

Factors Affecting the Business Performance of Small and Medium-sized Enterprises in the Mekong Delta: The Mediating Role of Digital Transformation

Nguyen Van Dinh^{1*}, Nguyen Tri Khiem², Nguyen Van Tac¹

¹Faculty of Economics, Nam Can Tho University, Can Tho City, Vietnam, ²Faculty of Business Administration - Marketing, Nam Can Tho University, Can Tho City, Vietnam. *Corresponding Author's Email: nvdinh@nctu.edu.vn

Abstract

Small and medium-sized enterprises play an important role in promoting national and regional socio-economic development. This study examines how organizational, technological, financial and policy-related factors affect the business performance of small and medium-sized enterprises through digital transformation. The proposed model includes leadership, employee capability, digital business strategy, organizational culture, technological infrastructure, financial resources and government support policies as antecedents of digital transformation, while digital transformation affects business performance. Data were collected through a structured questionnaire administered to 400 small and medium-sized enterprises across five selected localities in the Mekong Delta and analyzed using partial least squares structural equation modeling with SmartPLS 4. The findings show that leadership, employee capability, organizational culture, technological infrastructure and financial resources positively affect digital transformation at the 5% significance level, with financial resources exerting the strongest effect. Digital business strategy provides marginal support at the 10% significance level, whereas government support policies are not statistically significant. Digital transformation positively affects business performance and transmits the effects of most internal determinants to performance outcomes. The findings provide empirical evidence from the Mekong Delta and offer practical implications for small and medium-sized enterprises seeking to improve business performance through digital transformation.

Keywords: Business Performance, Digital Transformation, Digitization, Mekong Delta, Small and Medium-sized Enterprises.

Introduction

In the context of competition increasingly driven by data, technology and adaptability, the business performance of small and medium-sized enterprises is no longer determined solely by financial resources or operating scale. It increasingly depends on firms' ability to reorganize processes, use technology and respond to market changes. Previous studies show that business performance is affected by internal resources, managerial capability, marketing, technology, institutional support and the external environment (1-5). Digital transformation has therefore emerged as an important strategic direction and prior research has examined the organizational and technological conditions that facilitate its adoption and implementation (6-10). Evidence from different contexts generally shows that digital transformation improves operational and business performance (11-16). However, the performance effects of digital transformation are

not always uniformly positive, as implementation costs and the digitalization paradox may offset some of its expected benefits (17). Three research gaps remain. First, studies of SME performance have mainly examined direct effects of internal and external factors, while the mechanism through which these resources are converted into performance remains insufficiently explained. Second, research on digital transformation has largely focused either on its antecedents or on its direct effect on performance. Evidence regarding its mediating role between organizational conditions and performance is still limited (18, 19). Third, evidence from Vietnam remains fragmented across industries and localities, while SMEs in the Mekong Delta operate under distinctive conditions related to agriculture, fisheries, trade, logistics, infrastructure and resource constraints. The Mekong Delta is particularly relevant because many SMEs are

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linked to agriculture, aquaculture, food processing, trade and supporting services. These activities often involve dispersed supply chains, variable input quality, logistics constraints and increasing requirements for traceability and market connectivity. Digital technologies can improve inventory control, information sharing, customer access, payment and supply-chain coordination, but the benefits depend on firms' financial readiness, workforce capability, leadership commitment and technological foundation. Differences in local infrastructure and access to support services may also shape implementation. Examining several localities therefore provides a useful regional setting for assessing how SMEs convert available resources into performance gains through digital transformation.

Digital transformation refers to the strategic use of digital technologies to restructure operations, improve processes, enhance customer experience and create new value (9, 10). Recent SME research also emphasizes the roles of leadership, digital capabilities and digital strategy in shaping digital transformation (20). For SMEs, digital transformation can help overcome scale limitations, optimize resources and strengthen adaptability in competitive markets (21, 22). Studies of Vietnamese SMEs further show that business performance depends on firm-specific and institutional conditions (23), while broader measurement approaches include both financial and non-financial outcomes (24). Empirical evidence also indicates that digital transformation practices, digital capability and digital infrastructure are positively associated with firm performance (13, 15, 25).

The proposed model is grounded in the technology-organization-Environment framework and the resource-based view. The Technology-Organization-Environment framework explains how technological conditions, organizational readiness and environmental support influence digital transformation. The resource-based view explains how valuable internal resources and capabilities can be combined to generate competitive advantage and improved performance. Integrating these perspectives allows digital transformation to be treated as an organizational mechanism through which technological, organizational, environmental and

firm-specific resources contribute to business outcomes (7, 8, 10, 13, 15).

