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SPECIAL ISSUE ARTICLE

Factors Affecting the Adoption of Information Technology in Medium and Small Enterprises: A Case Study in Mekong Delta, Vietnam

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Abstract

This research endeavors to discern the determinants influencing the adoption of information technology in the management practices of small and medium-sized enterprises (SMEs) situated within the Mekong Delta region of Vietnam. Leveraging the Unified Theory of Acceptance and Use of Technology (UTAUT), PLS-SEM, and ANN models, this study ranks the pivotal factors that impact the decision to integrate information technology into SME management. The identified factors, in order of significance, encompass (1) Support from State Agencies, (2) Managerial Qualifications, (3) Competitive Landscape, (4) Enterprise Scale, and (5) Employee Qualifications. The investigation encompasses 496 SMEs across the Mekong Delta and evaluates them based on 18 criteria. Notably, the findings underscore that the most influential factor shaping the decision to implement information technology in enterprise management is the level of support extended by State agencies.

Keywords: Information technology, Enterprise management, Small and medium-sized enterprises, Influencing factors

1. Introduction

Digital transformation is a key strategy to boost the national economy of Vietnam. The country has ambitious goals pushing for the digital economy to contribute 30 percent to the country's Gross Domestic Product (GDP) by 2030 (Tech Wire Asia, 2020). The digital economy of Vietnam has been fueled and accelerated by the global digital trends and the pandemic Covid-19. The movement of digital transformation is underway in every corner of Vietnamese life, strongly influencing the way people do things. The digital economy is the future of the Vietnam economy (Viettonkin Consulting, 2021). With specific localities in Vietnam, digital transformation is only to help the country grow richer but also to reduce risks and boost adaptation to climate change. Therefore, digital transformation must also pay attention to sustainable development (VNExpress, 2022).

The research on "Factors Affecting the Adoption of Information Technology in Medium and Small Enterprises: A Case Study in Mekong Delta, Vietnam" provides valuable insights into the dynamics of IT adoption among SMEs in the Mekong Delta.

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The main contributions of this research can be summarized as follows:

Understanding Adoption Barriers: The research identifies and analyzes the factors that hinder the adoption of information technology in SMEs. By examining the specific challenges faced by SMEs in Mekong Delta of Vietnam, the study sheds light on barriers such as infrastructure limitations, high costs, digital skills gaps, resistance to change, and lack of supportive policies. This understanding is essential for devising targeted strategies and interventions to overcome these barriers.

Informing Policy Development: The research findings offer policymakers in Vietnam a comprehensive understanding of the factors influencing IT adoption in SMEs. This knowledge enables them to design effective policies, regulations, and incentives to promote the adoption of information technology. For example, the research highlights the importance of providing financial support, simplifying regulatory procedures, and offering training programs to enhance digital skills among SME owners and employees.

Guiding Support Programs: The research provides valuable guidance for organizations and support programs aimed at assisting SMEs in their digital transformation journey. By identifying the challenges faced by SMEs, such as the lack of technical support and expertise, the study emphasizes the need for accessible and affordable support services. This information can inform the design and implementation of initiatives that provide SMEs with technical assistance, consultancy, and training to facilitate IT adoption.

Enhancing Competitiveness: The research contributes to enhancing the competitive-ness of SMEs in Vietnam by identifying the factors that can drive their successful adoption of information technology. Understanding these factors, such as the importance of organizational culture, mindset, and awareness, enables SMEs to proactively address these aspects and embrace digital transformation. By leveraging IT effectively, SMEs can improve their productivity, expand market reach, and enhance their overall competitiveness.

Fostering Economic Growth: The research findings have implications for the overall economic growth of Vietnam, especially for the Mekong Delta. By promoting IT adoption in SMEs, the country can capitalize on the potential of these businesses as engines of growth and employment. The research provides insights into the necessary conditions and interventions required to foster IT adoption among SMEs, thereby contributing to economic development, job creation, and sustainable growth.

2. Literature review

Venkatesh et al. (2003) developed the Unified Theory of Acceptance and Use of Technology (UTAUT) model, which identified determinants such as Effort Expectancy, Performance Expectancy, Social Influence, Facilitating Conditions, and moderating variables such as Gender, Age, Experience, and Voluntary Use. Effort Expectancy is defined as the ease of using the system; Performance Expectancy is defined as an individual's belief that using new systems will improve their work performance; Social Influence is defined as an individual's perception of the importance of being influenced by the perceptions of others that they should use the new system; and Facilitating Conditions are defined as an individual's belief that the organization's technical infrastructure is sufficient to support the new system.

