
FACTORS AFFECTING THE COMPETITIVENESS OF POSTAL BUSINESSES: A VIETNAM SURVEY.

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ABSTRACT

In the digital era, to satisfy the continuously increasing demand of the customer, businesses must enhance their competitiveness through factors such as price, service quality, image prestige.... In Vietnam, postal is considered an essential and potential service sector, contributing significantly to the State budget and creating jobs for workers. This research aims to analyze the factors influencing the competitiveness of postal enterprises in Vietnam. The study was based on the 316 postal enterprises in Hanoi and Ho Chi Minh City; the research hypotheses were examined by structural equation modeling (SEM). The results revealed that six factors: Financial Capacity, Services Capacity, Network development capacity, Integration capacity, Organizational and management capacities, The ability to apply science & technology, machinery & equipment utilization all positively affect the competitiveness of postal enterprises. In which, Services Capacity has the strongest influence on the competitiveness of Vietnamese postal enterprises. These research results have practical significance in helping Vietnamese postal enterprises improve their competitiveness.

Keywords: SEM, competitiveness, postal enterprise; Vietnam postal

1. Introduction

Nowadays, in the context of a problematic, fierce, and dynamic economy, the companies are required to have innovation orientation (Benner and Tushman 2002) (Holmqvist 2004) (Katila and Ahuja 2002). Precisely, the enterprises must strive to innovate in various forms to develop a competitive advantage and survive in the long run (Gupta, Smith and Shalley, 2006). The development of technology and quality improvement systems has led to the requirement for satisfaction of a more demanding customer than in the past (I., P. et al. 2009, I., P. et al. 2012). Moreover, in an open economy like today, the competitors are domestic enterprises and international ones, which have more extensive investment capital

and higher technology. Enhancing the competitiveness of Vietnamese enterprises is an objective necessity for existence and development.

In many countries worldwide, postal services play a central role in developing the national economy (V., Deltuvaite et al. 2017; Tung, 2021). The postal sector is of paramount economic importance, affecting the competitiveness of other sectors (Kyriaki 2015). In the developing economies, the relation between postal service and government policy still exists, especially the connection with economic development (S 2009). The customers' familiarity with digital technology is primarily expected to replace traditional postal service (Kyriaki 2015). Therefore, Postal enterprises are trying to succeed in a very competitive market. At present, there are multiple ways to achieve this. One may succeed by offering quality innovative products, competitive prices, quality services, etc (Kolarovszki, Tengler et al. 2016; Tung, 2022).

Most previous research indicated that the factors affecting postal enterprises' competitiveness included price, timeliness, and accuracy. However, it lacks an examination of other factors, including financial capacity, service delivery capacity, and quality of the postal network, which are essential. Without these factors, the competitiveness of the postal enterprises is not evaluated correctly and completely. Moreover, these previous studies were conducted in the context of international postal enterprise, while Vietnam companies have different characteristics and research conditions. Hence, the research model to evaluate the factors affecting Vietnamese postal enterprises' competitiveness must be different from those international.

In Vietnam, postal is a positive contributor to the economic development of the country. In recent years, postal have fundamental and strongly transformation and innovation to match the development orientation of Vietnam and the international integration. The integration process not only brings potential opportunities to the national postal enterprise but also forces them to face challenges because the Vietnamese postal market currently has many presences. Foreign enterprises are powerful in finance, technology and especially experience in management such as Singapore, Korea, USA, Germany. The number of postal enterprises in Vietnam has increased throughout the years, in detail: from 2010 to 2013, the development speed reached 97% (from 40 to 79 companies), between 2013 and 2015, it reached 134% (from 79 to 185 enterprises); from 2016 to 2018, the development speed increased 67% (from 248 to 374 companies). As of 15/09/2019, the number of postal enterprises licensed to operate and confirmed operating in the Vietnamese market was 431; details showed in Table 1.

Table 1: Type of postal business in Vietnam

Type of postal business	No.	Proportion (%)
1. State-owned enterprises	5	1,16
1a. 100% State-owned	1	
1b. <100% State-owned	4	
2. Foreign-invested enterprise	18	4,18
2a. 100% Foreign-invested	10	
2b. <100% Foreign-invested	8	
3. Private enterprises	407	94,43

4. Cooperatives	1	0,23
Total	431	100,00

Source: Postal Service, Ministry of Information and Communications

Currently, in Vietnam, there is more than 90% of the market share (in terms of revenue) belongs to State-owned enterprises and Foreign-invested enterprises; human resource quality, postal network infrastructure, application of science and technology in production and business are still limited. These factors will reduce the competitiveness of the postal enterprises in the international integration process. Hence, the companies must understand the internal factors that can affect their competitiveness and influence them to make proper decisions to improve their competitiveness in the national and international markets.

2. Literature review

(1) Financial capacity

In recent years, the importance of enhancing financial capacity is more and more fundamental (Loke, Choi et al. 2015)(Luukkanen and Uusitalo 2019);policymakers call for more substantial financial capacity development (Batty, Collins et al. 2015). Financial capacity is a measure of an enterprise's strength, reflected in its revenue growth, profit growth, and market share growth. Capital is a resource that any business must have first. Financial capacity is reflected in the size of own capital, the ability to raise capital, and the efficiency of using those capital sources. The financial capacity also includes how it accesses financial services (Loke, Choi et al. 2015; Tung, 2022).Financial capacity is the basis for enterprises to promote their human strength, develop postal services, expand their scale to dominate the market and improve business performance. Without abundant financial resources is a significant limitation to modern technology, limiting the improvement of labor skills, limiting the implementation of applied research and providing valuable services to customers. In addition, businesses are at risk of bankruptcy if they encounter bad debts and are acquired by more substantial businesses (Borch 1999). On the other hand, financial resources are a vital factor that determines production and business activities or affects the ability of enterprises to maintain competitive strategies against competitors. Therefore, the research hypothesis is proposed as follows:

