Do AIS and innovation influence the relationship between business strategy and SME's performance?

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Abstract

In the context of a dynamic and competitive business environment, SME actors must also possess a competitive advantage to succeed in the market. One strategy that can be pursued to achieve a competitive advantage is through the optimization of employee performance. This research aims to analyze the relationship between strategy and SME performance, encompassing the examination of innovation and accounting information systems as mediating variables. The study employs Structured Equation Modelling based on Partial Least Squares (SEM-PLS) analysis. The research involves 435 respondents who are SME actors with business units located in the province of Bengkulu. The findings indicate that strategy has a positive influence on SME performance. Furthermore, strategy also positively influences innovation and accounting information systems. In the context of indirect effects, both innovation and accounting information systems exhibit partial mediating effects in accommodating the relationship between strategy and SME performance. The results of this study emphasize that SME actors should be capable of crafting appropriate business strategies through various business innovations and improvements in accounting information systems, thereby enhancing SME performance.

Keywords: strategy, innovation, accounting information systems, SME performance.

Introduction

In many developing countries, particularly in Indonesia, Micro, Small, and Medium Enterprises (MSMEs) play a central role in driving economic growth. Statistical data indicates that approximately 99.99% of business entities operate as MSMEs in various economic sectors. The significant contribution made by MSMEs to the national Gross Domestic Product (GDP) reaches 62.57%, making them key players in economic development (Dwianika & Gunawan, 2020). Moreover, MSMEs also play a crucial role in increasing the country's export income (Harvie, 2019; Tambunan, 2019; Shelly et al., 2020). Therefore, it cannot be ignored that MSME owners must adopt effective management practices to optimize their business performance.

Improving MSME performance is fundamental for sustaining a business.

This includes the implementation of well-planned business strategies and a drive for innovation (Acquaah & Agyapong, 2015; Knight et al., 2020; Lechner & Gudmundsson, 2014). Clear business strategies need to be applied to identify potential markets, manage limited resources, and optimize the supply chain (Swamidass & Newell, 1987). Additionally, innovation is a key factor in staying competitive. MSME owners must be able to adopt innovation in products, production processes, and marketing to follow dynamic market trends and demands (Singh, 2019). Innovation can also enhance the competitiveness of MSMEs in both domestic and international markets (Bellamy et al., 2019).

Effective management for MSME owners involves strategic planning, wise financial management, efficient marketing, and human resource development (Zada et al., 2021; Alfawaire & Atan, 2021). Thus, MSME owners with a strong understanding of good management practices have better opportunities for long-term success in a dynamic and competitive business environment. Business strategy selection is a key aspect of efforts to improve MSME performance because every decision made will significantly impact the company's final results (Sardana et al., 2020; Hristov & Chirico, 2019; Bag et al., 2021).

There are two main strategic paradigms often applied, namely the low-cost strategy and differentiation strategy (Leitner & Güldenberg, 2010). The low-cost strategy prioritizes reducing production and operational costs compared to competitors (Aliqah, 2012). On the other hand, the differentiation strategy emphasizes innovation in unique products, services, or customer experiences, with the aim of creating a competitive advantage that makes the company a special choice for consumers (Nevid et al., 2011; Miller & Friesen, 1986; Slater et al., 2006).

Determining the most appropriate strategy must be aligned with the goals of the business and the competitive advantage desired by small and medium-sized enterprises (SMEs). In the midst of intense global competition, the differentiation strategy is often considered an effective choice to improve the business performance of SMEs (Isyanto & Apriani, 2022). This is because the differentiation strategy has the potential to help SMEs solidify their unique identity in the eyes of competitors, differentiate themselves from competitors, and attract the attention of customers through the added value offered (Ika Cahyani & Toto Raharjo, 2023; Maurya et al., 2015). By implementing innovation in products, services, or customer experiences, SMEs can create a strong bond between the brand and consumers, ultimately leading to sustained customer loyalty and increased market share. However, choosing a differentiation strategy also poses its own challenges, including investment in research and development, as well as more intensive marketing efforts (Gamage et al., 2020).