Leadership provides strategic direction, allocates resources and supports organizational change; accordingly, previous studies identify leadership as an important driver of digital transformation (6, 20, 26, 27). H1 proposes that leadership positively affects digital transformation.

Employee capability determines whether firms can adopt, operate and adapt to digital technologies and digital skills have consistently been identified as important transformation conditions (6, 22, 26, 27). H2 proposes that employee capability positively affects digital transformation.

Digital business strategy provides priorities and an implementation roadmap, supporting the alignment of digital initiatives with business goals and strategic renewal (6, 8, 20, 28). H3 proposes that digital business strategy positively affects digital transformation.

Organizational culture influences readiness for change, learning, knowledge sharing and acceptance of new technologies, making it an important condition for digital transformation (6, 8, 21, 29, 30). H4 proposes that organizational culture positively affects digital transformation.

Technological infrastructure enables firms to integrate processes, use digital applications and develop digital work environments (7, 10, 22, 26, 27). H5 proposes that technological infrastructure positively affects digital transformation.

Financial resources are required for infrastructure, software, training, process redesign and information security; financial constraints therefore frequently limit transformation among SMEs (21, 27, 29, 30). H6 proposes that financial resources positively affect digital transformation.

Government support and other environmental conditions can facilitate digital transformation by improving firms' access to external resources, infrastructure and institutional support (7, 10, 28). H7 proposes that government support policies positively affect digital transformation.

Digital transformation can improve operational efficiency, resource allocation, customer interaction, market responsiveness and innovation. Empirical evidence generally confirms its positive association with firm performance (11, 13-16, 18, 25). H8 therefore proposes that digital transformation positively affects business performance. In the proposed model, the seven

antecedent factors affect digital transformation, which subsequently affects business performance. Digital transformation is therefore examined as the transmission mechanism linking organizational, technological, financial and policy-related conditions to performance outcomes.

The originality of this study lies in integrating these determinants within a single mechanism and testing their effects among 400 SMEs located in

Long An, Can Tho, An Giang, Dong Thap and Ca Mau. The study has two objectives: to determine how the seven antecedent factors influence digital transformation among SMEs in the Mekong Delta and to examine how digital transformation affects business performance and transmits the effects of these antecedents to performance outcomes. The proposed relationships are presented in Figure 1.

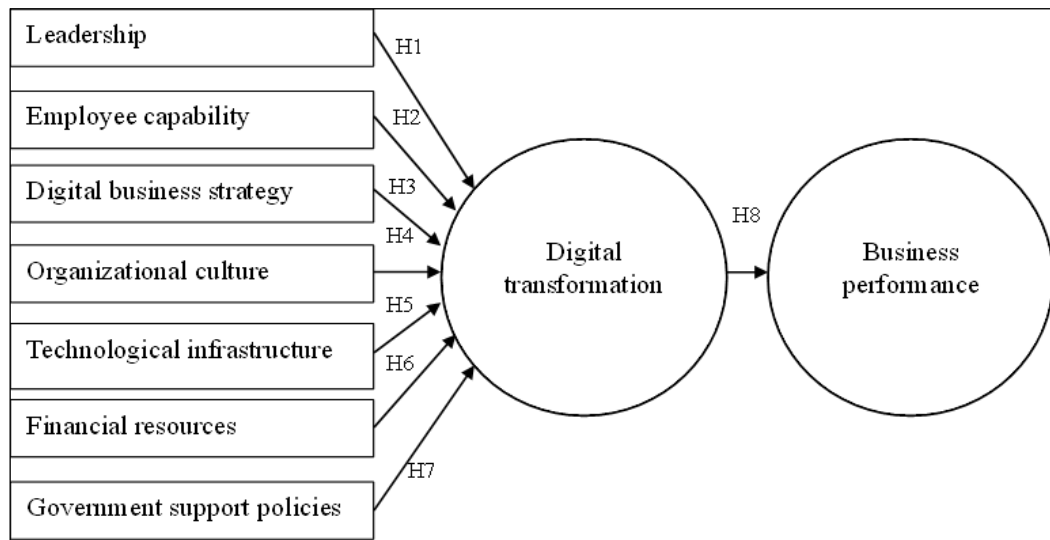


Figure 1: Hypotheses and Research Model

Methodology

This study adopted a mixed research approach. The survey instrument was adapted from previously validated scales and refined through expert consultation to ensure its suitability for SMEs in the Mekong Delta. A preliminary quantitative survey involving 65 SMEs was conducted to assess questionnaire clarity and the initial reliability of the measurement scales. The formal survey was conducted from March to April 2025. All measurement items were evaluated using a five-point Likert scale ranging from 1, strongly disagree, to 5, strongly agree.

