A Dual Pathway of Governmental Support for SME Performance: Paradoxical Impact of Organizational Learning Capabilities

Ngoc Bich Do[1], Hue Minh Nguyen[2], Hai-Ninh Do[3,*], Kim Thao Nguyen[4], Tra My Nguyen[5]

[1,2,3,4]*School of International Business and Marketing, University of Economics Hochiminh City (UEH), 59C Nguyen Dinh Chieu, Xuan Hoa, Hochiminh City, 700000, Vietnam*

[5]*CMC University, 84C Nguyen Thanh Binh, Van Phuc, Ha Dong, Hanoi, 100000, Vietnam.*

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Abstract

Purpose: The Global market is creating rising tensions and uncertainty for businesses, especially for Small and Medium Enterprises (SMEs). which must be addressed by the government. Despite the critical role of technological innovation, significant economic hurdles for SMEs remain. This research explores the mechanism by which government support contributes to SMEs' performance through technological innovation, and further examines the moderating role of Organizational Learning Capabilities (OLC). Design/methodology/approach: A quantitative method was adopted using SPSS and SmartPLS 4.0 software to evaluate the research model. Data was collected through a survey-based questionnaire completed by leaders and senior managers representing 450 Vietnamese SMEs. Findings: Analytical results reveal that government support exerts a significant direct influence on SME performance, while its effects are partially transmitted through technological innovation, indicating a dual pathway that enhances overall outcomes. Interestingly, the moderating role of organizational learning capability is confirmed. Specifically, it strengthens the translation of government support into technological innovation but simultaneously weakens the positive association between technological innovation and SME performance. Implications: SME managers in developing countries should prioritize innovation-focused as phase one, followed by market-focused in phase two to capture the support of governments. Furthermore, SMEs also prepare resource slack for past reflection and analyze gaps between innovation practices and financial returns to provide real-time modifications to reduce negative outcomes from OLC.

Keywords: Technological Innovation, SME Performance, Government Support, Organizational Learning Capabilities, Emerging Markets

1. Introduction

The world economy witnessed a plethora of challenges and turbulences. According to recent updates from the World Economic Forum and the United Nations, the global economy is expected to weaken due to rising political tensions, territorial conflicts, low economic growth rate, and international trade fragmentation. These disruptions contribute to an increasingly uncertain and volatile environment for businesses, exerting pressure on survival and performance for all organizations, especially micro, small, and medium enterprises. SMEs, comprising a majority of businesses in emerging economies and approximately 98% of all enterprises in Vietnam, are among the most affected by business environmental challenges. Among various solutions available to SMEs, external support of the government and other stakeholders can drive transformative changes in SME business practices and performance [1]. Vietnamese government issued Decision No. 749/QĐ-TTg titled “National Digital Transformation Program to 2025, with an orientation toward 2030”, which expresses urgent requirements and motives for supportive policies and guidelines towards technological advancement for sustainability. These policies can open up new opportunities to boost the value added to customers [2], and help SMEs withstand in chaos [3].

This study is motivated by three literature gaps. First, aligning with institutional theory, Government Support (GS) seeks to create a favorable environment from legitimacy and influence firms' behavior [4]. As such, GS would be a positive intervention across economic sectors that fosters inter-organizational collaboration and enhances positive

***Corresponding author: Hai-Ninh Do (email: ninhdth@ueh.edu.vn)**
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competitive performance [5]. Regulations and incentive programs designed to encourage SME innovation have been implemented worldwide as a key means to assist SME survival, growth [6], and innovation [7], including various forms such as green [8], open [9], and closed innovation [10]. GS creates digital economies and innovation ecosystems at macro level [11], and acts as inputs or external resources to leverage innovation [12] However, some findings revealed insignificant effects [13] or even negative ones [14] from government policies since innovation success largely relies on internal competencies [15]. Furthermore, prior studies highlight the association between GS with inter-organizational collaboration [16]; or R&D inputs [17]. Yet, the role of GS with actual innovation implementation and practices has remained controversial and vague, leaving an evidence gap regarding government intervention's role, particularly in emerging economies.

Second, research on technological innovation among SMEs has emphasized product and process innovation in Germany [18], firm performance in Kenya [19], and customer-related performance in Iran [2]. In Vietnam, Ngo et al. [20] found that technology plays a more crucial role for SMEs compared to large firms. Indrawati et al. [21] emphasized that SMEs must remain aware of technological innovation to survive in today's highly competitive environment, while also noting major barriers to progress in developing economies. Although prior studies consistently highlight the role of technological innovation, the generalizability of such results is limited due to differences in specific institutional and market contexts in Vietnam. Moreover, Radicic and Petkovic [18] suggested the heterogenous effect of technological advancement among SMEs, highlighting the gap to investigate the effects of technological innovation across diverse emerging SMEs and explore antecedent forces and mechanisms for this practice under uncertainties.