The sustainability of SMEs and startups is often low; therefore, the development of integrated business strategies is crucial to maintain their sustainability (Lechner & Gudmundsson, 2014). One of the main obstacles to the sustainability, competitiveness, and performance of SMEs is the lack of attention to coordinated strategic direction (Acquaah & Agyapong, 2015). Several previous studies have classified competitive strategies, but the model introduced by Miles and Snow (1986) is more relevant. To date, the typology of competitive strategies introduced by Miles et al. (1978) is the most frequently cited and tested by various companies, including SMEs. Miles & Snow (1986) argued that businesses can

achieve better performance than their competitors by adopting either a low-cost or differentiation strategy, and such strategies can be applied across various industries, companies, and scales. Low-cost and differentiation strategies are highly relevant to SMEs, although SMEs often face difficulties in adopting a low-cost strategy due to requiring significant financial resources (Leitner & Güldenberg, 2010).

Differentiation strategy, emphasizing innovation, flexibility, and customer service, is a more suitable option for SMEs given their characteristics (Lechner & Gudmundsson, 2014). Several studies indicate that low-cost and differentiation strategies influence the performance of SMEs (Acquaah & Agyapong, 2015; Lechner & Gudmundsson, 2014). Research by Leitner & Güldenberg (2010) shows that SMEs that do not adopt any strategy experience slower growth than those implementing low-cost or differentiation strategies. On the other hand, qualitative research by Linton and Kask (2017) concludes that a differentiation strategy can affect the performance of SMEs when used in conjunction with innovation and a proactive approach. The hypothesis of this study is:

H1: Strategy has a significant effect on SME Performance.
H2: Strategy has a significant effect on Innovation.

SMEs are organizations that are responsive, easily adaptable, and have a high level of risk. Additionally, SMEs tend to be more innovative compared to large companies, as asserted by Ruiz-Palomo et al. (2019). The innovation process in SMEs always involves decision-making beyond unforeseen situations, creating exceptions, forming new relationships, and facing uncertain outcomes, often carrying the risk of failure, as explained by Davila et al. (2009). Innovation not only serves as a trigger for competitive advantage but also drives improved company performance, especially for SMEs, as outlined by Exposito & Sanchis-Llopis (2018). Furthermore, innovation in SMEs can create added value. Innovation-based competitive advantage tends to be more sustainable than price-based advantages, as described by Dabić et al. (2019). Research on innovation in the context of SMEs is increasingly important, particularly due to the primary role of SMEs in a country's economic development. Research by Exposito & Sanchis-Llopis (2018) in Spain found that innovation has a significant effect on the performance of SMEs. Although research results may vary, studies by Corral de Zubielqui et al. (2019), Gronum et al. (2012), and Sok et al. (2013) provide diverse insights.

Innovation is the key to creating an environment that can be adapted and managed effectively for a company (Cohen & Cyert, 1973), and innovative strategies are often related to organizational performance (Cohen & Levinthal, 1990; Hambrick, 1983; Robinson & Fornell, 1985). Although companies respond to environmental changes with different innovative strategies, research by Chenhall et al. (2011) indicates that a product differentiation strategy affects company performance. Differences in orientation strategies between large companies and SMEs, as reported by Woodside et al. (1999), can influence performance and encourage creative innovation in products and processes. Therefore, the hypotheses in this study are:

H3: Innovation has a significant effect on SME performance.

H4: Innovation can mediate the relationship between strategy and SME performance.

Accounting Information Systems (AIS) function to guide organizations in achieving goals and play a crucial role in resource control and allocation (Davila, 2005). Accounting information influences performance by affecting managerial performance measurement and supporting interactions with creditors (Monteiro & Cepêda, 2021; Turner et al., 2017). Research conducted by Monteiro & Cepêda (2021) shows that AIS affects performance by considering various factors. SMEs that invest in and improve information systems tend to experience better financial results (Grande et al., 2011). The use of accounting information is positively correlated with SME performance (Grande et al., 2011). Computer-based accounting information systems have the potential to enhance control and coordination within an organization (Nicolaou, 2000). Without access to relevant information, SMEs struggle to achieve better performance and predict future performance. The use of accounting information in innovative activities can produce better information quality and support proper fund allocation (Ismail & King, 2005). Previous research analyzed the relationship between business strategy and IT with business performance (Bendoly & Jacobs, 2004; Sabegh & Motlagh, 2012). This research was then replicated in SMEs and found that the balance between business strategy and information system strategy did not significantly improve company performance.

