



International Journal for Research in Business, Management, and Accounting

Technology-Enabled Management Control Systems and Organizational Performance: The Role of Data Analytics Capability and Strategic Flexibility

Published By:
Green Publications Services Private LTD.

ISSN(Online): **2455-6114**
DOI: 10.69980/bma.v12i3.2536
Volume 12 Issue 03 September 2026

Mbazor David Ngwoke¹
Aminu Muhammad Auwal²

¹University of Delta Agbor Nigeria
Email: David.mbazor@unidel.edu.ng
ORCID ID: 0000-0001-7437-8899

²Faculty of Natural Sciences, University of Jos, Jos Plateau State, Nigeria
E-mail ID: 2020ns1455@unijos.edu.ng
Orcid ID: <https://orcid.org/0009-0005-1799-7876>

Corresponding Author: Mbazor David Ngwoke.
Email: David.mbazor@unidel.edu.ng

Article History:
Article Type: Research

Received Date: 26/02/2026
Acceptance Date: 22/08/2026

Revised Date: 13/07/2026
Published Date: 30/09/2026

ABSTRACT

The digitalisation has revolutionized the management control of the modern era, allowing organizations to incorporate real-time information, analytics, digital monitoring and technology-enabled decision-making into management processes. Secondary survey data consisting of 125 complete observations and 38 measurement items were used for a quantitative explanatory design. The study variables for technology-enabled management control systems were operationalized as the digital transformation indicators and data analytics capability as the digital capability measures, the organizational flexibility through organizational agility indicators and the organizational performance through firm performance measures. Descriptive statistics, reliability analysis, Pearson correlation, standardized regression analysis and parallel mediation analysis with 10,000 bootstrap resamples were used. The results indicated that the use of technology-based management control systems was positively related to organization performance and increased the data analytics capability and the strategic flexibility of the organizations to a large extent. Strategic flexibility also had a great positive influence on organizational performance and partially explained the link between technology-based management control systems and performance. Contrary to this, data analytics capability did not show to have any significant independent impact on organizational performance and no significant mediating impact either. The overall model accounted for 61.5% of the variance among organizational performance. The results suggest that the benefits of the technology-based management control systems extend beyond direct managerial effects to reinforcement of the adaptive organizational capabilities.

KEYWORDS: Technology-enabled; Organizational performance; Data analytics; Strategic flexibility; Digital transformation; Organizational agility

1. Introduction

As businesses increasingly adopt digital technologies in planning, monitoring, control, decision-making, and performance evaluation, digital transformation is now a central theme of contemporary management. This transformation has altered the essence of management control systems from traditional budgeting and reporting to technology-driven systems with real-time information, digital dashboards, integrated information systems, automated reporting and managerial decision-making based on data (Broccardo et al., 2024). This is in line with the overall trends in digital transformation, which reveals a shift in organizational structures, strategic processes, and value creation mechanisms, not just new technologies (Hanelt et al., 2021; Verhoef et al., 2021). Digitalization has also impacted the way organisations measure performance, coordinate activities, distribute decision authority and respond to changing operational conditions within management control (Korsen & Ingvaldsen, 2022; Fährndrich & Pedell, 2025).

As such, technology-based management control systems can be seen as digital technologies that enable managers to gather information, monitor organizational processes, assess performance, and coordinate operational actions with strategic goals. Because digital systems increase information availability, limit reporting latencies, increase transparency and enable quicker managerial response, they have the potential to significantly contribute to the performance of organizations. Empirical evidence shows that digitalization of processes and digital transformation can have a positive impact on the performance of a firm, especially if the firm can use the investments in technology to build usable managerial capacity (Yang & Yee, 2022; Barba-Sánchez et al., 2024). The impact of digitalization is not always positive though on the performance side. Organizations can experience low performance or underwhelming returns from digital investment if they are lacking in capabilities, managerial vision, alignment and convert technological resources into action (Guo et al., 2023; Oduro et al., 2023). This indicates that the technology-based control systems and the performance may be dependent on complementary organizational skill sets.

A capability is one such ability: Data Analytics Capability is the ability of an organization to collect, process, interpret, and apply data in the context of decision making. As more information becomes available about organizations, analytics has become a valuable tool for predicting, assessing, understanding and planning. The ability of big data analytics has been linked to innovation, business model renewal (BMR) and organizational results because it allows companies to convert data into useful knowledge (Ciampi et al., 2021). However, analytical tools do not necessarily generate value. Research results from the meta-analysis suggest that business analytics

has a positive effect on firm performance if the analytical resources are integrated into the right organizational processes and complementary capabilities (Oesterreich et al., 2022). Digital capability also has a relationship with innovation and knowledge related resources, further supporting the idea that the value of technology is dependent on how well the technology is organized (Ferreira et al., 2024).

