

The role of top management support in driving digital transformation of SMEs in Vietnam: A TOE framework approach

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Abstract

This study aims to explore the mechanism through which various factors influence the digital transformation process of Vietnamese small and medium-sized enterprises (SMEs), based on the Technology - Organization - Environment (TOE) framework, emphasizing the important role of top management support. Data were collected from 335 SMEs using a convenience sampling method. The Partial Least Squares Structural Equation Modeling (PLS-SEM) approach was conducted using SmartPLS software. The findings indicated that top management support has a significant impact on technology readiness, security, and the allocation of financial resources for digital transformation. In addition, the results confirmed the positive effects of the fundamental factors within the TOE framework on the success of digital transformation. However, government policies were not found to be a driving force in this process. The results provide managerial implications for enhancing the innovation capabilities of SMEs through digital transformation.

Keywords: Digital transformation, TOE framework, top management support.

1. Introduction

In today's business environment, digital transformation is no longer an option but a matter of survival for many enterprises in Vietnam's market. Digital transformation contributes to economic growth, enhances operational efficiency, and improves business competitiveness. The Vietnamese government has demonstrated a strong commitment to promoting digital transformation through the "National Digital Transformation Program to 2025, with a vision toward 2030," in which enterprises are identified as one of the three key pillars, alongside digital government and digital society. However, the level of participation and implementation of digital transformation varies significantly among different types of enterprises, particularly within SMEs.

According to the Vietnam White Book 2022, SMEs account for approximately 97% of all enterprises in Vietnam, contributing more than 45% of GDP and creating over 60% of total employment (Ministry of Investment, 2022). Despite their vital role, SMEs continue to face numerous barriers in their digital transformation. Common challenges include limited financial capacity for technology investment, weak management capabilities, a shortage of skilled IT personnel, and the absence of clear digitalization strategies. In reality, most SMEs are only at an early stage of digital adoption, primarily using accounting software, sales management tools, or social media platforms for marketing, rather than pursuing a comprehensive digitalization of business processes or models. Moreover, Vietnamese SMEs significantly lag behind their counterparts in Singapore, Malaysia, and Thailand in adopting advanced technologies such as AI, IoT, cloud computing, and data analytics (Ministry of Justice, 2025). The process of digital transformation is not merely a matter of awareness but is also closely related to institutional support, technological incentive policies, and the connection between enterprises and the national innovation ecosystem.

Although the topic of digital transformation has attracted considerable attention from both academia and practice, most existing studies primarily focus on large corporations (Malodia et al., 2023). Moreover, prior research has shown that digital transformation is a complex phenomenon, simultaneously influenced by multiple factors and their interrelationships. For instance, Zhang et al. (2022) argued that the success of digital transformation results from the interaction among factors such as IT infrastructure and IT management capability, digital strategy, top management support, government support, and partnerships. Meanwhile, Blanka et al. (2022) identified employees' digital competence as a key determinant of successful digital transformation. Similarly, AlNuaimi et al. (2022) emphasized that transformational leadership and organizational agility are essential factors. Gurbaxani & Dunkle (2019) identified six success factors of digital transformation, whereas other researchers identified as many as eleven factors (Ghobakhloo & Ching, 2019). These findings suggest that the existing literature does not yet fully capture the complexity of digital transformation.

Therefore, this study focuses on analyzing the key factors and the mechanisms through which they interact to influence the digital transformation process in SMEs based on the TOE framework, particularly highlighting the leading role of top management support in driving digital transformation. The study extends current understanding of digital transformation mechanisms in SMEs, contributing to enhancing their competitiveness and optimizing critical organizational resources.

2. Objectives

From the research gaps of previous studies, the objectives of this study include:

- 1) Recognize factors affecting the success of digital transformation in SMEs based on the TOE Framework
- 2) Clarifying the mechanisms and the critical role of top management support in influencing the success of digital transformation in SMEs.
- 3) Proposing policy recommendations from managers to promote the success of digital transformation in SMEs.