Hypothesis H1: Financial capacity has a positive impact on the competitiveness of Vietnamese postal enterprises

(2) Service capacity

Service capacity is expressed through the desire and willingness of employees to provide timely service to bring satisfaction to customers. It is shown through the attitude and skills of the staff in the service process. (Tahir and Bakar 2007). Businesses need to respond to customer needs for particular products or customized services designed to create added value for customers and maximize customer satisfaction while at the same time continuously improve(Morash, C.L.M.Droge et al. 1996)(Lynch, S.B.Keller et al. 2000; Tung, 2022). One of the factors that helps businesses create a foothold in the market is responding, serving customers, and making customers' trust. Enterprises with good service organizations will create a competitive advantage to bring the products to customers faster and more efficiently (A.Parasuraman, L.Berry et al. 1993).Service delivery capacity is a crucial factor leading to

the success or failure of postal businesses, contributing to the business's success in building an image in customers' hearts and realizing business goals. Enterprises with the ability to provide good services will create a competitive advantage, bringing their services to the customers more quickly and efficiently. Accordingly, the proposed research hypothesis is:

Hypothesis H2: Service capacity has a positive impact on the competitiveness of Vietnamese postal enterprises

(3) Network development capacity

The postal network is an essential part of the national infrastructure (Blagojevic, Ralevic et al. 2020). An effective economy will build the infrastructure to support the growth and development of the country's economy (Kujacic, Sarac et al. 2011). Previous research showed that the postal network is a collection of post offices and postal devices arranged in a particular form to deliver information, goods and money to the customers. The postal network includes post office network (trading and exploiting postal items), deliver network (a collection of mail lines that transport and exchange with post offices belonging to a particular network of post offices). The success of each supplier partly depends on the distance between the business and other places and with customers. The distance between two places is often shown in the form of time distance (Madlenak 2015). Hence, the network for customers must be designed to minimize the travel cost. This is also one of the essential aspects for potential customers when choosing a facility of suppliers (Talley and Ng 2020). Develop a network of postal service providers to improve service quality and match the current business situation of postal enterprises. The author builds the following hypothesis:

Hypothesis H3: Network development capacity has a positive impact on the competitiveness of Vietnamese postal enterprises

(4) Integration capacity

Businesses are gradually expanding the boundaries of innovation, enhancing the knowledge exchange (West and Bogers 2014) (Natalicchio, Ardito et al. 2017) and collaborating with external partners happens more often. The integration capacity reflects in the ability to cooperate and collaborate with foreign partners. In globalization, Vietnamese postal enterprises face new competitors, transnational corporations with financial and technological potential, powerful competitiveness. To survive and develop, these postal enterprises must not only rely on their internal resources but also cooperate and collaborate to expand their scale and potential, the best tool to successfully internationalize small and medium-sized businesses (Ahmedova 2015). The development of the science and technology era has narrowed the space and time gap; internationalization and integration are genuinely the trends of the times, placing the countries in front of ever-expanding cooperation opportunities. The convergence of information technology, electronics and telecommunications brings the world into the information society and knowledge economy. The traditional postal service cannot satisfy the customers' demand. Hence, integration capacity is an indispensable requirement for any postal business. Accordingly, the proposed research hypothesis is:

Hypothesis H4: Integration capacity has a positive impact on the competitiveness of Vietnamese postal enterprises

(5) Organizational and management capacity

The corporation's organizational and management capacity is considered a decisive factor for the existence and development of an enterprise (F., Reichel et al. 2000). The level and capacity of the enterprise's organization and management are reflected in: (1) the application of proper modern management method; (2) professional level as well as the knowledge of the enterprises' management team; (3) the level of organization and management of the enterprise, reflected in the tasks assigned, and the arrangement of suitable staff to work. Executive management capacity is one of the elements constituting the capacity of an enterprise. The organizational capacity of managers is also considered the fundamental factor for the existence and development of enterprises (Porter 1980).

The organizational and management capacity not only affects service quality, image and reputation of enterprises but also contributes to helping businesses win in the market before the fierce competitive pressure of domestic and foreign enterprises. The author put forward a research hypothesis:

Hypothesis H5: Organizational and management capacity has a positive impact on the competitiveness of Vietnamese postal enterprises

(6) The ability to apply science & technology, machinery & equipment utilization

Along with machinery, equipment, and technology are the factors that considerably affect the competitiveness of enterprises. Besides, the rapid development of science and technology has a substantial impact on the nature and prices of postal services, suppliers and competitive. Each enterprise must own or at least use science and technology, which was considered to directly impacts product quality and consequently on the enterprise's competitiveness (Porter 1980). Hudson and Mosley (Hudson and Mosley 2001), Qian and Li (Qian and Li 2003), Tho & Trang (2008) indicated that the following characteristics of technology have an impact on the competitiveness of enterprises: slow technological innovation; suitable technology; ability to apply and access new technologies; human resources of the department of research and application of new technologies in the enterprise.