The other characteristic is strategic flexibility in digitally enabled organisations. It is indicative of the capacity to adjust strategies, re-align resources and react quickly to changing competitive and environmental conditions. Strategic flexibility has been seen as an important organizational capability and has also been recognized as having important performance implications, but contextual and organizational conditions will influence its effectiveness (Herhausen et al., 2021). There is related research that shows how digital platforms and technological capacities can be used to increase responsiveness and adaptive capacity, especially in environments of change (Ahmed et al., 2022). In volatile, uncertain, complex, and ambiguous environments that require firms to regularly change strategies and processes due to the impact of external disruptions, agility has increasingly become a critical factor (Troise et al., 2022). Likewise, it has been found that the digital technology-enabled dynamic capabilities can positively impact the performance of a firm by making the firm more capable of sensing an opportunity, responding to changing environment, and reconfiguring resources (Li et al., 2022; Ellström et al., 2022).

The relationship between analytics capability and strategic adaptability is therefore of special interest for technology-based management control. Analytics can enhance the quality of information and managerial understanding, and strategic agility will decide if that information is actually turned into action by the organization in time. Earlier studies indicated that the capability of big data analytics and business alignment can help improve agility of the organization, so digital information resources can have an indirect effect on performance via adaptive organizational processes (Xie et al., 2022). This is in line with the fact that digital capabilities are seen to be linked to additional strategic and organizational elements for better performance outcomes than when they are used alone, as digital resources (Barba-Sánchez et al., 2024; Oduro et al., 2023).

Although digital transformation, analytics, agility and organisational performance are all the subject of an increasing body of research, these are often treated in isolation. Much less research has focused on an integrated framework which relates the use of technology-based management control system with organizational performance, both with analytical capability and strategic

flexibility. The need for filling this gap is not only due to the potential of such controls to provide more efficient monitoring, but also because they can also help the organization better interpret information and respond strategically. This is the reason why the relationships in the present study are investigated within a single explanatory model.

Objectives

- To explore the impact of management control systems using technology on organisational performance.
- To understand the contribution that data analytics capability makes to understanding the relationship between technology-enabled management control systems and organizational performance.
- To assess the contribution of strategic flexibility to the performance-technology-ICS link.

Hypotheses

H1: Technology-enabled management control systems positively affect organizational performance.

H2: Technology-enabled management control systems positively affect data analytics capability.

H3: Data analytics capability positively affects organizational performance.

H4: Technology-enabled management control systems positively affect strategic flexibility.

H5: Strategic flexibility positively affects organizational performance.

H6: Data analytics capability mediates the relationship between technology-enabled management control systems and organizational performance.

H7: Strategic flexibility mediates the relationship between technology-enabled management control systems and organizational performance.

2. Methodology

2.1 Research Design and Data Source

The study used quantitative explanatory research design to investigate the relationship between technology enabled management control systems and organizational performance with data analytics capability as well as strategic flexibility as intervening organizational abilities. The secondary data analyzed here was the data set “Research Data - Wilson and Andrian (2025)” with 125 full observations and 38 item-level variables. The data consisted of the following items related to the firm's performance (FP1 - FP5); digital transformation (DT1 - DT8); organizational agility (OA1 - OA12); and digital capability (DC1 - DC13). These responses were scored on a 6-point scale from 1 to 6, and there was no missing data in the analytical data set (Wilson & Andrian, 2025).

2.2 Variable Operationalization

Organizational performance was measured with the five items of organizational performance (FP1–FP5), which served as the dependent variable. The eight digital transformation items (DT1–DT8) were used to represent technology-enabled management control systems, which signified the level of digital integration in the organizational process and the use of technology in managerial activities. The 13 digital capability items (DC1–DC13) were used to operationalise data analytics capability, which is defined as the capacity of the organisation to leverage digital resources, information and technological skills for decision making. The twelve organizational agility items OA1–OA12 were used to represent strategic flexibility, relating to organizational adaptability, business conditions responsiveness, and adjustment of actions in changing business conditions. Therefore, the constructs of digital transformation, digital capability, organizational agility and firm performance in the original study were theoretically matched with the constructs in the current study.

