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## Research on factors affecting the application of E-commerce in small and medium enterprises in Ho Chi Minh City

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### Abstract

E-commerce is increasingly asserting its role in bringing better business performance to small and medium-sized enterprises, as well as allowing small and medium-sized enterprises to compete with larger enterprises. Applying e-commerce in business is a topic that many businesses, especially small and medium-sized enterprises, are very interested in. The article aims to systematize the theoretical basis as well as identify the factors affecting the application of e-commerce, the case study in small and medium-sized enterprises in Ho Chi Minh City. The article uses quantitative and qualitative research methods with tools such as the scale of influencing factors tested by the reliability coefficient Cronbach's Alpha, exploratory factor analysis EFA and multivariate regression analysis through statistical software SPSS. The results of this study contribute to helping small and medium-sized realize the importance and benefits of e-commerce application in their development strategy and managers of small and medium-sized enterprises to consult to plan e-commerce development strategies.

**Keywords:** Application of e-commerce, small and medium-sized enterprises in Ho Chi Minh City, multivariate regression analysis

### Introduction

In the context of economic integration and development, Ho Chi Minh City has constantly created a favorable and breakthrough investment environment to encourage and support the development of small and medium-sized enterprises, especially in the field of e-commerce. In recent years, e-commerce has been widely applied in small and medium-sized enterprises in Ho Chi Minh City. However, small and medium-sized enterprises always face difficulties in terms of capital, human resources, and legal basis to deploy e-commerce (Ministry of Industry and Trade, 2021, 2022) [2, 3]. The limited understanding of the benefits of e-commerce as well as the fear and lack of initiative in changing business direction. have partly hindered the application of e-commerce in small and medium-sized enterprises. Therefore, studying the factors affecting the application of e-commerce in small and medium-sized enterprises in Ho Chi Minh City is really necessary to help small and medium-sized enterprises make appropriate decisions to apply e-commerce.

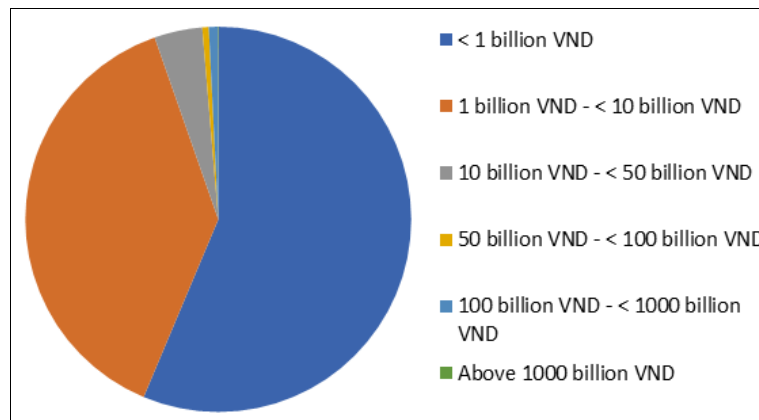
### Theoretical Background & Literature Review

Research by some authors in the world on e-commerce has been built and developed on the basis of a grouping of technical, organizational, environmental and leadership characteristics (Anh Thu, 2012) [6]. These factors are tested and confirmed to have an impact on e-commerce integration in small and medium-sized enterprises. And success in the application and development of e-commerce in small and medium enterprises often involves: (1) The role of business leaders: The more awareness and active support of leaders, the more favorable the e-commerce application process of enterprises. (2) The role of the industry as an information source, infrastructure, and the higher the pressure of suppliers and buyers, the more it promotes e-commerce application businesses. (3) Internal resources such as financial, technical and human resources are the main factors that facilitate the application of e-commerce (Minh Hien, 2007) [7].

**Current status of E-commerce application of small and medium enterprises in Ho Chi Minh City**

As of December 2009, there are 11,927 businesses registered in Ho Chi Minh City; including 11,746 private

enterprises; 7 local state-owned enterprises; 174 FDI enterprises. Total registered capital is 29,574.6 billion VND, an average of 2,479 billion VND/enterprise (except FDI enterprises).