An enterprise with advanced machinery and equipment systems and technology plus good management ability will create high-quality products, lower prices and ensure competitive advantages for businesses. Therefore, the capacity of machinery and equipment and the ability to apply science and technology are also an indispensable factors in deciding whether an enterprise is competitive or not. For this reason, the author proposes a research hypothesis:

Hypothesis H6: The ability to apply science & technology, machinery & equipment utilization has a positive impact on the competitiveness of Vietnamese postal enterprises

(7) Competitiveness capacity of postal enterprises

A competitive enterprise is a company that can provide good quality products and services at a lower price than its competitors in both domestic and international markets. Competitiveness means achieving the long-term benefits of the business and the ability to secure income for employees and business owners (Aldington 1985). Competitiveness is the ability of a firm to produce a product at an average variable cost lower than its market price, or any enterprise which can produce products of similar quality with other companies but at a lower cost is considered highly competitive (Marcel 1999; Thanh, 2021). In terms of business level, competition is the struggle or competition between several competitors for customers, market share or resources of enterprises. However, the nature of competition nowadays is not

to destroy competitors, to create and bring to the customers higher added values or novelties than its competitors so that the customers will choose that business but not its competitors (Porter 1996). In the commercial sector, the enterprises' competitiveness maintains success in the international market without protection or subsidies. Although transportation costs allow businesses to compete in the domestic market better, competitiveness is often evaluated through the advantage gained via higher productivity. In the non-commercial sector, competitiveness can match or surpass the best enterprise in the market regarding cost and quality of product or service (Marcovitch and DavitSilber 1995; Tung, 2022).

A unified theory of business competitiveness reveals that, especially when compared to other postal product and service providers, the postal enterprise's competitiveness demonstrates its outstanding capabilities. *An enterprise has good competitiveness when it achieves competitive results of the leader group in the market or the most dominant group in the market. Thus, the competitiveness of a postal enterprise is the ability or ability to provide products and services more efficiently than its competitors.*

In the context of international integration, *the postal enterprises' competitiveness is also reflected in the ability to access the market, cooperate with domestic and foreign countries, or adapt and innovate more effectively than their competitors.*

3. Methods

3.1. Research method

Information and primary data were collected through survey by questionnaire to provide data for the study. The questionnaire was prepared and distributed directly to 316 postal enterprises in Hanoi and Ho Chi Minh City. The variables were rated based on the 5-point Likert scale (1: Strongly disagree to 5: Strongly agree). The statistical analysis was performed using the SPSS v. 20 and the structural equation modelling (SEM) was designed using AMOS (Analysis of Moment Structures) software, which configures IBM software added to the cited version of SPSS. To support the hypotheses mentioned in section 2, the SEM model has been used. This model allows the examination of a set of relationships between one or more independent variables, whether these are continuous or discrete, developing a way to break the correlations observed in a system of equations that describe their hypotheses regarding causal relationships. The SEM model studies these causal relationships between directly observable data, assuming that existing relationships are linear.

3.2. Research model

The research model is following:

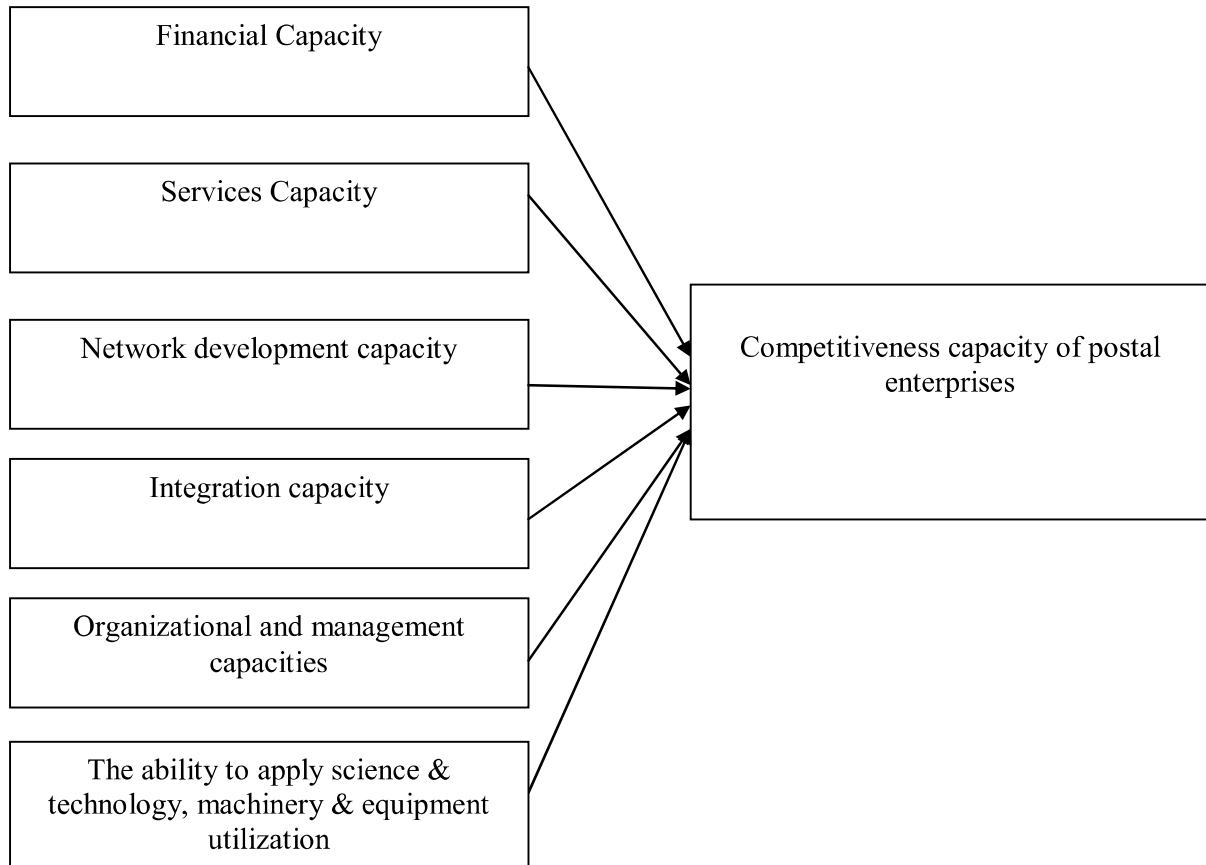


Fig 1. Theoretical measure model of internal factors affecting the competitiveness of Vietnamese postal enterprises