2.3 Conceptual Model and Hypotheses

The study examined a parallel mediation model that predicted that technology-enabled management control systems would have both direct and indirect effects on organizational performance through the mediation of data analytics capability and strategic flexibility. For this reason, the study investigated if there was a positive relationship between technology-based management control systems and organizational performance, between data analytics capability

and strategic flexibility, between data analytics capability and organizational performance, and between strategic flexibility and organizational performance, and whether both data analytics capability and strategic flexibility significantly mediated the relationship between technology-based management control systems and organizational performance.

2.4 Data Screening and Measurement Assessment

The data were first screened for completeness, valid range of responses and uniformity. 125 observations were used, with no missing responses. It was determined the descriptive statistics such as means and standard deviations for the major constructs of the study. The internal consistency reliability was measured by Cronbach's alpha, 0.70 or higher being acceptable. In addition to this, composite reliability and average variance extracted (AVE) were used to further test construct validity and convergent validity, respectively, where applicable. Discriminant validity was assessed to ensure that the four constructs studied were sufficiently differentiated from one another and variance inflation factor was used to check for possible multicollinearity.

2.5 Statistical Analysis

Descriptive statistics, Pearson correlation analysis and multivariate structural analysis were used to study the relationship between the study variables. Direct effects of technology enabled management control systems on organizational performance and the effects of data analytics capability and strategic flexibility on organizational performance were estimated along with the effects of data analytics capability and strategic flexibility on organizational performance. The size and extent of explanation of the proposed relationships were evaluated with standardized path coefficients, standard errors, significance values, confidence intervals and coefficients of determination. A p-value < 0.05 was regarded as statistically significant.

2.6 Mediation Analysis

Using parallel mediation framework, the mediating effects of data analytics capability and strategic flexibility were examined. The two indirect pathways that were tested were technology-enabled management control systems – data analytics capability – organizational performance and technology-enabled management control systems – strategic flexibility – organizational performance. Indirect effects were assessed by calculating bootstrapped confidence intervals which were interpreted as being statistically significant if they excluded a zero value. The direct, indirect and total effects were considered together to assess how much the two intervening

capabilities accounted for the relation between TEMS and organizational performance.

2.7 Ethical Considerations

No direct recruitment, intervention or interaction with human subjects by the present researchers was involved, but exclusively an existing secondary data set was used. This data was only used for academic research and the analysis was done without trying to identify individual respondents. Confidentiality, good data management and reporting of results was observed during the study. To ensure transparency and proper attribution, the source dataset “Research Data - Wilson and Andrian (2025)” was properly acknowledged. Data were not altered or fabricated and all statistical analyses were conducted on data at hand following accepted research integrity procedures.

3. Results

3.1 Descriptive Statistics, Reliability, and Construct Relationships

The analytical sample comprised 125 complete observations, 38 measurement items with no missing items. Composite scores were developed for technology-enabled management control systems (TEMCS), data analytics capability (DAC), strategic flexibility (SF) and organizational performance (OP). The mean scores of all four constructs were relatively high on the 6-point response format as reported in Table 1. Data analytics capability earned the highest mean score of 4.895, followed by TEMCS with a mean score of 4.840, organizational performance with a mean score of 4.802 and strategic flexibility with a mean score of 4.766. The standard deviations varied from 0.681 to 0.811, which reflects some degree of variation among the respondents. There were no significant problems with internal consistency for each construct. Cronbach's alpha for the organizational performance ranged from 0.889 to 0.944, which is significantly higher than the 0.70 threshold. The Cronbach's alpha values were 0.889 for organizational performance and 0.944 for data analytics capability, which are well above the standard of 0.70. The reliability of the composite measures utilized in the subsequent analyses was confirmed by these results.

Table 1. Descriptive Statistics and Reliability of Study Constructs

Construct	Items	N	Mean	SD	Minimum	Maximum	Cronbach's α
Technology-Enabled Management Control Systems	8	125	4.840	0.777	2.500	6.000	0.909

Data Analytics Capability	13	125	4.895	0.681	2.692	6.000	0.944
Strategic Flexibility	12	125	4.766	0.690	2.667	6.000	0.912
Organizational Performance	5	125	4.802	0.811	2.000	6.000	0.889

The mean scores of the constructs are shown in Figure 1, along with 95% confidence intervals. The relatively uniform means suggest generally positive perceptions on the four dimensions with data analytics capability being the highest average.



Figure 1. Mean scores and 95% confidence intervals for the four study constructs

Statistically significant positive relationships between all the study constructs were obtained through Pearson correlation analysis. Strong correlation was found between TEMCS and data analytics capability ($r = .747$, $p < .001$) and strategic flexibility ($r = .763$, $p < .001$) as shown in Table 2. The relationship between TEMCS and organizational performance was also strong and positive, $r = .764$, $p < .001$. There was a positive correlation between data analytics capability and strategic flexibility ($r = .754$, $p < .001$). The level of data analytics capability had a positive association with organizational performance, $r = .655$, $p < .001$, and strategic flexibility, $r = .692$, $p < .001$.

