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Process and quality management as pathways to operations capabilities: a comparative study of government-supported and non-government-supported Malaysian SMEs

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ABSTRACT

Process and quality management are fundamental drivers of operations capabilities, yet their impact varies significantly between government-supported and self-reliant Malaysian SMEs. Utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) on a stratified sample of 144 operations executives, this study compares how these internal practices translate into performance. Results reveal a stark contrast: for self-reliant SMEs, both quality and process management are robust, significant predictors of operational success. However, in government-supported firms, this relationship collapses, with process management failing to significantly influence operations capabilities. These findings suggest that while internal practices are critical for firms without aid, government support may act as a boundary condition that fosters symbolic compliance or organizational slack. By identifying this "decoupling" of management initiatives from actual performance gains, this research highlights the need for output-based rather than adoption-based support frameworks

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1. BACKGROUND OF THE STUDY

Process management (PM) and quality management (QM) are foundational domains of operations management that shape how firms design, execute, and continually improve their core processes. For small and medium-sized enterprises (SMEs) in Malaysia, these domains are especially critical due to limited resources, intense competition, and exposure to macroeconomic volatility. The successful translation of sound PM and QM practices into stronger operations capabilities (OC) can therefore be a decisive source of competitive advantage, enabling SMEs to deliver consistent quality, reduce cycle times, and respond more effectively to market changes.

Historically, Malaysian SMEs have benefited from various government-led initiatives aimed at enhancing managerial competence, technological capability, and market access, including financial assistance, skills development, and training. While this government support (GS) has intensified recently, evidence regarding how it interacts with operations management practices to influence OC remains mixed. Some studies suggest GS strengthens the PM/QM-OC linkage by reducing barriers to adoption; others indicate that support alone is insufficient unless PM and QM practices are actively pursued and institutionalized (Razak et al., 2018; Mithas et al., 2022). This dynamic makes the Malaysian policy environment a unique setting for examination. SMEs operate within a networked ecosystem where public programs aim to mitigate financial constraints and accelerate technology uptake. However, the uneven distribution of resources, sectoral heterogeneity, and varying absorptive capacities across firms can lead to divergent outcomes in OC. Recent literature confirms a link between government entrepreneurship support and firm performance in Malaysia, yet the specific pathways through which GS enhances PM and QM—and subsequently OC—are not uniformly understood across industries and firm sizes (Cheong et al., 2020).

Consequently, this study contributes to the literature by empirically examining the direct relationship between PM/QM practices and OC in Malaysian SMEs. Crucially, it also employs a comparative approach using robust quantitative methods (PLS-SEM) to illuminate how the PM-OC and QM-OC pathways differ between government-supported SMEs and their non-supported peers. The findings aim to inform managers about the strategic value of investing in PM and QM capabilities and to guide policymakers in designing targeted, evidence-based programs that more effectively translate support into higher OC and sustained SME competitiveness.

1.1 Problem statement

The Model of Service Quality Gaps proposed by Parasuraman et al. (1985) can be interpreted as a reflection of an organization's failure to deliver effectively according to customer expectations. This "gap" aligns with the resource-based view (RBV) model, which posits that effective resource management is essential for achieving superior operations performance. Many organizations still struggle to identify effective strategies for attaining operations excellence. Furthermore, there is a lack of studies that connect the operations management of SMEs to metrics of operations capabilities. The literature indicates that there is a significant gap in understanding operations practices within the SMEs sector, despite ongoing government initiatives aimed at enhancing management development for these enterprises. While discussions surrounding operations areas are increasing, they predominantly focus on international contexts, with comparatively limited attention given to Malaysian SMEs (Tan et al. 2025; Abdul Wahab et al. 2024; Abdul Wahab et al. 2023), leaving the situation somewhat ambiguous (Abdul Wahab et al. 2024; Sharma and Kodali, 2012).