Alam & Noor (2009) studied the variables influencing the adoption and usage of information technology by Malaysian small and medium-sized organizations (SMEs). The study examined the link between information technology adoption and five factors: benefit awareness, cost of technology training, technical knowledge and skills, external pressure, and government backing. The study polled 160 SMEs and used regression analysis to determine the impact of each element. The findings revealed that three positive elements influencing the use of information technology in SMEs were benefit awareness, technological knowledge and abilities, and government backing.

Ghobakhloo et al. (2011) conducted a study on the factors influencing the adoption and application of Information Technology in SMEs through a systematic review of 20 studies. The results showed that several key factors impacted the decision to adopt Information Technology in SMEs, namely: (1) years of operation, (2) type of business, (3) education level of the management, (4) quality of human resources.

Sargent et al. (2012) researched the factors that influence the intention to use information technology among individuals in companies to support the management in enhancing and improving technology adoption. The authors proposed a research model that includes factors from the Unified Theory of Acceptance and Use of Technology (UTAUT) and added two new factors: “Resistance to change” and “Support from top management.” The study's results showed that factors such as Perceived Effort, Facilitating Conditions, and Support from top management impacted individuals' intention to use information technology in the organization.

The study by Rahab & Hartono (2012) investigated the impact of leadership (innovativeness of the leader and IT knowledge of the leader), organizational factors (business size, IT literacy of employees, information intensity), and environmental factors on the decision to adopt information technology. The study surveyed 102 small businesses in Yogyakarta, Japan, using Structural Equation Modeling (SEM) to identify the impact factors. The study showed that the IT knowledge of the leader, the size of the business, and the information intensity had a significant positive impact on the small decision of businesses to adopt information technology.

Kim & Jee (2007) examine the relationship between IT usage and business performance in SMEs. The study surveyed SMEs and found that IT investment significantly impacts strategic IT usage, which in turn significantly impacts business performance. The intensity of market competition and partnership with other organizations also influences IT investment and strategic IT usage in SMEs. Management support is crucial for IT investment and strategic IT usage in SMEs, and a combination of member participation, flexible organizational structure, and culture is necessary for successful strategic IT usage in SMEs. Adegoke, B.B. (2007) studied the impact of organizational decisions on adopting internet-based technology in the staffing industry. The research found that staffing ad-ministrators' adoption of new IT is influenced by the personal perception of technology, technology motivation, and technology inhibitors, but not by organizational computing supports. The study also assessed the perceived importance and satisfaction level of selected information technology applications in the staffing industry. Finally, it analyzed differences in individual perceptions of technology innovation, motivation, and technology inhibitors among staffing industry administrators with different demographic profiles and behavioral characteristics.

Njeru, J.R. (2014) investigated the factors that influence the use of IT in telecentres in rural Kiambu County, Kenya. The study utilized a descriptive research design, collected primary data through questionnaires and interviews with 384 community members and 20 telecentre leaders, and analyzed the data using descriptive and inferential statistics. The study found that the qualifications of the staff, existing IT infrastructure, location of telecentres, and product mix offered by telecentres significantly influenced the use of IT. The study concluded that staff qualifications and computer skills, adequate facilities and infrastructure, and the variety of products and services offered in telecentres are essential for adopting and using IT in telecentres. The study recommended that the government and local authorities provide critical facilities and infrastructure that fit local needs to ensure the community accesses appropriate services in telecentres and offers supportive learning environments.

Especially for women entrepreneurs in Cameroon, Kala Kamdjoug et al. (2020) conducted the factors leading to the adoption of IT to support the development of women's entrepreneurship in sub-Saharan Africa (SSA). The authors used the technology- organization-environment (TOE) theoretical framework and added a fourth category: female managers' characteristics. The study surveyed 85 small, woman-managed Cameroo-nian firms in different cities by using a structured questionnaire. The results show that the innovativeness spirit of the manager mainly influences the adoption of IT by woman-managed enterprises. Surprisingly, none of the TOE variables were found to be significant. Therefore, the authors suggest that small firms in SSA may believe they are too small to benefit from costly IT investments, and training programs and an increase in networking are advisable.

