



MANAGEMENT CONTROL PRACTICES AND PERFORMANCE OF SMEs IN MALAYSIA: A COMBINED APPROACH OF THE BALANCED SCORECARD AND LEVERS OF CONTROL

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ARTICLE INFO	ABSTRACT
Article History: <i>Received: 12 June 2024</i> <i>Revised: 3 October 2024</i> <i>Accepted: 21 October 2024</i> <i>Published: 15 August 2026</i> Keywords: <i>Small and Medium Enterprises (SMEs), Balanced Scorecard (BSC), Levers of Control (LOC)</i>	This paper examines the combined impact of two management control frameworks, namely the Balanced Scorecard (BSC) and the Levers of Control (LOC), on the performance of Malaysian Small and Medium Enterprises (SMEs). The BSC focuses on key performance indicators across four perspectives: Customer, financial, internal business process, and learning and growth. The LOC advocates the use of different control mechanisms, categorised into belief systems, boundary systems, diagnostic control systems, and interactive control systems. These frameworks provide a comprehensive management control function on their own. Hence, the integration is expected to further enhance their effectiveness in helping SMEs achieve business objectives. We administered a questionnaire survey to 500 SMEs, yielding 138 usable responses. These were analysed using Statistical Package for the Social Sciences (SPSS) software for Pearson correlation and regression analysis. The results reveal significant interrelationships between the BSC and LOC practices, with the strongest correlation between the LOC’s diagnostic control system and the BSC’s learning and growth perspective. Overall, this study demonstrates the effectiveness of the BSC and LOC in enhancing SMEs’ performance, particularly reporting that the causal effect on companies’ performance increases when combining the two. It highlights the applicability and benefits of these practices in enhancing the survivability and sustainability of SMEs.

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Introduction

Small and Medium Enterprises (SMEs) are key drivers of Malaysia’s economic growth and social development by providing a significant source of employment, innovation, and entrepreneurship. Despite their importance, many SMEs face substantial challenges in sustaining their businesses, particularly due to increased competition, rising costs, and market uncertainty. The situation worsened during the COVID-19 pandemic, forcing many SMEs to shut down. In the subsequent recovery period, even with a positive outlook, generating revenue remains a significant challenge for SMEs, largely due to higher operating costs

and inflation (SME Bank, 2024). In adapting to the changing environment, academics and best practices emphasise the use of effective strategic management and control practices in SMEs to help improve their performance (López & Hiebl, 2015; ACCA, 2023; OCBC Business Banking, 2023; Ahmad & Zabri, 2024; Roffia & Dabic, 2024).

Furthermore, management control practices play a crucial role in helping companies achieve their desired performance by aligning employees with the organisation’s objectives and strategies (Anthony & Govindarajan, 2006). These practices include all processes and

tools that managers use to guide and influence employees in implementing the organisation's plans (Malmi *et al.*, 2022). In line with this, an effective management control system can reduce the risk of employees engaging in deviant actions or failing to perform tasks necessary for organisational success (Merchant & Van der Steede, 2023). This function is critical for organisations to attain both financial and non-financial performance outcomes, such as sales growth, innovation, and sustainability.

However, SMEs often fall short in implementing effective management control practices because of limited organisational structure and formalisation (Garengo *et al.*, 2005; Taticchi *et al.*, 2012; Haseeb *et al.*, 2019). They mostly prefer to make business decisions based on the intuition of a single leader or a small group of managers, rather than on a systematic decision-making and execution process (Chen, 2003). Without formal management control practices, they often neglect long-term goals, which are crucial for sustainable business improvement, becoming preoccupied with addressing immediate problems and tasks (Ates *et al.*, 2013). As such, there is a critical need to establish comprehensive management control practices that meet SMEs' needs and are suitable for their organisational structure and limited resources.

In the literature and practice worldwide, two of the most widely recognised management control frameworks are the Balanced Scorecard (BSC) and the Levers of Control (LOC). Notably, the BSC was developed by Kaplan and Norton (1992) to emphasise the use of financial and non-financial performance measures linked to the organisation's business strategy. It is designed to translate a company's vision and strategy into critical performance indicators, categorised into customer, financial, internal business process, and learning and growth perspectives. On the other hand, the LOC was introduced by Simons (1995) as a framework for implementing and controlling business strategies, comprising four LOC: Belief systems, boundary systems, diagnostic control systems, and interactive

control systems. These levers correspond to four key constructs that could contribute to successful strategy implementation: Core values, risks to be avoided, critical performance variables, and strategic uncertainties (Simons, 1995).

