

Uncertain Supply Chain Management

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Factors affecting logistics performance in e-commerce: Evidence from Vietnam

Nguyen Tien Minh^{a*}

^aVNU University of Economics & Business, Hanoi, Vietnam

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ABSTRACT

The objective of the study is to determine the factors affecting logistics performance in e-commerce in Vietnam. Vietnam's logistics industry with an estimated total value of USD 50-60 billion is currently growing rapidly (20-25%/year) and is forecast to maintain double-digit growth for at least the next 5-10 years, due to the breakthrough of the retail industry with the high penetration of the internet and the trend of online shopping. Research has shown 6 factors that have an impact on logistics performance: customer perception, technology and security, customer protection, electronic payment system, human resources, organization and administration. Analysis of factors affecting logistics performance to propose solutions to improve supply chain quality in e-commerce.

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1. Introduction

Today, with the appearance of smartphones and modern devices in the 4.0 technology industry, people's lives and habits gradually change. Along with the continuous development of the Internet, mobile devices, etc. commerce are also moving in a new direction, applying scientific achievements of 4.0 technology. Traditional commerce is gradually being replaced by E-commerce and this is a trend that is predicted to grow strongly in the future.

With the continuous development of e-commerce and the increasing demand of consumers, the development of Logistics in Vietnam has not kept pace to meet that demand. According to the Logistics report 2019 of the Ministry of Industry and Trade, the growth rate of e-commerce is 24% while the growth rate of logistics is only 12% - 14%, much lower than the growth rate of commerce electronics. That said, urgent measures are needed to improve logistics performance to promote the development of e-commerce - an industry that is trending in the world. Logistics service development is understood as development in breadth or development in depth. Expanding in breadth means increasing the size and sales of Logistics.

Vietnam's e-commerce industry in recent times has made many significant developments. In 2019, the number of people participating in e-commerce was 35.4 million people and generated revenue of more than 8 billion USD, in the list of 10 countries with the fastest growth of the e-commerce industry in the world. Along with the rapid development of the e-commerce market, businesses have also begun to pay attention to the development of logistics in e-commerce because this is an important factor determining the success or failure of enterprises in this field. To strongly develop e-commerce, it is indispensable for quality logistics services. The development of logistics services will help the circulation and distribution of goods be smooth, accurate and safe and is the basis for improving the competitiveness of e-commerce enterprises. Although the logistics sector has developed quite rapidly, according to the authors, academic studies on e-logistics in Vietnam are still very limited. Most of the studies focus on the activities and impacts of the logistics service industry in general at the national or provincial level. However, almost all of the above topics have not specifically mentioned the relationship between e-

* Corresponding author
E-mail address: tienguynm306@gmail.com (N. T. Minh)

commerce and logistics activities, especially the development of e-commerce, which will pose any problems for the development of e-commerce activities. logistics action. According to the statistics of the Vietnam E-commerce Association (2020), currently, although the awareness of the benefits of transactions through the e-commerce floor of the government and Vietnamese enterprises has improved significantly, the situation is still not clear. The application of software related to purchasing of Vietnamese enterprises is still quite limited. The government and businesses still mainly apply the traditional form of purchasing. In other words, forms of e-commerce such as B2B or B2G are quite new and account for a small market share in the total size of the e-commerce market in Vietnam. In addition, according to the announcement of the Vietnam Department of E-commerce and Digital Economy (2020), the percentage of Vietnamese users buying goods through foreign websites accounts for less than 30% of the total number of e-commerce transactions. This means that, at present, Vietnam's cross-border e-commerce activities are considered to have developed, but the size of Vietnam's e-commerce market is still determined by domestic e-commerce transactions.