3. Literature reviews

3.1. Digital transformation

Digital transformation has increasingly become a top priority, attracting significant attention from entrepreneurs, scholars, and business consultants. The need for digital transformation became even more evident during the recent COVID-19 crisis. Digital transformation can be defined as the integration of digital technologies into all aspects and operations of an organization to create new business models and enhance operational efficiency (Vial, 2021).

While enabling faster and more flexible production, technologies such as Big Data and Analytics (BDA), blockchain, Artificial Intelligence (AI), the Internet of Things (IoT), and additive manufacturing are typical examples that drive digital transformation (Nambisan et al., 2017). Digital transformation is not merely the adoption of digital technologies; it also involves changes in organizational culture, strategy, business processes, governance, organizational capabilities, available resources, as well as entering new markets (Fitzgerald et al., 2014). Therefore, digital transformation is reshaping business transactions, products, and processes, sometimes resulting in entirely new business models (Bouncken et al., 2021). It also enables firms to focus on cost reduction, improve operational efficiency, ensure product quality, and respond rapidly to changing market demands.

3.2. The Technology - Organization - Environment (TOE) framework

The TOE framework, proposed by Tornatzky & Fleischer (1990), focuses on explaining and predicting the adoption, implementation, and innovation of technologies within organizations based on three aspects: Technology, Organization, and Environment. The TOE model is considered one of the most robust and flexible theoretical frameworks for exploring how various factors influence the success of digital transformation, organizational decision-making, and operational performance (Grant & Yeo, 2018). This study adopts the TOE framework to investigate the key determinants of successful digital transformation of Vietnamese SMEs.

Recent research indicates that, in addition to the direct effects of TOE factors on digital transformation success, indirect effects also exist. Since digital transformation is a complex phenomenon, its antecedent factors may originate internally or externally to the organization (Vial, 2021; Zhang et al., 2022). Consequently, many scholars have called for studies examining how the interactions among these factors affect digital transformation.

Previous studies highlight that top management support plays a pivotal role in enhancing an organization's innovation capability. Weiner et al. (1997) noted that when top management supports innovation activities, employee engagement increases. Furthermore, top management support is crucial in interpreting information and ensuring that employees understand what needs to be done and how to do it (Daft & Weick, 1984). At the same time, top management can provide appropriate resources to ensure that innovation activities proceed smoothly (Wang & Lo, 2019). Although the prominent role of top management in driving organizational innovation has been recognized, the underlying mechanisms through which this factor contributes to the success of digital transformation - especially in SMEs - remain unclear.

3.3. Hypothesis development

3.3.1. Top management support

Top management support is defined as proactive sponsorship through providing specific guidance and committing necessary resources to digital transformation-based innovation projects (Hsu et al., 2019). Their role in a project primarily involves offering clear direction and allocating appropriate resources to meet project objectives (Rodríguez et al., 2008).

Top management support represents a proactive behavior in digital transformation-driven innovation activities. It can maximize the effective use of an organization's technological resources to better facilitate digital transformation initiatives. Enterprises must have modern and reliable hardware and software infrastructure to enhance their ability to identify, exploit, and apply data, thereby promoting the success of digital transformation. Top management support is considered a critical factor influencing technological resources and information security within the organization (Ragu-Nathan et al., 2004; Sohal et al., 2001), potentially affecting decisions regarding the procurement and deployment of hardware and software infrastructure. Therefore, the following hypotheses are proposed:

H1a: Top management support has a positive impact on technological readiness.

H1b: Top management support has a positive impact on information security and data protection.

Top management can also leverage its position and authority to effectively allocate the organization's available financial resources toward innovation activities (Wang & Lo, 2019). Such allocation helps firms overcome institutional, human, and technological barriers commonly encountered in digital transformation-based innovation, while enhancing the ability to identify business opportunities and exploit innovation potential. In other words, top management support increases the likelihood of successful digital transformation activities by providing essential financial resources. Accordingly, the next hypothesis is:

H1c: Top management support has a positive impact on the allocation of financial resources in SMEs.

3.3.2. Technological perspective

The technological perspective relates to the internal and external technologies that an enterprise requires to implement digital transformation. Digital infrastructure and information security are considered key determinants of successful digital transformation in SMEs.