Third, OLC was highlighted as a crucial antecedent for innovation, business performance [22], and competitive advantages [23], especially amidst turbulence. Wang and Xu [24] further provided evidence on the mediating role of exploitative and explorative learning capabilities connecting innovative practices and performance. As a key capability, OLC facilitates the processes through which an organization utilizes its input resources to achieve business outcomes. In this study, GS acts as external input or resource; however, how the OLC level moderates the interplay among GS, technological innovation, and SME performance remains underexplored in existing literature. Hence, this study will examine the moderating role of OLC in the pathway from external governmental support to innovation outcomes and firm performance. The discussed research gaps pose two research questions as follows:

RQ1: What is the mechanism underlying GS's effects on SME performance through technological innovation?

RQ2: What is the role of organizational learning capability in enhancing GS effectiveness on SME innovation and performance?

Drawing from these research questions, this study investigates the mechanism through which GS translates into SME performance. Furthermore, it examines the moderating effect of OLC on the interrelationships connecting GS, technological innovation, and SME performance. This paper enriches existing literature on technological innovation in SMEs through multiple contributions. First, it integrates institutional theory and the resource-based view to highlight the critical role of SME technological innovation in enhancing firm performance and innovation capabilities amidst uncertainty. It also reveals the dual and contradicting moderating effects of OLC on the relationship between GS, technological innovation, and SME performance, providing insights for both theory and practice.

2. Literature Review

Performance and competitiveness in SMEs highly depend on technological innovation. SMEs actively participating in technological innovation are more likely to achieve exceptional performance results. Technological innovation activities should go beyond conventional R&D to include a broader spectrum of technological developments, improving performance and growth possibilities [25]. Yet, technological innovation can be hampered by economic uncertainty, resource limitations, and other obstacles for SMEs. Indrawati et al. [21] find that the main impediment to technological innovation is economic uncertainty. In fact, the world's economic health continues to be threatened by political tension and increasing unpredictability. Hence, there is an urgent need to explore technological innovation inputs in a timely manner to strengthen firms' resilience through uncertainty.

2.1. Theoretical foundation

Institutional theory has long been considered pivotal in shaping firm behavior. This theory posits that firm economic decisions extend beyond traditional rationales to access and utilize resources. In fact, firms tend to comply with the institutional environment of regulatory and social constraints to gain legitimacy for their operations and growth [4]. To boost economic development, countries have implemented various programs and incentives to encourage firm adoption of technology, including funding, training, regulations, innovation ecosystems, and infrastructure [6]. By implementing policies that promote innovation, governments provide public goods that support SME innovation efforts [26]. Such initiatives create favorable conditions and social expectations for SMEs to invest in innovation and contribute to national competitiveness. Addressing these governmental calls brings dual benefits to SMEs: overcome resource constraints and enhance legitimacy within the system. However, such support may not be equally distributed to SMEs due to various barriers in its acquisition and maintenance [27]. To ensure ongoing access to supporting programs, firms invest into resources that align with government priorities [28], including enhancing learning procedures to improve technology innovation.

Decisions to invest into technological innovation and learning procedures for enhanced innovation are also supported by the resource-based view, which posits that a firm's possession of a distinct bundle of valuable, rare, inimitable, and adequately organized resources [29] constitutes the key source of a firm's competitive advantage. Technology innovation has been validated as critical resources for SMEs' long-term survival [30]. Therefore, firms are willing to make efforts for its development [31]. However, the development of this capability depends largely on human capital [32], a resource critically important for organizational learning. In the case of SMEs, the lack of resources would limit the firm's ability to pursue learning for the commercialization of technological innovation. Therefore, the focus of learning on innovation can reduce the firm's ability to improve their past decisions for technological innovation outcomes.

While OLC has been considered a critical driver of SMEs' intellectual capital and performance [33], its moderating role in realizing the benefits of external factors has not been sufficiently validated. Therefore, this research considers OLC as a key condition that helps SMEs leverage GS to enhance technological innovation and reap the benefits of technological innovation for their firm performance. In addition, the study recognizes resource limitations of SMEs and considers that OLC - that helps SME achieve innovation - can hinder their ability to create value from the innovation efforts.