Numerous initiatives implemented by the government have not mitigated the undeniable reality that many small and medium-sized enterprises (SMEs) encounter significant challenges in maintaining their business operations (Mohamad et al., 2021). The high failure rate of Malaysian SMEs, often cited at 60% within five years, remains a critical challenge (Hasin & Abdullah, 2023), a significant contrast to Australia's approximately 50% survival rate over three years (Australian Bureau of Statistics, 2024), a trend that has persisted over time. Study by Yahaya and Nadarajah (2023) suggest that SMEs continue to struggle with

the challenges that hinder their resilience and competitiveness, emphasizing the necessity for a comprehensive examination of these issues across various disciplines to gain fresh insights. Research conducted in the past has primarily concentrated on a limited range of factors influencing the performance of small and medium-sized enterprises (SMEs). The emphasis has largely been focussed if not placed on non-operations factors, which are often cited as the main reasons for the subpar performance of SMEs. Factors related to government policies, entrepreneurship, management practices, and marketing strategies are frequently identified as essential elements that significantly impact the performance of SMEs businesses (Pidduck and Clark, 2025; Al Naimat and Davies, 2025; Alam et al., 2025; Prasannath et al., 2024; Yahaya and Nadarajah, 2023). Research on the effects of operations practices on the performance of SMEs remains sparse and varied (Halen e al., 2025; Osman et al. 2018). These factors and challenges encompass both micro and macro elements of the business environment, yet they are regarded as relatively limited in scope (Osman et al., 2018).

Since the past organizational performance standing within the marketplace and its capacity to fulfil the needs of its stakeholders has been closely associated with financial performance, where financial metrics serve as benchmarks for achievement. Research (Tuan, 2020; Aslam et al., 2019), however emphasized the necessity of a holistic approach to measurement, highlighting the importance of incorporating non-financial performance indicators. Operations capabilities, sometimes referred to as operations performance, denote the results of operations processes and routines that are intricately woven into a complex network of interrelated practices shaped by operations decisions over time. The fundamental dimensions of operations capabilities have included quality, operations cost, flexibility, and delivery (Amoako-Gyampah et al., 2020; Yusoff et al., 2018), although some studies (Wu et al., 2010) have proposed additional dimensions. The effectiveness of the configuration and interaction of operations practices and resources determines the nature of the operations capabilities, ultimately leading to a competitive advantage (Sunder and Linderman, 2024; Mikalef et al., 2020).

1.2 Research Question

The paper acknowledges the crucial contribution of small and medium-sized enterprises (SMEs) to socio-economic development and seeks to ascertain the operations management of SMEs, specifically towards the attainment of operations capabilities. The connections provide a fresh perspective on the relationship between operations practices in a SMEs that are independent of government support against that which is dependent, in the attainment of operations capabilities.

2. LITERATURE REVIEW

Small and medium enterprises (SMEs) play a crucial role in economic development by generating employment, creating income opportunities, and contributing to advancements in information and infrastructure. Furthermore, they serve as a catalyst for innovation and promote social growth and cohesion. The positive correlation between entrepreneurship and economic growth has been firmly established globally. In Malaysia, SMEs are among the key sectors driving the country's economic progress. Like other organizations, Malaysian SMEs face a dynamic business environment that leads to accelerated declines in product life cycles (PLC). This situation compels firms to pursue new, innovative, and adaptable sustainable practices to gain a competitive edge (David et al., 2022). Failure to adapt risks an inability to compete, market share loss, outdated services, increased operations costs, and customer attrition. Recognizing this strategic significance, the Malaysian National Entrepreneurship Policy 2030 (Ministry of Entrepreneur Development and Cooperatives, 2019) was developed to outline objectives and strategies for fostering an optimal entrepreneurial ecosystem (Ayyagari et al., 2016; Mahmud & Hilmi, 2014).

The dedicated focus on Small and Medium Enterprise (SME) advancement in Malaysia originated in the early 1970s. This initial emphasis was driven by the New Economic Policy (NEP), implemented from 1971 to 1990, which sought primarily to alleviate poverty and restructure economic disparities (Jamaluddin and Hanafiah, 2020). Subsequently, the government intensified its commitment to enhance SME performance by shifting towards a more strategic, development-focused model. This involved launching extensive resources, programs, and incentives through successive Malaysian Plans and foundational documents like the Industrial Master Plan (IMP). Key to this evolution was the establishment of dedicated agencies, notably the Small and Medium Industries Development Corporation (SMIDEC), which later evolved into SME Corp.