3.3.2.1. Technological readiness

Technological readiness is essential for integrating digital technologies across all aspects of an organization. It includes hardware, software, networking technologies, tools, and systems required to deploy and connect digital solutions throughout the organization (Bhattacharjee & Hikmet, 2008). This infrastructure provides capabilities for communication, collaboration, and/or computation, thereby supporting innovation activities. It plays a pivotal role in the digital transformation process. Digital infrastructure enables SMEs to accelerate the implementation of desired changes (Tallon & Pinsonneault, 2011). SMEs with robust digital infrastructure are better prepared to successfully execute digital transformation projects. Conversely, digital transformation cannot be effectively realized without the necessary systems and tools (Benitez et al., 2020). Accordingly, the following hypothesis is proposed:

H2a: Technological readiness is positively associated with the success of digital transformation in SMEs.

3.3.2.2. Security

Information security and protection systems are critical pillars for safeguarding an organization's digital assets, particularly during digital transformation, when firms handle large volumes of data and operate complex technological systems (Von Solms & Van Niekerk, 2013). For SMEs, technical and financial resource constraints often reduce the capacity to implement comprehensive security solutions (Bada et al., 2019). However, recent studies emphasize that effective investment in security and information protection systems not only mitigates security risks but also creates a trusted environment that facilitates the adoption and scaling of digital transformation initiatives (Nagle et al., 2017). Therefore, the next hypothesis is:

H2b: Information security and protection systems are positively associated with the success of digital transformation in SMEs.

3.3.3. Environmental perspective

The environmental perspective refers to the external environment in which an organization operates. This context is influenced by stakeholders such as the government, competitors, and suppliers - factors that determine the demand for innovation, the capacity to mobilize resources for innovation, and the ability to implement innovation in practice (Tornatzky & Fleischer, 1990). SMEs are generally considered more susceptible to external factors (Maroufkhani et al., 2023).

3.3.3.1. Government policies

Digital transformation is influenced not only by internal organizational factors but also by external factors, among which legal and regulatory policies play an important role. Previous studies indicate that a favorable legal environment can motivate enterprises, particularly SMEs, to invest in new technologies and implement digital transformation initiatives (Bonnet & Westerman, 2020; Teece, 2018). Legal policies provide clear guidance and establish a stable regulatory framework, giving firms confidence to invest in digital technologies and solutions. A strong legal environment reduces uncertainty and facilitates the effective implementation of digital transformation strategies (Becker et al., 2018). Accordingly, the following hypothesis is proposed:

H3a: Government policies are positively associated with the success of digital transformation in SMEs.

3.3.3.2. Customer pressure

The trend of customer digital experience refers to customers increasingly preferring to use online channels and platforms to search, purchase, and interact with businesses. Research by Avolio (2014) shows that when customers demand fast, convenient, and highly personalized services through digital platforms, enterprises must adjust their operations and transform from traditional business models to digital business models. This requires SMEs to adopt new technologies to improve product/service quality, provide omnichannel experiences, and build digital interaction platforms to better serve customers. Maximizing customer digital experience has become a critical factor determining business success. Therefore, the next hypothesis is:

H3b: Customer pressure is positively associated with the success of digital transformation in SMEs.

3.3.3.3. Competitive pressure

When competitors adopt new digital technologies, digital transformation is no longer optional but becomes imperative for SMEs to survive and grow. SMEs face resource constraints, but can leverage competitive pressure to drive innovation and technological improvement (Teece, 2018; Bonnet & Westerman, 2021). Facing pressure from competitors, SMEs realize that maintaining traditional business models will not sustain them in an increasingly digitalized market. Consequently, SMEs must adopt innovation strategies to differentiate their products and services from competitors. Therefore, the following hypothesis is proposed:

H3c: Competitive pressure is positively associated with the success of digital transformation in SMEs.

3.3.4. Organizational perspective

The organizational perspective refers to the characteristics of a firm that can either facilitate or hinder the implementation of digital transformation (Tornatzky & Fleischer, 1990). Financial capability is identified as a key factor determining the success of digital transformation.