**Fig 1:** Distribution of enterprise capital in Ho Chi Minh City (Ministry of Industry and Trade, 2014) <sup>[1]</sup>

**About information technology infrastructure:** On average, each enterprise has 12.5 computers. 47% of businesses have an intranet and 74% of businesses have an internet connection.

**About the perception of business leaders:** The perception of the effectiveness of the application of information technology by business leaders is still unclear.

**About software application in business management:** The application software for accounting management, document management, customer management, human resources, salary is currently being widely applied. Some businesses have spent more than 5% of total operating costs on digitization and e-commerce.

**About the application of information technology, e-commerce in enterprises:** 86.5% of small and medium-sized enterprises apply information technology for office work, 40% of enterprises have websites, 13% focus on e-commerce.

**About human resources for information technology and e-commerce for businesses:** The whole city has about 9,000 people working in the field of information technology, 25 universities, colleges and vocational training schools in information technology.

Similarly, policies to support enterprises in applying information technology and developing e-commerce: Ho Chi Minh City has issued a number of documents directing the application of information technology and development of e-commerce such as decision 4328/QD-UBND in 2020 approving the Project on Developing the e-commerce industry in Ho Chi Minh City to 2025 (Ministry of Industry and Trade, 2022) <sup>[3]</sup>.

The application of e-commerce in small and medium-sized enterprises in Ho Chi Minh City has achieved some encouraging results. The city has focused on investing in

building infrastructure for e-commerce. Training, consulting, propaganda, and seminars on e-commerce are promoted. However, there are still certain shortcomings that are the perception of business leaders about the effectiveness of e-commerce business despite the high rate of internet connection. Businesses have not oriented applications towards e-commerce, and the team of highly qualified information technology specialists is very lacking. The application of e-commerce in small and medium-sized enterprises in Ho Chi Minh City is only at a primitive level and the effectiveness of the application of e-commerce in business is not high (Ministry of Industry and Trade, 2021) <sup>[2]</sup>.

**Research Hypotheses and Models**

Based on the literature review, the author forms a hypothesis for the study of factors affecting the application of e-commerce in small and medium-sized enterprises in Ho Chi Minh City, divided into 4 groups: organizational factors, external environment, technological innovation and leadership characteristics (Choi, 2007; Chan, 2004; Hariandi, 2019) <sup>[8, 9, 10]</sup>.

**Hypothesis H1:** Technological innovation has a positive impact on e-commerce application in small and medium-sized enterprises in Ho Chi Minh City.

**Hypothesis H2:** Organizational factors have a positive impact on e-commerce application in small and medium-sized enterprises in Ho Chi Minh City.

**Hypothesis H3:** External factors have a positive impact on e-commerce application in small and medium-sized enterprises in Ho Chi Minh City.

**Hypothesis H4:** Leadership characteristics have a positive impact on e-commerce application in small and medium-sized enterprises in Ho Chi Minh City.

The model with 4 groups of factors affecting the application of e-commerce in small and medium-sized enterprises in Ho Chi Minh City is summarized in Figure 2 as follows.