This comprehensive approach adopted a focus on value chain and cluster-based development. The supporting initiatives targeted crucial areas such as market access towards improving opportunities in both local and international markets. This also includes capacity building for facilitating technology transfer, training, and human resource development, financial support for providing essential funding mechanisms (grants, tax incentives, credit facilities), and strategic capability towards enhancing management and marketing strategies. To ensure broad reach, the government concurrently introduced growth initiatives through various ministries, specialized agencies, and the private sector, including Majlis Amanah Rakyat (MARA), SME Bank, Perbadanan Nasional Berhad (PNS), and Tabung Ekonomi Usaha Niaga (TEKUN). Furthermore, targeted micro-initiatives—such as the Tunas Usahawan Belia Bumiputera, the Bumiputera Enterprise Enhancement Programme (BEEP), and the Best Exporters Programme—were implemented to support the continuous, layered growth and development of these enterprises.

2.1 Operations management

The contemporary business environment is marked by escalating intricacy and dynamism, a reality that significantly amplifies the challenges faced by Small and Medium-sized Enterprises (SMEs). Due to their inherent characteristics; specifically, limited diversification and smaller customer bases, SMEs are disproportionately exposed to sudden demand shocks, making sophisticated capacity planning particularly complex. Addressing this volatility requires operations managers to master a crucial balancing act: integrating customer-specific customization with the efficiency of standardized processes. This necessary duality introduces considerable complexity into managing throughput and scheduling. To maintain long-term competitiveness, SMEs must therefore adopt a strategic approach that demands a shift towards flexible, scalable operations and the development of robust demand forecasting tailored to a smaller, more focused scale.

Historically, research in operations has consistently demonstrated a causal link between effective operations practices and the development of superior operations capabilities. These capabilities, in turn, are proven to yield tangible performance benefits, including improved quality, reduced operations costs, increased productivity, enhanced customer satisfaction, and optimized human operations performance (Butt et al., 2024). At its core, Operations Management is defined as the oversight of value-creating activities involved in the systematic transformation of resources, from the input stage to the final output stage (Heizer et al., 2023). The fundamental objective of the operations system is to ensure that these transformation processes are executed efficiently, ultimately generating a greater value in the outputs than the total cost of the inputs (Slack et al., 2022).

Process Management (PM)

Process management construct relates to the decision-making on the design and approaches of an overall process route for converting the raw material into finished goods, at the desired quality level and with optimum system efficiency. Organizations achieve sustainable competitive advantage through the meticulous integration of operations activities and resources, leading to innovation, efficiency, and market responsiveness. This mandate is driven by PM, which encompasses the decision-making, design, and methodology involved in transforming raw materials into finished outputs, ensuring the desired quality and

optimal system efficiency. In this context, process management is characterized by strategic decisions and activities related to process technology selection, process flow design, and facility layout. PM, executed through methodologies like Lean, Six Sigma, and Business Process Management (BPM), is crucial for achieving high-quality outcomes and operations efficiency. The main goals of PM are to gain a competitive edge by achieving reduced production costs, improved design performance, consistent quality, shorter and more timely deliveries, customization, and greater flexibility. Advances in technology have accelerated product life cycles (PLC) while simultaneously providing effective means to minimize waste, enhance system reliability and flexibility. The growing significance of diverse and unpredictable global customers necessitates systems capable of quick adaptation and flexibility. The flexibility of an operations system reflects the organization's ability to adjust to changing environmental conditions and process demands, enabling managers to implement alternative process plans that are both efficient and cost-effective. Technology does not function in isolation; rather, it is integrated as complementary tools that improve process management efficiency. Technology encompasses a range of techniques, skills, methods, and processes embedded in equipment and systems, often operable by individuals with minimal specialized knowledge. This underscores the necessity of integrating technology into PM, as its impact is fully realized only when the equipment or application aligns appropriately with the required process technology. Technology enhances flexibility by enabling both customers and employees to execute complex processes and by mitigating service failures.