Digital transformation requires substantial investment in technology, infrastructure, and workforce training, which is particularly challenging for SMEs due to limited financial resources (Becker et al., 2018; Bonnet & Westerman, 2020). Numerous studies indicate that financial resources are a critical determinant for successfully implementing digital transformation strategies, as they enable firms to invest in new technologies, upgrade existing systems, and train employees in digital skills (Kane et al., 2015). Financial resources not only allow SMEs to adopt new technologies but also help sustain and develop digital platforms throughout the transformation process (Becker et al., 2018). Therefore, the following hypothesis is proposed:

H4: Financial resources are positively associated with the success of digital transformation in SMEs.

The research model is presented in Figure 1.

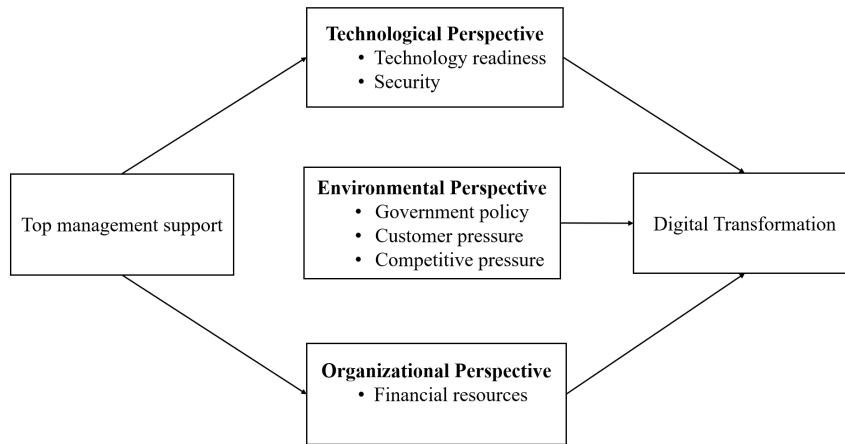


Figure 1. Research model.

4. Methodology

4.1. Data collection

The data were collected through 350 online survey questionnaires distributed to representatives of enterprises that either intended to or had already implemented digital transformation-based innovation. The questionnaire consisted of two sections: the first section collected information about the enterprise, and the second section included questions related to digital transformation. After removing incomplete or duplicate responses, 335 valid questionnaires were included in the analysis, yielding an effective response rate of 95.7%. The descriptive statistics of the research sample are presented in Table 2.

Table 1. Demographic information (Unit: Number of enterprises)

Characteristic	Construction industry sector	Service sector	Agriculture, forestry, fisheries sector	Total
Number of employees	185	94	56	335
Less than 10 employees	135	65	34	234
From 10 - 49 employees	24	23	16	63
From 50 - 99 employees	20	4	4	28
From 100 - 200 employees	6	2	2	10
Years of operation	185	94	56	335
Under 3 years	24	23	16	63
From 3 - 5 years	135	65	34	234
From 5 - 9 years	20	4	4	28
From 10 years and above	6	2	2	10
Business capital	180	101	54	335
Less than 10 billion VND	121	66	18	205
From 10 - 30 billion VND	31	14	13	58
From 30 - 50 billion VND	17	7	15	39
From 50 - 100 billion VND	11	14	8	33
Annual revenue	195	84	56	335
Less than 10 billion VND	43	4	6	53
From 10-50 billion VND	108	65	34	207
From 50-200 billion VND	44	15	16	75

4.2. Measures

The author used a 5-point Likert scale, ranging from (1) Strongly disagree to (5) Strongly agree, for the questionnaire design. The measurement items were adapted from previous studies. The sources of the scales' details are presented in Table 2.