In general, the BSC and LOC are used by companies to facilitate strategy execution and improve organisational performance. Whilst both LOC and BSC aim to achieve business strategies, individually, they focus on different aspects. In particular, the BSC focuses on a balanced, critical set of performance measures, while the LOC focuses on a diverse set of controlling and enabling tools. They are also useful in supporting organisations' sustainability agendas by emphasising proper planning, execution, and monitoring processes (Arjaliès & Mundy, 2013; Gazi *et al.*, 2022; Baird & Tung, 2023). Nevertheless, previous studies suggest that many management control frameworks are challenging to adapt to less formalised business processes and structures (Ferreira, 2002; Collier, 2005). This raises the question of whether the BSC and LOC can be implemented in SMEs' business settings to improve performance. Since both frameworks were originally designed for large companies, our research aims to investigate the effect of combining BSC and LOC on SMEs' performance.

To achieve the research objective, we employed a survey-based approach among Malaysia's SMEs. SMEs are businesses with a certain level of assets, turnover, and number of employees. They are categorised into micro, small, and medium-sized firms. In Malaysia, SMEs are categorised into two primary industries: (i) Manufacturing and (ii) services and other sectors (which include agriculture, construction, and mining and quarrying). Their size is determined based on either annual sales turnover or the number of full-time employees, whichever is lower (SME Corp, 2022). In the manufacturing and manufacturing-related services sector, a company is considered an SME if its sales turnover is less than RM50 million or it has fewer than 200 full-time employees. Meanwhile, for services and other sectors, SMEs

are businesses with a sales turnover of less than RM20 million or fewer than 75 workers.

Our research is expected to contribute to management accounting literature by providing empirical evidence on the possibility and effectiveness of combining the two powerful management control frameworks. This research could address the call by scholars to study management accounting tools as a package due to the fact that companies' effectiveness is normally the outcome of different control elements working together in a coordinated manner (e.g., Otley, 1999; Chenhall, 2003; Malmi & Brown, 2008; Ferreira & Otley, 2009; O'Grady & Akroyd, 2016). Although there are earlier studies that have observed the different ways the BSC interacts with the LOC (e.g., Tuomela, 2005; Naro & Travaill  , 2011; Agostino & Arnaboldi, 2012; Kerr *et al.*, 2015; Pe  alj *et al.*, 2018; Beusch *et al.*, 2022), many used qualitative case study approach. Our study, on the other hand, adopted a quantitative approach to provide statistical confirmation of this issue. Furthermore, limited research has examined the integration of the full BSC and LOC frameworks into analyses, as most studies have focused only on selected components of each framework.

Our study could also address gaps in both practice and research regarding management control in SMEs. Even though management control research is a prominent area in management accounting, studies that focus on SMEs are very limited (Manville, 2007; Heinicke *et al.*, 2016; Massaro *et al.*, 2019), specifically in developing countries (Haldma & L    ts, 2002; Soobaroyen & Poorundersing, 2008; Edirisinghe *et al.*, 2024). Given SMEs' significant contributions to the country's economy, identifying effective management control practices is thus crucial for enhancing the competitiveness of these companies. In this regard, our study specifically examined the applicability of modern management control frameworks in this business setting and the effect of the combined approach on companies' performance.

The remainder of this paper is organised as follows: The next section reviews the relevant literature on the BSC and LOC. This is followed by the research methodology section, which outlines the survey instrument and data collection methods. The results and discussion of the data analysis are then presented, and the paper concludes in the last section.

The Balanced Scorecard and Levers of Control

Kaplan and Norton developed the BSC in the early 1990s to address the limitations of traditional accounting measures. These measures, such as return on investment and operating income, could only signal past performance and offer minimal insight into future improvements. Notably, the BSC is a strategic planning and performance management framework designed to align business activities with organisations' visions and strategies, communicate strategies and performance internally and externally, as well as monitor organisational performance against strategic goals (Kaplan & Norton, 1992, 1996; Kaplan, 2010). The framework suggests that companies establish several interlinked key performance measures across financial, customers, internal business processes, and learning and growth perspectives. Accordingly, these performance measures need to be balanced among leading and lagging indicators, short- and long-term objectives, financial and non-financial measures, and internal and external performance perspectives (Kaplan & Norton, 1992, 1996; Kaplan, 2010). Studies have demonstrated that organisations adopting the BSC have seen improvements in effectiveness, change management, and the ability to meet the needs of multiple stakeholders (Bobe *et al.*, 2017; Cooper *et al.*, 2017; Zawawi & Hoque, 2020).

