

Factors Affecting the Decision to Adopt Information Technology in Enterprise Management: The Case of Can Tho City, Vietnam

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ABSTRACT

This study aims to determine the factors affecting the decision to apply information technology (IT) in enterprise management in Can Tho City. Research data were collected using a quota sampling with a sample size of 446 active enterprises. By applying the binary logistic regression, the study shows that the factors that influence the decision to use IT in enterprise management are the manager's qualification, the employees' qualification, support policies, level of competition, the size of customers and partners. In particular, the employees' professional qualifications most strongly influence the decision to apply IT in enterprise management in Can Tho City.

Keywords: application, information technology, management, enterprise

1. INTRODUCTION

The 4.0 Industrial Revolution has a strong impact on most industries, namely business, transportation, finance - banking, education, health, agriculture, etc. It is both a challenge and an opportunity for business owners to take advantage of technological changes. Currently, information technology (IT) is existing and plays a crucial role in the administration process of the production and business activities of each enterprise. The development and application of IT have changed business models and ways of doing business. The transition from traditional transactions to online transactions has affected the position of elements in the supply chain of enterprises.

The business community in Vietnam, especially in Can Tho City, is racing to participate in the digital transformation, which is a process to use technology to change operational procedures and streamline management processes, to improve labor efficiency and save management costs. Many organizations have changed their business from the traditional style to the digital transformation. Using IT solutions in governance has optimized the supply chain systems. Moreover, thanks to the application of IT in administrative processes, some enterprises develop rapidly while remaining a streamlined scale and a lightweight governance model. Therefore, the effective application of IT in management is now considered one of the solutions in the corporate operation. The question is which factors affect the decision to apply IT in enterprise management in Vietnam, especially in Can Tho City.

2. RESEARCH HYPOTHESES

According to Kapurubandara and Lawson (2006), IT offers opportunities and provides solutions to overcome challenges that an organization faces in an ever-changing environment. IT contributes to creating competitive advantages for enterprises and is defined as the main tool in management processes (Ion and Andreea, 2008). As reported by Attom (2013), the decision to apply IT in corporate management is influenced by many different factors, including years of

business, type of business, line of business, education level of managers, and quality of human resources. The IT application decision in business management is affected by the qualifications of managers/business owners (Hartono, 2012) and the qualifications of employees (Alam and Noor, 2009). Besides, according to Ghobakhloo et al. (2011), factors related to business size, government support policies, the level of competition of product markets impact the decision to apply IT to business administration.

Based on the literature review, the study used group discussions (qualitative research) with five experts and five corporate executives. The discussion results have set out six hypotheses. H1: The size of

the enterprise positively influences the decision to apply IT in enterprise management. H2: The professional qualification of the manager has a positive impact on the decision to adopt IT in enterprise management. H3: The education level of employees positively affects the decision to apply IT in enterprise management. H4: Support policies positively impact the decision to use IT in enterprise management. H5: The level of competition positively affects the decision to apply IT in enterprise management. H6: The size of customers and partners positively influences the decision to apply IT in enterprise management. Thus, the research model was proposed as follows:

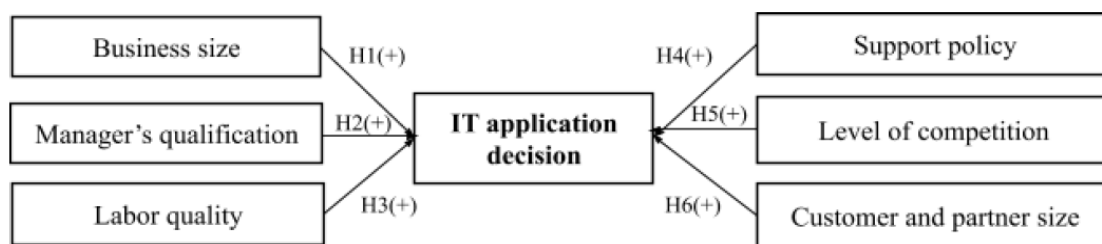


Figure 1: The proposed research model

3. RESEARCH METHODOLOGY

The descriptive statistic with the criteria of mean, standard deviation, min, max was used to describe the characteristics of active enterprises in Can Tho City. The binary logistic regression was adopted to identify factors affecting the decision to apply IT in the management of enterprises in Can Tho City.

According to Green (1991), Tabachnick and Fidell (1996), the minimum sample size in the regression analysis is calculated using the formula $50 + 8m$ (m is the number of independent variables). The research model was set up with six independent variables, so the minimum sample size should be 98 observations. Quota sampling was used to collect research data. The total number of observations achieved was 446 enterprises. In the survey process, the criteria to classify enterprises include the firm size, line of business, type of business, and business performance.

4. RESEARCH RESULTS AND DISCUSSIONS

4.1 Characteristics of surveyed enterprises

According to the survey result, most enterprises are micro and small enterprises. Micro-enterprises account for the highest proportion (in which, 54.81% of them apply IT in management). In the medium and large-sized enterprise group, the proportion of them using IT in management (4.81%) is higher than not applying IT in management (2.52%). Regarding the business age, most enterprises do not have much seniority and experience, which is reflected in the low operating time (from 1 to 10 years). Among enterprises established from 1 to 5 years, the number of enterprises not applying IT in management accounts for 35%, and enterprises with IT applications in management account for over 32%. In general, enterprises that apply IT in

management have more years of business than enterprises without IT applications. In terms of the type of business, most of them

are in the form of limited companies, of which 70% have IT applications in management.