Table 2. Measurement scales

Items	Measurement scales	Sources	Outer loadings	VIF
TMS	Top management support ($\alpha = 0.859$; CR = 0.861; AVE = 0.703)			
TMS2	Our leaders possess digital technology knowledge	Wang & Lo, (2019)	0.807	1.826
TMS3	Our leaders are proactive in promoting digital transformation		0.849	2.029
TMS4	Our leaders actively learn and keep up with new technology trends		0.840	2.024
TMS5	Our leaders inspire and provide direction for digital transformation across the organization		0.857	2.153
TECH	Technology readiness ($\alpha = 0.848$; CR = 0.849; AVE = 0.688)			
TECH1	Our technology systems are integrated and capable of supporting digital transformation.	Chan & Chong (2013); Yadegaridehkordi et al. (2020)	0.851	2.111
TECH2	Our technology systems have sufficient connectivity speed to enable digital transformation.		0.841	2.043
TECH3	Our technology systems can integrate with new digital platforms as needed.		0.851	2.087
TECH4	Our enterprise regularly updates and upgrades its technology systems to meet changing market demands.		0.771	1.569
SEC	Security ($\alpha = 0.817$; CR = 0.821; AVE = 0.577)			
SEC1	Information and data are verified before use.	Ghobakhloo & Iranmanesh (2021); Yadegaridehkordi et al. (2020)	0.714	1.442
SEC2	Information and data are consistently accurate and reliable.		0.767	1.536
SEC3	Our enterprise has effective mechanisms to prevent unauthorized access to or use of information and data.		0.803	1.841
SEC4	Our enterprise has clear security procedures to maintain the safety of internal information and data.		0.744	1.656
SEC5	Our enterprise regularly monitors, audits, and updates its systems to ensure the security and integrity of information and data.		0.766	1.638
GO	Government policy ($\alpha = 0.769$; CR = 0.771; AVE = 0.683)			
GO3	Government policies supporting digital transformation for enterprises are clear.	Ghobakhloo & Ching (2019)	0.810	1.556
GO4	The government consistently provides facilitation and support for enterprises' digital transformation.		0.827	1.547
GO5	The government has tax, credit, and incentive policies dedicated to digital transformation.		0.842	1.605
CUS	Customer pressure ($\alpha = 0.835$; CR = 0.838; AVE = 0.669)			
CUS1	Customers use multiple online channels to interact.	Maduku et al. (2016); Qalati et al. (2021)	0.834	1.993
CUS2	Customers demand fast and convenient experiences on digital platforms.		0.764	1.593
CUS3	Customers expect personalized experiences on digital platforms.		0.839	1.931
CUS4	Customers prefer to provide feedback through digital platforms.		0.833	1.944
COM	Competitive pressure ($\alpha = 0.847$; CR = 0.851; AVE = 0.685)			
COM1	Competitors are effectively adopting digital technologies.	Maduku et al. (2016); Yadegaridehkordi et al. (2020)	0.822	1.959
COM2	Competitors' digital transformation pace increases pressure on our enterprise.		0.844	1.910
COM3	Our enterprise must undertake digital transformation to maintain a competitive advantage.		0.829	1.887
COM4	Rapid technological changes by competitors force our enterprise to continuously adapt and innovate.		0.815	1.845
FIN	Financial resources ($\alpha = 0.706$; CR = 0.709; AVE = 0.630)			
FIN1	Our enterprise has a clearly defined budget for digital transformation projects.		0.751	1.301

Items	Measurement scales	Sources	Outer loadings	VIF
FIN2	Our enterprise has an annual investment level in information technology.	Bharadwaj et al. (2013);	0.795	1.398
FIN4	Our enterprise has flexibility in allocating financial resources for technology initiatives.	Becker et al. (2018)	0.833	1.510
DIG	Digital transformation ($\alpha = 0.848$; CR = 0.848; AVE = 0.688)			
DIG1	Our enterprise aims to digitalize everything that can be digitalized.		0.831	2.228
DIG2	Our enterprise is promoting new business processes built on modern technologies.	Garzoni et al. (2020);	0.800	1.747
DIG3	Our enterprise uses advanced digital technologies in new product and service development projects.	Malodia et al. (2023)	0.812	1.774
DIG7	Our enterprise aims to enhance customer interaction efficiency through digital technologies.		0.871	2.596

5. Results and discussion

5.1. Measurement model

Internal consistency was tested by calculating composite reliability (CR) and Cronbach's alpha for each construct. Referring to Table 2, all values for CR and Cronbach's alpha are above the threshold of 0.70. Hence, the internal consistency reliability of all the constructs was confirmed. Convergent validity is confirmed due to all outer loadings and average variance explained (AVE) being greater than 0.7 and 0.5. Therefore, the results show convergent validity for all construct measures.