3.3. Scale items

The items' scale was collected from a previous study through the results of the literature review. Details: Financial capacity was evaluated by five variables: (TC1, TC2, TC3, TC4, and TC5), based on the theories of (Loke, Choi et al. 2015)(Luukkanen and Uusitalo 2019)(Batty, Collins et al. 2015)(Borch 1999) and experts' discussion. Service capacity was evaluated by six variables: (CUDV1, CUDV2, CUDV3, CUDV4, CUDV5, and CUDV6), based on the research of (Morash, C.L.M.Droge et al. 1996)(Lynch, S.B.Keller et al. 2000)(Tahir and Bakar 2007) (A. Parasuraman, Valarie A. Zeithaml, Leonard L. Berry, 1985) and experts' discussion. Network development capacity was evaluated by six variables: (ML1, ML2, ML3, ML4, ML5, and ML6), based on the research of (Blagojevic, Ralevic et al. 2020)(Kujacic, Sarac et al. 2011)(Madlenak 2015)(Talley and Ng 2020) and experts' discussion. Integration capacity wasevaluated by four variables:(HN1, HN2, HN3, and HN4), based on the research of (West and Bogers 2014)(Natalicchio, Ardito et al. 2017)(Ahmedova 2015) and experts' discussion. Organizational and management capacities was evaluated by seven variables:(QL1, QL2, QL3, QL4, QL5, QL6, and QL7), based on the research of (Porter

1980); (F., Reichel et al. 2000) and experts' discussion. The ability to apply science & technology, machinery & equipment utilization was evaluated by six variables: (MMTB1, MMTB2, MMTB3, MMTB4, MMTB5, and MMTB6), based on the research of (Hudson and Mosley 2001)(Qian and Li 2003)(Porter 1980) and experts' discussion. Vietnamese postal enterprises' competitiveness capacity was evaluated by five variables: (NLCT1, NLCT2, NLCT3, NLCT4, and NLCT5), based on Aldington (1985); (Marcel 1999)(Porter 1996)(Marcovitch and DavitSilber 1995) and experts' discussion.

3.4. Research samples

The data has been collected through surveys of postal businesses in Hanoi and Ho Chi Minh City. Before conducting the survey, to ensure the accuracy and reliability of the scales, the author conducted interviews with five experts in the postal sector to review, discuss and comment to complete the questionnaire and adjust the scales in the survey. Next, the author conducted a preliminary survey with a sample of 55 postal enterprises. The preliminary survey results showed that TC4, CUDV6, ML6 and HN1 variables were excluded from the research model. Thus, the scale of factors affecting the Vietnamese postal enterprises' competitiveness includes six factors (no change compared to the proposed primarily model) with 32 observed variables and one factor to evaluate the Vietnamese postal enterprises' competitiveness, including five observed were used to design the questionnaire for the official survey.

The research team conducted a formal survey, distributing 316 questionnaires and receiving 215 questionnaires (68%). After evaluating 215 returned surveys, the authors discovered 34 useless questionnaires. Therefore, unusable questionnaires were discarded regarding the data input. The remaining formal questionnaires used in the analysis were 181 questionnaires.

4. Results

4.1. Items' Cronbach Alphas results

The results showed that financial capacity scale, service capacity scale, integration capacity scale, organizational and management capacities scale, The ability to apply science & technology, machinery & equipment utilization scale all satisfy the requirements, and all observed variables of these scales achieve reliability. Particularly for network development capacity, the observed variable ML1 was disqualified; for postal enterprises' competitiveness, the observed variable NLCT3 and NLCT4 was disqualified. The Cronbach's Alpha Item-Total statistic is shown in Table 2.

Table 2: Item- Total statistic

Items	Scale mean if Item deleted	Scale variance if Item deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item deleted
Financial Capacity: Cronbach's Alpha = 0,905				

TC1	10,71	10,497	,772	,882
TC2	10,72	10,092	,807	,869
TC3	10,90	9,361	,840	,857
TC4	10,82	10,169	,730	,897
Services Capacity: Cronbach's Alpha = 0,838				
CUDV1	11,51	16,151	,532	,835
CUDV2	12,10	14,928	,716	,785
CUDV3	11,77	15,213	,650	,803
CUDV4	11,92	15,283	,628	,809
CUDV5	11,77	14,968	,685	,793
Network development capacity: Cronbach's Alpha = 0,838				
ML2	9,49	10,118	,652	,804
ML3	9,67	9,465	,753	,758
ML4	9,46	10,627	,601	,825
ML5	9,65	9,985	,679	,792
Integration capacity: Cronbach's Alpha = 0,803				
N1	14,39	8,706	,544	,779
HN2	14,27	8,487	,488	,802
HN3	14,07	8,329	,667	,741
HN4	14,13	8,727	,629	,754
HN5	14,19	8,442	,635	,751
Organizational and management capacities: Cronbach's Alpha = 0,859				
QL1	19,25	27,921	,512	,856
QL2	19,36	25,865	,610	,843
QL3	19,18	26,857	,642	,837
QL4	19,13	26,300	,673	,832
QL5	19,70	28,055	,625	,840
QL6	19,03	27,927	,650	,837
QL7	18,88	27,163	,702	,829
The ability to apply science & technology, machinery & equipment utilization: Cronbach's Alpha = 0,938				
MMTB1	17,57	26,757	,801	,928
MMTB2	17,63	25,757	,851	,922
MMTB3	17,71	25,006	,842	,923
MMTB4	17,62	26,158	,797	,928
MMTB5	17,51	26,640	,810	,927

MMTB6	17,75	25,913	,791	,929
Competitiveness capacity of postal enterprises: Cronbach's Alpha = 0,835				
NLCT1	6,80	1,482	,689	,779
NLCT2	6,82	1,272	,771	,694
NLCT5	6,79	1,522	,636	,829

Source: SPSS results

After analyzing the reliability coefficient, there are six independent variable scales, including 31 observed variables and one dependent variable scale consisting of 3 observed variables in the model satisfying the conditions of EFA analysis.