3. Methodology

3.1. Research design

Based on the Unified Theory of Acceptance and Use of Technology (UTAUT) theory and studies by authors such as Ghobakhloo et al. (2011), Rahab & Hartono (2012), and Nghi et al. (2020), we inferred five main factors impacting the decision to adopt information technology in small and medium-sized businesses, including:

- State Agencies' support
- Manager's qualifications
- Level of competition
- Business size
- Employee qualifications

We designed the research model as shown in Fig. 1.

3.2. Data preparation

Raw data was collected through the following process: Step 1: Paying on-site visits to small and medium firms operating in the study region of the Mekong Delta. Step 2: Conducting the survey: Once the questionnaire has been written, the author runs a trial survey to ensure its applicability before adjusting it. Surveying small and medium-sized businesses after modifying the questionnaire to fit

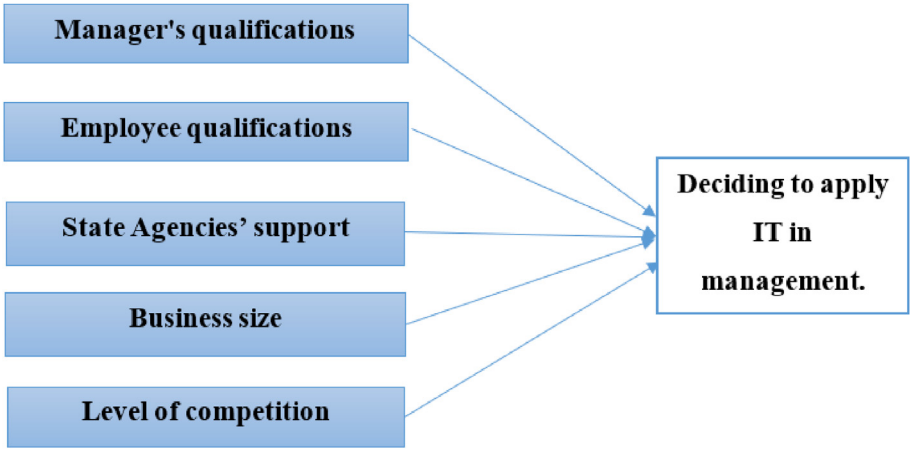

Fig. 1. Research model.

the circumstances: Interview executives of small and medium-sized businesses or Google Forms survey. Preprocessing data is described in Table 1.

Table 1 contains statistical data for various variables. Each row corresponds to a different variable, and each column provides specific statistics for those variables. Here's an explanation of the columns and their meanings: Variables: This column lists the names of the variables or data categories being studied. Each row represents a different variable, such as TDQL1, TDQL2, TDQL3, etc.

Mean: The "Mean" column displays the arithmetic mean or average value for each variable. It represents the central tendency of the data, indicating the typical value of that variable.

Standard Error: The "Standard Error" column represents the standard error of the mean (SEM) for each variable. The standard error quantifies the precision or reliability of the sample mean as an estimate of the population mean. Smaller standard errors indicate more precise estimates.

Standard Deviation: This column provides the standard deviation for each variable. The standard deviation measures the dispersion or spread of data points around the mean. Larger standard deviations indicate greater variability in the data.

Table 1. Table of variables.

Variables	Mean	Standard Error	Standard Deviation	Sample Variance	Kurtosis	Skewness	Range	Min	Max
TDQL1	4.056	0.03	0.674	0.454	−0.792	−0.067	2	3	5
TDQL2	3.824	0.032	0.706	0.498	2.883	−0.974	4	1	5
TDQL3	3.936	0.036	0.808	0.653	1.841	−0.981	4	1	5
TDQL4	4.072	0.035	0.772	0.596	2.293	−0.964	4	1	5
TDNV1	3.928	0.036	0.803	0.644	−0.632	−0.243	3	2	5
TDNV2	3.888	0.034	0.751	0.565	−0.261	−0.269	3	2	5
TDNV3	3.92	0.032	0.712	0.507	−0.063	−0.285	3	2	5
TDNV4	3.976	0.036	0.815	0.665	1.484	−0.847	4	1	5
HTCQ1	4.112	0.033	0.741	0.549	4.095	−1.37	4	1	5
HTCQ2	4.208	0.034	0.752	0.566	3.932	−1.384	4	1	5
HTCQ3	4.256	0.029	0.644	0.415	−0.703	−0.297	2	3	5
HTCQ4	4.128	0.034	0.759	0.577	3.241	−1.211	4	1	5
HTCQ5	4.144	0.034	0.757	0.572	3.414	−1.249	4	1	5
QMDN1	4.264	0.027	0.596	0.355	−0.54	−0.167	2	3	5
QMDN2	3.824	0.034	0.75	0.562	0.642	−0.387	4	1	5
QMDN3	3.984	0.031	0.693	0.481	2.377	−0.848	4	1	5
QMDN4	3.992	0.034	0.765	0.585	5.193	−1.389	5	1	5
MDCT1	3.936	0.03	0.667	0.445	0.967	−0.578	3	2	5
MDCT3	4.032	0.032	0.727	0.528	−0.358	−0.301	3	2	5
MDCT4	3.784	0.036	0.797	0.635	−0.214	−0.357	3	2	5
QDUD1	4.016	0.033	0.738	0.545	1.526	−0.746	4	1	5
QDUD2	4.256	0.025	0.565	0.319	−0.429	−0.03	2	3	5
QDUD3	4.112	0.029	0.648	0.42	1.382	−0.644	3	2	5
QDUD4	4.248	0.025	0.561	0.315	−0.39	−0.007	2	3	5

