

## SMES Sustainable Performance: A Conceptual Framework on The Moderating Role of Government Support

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### ABSTRACT

This study investigates the role of digital capability in enhancing SMEs' sustainable performance and the moderating effect of government support. Grounded in the Dynamic Capabilities Theory, Public Policy Theory, and the Triple Bottom Line framework, the paper proposes a conceptual model that integrates internal digital competencies with external institutional support to explain sustainability outcomes. A conceptual approach is employed and complemented by a pilot empirical test using survey data from 70 SME owners analyzed through Partial Least Squares Structural Equation Modeling (SEM-PLS). The measurement model demonstrates satisfactory reliability and validity, and the structural model provides preliminary evidence that digital capability positively influences sustainable performance, while government support strengthens this relationship. These findings offer theoretical contributions by bridging digital capability and institutional perspectives in the sustainability discourse, and practical implications by emphasizing the need for SMEs to develop robust digital competencies while leveraging supportive policies. Policymakers are encouraged to design interventions that reduce structural barriers and amplify the impact of digitalization on sustainability. Although limited by the pilot nature of the empirical test, the study provides a foundation for future research to validate and extend the proposed framework using larger and more diverse samples.

**Keywords:** Dynamic Capabilities Theory, Public Policy Theory, Sustainable Performance, SMEs, Triple Bottom Line.

### INTRODUCTION

The SME sector plays a vital economic role in development and overall performance in both developed and developing countries (H. Hilman & Ali, 2020). The rapidly changing business environment poses a challenge for SMEs to keep up with the increasing pace of innovation in order to enhance business performance (Alvarez-Torres et al., 2019). SMEs have several structural advantages compared to large national or multinational companies (MNCs) due to their hierarchical simplicity and structural flexibility, which allows them to act more (Das et al., 2020). However, SMEs also have drawbacks, such as financial risk that businesses should consider (Ciba, 2025), as well as limitations in digital access and skills (Sefrina, 2024).

SMEs are typically defined as reactive, flexible, and innovative organizations that usually operate in highly competitive markets, allowing their innovative new business models to stand out (Expósito & Sanchis, 2019). Interest in sustainable performance has become an important topic in research, but this research is usually based on the application of sustainability measures for larger companies. Sustainability is relevant for everyone, from large companies to small ones in every economy (Massa et al., 2015). There is still little research discussing the factors that influence the sustainability of SME performance (Jaramillo et al., 2019). The literature has identified a

number of barriers for SMEs regarding the impacts and benefits associated with sustainability (Journeault et al., 2021).

The survival and contribution of SMEs to the economy are crucial for achieving sustainable goals, although many constraints prevent them from developing optimally (Nseobot et al., 2021). The core intention of sustainability will never be achieved if SMEs do not participate because they account for more than 90% of the total industrial units worldwide (Manvendra et al., 2020). However, due to resource limitations, SMEs consider developing the capability to address sustainability as a complex task that can increase their cost burden (Eikelenboom & Jong, 2019). Business sustainability remains conceptually ambiguous, requiring firms to continuously realign strategies with shifting environments (Aghazadeh et al., 2024). Although SMEs play a vital role in economic growth, they face persistent barriers to sustainability due to the absence of standardized frameworks for planning and evaluating sustainable practices (Kundurpi et al., 2021; Nseobot et al., 2021; Tshiaba et al., 2021). Digital transformation has been promoted as a pathway to sustainable competitive advantage (Ahmed et al., 2022), yet fewer than 30% of such initiatives succeed (Aghazadeh et al., 2024), highlighting the complexity SMEs face in converting technological adoption into performance outcomes. While digitalization can improve efficiency, flexibility, and competitiveness (Ardito et al., 2021; Radicic & Petković, 2023; Yuen & Baskaran, 2024), SMEs in developing economies encounter structural constraints such as limited skills, infrastructure, and financial resources (Castillo-Vergara et al., 2025; Pergelova et al., 2019).