Table 2. Pearson Correlation Matrix

Construct	1	2	3	4
1. Technology-Enabled Management Control Systems	1.000			
2. Data Analytics Capability	0.747***	1.000		
3. Strategic Flexibility	0.763***	0.754***	1.000	
4. Organizational Performance	0.764***	0.655***	0.692***	1.000

Note. **p < .001.

These relationships are summarized visually in Figure 2, with their strength and direction. The heatmap shows that all inter-construct correlations were in the range of moderate to strong and positive with the highest correlation between TEMCS and organizational performance.

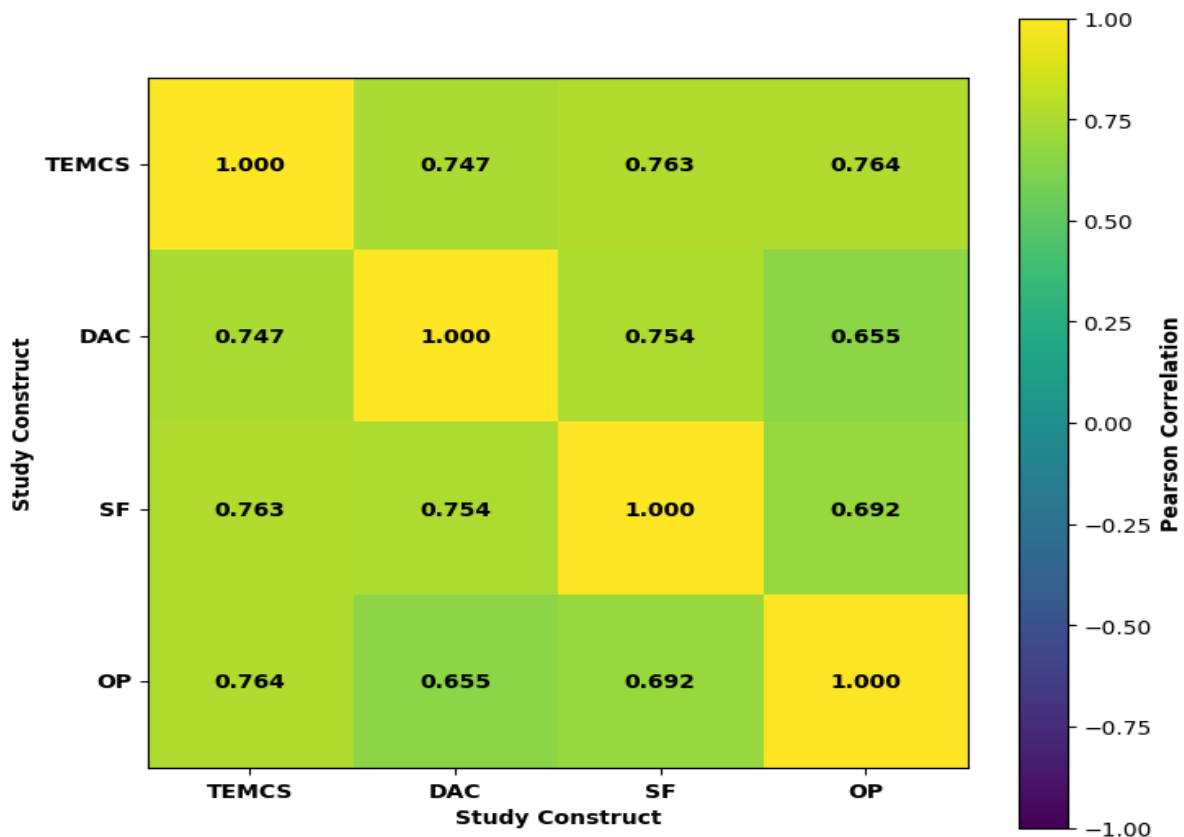


Figure 2. Correlation heatmap for technology-enabled management control systems, data analytics capability, strategic flexibility, and organizational performance

3.2 Direct Effects and Explanatory Power

Standardized regression/path analysis was used to evaluate the proposed direct relationships. As shown in Table 3, TEMCS had a strong positive effect on data analytics capability, $\beta = .747$, $SE = .060$, $t = 12.460$, $p < .001$. The model accounted for 55.8% of the variance in data analytics capability and was consistent with H2.