Sample Variance: The "Sample Variance" column shows the sample variance for each variable. Variance is a measure of how data points deviate from the mean. It is calculated as the square of the standard deviation.

Kurtosis: Kurtosis measures the shape of the distribution of data. Positive values of kurtosis indicate a more peaked or heavy-tailed distribution, while negative values suggest a flatter or light-tailed distribution. Values near zero indicate a normal distribution.

Skewness: Skewness measures the asymmetry of the distribution of data. Positive skewness indicates that the distribution is skewed to the right (positively skewed), while negative skewness indicates skewness to the left (negatively skewed). A skew of zero indicates a symmetric distribution.

Range: The "Range" column represents the range of values observed for each variable. It is calculated as the difference between the maximum and minimum values. It provides insight into the spread of data.

Min: This column displays the minimum observed value for each variable. It represents the lowest data point in the dataset for that variable.

Max: The "Max" column shows the maximum observed value for each variable. It represents the highest data point in the dataset for that variable.

3.3. Data analysis

3.3.1. Evaluation of the suitability of the measurement model

In the study conducted by Hair et al. (2013), it was recommended that observed variables should exhibit an outer loading value of 0.7 or higher to be considered meaningful. According to these authors, observed variables with outer loadings below 0.4 should be eliminated from the model. However, when the outer loading falls within the range of 0.4 to just below 0.7, the decision to retain or remove it depends on the researcher's assessment, taking into account indicators such as composite reliability (CR) and measures of convergence validity, such as Average Variance Extracted (AVE). Examining Table 2, it is evident that most of the external loading coefficients exceed 0.4. The only exception is the indicator variable QMDN1, which was removed due to its loading factor being below 0.4.

Furthermore, the evaluation of CR values exceeding 0.7 indicates excellent reliability for the latent variables, as suggested by Henseler and Sarstedt (2013). AVE values of 0.5 or higher ensure the convergence of the latent variables, as proposed by Höck et al. (2010). Consequently, the research team has chosen to retain observed variables with outer

Table 2. The reliability and value of the scale.

Code	Observed Variables	Outer Loadings	CR (AVE)
TDQL	Manager's qualifications ($\alpha = 0.757$)		0.77 (0.572)
TDQL1		0.774	
TDQL2		0.752	
TDQL3		0.74	
TDQL4		0.76	
TDNV	Employee qualifications ($\alpha = 0.777$)		0.813 (0.586)
TDNV1		0.754	
TDNV2		0.886	
TDNV3		0.881	
TDNV4		0.464	
HTCQ	State Agencies support ($\alpha = 0.869$)		0.937 (0.632)
HTCQ1		0.7	
HTCQ2		0.844	
HTCQ3		0.857	
HTCQ4		0.794	
HTCQ5		0.768	
QMDN	Scale of the enterprise ($\alpha = 0.711$)		0.869 (0.545)
QMDN2		0.424	
QMDN3		0.742	
QMDN4		0.951	
MDCT	Level of competition ($\alpha = 0.715$)		0.866 (0.631)
MDCT1		0.9	
MDCT2		0.492	
MDCT3		0.918	
QDUD	Deciding to apply IT in Management ($\alpha = 0.714$)		0.726 (0.538)
QDUD1		0.688	
QDUD2		0.696	
QDUD3		0.744	
QDUD4		0.8	

loadings ranging from 0.4 to just below 0.7 because of their significance in the research (specifically, MDCT2, QMDN2, TDNV4, QDUD1, and QDUD2).