Quality Management (QM)

Quality management is a discipline towards ensuring that outputs, benefits, and the processes by which they are delivered, meet stakeholder requirements and are fit for purpose, covering the aspect of quality policy, planning, assurance, control and improvement. Building on efficient processes, QM is a systematic approach aimed at ensuring that outputs, benefits, and their delivery processes align with stakeholder expectations and are appropriate for their intended use. QM serves as the cornerstone for various operations and improvement strategies, helping organizations minimize risks, lower costs, optimize resources, and gain deeper insight into customer behaviour (Kloppenborg et al., 2023). The quest for Total Quality Management (TQM) has further facilitated the cohesive integration of QM activities across the stages of input, transformation, and final products. TQM emphasizes a customer-centric approach, advocating that quality is a collective responsibility shared by all employees, as well as external entities like suppliers, distributors, and logistics providers (Karim et al., 2020). The fundamental principles of TQM encompass a focus on the customer, an emphasis on processes, a commitment to continuous improvement, and a dedication to learning. Customer focus is achieved through market research, satisfaction surveys, and complaint management, and is crucial in refining operations processes to facilitate the delivery of a comprehensive product or service package. Likewise, continuous learning equips employees with the knowledge and skills necessary for future growth, thereby promoting a quality culture centered on ongoing improvement. Over time, effective QM practices cultivate a culture of continuous enhancement, leading to higher quality products and services, reduced costs, satisfied customers, enhanced communication and coordination, and improved employee morale. This cycle ultimately contributes to a robust competitive advantage.

Operations Capabilities (OC)

Operations capabilities are a combination of competencies and resources. According to Zollo and Winter, (2002) capabilities are not merely the result of tacit accumulation of experience embedded in routines and learning but also as the result of deliberate investments in organizational systems and continuous improvements in those routines and practices. The effectiveness of the configuration and interaction of operations practices and resources directly determines the nature of an organization's OC. These capabilities represent the distinctive assets and skills a firm possesses. OC have been consistently defined as tasks an organization excels at (Skinner, 1969), activities developed internally that a firm can perform more effectively than its competitors (Hayes & Pisano, 1996), and strategic assets accumulated over time that are difficult to replicate, acquire, or substitute (Dierickx & Cool, 1989). These definitions

highlight that OC arise not just from the tacit accumulation of experience embedded in routines, but also from intentional and specific investments in operations systems and ongoing enhancements (Zollo & Winter, 2002). This unique development path serves as a powerful barrier to imitation, enabling organizations to achieve a sustainable competitive advantage over their rivals (Teece, 2018). The understanding that these measurements are pertinent to operations performance and play a crucial role in influencing competitive advantage is widely recognized. It is within this context that the effectiveness of government support should be evaluated in terms of its impact on operations practices aimed at enhancing organizational OC.

2.2 Conceptual framework

The conceptual framework illustrated in Figure 1 is based on empirical research and theoretical insights derived from literature related operations management and operations capabilities theories. The strategic significance of operations practices is evaluated within a framework focused on developing OC for Small and Medium-sized Enterprises (SMEs). Research consistently highlights the contemporary dynamic business landscape, a factor crucial for facilitating competitive strategies and policy development. This foundational support has proven instrumental in bridging the performance gap for SMEs, particularly in key operations areas such as process and quality management. PM which encompasses elements like workflow design, automation, tool utilization, process measurement, and employee knowledge and skills, is fundamentally aimed at effectively meeting customer requirements. GS often involving the acquisition of machinery, equipment, and training, significantly enhances PM within operations systems. This enables the creation of efficient workflows that are sufficiently adaptable to the constantly evolving business environment.

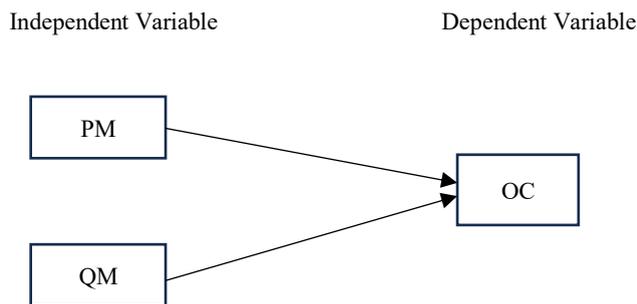


Fig. 1. Conceptual framework

Quality management through targeted training and resources, translate directly into improvements across procedural processes, tools, techniques, and the knowledge, skills, and attitudes of employees, ultimately ensuring that quality objectives are consistently achieved. Adopting a comprehensive external viewpoint, the implementation of Total Quality Management (TQM) has been found to enhance an organization's image, improve operations certainty, boost employee morale, increase management effectiveness, and solidify customer commitment. Ultimately, the effectiveness of the configuration and interaction of operations practices and resources determines the nature and extent of an SME's OC (Rahmad et al., 2023). These robust capabilities, strengthened by external support, are essential for influencing the sustainability of their competitive advantage (Lu and Shaharudin, 2024).