2. Literature review

2.1. Customer perception

Perception is the process of selecting, organizing, and interpreting input, the sensations received through sight, sensation, hearing, smell, and touch, to create meaning (Yakup, 2011). Perception depends not only on physical stimuli but also on stimuli related to the surroundings and the condition of the individual involved. Perception of something is very dependent on stimuli and individuals. Triggers are physical characteristics such as size, weight, color, or shape, while personal factors are included in the process not only across the five senses but also in the process of experiencing the future. self and main motivation and expectations of the individual. Benefit, ease of use, self-efficacy, security, trust and perceived usefulness are the main factors that shape customer perception in online shopping (Brosch, 2010; Solvi, 2010; Fiske, 2018).

2.2. Technology and security

Online security, also known as web security in general, includes processes for validating business transactions, controlling access to resources such as websites for registered or selected users, encrypting communications and ensuring privacy and transaction efficiency (Panarello, 2018). Among the various concerns in using web services, web security has been a perennial concern among online shoppers. From the incidents that have happened, we can conclude that the lack of security and the fear of hackers are becoming the major influencing factors on their attitudes and intentions to purchase electronic goods. In view of these important factors, e-stores or e-retailers must uphold the importance of security on their website and ensure consumers' data is stored and protected. Appropriately (Wong, 2019; Chakraborty, 2016; Sharma, 2010).

2.3. Customer protection

The development of e-commerce has contributed significantly to mediating the display and disclosure of personal information through the internet. Through this unrestricted disclosure, it introduces the concept and debate of privacy in online shopping. Disclosure leaves people vulnerable to exploitation by others because information changes from privately owned to co-owned (Petronio, 2002). It claims that privacy is a serious issue in e-commerce from any research permitting. Many consumers then also began to become aware of privacy issues when making purchases over the internet (Yuniar, 2019). Consumer concerns about privacy in e-commerce transactions as they potentially lose control of their personal information (Metzger, 2007). When making a purchase decision, consumers must provide personal information such as home address, phone number or credit card number. Concerned consumers find it difficult to control what information is presented or submitted later (Glover and Benbasat, 2011). The fact that e-commerce parties do not have security guarantees will cause consumers' personal information to be distorted.

2.4. Electronic payment system

An electronic payment system is a method of payment via an electronic network such as the internet (Yu, 2002; Okifo, 2015). In other words, we can say that electronic payment is a method by which a person can make Online Payment for his or her purchase of goods and services without transferring cash and checks, any tell time and place. Electronic payment system is the basis of online payment and development of online payment system is a higher form of electronic payment (Jing, 2009; Singh, 2013). It makes electronic payment at any time through live internet to manage the e-business environment.

2.5. Human resources

HRM, according to some authors, serves as a support and a mechanism for managing online obligations and interactions. Menon (2012) discovered that certain HRM practices, such as flexible job descriptions, team organization, collaboration training, and the use of performance indicators, are strongly linked to online shopping success.

The four dimensions are often used variables to represent HRM such as (1) compensation & benefits, (2) training & staff development, (3) communication management style; and (4) recruitment and selection of employees (Smith-Doerflein et al, 2011; Hohenstein et al, 2014).

2.6. Organization and administration

Organizations with effective procurement applications create less expensive and more streamlined doors opening for customers in the buying phase. In this way, they make their profits incremental, and their customers better fulfilled (Cakir, 2013). Shopping apps have accelerated thanks to the spread of the web and that has also led organizations to adopt it. In this regard, organizations have created frameworks through which they can speak specifically to their customers and enable them to act without anyone else's input.

3. Methodology

Qualitative research: the author builds a preliminary questionnaire and conducts mock interviews in front of 15 experts who are managers of agencies, departments and businesses operating in the field of logistics services, e-commerce, etc. Vietnam aims to learn, discover, adjust, and supplement the observed variables and at the same time check the clarity of words, the ability to express or the content duplication, if any, of the statements in the scale to make the appropriate adjustments. The qualitative research results are the basis for building the official interview questionnaire to test the scale consisting of 07 independent variables, with 29 observed variables, ensuring objectivity and justification for the research results.

Quantitative research: from the survey results of 579 survey questionnaires, the author uses SPSS 22.0 software to analyze data, assess the impact of factors affecting Logistics - E-commerce in Vietnam.