TEMCS also had a strong positive effect on strategic flexibility, $\beta = .763$, $SE = .058$, $t = 13.072$, $p < .001$, accounting for 58.1% of the variance, and providing support for H4.

The overall model of the predictors was statistically significant, $F(3,121) = 64.563$, $p < .001$, accounting for 61.5% of the variance in organizational performance when they were all entered as predictors. The direct effect of TEMCS on organizational performance was still positive, with a β of .522 ($SE = .095$, $t = 5.477$, $p < .001$), which allowed H1 to be accepted. Similarly, strategic flexibility was identified as having a significant positive effect, $\beta = .218$, $SE = .096$, $t = 2.262$, $p = .026$, which is in support of H5. The direct pathways of data analytics capability, however, were positive although not statistically significant, $\beta = .101$, $SE = .094$, $t = 1.075$, $p = .285$, with H3 not supported.

Table 3. Standardized Direct Effects and Hypothesis Testing

Hypothesis	Structural Relationship	β	SE	t	p	95% CI	Decision
H1	TEMCS → Organizational Performance	0.522	0.095	5.477	<.001	[0.333, 0.711]	Supported
H2	TEMCS → Data Analytics Capability	0.747	0.060	12.460	<.001	[0.628, 0.866]	Supported
H3	Data Analytics Capability → Organizational Performance	0.101	0.094	1.075	.285	[-0.085, 0.287]	Not supported
H4	TEMCS → Strategic Flexibility	0.763	0.058	13.072	<.001	[0.647, 0.878]	Supported
H5	Strategic Flexibility → Organizational Performance	0.218	0.096	2.262	.026	[0.027, 0.409]	Supported

The magnitudes of the standardized structural effects are shown in Figure 3. The impact of TEMCS was found to be particularly strong on organizational capabilities, and its direct impact on organizational performance remained quite high when intervening variables were controlled. However, strategic flexibility contributed positively to the overall performance, while the direct coefficient for data analytics capability was relatively small and not significant.

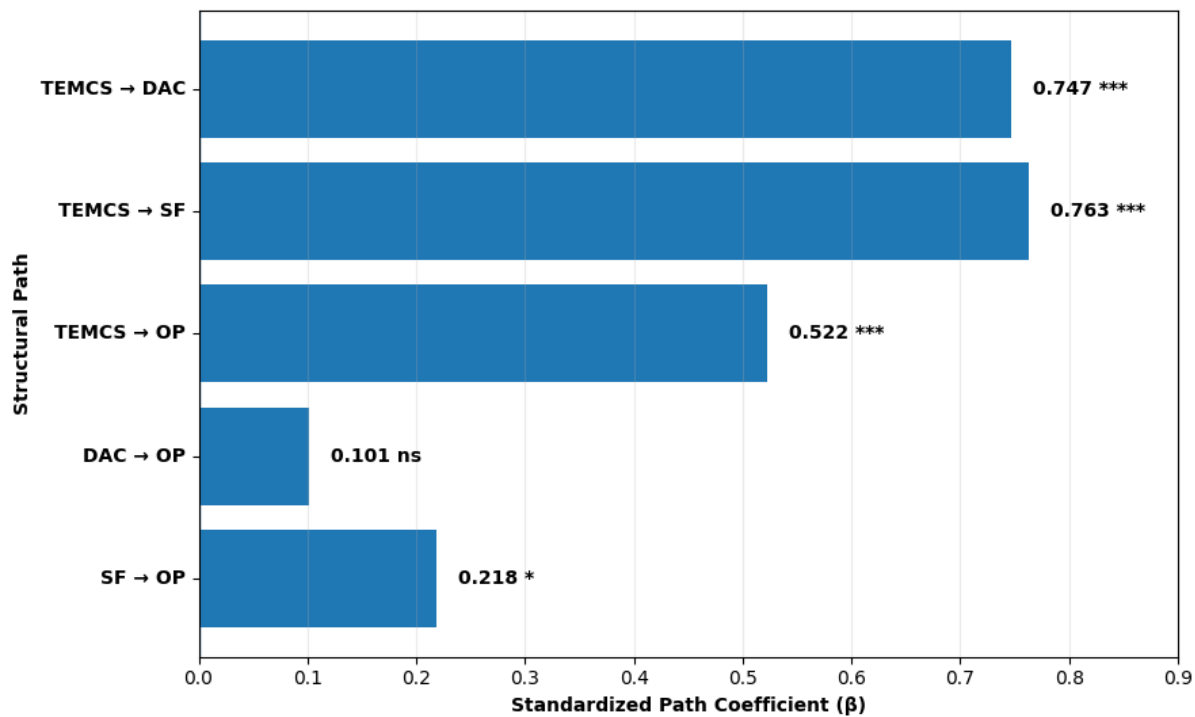


Figure 3. Standardized coefficients for the direct structural relationships in the proposed model