3. METHODOLOGY

From the literature reviews, constructs related to PM, QM and OC were identified. These constructs served as a foundation for developing items to be included in the questionnaire. The preliminary version of the questionnaire comprised of an introductory letter, demographic information, questions regarding operations practices and operations capabilities. The questionnaires will be presented in English and Bahasa Melayu, with consistent rating scales applied throughout. Responses will be evaluated using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The next step in administering the questionnaires will involve evaluating their measurement properties through reliability testing.

The target population comprises business owners of small and medium-sized enterprises (SMEs) located in Sarawak. Directories of SMEs provided by SME Corporation Malaysia, along with resources from government entities such as Majlis Amanah Rakyat (MARA) and the Sarawak Economic Development Corporation (SEDC), served as a basis for determining the sample size. A stratified sampling method was employed, selecting operations executives based on their functional specialization, hierarchical position, and organizational knowledge. In total, 200 SMEs were identified for the study. The distribution and collection of questionnaires were carried out through email, personal delivery, and Google applications.

The data will also undergo quantitative analysis utilizing PLS-SEM, which is a variance-based method for structural equation modelling (SEM). This approach employs ordinary least squares (OLS) regression to estimate coefficients that aim to maximize the R^2 values of the endogenous constructs. It yields R^2 values and assesses the significance of the relationships among the constructs. As noted by Chin (1998), SmartPLS is employed due to its capability to accommodate both reflective and formative measures, while imposing minimal restrictions on sample size. Path loading denotes the strength of the relationship between constructs and their respective indicators. Indicators with loadings ranging from 0.4 to 0.7 may be considered for removal from the scale, but only if such removal results in an increase in the average variance extracted (AVE) value.

4. FINDINGS

4.1 Pilot test – reliability analysis

The purpose of reliability analysis is to assess the consistency and dependability of measurements, thereby ensuring that results are both consistent and accurate. In accordance with Churchill's (1979) recommendations, a pre-test was conducted to evaluate the reliability of the instrument.

Table 1. Reliability Analysis - Construct

Constructs	(α)	N of Items
Process Management (PM)	0.701	10
Quality Management (QM)	0.755	10
Operations Capabilities (OC)	0.794	11

A total of 30 questionnaires were distributed to the target group. A threshold of 0.70 serves as the cut-off for indicating internal consistency in both new and established scales. The coefficient for the scale is recorded at 0.927. Internal consistency was assessed for all constructs, with values significantly surpassing 0.70, thereby confirming the internal consistency of the new scales, as illustrated in Table 1. This figure exceeds the necessary criterion, affirming both internal consistency and satisfactory reliability in their original format. No items have been removed or altered. A total of 200 sets of questionnaires were distributed, resulting in 153 responses being returned. However, only 144 of these responses were considered valid and complete.

4.2 Descriptive analysis: Respondent's demographic profile

Table 2 presents a summary of the demographic profiles of the respondents. A total of 144 operations executives from small and medium-sized enterprises (SMEs) took part in the study. The table details the profiling of these SMEs, indicating both frequency and percentage. Notably, 66.7% of the participating SMEs are engaged in production, while the remainder operates within the service industry. The data for this study was collected from practitioners who possess a robust business background, along with substantial knowledge and experience in the SMEs sector. It has been noted that 47.9% of the participants possess experience ranging from 5 to 10 years, while 31.3% have over 10 years of experience. The data also indicates that 45.8% of SMEs have received government support, while 54.2% have not.