H5: Strategy has a significant effect on SME performance.

H6: Accounting Information Systems has a significant effect on SME performance.

H7: Accounting Information Systems mediate the relationship between strategy and SME performance.

Methods

This study employs a quantitative explanatory approach, with the population of interest being all SME (Small and Medium Enterprises) practitioners in the Bengkulu Province. The exact size of this population cannot be determined. To establish the sample size, this research applies purposive sampling techniques referring to the formula described by Hair et al. (2017). The formula multiplies the number of variable categories by the figures 5, 10, 15, and 20. Following this formula, the total number of samples taken in this study is 435 respondents. Respondent selection criteria include individuals residing in various regions in the Bengkulu Province, aged at least 17 years, engaged in SME business in the last 2 years, and domiciled in Bengkulu.

Data collection in this study utilizes a questionnaire distributed online using the Google Form platform with a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The data analysis method employed in this research includes descriptive statistical analysis and SEM-PLS analysis assisted by SmartPLS 4 software. Three stages are performed in SEM-PLS analysis: outer model analysis, inner model analysis, and hypothesis testing (Hair et al., 2017).

Table 1. Definitive Operational Variable

| Variable	Indicator	Reference
Strategy	1. Innovation and Creativity 2. Customer Satisfaction 3. Brand Image 4. Product Differentiation 5. Technology Adoption 6. Product Quality 7. Business Development 8. Customer-centric Innovation	(Camison & Villar-Lopez, 2010; Luo & Zhao, 2004; Namiki, 1988)
Innovation	1. Product Innovation 2. Modification 3. Market Expansion	(Capon et al., 1992; Scott & Tiessen, 1999)
Accounting Information System (AIS)	1. Storage 2. Processing 3. Collecting 4. Automation	(Sajady et al., 2008; Sori, 2009)
Performance	1. Profitability 2. Trends 3. Sales Growth 4. Liquidity 5. Investment 6. Customer Expectation 7. Customer Loyalty	(Cragg et al., 2002; Maurya et al., 2015)
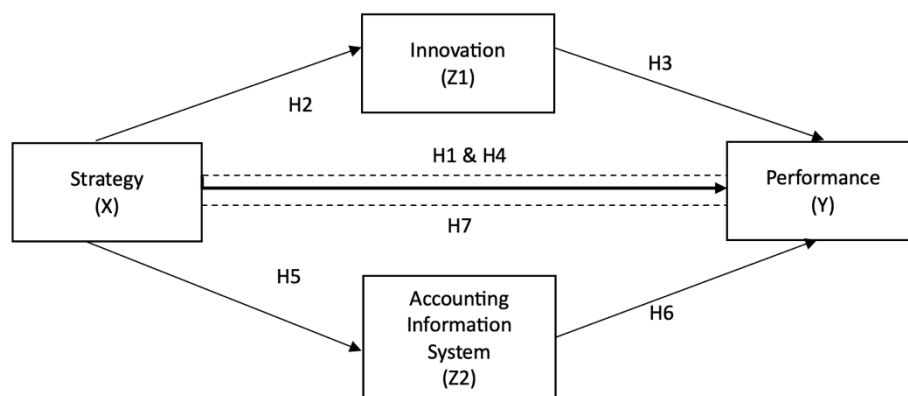
Figure 1. Research Conceptual Mapping

Result and Discussions

The outer model analysis was conducted using the SEM-PLS method with SmartPLS 3 software, yielding results in the form of validity tests defined by loading factors and Average Variance Extracted (AVE), as well as reliability tests defined by Cronbach's alpha and composite reliability. According to Hair et al. (2017), data can be considered valid if it has a loading factor value > 0.60, and in this study, the data generated by each item exceeded 0.60. Additionally, based on AVE, data can be considered valid if it has an AVE value > 0.50, and in this

study, the data generated by each item exceeded 0.50. The results of the validity and reliability tests can be seen in the following table.