2.2. Maintaining the Integrity of the Specifications

From an RBV lens, GS provides SMEs access to strategic resources, capital, knowledge infrastructure, and regulatory facilitation, which they cannot easily accumulate internally, thus strengthening competitive advantage. Institutional theory further suggests that firms benefiting from state-endorsed programs gain legitimacy, which reduces environmental uncertainty and enhances performance outcomes. Government interventions, including tax incentives, subsidies, or administrative policies, improve SME performance by providing tools to develop and compete successfully. Kim and Kim [34] found that SME performance in the healthcare IT sector is much influenced by GS policies, implying that higher business performance depends on such support. This is consistent with the RBV, which suggests that better performance indicators can be achieved in SMEs through improved access to external resources. Moreover, technological innovation helps SMEs be more operationally efficient and contributes to sustainable competitiveness [35] and performance. Therefore, the first hypothesis is proposed as follows:

H1: Government support positively impacts SME performance

Institutional theory posits that governmental support aims to build an isomorphic environment and direct firms' behavior, enhancing their ability to acquire, assimilate, and apply new knowledge, thus strengthening innovation capability. Consequently, government financial incentives can significantly improve the operational capacity of SMEs, thus enabling their innovation capacity in the early phases of growth [35]. Notably, SMEs face various resource constraints, yet technological innovation serves as an efficient means to strengthen their innovation capabilities [36]. For example, by alleviating SMEs' financial pressures, GS enables them to engage in R&D activities that are essential for technological innovation [37]. Furthermore, various forms of GS, such as grants, subsidies, and policy frameworks, facilitate the implementation of innovation within organizations [38]. From a broader perspective, the active

participation of firms in building a digital economy is closely linked to GS [11]. Accordingly, this study seeks to further explore the government's role in fostering actual innovation practices amid growing global economic and political tensions. The second hypothesis is proposed as follows:

H2: Government support positively impacts SME technological innovation

Technological innovation is widely considered the key driver of competitive advantage since it helps SMEs stand out from their competitors and increases their operational effectiveness. Engaging in technological innovation enables SMEs to adapt to changing times and meet consumer needs [25]. Through the lens of the RBV, firms with strong creative capacity tend to achieve better technological innovation performance [39]. However, the evidence remains mixed, as several studies report a positive association between innovation practices and financial outcomes [40], [41]. Nascimento [42] proved that firms engaging in non-technological innovation generate even greater financial outcomes than technological firms. These differences can be explained by the different capability's allocation and arrangement throughout the organizational process. According to the RBV, learning capabilities enhance a firm's ability to convert resources into performance gains by refining routines, reducing implementation errors, and accelerating market responsiveness. In innovation-driven environments, OLC helps SMEs absorb new knowledge, commercialize technological advancements, and align innovation activities with customer and market needs. In this study, we examine overall SME performance through both financial indicators, including return on sales, return on investment, and return on assets, and non-financial results, such as customer satisfaction and engagement. Hence, the fast adaptation to market changes may enhance these outcomes, supporting the idea that innovation is essential for corporate success. The third hypothesis is proposed as follows:

H3: Technological innovation positively impacts SME performance

Prior literature emphasizes OLC as a critical resource to leverage overall competitiveness [43] as it reflects the ability to learn and incorporate new knowledge into business activities [44]. In SMEs, a strong learning orientation creates an environment fit for innovation and adaptability - qualities crucial in a fast-changing corporate landscape. Such an orientation can greatly boost innovation inside SMEs since knowledge sharing promotes both radical and incremental innovations [45] in products and processes [46] within SMEs. In Vietnam, the national agenda for digital transformation aims to create a favorable environment for investment. Accordingly, GS can be regarded as an external resource whose impact largely depends on a firm's absorptive capacity, being its ability to identify, adopt and exploit external knowledge [47]. Firms with strong OLC are better equipped to translate such support into meaningful technological innovation outcomes, as they can accurately interpret, selectively absorb, and effectively implement external knowledge. Drawing from these arguments, we propose the following hypothesis:

H4a: Organizational learning capability positively moderates the relationship between government support and SME technological innovation

Although learning is widely acknowledged as essential for transforming innovation into competitive advantage [48], several studies have revealed controversial findings concerning the diverse roles of OLC. For instance, Hung [49] found a limited effect of organizational learning in mediating the relationship between total quality management and innovation performance in Taiwan's high-tech industry. Similarly, Santos-Vijande [50] indicated that organizational learning may act as a precursor to administrative innovation, but has an insignificant effect on technological innovation in Spanish firms. Mariano and Casey [51] provided a possible explanation for such a limited effect, suggesting that it may stem from low compatibility between newly acquired knowledge and firms' existing knowledge bases. These findings challenge the universality of learning capability's impact and suggest that it may not always facilitate the translation of internal practices into observable outcomes. Instead, the effectiveness of OLC may vary significantly depending on organizational context, type of innovation, and resource availability [50]. In practice, developing and maintaining learning mechanisms, such as internal training, knowledge-sharing platforms, and structured learning routines, requires significant resource investments, which are particularly challenging for Vietnamese SMEs given their resource constraints in terms of both financial and managerial capacities. The dispersion of resources for learning and innovation practices, specifically the learning-intensive nature of technological innovation, may hinder firms from realizing immediate returns. Consequently, the impact of technological innovation on firm performance may be

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weakened when substantial resources are allocated to organizational learning. From these arguments, we propose the following hypothesis:

H4b: Organizational learning capability negatively moderates the relationship between SME technological innovation and SME performance

Based on the theoretical foundations and prior empirical studies, this study proposes a conceptual framework illustrating the hypothesized relationships among the constructs. The research framework, including hypotheses H1 to H4b, is presented in figure 1.