Dynamic Capability Theory (DCT) underscores that firms must sense, seize, and reconfigure resources to transform digital potential into sustainable competencies (Papadopoulos et al., 2020). Digital capability, encompassing infrastructure, operations, and human capital, has thus become essential for organizational resilience and alignment with external technological shifts (Chen & Tang, 2024; Vial, 2021; Wang et al., 2022). However, current research on SMEs in developing contexts remains fragmented, often emphasizing digital transformation itself while overlooking its broader implications for social and environmental performance (Satar et al., 2024; Vrontis et al., 2022). This gap calls for deeper examination of how SMEs can effectively leverage digital capabilities to achieve sustainability.

Government support represents a critical enabler in this process, particularly through regulatory measures, financial incentives, and training programs that lower barriers to digital adoption (Ganotakis et al., 2021; Lutfi et al., 2022; Wahyuningtyas et al., 2023). Nonetheless, awareness gaps, bureaucratic hurdles, and limited accessibility reduce the effectiveness of such initiatives (Agrawal et al., 2024; J. O. Dörr et al., 2022). Many SMEs are unaware of available government support programs and the benefits of implementing sustainable practices (Ghadge et al., 2021; Sharma et al., 2021). Government support can improve the economic performance of SMEs by enhancing their competitiveness, increasing their market access, and fostering innovation (Badghish & Soomro, 2024).

Access to funding is an important factor for the growth and sustainability of SMEs (Bakhtiari et al., 2020; Zarrouk et al., 2020). Government-supported financial incentives can significantly enhance the ability of SMEs to invest in improving resource efficiency (Picas & Reis, 2021). Ullah et al. (2021) research indicates that access to domestic and international funding significantly contributes to the sustainability performance of SMEs. Therefore, this study explores how government support moderates the relationship between digital capability and SME sustainable performance, addressing the underexplored question of whether institutional interventions amplify the sustainability benefits of digitalization.

## LITERATURE REVIEW

### Triple Bottom Line and Sustainable Performance

Small and medium-sized businesses (SMEs) that follow the TBL principle are more likely to be sustainable if they do business in a responsible and ethical way, use natural resources wisely, safeguard the environment, and offer high-quality goods and services (Hilman et al., 2023). Implementing TBL helps SMEs find and use ways to improve by encouraging innovation, making things more open, and giving them measurements (Hilman et al., 2023; Naharuddin et al., 2024). The TBL idea focuses on three things: the economy, society, and the environment. Its goal is to keep the business going by balancing people, profit, and the world. TBL gives SMEs a clear way to measure their sustainable performance: Profit (higher profits and revenue, better operational efficiency, and better use of resources), People (better health and well-being of employees and the community, and the use of ethical business practices), and Planet (less waste and carbon emissions, more energy efficiency, and the use of eco-friendly raw materials).

The Triple Bottom Line (TBL) provides the foundation for evaluating SME sustainability across economic, social, and environmental dimensions (Dwikat et al., 2022; Tseng et al., 2020). By integrating principles of efficiency, responsibility, and innovation, TBL enables firms to balance profit, people, and planet, thereby promoting sustainable competitive advantage (I. Hilman et al., 2023; Naharuddin et al., 2024). Although initially

regarded as a cost, sustainability is increasingly recognized as a source of organizational value and long-term competitiveness (Albhirat et al., 2023; Van Holt, 2020). This perspective, SMEs can create positive societal and environmental outcomes while ensuring financial resilience.

Sustainability has thus become a “new normal” for SMEs, essential for long-term survival and contribution to broader economic goals (Ahmad et al., 2021; Nseobot et al., 2021). It reflects the capacity of businesses to meet present needs without compromising future generations and is typically assessed through financial, social, and environmental performance (Ghag et al., 2022; Mankgele, 2023). Financial measures include revenue growth and profitability; social performance covers employee satisfaction, community engagement, and social responsibility, while environmental outcomes involve waste reduction and adoption of eco-friendly practices

### **Public Policy Theory and Government Support**

Public policies that are well-crafted can motivate SMEs to adopt sustainable practices. The connection between internal SME determinants and sustainable performance can be strengthened by effective policy outcomes (Ali et al., 2021). The connection between SMEs and their stakeholders can be shaped by public policies, which can also affect how they behave and perform. Environmental rules may force SMEs to implement eco-friendly practices, which could affect their connections with suppliers and customers, according to research (Majid et al., 2023). A model was created by (Razumovskaia et al., 2020) to evaluate how well government policies supported Russian businesses during the COVID-19 pandemic. An analysis of the effects of Italy's Start-Up Law, which offers loan guarantees to creative start-ups, revealed that it enhanced their access to loans and equity (Biancalani et al., 2022).

