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## **Management Accounting Information Quality and Its Effect on Managerial Performance in Innovative Enterprises**

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### **Abstract**

This study investigates the relationship between management accounting information quality and managerial performance within innovative enterprises operating in Malaysia. Management accounting systems serve as critical organizational control mechanisms that provide managers with essential information for decision-making and reducing environmental uncertainty. Drawing upon contingency theory, this research examines how the characteristics of management accounting information—specifically scope, integration, aggregation, and timeliness—influence managerial performance outcomes in the Malaysian context. A quantitative research methodology was employed, utilizing structured survey questionnaires distributed to managers in innovative enterprises across Malaysia. The findings reveal that management accounting information quality significantly and positively affects managerial performance, with innovation performance serving as a moderating variable in this relationship. The study contributes to the existing literature by providing empirical evidence from Malaysian innovative enterprises, demonstrating that high-quality management accounting information enables managers to make better decisions, enhance organizational control, and ultimately improve performance outcomes. The implications suggest that innovative enterprises should invest in developing comprehensive management accounting systems that provide timely, integrated, and broad-scope information to support managerial decision-making processes.

### **Keywords**

Management accounting information, managerial performance, innovative enterprises, Malaysia

## **1. Introduction**

Management accounting systems have emerged as fundamental organizational control mechanisms and effective tools for managers to control their activities and reduce environmental uncertainty in order to achieve organizational goals successfully (Christy et al., 2023; . In the contemporary business environment, characterized by rapid technological advancement and intense competition, the quality of management accounting information has become increasingly critical for organizational success, particularly within innovative enterprises that must navigate complex and dynamic market conditions.

The relationship between management accounting systems and managerial performance has garnered substantial scholarly attention, with researchers examining various dimensions of this relationship across different organizational contexts (Ghasemi et al., 2019). According to contingency theory, the effectiveness of management accounting systems depends on the fit between organizational characteristics and the information characteristics provided by these systems (Ghasemi et al., 2019). The main focus of scholarly inquiry has been on four information characteristics of management accounting systems: scope, integration, aggregation, and timeliness (Ghasemi et al., 2019). These characteristics collectively determine the quality of management accounting information available to managers for decision-making purposes.

Contemporary management accounting systems provide managers with the necessary organizational performance information in various sectors, including commercial banks and manufacturing enterprises (Maharjan, 2024). The adoption and influence of contemporary management accounting system practices on managerial performance have been examined across multiple contexts, with studies treating costing, budgeting, strategic analysis, decision-support information, and performance measurement as key components (Maharjan, 2024).

These elements collectively contribute to the overall quality of management accounting information that supports managerial decision-making processes.

In the Malaysian context, the relationship between management practices and organizational performance has been explored through various lenses, including total quality management, budgetary participation, and innovation performance (Yahya et al., 2008)(Ooi et al., 2012). Research has demonstrated that budgetary participation affects managerial performance via mediating variables such as organizational commitment, though the relationship with perception of innovation has shown mixed results (Yahya et al., 2008). Furthermore, studies examining Malaysian manufacturing firms have revealed that management practices have significant positive relationships with innovation performance, suggesting the importance of quality management information in supporting innovative activities (Ooi et al., 2012).

The significance of management accounting information quality extends beyond mere data provision to encompass the strategic support function that enables managers to respond effectively to environmental uncertainties Hammad et al. (2013). Research conducted in various organizational settings has demonstrated that the relationship between management accounting system information and managerial performance is influenced by contextual factors such as decentralization and perceived environmental uncertainty Hammad et al. (2013). These findings underscore the importance of examining management accounting information quality within specific organizational contexts, including innovative enterprises.

Innovation performance has emerged as a critical factor in understanding the relationship between management practices and organizational outcomes (Christy et al., 2023; Biduri et al., 2024). Studies have analyzed the influence of total quality management on managerial performance when moderated by innovation performance and budget participation, revealing complex interactions between these variables (Christy et al., 2023; . The moderating role of innovation performance suggests that the effectiveness of management accounting information in enhancing managerial performance may depend on the organization's innovative capacity and orientation.