The formal sample comprised 400 SMEs operating in Long An, Can Tho, An Giang, Dong Thap and Ca Mau. The research covered five localities in the Mekong Delta. The approximate coordinates of their administrative centers are Tan An, Long An, 10.5352° N and 106.4061° E; Can Tho, 10.0364° N and 105.7875° E; Long Xuyen, An Giang, 10.3756° N and 105.4417° E; Cao Lanh, Dong Thap, 10.4560° N and 105.6334° E; and Ca Mau, 9.1766° N and 105.1514° E. These coordinates indicate the general research areas rather than the precise locations of individual surveyed enterprises. A

locality-based quota sampling design with equal allocation was applied, yielding 80 valid responses from each locality. Equal allocation ensured balanced geographical coverage and prevented localities with larger enterprise populations from dominating the sample. The five localities were selected to capture variation in economic structure, sectoral characteristics, infrastructure conditions and digital readiness within the Mekong Delta. Eligible respondents were owners or managers who had sufficient knowledge of their firms' operations and digital transformation activities. Data were collected through both in-person and remote administration of structured questionnaires. A total of 418 questionnaires were distributed and returned. After screening, 18 questionnaires were excluded because they did not satisfy the validity criteria, leaving 400 valid responses. The return rate was 100% and the usable-response rate was 95.7%. Because all distributed questionnaires were returned, no separate non-response adjustment was required. Only one response per enterprise was retained.

The final dataset contained no missing values; therefore, no missing-value treatment or imputation was required. The equal allocation provided comparable coverage across the five selected localities. However, because the sample was not proportionally distributed according to the actual number of enterprises in each locality, the findings should be generalized to all SMEs in the Mekong Delta with caution.

The measurement and structural models were estimated using SmartPLS 4 (version 4.1.0.0). Partial least squares structural equation modeling was selected because the study is explanation- and prediction-oriented, includes nine latent constructs and multiple indirect relationships and requires the simultaneous assessment of measurement quality and structural relationships. The analysis examined indicator reliability, internal consistency reliability, convergent validity, discriminant validity, collinearity, model fit, explanatory power, effect sizes, predictive relevance, path coefficients and indirect effects. The 5% significance level was used as the primary criterion, while results with *p*-values from 0.05 to below 0.10 were interpreted as marginal evidence at the 10% significance level.

Results

Descriptive Statistics

The sample included 80 enterprises from each of the five selected localities. The results of the survey data analysis for the sample of 400 enterprises show the following:

Gender: Male representatives were dominant, accounting for 233 respondents (58.3%), while female representatives numbered 167 (41.8%).

Age of enterprise representatives: The age group of 36–55 accounted for the majority at 71.0%. The second most common age group was 24 to 35, which made up 20.8% of the total. Respondents aged over 55 accounted for 7.3%, while those aged 18–23 formed the smallest group, with four individuals representing 1.0% of the sample.

Educational level: The educational level of business leaders and managers in the survey

sample was relatively high. Most held a university degree, with 264 individuals accounting for 66.0%. This was followed by those with vocational college/college qualifications, totaling 61 individuals (15.3%). 40 individuals (10.0%) had postgraduate qualifications. The group with an upper secondary school education or below accounted for the smallest proportion, at 8.8% (35 individuals). Respondents with university and postgraduate qualifications together accounted for 76.0% of the sample.

Business sector: In terms of business sector, enterprises operating in trade and services accounted for the largest share, with 209 enterprises (52.3%). This figure indicates the dynamism of the tertiary sector in the Mekong Delta. The second largest group was agriculture, forestry and fisheries, with 146 enterprises (36.5%), which is fully consistent with the role of this sector as a key economic pillar of the region. The remaining two sectors, industry and construction (25 enterprises, 6.3%) and other sectors (20 enterprises, 5.0%), accounted for smaller proportions. This structure shows that the survey sample appropriately focused on the two main economic sectors of the region.