A government decision taken to address particular societal issues is referred to as public policy in public policy theory (Demir, 2021). Financial incentives (such as subsidies for SMEs implementing green technology); stringent regulations (such as carbon emission limits for the manufacturing sector); and training initiatives and technical assistance (such as sustainability workshops for SME entrepreneurs) are some examples of public policies pertaining to SMEs and sustainability. By outlining the precise tools, the government uses to enhance SMEs' sustainability performance, public policy theory offers a tangible framework for assessing how policies truly affect SMEs.

Beyond regulatory simplification, government support also encompasses financial and non-financial assistance. Financial measures include access to credit, subsidies, and improved funding opportunities, whereas non-financial initiatives involve training and capacity-building programs (Ganotakis et al., 2021; Meressa, 2020). Evidence suggests that SMEs face more difficulties than larger firms in obtaining financial resources, yet such access is vital for achieving sustainable performance (Abdul-Azeez et al., 2024; Bakhtiari et al., 2020; Zarrouk et al., 2020).

### **Dynamic Capabilities Theory and Digital Capability**

DCT has highlighted that a company's ability to implement new practices and strategies, and manage them effectively in a rapidly evolving environment, will depend on internal resources (Chowdhury et al., 2022). DCT refers to a company's ability to create, integrate, and reconfigure its internal and external capabilities to respond quickly to environmental changes (Tufan & Mert, 2023). By meeting market demands, dynamic capabilities emerge as a source of sustainable competitive advantage. (Ahmad et al., 2021). The theoretical framework of DCT explains why companies achieve different business outcomes when operating under the same economic conditions using similar resources (Aghazadeh et al., 2024). This theory also involves the development of strategies for businesses to adapt to extreme changes while maintaining capability standards at a minimum level to secure competitive survival (Permatasari et al., 2023).

DCT has been widely used in the literature to understand the importance of a company's strategic capabilities and their impact on competitive performance (Teece, 2012). DCT consists of a series of high-level activities that enable companies to align their routine operations with efforts that yield high results (Arroyabe et al., 2024). DCT is based on the premise that dynamic capabilities can transform the current position and resources of the company as well as its operational capabilities, leading to new positions and pathways to optimally utilize its strategic assets (Schilke et al., 2018). DCT emphasizes the importance of a company's ability to adapt to changing environments and create new capabilities.

Dynamic Capabilities Theory (DCT) explains how firms adapt, integrate, and reconfigure resources to respond to environmental changes, positioning capabilities as key drivers of sustainable competitive advantage (Gibson et al., 2021). For SMEs, DCT highlights the importance of leveraging sustainability and digital transformation to attract stakeholders, identify opportunities, and realign resources in dynamic markets (Adhiatma et al., 2022; Anim-Yeboah et al., 2020; Martinez-Pelez et al., 2023). Although digital transformation enables efficiency, growth, and differentiation, SMEs in emerging markets face barriers related to finance, skills, and technology, underscoring the role of external support and resource orchestration (Anatan, 2023; L. Dörr et al., 2023; Ijomah et al., 2024).

According to DCT, a company's dynamic capabilities enable the company to sense, seize, and transform its resources and capabilities in response to environmental changes (Pratono, 2024). However, this theory has largely been explored in developed countries where emerging markets unique in their economic and socio-cultural environments have their own resources and capabilities (Jafari-Sadeghi, 2021). For SMEs, which must operate and compete with limited resources, the effective and efficient utilization of resources is very important, compared to their larger competitors. Leveraging the entire SME ecosystem to develop sustainable solutions for thriving in a dynamic competitive environment is a significant challenge. (Martins et al., 2022). Many barriers to SME sustainability management activities have been emphasized in the existing literature, such as the lack of frameworks and guidelines to specifically support SMEs in terms of planning, monitoring, and evaluating their business sustainability (Kundurpi et al., 2021).

