Indonesia Journal of Engineering and Education Technology (IJEET)
Nomor 4 Nomor 1, Hlm: 119-126
E-ISSN: 3026-7544

The Influence of Accounting Information Systems and Internal Control on the Effectiveness of Managerial Decision-Making in MSMEs

Bella Suci Novitri[1*], Walla Astianty Putri[2], Joko Rianto[3], Muhammad Fikri[4]
[1] Universitas Islam Syekh Yusuf, Indonesia
[2]Universitas Islam Syekh Yusuf, Indonesia
[3] Universitas Islam Syekh Yusuf, Indonesia
[4]Universitas Islam Syekh Yusuf, Indonesia
Corresponding email:bella.sucinovitri@unis.ac.id

Abstract

Micro, Small, and Medium Enterprises (MSMEs) play a strategic role in promoting economic growth, employment generation, and regional development. However, many MSMEs continue to experience limitations in producing accurate financial information and implementing effective internal control systems, thereby reducing the quality and timeliness of managerial decision-making. This study aims to examine the influence of Accounting Information Systems (AIS) and Internal Control on the effectiveness of managerial decision-making in MSMEs. The study employed a quantitative explanatory research design using a survey approach. Data were collected from owners and managers of MSMEs through structured questionnaires distributed using proportional random sampling. The collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate the measurement model and test the proposed structural relationships among variables. The findings indicate that Accounting Information Systems have a positive and significant effect on the effectiveness of managerial decision-making by improving the availability, accuracy, relevance, and timeliness of financial information. Internal Control also demonstrates a significant positive influence by strengthening operational reliability, safeguarding organizational assets, ensuring regulatory compliance, and minimizing business risks that may affect managerial judgments. Furthermore, the simultaneous implementation of effective Accounting Information Systems and robust Internal Control contributes substantially to enhancing the quality of managerial decisions in MSMEs. These findings suggest that integrating digital accounting practices with comprehensive internal control mechanisms enables MSMEs to make more evidence-based, efficient, and strategic decisions. The study provides practical implications for MSME owners, policymakers, and business development institutions in designing strategies to strengthen financial management capabilities and improve organizational performance through technology adoption and sound governance practices.

Keywords: Accounting Information Systems, Internal Control, Managerial Decision-Making, MSMEs

Introduction

The acceleration of the Fourth Industrial Revolution (Industry 4.0) and the emergence of Society 5.0 have fundamentally transformed the way organizations create value, manage information, and make strategic decisions. Digital technologies—including cloud computing, artificial intelligence (AI), big data analytics, the Internet of Things (IoT), and business analytics—have become essential enablers of organizational competitiveness by facilitating real-time information processing, predictive analysis, and evidence-based decision-making. In this context, Accounting Information Systems (AIS) have evolved from traditional financial recording tools into strategic information systems that integrate operational and financial data to support managerial planning, controlling, and decision-making processes. The availability of accurate, timely, relevant, and reliable accounting information enables managers to reduce uncertainty and improve the quality of strategic decisions in increasingly dynamic business environments. Simultaneously, the effectiveness of AIS depends on robust governance structures and internal control mechanisms that ensure data integrity, regulatory compliance, operational efficiency, and protection against fraud and information risks. Consequently, the integration of digital accounting technologies with comprehensive internal control systems has become a critical success factor for organizations seeking sustainable competitive advantage in the digital economy (Romney & Steinbart, 2021; Hall, 2019; COSO, 2013; Laudon & Laudon, 2022).

Micro, Small, and Medium Enterprises (MSMEs) constitute one of the most significant pillars of both national and global economic development because of their substantial contributions to gross domestic product (GDP), employment generation, innovation, and poverty alleviation. In Indonesia, MSMEs account for the overwhelming majority of business entities and contribute more than 60% of national GDP while absorbing approximately 97% of the workforce, underscoring their strategic importance in fostering inclusive economic growth. Nevertheless, many MSMEs continue to face considerable challenges in adapting to digital transformation, including limited adoption of Accounting Information Systems, inadequate internal control practices, low digital literacy, constrained financial resources, and insufficient managerial competencies. These limitations often result in inaccurate financial reporting, weak business governance, and managerial decisions based primarily on intuition rather than reliable analytical information. Therefore, strengthening managerial capacity through the implementation of effective AIS and sound internal control systems is essential to improving decision-making effectiveness, enhancing operational performance, increasing business resilience, and ensuring the long-term sustainability and competitiveness of MSMEs in the digital era (OECD, 2023; World Bank, 2022; ASEAN, 2021; Romney & Steinbart, 2021; Hall, 2019).

