



Mediating Role of Management Accounting Information Systems: Innovation Capability and Firm Performance

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ABSTRACT

This study aims to analyze the impact of innovation capability on financial firm performance, with management accounting information systems as a mediating variable. A causal-explanatory approach with a quantitative method was employed. Data were collected through surveys distributed online via Google Forms and offline through physical questionnaires. Additionally, interviews were conducted to confirm the statistical findings and gain deeper insights. The data were analyzed using Structural Equation Modelling (SEM) with the SMARTPLS tool. The study finds that innovation capability positively influences firm performance, directly and indirectly, through management accounting information systems. Implementing management accounting information systems significantly enhances firm performance. In addition, management accounting information systems mediate the relationship between innovation capability and firm performance, emphasizing their contribution to financial performance enhancement. The findings contribute to the theoretical understanding of the role of management accounting information systems as a mediator in the relationship between innovation and firm performance. Practically, it provides insights for startup companies to leverage innovation capabilities while integrating robust management accounting information systems to improve financial performance. The study contributes to filling a knowledge gap by analyzing the role of management accounting information systems as a mediator in the relationship between innovation capability and firm performance within startup enterprises.

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1. INTRODUCTION

The digital era and innovation are two inseparable aspects. Innovation is required for companies to gain a competitive advantage and win in the global competition (Al-Baghdadi, 2021; Grover and Dresner, 2022). A company's ability to innovate acts as a catalyst to improve company performance through the creation of competitive advantages (Latifah et al., 2021). Innovation is one of the main drivers of business success and financial performance improvement (Mong Le et al., 2020). It is also a key factor in enhancing a company's competitiveness, particularly for startups. Startups are required to continuously innovate in products, services, and business models to survive and grow in a dynamic market. However, innovation inherently carries higher risks and uncertainties (Hadid and Al-Sayed, 2021). Management Accounting Information Systems (MAIS) play a crucial role in strategic management (Mong Le et al., 2020). Information from MAIS is essential for assessing potential competitor actions and customer needs (Luo, 2022). Timely information supply helps companies make decisions in response to market changes and competition (Ghasemi et al., 2016). Ultimately, the utilization of management accounting information influences company performance (Siregar and Nuryatno, 2023). MAIS, as a support system, has proven effective in managing financial information accurately and relevantly for better decision-making. The growth of startups that rely on innovation often occurs within the digital sector.

MAIS, as part of an Accounting Information System (AIS), aims to guide organizations toward achieving their predetermined goals (Carolina, 2017). MAIS serves as an instrument for management to achieve corporate objectives (Claudia et al., 2022) and is an essential part of the management control system, playing a critical role in decision-making (Esparza-Aguilar et al., 2016), particularly in business strategy. MAIS acts as a bridge between innovation and financial performance by providing data that helps management evaluate the effectiveness of implemented innovations (Esparza-Aguilar et al., 2016). A key macro-level issue that arises is how to ensure financial reporting transparency and accountability within this digital ecosystem. MAIS can serve as a solution to enhance the quality of accounting information in the digital economy.

Research has shown that management accounting information is a unique company resource that ultimately enhances organizational capability (Nguyen, 2018). Therefore, innovation capability and MAIS should be core competencies for every company. Innovation-driven strategies that foster competitive advantages play a crucial role in boosting market share (Chaudhry et al., 2020), helping to improve financial firm performance (Chaudhry et al., 2020; Saeidi and Othman, 2017). Furthermore, Miftah and Julina (2020) emphasize that MAIS impacts all company departments, particularly innovation strategy. Additionally, (Miftah and Julina, 2020) Investigated the mediating role of MAIS in the relationship between innovation. Their research findings indicate that innovation impacts company performance, with MAIS serving as a mediator, aligning with contingency theory (Al-Baghdadi et al., 2021). Previous studies have also demonstrated that MAIS influences financial performance (Puspitawati et al., 2024; Siregar and Nuryatno, 2023; Esparza-Aguilar et al., 2016). However, prior research has not specifically focused on companies actively innovating, such as process and product innovations, which this study aims to address. This research is essential because, based on the researchers' observations, there has been no prior study on enhancing financial performance and innovation capability through MAIS, especially in Indonesian startups. This study will elaborate on a comprehensive set of innovation capability indicators, including product innovation, service and technology innovation, marketing innovation, and organizational innovation (Chiganze and Sağsan, 2022; Migdadi, 2020).