4.2. Items' evaluation by Exploratory factor analysis (EFA)

The results of the first EFA analysis show that the KMO coefficient of the observed variables is 0,832, satisfy $0,5 < KMO < 1$. It can be concluded that exploratory factor analysis is appropriate to analyze factors affecting the competitiveness of Vietnamese postal enterprises. The Bartlett test results showed $Sig. < 0,05$, so 30 observed variables correlate with the representative factor. The results of testing the explanatory level of the observed variables: The Cumulative column indicates that the extracted variance is 60,668%. It means 60,668% of the variation of the factors is explained by the characteristic variables. However, the observed variable HN1 has no factor loading, so it is excluded from the model.

The results of the second EFA analysis show that the KMO coefficient of the observed variables is 0,829, satisfy $0,5 < KMO < 1$. Therefore, exploratory factor analysis is appropriate to analyze factors affecting the competitiveness of Vietnamese postal enterprises. The Bartlett test results showed $Sig. < 0,05$, so 30 observed variables are linearly correlated with the representative factor. The results of testing the explanatory level of the observed variables: The Cumulative column indicates that the extracted variance is 60,957%. It means 60,957% of the variation of the factors is explained by the characteristic variables. The second EFA model analysis results: A total of 33 observed variables (30 observed variables of the independent variable and three observed variables of the dependent variable) were extracted into seven groups of representative factors. The KMO coefficient and the Bartlett test result from testing the explanatory level of the observed variables and the factor loading factor table shown in Table 3, Table 4 and Table 5.

Table 3: KMO and Bartlett's Test results

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy,		,829
Bartlett's Test of Sphericity	Approx, Chi-Square	3581,402
	Df	528
	Sig,	,000

Table 4: Total Variance Explained of the Factors

Total Variance Explained							
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6,721	20,368	20,368	6,385	19,347	19,347	5,556
2	5,365	16,257	36,624	4,926	14,927	34,274	4,424
3	3,590	10,879	47,504	3,277	9,931	44,205	3,048
4	2,818	8,538	56,041	2,477	7,506	51,711	4,494
5	1,720	5,211	61,252	1,316	3,989	55,699	2,918
6	1,458	4,417	65,669	,979	2,966	58,665	3,817
7	1,107	3,355	69,024	,756	2,292	60,957	4,017
8	,849	2,573	71,597				
9	,802	2,430	74,027				
10	,688	2,085	76,112				
11	,650	1,970	78,082				
12	,647	1,959	80,041				
13	,569	1,725	81,766				
14	,530	1,605	83,372				
15	,485	1,469	84,840				
16	,460	1,393	86,233				
17	,433	1,311	87,544				
18	,413	1,252	88,796				
19	,390	1,182	89,978				
20	,379	1,147	91,125				
21	,366	1,110	92,235				
22	,330	1,001	93,235				
23	,304	,921	94,156				
24	,290	,879	95,035				
25	,262	,794	95,829				
26	,232	,703	96,533				
27	,221	,671	97,204				
28	,202	,614	97,818				
29	,194	,587	98,405				
30	,162	,490	98,895				
31	,141	,426	99,320				
32	,123	,372	99,692				
33	,102	,308	100,000				

Extraction Method: Principal Axis Factoring,

a, When factors are correlated, sums of squared loadings cannot be added to obtain a total variance,

Table 5: Pattern Matrix^a

Pattern Matrix ^a							
	Factor						
	1	2	3	4	5	6	7
MMTB5	,904						
MMTB2	,888						
MMTB6	,851						

MMTB1	,829						
MMTB3	,809						
MMTB4	,742						
QL1		,753					
QL5		,742					
QL2		,709					
QL4		,654					
QL7		,647					
QL6		,570					
QL3		,542					
TC3			,902				
TC2			,866				
TC1			,851				
TC4			,742				
CUVD5				,799			
CUDV2				,757			
CUDV4				,704			
CUDV3				,685			
CUDV1				,566			
ML3					,870		
ML5					,752		
ML2					,747		
ML4					,668		
HN5						,808	
HN3						,772	
HN4						,593	
HN2						,593	
NLCT2							,822
NLCT1							,819
NLCT5							,501

The EFA analysis shows that seven scales with 33 variables (after removing the variable HN1) satisfy the conditions used in the CFA analysis.

4.3. Items' evaluation by Confirmatory Factor Analysis (CFA)

CFA analysis of 7 scales with 33 observed variables satisfying the conditions was performed using AMOS 21 software