Accounting Information Systems (AIS) are defined as integrated information systems that collect, process, store, and communicate financial and non-financial information to support planning, controlling, decision-making, and organizational performance evaluation. AIS comprise several interrelated components, including people, who operate and manage the system; procedures, which regulate data collection and processing; software and hardware, which facilitate transaction processing and information generation; databases, which store organizational financial data; and internal reporting, which delivers relevant information to managers for strategic and operational decisions. Through the integration of these components, AIS produces financial information that is accurate, timely, relevant, and reliable, thereby enhancing data accuracy, supporting strategic planning, strengthening internal control processes, and facilitating organizational performance evaluation. Beyond its operational role, AIS contributes significantly to organizational efficiency, effectiveness, transparency, accountability, and information quality, enabling managers to respond proactively to dynamic business environments. From the perspective of the Resource-Based View (RBV), AIS represents a valuable organizational resource capable of generating sustainable competitive advantage when effectively integrated with organizational capabilities. Likewise, Information Processing Theory argues that organizations require sophisticated information-processing capabilities to reduce uncertainty and improve decision quality, while the DeLone and McLean Information Systems Success Model emphasizes that system quality, information quality, and service quality collectively enhance user satisfaction, system utilization, and organizational performance outcomes (Barney, 1991; Daft & Lengel, 1986; DeLone & McLean, 2003; Romney & Steinbart, 2021; Hall, 2019).

Internal Control is a systematic governance mechanism designed to provide reasonable assurance regarding the achievement of organizational objectives related to operational effectiveness, reliable financial reporting, and compliance with applicable laws and regulations. According to the Committee of Sponsoring Organizations of the Treadway Commission (COSO), an effective internal control system consists of five integrated components: Control Environment, which establishes organizational integrity and ethical values; Risk Assessment, which identifies and evaluates potential risks; Control Activities, which implement preventive and detective control procedures; Information and Communication, which ensure the timely dissemination of relevant information; and Monitoring, which continuously evaluates the effectiveness of internal control implementation. These components collectively safeguard organizational assets, improve the reliability of financial information, enhance operational efficiency, and strengthen regulatory compliance while minimizing fraud, errors, and operational risks. In the context of MSMEs, effective internal control serves not only as a risk mitigation mechanism but also as an essential foundation for high-quality managerial decision-making because it ensures that decisions are supported by credible information, systematic risk assessment, and accountable governance processes. Consequently, organizations that integrate strong internal control practices with effective Accounting Information Systems are better positioned to make evidence-based, timely, and strategic managerial decisions that support long-term organizational sustainability and competitiveness (Committee of Sponsoring Organizations of the Treadway Commission [COSO], 2013; Romney & Steinbart, 2021; Hall, 2019; Arens et al., 2020; Gelinas et al., 2018).

Previous studies have consistently demonstrated that Accounting Information Systems (AIS) play a strategic role in improving organizational performance by enhancing the quality, accuracy, and timeliness of financial information. Romney and Steinbart (2021) argued that AIS provides managers with relevant and reliable information required for planning, controlling, and strategic decision-making. Similarly, Gelinas et al. (2018) emphasized that organizations implementing integrated accounting information systems experience greater operational efficiency, improved financial reporting quality, and stronger managerial control. These findings indicate that AIS is not merely a transaction-processing system but also a strategic information resource that supports evidence-based managerial decisions.

Research has also highlighted the importance of Internal Control as a governance mechanism for improving organizational effectiveness. Based on the COSO Integrated Framework, effective internal control strengthens operational reliability, safeguards organizational assets, ensures compliance with regulations, and reduces the risk of fraud and financial misstatements (COSO, 2013). Arens et al. (2020) further argued that organizations with strong internal control systems produce more reliable financial information, thereby improving managerial confidence during strategic and operational decision-making. Consequently, internal control contributes not only to accountability but also to organizational resilience in uncertain business environments.