The discriminant validity was assessed based on cross-loadings, the Fornell-Larcker criterion, and the heterotrait-monotrait ratio (HTMT). For cross-loading, all the items meet the criterion that the loadings are greater than the respective cross-loadings (Table 3). Similarly, according to the HTMT criterion from Table 4, discriminant validity was reliable as a result of HTMT values meeting the required threshold of less than 0.90.

Table 3. Fornell-Larcker criterion

	SEC	GO	DIG	COM	TMS	FIN	TECH	CUS
SEC	0.760							
GO	0.204	0.826						
DIG	0.402	0.323	0.829					
COM	0.234	0.267	0.631	0.827				
TMS	0.114	0.134	0.500	0.478	0.838			
FIN	0.337	0.294	0.688	0.464	0.395	0.794		
TECH	0.292	0.140	0.507	0.383	0.279	0.446	0.829	
CUS	0.274	0.319	0.747	0.531	0.450	0.655	0.489	0.818

Table 4. Heterotrait - monotrait ratio HTMT

	SEC	GO	DIG	COM	TMS	FIN	TECH	CUS
SEC								
GO	0.259							
DIG	0.481	0.399						
COM	0.283	0.333	0.740					
TMS	0.130	0.161	0.585	0.556				
FIN	0.445	0.398	0.870	0.597	0.508			
TECH	0.353	0.173	0.597	0.455	0.328	0.577		
CUS	0.326	0.399	0.876	0.629	0.530	0.852	0.580	

5.2. Structural Model

The author assessed collinearity between the constructs. All model variance inflation factor (VIF) values were below the threshold of 3. The highest VIF for the structural model had a value of 2.596 (Table 2). Thus, there were no collinearity problems in the research.

The R-Square values ranged from 0.013 to 0.704, indicating explanatory power from low to high. The model demonstrated a good fit with the sample data, as evidenced by a Normed Fit Index (NFI) greater than 0.7 and a Standardized Root Mean Square Residual (SRMR) of 0.050 (Table 5).

Table 5. Model fit summary

	Saturated model	Estimated model
SRMR	0.050	0.134
d_ULS	1.230	8.947
d_G	0.498	0.703
Chi-square	2487.709	3102.840
NFI	0.813	0.767

To test the research hypotheses, the author employed the bootstrap technique. The results in Table 6 showed that all hypotheses in the original model are supported except for hypothesis H3a. Specifically, top management support had a positive impact on technological readiness ($\beta = 0.280$, $p < 0.05$), information security ($\beta = 0.114$, $p < 0.05$), and financial resources ($\beta = 0.395$, $p < 0.05$). Thus, hypotheses H1a, H1b, and H1c were supported. Technology readiness and security had a positive effect on digital transformation success ($\beta = 0.079$, $p < 0.05$; $\beta = 0.131$, $p < 0.05$), confirming hypotheses H2a and H2b. Customer pressure positively affected digital transformation success ($\beta = 0.372$, $p < 0.05$), supporting hypothesis H3b. Competitive pressure positively influenced digital transformation success ($\beta = 0.254$, $p < 0.05$), supporting hypothesis H3c. Financial resources positively impacted digital transformation success ($\beta = 0.238$, $p < 0.05$). Therefore, hypothesis H4 was accepted. However, the results indicated that government policies do not significantly affect the success of digital transformation in SMEs ($p > 0.05$), leading to the rejection of hypothesis H3a.

The effect size f^2 value was used to assess the importance of each independent variable on the dependent variable. The analysis results in Table 6 indicate that all f^2 values of the measurement items range from small to medium effect.