Table 2. Respondent Demographic Profiles

Industry	Frequency	%
Product	96.0	66.7
Services	48.0	33.3
Total	144.0	100.0
Experience		
Less Than 5 Years	24.0	16.7
5-10 Years	45.0	31.3
Above 10 Years	75.0	52.1
Total	144.0	100.0
Annual No of Customers		
Less than 500	37.0	25.7
500-1000	45.0	31.3
1000-5000	31.0	21.5
Above 5000	31.0	21.5
Total	144.0	100.0
Duration in Business		
Less Than 2 years	12.0	8.3
2 - 5 years	18.0	12.5
5 - 10 years	69.0	47.9
Above 10 Years	45.0	31.3
Total	144.0	100.0
No of Employees		
Less Than 10	69.0	47.9
10 - 20'	44.0	30.6
20-50	19.0	13.2
50-150	6.0	4.2
Above 150	6.0	4.2
Total	144.0	100.0
Government Support Status		
With government Support	66.0	45.8
Without government Support	78.0	54.2
Total	144.0	100.0

Table 3 presents the descriptive statistics for the four constructs utilized in the analysis. According to the table, QM exhibits the highest mean value of 3.92, whereas PM records the lowest mean at 3.61.

Table 3. Descriptive Analysis of the constructs

Scale	No of items	Mean	Std Dev
PM	10	3.61	0.88
QM	10	3.92	0.85
OC	11	3.62	0.81

4.3 Measurement model

Convergent validity refers to the degree to which a measurement aligns positively with alternative measures of the same constructs. Consequently, the items that serve as indicators for a particular construct should exhibit convergence (Joseph et al., 2010). To establish convergent validity, it is deemed sufficient for the outer loadings and Average Variance Extracted (AVE) to exceed 0.5, while Composite Reliability (CR) should be 0.7 or higher. The results of measurement model for SMEs (with GS), items related to PM, 7 items (PM1, PM2, PM3, PM5, PM8, PM9, and PM10), QM, 5 items (QM2, QM7, QM8, QM9, and QM10) and OC, 1 item (OrgPOP3) were omitted. The data was subsequently reanalysed. Table 4 illustrates that all loadings and AVE values surpass 0.5, and the composite reliability values exceed 0.7. Therefore, it can be concluded that convergent validity has been successfully established.

Table 4. Result of the measurement model

Results of Measurement Model (SMEs with GS)						
Constructs	Items	Factor loading	Path Loading	AVE	Composite reliability	R ²
PM	Documented SOP	0.839	0.085	0.647	0.848	0.031
	Technological applications	0.632				
	Investment in technologies	0.915				
OM	Quality culture	0.901	0.159	0.707	0.917	
	Inspection	0.86				
	Customers satisfaction survey	0.942				
	Customers database	0.812				
	Customer feedback	0.662				
OC	Operations cost	0.984		0.553	0.839	
	Quality performance	0.661				
	Product/service design	0.749				
Results of Measurement Model (SMEs without GS)						
PM	Use of checklist	0.691	0.359	0.588		0.586
	Documented SOP	0.734				
	Flowcharts	0.843				
	Technological applications	0.775				
	Investing in technologies	0.783				
QM	Quality culture	0.934	0.641	0.628	0.921	
	Inspection	0.739				
	Customers satisfaction survey	0.911				
	Customers database	0.678				
	Customer feedback	0.696				
	Continuous improvement	0.661				
	Prioritizing quality factor than price	0.876				
OC	Operations Cost	0.766		0.612	0.887	
	Quality performance	0.935				
	Product/service design	0.875				

On the other hand, the results of measurement model for SMEs that are without GS, items related to PM, 5 items were omitted (PM1, PM2, PM8, PM9, and PM10), QM, 3 items (QM2, QM7 and QM8,) and OC, 1 item (OrgPOP3) were omitted. The data was subsequently reanalysed. Table 4 illustrates that all loadings and AVE values surpass 0.5, and the composite reliability values exceed 0.7. Therefore, it can be concluded that convergent validity has been successfully established.

Table 5. Regression analysis

<i>Model (SMEs with Government Support)</i>					
Constructs	Unstandardized coefficients	Standardized coefficients (β)	SE	T value	P value
PM	0.059	0.094	0.054	1.093	0.278
QM	0.108	0.128	0.073	1.485	0.003
Intercept	-0.476	0.000	0.549	0.867	0.389
<i>Model (SMEs without Government Support)</i>					
QM	0.448	0.593	0.060	7.417	0.000
PM	0.215	0.385	0.045	4.817	0.000
Intercept	1.552	0.000	0.301	5.165	0.000

From the result of the measurement model and regression analysis the result suggests that when SMEs are operating under the influence of external GS, the variance in their OC is largely driven by factors outside the scope of the measured process and quality management practices. PM ($\beta=0.085$) did not exhibit a significant relationship with OC. QM ($\beta=0.159$) was found to be the only significant positive predictor of OC in this group.