Research Methods

This study employed a quantitative explanatory research design using a survey approach to examine the influence of Accounting Information Systems and Internal Control on the effectiveness of managerial decision-making in Micro, Small, and Medium Enterprises (MSMEs). An explanatory design was considered appropriate because the primary objective of the study was to test the causal relationships among the proposed latent variables based on established theoretical frameworks. The target population consisted of MSME owners and managers who were actively involved in financial management and strategic decision-making processes within their respective businesses. Respondents were selected using proportional random sampling to ensure that each subgroup within the population was adequately represented, thereby enhancing the representativeness and generalizability of the research findings. Primary data were collected through a structured questionnaire employing a five-point Likert scale, with measurement indicators adapted from validated instruments reported in previous studies. Prior to the main survey, the questionnaire was subjected to content validation and pilot testing to ensure its clarity, reliability, and construct validity.

The collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software, as this analytical technique is particularly suitable for predictive research involving multiple latent constructs and complex structural relationships. The analysis was conducted in two sequential stages. First, the measurement model (outer model) was evaluated by assessing indicator reliability, internal consistency reliability through Cronbach's Alpha and Composite Reliability, convergent validity using Average Variance Extracted (AVE), and discriminant validity employing the Fornell Larcker criterion and Heterotrait Monotrait Ratio (HTMT). Second, the structural model (inner model) was assessed by examining the coefficient of determination (R^2), predictive relevance (Q^2), effect size (f^2), collinearity diagnostics, and hypothesis testing through the bootstrapping procedure to estimate path coefficients, *t*-statistics, *p*-values, and confidence intervals. This analytical procedure enables a comprehensive evaluation of both the psychometric properties of the measurement instruments and the hypothesized causal relationships among Accounting Information Systems, Internal Control, and managerial decision-making effectiveness in MSMEs, thereby providing robust empirical evidence to support the proposed research model (Hair et al., 2022; Henseler et al., 2015; Sarstedt et al., 2022).

Result and Discussion

The results of the Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis indicate that **Accounting Information Systems (AIS) have a positive and statistically significant effect on managerial decision-making effectiveness** among Micro, Small, and Medium Enterprises (MSMEs). As presented in Table 1, the path coefficient from AIS to Managerial Decision-Making Effectiveness is **β = 0.401**, with a **t-statistic of 7.245** and a **p-value < 0.001**, supporting the proposed hypothesis (H1). These findings demonstrate that the implementation of effective accounting information systems substantially improves managers' ability to obtain accurate, timely, relevant, and reliable financial information for business planning, budgeting, monitoring, and strategic decision-making. The coefficient magnitude further indicates that improvements in accounting information quality are associated with higher effectiveness in managerial decision-making processes, suggesting that AIS functions as an essential organizational capability for evidence-based management.

Table 1.Structural Model Assessment (PLS-SEM Results

Hypothesis	Structural Relationship	Path Coefficient (β)	Standard Deviation	t-value	p-value	f^2	Decision
H1	Accounting Information Systems → Managerial Decision-Making	0.401	0.055	7.245	<0.001	0.291	Supported

	Effectiveness						
H2	Internal Control → Managerial Decision-Making Effectiveness	0.468	0.057	8.163	<0.001	0.387	Supported

The structural model further reveals that Internal Control has a stronger positive influence on managerial decision-making effectiveness than Accounting Information Systems. The estimated path coefficient between Internal Control and Managerial Decision-Making Effectiveness is $\beta = 0.468$, with a t-statistic of 8.163 and a p-value < 0.001, confirming support for hypothesis H2. Furthermore, the coefficient of determination indicates that Accounting Information Systems and Internal Control jointly explain 69.4% ($R^2 = 0.694$) of the variance in managerial decision-making effectiveness, representing substantial explanatory power. The model also demonstrates satisfactory predictive relevance ($Q^2 = 0.511$) and acceptable predictive accuracy, indicating that the proposed conceptual framework possesses strong capability in explaining managerial decision quality among MSMEs. Collectively, these findings suggest that integrating digital accounting systems with robust internal governance mechanisms significantly enhances the quality, consistency, and strategic effectiveness of managerial decisions in contemporary MSMEs. Coefficient of determination and predictive relevance table 2.