In addition, the Cronbach's Alpha coefficient (α) exceeding 0.7 signifies good reliability of the scale. To assess scale discrimination, the Hetero Trait Single Ratio (HTMT) was employed. Garson (2016) suggests that a HTMT index below 1 guarantees adequate discrimination between two latent variables. The results reveal that, for all pairs of variables, the HTMT values are below 1, affirming the scale's effective discrimination.

In summary, from the above analysis results, we conclude that the scales used in the research model have achieved very good reliability and validity, using this scale for analysis in the structural model.

3.3.2. Evaluation of the suitability of the structural model

Hair et al. (2017) define multicollinearity as occurring when the variance inflation factor (VIF) exceeds 5. Wong (2013) further emphasizes that multicollinearity issues with latent variables arise when VIF is greater than 5 or less than 0.2. Our analysis results indicate that all VIF coefficients fall within the range of 1.005–1.166, signifying an absence of multicollinearity among the latent variables.

To assess the path coefficients of the structural model using the Bootstrapping method, we present the results for all hypotheses and relationships in Table 3.

For hypothesis 1, the findings demonstrate that Manager's qualifications positively influence the decision to apply IT in Management, with a regression weight of 0.245 and a p-value of 0.000, which is less than 0.05. These results align with previous research outcomes.

Regarding hypothesis 2, the results indicate that Employee qualifications also have a positive impact on the decision to apply IT in Management, with a regression weight of 0.115 and a p-value of 0.005, in accordance with earlier research.

For hypothesis 3, the results reveal that Manager's qualifications positively affect the decision to apply IT in Management, with a regression weight of 0.245 and a p-value of 0, which is less than 0.05, consistent with prior research.

Hypothesis 4 demonstrates that State Agencies support positively influences the decision to apply IT in Management, with a regression weight of 0.364 and a p-value of 0, again confirming previous research findings.

Regarding hypothesis 5, the results indicate that Scale of the enterprise has a positive effect on the decision to apply IT in Management, with a regression weight of 0.124 and a p-value of 0.003, aligning with previous research results.

Lastly, hypothesis 6 reveals that Level of competition positively affects the decision to apply IT in Management, with a regression weight of 0.163 and a p-value of 0.003, in line with prior research.

Additionally, Table 3 illustrates that State Agencies' support exerts the strongest impact on the decision to apply IT in Management, followed by Manager's qualifications, Level of competition, Scale of the enterprise, and Employee qualifications.

The analysis results, as depicted in Fig. 2, reveal that the model explains 33% of the variance (R Square), indicating a moderate level of explanatory power (Höck et al. (2010)). When evaluating the impact coefficients (f^2), it becomes evident that the support provided by the State agency exerts a significant impact on the decision regarding IT application in Management, with a moderate effect size of 0.19 (>0.15).

In contrast, the Manager's qualifications, Level of competition, and Scale of the enterprise have relatively smaller impacts on the decision to apply IT in Management, with effect sizes of 0.077, 0.038, and 0.023, respectively. These effect sizes fall within the range of greater than 0.02 but less than 0.15, indicating a modest influence.

Notably, Employee qualifications are found to have no discernible impact on the decision to apply IT in Management, as the effect size (f^2) is minimal at 0.018 (<0.02), in accordance with Cohen's (1988) criteria.

3.3.3. Analysis of ANN

In the preceding steps, we utilized Partial Least Squares (PLS) to identify statistically significant predictors. In this phase, we leverage the critical

Table 3. The relationship between the structures in the model.

Hypothesis	Relationship	Original Sample (O)	P Values	Result
H1	TDQL - > QDUD	0.245	0	Not Reject
H2	TDNV - > QDUD	0.115	0.005	Not Reject
H3	HTCQ - > QDUD	0.364	0	Not Reject
H4	QMDN - > QDUD	0.124	0.003	Not Reject
H5	MDCT - > QDUD	0.163	0	Not Reject