This study aims to examine the influence of innovation capability on financial performance, mediated by MAIS. Ultimately, the findings of this research will provide valuable insights for startups in improving their financial performance. In a broader context, this study contributes to the accounting discipline by highlighting the strategic role of MAIS in supporting decision-making, enhancing financial transparency, and bridging innovation with measurable performance outcomes. It underscores the importance of integrating technological and innovative capabilities within accounting practices, particularly in the evolving landscape of digital and knowledge-based economies.

2. METHODS

This study employs a causal research design with data collection using a questionnaire. This method is appropriate for examining cause-and-effect relationships between variables, particularly the influence of innovation capability on financial performance mediated by MAIS. Data was collected through surveys distributed via Google Forms and physical questionnaires. Interviews were also conducted to validate research findings and gain deeper insights beyond the quantitative data. Closed-ended questions related to research variables were included in the questionnaire to ensure clarity and consistency in responses. The study population consists of startups in Bandung and Jakarta, Indonesia. The sampling method used in this study is convenience sampling, chosen due to the accessibility and availability of respondents within the startup community. A minimum target sample of 30 startup companies was set to meet the requirements for structural equation modeling. The respondents include company owners, managers, and supervisors, ensuring that the startups involved are actively engaged in innovation processes, whether in products, processes, or other areas. This combination of methods is expected to provide a comprehensive understanding of the relationships between the studied variables.

To measure the variables, the researchers used the indicators from (Chiganze and Sağsan, 2022; Migdadi, 2020; Miftah and Julina, 2020).

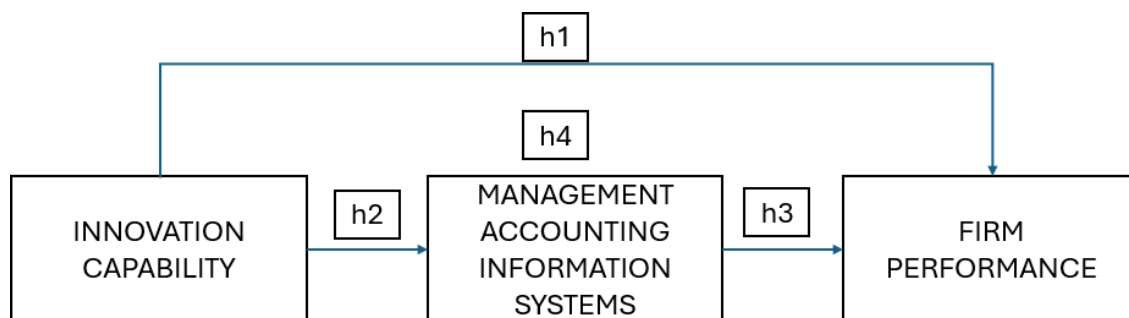


Figure 1. Conceptual Framework

3. RESULTS AND DISCUSSION

The following presents the results of the descriptive analysis of the demographics of respondents who completed the questionnaire.

3.1. Descriptive Analysis

This study uses non-probability sampling and the convenience purposive sampling method. A total of 200 questionnaires were collected and processed for further analysis.

Table 1. The Demographics of respondents

Respondent Profile	Σ Respondents	%
Sex		
Female	102	51%
Male	98	49%
Total	200	100%
Age		
< 30 y.o	109	55%
30 - 40 y.o	71	36%
41 - 50 y.o	11	6%
51 - 60 y.o	9	3%
Total	200	100%
Position		
Owner	10	5%
Manager	84	42%
Supervisor	106	53%
Total	200	100%

Source: Indonesia Stock Exchange (2017)

Structural Equation Modelling (SEM) using the alternative Partial Least Squares (PLS) method was employed to test the research hypotheses. In structural equation modelling, there are two main components: the structural model/inner model and the measurement model/outer model.