Table 6. SMEs Operating and Government Support (GS)

Predictor Construct	Path Loading (β)	Relationship with OC	Measurement Items
PM	0.085	Not Significant	3 items
QM	0.159	Significant	5 items

Conversely, the model is highly effective in predicting OC for SMEs operating without GS, explaining a substantial proportion of the variance ($R^2=0.586$). Both PM and QM exhibit a significant positive relationship with QC. QM emerges as the strongest predictor ($\beta=0.641$), with an effect that is nearly twice as large as that of PM ($\beta=0.359$).

Table 7. SMEs operating without Government Support (GS)

Predictor Construct	Path Loading (β)	Relationship with OC	Measurement Items
PM	0.359	Significant	5 items
QM	0.641	Significant	7 items

The Heterotrait-Monotrait (HTMT) ratio of correlations serves as a technique for evaluating discriminant validity in structural equation modelling, as outlined by Henseler et al. (2015). Discriminant Validity is established if the HTMT value between any two constructs is significantly lower than 1 (usually tested against a conservative threshold of 0.90 or a more liberal one of 0.85). Table 8: results are well below the common thresholds of 0.85 or 0.90.

Table 8. Heterotrait - monotrait ratio (HTMT) Results

Constructs	Constructs (HTMT Value)		Result	Interpretation
	<i>Model (SMEs with Government Support)</i>	<i>Model (SMEs without Government Support)</i>		
PM and OC	0.521	0.160	< 0.85	Excellent discriminant validity
QM and OC	0.752	0.130	< 0.85	Excellent discriminant validity
QM and PM	0.310	0.280	< 0.85	Excellent discriminant validity

Based on these results, discriminant validity, where the constructs are empirically distinct from each other, meaning they are measuring different concepts and are not overly correlated.

5. DISCUSSION

The model's explanatory power reveals a stark divergence, plummeting from 58.6% in self-reliant SMEs to a mere 3.1% in government-supported (GS) SMEs. This shift offers profound implications for the Resource-Based View (RBV) and Contingency Theory. From a Resource-Based View (RBV) perspective, while internal management practices are typically viewed as "valuable and inimitable" resources (Barney, 1991), these findings suggest that their ability to generate operations capabilities (OC) is not inherent. Instead, the "resource-capability" transformation is highly contingent upon the external environment. In self-reliant firms, the absence of GS amplifies the strategic value of operational discipline, making PM and QM essential drivers of performance. Conversely, in GS-supported SMEs, the introduction of external resources appears to create a decoupling effect, where the reliance on external aid replaces the need for internal resource optimization. Ultimately, this supports a Contingency Theory framework, where the utility of process management as a driver of competitive advantage is not universal but is dictated by the presence of institutional support, which can inadvertently act as a boundary condition that dilutes the potency of internal firm resources (Sureshkumar et al., 2024).

The results strongly support a contingency perspective in management research, where the relationship is significant only in the absence of GS suggests that PM is not a universally effective practice. Instead, its utility as a driver of OC is contingent on the environmental context, specifically the availability of external resources, that is from GS. When external resources are scarce, internal operation discipline becomes a necessary mechanism for competitive advantage (Shehadeh et al., 2016). The dramatic drop in the model's explanatory power for supported SMEs suggests that GS may lead to a decoupling effect. Government supports such as subsidies and grants might directly enhance certain firm resources or capabilities, thus obscuring or reducing the measured impact of internal operations management efforts on OC. The SME's success may become more reliant on resource acquisition than resource utilization efficiency. QM remains a significant predictor in both contexts, albeit much stronger without GS, highlighting its relative stability as a fundamental driver of operations outcomes compared to PM