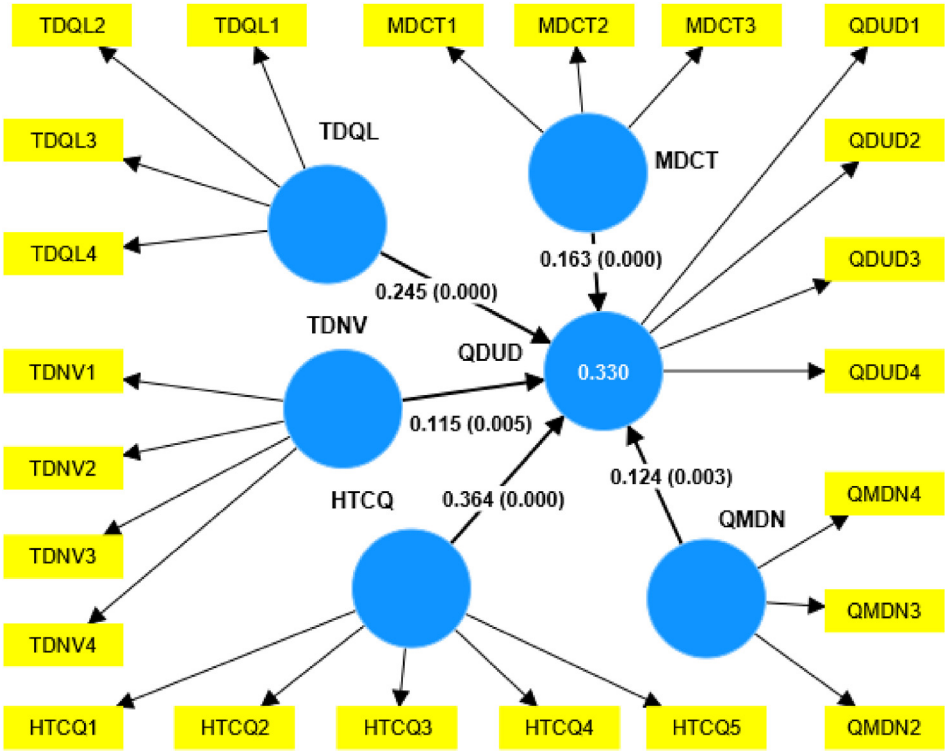

Fig. 2. Results of structural model evaluation from Smart PLS 4.

predictors extracted from the PLS-SEM path analysis as input neurons for our Artificial Neural Network (ANN) model. Consequently, the ANN model incorporates five key factors: Manager's qualifications, Employee qualifications, State Agencies' support, Level of competition, and Scale of the enterprise. The ANN model was implemented using a Multi-layer Perceptron (MLP) network within the SPSS 25 software environment (see Fig. 3).

Following the approach outlined by Leong et al. (2018), we allocated 90% of the dataset to the training process, reserving the remaining samples for testing. To mitigate the risk of overfitting, we conducted ten rounds of cross-validation and obtained the Root Mean Square Error (RMSE) as recommended by Ooi & Tan (2016).

Tables 4 and 5 present the mean RMSE values for both the training and test datasets, which are relatively small at 0.501 and 0.107, respectively. Additionally, the mean standard deviation values for the training and test datasets are also quite modest, measuring 0.023 and 0.015, respectively. These findings indicate that our model operates efficiently, providing highly accurate predictions. The parameter estimates are dependable, and all the input variables prove suitable for informing decisions regarding the application of IT in management.

The sensitivity analysis of the Artificial Neural Network (ANN), as demonstrated by Rodríguez-Ardura & Meseguer-Artola (2020), reveals the normalized importance of input factors, as presented in Table 6. It is evident that the key determinant in the decision to implement IT in management is the support from State Agencies, accounting for 100% importance. Subsequently, the Manager's qualifications hold substantial importance at 90.23%, followed by Level of competition at 67.23%, Scale of the enterprise at 60.73%, and Employee qualifications at 59.91%

A comparative examination of the outcomes derived from the Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis, specifically the path coefficients, and the results obtained from the ANN analysis, concerning normalized relative importance, is illustrated in Table 7. Notably, both analytical approaches yield congruent findings, under-scoring the significance of State Agencies support, followed by Manager's qualifications, Level of competition, Scale of the enterprise, and Employee qualifications. Consequently, the ANN analysis reinforces the conclusions drawn from the PLS-SEM analysis, affirming the validity of the research model and confirming the high predictive accuracy of the model, as posited by Rodríguez-Ardura & Meseguer-Artola (2020).