Years of establishment: Enterprises operating for 10 years or more accounted for the largest share, with 223 enterprises representing 55.8% of the sample. This was followed by enterprises operating for 5–9 years, with 95 enterprises accounting for 23.8%. Enterprises operating for 3 to under 5 years and for less than 3 years accounted for 12.5% and 8.0%, respectively.

Measurement Model Assessment

The outer loadings of the measurement items ranged from 0.733 to 0.892, all above 0.70, indicating satisfactory indicator reliability (31). The indicator VIF values ranged from 1.674 to 3.889, all below the threshold of 5. Therefore, the measurement model did not show a serious collinearity problem. The detailed results are presented in Table 1.

Table 1: Indicator Reliability and Collinearity Assessment

Code	Items	Outer loadings	VIF	Cronbach's Alpha if Item Deleted
LD	Leadership: Cronbach's Alpha = 0.862			
LD1	Business leaders are very interested in digital transformation	0.793	1.876	0.834
LD2	Leaders have a positive attitude towards digital transformation of the business	0.822	1.938	0.829
LD3	Leaders strongly support proposals to apply technology to digitize operational and management processes in businesses	0.828	2.075	0.824
LD4	Leaders continuously learn to develop capabilities to meet digital transformation requirements	0.761	1.758	0.839
LD5	Leaders are ready to address concerns arising from digital transformation	0.807	2.063	0.828
NV	Employee capability: Cronbach's Alpha = 0.868			
NV1	Employees make good use of information technology applications	0.839	2.132	0.830
NV2	The enterprise provides employees with training in the use of digital applications	0.876	2.464	0.811
NV3	Employees in the enterprise are given autonomy	0.815	1.778	0.855
NV4	The company has specialized staff in the field of information technology	0.855	2.158	0.828
CL	Digital business strategy: Cronbach's Alpha = 0.879			
CL1	The goal of digital transformation is mentioned in the business strategy of the enterprise	0.794	1.942	0.859
CL2	The enterprise's digital transformation strategy can fundamentally change the business process	0.835	2.196	0.845
CL3	The enterprise has implemented the use of a database system	0.820	2.066	0.851
CL4	The enterprise's strategy aims to change the operating model	0.826	1.997	0.854
CL5	The enterprise aims to optimize the customer experience on a digital platform	0.829	2.078	0.850
VH	Organizational culture: Cronbach's Alpha = 0.895			
VH1	Everyone in the enterprise is willing to share knowledge and experience with each other	0.822	3.497	0.867
VH2	The spirit of mutual learning is always appreciated	0.771	1.981	0.882
VH3	Everyone is always proactive at work	0.813	2.096	0.880
VH4	Stored information is a common property of the business	0.781	2.360	0.887
VH5	Business data is always verified before being stored and shared	0.839	2.824	0.874
VH6	The coordination of work in the enterprise is very good	0.827	3.889	0.867
CN	Technological infrastructure: Cronbach's Alpha = 0.871			
CN1	The enterprise uses a website to provide information	0.738	1.744	0.855
CN2	The enterprise allows employees to use personal electronic devices for work	0.806	2.019	0.836
CN3	The enterprise uses internal interactive systems to reduce direct task assignment	0.879	3.028	0.817
CN4	The enterprise uses cloud computing technology for internal management	0.862	2.918	0.817
CN5	The enterprise has created a digital workspace	0.775	1.772	0.854