The explanatory and multicollinearity diagnostics given in Table 4 also confirmed the stability of the model. TEMCS accounted for 55.8% of the variance for data analytics capability and 58.1% of the variance for strategic flexibility. The overall model for organizational performance had an R^2 of .615 and an adjusted R^2 of .606. However, the VIF values were found to be between 2.771 and 2.927, which is lower than the commonly used thresholds for multicollinearity.

Table 4. Model Explanatory Power and Multicollinearity Diagnostics

Endogenous Variable / Model	R^2	Adjusted R^2	F	p	Predictor VIF
Data Analytics Capability	0.558	0.554	155.244	<.001	TEMCS: 1.000†
Strategic Flexibility	0.581	0.578	170.872	<.001	TEMCS: 1.000†
Organizational Performance – total-effect model	0.583	0.580	171.942	<.001	—
Organizational Performance – full model	0.615	0.606	64.563	<.001	TEMCS: 2.857; DAC: 2.772; SF: 2.927

Note. †A single-predictor regression has no multicollinearity among explanatory variables.

3.3 Mediation Effects of Data Analytics Capability and Strategic Flexibility

Assessment of mediation was made with 10,000 bootstrap resamples. The overall standardized effect of TEMCS on organizational performance was large, $\beta = .764$, 95% Bootstrap Confidence Interval (BCI) (.676, .839). Following the introduction of the mediators, the direct effect was still statistically significant ($\beta = .522$, 95% CI = [.320, .725]).

The indirect effect was via data analytics capability and was $\beta = .075$. It was found that the 95% BCI was (-.078, .247) which contained zero. Therefore, the hypothesis that data analytics capability has a mediating effect was not accepted, as it was not statistically supported.

The indirect pathway via strategic flexibility was statistically significant, however, in contrast to the other indirect pathways. Strategic flexibility was positively predicted by TEMCS, and this in turn had a positive effect on organizational performance. The standardized indirect effect was $\beta = .166$, with a 95% bootstrap confidence interval between .008 and .324. This finding suggested that strategic flexibility partially mediated the results of the direct TEMCS effect, which is why it was hypothesized and supported in this interval, excluding zero.

The indirect effect (via the two mediators) was $\beta = .242$, with a 95% bootstrap confidence interval ranging from .073 to .414. Therefore, while the data analytics capability alone did not mediate the relationship statistically, the indirect effect of the model was significant, more specifically due to the strategic flexibility. Table 5 shows the Bootstrap Mediation Analysis.

Table 5. Bootstrap Mediation Analysis

Effect	Standardized Effect	Bootstrap SE	95% Bootstrap CI	Interpretation
TEMCS → DAC → Organizational Performance	0.075	0.081	[-0.078, 0.247]	Nonsignificant
TEMCS → SF → Organizational Performance	0.166	0.080	[0.008, 0.324]	Significant partial mediation
Combined indirect effect	0.242	—	[0.073, 0.414]	Significant
Direct TEMCS →	0.522	0.104	[0.320, 0.725]	Significant

Organizational Performance				
Total TEMCS → Organizational Performance	0.764	0.042	[0.676, 0.839]	Significant

The indirect effects and 95% confidence intervals for the indirect effects are presented in Figure 4. The confidence interval for the data analytics pathway does not overlap with zero, while the confidence interval for indirect effects via strategic flexibility and combined indirect effects stay above zero, visually supporting the mediation results.