3.2. Measurement Model

The purpose of the measurement model is to describe the link between latent constructs and their associated indicators. This study includes three construct variables, comprising a total of 21 indicators. The innovation capability (IC) construct consists of 8 indicators, MAIS consists of 8 indicators, and firm performance (FP) consists of 5 indicators. The evaluation of the measurement model was conducted through internal convergent validity, discriminant validity, and internal consistency reliability.

Table 2. Loadings factors for each indicator

Indicators	IC	MAIS	FP
1	0,817	0,792	0,788
2	0,709	0,712	0,758
3	0,738	0,722	0,812
4	0,812	0,792	0,836
5	0,783	0,791	0,800
6	0,759	0,745	-
7	-	0,801	-
8	-	0,745	-
CR	0,901	0,901	0,944
AVE	0,607	0,611	0,615

Source: Output of PLS

According to Hair et al. (2018) a composite reliability value between 0.7 and 0.9 is considered satisfactory. According to Hair et al. (2018), any indicator whose loading falls below 0.40 should be dropped from the measurement model. Furthermore, an average variance extracted (AVE) of 0.50 or greater indicates that the construct accounts for at least half of the variance in its indicators (Hair et al., 2018).

For the innovation capability (IC) construct, the composite reliability was 0.901, demonstrating excellent consistency. All item loadings exceeded 0.70, verifying their validity; IC1 had the strongest loading whereas IC2 was the weakest—implying that generating and translating new ideas into innovations is the least influential dimension of IC. The AVE of 0.607 indicates that, on average, 60.7 % of each indicator's variance is captured by the IC construct.

Regarding the MAIS construct, the composite reliability reached 0.901, likewise indicating robust consistency. Every indicator loaded above 0.70, with MAIS7 highest and MAIS2 lowest—suggesting that the capability to manage business-related data is the least explanatory aspect of MAIS. An AVE of 0.611 means that 61.1 % of the variance in each indicator is explained by the MAIS construct.

For the firm performance (FP) construct, a composite reliability of 0.944 confirms high internal consistency. All indicators showed loadings over 0.70; FP4 was the strongest indicator while FP2 was the weakest, indicating that profit-generation capacity contributes least to defining FP. The AVE value of 0.615 reveals that, on average, 61.5 % of each indicator's variance is accounted for by the FP construct. A convergent validity assessment was carried out to confirm that each indicator reliably reflects its own construct. Following this, discriminant validity will be evaluated to determine how clearly each construct is differentiated from the others (Hair et al., 2018). Below are the outcomes of the discriminant validity tests, based on cross-loadings and the Fornell–Larcker criterion.

Table 3. Cross loadings construct result

Indicator	Loadings Factor		
	IC	MAIS	FP
IC.1	0,716	0,211	0,234
IC.2	0,701	0,298	0,249
IC.3	0,742	0,316	0,412
IC.4	0,788	0,399	0,442
IC.5	0,794	0,317	0,425
IC.6	0,745	0,300	0,299
MAIS1	0,114	0,749	0,211
MAIS2	0,545	0,823	0,200
MAIS3	0,299	0,762	0,588
MAIS4	0,214	0,680	0,345
MAIS5	0,444	0,699	0,221
MAIS6	0,356	0,711	0,363
MAIS7	0,395	0,810	0,598
MAIS8	0,303	0,704	0,421
FP.1	0,215	0,322	0,699
FP.2	0,345	0,345	0,898
FP.3	0,498	0,444	0,867
FP.4	0,440	0,457	0,897
FP.5	0,229	0,420	0,888

Source: Output of PLS

Hair et al. (2018) note that an indicator's loading on its own construct (outer loading) must exceed its loadings on other constructs; if a cross-loading surpasses the outer loading, discriminant validity is compromised. As illustrated in **Table 3**, every indicator shows a stronger loading on its designated construct than on any other, confirming that discriminant validity is upheld.

Table 4. Fornell-larcker criterion

	IC	MAIS	FP
IC	0,847		
MAIS	0,492	0,718	
FP	0,412	0,525	0,757

The Fornell-Larcker Criterion is a more conservative approach to assessing discriminant validity. The square root of the average variance extracted (AVE) for each construct should be greater than its highest correlation with any other construct (Hair et al., 2018). If the square root of the AVE is smaller than the correlation between constructs, it indicates an issue with discriminant validity.