Similarly, the importance of the LOC has been widely recognised in the literature (e.g., Abernethy & Lillis, 2001; Bisbe & Otley, 2004; Henri, 2006; Ferreira & Otley, 2009). The LOC is concerned with how organisations can achieve their business strategies and

manage strategic uncertainties, particularly in response to changing business environments (Simons, 2000). Moreover, the LOC indicates that companies implement different control mechanisms categorised under four levers. The first lever, the belief system, highlights the vision, mission, and core values that instil organisational direction, values, and culture in employees when performing daily tasks or searching for new opportunities that support the company's growth. On the other hand, the second lever is the boundary system, which establishes limits within which employees should operate and identify new opportunities. The control mechanisms for this system include codes of conduct and operational guidelines.

The third lever is the diagnostic control system, which is used to monitor and measure employees' performance and companies' activities against the strategic goals. Examples of diagnostic control tools include budgets, performance indicators, and business plans, all of which guide employees in implementing strategies to achieve goals and identify corrective actions. The final lever is the interactive control system, which stimulates organisational learning and encourages employees to share new ideas and strategies. Specifically, the main purpose of the interactive control system is to help companies adapt to current and future business environments. For example, this can be achieved by designing new products and service offerings and formulating more efficient management and operational processes. The mechanisms to implement interactive controls include involving employees in management meetings and using other control systems, such as budget and performance measurement systems, in an interactive manner (Simons, 1995).

The BSC and LOC are both contemporary management tools that incorporate financial and non-financial performance measures, provide a comprehensive view of organisational effectiveness, and are sufficiently flexible to be adapted to various organisational settings and needs (Simons, 1995; Kaplan & Norton, 1996; Chenhall & Langfield-Smith, 1999; Zawawi & Hoque, 2010; Jarrar & Smith, 2014). Their

primary purpose is to manage strategies across different organisational aspects and levels whilst emphasising the principle of balance in their approach. While the BSC and LOC differ in focus and methodology, certain aspects of the frameworks overlap and complement one another. Firstly, the BSC can be used as a belief system and a diagnostic control. As the belief system is intended to inspire and guide employees, the BSC can facilitate this by providing a snapshot of a company's goals, encompassing the vision, strategies, the four critical areas, and the initiatives to achieve them. Previous findings documented how presenting information in a single view makes the BSC an effective communication tool for conveying and instilling management directives throughout the organisation (e.g., Malina & Selto, 2001; Zawawi & Hoque, 2020). For diagnostic control, the role of the BSC as a performance measurement system signifies the main diagnostic control feature of ensuring that employees' behaviour is in line with the strategic goals, as highlighted in the previous literature (e.g., Tuomela, 2005; Kerr *et al.*, 2015; Pešalj *et al.*, 2018). In fact, Kaplan and Norton envisioned the BSC as an enhanced diagnostic control system in which managers identify a set of financial and non-financial measures, they consider important to company success (Kaplan, 2010).

Building on this, studies reported that the BSC and LOC can be implemented together to work complementarily to produce a more effective and coherent management control system (e.g., Tuomela, 2005; Naro & Travaillé, 2011; Agostino & Arnaboldi, 2012; Kerr *et al.*, 2015; Pešalj *et al.*, 2018; Beusch *et al.*, 2022). For example, a boundary system can support the BSC by providing guidance and limits on how employees can act in their daily work (Mooraj *et al.*, 1999). Such features, which are specific and localised to every employee and division, are important for ensuring the actions and achievements of each party are consistent with the strategic goal and within the organisational parameters. Subsequently, the interactive control system can be employed to encourage strategic initiatives and innovation to emerge from within

the organisation rather than being imposed from the top, as advocated by the BSC (Simons, 1995; Bisbe & Malagueño, 2015). In this regard, two interactions can be implemented between the LOC and the BSC. Firstly, the BSC's learning and growth perspective can help encourage, measure, and monitor the emergence of ideas and innovation through performance measures such as the number of employee suggestions or new product designs. Secondly, the BSC can be used interactively through discussions with managers and employees across divisions to determine appropriate performance measures and their targets (Tuomela, 2005; Agostino & Arnaboldi, 2012; Kerr *et al.*, 2015).