4. Results

4.1. Cronbach's alpha

All 7 scales have the satisfactory Cronbach's Alpha coefficient since they are greater than 0.6, the correlation coefficients of the total variables are higher than 0.3; all remaining observations for 7 scales were retained for EFA analysis.

Table 2

Cronbach's alpha results

Code	Observed variables	Number of observed variables	Cronbach's alpha results
CPe	Customer perception	4	0.779
TaS	Technology and security	5	0.888
CPr	Customer protection	4	0.767
EPS	Electronic payment system	4	0.904
HR	Human resources	4	0.897
OaA	Organization and administration	4	0.868
LP	Logistics performance	4	0.770

Source: calculated by the author

4.2. Linear regression analysis and model testing

The Durbin-Watson coefficient can be used to test the correlation of adjacent errors. The results show that the Durbin-Watson statistical value of 1,799 is close to 2, that is, accepting the assumption that there is no first-order series correlation between the residuals.

Table 3

Evaluate the fit of the model

Model Summary ^b						
Model	R	R square	R squared corrected	Estimated error standard deviation	of	Durbin-Watson coefficient
1	.886 ^a	.686	.683	.04797		1.799

a. Predictors: (Constant), CPe, TaS, CPr, EPS, HR, OaA

b. Dependent Variable: LP

Source: calculated by the author

Then continue to test the fit of the model to check whether this regression model is suitable with the collected data set and has applied significance through ANOVA test as follows:

Table 5

ANOVA results

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	0.682	7	0.095	49.688	0.000 ^b
	Residual	0.372	168	0.002		
	Total	0.974	179			

a. Dependent Variable: LP

b. Predictors: (Constant), CPe, TaS, CPr, EPS, HR, OaA

Source: calculated by the author

Sig test $F = 0.000 < 0.05$, so the regression model is significant.

Table 6
Multiple regression results with partial regression coefficients in the model

Model	Unnormalized		Normalized	T-value	Sig.	Multicollinear statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.978	0.026		40.987	.000		
CPe	0.252	0.029	0.195	7.511	.000	0.868	1.248
TaS	0.288	0.018	0.327	14.884	.000	0.858	1.529
CPr	0.129	0.017	0.122	1.001	.018	0.917	1.979
EPS	0.045	0.089	0.497	6.034	.000	0.816	1.286
HR	0.066	0.01	0.279	6.574	.000	0.858	1.686
OaA	0.052	0.01	0.686	5.079	.000	0.879	1.197

a. Dependent Variable: LP

Source: calculated by the author

From the above results, the equation shows the factors affecting logistics performance in e-commerce:

$$Y = 0.978 + 0.252 \times CPe + 0.288 \times TaS + 0.129 \times CPr + 0.045 \times EPS + 0.066 \times HR + 0.052 \times OaA$$

5. Conclusion

At the same time, in order to improve logistics efficiency in e-commerce, it is necessary to pay more attention to the above 7 factors, with details of the important factors being: i) "Demand for online shopping and transactions"; ii) "Security of online transaction information"; iii) "Dispute settlement and settlement procedures"; iv) "Safety and confidentiality of guest information"; v) "Mode of payment suitable for customers"; vi) "Training human resources for the sector"; vii) "Logistics distribution channel management".

Along with analyzing the situation, the research team proposed some strategic solutions for logistics development, including: 1) Building a logistics model with the connection of e-commerce activities with multimodal logistics in the trend. industrial revolution 4.0; 2) Promote investment in application of science and technology according to the trend of forming the logistics industry, adopt policies to support investment capital for logistics enterprises and encourage high-tech enterprises to participate; 3) Building a logistics center, combined with completing and synchronizing logistics infrastructure; 4) Exploiting a centralized network of industry enterprises, with a variety of online transactions, in order to share and exploit industry resources; 5) Promote training, improve the quality of human resources in the industry, foster human resources at enterprises; 6) Completing the legislation on logistics.

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