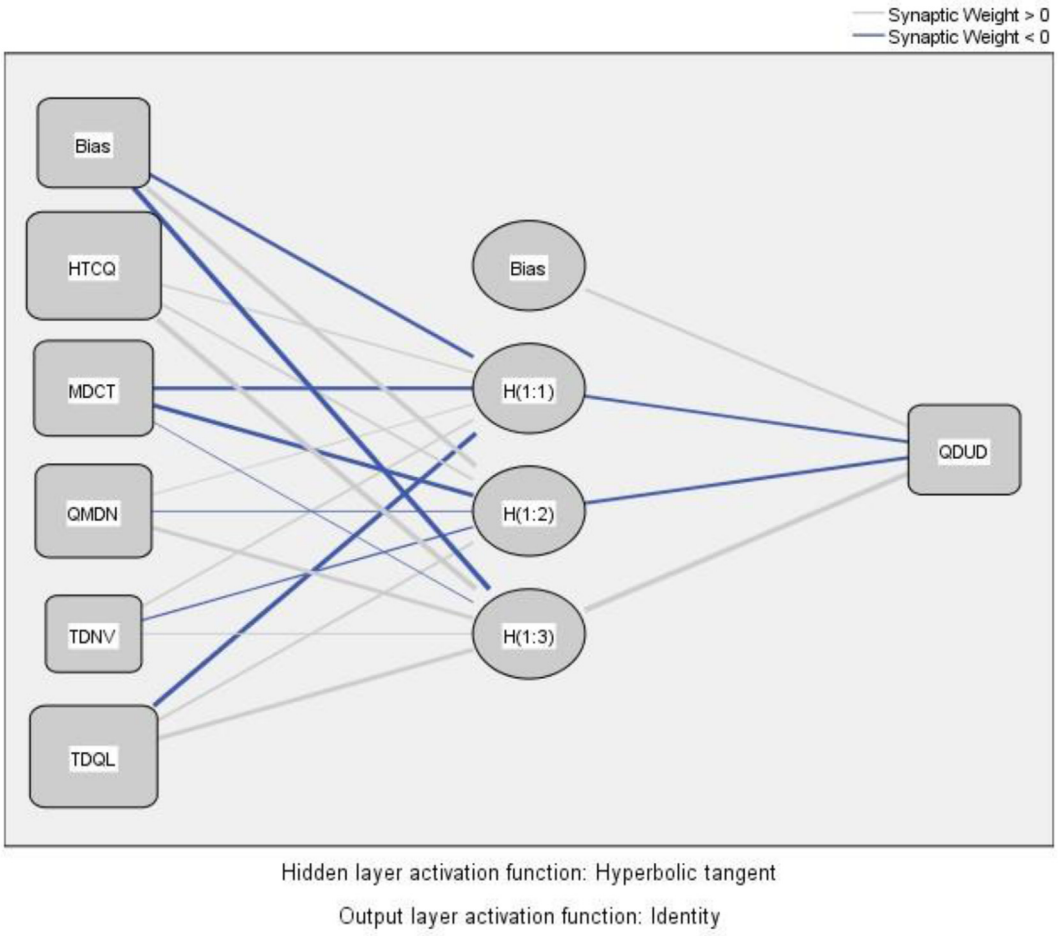

Fig. 3. ANN model from SPSS software.

Consequently, drawing from the outcomes of the multi-analysis approach, it can be affirmed that the research model is aptly constructed. The pivotal factors influencing the decision to implement IT in management, in order of significance, include State Agencies support, Manager's qualifications, Level of competition, Scale of the enterprise, and Employee qualifications.

4. Finding and discussion

From the data analysis above, we can draw the following key conclusions and feasible solutions to promote the application of information technology in small and medium-sized enterprises in the Mekong Delta of Vietnam:

Table 4. Testing outcomes.

N	SSE	RMSE
457	103.854	0.477
453	111.541	0.496
445	115.122	0.509
474	118.674	0.5
460	106.448	0.481
443	114.336	0.508
443	106.814	0.491
446	100.684	0.475
455	128.504	0.531
461	137.242	0.546
Mean		0.501
Standard deviation		0.023

Table 5. Testing outcomes.

N	SSE	RMSE
43	0.456	0.103
47	0.494	0.103
55	0.591	0.104
26	0.502	0.139
40	0.464	0.108
57	0.517	0.095
57	0.483	0.092
54	0.453	0.092
45	0.566	0.112
39	0.597	0.124
Mean		0.107
Standard deviation		0.015

Table 6. ANN sensitivity analysis.