Within this context, digitalization empowers SMEs to optimize processes, enhance coordination, and deliver customer value while driving competitiveness and market expansion (Dabbous et al., 2023; Rajala & Hautala-Kankaanpää, 2023; Reis & Melão, 2023; Rupeika-Apoga et al., 2022). Central to this transformation is digital capability, which allows firms to convert digital resources into sustainable advantages through infrastructure, perception, operational, and collaborative capacities (Shah et al., 2023; Xie & Wang, 2025). Despite its recognized importance, much of the literature still centers on developed economies, leaving gaps in understanding how SMEs in emerging contexts can effectively develop and deploy digital capabilities (Dubey, 2020; Jafari-Sadeghi, 2021).

### Digital Capability and SMEs Sustainable Performance

Small and medium-sized enterprises (SMEs) that adopt digital technology have the potential to increase their performance (Crupi et al., 2020). During the process of digitization, SMEs that devote a greater amount of resources to experimentation and innovation may experience higher performance. SMEs who possess digital capabilities are able to broaden their market access through digital channels and develop their relationships with customers and business partners using data-driven platforms (Ojha et al., 2023). In addition to this, digitization makes it easier to monitor the effects that businesses have on the environment and to incorporate more socially responsible business practices (Zheng et al., 2023). According to (Ardito et al., 2021), this demonstrates that digital capacity not only contributes to the economic growth of SMEs, but it also helps contribute to the accomplishment of sustainable performance in social and environmental dimensions.

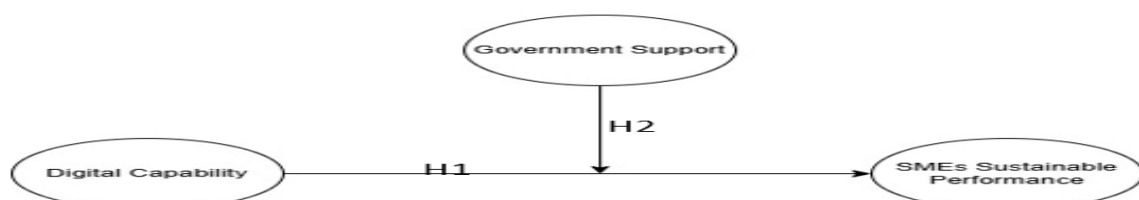
Research conducted in the past has demonstrated that the capabilities of digital technology has the potential to enhance the performance of SMEs in terms of sustainability (Castillo-Vergara et al., 2025; Do et al., 2022; Klein, 2021; Purwanto et al., 2021; Scuotto et al., 2021). On the other hand, it is essential to keep in mind that the specific relationship between digitization and sustainable performance might change depending on the circumstances and the particular strategies that SMEs put into action. The research conducted by (Ardito et al., 2021) revealed that the implementation of sustainable principles and digitization do not complement one another. Furthermore, Ellera et al. (2020) state that digitization might be a rather ambiguous element, meaning that it can either help or hinder sustainability depending on the readiness of the organization to manage the transition to digital.

**H1:** *There is a significant influence of digital capability on SME's Sustainable Performance.*

### Mediating Role of Government Support

The role of the government is very important in supporting MSMEs to compete competitively and recognize opportunities (Alkahtani et al., 2020), especially in the current digital era. Government support is an important factor that will influence technology adoption and digital transformation (Bakar et al., 2020). (Arshad et al., 2020) investigated the role of the government in the absorptive capacity of SMEs in Pakistan. Government support is crucial in driving the environmental performance of SMEs towards resource efficiency, reducing pollution and waste (Alraja, 2022; Wasiq et al., 2023). Financial incentives have been proven to help SMEs invest in cleaner production processes (Rama et al., 2022). Additionally, government support can enhance the social performance of SMEs by promoting fair labor practices, supporting community development, and encouraging social inclusion (Laila et al., 2023; Suriyankietkaew et al., 2022). Some studies show that providing loans to small businesses with concessionary interest rates improves their access to finance, thereby enhancing their performance (Aranda-Usón et al., 2019).