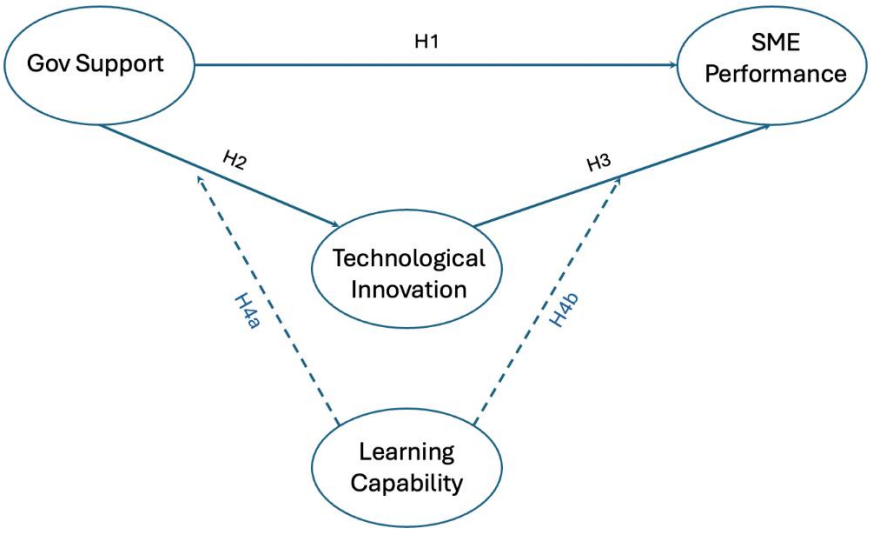

Figure 1. Conceptual framework of the study

3. Research methods

3.1.Research Setting and Measurements

Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, sc, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

The research focuses on the context of Vietnam. With various policies and programs to support SME innovation, Vietnam is considered a leading lower-middle-income country in innovation, with its Global Innovation Index ranking 46th in 2023. However, Vietnam's R&D expenditure as a share of GDP remains low at approximately 0.5%, lower than the average of 2.31% R&D spending in Eastern and Southern Asia. Generalization of the study's findings should be approached with caution and limited to countries sharing similar characteristics with Vietnam.

This study employed a quantitative approach to test the proposed hypotheses.

The mathematical functions employed to test the above hypotheses are as follows:

Function illustrating the effect on SME performance:

$$SME\ performance = \beta 1\ x\ GovSup + \beta 2\ x\ TechInno + \beta 3\ x\ (LearnCap\ x\ TechInno) + \varepsilon \quad (1)$$

Function illustrating the effect on technological innovation:

$$TechInno = \beta 4\ x\ GovSup + \beta 5\ x\ (LearnCap\ x\ GovSup) + \varepsilon \quad (2)$$

GovSup = Government Support, TechInno = SME Technological Innovation, LearnCap x TechInno = the interaction effect between Organizational Learning Capability and Technological Innovation, LearnCap x GovSup = the interaction effect between Organizational Learning Capability and Government Support, ε = error term of the equation

The questionnaire was structured into three sections, including the study's introduction, demographics, and central questions. The demographic section contained four questions regarding the industry type, company capacity, CEO

work experience, and annual revenue. To measure the key constructs, we used a structured scale covering four dimensions: GS, OLC, technological innovation, and SME performance. Our primary study scale was designed to measure GS, OLC, technological innovation, and SME performance using 24 items in total. A 7-point Likert scale was adopted from previous studies, ranging from 1 (strongly disagree) to 7 (strongly agree). A pilot test was conducted before the large-scale survey to ensure that the measurement scales were appropriately adapted to the Vietnamese context during the translation process. The language was carefully localized for Vietnamese respondents, while all other elements, such as the number of scale points and item indicators, remained consistent with the original instruments. Specifically, OLC was measured using five items from Garcia-Morales et al. [52], such as "improving the firm's knowledge base" and "learning new and relevant knowledge to undertake the firm's business activities". GS was measured using six items from Lu et al. [53], including "support to seek financial resources" and "legal support to enter a new market". Technological innovation was measured with six items from Chege and Wang [19] including, "our company used new technology in the production process" and "our company invested in R&D to produce quality products". Lastly, SME performance was measured with seven items from Fan et al. [54], such as "improved customer relationship" and "increase in company/brand visibility and reputation".

