utilization of e-commerce by MSMEs, the better their financial performance.

These findings indicate that e-commerce makes it easier for MSMEs to expand their market reach, increase transaction efficiency, and expedite the delivery of product information to consumers. Through digital platforms, businesses can market their products without geographic constraints, potentially increasing sales volume and revenue. Furthermore, e-commerce also enables MSMEs to build stronger relationships with customers through faster communication and more effective service.

Based on the Resource-Based View (RBV), the ability to leverage digital technology is a strategic resource capable of creating competitive advantage. MSMEs that can optimize e-commerce will be more adaptable to changes in the business environment, thus having a greater opportunity to improve financial performance compared to MSMEs that still rely on conventional marketing.

The results of this study align with those of Andriani et al. (2025), Terisiana et al. (2023), Putrie and Ariani (2024), and Zairina and Pabulo (2023), which stated that e-commerce has a positive effect on the financial performance of MSMEs.

The Influence of Accounting Information Systems on the Financial Performance of MSMEs

The results of the study indicate that accounting information systems have a positive and significant effect on the financial performance of MSMEs. This is evidenced by a significance value of 0.000, thus accepting the second hypothesis. The accounting information system variable also has the largest regression coefficient compared to other independent variables, indicating that accounting information systems are the most dominant factor in improving MSME financial performance.

Implementing an accounting information system helps MSMEs systematically record transactions, produce more accurate financial reports, and provide relevant information to support business decision-making. Quality financial information enables business owners to evaluate their company's financial condition, control operational costs, and develop more appropriate business strategies.

From a resource-based perspective, an accounting information system represents an organization's ability to manage information as a strategic resource. Good information management improves operational efficiency and the quality of managerial decisions, thus improving the company's financial performance.

The results of this study support the research of Andriani et al. (2025) and Terisiana et al. (2023), which found that accounting information systems significantly influence the financial performance of MSMEs. However, these results differ from those of Putrie and Ariani (2024) and Wahyuni et al. (2021), which stated that accounting information systems do not significantly influence MSME performance. This difference is thought to be due to the level of implementation of accounting information systems, respondent characteristics, and the ability of MSMEs to utilize accounting information at each study location.

The Influence of Financial Literacy on the Financial Performance of MSMEs

The test results indicate that financial literacy does not significantly influence the financial performance of MSMEs. This is indicated by a significance value of 0.739, thus rejecting the third hypothesis. Furthermore, the regression coefficient for the financial literacy variable is negative, indicating that in this research model, financial literacy is unable to significantly improve the financial performance of MSMEs.

These results indicate that MSMEs' financial literacy has not been fully applied in their daily business management practices. Although respondents had a relatively good level of financial literacy based on the descriptive analysis, this knowledge was insufficient to improve financial performance. This condition can be influenced by various other factors, such as limited capital, competitive conditions, marketing capabilities, entrepreneurial experience, and business scale, which were not fully accommodated in the research model.

The findings of this study differ from those of Putrie and Ariani (2024), Zairina and Pabulo (2023), and Wahyuni et al. (2021), which stated that financial literacy positively impacts MSME performance. These differences indicate that the influence of financial literacy on business performance still depends on the characteristics of the business actor, the business environment, and the MSME's ability to implement financial knowledge into operational activities.

The Influence of E-Commerce, Accounting Information Systems, and Financial Literacy on the Financial Performance of MSMEs

The simultaneous test results indicate that e-commerce, accounting information systems, and financial literacy collectively have a significant effect on MSME financial performance. This is evidenced by the calculated F-value of 13.702 and a significance level of 0.000, thus accepting the fourth hypothesis.

These results indicate that improving MSME financial performance is not influenced by a single factor, but rather by a combination of business actors' abilities to utilize digital technology, implement accounting information systems, and possess knowledge of financial management. These three variables simultaneously explain 49.4% of the variation in MSME financial performance, while the remaining 50.6% is influenced by other factors not examined in this study, such as product innovation, human resource quality, entrepreneurial orientation, access to financing, and marketing strategy.

These findings reinforce the Resource-Based View (RBV) that a company's competitive advantage is achieved through the ability to manage various strategic resources in an integrated manner. For MSMEs in Semarang City, the use of e-commerce and accounting information systems proved to be the most significant contributing factors to improving financial performance, while financial literacy did not have a significant impact when tested alongside the other two variables.

CONCLUSION

Based on the results of research on the influence of e-commerce, accounting information systems, and financial literacy on the financial performance of MSMEs in Semarang City, it can be concluded that e-commerce has a positive and significant impact on MSME financial performance. These findings indicate that utilizing digital platforms in marketing and transaction activities can improve operational effectiveness, expand market reach, and drive increased business revenue. Therefore, the more optimal the implementation of e-commerce by MSMEs, the better their financial performance will be.

This study also demonstrates that accounting information systems have a positive and significant impact on the financial performance of MSMEs. Implementing a robust accounting information system helps businesses generate accurate, relevant, and timely financial information, thereby supporting more effective business decision-making. The accounting information system variable is the most dominant factor influencing the improvement of MSME financial performance in this study.

Unlike the two previous variables, financial literacy did not significantly impact the financial performance of MSMEs. These results indicate that MSMEs' financial knowledge and understanding have not been fully applied in business management, thus failing to significantly improve financial performance. This situation suggests that improving financial literacy needs to be accompanied by the ability to implement this knowledge in daily business management practices.

Simultaneously, e-commerce, accounting information systems, and financial literacy significantly influence the financial performance of MSMEs in Semarang City. These three variables explain 49.4% of the variation in MSME financial performance, while the remaining 50.6% is influenced by factors outside the research model. These findings indicate that improving MSME financial performance requires integrated management of various resources, particularly through optimizing the use of digital technology and implementing effective accounting information systems.

Practically, the results of this study imply that MSMEs need to continue enhancing their use of e-commerce and implementing accounting information systems as strategies to improve their competitiveness and financial performance. Furthermore, the government, MSME support agencies, and related institutions are expected to strengthen training programs that focus not only on improving financial literacy but also on the practical application of financial management in business activities, so that the benefits of financial literacy can be felt tangibly in improving business performance.

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