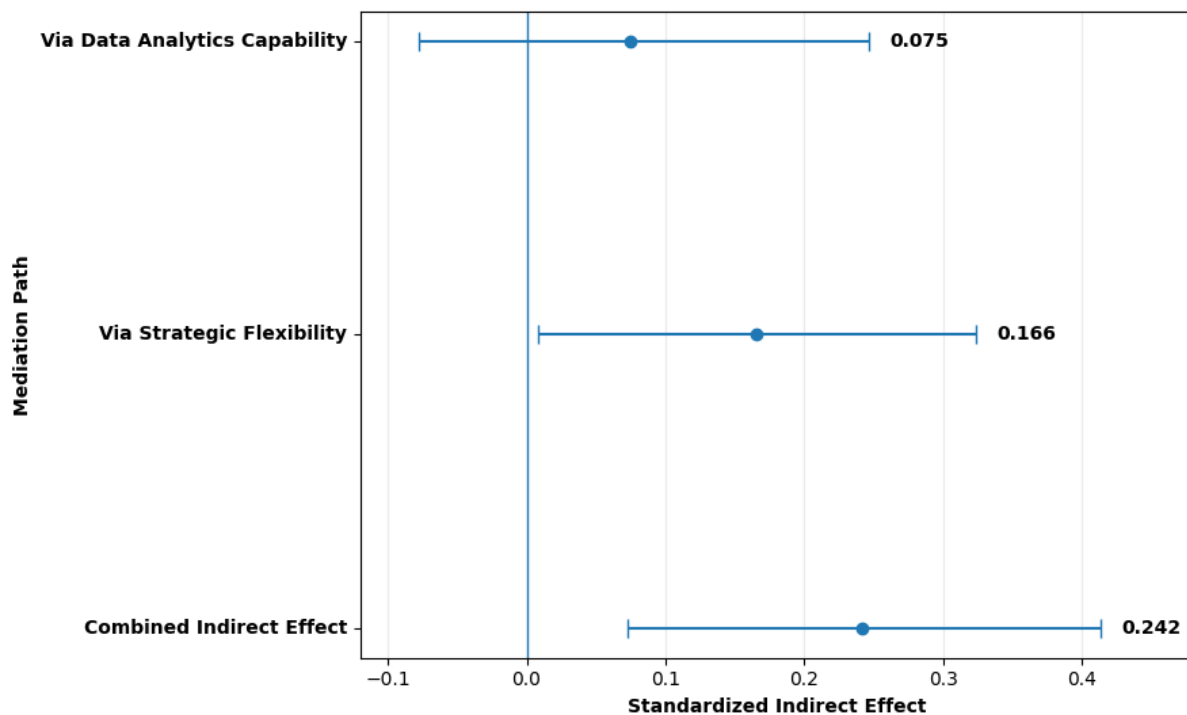


Figure 4. Bootstrapped standardized indirect effects with 95% confidence intervals for the mediation pathways

3.4 Overall Hypothesis Assessment

The overall hypothesis assessment is given in Table 6. The seven proposed hypotheses were supported by five. The management control systems that relied on technology showed strong direct

linkages with organizational performance, data analytics capacity and flexibility of strategy. Additionally, strategic flexibility was found to be a non-interactive factor in performance, and it was a significant mediator of the TEMCS–performance relationship. The data analytics capability was strongly associated with TEMCS and significant at the bivariate level, but could not be shown to have a separate, unique effect on performance when both TEMCS and strategic flexibility were controlled for simultaneously. The potential mediation effect was therefore not supported.

Table 6. Summary of Hypothesis Decisions

Hypothesis	Proposed Relationship	Decision
H1	TEMCS positively influences organizational performance	Supported
H2	TEMCS positively influences data analytics capability	Supported
H3	Data analytics capability positively influences organizational performance	Not supported
H4	TEMCS positively influences strategic flexibility	Supported
H5	Strategic flexibility positively influences organizational performance	Supported
H6	Data analytics capability mediates the TEMCS–performance relationship	Not supported
H7	Strategic flexibility mediates the TEMCS–performance relationship	Supported

The empirical results on the whole pointed to the fact that technology-enabled management control systems are the most important predictor in the proposed model. Their performance contribution has two pathways: direct and indirect, and the intervening process is strategically flexible, which is supported by statistical analyses. The model accounts for about 62% of the variance in organizational performance.

4. Discussion

The results reveal that the technology enabled management control systems had a significant and strong influence on organizational performance, and they also boosted the capability of data analytics and strategic flexibilities. Even with the inclusion of the two intervening capabilities, the direct impact of the technology-based management control systems on the organizations' performance was a significant factor. The result indicates that digital-based control mechanisms have the potential to improve performance by leveraging better monitoring, information, coordination, and management responsiveness. Concurrently, there are similar indications that as technological systems are interconnected with organizational capacities and strategic orientations, firm performance can be better (Barba-Sánchez et al., 2024). This finding also affirms the

perspective that process digitalisation can influence performance in the form of building dynamic capabilities of the organisation, not necessarily automating processes (Yang & Yee, 2022). Concurrently, past studies warn that digitalization is not always associated with better results, as managerial myopia and implementation shortcomings can reduce its value-creating potential (Guo et al., 2023).