3.2.Sampling and Data Collection

The target participants of this study are SMEs in Vietnam. Therefore, we utilized filter questions to identify the correct respondent. The filter questions were based on Article 4 of the Law on Support for Small and Medium Enterprises (2017), in which SMEs should have no more than 200 employees and meet one of the following two criteria: (1) total capital does not exceed VND 100 billion; (2) total revenue of the previous year does not exceed VND 300 billion. If the respondents satisfy these filter criteria, they can proceed to the main part of the questionnaire.

CEOs and senior managers in the industrial sector were identified as the most suitable respondents. To ensure accurate representation of the firms' capabilities, the research team specifically targeted middle and upper-level managers with a minimum of three years of professional experience. For data collection, an online survey was distributed via email to a sample of 3,000 SMEs across various industries in Vietnam from January 2024 to June 2024. To enhance representativeness across the Vietnamese SME landscape, a stratified random sampling approach was employed. The stratification was based on industry type. Therefore, SMEs were categorized into three main industry groups, which included heavy industry (manufacturing firms), services industry and agricultural industry. A total of 463 responses were received, of which 13 were excluded due to missing or incomplete data. Consequently, the final valid sample consisted of 450 SMEs, accounting for 15% of the initially contacted firms. Furthermore, the data was collected from SMEs across different industries, which may involve non-normal distribution, after which PLS-SEM was applied for data analysis.

To enhance data reliability and validity, a multi-step approach, including a pilot study and procedural bias tests, was implemented. Initially, a pilot study was conducted with 30 experts, including academics and senior managers from both higher education institutions and the industrial sector. Additionally, a reverse-coded item was incorporated to detect inconsistencies in responses, and procedural remedies suggested by Podsakoff et al. [55] were applied to minimize Common Method Bias (CMB). Statistical tests were subsequently conducted to examine the extent of CMB. Harman's single-factor test, a widely used diagnostic tool for CMB, revealed that single factors accounted for 45.37%, explaining less than 50% of the variance, indicating a minimal CMB impact. Although this provides a preliminary indication, a more robust check was conducted using the marker variable technique. The results showed no significant correlations between the marker variable and the key constructs, confirming the CMB is not a significant issue in this study. Therefore, both CMB and endogeneity are unlikely to compromise the validity of this study's findings.

4. Results and Discussion

The sample consists of 54.2% male and 45.8% female participants, reflecting the recent rise in female managerial representation within Vietnamese SMEs. Vietnam, as a developing country prioritizing investment in both heavy industry and the services sector, is well represented in the sample, with respondents primarily from the heavy industry (46.4%), service industry (42.9%), and only 5.3% from agricultural industry.

The reliability and validity of the variables were assessed using Cronbach's alpha, which measures internal consistency among scale items. Cronbach's alpha values range from 0 to 1, with values above 0.7 generally indicating acceptable reliability [56]. Table 1 presents the reliability test results. All construct items exhibited average factor loadings above 0.7. Cronbach's alpha values exceeded the 0.8 threshold, indicating strong reliability [56], and Composite Reliabilities (CRs) were all above the recommended 0.7 level [57]. Convergent validity was also confirmed, with factor loadings above 0.8, CRs exceeding 0.8, and Average Variance Extracted (AVE) values above 0.5, meeting the critical benchmarks [57].

Table 1. Reliability and Validity results

Construct	No. of Item	Range of Factor loadings	CR	AVE	Cronbach's α
Government Support (GS)	6	0.770-0.833	0.887	0.631	0.883
Learning Capability (LC)	5	0.737-0.836	0.837	0.599	0.832
SME Performance (SP)	7	0.727-0.788	0.878	0.574	0.876
Technological innovation (TI)	6	0.811-0.840	0.905	0.678	0.905

As shown in table 1, the square roots of the AVE for all variables exceed their corresponding inter-variable correlation coefficients, confirming strong discriminant validity [56]. In table 2, the Heterotrait-Monotrait (HTMT) ratios, displayed in brackets on the right of the diagonal, are all below the 0.90 threshold [58], further supporting satisfactory discriminant validity of the measurement model.

Table 2. Discriminant validity

	1	2	3	4	VIF
1. Gov Support	**0.794**	(0.830)	(0.711)	(0.867)	3.214
2. Learning capability	0.691***	**0.774**	(0.688)	(0.760)	2.220
3. SME Performance	0.615***	0.575***	**0.758**	(0.710)	
4. Technological innovation	0.757***	0.642***	0.629***	**0.824**	2.728

Note: n=450, ***p<0.001. "Values of square roots of AVE are on the main diagonal, HTMT values are in the brackets".