TC	Financial resources: Cronbach's Alpha = 0.881			
TC1	The enterprise has a sound financial foundation and sufficient cash resources	0.872	2.724	0.829
TC2	The enterprise has a stable financial structure that supports its operations	0.762	1.724	0.866
TC3	The enterprise can access alternative external sources of finance when needed	0.866	2.664	0.833
TC4	The enterprise's current capital is predominantly long-term	0.797	1.905	0.856
TC5	The enterprise has strong financial management capabilities	0.815	1.957	0.852
CP	Government support policies: Cronbach's Alpha = 0.868			
CP1	The enterprise receives government support for employee recruitment and vocational training	0.756	1.794	0.847
CP2	The enterprise receives government support through low-interest loans	0.788	1.894	0.840
CP3	The enterprise receives government support for trade promotion	0.833	2.155	0.831
CP4	The enterprise receives government funding for technological innovation	0.858	2.296	0.830
CP5	The government provides attractive tax incentives to the enterprise	0.803	1.994	0.843
CDS	Digital transformation: Cronbach's Alpha = 0.852			
CDS1	Businesses are fully capable of digitizing their entire operations and management processes.	0.747	1.695	0.814
CDS2	Businesses are fully capable of creating new value and experiences for customers on a digital platform.	0.800	2.049	0.797
CDS3	Businesses are fully capable of optimizing resource allocation and use on a digital platform.	0.892	2.890	0.781
CDS4	Businesses have the capacity to successfully implement digital transformation.	0.733	1.687	0.831
CDS5	Businesses can leverage digital transformation to improve performance.	0.790	1.711	0.809
KQ	Business performance of the enterprise: Cronbach's Alpha = 0.855			
KQ1	Digital transformation contributes to expanding the sales scale of businesses	0.805	1.962	0.819
KQ2	Digital transformation contributes to increasing business revenue	0.861	2.235	0.807
KQ3	Digital transformation contributes to increasing the gross profit of businesses	0.764	1.674	0.838
KQ4	Digital transformation contributes to increasing the net profit of businesses	0.795	1.873	0.821
KQ5	Digital transformation contributes to helping businesses develop new products or services	0.748	1.688	0.834

Table 2: Scale Reliability

Code	rho_a	rho_c	AVE
CL	0.882	0.912	0.674
CN	0.876	0.907	0.662
CP	0.883	0.904	0.654
LD	0.870	0.900	0.644
NV	0.869	0.910	0.716
TC	0.883	0.913	0.678
VH	0.900	0.919	0.655
CDS	0.862	0.895	0.631
KQ	0.866	0.896	0.633

Note: AVE = Average Variance Extracted

Internal consistency reliability was assessed using rho_A and composite reliability rho_C. The rho_A values ranged from 0.862 to 0.900, while the rho_C values ranged from 0.895 to 0.919, confirming satisfactory reliability. The results are presented in Table 2.

The square root of the AVE was 0.794 for CDS, 0.821 for CL, 0.814 for CN, 0.808 for CP, 0.795 for KQ, 0.803 for LD, 0.846 for NV, 0.824 for TC and 0.809 for VH.

The HTMT values ranged from 0.260 to 0.644, all below the threshold of 0.85, confirming discriminant validity (31). Common method bias was assessed using Harman's single-factor test. The first factor explained 32.59% of the total variance, which was below the 50% threshold. Therefore, common method bias was unlikely to represent a serious concern in this study.

Structural Model Assessment

The structural-model VIF values ranged from 1.000 to 1.921, indicating that collinearity among the predictor constructs was not a concern.

The SRMR values were 0.049 for the saturated model and 0.074 for the estimated model. Both values were below the recommended threshold of 0.08, indicating an acceptable model fit (31).

The analysis results show that the coefficient of determination (R^2) for DT was 0.466, meaning that the independent variables in the model explained

46.6% of the variance in DT. At the same time, the coefficient of determination (R^2) for business performance was 0.206, indicating that DT explained 20.6% of the variance in business performance. PLSpredict produced Q^2 predict values of 0.441 for digital transformation and 0.258 for business performance. Both values were above zero, confirming the out-of-sample predictive relevance of the model.

The effect size (f^2) analysis shows that the variables in the model exerted different levels of influence on DT and business performance. Among them, DT had the largest effect on business performance [0.260], confirming its important role in improving the operational performance of SMEs. This finding helps clarify the relative contribution of each factor in the model (32).

The bootstrap results show that leadership, employee capability, organizational culture, technological infrastructure, financial resources and digital transformation had statistically significant effects at the 5% level. Digital business strategy had a positive effect on digital transformation with $\beta = 0.086$ and $p = 0.060$, providing marginal support at the 10% significance level. Government support policies had $\beta = 0.058$ and $p = 0.224$ and were therefore not statistically significant. The detailed results are presented in Table 3.