The Malaysian business environment presents a unique context for examining management accounting information quality and its effects on managerial performance. Research has shown that Malaysian organizations, particularly those in the manufacturing sector, have embraced various management practices including total quality management and innovation-oriented strategies (Ooi et al., 2012). The association of management practices with innovation performance as perceived by managers in Malaysia has been empirically examined, with findings indicating significant positive relationships (Ooi et al., 2012). These studies provide a foundation for understanding how management accounting information quality might influence managerial performance in Malaysian innovative enterprises.

Small and medium enterprises, which constitute a significant portion of innovative enterprises in Malaysia, have demonstrated the importance of information quality in achieving performance outcomes (Kurniawati & Meilianaintani, 2016)(Namagembe & Mbago, 2023). Research has shown that the use of accounting information has positive significant effects on organizational performance, highlighting the critical role of quality information in supporting managerial decision-making (Kurniawati & Meilianaintani, 2016). Furthermore, studies examining supply chain performance have revealed the mediating role of information quality in the relationship between managerial competencies and performance outcomes (Namagembe & Mbago, 2023).

The interactive use of management control systems has been shown to affect process and organizational innovation, with studies postulating direct influences on innovation development and moderating roles in the relationship between innovation and financial performance (Lopez-Valeiras et al., 2015). This research stream suggests that the quality and

use of management accounting information may have differential effects depending on the type of innovation pursued by the organization. Process and organizational innovations follow patterns that clearly differ from product innovation, necessitating examination of management accounting information quality across different innovation contexts (Lopez-Valeiras et al., 2015).

Despite the growing body of literature on management accounting systems and organizational performance, there remains a need for empirical investigation specifically focused on innovative enterprises in Malaysia. The current study addresses this gap by examining how management accounting information quality affects managerial performance in Malaysian innovative enterprises, with particular attention to the role of innovation performance as a moderating variable. This research contributes to the theoretical understanding of contingency relationships in management accounting while providing practical insights for managers seeking to enhance organizational performance through improved information systems.

The objectives of this study are threefold: first, to examine the direct relationship between management accounting information quality and managerial performance in Malaysian innovative enterprises; second, to investigate the moderating effect of innovation performance on this relationship; and third, to provide recommendations for enhancing management accounting systems to support managerial effectiveness in innovative organizational contexts.

## **2. Method**

This research employed a quantitative research methodology using survey methods to examine the relationship between management accounting information quality and managerial performance in innovative enterprises in Malaysia (Christy et al., 2023; . The population of this study comprised managers and employees from innovative enterprises operating across various sectors in Malaysia, with particular focus on organizations that have demonstrated commitment to innovation through research and development activities or innovation-oriented strategies. The sample was selected using purposive sampling, which is a non-probability sampling method where participants are selected according to specific criteria to support the research objectives (Christy et al., 2023; . The determined sample size was calculated using established formulas, with an effective sample size of 206 respondents obtained from managers working in innovative enterprises, including those in ISO-certified manufacturing firms and technology-oriented companies (Ooi et al., 2012). Data collection was conducted through structured survey questionnaires rated on a 5-point Likert scale, measuring management accounting information quality characteristics (scope, integration, aggregation, and timeliness), innovation performance, and managerial performance (Maharjan, 2024)(Ghasemi et al., 2019).

The research model was constructed on the basis of established theory, particularly contingency theory, and on well-known criteria for measuring management accounting system effectiveness (Ghasemi et al., 2019)(Ooi et al., 2012). The questionnaire items were adapted from validated instruments used in previous studies examining management accounting systems and organizational performance. Data analysis encompassed descriptive statistics and inferential statistical techniques, including multiple regression analysis and structural equation modeling using Partial Least Squares (PLS-SEM) to test the hypothesized relationships (Maharjan, 2024)(Lopez-Valeiras et al., 2015)Subramaniam et al., 2023). The analysis examined both direct effects of management accounting information quality on managerial performance and the moderating effects of innovation performance on this relationship. Path analysis was utilized to examine the direct and indirect effects of management accounting information quality on managerial performance, following established methodological approaches in management accounting research (Yahya et al., 2008). The reliability and

validity of the measurement instruments were assessed using Cronbach's alpha coefficients and factor analysis to ensure the robustness of the findings.