In SMEs, many previous studies emphasised the absence of appropriate strategic and performance management procedures used by the companies to assist the formulation and achievement of short-term and long-term business goals (e.g., Robinson & Pearce, 1984; Sexton & van Auken, 1985; Hudson *et al.*, 2001; Sandberg *et al.*, 2001; Beaver, 2003; Ahmad, 2012; Lee *et al.*, 2014). Garengo *et al.* (2005) further stated that this gap is often attributed to limited human and capital resources, as well as a lack of planning and management skills and formalised procedures. Moreover, according to Teittinen *et al.* (2013), implementing and maintaining management control practices in SMEs can be costly and time-consuming. Despite these challenges, research has demonstrated that both the BSC and LOC frameworks are applicable and beneficial for SMEs (Grandlund & Taipaleenmaki, 2005; Jusoh & Parnell, 2008; Anuar & Yusuff, 2011; Giannopoulos *et al.*, 2013; Heinicke *et al.*, 2016; Malagueño *et al.*, 2018; Pesalj *et al.*, 2018; Asiaei *et al.*, 2023).

Given these insights, integrating the BSC and LOC frameworks is valuable for enhancing organisational performance in SMEs. We predicted compatibility between the tools, as they could be used concurrently for the same aim: managing strategies. There are also certain aspects of the tools that can complement one another, thereby producing synergy that enhances overall effectiveness. As such, this

paper aims to determine whether the combined application of the BSC and LOC frameworks can improve the organisational performance of SMEs. Accordingly, we hypothesised that:

H₁: There is a positive and significant relationship between the combined use of the BSC and LOC and the performance of Malaysian SMEs.

Research Method

This study employed a quantitative research method to test hypotheses through statistical analysis and investigate the relationships among the BSC, LOC, and SMEs' performance. Following this, data were collected via a questionnaire survey targeting Malaysian SMEs, with the sample drawn from the Federation of Malaysian Manufacturers directory. For the instrument development, we utilised the five-point Likert scale, whereby questions on the LOC were adapted from Henri (2006), Widener (2007), and Heinicke *et al.* (2016); questions on the BSC were adapted from Hoque *et al.* (2001), Speckbacher and Wentges (2012), Overstreet *et al.* (2013), and Bedford (2015); and questions on companies' performance were adapted from Widener (2007) and Overstreet *et al.* (2013). The instrument was then validated through pre-testing with six individuals, including academics and practitioners, followed by pilot testing with 14 SME business owners. The study also received approval from the university's research ethics committee.

The questionnaires were administered to Chief Executive Officers (CEOs), managers, and/or owners of 500 SMEs in Malaysia. The sample size was determined based on the recommendations of Roscoe (1975) and Sekaran and Bougie (2010), who recommended a range of 30 to 500 respondents for business research. Correspondingly, the survey obtained 138 usable responses, indicating a response rate of 27.6%. This rate is considered sufficient for Malaysian SMEs, given that typical return rates range from 7% to 25% (Hashim, 2009; Alam *et al.*, 2011).

Data Analysis

Descriptive Statistics

The profile of respondent companies is summarised in Table 1. From the table, the majority of the surveyed companies come from the service sector (43.5%), with the least represented sectors being mining and quarrying (0.7%) and construction (3.6%). Most of the surveyed SMEs have less than five employees (45.7%), followed by 6 to 30 employees (37.7%), 76 to 200 employees (8.7%), and 31 to 75 employees (8.0%). According to this classification, the surveyed SMEs mostly comprise micro-sized companies, followed by medium-sized and small-sized companies. For annual sales figures, most companies generate less than RM15 million in sales, which suggests that the majority of surveyed SMEs are micro and small-sized companies.

Table 2 presents the descriptive statistics of the components and the whole framework of LOC, BSC, and performance. The data reveal moderate implementation of the LOC and BSC

in SMEs, while their perceived performance is high. The data also indicate that the average LOC score across all levers is slightly higher than the average BSC perspective score. Accordingly, the most widely implemented component across the two frameworks is the diagnostic control system, followed by the BSC's internal business process and financial perspectives. Conversely, the lowest mean is the BSC's customer perspective, followed by the learning and growth perspective.