**H2:** *Government support accelerates the impact of digital capability on SME's Sustainable Performance.*



**Figure 1:** Equity Research Model

## METHODOLOGY

Using a conceptual design that is supported by early empirical evidence, this study investigates the effect of digital capacity on the sustainable performance of SMEs with the assistance of the government serving as a moderator. A study was conducted with seventy owners of SMEs using a standardized questionnaire that was measured on a Likert scale with five points (strongly disagree to strongly agree). With sustainable performance based on the Triple Bottom Line, which consists of financial, social, and environmental aspects (Tseng et al., 2020; Dwikat et al., 2022), these constructs were derived from previously published literature. Zhu et al. (2023) and Xie and Wang (2025) define digital capability as the ability to encompass infrastructural, perception, operational, and collaborative elements. Despite the fact that this variable is dichotomous (a variable that only has two categories), the moderating variable in this study is represented by a yes or no question. Government support was collected through both financial and non-financial ways (Ganotakis et al., 2021; Meressa, 2020). SEM-PLS, which is suitable for exploratory models and small samples, was utilized to analyze the data. Cronbach's alpha, composite reliability, and average variance extracted (AVE) were utilized to evaluate the reliability and validity of the data.

## RESULTS AND DISCUSSION

The results of the evaluation of the measurement model are presented in this section. The evaluation comprises the evaluation of construct reliability, convergent validity, and discriminant validity. According to the findings, all of the constructs are able to meet the reliability and validity standards. This is supported by the Fornell–Larcker criterion and the HTMT ratio for further confirmation.

**Table 1:** Reliability and Validity Results

Construct	Cronbach's Alpha	Composite Reliability	AVE
Digital Capability	0.889	0.931	0.602
Sustainable Performance	0.845	0.896	0.584

**Table 2:** Discriminant Validity (Fornell–Larcker Criterion)

Construct	Digital Capability	Sustainable Performance
Digital Capability	0.776	
Sustainable Performance	0.642	0.764

**Table 3:** Discriminant Validity (HTMT Ratio)

Construct Pair	HTMT Value
Digital Capability – Sustainable Performance	0.739

In the structural model, Bootstrapping indicates that Digital Capability positively influences Sustainable Performance ( $\beta = 0.482$ ,  $t = 5.231$ ,  $p < 0.001$ ; 95% BCa CI [0.302, 0.652]). The interaction term with Government Support is also significant ( $\beta = 0.214$ ,  $t = 2.347$ ,  $p = 0.019$ ; 95% BCa CI [0.036, 0.391]), suggesting that Government Support strengthens the DC–SP relationship.

**Table 4:** Bootstrapping Analysis

Path	$\beta$	t-value	p-value	95% BCa CI	Decision
Digital Capability → Sustainable Performance	0.482	5.231	<0.001	[0.302,0.652]	Supported
Digital Capability × Government Support → Sustainable Performance	0.214	2.347	0.019	[0.036,0.391]	Supported

### Digital Capability and SMEs' Sustainable Performance

From a Dynamic Capabilities Theory (DCT) perspective, digital capability enables SMEs to sense opportunities, seize them through data-driven decisions, and reconfigure resources to sustain advantage in turbulent environments (Teece, 2007). In practice, this capability rests on complementary infrastructures and routines—spanning infrastructure, perception, operational, and collaborative dimensions—that convert digital tools into process optimization, coordination, and customer value creation (Xie & Wang, 2025; Zhu et al., 2023). According to (Ijomah et al., 2024), digitalization makes it possible for SMEs to achieve sustainable growth by boosting customer interactions, improving operational efficiency, and developing new revenue streams. Digital strategies and investments made by SMEs can be greatly impacted by the competitive climate in which they compete. (Zhang et al., 2022). SMEs that are confronted with fierce rivalry may be more likely to embrace digital technology in order to improve their efficiency, better the customer experience, and differentiate themselves from their competitors. According to (Dörr et al., 2023). SMEs often have limited financial, human, and technological

resources, which can have a negative impact on their capacity to invest in digital technology and develop the essential skills and competence. SMEs need to examine strategies for their digital investments, with a particular emphasis on solutions that use external resources, in order to overcome these resource limits (Anatan, 2023).