Table 1: Characteristics of surveyed enterprises

Characteristic	With IT application in management		Without IT application in management	
	Quantity	Percentage (%)	Quantity	Percentage (%)
Micro-enterprise	114	54.81	135	56.72
Over 10 years of operation	72	34.62	81	34.04
Type of business (Limited company)	146	70.19	165	69.32

Source: Survey data, 2019

According to the survey, the average charter capital of non-IT enterprises is 26 billion VND, much lower than the charter capital of enterprises with IT application in management (49 billion VND). The total value of the fixed asset of enterprises with IT applications in administration is 12 billion VND while the fixed asset of enterprises with no IT application has a value of 15 billion VND.

Regarding the labor structure of enterprises, each enterprise without IT application in management has 20 employees on average, while each enterprise applying IT in administration has 41 employees. Most of them are direct labor

force (about 83% for IT enterprises and 80% for non-IT enterprises). The number of employees with a high-school level of education accounts for a high proportion in the labor structure of enterprises without IT application (over 40%), followed by employees with university degrees (over 33%) and intermediate levels (15%). For enterprises adopting IT in business management, workers with bachelor degrees comprise the highest proportion (over 42%), employees with high-school levels constitute 35%. Employees that have intermediate and college levels account for 12.46% and 9.57%, respectively.

Table 2: Capital and labor sources of surveyed enterprises

Criteria	With IT application in management		Without IT application in management	
	Mean	Standard deviation	Mean	Standard deviation
Total capital (billion VND)	48.67	171.53	25.38	106.21
Fixed asset (billion VND)	15.68	56.28	12.05	51.09
Total employee (person)	41.22	173.53	20.42	65.21
Direct labor (%)	82.65	25.12	80.76	26.23

Source: Survey data, 2019

4.2 Factors affecting the decision to apply IT in enterprise management

Before the hypothesis test, a correlation test is performed to determine the degree of correlation between independent variables. The results show that all values are less than 0.8, so the multicollinearity in the model can be ignored. The binary logistic regression gives the following results: (1) The conformity test has the significance level Sig. = 0.00, so the study rejects hypothesis Ho. That is, there exists linear relationships between the variables in the model and the “decision to apply IT in management” factor; (2) The percentage correct of the model is 70.2%, this is an appropriate rate for a binary regression model.

Table 3: Analytical result of binary logistic regression

Variable	Estimated coefficient	P-value	Exp(B)
Constant	-8.851	0.000	0.000
Business size (X1)	0.072	0.609	1.074
Manager's level of education (X2)	0.449	0.005	1.567
Employees' level of education (X3)	0.761	0.000	2.140
Support policy (X4)	0.419	0.005	1.520
Level of competition (X5)	0.433	0.005	1.542
Customer and partner size (X6)	0.417	0.022	1.517
Sig.			0.000
Percentage correct (%)			70.20

Source: Survey data, 2019

Based on Table 3, out of six independent variables included in the model, five variables are statistically significant. In other words, these five variables affect the decision on IT applications of enterprises. They are the manager's level of education, employees' level of education, support policy, level of competition, and customer and partner size. In particular, the business size variable (X1) is not statistically significant, which shows that the size of the enterprise does not influence the decision to apply IT in enterprise management. The levels of impact of the remaining factors are explained below.

The study accepts hypothesis H2 at a 1% significance level which confirms that the education level of the manager positively influences the decision to apply IT in corporate management. If the manager is highly qualified, he or she can be fully aware of the necessity of IT application in enterprise management. Therefore, this quickly promotes demand and decision-making behavior to apply IT in the management of enterprises.

The hypothesis H3 is accepted at a significance level of 1%, this suggests that the qualifications of employees positively affect the decision to apply IT in enterprise management. If the workforce is highly qualified, the operation of IT systems will be more convenient and the deployment of the management system through IT will be faster. Thus, it helps enterprises make decisions on IT applications in management.

Accepting the hypothesis H4 at 1% significance level proves that support policies positively influence the decision to apply IT in business management. As enterprises receive a practical orientation from the government and local authorities, they will be more proactive in accessing new technologies and aware of the benefits of the support. Thereby decisions of IT applications in management can be made earlier.

The study agrees with the hypothesis H5 at 1% significance level, which means that the level of competition positively affects the decision to apply IT in enterprise management. When facing fierce competition in the market, business owners are always looking for effective ways to manage costs and human resources. IT is the indispensable solution that they need at this time. This motivates enterprises to make IT application decisions as soon as possible.

The H6 hypothesis is accepted at a 1% significance level, this shows that the size of customers and partners positively affects the decision to apply IT in enterprise management. When enterprises own a large number of customers and partners, traditional management is not feasible and negatively affect customer care or maintaining good partnerships. Hence, the application of IT to business administration contributes to improving the quality of customer relationship management activities.

5. CONCLUSION

Overall, the business community in Can Tho City is not fully aware and concerned about the application of IT into management systems. The study has pointed out factors affecting the decision to apply IT in enterprise management are the professional qualifications of managers, employee's level of education, support policies, degree of competition, and customer and partner size. In which, the education level of employees most strongly influence the decision to apply IT in the management of enterprises in Can Tho City.

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