Reliability and Normality Test

A reliability test was performed to assess the stability and consistency of the questionnaire in measuring the variables (Creswell, 2014; Sekaran & Bougie, 2016; Hair *et al.*, 2019). This study followed Hair *et al.* (2019) and Chua's (2021) recommendations on an acceptable reliability value of 0.7 or higher, with values above 0.8 considered good. As shown in Table

Table 1: Companies' profile

Measure	Items	Frequency	Percentage
Sector	Service	60	43.5
	Construction	5	3.6
	Manufacturing	23	16.7
	Agriculture	2	1.4
	Trade and Retailing	42	30.4
	Mining and Quarrying	1	0.7
	Others	5	3.7
Sales	< 300,000	37	26.8
	300,001–3,000,000	48	34.8
	3,000,001–15,000,000	19	13.8
	15,000,001–20,000,000	11	8.0
	20,000,001–50,000,000	3	2.2
	> 50,000,000	20	14.5
Number of Employees	< 5	63	45.7
	6–30	52	37.7
	31–75	11	8.0
	76–200	12	8.7

Table 2: Descriptive statistics of the LOC and BSC

Variables	N	Mean	Std. Deviation
Customer Perspective	138	3.6449	0.70907
Internal Business Process Perspective	138	3.9878	0.72919
Learning & Growth Perspective	138	3.7855	0.71138
Financial Perspective	138	3.9546	0.67819
BSC (all perspectives)	138	3.8432	-
Beliefs System	138	3.9475	0.57109
Boundary System	138	3.8646	0.61460
Diagnostic Control System	138	4.1848	0.67563
Interactive Control System	138	3.8603	0.72464
LOC (all levers)	138	3.9643	-
Performance		4.0063	0.58111

Table 3: Reliability test results

Variables	Cronbach's Alpha	Number of Original Items	Number of Deleted Items
Customer Perspective	0.811	5	0
Internal Business Process Perspective	0.867	3	0
Learning & Growth Perspective	0.868	6	0
Financial Perspective	0.919	6	0
BSC (all perspectives)	0.935	20	0
Beliefs System	0.850	4	0
Boundary System	0.653	3	0
Diagnostic Control System	0.902	4	0
Interactive Control System	0.932	6	0
LOC (all levers)	0.919	17	0
Performance	0.882	7	0

3, most constructs recorded Cronbach's alpha values exceeding 0.70, indicating acceptable to high internal consistency. However, the Boundary System recorded a Cronbach's alpha of 0.653, which was below the conventional threshold. The lower value may partly reflect the small number of items used to measure the construct, as Cronbach's alpha tends to be lower for constructs measured using only a few items (Hair *et al.*, 2019). The construct was therefore retained, although its lower internal consistency is acknowledged as a limitation of the study.

For the normality test, as the sample size exceeded 50 respondents, this study used the kurtosis and skewness methods to assess data normality. Based on Table 4, the results presented acceptable values of skewness and kurtosis, which lie in an acceptable range of -2 to +2 as suggested by George and Mallery (2019). Visual inspection of the Skewness-Kurtosis values indicates that the data are normally distributed. Therefore, parametric tests were employed in this study.

Table 4: Normality test results

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
LOC	138	-0.777	0.206	1.140	0.410
BSC	138	-0.575	0.206	0.704	0.410
Performance	138	-0.495	0.206	0.445	0.410

Correlation and Regression Tests

The primary objective of the study is to determine the effect of combining the BSC and LOC on SMEs' performance. For this study, we initially assessed the integration of the BSC and LOC by correlating the two practices using the Pearson correlation test. The test can demonstrate the strength and direction of the relationship: the closer the correlation coefficient is to 0, the weaker the relationship between the two variables. We first ran the test on the correlation between the two frameworks as a whole, and the results are reported in Table 5.

Table 5 highlights a significant correlation between the BSC and LOC. The Pearson correlation coefficient of 0.646 indicates a strong positive association between the BSC and LOC, supporting their potential integration. To investigate which specific components contributed to this figure, we performed further correlation tests, as reported in Table 6.

Table 6 indicates that all components of the two frameworks are significantly and positively correlated. The strongest correlation is between the boundary system and the beliefs system (0.706), followed by the diagnostic control system and the interactive control system

(0.660), as well as the financial perspective and the learning and growth perspective (0.635). In contrast, the weakest correlation is between the interactive control system and the internal business process perspective (0.241). This is followed by the beliefs system and the learning and growth perspective (0.267) and the beliefs system and the financial perspective (0.279).