The hypothesis test results are presented in table 3 and figure 2. Firstly, the results show that GS positively impacts SME performance with a path coefficient of 0.204 ($p<0.05$), indicating that SME performance would be improved with GS. This result confirms hypothesis H1. Secondly, GS also reveals a positive influence on technological innovation with a path coefficient of 0.610 ($p<0.05$), supporting hypothesis H2. Also, technological innovation has a significant and positive effect on SME performance with a path coefficient of 0.324 ($p<0.05$), confirming hypothesis H3. Regarding the moderating role of OLC, the results indicate a contradictory moderation on the interplay among GS, technological innovation, and SME performance. Specifically, learning capability positively moderates the linkage between GS and technological innovation (path coefficient of 0.037, $p<0.05$), whereas it negatively moderates the relationship between technological innovation and SME performance (path coefficient of -0.076, $p<0.05$). This effect illustrates that higher learning capability, on the one hand, does slightly strengthen the linkage between GS and technological innovation, and on the other hand, weakens the relationship between technological innovation and SME performance.

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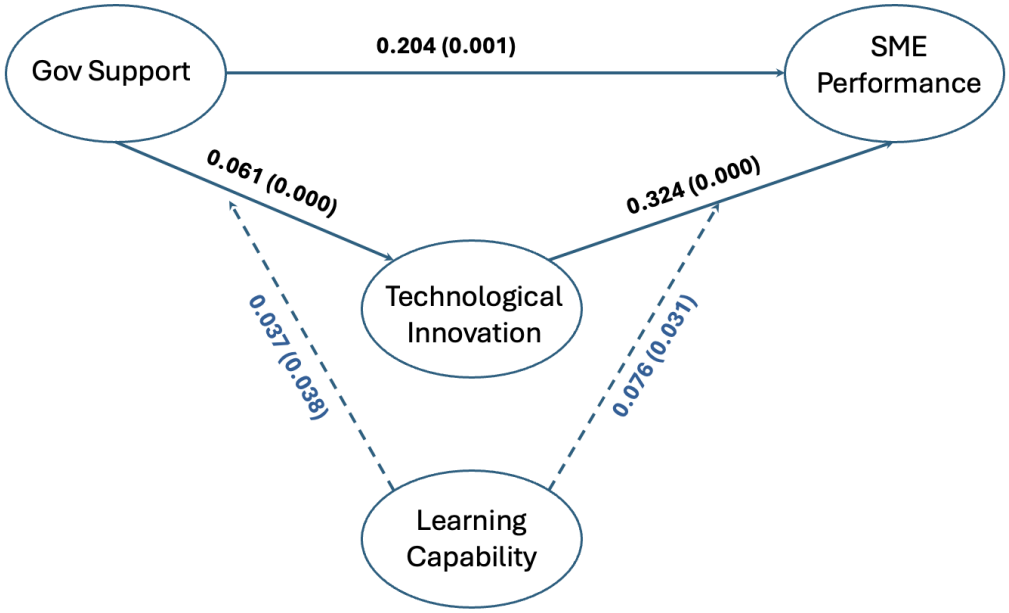

Figure 2. PLS-SEM results

The R^2 values for SME performance (0.479) and technological innovation (0.637) show that the model has a good explanatory level. Additionally, the f^2 effect sizes range from 0.008 to 0.537, suggesting small to large practical effects according to Cohen's guidelines (1990) [47]. To further strengthen our understanding of the model's robustness and practical utility, an out-of-sample predictive power test using PLSpredict [59] was conducted. Specifically, the Q^2 for SME performance was 0.479, indicating moderate predictive ability, while the Q^2 for technological innovation was 0.637, suggesting even higher predictive power. Overall, all Q^2 values were above zero, supporting the model's solid predictive strength [60].

Table 3. Hypothesis testing results

Endogenous Construct	Predictor	Hypothesis	Path Coefficient	T statistics	f^2	R^2	Q^2	Results
SME PERFORMANCE						0.479	0.429	
	Gov Support	H1	0.204***	3.429	0.030			Supported
	Technological	H3	0.324***	5.893	0.068			Supported
	Learning capability x Technological innovation	H4a	-0.076*	2.164	0.008			Supported
TECHNOLOGICAL INNOVATION						0.637	0.631	
	Gov Support	H2	0.610***	16.948	0.537			Supported
	Learning capability x Gov Support	H4b	0.037*	2.073	0.012			Supported

Note: *** significant at 0.1%, ** significant at 1%, * significant at 5%

From the data analysis results, the mathematical functions are derived as follows:

Results regarding the effect on SME performance:

$$SME\ performance = 0.204\ x\ GovSup + 0.324\ x\ TechInno + (-0.076)\ x\ (LearnCap\ x\ TechInno) + \varepsilon \quad (3)$$

Results regarding the effect on technological innovation:

$$TechInno = 0.610\ x\ GovSup + 0.037\ x\ (LearnCap\ x\ GovSup) + \varepsilon \quad (4)$$

5. Discussion

Supporting SMEs is a national priority in Vietnam, given their vital role in poverty reduction through job creation. This study explores the mechanism through which technological innovation influences SME performance and reveals several takeaways.