Table 4 demonstrates that each construct's AVE square root surpasses its correlations with the other constructs. Consequently, this result confirms that there is no discriminant validity concerns among the four constructs.

3.3. Structural Model

The structural model is designed to clarify the relationships between endogenous and exogenous variables. The next section details the results.

Table 5. The result of hypothesis testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ($\geq 1,645$)	P Values ($\leq 0,50$)
IC -> FP	0,047	0,045	0,028	1,695	0,000
IC -> MAIS	0,110	0,105	0,047	2,345	0,009
MAIS -> FP	0,224	0,198	0,012	1,998	0,003
IC -> MAIS -> FP	0,129	0,148	0,044	2,444	0,000

The first hypothesis tested is whether innovation capability (IC) positively influences firm performance (FP). **Table 5** shows that the effect of IC on FP is positive and significant, path coefficient is 0.047, with a t-statistic of 1.695 (greater than 1.645) and a p-value of 0.0000 (less than 0.05), leading to the acceptance of H_a . The findings of this study are consistent with those of previous research conducted by (Latifah et al., 2021). Innovation strategies that create competitive advantages play a crucial role in increasing a firm's market share and subsequently boosting financial performance (Chaudhry et al., 2020; Saeidi and Othman, 2017).

The second hypothesis tested is whether innovation capability (IC) positively influences management accounting information systems (MAIS). The findings demonstrate that IC exerts a positive and statistically significant influence on MAIS (path coefficient = 0.110; p-value =

0.009), leading to the acceptance of H_a . These findings reinforce the conclusions drawn in the prior study by (Miftah and Julina, 2020).

The third hypothesis tested is whether management accounting information systems (MAIS) negatively influence firm performance (FP). The results, however, indicate that the effect of MAIS on FP is positive and significant (path coefficient = 0.224; p-value = 0.003), leading to the acceptance of H_a , though the relationship is in the opposite direction of the initial hypothesis. This research aligns with the findings previously reported. Previous studies have also demonstrated that MAIS influences financial performance (Puspitawati et al., 2024; Siregar and Nuryatno, 2023; Esparza- Aguilar et al., 2016).

The fourth hypothesis tested is whether the effect of innovation capability (IC) on firm performance (FP) is mediated by management accounting information systems (MAIS). The results show that IC influences FP through MAIS with a positive and significant relationship (path coefficient = 0.129; p-value = 0.000), leading to the acceptance of H_a . This study supports the previous findings conducted by Miftah and Julina (2020) and Al-Baghdadi et al. (2021), their findings suggest that innovation affects firm performance, with MAIS acting as a mediator, which is in line with the contingency theory framework.

Innovation capability reflects a company's ability to develop new products, processes, or business models. Innovative startups tend to adopt and develop more advanced Management Accounting Information Systems (MAIS) to manage data, analyze performance, and support better decision-making. With an improved system, companies can optimize resource allocation and enhance operational efficiency. Additionally, innovation capability enables companies to establish a competitive advantage by developing superior products or services, improving operational efficiency, and responding more quickly to market changes. This directly contributes to enhanced firm performance, including profitability, growth, and competitiveness.

Furthermore, an effective MAIS assists companies in collecting, processing, and analyzing relevant information for strategic decision-making. With accurate and timely information, management can optimize business strategies, reduce costs, and improve profitability. MAIS acts as a mediator that strengthens the relationship between innovation capability and firm performance. Companies with high innovation capability but lacking a well-developed MAIS may struggle to manage innovation effectively. MAIS helps bridge innovation with data-driven decision-making, making the impact of innovation on firm performance more significant.

This relationship aligns with contingency theory, which emphasizes that there is no universal approach to management; rather, effectiveness depends on how well internal systems, such as MAIS, align with the specific conditions faced by an organization. According to this theory, the design and use of management accounting systems should be contingent upon organizational characteristics such as size, structure, strategy, and external environment. In the context of startup companies, this theory becomes particularly relevant. Startups operate in highly dynamic and uncertain environments where innovation is critical for survival and growth. Their organizational structures are typically more flexible, their decision-making processes faster, and their resource constraints more pronounced compared to large established firms.