Across the two frameworks, the highest correlation is between the diagnostic control system and the learning and growth perspective (0.555), followed by the diagnostic control system and the customer perspective (0.503), and the interactive control system and the financial perspective (0.496). On the other hand, the lowest correlation across the two frameworks is between the interactive control system and the internal business process perspective (0.241), followed by the beliefs system and the learning and growth perspective (0.267) and the beliefs system and the financial perspective (0.279).

Overall, diagnostic and interactive control systems demonstrate higher correlations with the BSC's perspectives than beliefs and boundary systems. This suggests that the function of the diagnostic control system, which aims to manage

Table 5: Pearson correlation test results between LOC and BSC

		BSC	LOC
BSC	Pearson Correlation	1	.646**
	Sig. (2-tailed)	-	0.000
	N	138	138
LOC	Pearson Correlation	.646**	1
	Sig. (2-tailed)	0.000	-
	N	138	138

** Correlation is significant at the 0.01 level (2-tailed)

Table 6: Correlation matrix of BSC perspectives and LOC items

		BSC Perspectives			LOC Items			
		Customer	Internal Business Process	Learning & Growth	Financial Beliefs	Boundary	Diagnostic Control	Interactive Control
BSC Perspectives	Customer	1						
	Internal Business Process	.457**	1					
	Learning & Growth	.633**	.593**	1				
	Financial	.433**	.469**	.635**	1			
LOC Items	Beliefs	.378**	.312**	.267**	.279**	1		
	Boundary	.385**	.321**	.359**	.348**	.706**	1	
	Diagnostic Control	.503**	.381**	.555**	.471**	.323**	.409**	1
	Interactive Control	.400**	.241**	.516**	.496**	.340**	.394**	.660**

** Correlation is significant at the 0.01 level (2-tailed)

and monitor performance against standards, is interrelated with the use of performance measures from the BSC's perspective. In particular, the strongest correlation involving the diagnostic control system is with learning and growth and customer perspectives. There is also a strong correlation between interactive control and the financial perspective.

As the above results illustrate, if the BSC can be integrated with the LOC, we further investigated whether such integration could improve performance. Accordingly, we first performed regression analysis on the BSC and LOC individually against companies' performance. Subsequently, to test Hypothesis 1, we combined the BSC and LOC and again regressed the new variable against the performance. The results are presented in Table 7.

Table 7 highlights significant positive relationships across all models, demonstrating the influence of the BSC and LOC on SME performance. The BSC explains 11.8% of the variance, with an R-square of 0.118 and an adjusted R-square of 0.110. Meanwhile, the LOC demonstrates slightly stronger explanatory power, accounting for 14.9% of the variance (R-Square = 0.149; adjusted R-Square = 0.141). When the BSC and LOC are combined, their combined effect on company performance increases, with an R-Square of 0.169 and an adjusted R-Square of 0.161. This suggests that the concurrent use of both BSC and LOC frameworks is more effective in influencing SME performance than using each framework individually, thus supporting Hypothesis 1.

Table 7: Regression analysis results for LOC, BSC, and performance

Model	R	R-Square	Adjusted R-Square	Std. Error of the Estimate	Sig.
BSC → Performance	.344	0.118	0.110	0.48680	<.001
LOC → Performance	.386	0.149	0.141	0.47820	<.001
BSC + LOC → Performance	.411	0.169	0.161	0.47275	<.001

Discussion

This study primarily seeks to investigate the impact of the joint use of BSC and LOC on SMEs' performance. Building on this, we tested associations to assess the potential integration between the two frameworks and conducted separate regression analyses of the BSC and LOC with performance. We subsequently compared the results with the regression involving the combined frameworks.