Table 3: Bootstrap Estimation Results of the Structural Model

Hypotheses	Relationship	Original Sample (O)	Sample Mean (M)	STDEV	T- statistics	p- values	Result
H1	LD -> CDS	0.132	0.131	0.049	2.706	0.007	Supported
H2	NV -> CDS	0.185	0.185	0.053	3.450	0.001	Supported
H3	CL -> CDS	0.086	0.086	0.046	1.882	0.060	Marginally supported
H4	VH -> CDS	0.109	0.110	0.048	2.290	0.022	Supported
H5	CN -> CDS	0.091	0.092	0.045	2.030	0.042	Supported
H6	TC -> CDS	0.263	0.262	0.051	5.138	<0.001	Supported
H7	CP -> CDS	0.058	0.058	0.048	1.215	0.224	Not supported
H8	CDS -> KQ	0.454	0.456	0.045	10.025	<0.001	Supported

Note: STDEV = Standard Deviation

Digital transformation transmitted the effects of leadership, employee capability, organizational culture, technological infrastructure and financial resources to business performance at the 5% significance level. The indirect effect of digital business strategy was marginally significant at the 10% level, with $\beta = 0.039$ and $p = 0.067$. Government support policies did not generate a

significant indirect effect, with $\beta = 0.026$ and $p = 0.235$. Thus, the proposed indirect transmission mechanism was supported for most internal determinants.

Because direct paths from the antecedent constructs to business performance were not specified, the results establish indirect

transmission through digital transformation but do not distinguish between full and partial

mediation. The detailed indirect effects are presented in Table 4.

Table 4: Indirect Effects on Business Performance

Relationship	Original Sample (O)	Sample Mean (M)	STDEV	T statistics	P values
CL -> CDS -> KQ	0.039	0.039	0.021	1.833	0.067
CN -> CDS -> KQ	0.041	0.042	0.021	1.981	0.048
CP -> CDS -> KQ	0.026	0.027	0.022	1.187	0.235
LD -> CDS -> KQ	0.060	0.060	0.024	2.526	0.012
NV -> CDS -> KQ	0.084	0.084	0.026	3.202	0.001
TC -> CDS -> KQ	0.119	0.119	0.026	4.519	<0.001
VH -> CDS -> KQ	0.049	0.050	0.022	2.200	0.028

Note: STDEV = Standard Deviation

The structural-model results indicate that leadership, employee capability, organizational culture, technological infrastructure and financial resources had positive and statistically significant relationships with digital transformation at the 5% level. Digital business strategy received marginal support at the 10% level. Government support policies did not have a statistically significant relationship with digital transformation. Digital transformation, in turn, had a positive and statistically significant relationship with business performance.

Discussion

The study identified the relationships between the endogenous latent variables and the exogenous variables in the structural model. The path coefficient results supported H1, H2, H4, H5, H6 and H8 at the 5% significance level. H3 received marginal support at the 10% level, whereas H7 was not supported.

Regarding hypothesis H1, leadership affects the DT of SMEs. This result indicates that leadership plays a crucial role in the DT process, as leaders are not only responsible for setting strategic direction but also serve as the driving force behind changes in managerial thinking, resource allocation and employee motivation to engage in the transformation process. The findings are generally consistent with previous studies (6, 26, 27). These studies indicate that leadership plays an important role in strategic technology decisions and in fostering an organizational environment that supports digital transformation. These studies all indicate that leadership plays a particularly important role in making strategic decisions related to technology while also fostering a culture of innovation within the enterprise.

Regarding H2, employee capability was found to influence DT among SMEs. This result implies that the transformation process is difficult to implement effectively when firms do not have employees with adequate digital skills, learning ability and readiness to adjust to new technologies. The result is in line with prior studies (6, 18, 26, 27). Previous studies have also confirmed that enterprises with highly capable employees are better able to adopt new technologies and change work processes more effectively, thereby promoting DT.

Digital business strategy had a positive but marginal effect on digital transformation at the 10% significance level. This result suggests that the existence of a digital strategy alone may not be sufficient to generate substantial transformation. SMEs need to translate strategic intentions into specific investment plans, assigned responsibilities, implementation schedules and measurable outcomes. The finding generally supports previous studies emphasizing the role of strategic orientation in digital transformation, although the relatively weak effect may reflect the limited formalization and implementation capacity of SMEs (6, 8, 20).

Regarding hypothesis H4, organizational culture affects the DT of SMEs. An organizational culture that is open to innovation, encourages learning, promotes data sharing and is willing to adapt to change will create favorable conditions for the implementation of DT. Conversely, if the organizational culture remains heavily rooted in traditional management practices, resists change and lacks a spirit of collaboration, the DT process will encounter many obstacles, such as decreased employee engagement, ineffective communication and an inability to leverage new technologies

effectively. The findings are generally consistent with previous studies (6, 8).