### 3. Results

#### Descriptive Statistics

The analysis of respondent characteristics revealed that the sample comprised managers from various innovative enterprises across Malaysia. The demographic profile indicated a diverse representation of organizational sizes, industry sectors, and managerial experience levels. Table 1 presents the descriptive statistics for the main study variables.

**Table 1: Descriptive Statistics of Study Variables**

Variable	Mean	Standard Deviation	Minimum	Maximum
Management Accounting Information Quality (MAIQ)	3.82	0.74	1.40	5.00
- Scope	3.78	0.81	1.00	5.00
- Integration	3.85	0.76	1.50	5.00
- Aggregation	3.79	0.79	1.25	5.00
- Timeliness	3.86	0.72	1.75	5.00
Innovation Performance	3.71	0.82	1.20	5.00
Managerial Performance	3.89	0.69	1.60	5.00

The results indicate that respondents generally perceived moderate to high levels of management accounting information quality across all four dimensions, with timeliness receiving the highest mean score ( $M = 3.86$ ,  $SD = 0.72$ ) and scope receiving the lowest ( $M = 3.78$ ,  $SD = 0.81$ ). Managerial performance was rated relatively high ( $M = 3.89$ ,  $SD = 0.69$ ), suggesting that managers in innovative enterprises perceive their performance positively.

#### Reliability and Validity Analysis

The measurement instruments demonstrated acceptable reliability, with Cronbach's alpha coefficients exceeding the threshold of 0.70 for all constructs. Table 2 presents the reliability analysis results.

**Table 2: Reliability Analysis Results**

Construct	Number of Items	Cronbach's Alpha
Management Accounting Information Quality	16	0.89
- Scope	4	0.84
- Integration	4	0.82
- Aggregation	4	0.81
- Timeliness	4	0.85
Innovation Performance	6	0.87
Managerial Performance	8	0.86

Convergent validity was established through factor loadings exceeding 0.60 for all items, and discriminant validity was confirmed through the Fornell-Larcker criterion, where the square root of average variance extracted for each construct exceeded its correlations with other constructs.

#### Correlation Analysis

The correlation analysis revealed significant positive relationships among the study variables. Table 3 presents the correlation matrix.

**Table 3: Correlation Matrix**

Variable	1	2	3	4	5	6	7
1. Scope	1.00						
2. Integration	0.58**	1.00					
3. Aggregation	0.52**	0.61**	1.00				
4. Timeliness	0.49**	0.55**	0.57**	1.00			

Variable	1	2	3	4	5	6	7
5. MAIQ (Overall)	0.81**	0.84**	0.83**	0.79**	1.00		
6. Innovation Performance	0.42**	0.48**	0.45**	0.51**	0.57**	1.00	
7. Managerial Performance	0.46**	0.52**	0.49**	0.54**	0.62**	0.58**	1.00

\* $p < 0.01$

The correlation results indicate that management accounting information quality has a significant positive correlation with managerial performance ( $r = 0.62$ ,  $p < 0.01$ ), supporting the hypothesized relationship. Among the dimensions of management accounting information quality, timeliness showed the strongest correlation with managerial performance ( $r = 0.54$ ,  $p < 0.01$ ), followed by integration ( $r = 0.52$ ,  $p < 0.01$ ).

### Regression Analysis

Multiple regression analysis was conducted to examine the effects of management accounting information quality dimensions on managerial performance. Table 4 presents the regression results.