Table 2. Result of validity and reliability analysis

Variable	Item	Loading Factor	Cronbach's Alpha	Composite Reliability	AVE
Strategy (X)	X1	0.809	0.914	0.930	0.595
	X2	0.814			
	X3	0.790			
	X4	0.676			
	X5	0.790			
	X6	0.742			
	X7	0.787			
	X8	0.733			
	X9	0.793			
Innovation (Z1)	Z1.1	0.833	0.864	0.907	0.710
	Z1.2	0.831			
	Z1.3	0.859			
	Z1.4	0.848			
Accounting Information System (Z2)	Z2.1	0.764	0.844	0.888	0.614
	Z2.2	0.849			
	Z2.3	0.719			
	Z2.4	0.799			
	Z2.5	0.781			
Performance (Y)	Y1	Deleted	0.860	0.900	0.642
	Y2	Deleted			
	Y3	Deleted			
	Y4	Deleted			
	Y4	0.828			
	Y5	0.765			
	Y6	0.809			
	Y7	0.771			
	Y8	0.832			
	Y9	0.828			

The reliability of data can be assessed through the determination of Cronbach's Alpha and composite reliability values. According to the study conducted by Hair et al. (2017), data can be considered reliable if it has a Cronbach's Alpha value > 0.60 and a composite reliability value > 0.70. In this study, as shown in Table 1, it is observed that all data are categorized as reliable. In the data processing using SEM-PLS, there was a process of eliminating items to obtain loading factor values above 0.60. Thus, in this study, the outer model is considered valid and reliable.

The analysis of the internal model, conducted through the SEM-PLS method, aims to establish relationships between constructs, evaluate significance values, and determine the R-square of the research model. Furthermore, the structural model undergoes comprehensive evaluation, considering the R-square for dependent constructs, the results of t-tests, and the significance of structural path coefficients. When employing Partial Least Squares (PLS) for model assessment, a thorough examination of the R-square values for each dependent variable (Y, Z1, and Z2) becomes feasible. In this analysis, the R-square values

obtained from Structural Equation Modeling-Partial Least Squares (SEM-PLS) using Smart PLS 3 are presented in the table below.

Table 3. Result of R-Square Analysis

Variable	R-square	Adjusted R-square
Y	0.401	0.400
Z1	0.604	0.603
Z2	0.922	0.922

The R-square values obtained from the analysis provide insights into the variation explained by the model. For Variable Y, the R-square value is calculated at 0.401, indicating that approximately 40.1% of the variability in Variable Y can be explained by the independent variable, X. Moving on to Variable Z1, the R-square value is significantly higher at 0.604, signifying that around 60.4% of the variability in Variable Z1 is explained by changes in X. Variable Z2 exhibits a stronger relationship with X, as evidenced by the R-square value of 0.922, implying that approximately 92.2% of the variation in Variable Z2 is influenced by variation in X.

Expressed as a percentage, these R-square values provide valuable insights into the extent to which dependent variables (Y, Z1, and Z2) are influenced by the independent variable, X. These results highlight the varying degrees of influence that X has on different variables, with Variable Z2 showing the most significant impact. Additionally, these findings encourage exploration of the factors influencing dependent variables in relation to the strategic variable X. Further discussion will delve into the detailed implications of these R-square values, providing a comprehensive understanding of the interaction between independent and dependent variables in the context of the research model.

Hypotheses in this study are analyzed through Bootstrapping analysis using SmartPLS 3. The Bootstrapping results will determine whether hypotheses are accepted or rejected based on P-values and also ascertain whether the relationship between dependent variables is significantly influenced by independent variables or not at all. Bootstrapping is conducted based on hypotheses of positive significance and mediation. The results of the analysis of the positive significance hypotheses (H1, H2, H3, H5, and H7) based on Bootstrapping analysis are presented in the table below.

Table 4. Result of Bootstrapping Path Coefficient analysis conducted from SmartPLS 3

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T statistics (IO/STDEVI)	P Value
X → Y	0.973	0.974	0.022	44.579	0.000
X → Z1	0.777	0.776	0.029	26.634	0.000
Z1→ Y	0.405	0.409	0.048	8,368	0.000
X → Z2	0.633	0.639	0.048	13.087	0.000
Z2 → Y	0.168	0.169	0.083	2,018	0.044
X → Z1 → Y	0.546	0.550	0.051	8,554	0.000
X → Z2 → Y	0.326	0.324	0.087	3,738	0.000