Regarding hypothesis H5, technological infrastructure affects the DT of SMEs. This demonstrates that technological infrastructure plays an important role in encouraging SMEs to undertake DT. The finding is consistent with previous evidence showing that technological conditions and infrastructure support digital transformation among SMEs (7, 10, 22, 26, 27). This result reflects the reality that a strong technological infrastructure is a key factor enabling SMEs to optimize work processes, enhance competitiveness and sustain long-term development in an increasingly digitalized business environment.

Regarding hypothesis H6, financial resources play an important role in promoting the DT of SMEs. This finding accurately reflects the reality of SMEs, as DT requires considerable investment in technological infrastructure, software, workforce training, process innovation and data security.

Government support policies did not have a statistically significant effect on digital transformation. This result does not necessarily indicate that public support is unimportant. Instead, it suggests that existing support may not have been sufficiently accessible, specific, or compatible with the needs and absorptive capacity of the surveyed SMEs. Enterprises may also have limited information about available programs or face administrative difficulties when accessing financial, technological and training support. This finding differs from previous studies showing that environmental and institutional support can facilitate digital transformation (7, 10).

Digital transformation had a positive effect on the business performance of SMEs. Digital transformation enables enterprises to improve operational processes, allocate resources more effectively, strengthen customer interaction, develop new products and services and respond more rapidly to market changes. The result confirms that digital transformation is not merely a technological investment but also an organizational mechanism through which enterprise resources are converted into performance outcomes. This finding is generally consistent with previous empirical evidence on the relationship between digital transformation and enterprise performance (11, 13-16, 18, 25).

Conclusion

This study examined the determinants of digital transformation and its relationship with the business performance of SMEs in the Mekong Delta.

Financial resources had the strongest effect on digital transformation, followed by employee capability and leadership. Organizational culture and technological infrastructure also had significant positive effects. Digital business strategy provided marginal support at the 10% significance level, whereas government support policies were not statistically significant. Digital transformation positively affected business performance and transmitted the effects of most internal determinants to performance outcomes.

The findings suggest that SMEs should treat digital transformation as an organizational investment rather than a stand-alone technology project. Enterprises should secure sustainable financial resources, strengthen employees' digital capabilities, maintain leadership commitment, promote knowledge sharing and improve technological integration. Digital business strategies should be translated into clear investment plans, operational responsibilities, implementation schedules and measurable performance targets. Policy agencies should replace broad support programs with accessible financial, advisory, training and implementation services that match the needs and absorptive capacity of SMEs.

Several limitations should be considered. The sample covered five selected localities and was equally allocated across them. Although this design ensured balanced geographical coverage, it did not reflect the actual distribution of SMEs across the Mekong Delta. Business performance was self-reported and measured in relation to digital transformation, which may increase the observed association between the constructs. The cross-sectional design also cannot capture the time lag between digital investment and performance outcomes. Future studies should use longitudinal or probability-based designs, include objective financial indicators, compare industries and localities and examine additional mediating or moderating mechanisms.

Abbreviations

AVE: Average Variance Extracted, DT: Digital Transformation, HTMT: Heterotrait-monotrait Ratio, PLS-SEM: Partial least squares structural equation modeling, SMEs: Small and medium-sized enterprises, SRMR: Standardized root means square residual, VIF: Variance inflation factor.

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Author Contributions

Nguyen Van Dinh: Conceptualization, Formal analysis, Writing - Original Draft, Writing - Review and Editing, Nguyen Tri Khiem: Writing - Review and Editing, Nguyen Van Tac: Methodology, Writing - Original Draft, Writing - Review and Editing. All authors have read and approved the final version of the manuscript.

Conflict of Interest

The authors declare no conflicts of interest.

Data Availability

The datasets used and analyzed during the current study are available from the corresponding author upon reasonable request.

Declaration of Artificial Intelligence (AI) Assistance

The authors used Grammarly only to check English grammar and readability. These tools were not used to write the manuscript, generate research content, conduct analysis, create data, or fabricate references. All arguments, citations, interpretations and conclusions were reviewed and approved by the authors. The authors take full responsibility for the accuracy, reliability, originality and academic integrity of the manuscript.

Ethics Approval

This study involved an anonymous questionnaire survey of owners and managers of SMEs. Participation was voluntary and based on informed consent. Respondents were informed about the purpose of the study, their right to decline or withdraw from participation and the confidential use of the collected data. No personally identifiable information was collected

and all responses were analyzed and reported only in aggregate form.

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