The positive correlation between technology-enabled management control systems and data analytics capability suggests that digitalized control systems help develop and use data analytics. Technology-based management systems produce, enable and combine information which can be used to support forecasting, performance evaluation and evidence based decision-making. This is in line with research that have demonstrated the use of big data analytics in enhancing organisational forecasting, managerial decision processes and performance-related activities (Chatterjee et al., 2023). Moreover, the capacity to analyze data can give a company a competitive edge when it comes to mechanisms that are used to effectively visualize, interpret, and apply information (Medeiros & Maçada, 2022). The conclusions, therefore, only further underscore the need for digital infrastructure as a base for analytics-focused organizational ability.

When technology-enabled management control systems and strategic flexibility were concurrently added, however, data analytics capability did not have a statistically significant independent effect on organizational performance. It was also not significantly related to the mediating role. This finding is significant since it indicates that there is a possibility that analytical skills will not be enough to guarantee better performance. While some previous research finds positive relationships between big data analytics capability and organizational outcomes, the impact of these benefits is mediated by other factors like learning, innovation, or organizational adaptation (Garmaki et al., 2023; Khalil et al., 2023). Evidence also shows that the performance value of business analytics, through a meta-analysis, depends on the way analytical resources are put into organizational action (Oesterreich et al., 2022). The lack of significant mediation effect in this study, therefore, does not mean that analytics capability is not valuable, rather it might suggest that its value is dependent on complementary strategic and organizational processes.

This is the case for strategic flexibility, which was found to have a significant direct effect as well as a significant partial mediating influence. This implies that the ability to rapidly change strategies, reconfigure resources and react to environmental change is a key way that technology-based management control systems have a positive impact on organizational outcomes. The

findings are consistent with studies that have associated organizational agility with an ability to enhance performance in dynamic environments (Bekos et al., 2025). It is also aligned with the evidence that digital platform capabilities foster organizational agility especially for firms with environments of uncertainty and rapid change (Ahmed et al., 2022). Likewise, in cases of uncertain and dynamic environments, agility has been found to support quicker strategic responses (Troise et al., 2022).

The dynamic capabilities perspective is also applicable to the significance of strategic flexibility. Digital technologies deliver information and operational visibility, but companies need to have the agility and flexibility to transform these into timely strategic action. It is demonstrated that dynamic capabilities supported by digital technology can improve firm performance through sensing, responding and reconfiguring resources (Li et al., 2022). Again, strategic flexibility is also seen as an important capability, whose impacts rely on the company's ability to react properly to the environment (Herhausen et al., 2021). The ability to leverage big data analytics capability to enhance organizational resilience may also be supported by strategic flexibility, highlighting the importance of adaptive mechanisms in translating the use of big data analytics into outcomes (Guo et al., 2026). This is similar to the results of other studies that revealed that there is a relationship between business alignment and the contribution of analytics capability to organizational agility (Xie et al., 2022).

In general, the findings suggest that the technology-based management control system generates performance value in direct managerial ways and in capability building ways. Of the two proposed intervening variables, it was strategic flexibility that proved to be the most influential path. The result indicates that organisations should not just go on building up analytics technologies or digital skills. Managers, on the other hand, should take a more flexible approach to shaping their decision structures, planning adaptively, rapidly adjusting resources, and adjusting control practices as needed, by using analytical resources. This integration will likely be a key factor in the success or failure of digital control systems to create long-lasting performance improvements, as opposed to specific technological gains.

5. Conclusion

This study investigates the impact of technology-based management control systems (MCS) on organizational performance, especially for the role of data analytics capability and strategic

flexibility. Results indicate that technology-based management control systems are significantly associated with the performance of the organization and also with the capability to analyze data and the strategic flexibility of the organization. Of the two intervening capabilities, strategic flexibility proved to be the more powerful one, as it had a strong direct impact on performance and a strong indirect impact between technology-based management control systems and performance. Data analytics capability, on the other hand, is strongly correlated with technology enabled management control systems, and also has a strong association with organizational performance when paired with strategic flexibility, but they do not have a statistically significant, independent effect on organizational performance. Its mediating effect was also insignificant. This suggests that analytical skills per se are not enough to produce better organisational results without being translated into being adaptive, responsive, and strategically flexible. The findings overall suggest that the technological integration of management control systems is not enough to influence their performance value; rather, an organization's strategic adaptation is also required. As a result, the study makes a significant contribution to the management control and digital transformation literature by highlighting strategic flexibility as an important link between technology-enabled control systems and organizational performance. Digital control mechanisms, therefore, should be accompanied by flexible decision making, quick response capacity to reallocate resources, and adaptive strategic processes to improve and sustain performance outcomes.

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