Table 2. Coefficient of Determination and Predictive Relevance

Endogenous Variable	R^2	Adjusted R^2	Q^2	Interpretation
Managerial Decision-Making Effectiveness	0.694	0.689	0.511	Substantial explanatory power with strong predictive relevance

Table 2 presents the coefficient of determination (R^2), adjusted coefficient of determination (Adjusted R^2), and predictive relevance (Q^2) for the endogenous construct, namely Managerial Decision-Making Effectiveness. The structural model produces an R^2 value of 0.694, indicating that Accounting Information Systems and Internal Control jointly explain 69.4% of the variance in managerial decision-making effectiveness among MSMEs. This result demonstrates a substantial level of explanatory power, suggesting that the proposed model effectively captures the primary determinants influencing managerial decision quality. Furthermore, the Adjusted R^2 value of 0.689 is only marginally lower than the R^2 value, indicating that the model maintains high explanatory capability even after adjusting for the number of predictor variables. The minimal difference between these two coefficients confirms that the model is stable and does not suffer from substantial overestimation, thereby supporting the robustness of the structural model.

In addition, the Q^2 value of 0.511 confirms that the proposed model possesses strong predictive relevance because it substantially exceeds the recommended threshold of zero. This finding indicates that the model has satisfactory predictive capability in estimating the effectiveness of managerial decision-making based on variations in Accounting Information Systems and Internal Control. Collectively, these statistical indicators demonstrate that the structural model is both explanatory and predictive, providing empirical evidence that the integration of high-quality accounting information systems with effective internal control mechanisms significantly contributes to improving managerial decision-making effectiveness in MSMEs. Therefore, the model can be considered reliable for explaining managerial behavior and supporting future empirical investigations in the fields of accounting information systems, internal governance, and MSME management.

Discussion

The findings of this study demonstrate that Accounting Information Systems (AIS) have a positive and significant influence on the effectiveness of managerial decision-making in MSMEs. This result indicates that the implementation of an effective AIS enables business owners and managers to access financial information that is accurate, timely, relevant, and reliable, thereby reducing uncertainty and improving the quality of managerial judgments. In rapidly changing business environments, managers require integrated financial information to support planning, budgeting, resource allocation, and performance evaluation. The findings reinforce the Information Processing Theory, which argues that organizations with greater information-processing capabilities are better equipped to cope with environmental uncertainty and make more rational decisions (Daft & Lengel, 1986). Likewise, the results are consistent with the DeLone and McLean Information Systems Success Model, which emphasizes that high system quality and information quality improve user satisfaction, system utilization, and organizational outcomes (DeLone & McLean, 2003). Consequently, AIS should be viewed not merely as a financial recording system but as a strategic managerial resource that facilitates evidence-based decision-making and organizational adaptability.

The positive influence of AIS identified in this study is consistent with previous empirical research. Romney and Steinbart (2021) argued that accounting information systems improve managerial effectiveness by providing relevant financial information for planning and control activities. Similarly, Gelinas et al. (2018) reported that integrated accounting information systems enhance financial reporting quality and organizational efficiency through improved information processing capabilities. Empirical evidence from Grande et al. (2011) further demonstrated that AIS adoption significantly improves productivity, financial management, and competitive advantage among small and medium-sized enterprises. The present study extends these findings by showing that the benefits of AIS are not limited to operational efficiency or financial reporting quality but also directly improve the effectiveness of managerial decision-making in MSMEs. This extension contributes to the accounting literature by positioning managerial decision quality as a strategic outcome of digital accounting system implementation.

The study also reveals that Internal Control has a stronger positive effect on managerial decision-making effectiveness than Accounting Information Systems. This finding suggests that reliable governance mechanisms play a crucial role in ensuring that managerial decisions are supported by credible information, systematic risk assessment, and effective organizational oversight. Internal control enhances the integrity of financial and operational information through the implementation of the five COSO components—Control Environment, Risk Assessment, Control Activities, Information and Communication, and Monitoring—which collectively reduce fraud, operational errors, and information asymmetry (Committee of Sponsoring Organizations of the Treadway Commission [COSO], 2013). These findings support the Resource-Based View (RBV), which considers governance capability and organizational control systems as valuable strategic resources that strengthen organizational performance and decision quality when effectively integrated with technological resources (Barney, 1991). Therefore, robust internal control not only safeguards organizational assets but also provides managers with greater confidence in making strategic, tactical, and operational decisions.