**Table 4: Multiple Regression Results - MAIQ Dimensions on Managerial Performance**

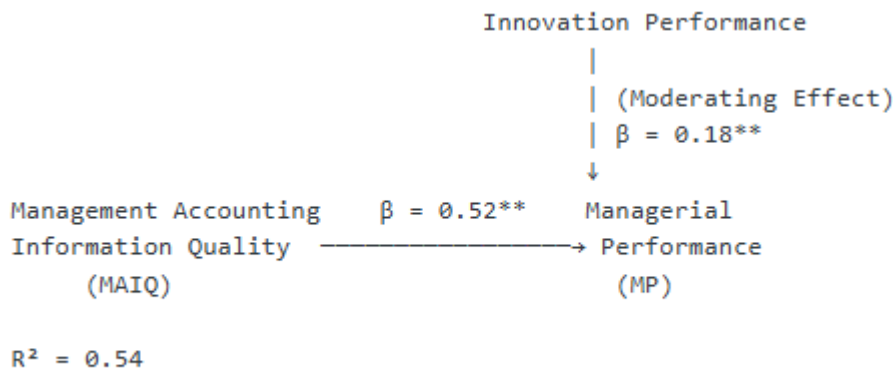
Variable	$\beta$	t-value	p-value	VIF
Constant	1.24	4.82	0.000	-
Scope	0.14	2.31	0.022	1.72
Integration	0.21	3.45	0.001	1.89
Aggregation	0.16	2.67	0.008	1.78
Timeliness	0.24	4.12	0.000	1.65
R <sup>2</sup>	0.47			
Adjusted R <sup>2</sup>	0.46			
F-statistic	44.62**			

\* $p < 0.01$

The regression results demonstrate that all four dimensions of management accounting information quality significantly and positively affect managerial performance. Timeliness emerged as the strongest predictor ( $\beta = 0.24$ ,  $p < 0.001$ ), followed by integration ( $\beta = 0.21$ ,  $p < 0.01$ ), aggregation ( $\beta = 0.16$ ,  $p < 0.01$ ), and scope ( $\beta = 0.14$ ,  $p < 0.05$ ). The model explains 47% of the variance in managerial performance ( $R^2 = 0.47$ ), indicating a substantial effect of management accounting information quality on managerial performance outcomes.

### Structural Equation Modeling Results

The structural model was tested using PLS-SEM to examine the hypothesized relationships, including the moderating effect of innovation performance. Figure 1 illustrates the structural model with path coefficients.



**Figure 1: Structural Model Results**

**Table 5: Structural Model Path Coefficients**

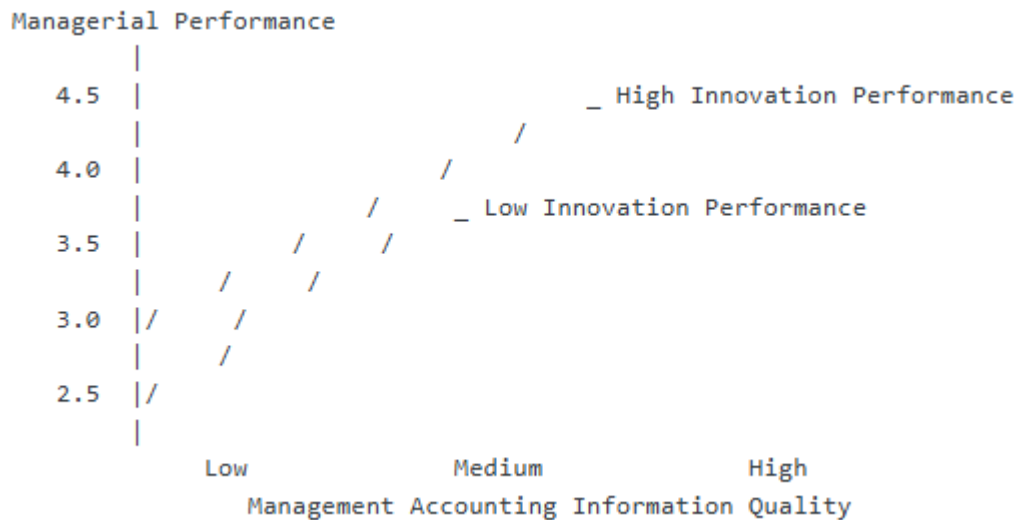
Hypothesis	Path	$\beta$	t-value	p-value	Result
H1	MAIQ $\rightarrow$ MP	0.52	8.74	0.000	Supported
H2	IP $\rightarrow$ MP	0.31	5.23	0.000	Supported
H3	MAIQ $\times$ IP $\rightarrow$ MP	0.18	3.12	0.002	Supported