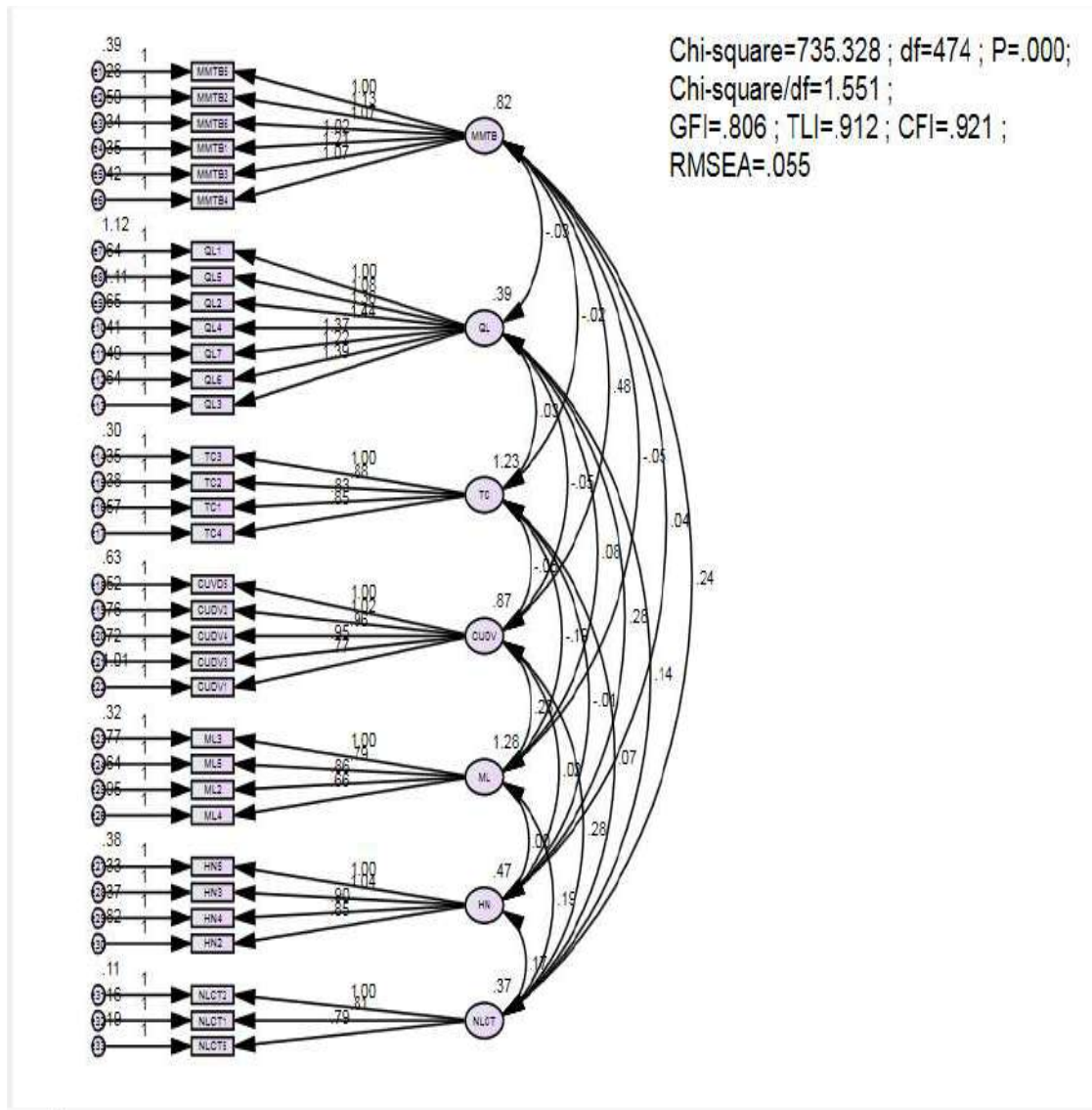


Fig. 2: CFA test results of the items

Regarding the overall relevance, the CFA test results showed: chi-square was 735,328 with 474 degrees of freedom and P-value = 0,000, chi-square on degrees of freedom (CMIN/df) was 1,551 < 2; GFI = 0,806 > 0,8; CFI = 0,921 > 0,9; TLI = 0,912 > 0,9; and RMSEA = 0,055 < 0,08; therefore, this model is suitable for the research data.