The combined explanatory power of Accounting Information Systems and Internal Control demonstrates that technological capability and governance capability are complementary organizational resources rather than independent management practices. The substantial coefficient of determination indicates that the integration of digital accounting systems with effective internal governance explains a considerable proportion of managerial decision-making effectiveness in MSMEs. This finding supports previous studies by Arens et al. (2020), who emphasized that reliable internal control enhances managerial confidence through trustworthy financial reporting, and by Ismail and King (2007), who found that accounting information systems improve managerial performance in small businesses. However, unlike most previous studies that examined AIS and Internal Control separately or focused primarily on organizational performance, financial reporting quality, or fraud prevention, this study integrates both constructs within a single structural model and demonstrates their joint contribution to managerial decision-making effectiveness. Accordingly, the study enriches the literature by providing empirical evidence that the synergy between digital accounting capability and internal governance constitutes a critical determinant of strategic decision quality and sustainable competitiveness among MSMEs in the digital economy.

Conclusion

The findings indicate that Accounting Information Systems have a positive and significant effect on the effectiveness of managerial decision-making by improving the availability, accuracy, relevance, and timeliness of financial information. Internal Control also demonstrates a significant positive influence by strengthening operational reliability, safeguarding organizational assets, ensuring regulatory compliance, and minimizing business risks that may affect managerial judgments. Furthermore, the simultaneous implementation of effective Accounting Information Systems and robust Internal Control contributes substantially to enhancing the quality of managerial decisions in MSMEs. These findings suggest that integrating digital accounting practices with comprehensive internal control mechanisms enables MSMEs to make more evidence-based, efficient, and strategic decisions. The study provides practical implications for MSME owners, policymakers, and business development institutions in designing strategies to strengthen financial management capabilities and improve organizational performance through technology adoption and sound governance practices.

References

Arens, A. A., Elder, R. J., Beasley, M. S., & Hogan, C. E. (2020). *Auditing and assurance services: An integrated approach* (17th ed.). Pearson.

ASEAN. (2021). *ASEAN SME Policy Index 2021: Boosting competitiveness and inclusive growth*. OECD Publishing.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Committee of Sponsoring Organizations of the Treadway Commission. (2013). *Internal control—Integrated framework*. COSO.

Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness, and structural design. *Management Science, 32*(5), 554–571. https://doi.org/10.1287/mnsc.32.5.554

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems, 19*(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

Gelinas, U. J., Dull, R. B., & Wheeler, P. R. (2018). *Accounting information systems* (11th ed.). Cengage Learning.

Grande, E. U., Estébanez, R. P., & Colomina, C. M. (2011). The impact of accounting information systems on performance measures: Empirical evidence in Spanish SMEs. *The International Journal of Digital Accounting Research, 11*, 25–43. https://doi.org/10.4192/1577-8517-v11_2

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage Publications.

Hall, J. A. (2019). *Accounting information systems* (10th ed.). Cengage Learning.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Ismail, N. A., & King, M. (2007). Factors influencing the alignment of accounting information systems in small and medium-sized Malaysian manufacturing firms. *Journal of Information Systems and Small Business, 1*(1–2), 1–20.

Laudon, K. C., & Laudon, J. P. (2022). *Management information systems: Managing the digital firm* (17th ed.). Pearson.

OECD. (2023). *Financing SMEs and entrepreneurs 2023: An OECD scoreboard*. OECD Publishing.

Romney, M. B., & Steinbart, P. J. (2021). *Accounting information systems* (15th ed.). Pearson.

Sarstedt, M., Ringle, C. M., & Hair, J. F. (2022). Partial least squares structural equation modeling. In C. Homburg, M. Klarmann, & A. E. Vomberg (Eds.), *Handbook of Market Research* (2nd ed.). Springer. https://doi.org/10.1007/978-3-319-57413-4_15

World Bank. (2022). *World development report 2022: Finance for an equitable recovery*. World Bank.