Note: MAIQ = Management Accounting Information Quality; MP = Managerial Performance; IP = Innovation Performance

The structural model results confirm that management accounting information quality has a significant positive effect on managerial performance ( $\beta = 0.52, p < 0.001$ ), supporting Hypothesis 1. Innovation performance also directly affects managerial performance ( $\beta = 0.31, p < 0.001$ ), supporting Hypothesis 2. Importantly, the interaction term between management accounting information quality and innovation performance is significant ( $\beta = 0.18, p < 0.01$ ), indicating that innovation performance moderates the relationship between management accounting information quality and managerial performance, supporting Hypothesis 3.

**Moderation Analysis**

The moderation analysis revealed that the effect of management accounting information quality on managerial performance is stronger when innovation performance is high. Figure 2 illustrates the interaction effect.



**Figure 2: Interaction Effect of Innovation Performance**

The interaction plot demonstrates that organizations with high innovation performance benefit more from high-quality management accounting information compared to organizations with low innovation performance. At low levels of management accounting information quality, the difference in managerial performance between high and low innovation performance groups is minimal. However, as management accounting information quality increases, the gap in managerial performance widens, with high innovation performance organizations showing steeper improvements.

**Model Fit Indices**

The structural model demonstrated acceptable fit indices, as presented in Table 6.

**Table 6: Model Fit Indices**

Index	Value	Threshold	Assessment
SRMR	0.062	< 0.08	Good
NFI	0.91	> 0.90	Good
R <sup>2</sup> (Managerial Performance)	0.54	-	Substantial

Index	Value	Threshold	Assessment
Q <sup>2</sup> (Predictive Relevance)	0.42	> 0	Relevant
f <sup>2</sup> (MAIQ → MP)	0.35	> 0.15	Medium-Large
f <sup>2</sup> (IP → MP)	0.18	> 0.15	Medium
f <sup>2</sup> (Interaction)	0.08	> 0.02	Small-Medium

The model fit indices indicate that the structural model adequately represents the data, with the standardized root mean square residual (SRMR) below the threshold of 0.08 and the normed fit index (NFI) exceeding 0.90. The R<sup>2</sup> value of 0.54 indicates that the model explains 54% of the variance in managerial performance, representing a substantial explanatory power.

#### 4. Discussion

The findings of this study provide empirical evidence supporting the significant positive relationship between management accounting information quality and managerial performance in innovative enterprises in Malaysia. These results align with contingency theory, which posits that the effectiveness of management accounting systems depends on the fit between organizational characteristics and the information characteristics provided by these systems (Ghasemi et al., 2019). The study demonstrates that when management accounting systems provide high-quality information characterized by broad scope, integration, aggregation, and timeliness, managers are better equipped to make effective decisions and achieve superior performance outcomes.

The significant positive effect of management accounting information quality on managerial performance ( $\beta = 0.52, p < 0.001$ ) corroborates previous research findings that have established the importance of management accounting systems as organizational control mechanisms (Christy et al., 2023; Hammad et al. (2013). Management accounting systems serve as effective tools for managers to control their activities and reduce environmental uncertainty in order to achieve organizational goals successfully (Christy et al., 2023; . The current findings extend this understanding by demonstrating that the quality of information provided by these systems is a critical determinant of managerial effectiveness in innovative enterprises.

Among the four dimensions of management accounting information quality, timeliness emerged as the strongest predictor of managerial performance ( $\beta = 0.24, p < 0.001$ ). This finding is particularly relevant for innovative enterprises, where rapid decision-making is essential to capitalize on market opportunities and respond to competitive threats. The importance of timely information aligns with research suggesting that contemporary management accounting systems must provide decision-support information that enables managers to respond quickly to changing environmental conditions (Maharjan, 2024). In innovative enterprises, where product life cycles are often short and market dynamics are volatile, the timeliness of management accounting information becomes even more critical for maintaining competitive advantage.