4.4. Test result of the research model by Structural equation modeling (SEM)

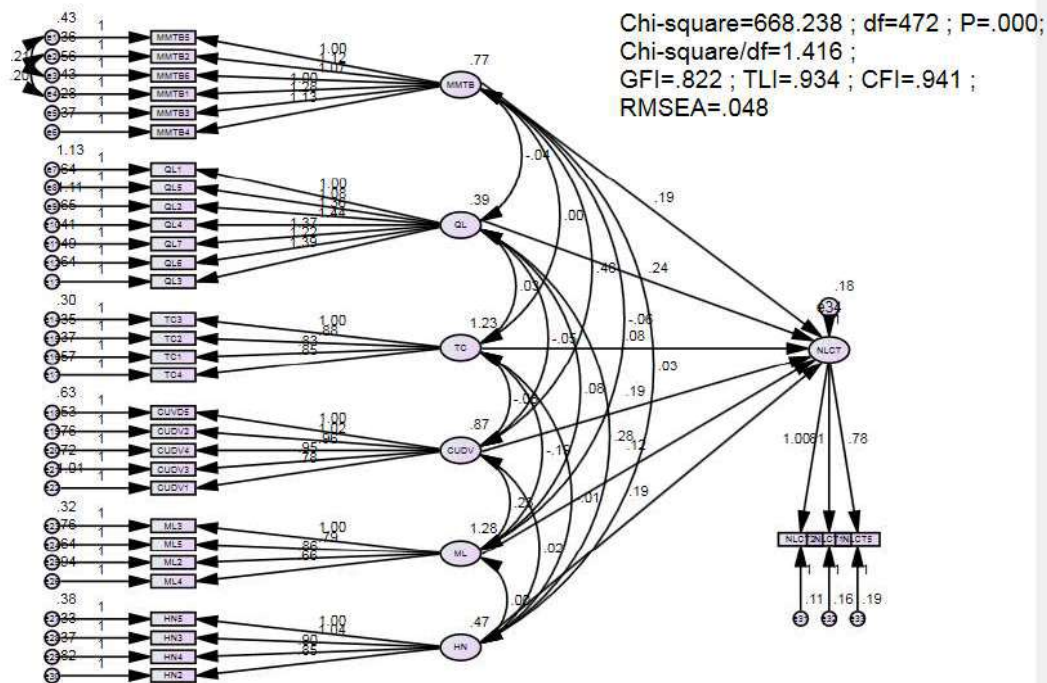


Fig. 3: Test results by SEM

The SEM test results showed: chi-square was 668,238 with 472 degrees of freedom and P-value = 0,000, chi-square on degrees of freedom (CMIN/df) was 1,416 < 2, GFI = 0,822 > 0,8; CFI = 0,941 > 0,9; TLI = 0,934 > 0,9; and RMSEA = 0,048 < 0,08 therefore, this model is suitable for the research data. Estimation of Non-normalized results of the parameters (Table 6) showed the positive relationship between The ability to apply science & technology, machinery & equipment utilization (MMTB), Organizational and management capacities (QL), Financial Capacity (TC), Services Capacity (CUDV), Network development capacity (ML) and Integration capacity (HN) with the Enterprises' competitiveness capacity at the significance level of 5% (P < 0,05) so all these items are kept in the model.

Table 6: Testing causal relationships of research concepts

	Estimate	S.E	C.R	P	Label
NLCT <--- MMTB	,190	,063	3,044	,002	par_43
NLCT <--- QL	,241	,109	2,214	,027	par_44
NLCT <--- TC	,084	,037	2,258	,024	par_45
NLCT <--- CUDV	,193	,064	3,031	,002	par_46
NLCT <--- ML	,124	,041	3,027	,002	par_47
NLCT <--- HN	,195	,097	2,009	,045	par_48

Table 7: SEM test results of the conceptual model

	Estimate
NLCT <--- CUDV	,295
NLCT <--- MMTB	,274

<i>Sou</i>	NLCT	<--- QL	,245
<i>rce:</i>	NLCT	<--- ML	,230
<i>Aut</i>	NLCT	<--- HN	,220
<i>hor'</i>	NLCT	<--- T.C.	,152
<i>s</i>			

field works

Estimation of Normalized results of the parameters showed that the factors that influence most significantly on the competitiveness of postal enterprises are: Services Capacity (29,5%), second rank is The ability to apply science & technology, machinery & equipment utilization (27,4%), the third is Organizational and management capacities (24,5%), the fourth is Network development capacity (23%), continued is Integration capacity (22%) and the least influencing factor is Financial Capacity (15,2%).

4.5. Test results of the research model by bootstrap method

In this research, the research testing model by the bootstrap method used the number of repeated samples N = 500. The bootstrap test results showed that absolute values C.R. was small, so the standard deviation, although present, is relatively small, not statistically significant at the significance level of 5%. Therefore, the estimates in the research model can be reliable.

Table 8: Model's estimation results by bootstrap with N = 500

Parameter			Estimate	SE	SE-SE	Mean	Bias	SE-Bias	CR
NLCT	<---	MMTB	0,274	0,091	0,003	0,274	0	0,004	0,27
NLCT	<---	QL	0,245	0,107	0,003	0,255	0,01	0,005	0,25
NLCT	<---	TC	0,152	0,068	0,002	0,155	0,003	0,003	0,152
NLCT	<---	CUDV	0,295	0,1	0,003	0,293	-0,002	0,004	0,289
NLCT	<---	ML	0,23	0,082	0,003	0,232	0,002	0,004	0,228
NLCT	<---	HN	0,22	0,105	0,003	0,212	-0,007	0,005	0,207

4.6. Test results of the research model's hypotheses

Test results of the research model's hypotheses are shown in the table 9

Table 9: Test results of the research model's hypotheses

Symbols	Hypothesis	P value	Conclusion
H1	Financial capacity has a positive impact on the competitiveness of Vietnamese postal enterprises	0,024 < 5%	Accept
H2	Service capacity has a positive impact on the competitiveness of Vietnamese postal enterprises	0,002 < 5%	Accept
H3	Network development capacity has a positive impact on the competitiveness of Vietnamese postal enterprises	0,002 < 5%	Accept
H4	Integration capacity has a positive impact on the competitiveness of Vietnamese postal enterprises	0,045 < 5%	Accept
H5	Organizational and management capacity has a positive impact on the competitiveness of Vietnamese postal enterprises	0,027 < 5%	Accept
H6	The ability to apply science & technology, machinery & equipment utilization has a positive impact on the competitiveness of Vietnamese postal enterprises	0,002 < 5%	Accept

Summarizing the results of testing the research model with 06 independent variables and 01 dependent variable, the hypotheses H1, H2, H3, H4, H5, H6 are accepted. Increasing these factors will increase the postal enterprises' competitiveness.

5. Discussion

Financial Capacity: Quantitative research results showed that this factor had the most negligible influence on the Vietnamese postal enterprises' competitiveness. The results of this study are consistent with the results of (Borch 1999) and (Loke, Choi et al. 2015). Analysis of each indicator in the financial capacity scale shows that postal enterprises believe they have enough capital to provide their business requirements, and the Enterprises can quickly raise capital from many different sources. Most of the postal enterprises in Vietnam today are private small-sized businesses, so it does not require much capital when opening a business. On the other hand, banks now have many preferential policies when businesses borrow capital with simple and easy procedures, so businesses do not have any difficulties accessing loans. Commonly, the mobilized capital sources of enterprises are divided into two groups: Internal capital (own capital, capital from family and friends) and external capital (investor's investment, loans from banks or other sources of support). In the postal market, the number of private enterprises accounts for the majority (93,35%)

Services Capacity: The quantitative analysis result showed this factor significantly influences Vietnamese postal enterprises' competitiveness. In today's fierce competition environment, with the same service and service price, any enterprise able to provide good services will have a much more competitive advantage. This is consistent with the research of (Tahir and Bakar 2007) (Morash, C.L.M. Droge et al. 1996) (Lynch, S.B. Keller et al. 2000) and (A. Parasuraman, L. Berry et al. 1993). Analysis of each indicator in the scale shows that postal enterprises believe these factors, such as: ensuring delivery time and location, their employees' attitude to serving customers, and the enterprises' service price, and the critical factors for enterprises to be competitiveness market. Therefore, businesses need to promote professional training solutions and professional skills for employees and create the best policy on service quality and price to improve service capacity.