Based on the results of the data interpretation from Bootstrapping analysis,

it can be concluded that Hypothesis H1 indicates a Path Coefficient value of 0.973 with a P value of 0.00. This indicates a positive influence between strategy (variable X) and SME performance (variable Y), thus Hypothesis H1 is accepted. Stating that entrepreneurial orientation influences marketing differentiation business strategy, and marketing differentiation business strategy does not affect company performance. Therefore, it can be inferred that a combination of entrepreneurial orientation, leadership business strategy, and marketing differentiation can enhance business performance. Additionally, the Bootstrapping analysis shows that Hypothesis H2 has a Path Coefficient value of 0.777 with a P value of 0.00. Consequently, Hypothesis H2 is accepted, indicating a positive influence between strategy (variable X) and innovation (variable Y). This result is supported by the research of Loureiro et al. (2020), stating that companies proactively designing and implementing innovative strategies can create an environment that stimulates creativity and the formation of new ideas.

Innovation plays a central role in determining the performance of Small and Medium Enterprises (SMEs) (Fitriatia et al., 2020). Through the development of unique products and services, SMEs can expand their attractiveness in the market and increase customer satisfaction (Stancu et al., 2020). Competitive advantages can be obtained through innovation, making SMEs stand out among competitors and acquiring a larger market share (Stancu et al., 2020). The results in this study show a positive relationship between innovation and SME performance. This is supported by research conducted by Quaye & Mensah (2019), stating that SMEs focusing on the development of innovative products and services can achieve sustainable competitive advantages. In conclusion, a well-defined and relevant strategy supported by appropriate innovation can help SMEs achieve long-term success.

Based on the research results, Strategy has a positive and significant influence on the Accounting Information System (AIS). This is consistent with the research conducted by Hosain, M. S. (2019), stating that strategy has a positive and significant impact on the implementation of the Accounting Information System (AIS). This indicates that when an organization adopts a specific strategy, it can directly affect the implementation and performance of their Accounting Information System (Hosain, M. S., 2019). Therefore, a well-planned strategy can encompass aspects such as resource allocation, information technology planning, and system integration, all of which can strengthen the AIS infrastructure.

Adequate Accounting Information Systems (AIS) can indicate the performance of Small and Medium Enterprises (SMEs). In this study, the relationship between the Accounting Information System and SME performance shows a positive and significant impact. This result is reinforced by the significant path coefficient value, namely XX, and a p-value of XX, where a p-value less than 0.05 indicates statistical significance. This research is in line with the findings of Siyanbolat al. (2019), which also states that an effective Accounting Information System can provide a positive contribution to SME performance. In this context, a proper AIS can improve operational efficiency, financial reporting accuracy, and managerial decision-making capabilities, ultimately positively impacting overall SME performance (Siyanbolat al., 2019). A good AIS can provide accurate, relevant, and timely information, enabling SME management to make better

decisions and plan strategies more effectively (Abed et al., 2023). Overall, it can be concluded that the implementation of strategies in Small and Medium Enterprises (SMEs) to improve performance requires special attention to the development and optimization of the Accounting Information System (AIS). This is based on the understanding that a proper AIS is not only an administrative support tool but also a key pillar in supporting the effective implementation of business strategies. In this context, it is essential for SMEs to understand that AIS is not just a tool for tracking financial transactions but also a vital source of information that can support strategic decision-making.

Conclusion

In this study, based on the inner model, it was found that all items used in this research are categorized as valid and reliable based on the loading factor, Cronbach's Alpha, composite reliability, and AVE values. The analysis of positive significance hypotheses shows that strategy has a positive and significant influence on SME performance, innovation, and UMKM performance; these hypotheses are accepted based on a P-value < 0.05. Meanwhile, innovation does not significantly affect UMKM performance, and the accounting information system does not significantly affect SME performance, so both hypotheses are rejected based on a P-value > 0.05. In the mediation hypotheses, it is known that innovation can mediate the relationship between strategy and SME performance, and the accounting information system mediates the relationship between strategy and SME performance; both hypotheses are accepted based on a P-value < 0.05. Besides the contribution, this research also has limitation. The limitation of this paper is the use of business strategy in general, basically in business there are various strategies such as business unit strategy, functional unit strategy, and aligned corporate strategy. For this reason, future research can use a more specific type of strategy so that it has detailed results for SME performance.

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