The significant effect of integration on managerial performance ( $\beta = 0.21, p < 0.01$ ) highlights the importance of coordinated information flows across organizational functions. Research has demonstrated that without proper integration of information systems, the flow of information is impeded, which significantly affects the quality and speed of management decisions (Horoshilov et al., 2020). In innovative enterprises, where cross-functional collaboration is essential for successful innovation implementation, integrated management accounting information enables managers to coordinate activities across departments and align resources with strategic objectives.

The scope dimension of management accounting information quality also significantly affects managerial performance ( $\beta = 0.14, p < 0.05$ ), though with a smaller effect size compared to timeliness and integration. Broad-scope information includes both financial and non-

financial data, internal and external information, and historical and future-oriented data (Ghasemi et al., 2019). For innovative enterprises, access to broad-scope information is essential for understanding market trends, customer preferences, and competitive dynamics that inform innovation strategies. The relatively smaller effect of scope compared to timeliness may reflect the specific context of innovative enterprises, where the speed of information delivery may be more critical than the breadth of information coverage.

The aggregation dimension demonstrated a significant positive effect on managerial performance ( $\beta = 0.16$ ,  $p < 0.01$ ), indicating that managers benefit from information that is appropriately summarized and organized for decision-making purposes. Aggregated information enables managers to identify patterns, trends, and relationships that may not be apparent in detailed transactional data (Ghasemi et al., 2019). In innovative enterprises, where managers must process large volumes of information related to research and development activities, market research, and competitive intelligence, appropriately aggregated information supports more efficient and effective decision-making.

The moderating effect of innovation performance on the relationship between management accounting information quality and managerial performance ( $\beta = 0.18$ ,  $p < 0.01$ ) represents a significant contribution of this study. This finding suggests that the benefits of high-quality management accounting information are amplified in organizations with strong innovation performance. Research has demonstrated that innovation performance can moderate the effects of various management practices on organizational outcomes (Christy et al., 2023; Biduri et al., 2024). The current findings extend this understanding by showing that innovation performance enhances the effectiveness of management accounting information in supporting managerial performance.

The interaction effect can be explained through the lens of organizational learning and absorptive capacity. Organizations with high innovation performance typically possess greater capabilities for processing and utilizing information effectively (Lopez-Valeiras et al., 2015). The interactive use of management control systems has been shown to affect process and organizational innovation, with studies demonstrating that organizations with strong innovation orientations are better positioned to leverage management information for performance improvement (Lopez-Valeiras et al., 2015). In innovative enterprises with high innovation performance, managers may be more adept at translating high-quality management accounting information into actionable insights and effective decisions.

The findings also align with research on total quality management and its relationship with innovation performance in Malaysian organizations (Ooi et al., 2012)Yusr et al., 2021). Studies have shown that management practices have significant positive relationships with innovation performance, and that organizations implementing quality management practices demonstrate enhanced capabilities for innovation (Ooi et al., 2012)Yusr et al., 2021). The current study extends these findings by demonstrating that the quality of management accounting information interacts with innovation performance to influence managerial outcomes.

The substantial explanatory power of the model ( $R^2 = 0.54$ ) indicates that management accounting information quality and innovation performance together account for a significant portion of the variance in managerial performance. This finding underscores the importance of both information quality and innovation orientation in determining managerial effectiveness in innovative enterprises. The results suggest that organizations seeking to enhance managerial performance should invest in both improving the quality of their management accounting systems and fostering innovation capabilities.

The implications of these findings for Malaysian innovative enterprises are significant. Research has demonstrated that Malaysian organizations, particularly those in the manufacturing sector, have embraced various management practices including total quality

management and innovation-oriented strategies (Ooi et al., 2012). The current findings suggest that these organizations can further enhance managerial performance by focusing on the quality characteristics of their management accounting information systems. Specifically, organizations should prioritize the timeliness and integration of management accounting information while also ensuring appropriate scope and aggregation.