This transformation ultimately supports the Triple Bottom Line (TBL) of economic, social, and environmental performance (Dwikat et al., 2022; Tseng et al., 2020). Previous studies emphasize that digitalization helps SMEs streamline operations, improve flexibility, and compete more effectively (Dabbous et al., 2023; Reis & Melão, 2023), while digital capability provides the integrative competence that turns these technologies into sustained outcomes for SMEs. Building on TBL, sustainable performance is conceived as a balanced achievement across profit, people, and planet; adopting TBL principles aligns SMEs' efficiency, responsible practices, and environmental stewardship, thus translating digital capability into measurable sustainability gains (Albhirat et al., 2023; Van Holt, 2020).

At the same time, the literature cautions that digital transformation is complex, with many initiatives faltering and paradoxical tensions emerging, particularly among SMEs facing limited resources (Hai, 2021; Telukdariea et al., 2023). These contingencies explain why the DC–sustainability link can vary by context and implementation choices. Some studies suggest digitalization and sustainability practices may not be naturally complementary without adequate readiness (Shah et al., 2023; Rajala & Hautala-Kankaanpää, 2023). Positioning digital capability as a higher-order orchestration mechanism helps reconcile these mixed findings: SMEs that cultivate the underlying capabilities—rather than merely adopting digital tools—are better positioned to transform digital potential into durable TBL outcomes (Masoud & Basahel, 2023; Rupeika-Apoga et al., 2022).

### **The Moderating Role of Government Support**

Through the reduction of adoption costs and risks, the legitimization of change, and the development of absorptive capacity, government support has the potential to deepen the relationship between digital competence and sustainable performance. Financial instruments such as credit access, subsidies, and tax incentives, in conjunction with non-financial initiatives such as training and technical support, directly relieve the constraints that SMEs face in emerging environments (Ganotakis et al., 2021; Meressa, 2020). Support acts as a contextual enhancer by stimulating investments in digital infrastructure, skills, and relationships that SMEs require in order to turn digital capabilities into TBL advantages (Abdul-Azeez et al., 2024; Bakhtiari et al., 2020; Zarrouk et al., 2020). This is in line with previous studies. The acceleration of digitalization and the expansion of the set of possible sustainable practices for resource-constrained enterprises can be achieved by public funds and well-designed policies, which reduce uncertainty and stimulate technical upgrading (Suriyankietkaew et al., 2022).

On the other hand, the intensity of this moderate effect is not immediately apparent. There are a number of factors that might reduce the success of a program, including a lack of awareness, bureaucratic complexity, and poor coordination. Additionally, misaligned incentives may prioritize compliance over capability growth. As a result, support is most effective when it complements firm-level digital capabilities. This can be accomplished through targeted training, ecosystem linkages, and outcome-oriented incentives.

Additionally, policy toolkits should explicitly connect digital upgrading to social and environmental performance (Albhirat et al., 2023; Cui, 2022). In a nutshell, the context in which SMEs orchestrate resources is shaped by government support. This makes it more probable that digital capabilities will be converted into strong, multidimensional sustainability results; nevertheless, the impact of this support is contingent on the quality of the design and the readiness of the SMEs.

## **CONCLUSION**

This study highlights the significance of digital competence as a strategic resource that enables SMEs to improve their sustainable performance across several dimensions, including economic, social, and environmental aspects. From the perspective of the Dynamic Capabilities Theory and the Triple Bottom Line framework, the model that has been developed emphasizes that SMEs that are equipped with stronger digital capabilities are in a better position to optimize operations, innovate, and create long-term value. Support from the government, on the other hand, emerges as a crucial contextual component that enables this transformation by lowering the structural barriers that stand in the way, providing resources, and bolstering the capacity of SMEs to translate digital promise into sustainability outcomes. A pilot empirical examination provides preliminary evidence supporting hypothesized links, despite the fact that the majority of this study is conceptual in nature. Furthermore, these findings not only make a contribution to the theoretical integration of digital competence and institutional support in the discourse on sustainability, but they also offer practical consequences for SMEs and policymakers. For SMEs, the study stresses the need of investing in the development of digital capabilities. For policymakers, the study emphasizes the significance of implementing supportive policies that amplify the benefit that digitalization

has on sustainable performance. It is advised that future research be conducted using larger samples and longitudinal methodologies in order to validate and extend the framework that has been established.

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