Network	TDQL	TDNV	HTCQ	QMDN	MDCT
1	82.3	77.1	100.0	53.7	73.7
2	99.3	64.6	100.0	59.3	71.6
3	100.0	60.6	95.6	50.5	72.7
4	85.7	55.1	100.0	40.6	57.8
5	100.0	55.3	88.9	43.6	65.4
6	79.0	58.1	100.0	48.5	71.1
7	70.1	71.2	100.0	61.4	79.6
8	100.0	62.3	78.1	64.7	50.8
9	84.3	13.8	100.0	59.5	65.8
10	63.9	56.0	95.7	100.0	35.6
Average Importance	86.5	57.4	95.8	58.2	64.4
Normalized Importance	90.23	59.91	100.0	60.73	67.23

Firstly, the support from the State agency plays a crucial role in deciding the application of information technology in business management. The level of education and expertise of both managers and employees are the two most important factors, along with the level of competition. If businesses focus on investing in and improving the skills of their employees, as well as taking advantage of the support policies from the government, they can enhance their competitiveness in the market and improve management efficiency.

Secondly, the application of information technology in business management is a significant factor that helps to enhance management efficiency, save time, and reduce costs. It is gratifying that currently, small and medium-sized enterprises in the Mekong Delta of Vietnam have understood this and are actively investing in and developing information technology systems to improve labor productivity and enhance competitiveness.

Besides that, applying information technology in management also helps businesses manage and control their operations more accurately and effectively. For example, business management software helps businesses manage their data, customer information, products, and services more quickly and conveniently. This helps companies to make more accurate business decisions and optimize production and distribution processes, thereby enhancing competitiveness and improving business efficiency.

However, applying information technology in management also requires businesses to invest a considerable amount of money in purchasing, installing, and operating software and hardware systems, as well as training and improving the skills of their employees. This can put financial pressure on small and medium-sized businesses, especially in the context of the post-COVID-19 pandemic difficulties affecting the economy and businesses. Therefore, to ensure the most effective application of information technology in management, companies should develop appropriate investment strategies and wisely utilize existing resources.

Table 7. Comparison of PLS-SEM and ANN results for factors.

Factors	Coefficient	PLS-SEM	Normalized (%)	ANN
HTCQ	0.364	1	100.0	1
TDQL	0.245	2	90.23	2
MDCT	0.163	3	67.23	3
QMDN	0.124	4	60.73	4
TDNV	0.115	5	59.91	5

Furthermore, applying information technology in management can bring many other benefits, such as enhancing transparency and accuracy and improving customer experience and risk management. However, businesses must develop clear strategies and plans suitable for their needs to achieve these benefits.

Finally, to achieve the benefits of applying information technology in business management, businesses need to take advantage of support policies from the Government and state management agencies to promote the application of information technology in business management. These policies may include training support programs, software and hardware sponsorship, or other policies to help businesses effectively access and use information technology in their management.

5. Conclusions

In conclusion, the adoption of information technology in managing small and medium-sized enterprises in the Mekong Delta of Vietnam represents an undeniable contemporary trend. This decision is subject to a multitude of both subjective and objective factors. The research findings highlight that, among the five primary factors comprising 18 specific criteria, the pivotal determinants influencing the choice to integrate IT into management, in descending order of importance, encompass State Agencies support, Manager's qualifications, Level of competition, Scale of the enterprise, and Employee qualifications.

In addition to the solutions and benefits mentioned above, the application of information technology in managing small and medium-sized enterprises has much potential in the future. With the development of information and communication technology, businesses can take advantage of new technologies such as artificial intelligence, blockchain, and the Internet of Things to improve business efficiency. For example, artificial intelligence can help automate production processes, analyze customer data, and enhance market trend prediction. Blockchain can help improve security

and transparency in data management, especially in finance and banking. The Internet of Things can help businesses monitor and manage production and transportation processes more accurately and efficiently.

However, applying information technology in business management also presents many challenges, especially for small and medium-sized enterprises. This requires busi-nesses to invest a significant amount of money in purchasing, installing, and operating software and hardware systems, as well as training and improving the skills of their employees. Businesses should have a suitable investment strategy, wisely utilize existing resources, and make investment decisions based on the actual needs of the business. In addition, the application of information technology also requires businesses to establish policies and regulations to ensure data security and effective data management.

In the future, the application of information technology in management at small and medium-sized enterprises will continue to develop and become an undeniable trend. Also, businesses must take appropriate preparation and investment steps to ensure the effectiveness and sustainability of applying information technology in management. Therefore, businesses need to have a specific strategy to evaluate the needs and goals of the business, as well as to seek appropriate information technology solutions to address challenges and improve the management process of the business.

Conflict of interest

There is no conflict of interest.

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