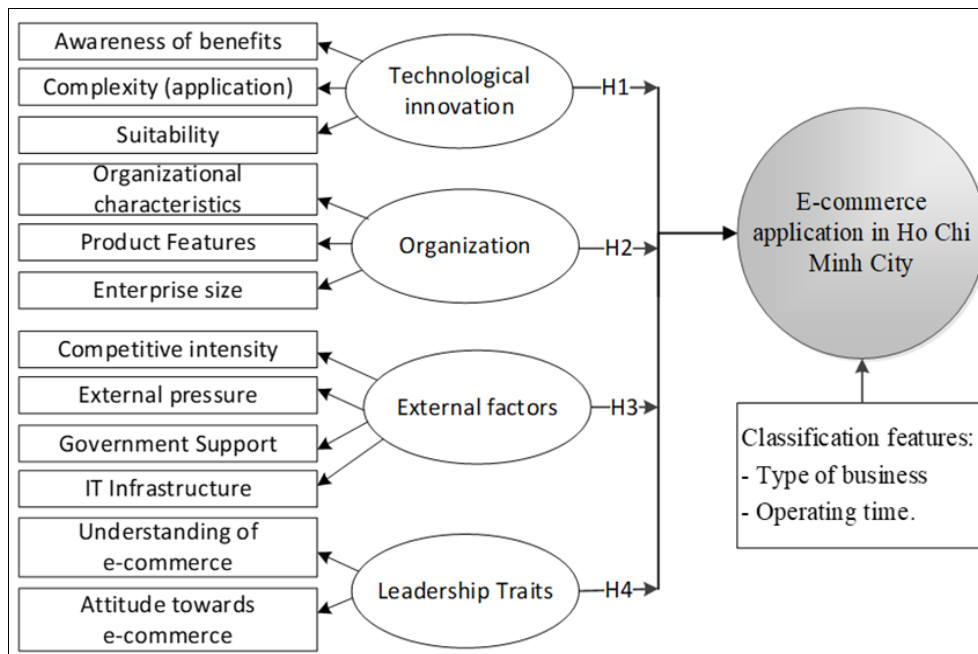


Fig 2: Research model Source: Author's proposal (2023)

**Research Methods**

Research, survey and evaluate the current status of e-commerce application in small and medium-sized enterprises in Ho Chi Minh City. From there, evaluate

current policies and based on policies and experiences in the world to suggest appropriate managerial implications. The detailed study procedure is shown in Figure 3 below.

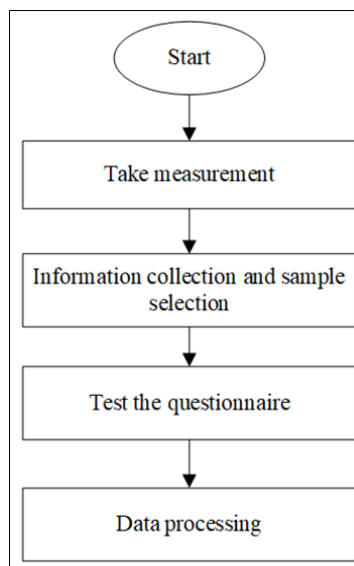


Fig 3: Research Process (Hung Anh, 2017) [4]

**Perform measurement:** The scale is specifically built through a survey questionnaire. The questionnaire consists of 4 parts, with 73 questions. Part A collects information about the business; Part B collects information related to e-commerce application in small and medium-sized enterprises; Part C collects factors affecting e-commerce application in small and medium enterprises; Part D contains demographic information.

**Information collection and sample selection:** Data was collected through survey of small and medium-sized enterprises in Ho Chi Minh city with direct interview technique and via email. The minimum sample size is 139

samples. Sampling is based on the distribution of small and medium enterprises in Ho Chi Minh City.

**Test the questionnaire:** The questionnaire was tested by convenient sampling with 10 questionnaires distributed to representatives of small and medium enterprises.

**Data processing:** Using statistical analysis software SPSS 16.0 to determine frequency, exploratory factor analysis EFA, test reliability by Cronbach's Alpha coefficient and multivariate regression analysis.

**Test the regression model and research results**

**Table 1:** Descriptive statistics of the regressors

Element	Acronym	Medium
Technological innovation	ĐMCN	3.1400
Awareness of benefits	NTLI	3.3726
Complexity (applicable)	SPT	1.3806
Suitability	SPH	1.1209
Organizational factors	YTTC	3.4049
Organizational characteristics	ĐĐTC	3.4305
Product Features	ĐĐSP	2.8972
Enterprise size	QMDN	2.7021
External factors	YTBN	2.8444
Competitive intensity	ĐĐCT	3.4228
External pressure	SEBN	3.5136
Government support	SHTCP	2.7902
IT infrastructure	CSHT.CNTT	2.9431
Leadership Traits	ĐĐLĐ	3.2143
Understanding of e-commerce	HB. TMĐT	2.0129
Attitude towards e-commerce	TĐ. TMĐT	1.9491

The results of the linear regression analyses show that 51.2% of the variation of e-commerce application factor was explained by 12 component factors (Figure 2).