The non-significant path coefficient for OM-OC ($\beta=0.085$, $p>0.05$) in SMEs receiving GS suggests that the support creates an environment where internal process efficiency is no longer the primary driver of operations outcomes. This phenomenon can be explained by the concept of organizational slack (Maharani et al., 2024; Gavetti et al. 2012; Nohria and Gulati, 1996). The provision of GS, often in the form of grants, subsidies, or access to resources, introduces organizational slack. This slack reduces the immediate pressure on managers to achieve maximum efficiency through stringent process control. When resources are readily available, SMEs may relax their internal PM efforts, leading to mistakes, delays, or sub-optimal processes because the cost is offset by external funding. Consequently, the correlation between formal PM and realized OC weakens

Drawing on Institutional Theory, GS often comes with compliance requirements or mandates that necessitate the formal implementation of certain management systems. SME may implement process management not to genuinely improve OC, but to gain legitimacy and access funding form of institutional. These PM initiatives are mere symbolic compliance, looking good on paper but are not deeply integrated to drive operations performance (Majid et al., 2023; Truong et al., 2021). The PM structure becomes decoupled from actual operations work, rendering its effect on OC non-significant. The findings suggest that GS introduces a critical contingency to the proposed relationship. The non-significant path for supported SMEs contrasts sharply with the significant, positive path for unsupported SMEs.

The true driver of operations outcomes is not the process itself, but the compliance required to secure the external funding. Skinner (1969) emphasizes the importance of strategic fit between management practices and the firm's competitive strategy, where misalignment would naturally result in non-significant relationships (Zhang et al., 2024; Zhou & Wu, 2010). The strategic focus of management may shift toward resource absorption and compliance related to the government program, diverting focus and resources away from continuous PM improvement and potentially disrupting existing operations routines. The specific PM practices measured (3 items) might be misaligned with the goals of the GS. If the PM scale measures routine efficiency, but the GS funds innovation or market entry, the process improvements being tracked are not the ones currently contributing to the OC. In this context any focus on new GS may introduces process volatility that masks the benefits of traditional, and steady-state PM.

The finding provides a clear managerial implication for SMEs without GS, managers should place the highest priority on QM practices, given its highest path coefficient. Investment in quality systems yields the most significant return in building OC. This should be integrated with PM, to ensure strict adherence to standardized and optimized internal processes, as they are essential for success when operating independently. For SMEs with GS, managers should review on their PM initiatives. The non-significant link indicates that current PM practices may be misaligned with strategic goals. Managers should audit their PM initiatives to ensure they are contributing to OC and not merely serving as bureaucratic overhead. QM remains a significant factor, and efforts here should continue, perhaps focusing on how to align QM with the goals set by the GS initiatives. The findings also offer a caution to policymakers regarding the unintended consequences of GS, where programs should be designed not just to inject capital, but to incentivize and reward internal process discipline. Policymakers should be aware that the most effective drivers of OC change based on the support status.

6. CONCLUSION

Process and quality management are fundamental drivers of operations capabilities, yet their effectiveness is highly contingent upon the external support environment. Utilizing PLS-SEM to analyze a stratified sample of 144 Malaysian SME operations executives, this study examines how these internal practices translate into performance for government-supported versus self-reliant firms. Findings reveal that for self-reliant SMEs, internal management practices are crucial competitive success factors with a strong, significant impact on operations capabilities. Conversely, in government-supported SMEs, this relationship is dramatically weakened; specifically, the link between process management and operations capabilities becomes insignificant. These results identify government support as a critical boundary condition that may foster organizational slack or symbolic compliance, effectively decoupling internal initiatives from actual performance gains. While this cross-sectional study establishes a clear divergence, future longitudinal research is needed to track the evolution of these relationships. Ultimately, these findings offer broader theoretical implications for global emerging markets, suggesting that institutional interventions may inadvertently dilute the strategic necessity of operational discipline unless accompanied by rigorous, output-based accountability.

7. CONTRIBUTION OF AUTHORS

All authors contributed substantially to the development of this manuscript. Abang Hamizam Abang Mohar was responsible for conceptualization, methodology, and supervision of the research project. Ida Izumi Abdollah conducted data collection and investigation and performed formal analysis of the data. Johari Bin Abdullah contributed to data curation and validation and assisted with the interpretation of results. Firdaus Abdullah prepared the original draft of the manuscript and contributed to visualization. Raziki Waldan reviewed and edited the manuscript critically for important intellectual content. All authors read and approved the final version of the manuscript.

8. 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 the absence of conflicting interests with the funders.

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