From the regression analyses, the LOC individually affects performance, consistent with Widener (2007), Yolanda and Rachmawati (2020), and Ben Hamadi and Fournès (2022). It is also consistent with Hoque and James (2000), Malina and Selto (2001), Greatbanks and Tapp (2007), Jusoh *et al.* (2008), and Zawawi and Hoque (2020) on the influence of the BSC on performance. In SME studies, the findings on the effect of the LOC and BSC are mixed. Grandlund and Taipaleenmaki (2005), Heinicke *et al.* (2016), Pesalj *et al.* (2018), and Asiaei *et al.* (2023) reported the usefulness of LOC in SMEs for helping companies achieve effectiveness, consistent with our study. On the other hand, Mohamed (2013) emphasised the positive impact of belief control, diagnostic control, and boundary systems, though they discovered that interactive control had no impact on companies' performance. For the BSC, some studies highlighted the struggles of SMEs in implementing the tool (e.g., McAdam, 2000; Fernandes *et al.*, 2006; Madsen & Stenheim, 2014), while some other studies reported its positive influence on organisational effectiveness (e.g., Jusoh & Parnell, 2008; Anuar & Yusuff, 2011; Giannopoulos *et al.*, 2013; Malagueño *et al.*, 2018), which is in line with the current study.

The uniqueness of our study lies in combining the entire BSC and LOC and examining the effect of this combination on SMEs' performance. As expected, our study demonstrated that the combined effect of BSC and LOC on companies' performance is higher than the individual impact. This supports findings in the existing literature on the interaction of

BSC and LOC (e.g., Tuomela, 2005; Naro & Travaillé, 2011; Agostino & Arnaboldi, 2012; Kerr *et al.*, 2015; Pešalj *et al.*, 2018; Beusch *et al.*, 2022). As Chenhall and Moers (2015) conceptualised the compatibility and potential for integrating the BSC and LOC frameworks, we contributed to the literature by providing evidence for this contention.

In explaining the findings, we first relied on correlation coefficients among the individual components. We highlighted the strongest association between the diagnostic control system and almost all BSC perspectives. Moreover, this finding suggests that the BSC's performance measures can be used as a diagnostic control for managing and monitoring organisational effectiveness in SMEs. Specifically, based on the results, we recommend that SMEs place high importance on using performance measures related to employees' learning and growth and customer outcomes, such as the number of new product or process ideas, customer satisfaction, and sales returns. The moderate correlation between interactive control and the financial perspective also suggests that interactive control systems in SMEs could foster learning and innovation. This could then be linked to achieving financial targets. Additionally, the results reveal that the BSC can be used interactively to complement the typical decision-making style in SMEs, which is often centralised around a single leader or a small group of managers. This can be achieved, for instance, by involving employees from multiple levels in discussions to configure the BSC. Accordingly, this approach could enhance the conventional one-way decision-making process by top management.

Overall, as stipulated in the BSC and LOC frameworks, the findings suggest the importance of establishing short- and long-term goals through a clearly defined vision, mission, strategies, and appropriate performance measures. Although the literature has reported a lack of resources and structures to be a common inhibiting factor, we believe these elements

could, conversely, motivate SMEs to implement management control practices. In line with this, the BSC and LOC can be employed to curb unwanted employee behaviour and ensure that organisational processes and activities are on the right track. This leads to improvements in companies' efficiencies and curbs unnecessary expenditures. Furthermore, in SMEs where strategic direction is usually top-down and the business environment is dynamic and uncertain, the use of an interactive control system is particularly beneficial. This type of control encourages employees at all levels to generate ideas and innovations across products, services, and processes, helping companies become increasingly competitive and sustainable.

Conclusions

Stiff business competition and the movement towards a sustainable business environment require companies to utilise a variety of management control practices to achieve the desired performance. This paper demonstrates that combining the BSC and LOC frameworks provides synergy in strategic management and control functions. The unique aspect of the LOC is its inclusion of various control mechanisms that both enable and constrain employees, which can be implemented at both strategic and operational levels. Notably, the primary benefit of the BSC is its ability to focus on specific critical success factors, along with the measures and targets for achieving these factors. Altogether, the integrated approach could enhance the development, communication, and monitoring of strategic goals while encouraging innovativeness and change to address strategic uncertainties.

Our results provided important insights for academics, SME managers, and policymakers regarding the application of the BSC and LOC to improve business and sustainability. Nevertheless, it is crucial to acknowledge that the small sample size could limit the generalisability of these findings. To address this limitation, future studies could adopt a mixed-methods approach by combining

qualitative interviews with a questionnaire survey, or by comparing the practices of larger companies with those of SMEs, to gain a deeper understanding and improve the generalisability of management control practices. At the same time, future studies could also consider including contingency factors such as management style and organisational structures, as well as attributes of management control practices such as complexity and compatibility with existing practices.

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Conflict of Interest Statement

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts, and declare absence of conflicting interests with the funders.

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