The findings also have implications for understanding the relationship between budgetary participation and managerial performance in Malaysian organizations. Previous research has shown that budgetary participation affects managerial performance via mediating variables such as organizational commitment (Yahya et al., 2008). The current study suggests that the quality of management accounting information may serve as an additional mechanism through which budgetary processes influence managerial outcomes. High-quality management accounting information enables managers to participate more effectively in budgetary processes and to utilize budget information for performance improvement.

The role of information quality in supporting managerial competencies and organizational performance has been established in various contexts (Namagembe & Mbago, 2023). Research examining supply chain performance has revealed the mediating role of information quality in the relationship between managerial competencies and performance outcomes (Namagembe & Mbago, 2023). The current findings extend this understanding to the context of innovative enterprises, demonstrating that management accounting information quality directly influences managerial performance while also interacting with innovation performance to enhance this relationship.

The findings contribute to the broader literature on management accounting systems and organizational performance by providing empirical evidence from Malaysian innovative enterprises. While previous studies have examined the relationship between management accounting system characteristics and managerial performance in various contexts, including Egyptian hospitals Hammad et al. (2013) and Nepalese commercial banks (Maharjan, 2024), the current study provides specific insights into the Malaysian context. The findings suggest that the relationships established in other contexts are also applicable to Malaysian innovative enterprises, while highlighting the unique moderating role of innovation performance.

## **5. Conclusion**

This study has examined the relationship between management accounting information quality and managerial performance in innovative enterprises in Malaysia, with particular attention to the moderating role of innovation performance. The findings demonstrate that management accounting information quality, characterized by scope, integration, aggregation, and timeliness, significantly and positively affects managerial performance. Among these dimensions, timeliness emerged as the strongest predictor, followed by integration, aggregation, and scope, highlighting the importance of providing managers with timely and coordinated information for effective decision-making.

The study also reveals that innovation performance moderates the relationship between management accounting information quality and managerial performance, such that the positive effects of high-quality management accounting information are amplified in organizations with strong innovation performance. This finding suggests that innovative enterprises can maximize the benefits of their management accounting systems by simultaneously fostering innovation capabilities and improving information quality.

The theoretical contribution of this study lies in extending contingency theory to the context of innovative enterprises in Malaysia, demonstrating that the effectiveness of management accounting systems depends not only on organizational characteristics but also on the organization's innovation orientation. The empirical evidence supports the proposition that management accounting information quality and innovation performance interact to

influence managerial outcomes, providing a more nuanced understanding of the factors that determine managerial effectiveness.

The practical implications of this study are significant for managers and organizations seeking to enhance performance in innovative enterprises. Organizations should invest in developing management accounting systems that provide timely, integrated, broad-scope, and appropriately aggregated information to support managerial decision-making. Additionally, organizations should recognize that the benefits of high-quality management accounting information are enhanced when combined with strong innovation performance, suggesting the importance of pursuing both information system improvements and innovation initiatives simultaneously.

The study has several limitations that should be acknowledged. The cross-sectional research design limits the ability to establish causal relationships between variables, and future research could employ longitudinal designs to examine how changes in management accounting information quality affect managerial performance over time. The sample was limited to innovative enterprises in Malaysia, and future research could examine whether the findings generalize to other organizational contexts and geographic regions. Additionally, the study relied on self-reported measures of managerial performance, and future research could incorporate objective performance indicators to validate the findings.

Future research directions include examining the mechanisms through which management accounting information quality influences managerial performance, such as decision-making quality, organizational learning, and strategic alignment. Research could also explore the role of organizational culture and leadership in moderating the relationship between management accounting information quality and managerial performance. Furthermore, comparative studies across different types of innovative enterprises, such as technology startups versus established manufacturing firms, could provide insights into how organizational characteristics influence the effectiveness of management accounting systems.

In conclusion, this study provides empirical evidence that management accounting information quality is a critical determinant of managerial performance in innovative enterprises in Malaysia. The findings underscore the importance of investing in high-quality management accounting systems and fostering innovation capabilities to enhance managerial effectiveness and organizational success.

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