Table 6. Path analysis

Hypothesis	Effect	Original sample	T values	P values	f^2	Conclusion
H1a	TMS $\rightarrow$ TECH	0.280	5.123	0.000	0.085	Supported
H1b	TMS $\rightarrow$ SEC	0.114	2.255	0.024	0.013	Supported
H1c	TMS $\rightarrow$ FIN	0.395	7.596	0.000	0.185	Supported
H2a	TECH $\rightarrow$ DIG	0.079	2.139	0.032	0.015	Supported
H2b	SEC $\rightarrow$ DIG	0.131	3.633	0.000	0.049	Supported
H3a	GO $\rightarrow$ DIG	0.028	0.868	0.385	0.002	Not supported
H3b	CUS $\rightarrow$ DIG	0.372	7.055	0.000	0.219	Supported
H3c	COM $\rightarrow$ DIG	0.254	6.263	0.000	0.146	Supported
H4	FIN $\rightarrow$ DIG	0.238	4.414	0.000	0.099	Supported

6. Conclusion

Top management support plays a pivotal and multifaceted role in guiding, managing, and making strategic decisions related to an enterprise's digital technology-based innovation initiatives. Leaders at the highest level are not only responsible for providing clear vision and direction but also for ensuring that resources - both technological and financial - are effectively allocated to support digital transformation efforts. Drawing on the TOE framework, this study highlights and empirically demonstrates the critical influence of top management support on the successful implementation of digital transformation in Vietnamese SMEs.

The findings reveal that top management support significantly enhances technological readiness by ensuring that enterprises have the necessary infrastructure, tools, and digital systems to integrate new technologies into their operations. Moreover, it strengthens information security by fostering appropriate policies, practices, and monitoring mechanisms to safeguard critical data and digital assets. Beyond these technological dimensions, top management also plays an essential role in the strategic allocation of financial resources, enabling SMEs to overcome typical constraints such as limited budgets, underdeveloped IT systems, and skill gaps among employees.

In addition, the results confirm that most TOE framework factors - including technological readiness, information security, customer digital expectations, competitive pressures, and financial resources - collectively contribute to the overall success of digital transformation initiatives. Each of these factors interacts with and reinforces the others, creating a conducive environment for innovation and digital adoption. Interestingly, despite the critical role of external support mechanisms in theory, the study finds that government policies and regulations do not have a statistically significant impact on the digital transformation of SMEs in Vietnam, suggesting that internal organizational factors may play a more decisive role in driving successful digital initiatives.

Overall, this research underscores the importance of proactive, informed, and committed leadership in steering SMEs through the complexities of digital transformation, while also highlighting the interplay of technological, organizational, and environmental factors in shaping the outcomes of these initiatives.

6.1. Theoretical implications

This study makes several theoretical contributions. First, it develops and empirically tests the internal factors within the TOE framework and the interrelationships among them, particularly highlighting the critical role of top management support in driving the success of digital transformation in SMEs. Unlike commonly used technology innovation models such as UTAUT or TAM, this research provides a distinct theoretical perspective on innovation capability through digital transformation at the SME level. Second, previous studies primarily analyzed the direct positive effect of top management support on firms' innovation capability. The results of this study further confirm the indirect impact of this factor on the success of digital transformation initiatives.

6.2. Practical implications

The study offers several policy implications for managers. First, top management support is a core factor for enhancing an enterprise's digital transformation capability. Leaders should optimize the integration of technology and governance at the highest level to prepare for realizing innovation capabilities through digital transformation. Second, technical capability is essential, though not the most critical factor in digital transformation. Enterprises need to rapidly adapt to new technologies to maintain a competitive advantage. Leaders can enhance technical capability through training, developing technology talent, providing financial support, and establishing clear reward or penalty systems. Third, managers need to take concrete actions, particularly in the rational allocation of resources for digital transformation to maximize management efficiency, workforce utilization, and innovation capability.

6.3. Limitations and future research directions

This study has several limitations. First, the convenience sampling method may not ensure the representativeness of the sample. Future studies should consider employing more rigorous sampling methods, such as stratified sampling or cluster sampling. Second, the sample is limited to SMEs. Future research should expand the sample size to more deeply evaluate factors affecting the success of digital transformation. Third, the research was conducted only in Vietnam. Although the findings may provide insights for other developing countries promoting SME digital transformation, multi-regional and cross-cultural studies are needed to further validate the results.

7. References

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