First, GS directly influences both technological innovation and SME performance; however, its impact on performance is more limited than its effect on innovation implementation. As mentioned by [61], the absorption level of GS remains weak in SMEs due to poor communication of programs available and ineffective implementation of such programs [61]. Prasanna et al. (2024) [62] suggested that governments should provide a combination of indirect support, such as creating a favorable business environment, and direct support, including training programs and tax incentives for SMEs. In contrast, this study focuses on direct support measures, including financial aid, technological assistance, and intellectual property support, as these interventions help mitigate the key resource constraints that typically hinder SMEs.

Innovation emerges as both the primary beneficiary of external support and the critical bottleneck in translating that support into tangible performance outcomes. The results indicate that GS positively affects technological innovation, which in turn enhances SME performance. These findings underscore the importance of SMEs' internal innovation capabilities in realizing the benefits of government programs. Generous GS initiatives may prove ineffective if SMEs lack a clear strategic intent for innovation and the internal capacity to develop new products or processes [32]. This aligns with prior evidence [63] suggesting that SMEs with strong innovative capabilities are better positioned to convert GS into improved performance. Overall, the interplay between GS and technological innovation demonstrates that while external support helps SMEs overcome resource constraints [64], building internal innovation capacity remains essential to fully capitalize on such assistance.

Second, our finding indicates that SMEs with higher OLC are better positioned to maximize the benefits derived from technological innovation. This aligns with prior studies emphasizing that effective learning practices, such as efficient learning methods, integration of new knowledge into firm operations, and active knowledge sharing among employees, are critical to SME success [45]. However, while investing in learning capability enhances innovation, it may not directly translate into higher sales performance. Successful commercialization of innovation depends on a broader set of activities, including marketing, sales, and after-sales services. Therefore, learning capabilities within a single organization may be insufficient; collaboration and knowledge exchange across the supply chain are equally essential for realizing the full performance potential of technological innovation.

The findings regarding the moderating role of OLC present an intriguing duality. On one hand, the positive moderation of OLC on the relationship between GS and technological innovation supports the notion that learning capabilities enhance the absorption and effective utilization of government subsidies, fostering R&D activities within SMEs. This aligns with the perspective that increased learning capacity allows firms to better leverage external support, converting it into actionable innovations. On the other hand, the negative moderation of OLC in the relationship between technological innovation and SME performance may signal a potential "capability trap". Here, the excessive focus on learning and capability building might inadvertently divert critical resources and attention away from market execution and commercialization efforts. This suggests that while learning is crucial, it must be balanced with a strategic focus on market deployment to ensure that innovation translates into tangible business outcomes.

6. Implications

6.1. Theoretical implications

Prior studies have examined determinants of SME performance and innovation outcomes [65], given their critical role in firm resilience and survival. This study contributes to this body of knowledge by integrating institutional theory and the RBV to analyze how external forces, specifically GS, and internal capabilities, such as technological innovation and organizational learning, jointly shape SME performance amid growing business uncertainty.

The first major theoretical contribution of this study lies in extending institutional theory and the RBV by examining how external institutional forces and internal capabilities jointly influence SME technological innovation and

performance in uncertain environments. Consistent with institutional theory, SME technological innovation is seen not only as a strategic pursuit but also as a response to external expectations shaping isomorphic behavior. This study identifies GS as a critical institutional input that functions as a strategic resource, directly influencing SME outcomes. Practically, SMEs often face severe constraints—limited information, financial shortages, and inadequate human capital [64]. Our findings demonstrate that technological innovation enables SMEs to overcome these limitations and enhance both financial and market performance.

The second contribution addresses the complex role of OLC in the innovation–performance pathway. We uncover a dual moderating effect: in the innovation development phase, OLC strengthens the relationship between GS and technological innovation; however, in the commercialization and performance phase, OLC weakens the link between technological innovation and SME performance. The positive moderating effect of OLC in the first phase demonstrates the influence of the institutional environment in shaping firm behavior. This is due to SMEs' effort in building their alignment with GS for national competitiveness. However, SMEs are characterized by scarce resources, particularly human and financial constraints [66]. When emphasizing OLC to incorporate external resources supported by the government towards innovation-oriented objectives, SMEs might be struggling with resource allocation and investment in capabilities for the commercialized orientation phase. Adding further challenges for SMEs is employees' capabilities [32]; divided attention across multiple goals can cause overwhelm and adversely impact sales performance; in this case, employees need to develop the ability to learn and incorporate knowledge throughout different phases from innovation to commercialization. Hence, SMEs need to consider actively searching for external resources, especially from the government, to facilitate technological innovation and actual market performance.