Therefore, for startups, the integration of MAIS must be tailored to support rapid innovation cycles, agile operations, and strategic responsiveness. A rigid or overly complex system may hinder adaptability, while a well-aligned MAIS can facilitate better tracking of innovation outcomes, improved cost management, and more informed strategic decisions. A reliable system, such as a well-designed Management Accounting Information System (MAIS), ensures accurate, timely, and relevant financial and operational data. For startups, which often operate in fast-changing environments, such a system supports effective tracking of innovation efforts,

cost control, and performance evaluation. It enables decision-makers to monitor the impact of new initiatives and adjust strategies accordingly. Reliability in this context means the system consistently provides dependable information, reducing uncertainty and enhancing the ability to turn innovation into financial success. Thus, contingency theory underscores the importance of aligning MAIS with the innovation-driven nature of startups to maximize performance outcomes and sustain competitive advantage.

Startup companies in Indonesia are experiencing rapid growth, especially in sectors such as technology, fintech, and e-commerce. However, many of these startups face challenges related to resource limitations, high uncertainty, and the need to innovate continuously to stay competitive. While innovation capability is often strong, the adoption of structured management systems—such as MAIS—tends to be underdeveloped. This aligns with the findings of this study, which show that although innovation capability positively influences firm performance, the presence of a well-developed MAIS significantly strengthens this relationship. In the context of Indonesian startups, the lack of reliable accounting and decision-support systems may hinder the full realization of innovation benefits. Therefore, integrating MAIS becomes essential for startups to monitor performance, manage costs, and make data-driven decisions that support growth and financial sustainability.

Due to the limited research exploring the impact of innovation capability on firm performance and management accounting information systems within a single model, this study provides theoretical implications for organizations and future researchers, particularly those focusing on management accounting information systems. The findings support the theory that higher innovation capability can enhance management accounting information systems within an organization. Additionally, the study confirms that a more developed MAIS can improve firm performance.

4. CONCLUSION

This study demonstrates that innovation capability can influence firm performance both directly and indirectly. Specifically, innovation capability positively affects Management Accounting Information Systems (MAIS); innovation capability positively influences firm performance; MAIS positively impacts firm performance; and MAIS mediates the effect of innovation capability on firm performance. Overall, this study suggests that innovation capability influences MAIS, which, in turn, enhances firm performance. This also has practical implications, particularly in organizational innovation development, which should consider the strategic use of MAIS. In the context of startup companies, especially in emerging markets like Indonesia, innovation is often seen as a critical asset for survival and growth. Many startups exhibit high levels of creativity and innovation, particularly in the digital and technology sectors. However, these companies frequently face difficulties in managing innovations effectively due to the absence of structured systems that support data-driven decision-making. The lack of a reliable Management Accounting Information System can hinder their ability to measure the outcomes of innovation, track performance, and make timely strategic adjustments. As a result, innovative efforts may not translate into improved financial performance. To address this issue, startups should invest in building or adopting MAIS that are flexible, affordable, and scalable to match their business size and complexity. Cloud-based MAIS solutions, for instance, offer cost-effective tools for startups to manage financial and operational data in real-time. These systems can help startups monitor key performance indicators (KPIs), control budgets, and assess the financial implications of innovative projects more accurately.

Furthermore, it is important to provide training and capacity-building for startup founders and management teams to improve their understanding of how MAIS can support innovation.

Rather than viewing accounting systems solely as compliance tools, they should be recognized as strategic resources that provide insights for growth and competitive advantage. Collaboration with accelerators, incubators, or financial consultants can also support startups in selecting and implementing suitable MAIS solutions that align with their innovation strategies. In conclusion, startups must bridge the gap between innovation and financial performance by integrating MAIS into their core business processes. A reliable MAIS not only improves internal control and transparency but also strengthens the company's ability to leverage innovation for sustainable growth. The findings of this study highlight the importance of aligning innovation capability with internal systems to enhance overall firm performance.

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