The derived regression equation is:

$$\begin{aligned}
 \text{UDTMDT} = & 0,604 + 0,168 \times \text{ĐMCN} - 0,106 \times \text{NTLI} + \\
 & 0,085 \times \text{SPT} + 0,141 \times \text{SPH} + 0,107 \times \text{YTTC} + 0,156 \times \\
 & \text{ĐĐTC} + 0,240 \times \text{ĐĐSP} + 0,171 \times \text{QMDN} + 0,128 \times \\
 & \text{YTBN} + 0,117 \times \text{ĐĐCT} - 0,143 \times \text{SEBN} + 0,274 \times \\
 & \text{SHTCP} + 0,123 \times \text{CSHT.CNTT} + 0,109 \times \text{ĐĐLĐ} - 0,112 \\
 & \times \text{HB. TMĐT} - 0,221 \times \text{TĐ. TMĐT}
 \end{aligned}$$

Have not rejected the hypotheses H1, H2, H3, H4. Based on the results of regression analyses, the model shows the correlation between the model factors as shown in Figure 4. The model in this figure is also the basis for experts to suggest managerial implications.

**Conclusions and Managerial Implications**

The formation of a research model on factor influence e-commerce application in Small and medium-size enterprises in Ho Chi Minh City plays a very important and necessary role in order to provide authentic solutions to help Small and medium enterprises make appropriate decisions to apply e-commerce to improve their competitiveness, at the same time, it helps state management agencies to have positive solutions to support small and medium-sized enterprises in the city to apply e-commerce.

With the above analysis results, it is clear that the application of e-commerce in small and medium-sized enterprises in Ho Chi Minh City is affected by many factors, which are: Organizational factors; Product characteristics; Enterprise size; Knowledge of information technology and e-commerce of leaders; Managers' attitudes towards information technology innovation; Competitive intensity; External pressure and help of large enterprises; Government support; Information technology infrastructure; Perceiving related benefits; The complexity of e-commerce applications.

Among those factors, in addition to external pressure, the intensity of competition requires each small and medium-sized enterprise to strengthen the promotion and further improve the organizational structure, develop a clear

strategic direction for e-commerce development, improve the understanding of e-commerce in the unit. Therefore, the support of the city government and state management agencies in ensuring the information technology infrastructure, legal mechanism and incentive policies is extremely important as it contributes to promoting the application and development of e-commerce in small and medium enterprises in Ho Chi Minh City.

**Managerial Implications**

Technological innovation has a coefficient  $\beta = 0.168$ , currently at a relatively high level (average value: 3.1400). Digital transformation and e-commerce are closely related. Digital transformation is the process of applying new technology to change the model from a traditional business to a digital one. Through that, operating methods, leadership, working processes and company culture will change. For successful e-commerce digital transformation, businesses cannot lack new technology solutions. The adoption of these solutions will increase the operational efficiency of the business, enhance the customer experience, and ensure the security of the network.

The organizational factor has a coefficient  $\beta = 0.168$ , currently at a relatively high level (average value: 3.4049). Enterprises need to prioritize research and development of their products to increase their competitive advantage in products in the fierce e-commerce market. Besides, it is necessary to restructure the organization and size of the business to better match the goals and strategies of the business when applying e-commerce.

The external factor has a coefficient  $\beta = 0.128$ , currently at an average level (mean value: 2.8444). Enterprises need to prioritize research and development of their products to increase their competitive advantage in products in the fierce e-commerce market. Besides, it is necessary to restructure the organization and size of the business to better match the goals and strategies of the business when applying e-commerce.

Leadership characteristics have a coefficient  $\beta = 0.109$ , currently at a relatively high level (mean value: 3.2143). The role of leadership in business occupies a very important position. Therefore, the application of e-commerce in enterprises will be greatly influenced by the leadership's understanding of the application of e-commerce as well as

their attitude towards e-commerce. From there, business leaders should have an open mind to e-commerce and accumulate a certain amount of knowledge about e-commerce.

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