6.2. Practical implications

Several practical implications can be made from this study. Despite SMEs limitations, SMEs in Vietnam must prioritize technological innovation, for example, business processes and procedures to implement innovative ideas for new products and operational activities to improve their performance. SMEs' investments for learning activities should be divided into two stages: innovation-focused, followed by market-focused. For the innovation-focused stage, acquiring external resources supported by the government should concentrate on identifying the type of institutional support and how to access it throughout the innovation process. When information for support programs is sufficiently acquired, learning efforts should shift to acquiring market knowledge to support the market-focused stage. Notably, 70% of Vietnamese SMEs is family-owned, a unique paradox emerges - that is, balancing tradition and family values with the need for technological renewal and generational transition. Furthermore, Vietnamese family firms are also at a crossroads of power transfer between generations and digitalization. Hence, professionalism and well-structured preparation for technological innovation should receive attention before integrating new technology to foster technological innovation.

Second, regarding OLC, firms typically learn by reviewing past actions, analyzing outcomes, and making adjustments for improvement. However, in this study, OLC demonstrates a paradoxical effect on firms' processes. Vietnamese SMEs and family businesses face resource constraints while pursuing both innovation and short-term performance. To lessen OLC's negative influence on translating innovation into performance, managers should balance their resources to review past activities when translating technological innovation to actual performance, to analyze the gap between outcomes expectation and the actual innovation implementation to learn amendments for future outcomes, and also reduce the current negative impact from OLC on actual firm performance. By aligning learning efforts with both immediate and long-term objectives, firms can convert OLC from a potential burden into a mechanism that reinforces the positive impact of technological innovation on performance.

Third, industrial associations in Vietnam serve as a critical hub, not only facilitating collaboration among domestic enterprises but also connecting them with international markets when firms face resource constraints. Although Vietnamese firms demonstrate strong enthusiasm and proactiveness toward technological innovation, many are still at the stage of learning and acquiring capabilities. As such, industrial associations should establish platforms for collective learning and absorbing knowledge, thereby enhancing their ability to transform technological innovation into actual performance, to avoid the knowing and doing gap, and to strengthen competitiveness in the global market.

6.3. Limitations and directions for future research

Although our research findings offer specific contributions, they also present several limitations that open avenues for future research. This study explores the impact of learning capability on the relationship between GS, technological innovation, and SME performance in an uncertain environment. Although the sample includes firms from heavy industry, services, and other sectors, this study did not deeply examine industry-specific factors that might influence the relationships between these factors. Industry differences could influence outcomes, and future research should investigate how OLC affects performance across specific industry contexts. Additionally, while our study examines the mechanism of GS (resources) - technological innovation (capability) - performance (outcomes), other mediating factors between technological innovation and performance may exist. Future studies should also consider additional controls such as firm size, industry type, and digital maturity to better capture these dynamics. A potential endogeneity issue also arises: high-performing SMEs may be more likely to receive GS, which could bias the observed relationships. Future studies could mitigate this by applying techniques such as instrumental variables to improve causal inference. Moreover, the study did not consider how service and manufacturing SMEs may use GS differently due to distinct operational needs and market demands. Examining these sectoral differences can yield more nuanced insights into the effectiveness of support mechanisms. To further enhance understanding, future research should adopt longitudinal designs to help track how variables such as OLC and GS interact over time, offering stronger evidence of causal effects.

7. Conclusion

The increasingly unpredictable and uncertain global economy raises concerns for government intervention for such a macro-issue. This study unveils how governmental intervention by supportive policies, subsidies, and business environment improvement affects SME performance through technological innovation. Our findings confirmed that GS directly leverages both technological innovation and SME performance in developing markets such as Vietnam. Furthermore, a paradoxical moderating effect of OLC is founded: it strengthens the relationship between GS and technological innovation (input–process stage), but weakens the link between technological innovation and SME performance (process–output stage). These findings contribute to the current literature by emphasizing the crucial role of government initiatives during chaos and unpredictability in fostering actual innovation and achieving positive outcomes, and further exploring the adverse effects of the moderating impact of OLC.

8. Declarations

8.1. Author Contributions

Conceptualization: N.B.D., H.M.N., H.-N.D., K.T.N., and T.M.N.; Methodology: H.M.N.; Software: N.B.D.; Validation: N.B.D., H.M.N., H.-N.D., K.T.N., and T.M.N.; Formal Analysis: N.B.D., H.M.N., H.-N.D., K.T.N., and T.M.N.; Investigation: N.B.D.; Resources: H.M.N.; Data Curation: H.M.N.; Writing Original Draft Preparation: N.B.D., H.M.N., H.-N.D., K.T.N., and T.M.N.; Writing Review and Editing: H.M.N., N.B.D., H.-N.D., K.T.N., and T.M.N.; Visualization: N.B.D.; All authors have read and agreed to the published version of the manuscript.

8.2. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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8.4. Institutional Review Board Statement

Not applicable.

8.5. Informed Consent Statement

Not applicable.

8.6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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