Network development capacity: The quantitative analysis result showed this factor was the fourth-rank factor that significantly influences Vietnamese postal enterprises' competitiveness. The more the network development capacity is improved, the more competitive the enterprise will be. This is entirely suitable with the reality of Vietnam today and consistent with (Blagojevic, Ralevic et al. 2020) (Kujacic, Sarac et al. 2011) (Madlenak 2015) (Talley and Ng 2020), who indicated that there was a positive relationship between the network development capacity and the enterprises' competitiveness. In addition, the survey results showed the network development capacity of the surveyed enterprises was at an average level with the average score of each indicator in the scale, which fluctuating in the range of 3,08 to 3,84. Precise, Businesses that can always invest and expand their new network have the highest score of 3,84

points. The second scale that enterprises believe influences their network development capability is a high level of market exploitation (3,30 points). In recent years, the postal network infrastructure has been continuously upgraded and invested in new projects to quickly respond to the increasing number of users and increase service quality requirements

Table10: Public postal network infrastructure

Year	Number of post-office (office)	Average service radius per post-office (km)
2011	14.911	2,56
2012	13.612	2,78
2013	13.021	2,84
2014	12.642	2,82
2015	12.757	2,87
2016	12.386	2,92
2017	12.421	2,91
2018	18.387	2,92
2019	18.795	2,91

Source: White book of Vietnam ICT 2014, 2017 and Ministry of Information and Communications

However, nowadays, state-owned postal enterprises are holding and dominating the postal sector in terms of network infrastructure, and as a result, these enterprises ultimately impose and regulate competition in the market. Postal enterprises with private capital must depend on the postal infrastructure of the State-owned sector, so they cannot compete. The existence of this problem has resulted in unhealthy rivalry amongst postal enterprises, which has had a negative impact on the competitiveness of postal enterprises in the international integration process.

Integration capacity: The survey results showed that this capacity of surveyed enterprises was low, with the average score of each indicator ranging from 3.49 to 3.7. This factor is the fifth-rank factor affecting the Vietnamese postal enterprises' competitiveness. The study results also revealed that the majority of postal enterprises were aware of the importance of rubbing shoulders with and learning from foreign enterprises throughout the integration period. On the other hand, the whole world is living in the 4.0 industrial revolution; integrating and connecting is a significant factor for survival and development in the modern market economy. The scale with the lowest score is of enterprises that collaborate with foreign enterprises (3,49), indicating that the possibility of joint ventures and cooperation with foreign enterprises is still limited. These results are consistent with (West and Bogers 2014) (Natalicchio, Ardito et al. 2017) (Ahmedova 2015), showing that integration capacity affects competitiveness. In recent years, enterprises in the postal sector have made efforts to improve their integration capacity. However, currently, in terms of international integration, VNPost is the only Vietnamese postal enterprise assigned by the State to collaborate with the organizations such as Universal Postal Union (UPU), Asia-Pacific Postal Union (APPU). It has cooperative relations with the postal services of most countries in the world. Besides, VNPost is also the partner of many large domestic and international enterprises such as: Prudential, Jetstar Pacific, Vietnam Airlines, AirMekong, Western Union, Daiichi-life,

HSBC, ABBank, Baoviet Bank, Military Commercial Joint Stock Bank, Vinalines. Besides, Viettel Post is a close partner with Cambodia Post.

Organizational and management capacity: The survey results showed that this factor was the third-rank factor that significantly influences Vietnamese postal enterprises' competitiveness. The more organizational and management capacity is improved, the more competitive the enterprise will be. In the survey, most enterprises believe that their leadership team contains strong management abilities (the average point was 3,54), demonstrating that the majority of enterprises today have placed a strong emphasis on training to improve management skills among their leadership team (the average point was 3,29). However, the planning and implementing plans, monitoring and evaluating business results have not been effective (the average point was 2,72). This is consistent with the research of (F., Reichel et al. 2000)(Porter 1980), who confirmed that organizational and managerial capacity in enterprises is considered as a factor affecting the existence and development of enterprises, increasing the competitiveness of enterprises;

The ability to apply science & technology, machinery & equipment utilization: This factor was the second-rank factor that significantly influences Vietnamese postal enterprises' competitiveness. The more these capacities are improved, the more competitive the enterprises will be. The result showed that the capacity of machinery, equipment, and the ability to apply science and technology of the surveyed enterprises was average, with the average score of each indicator ranged from 3.41 to 3.65. The analysis of each item on the scale revealed that most enterprises consider that their machinery and equipment always meet their business requirements. Most enterprises have been using modern postal software in their daily operations. This result proves that enterprises are aware of the role of machinery, equipment and application of science and technology in their service provision activities. This is consistent with the research of (Porter 1980)(Hudson and Mosley 2001)(Qian and Li 2003)(Thọ and Trang 2008), who believe that technology has an impact on the enterprises' competitiveness. It is entirely appropriate because today, science and technology application are an inevitable trend for economic sectors in general and enterprises, especially when the world is coming to the fourth industrial revolution. In the postal sector, science and technology application is inevitable. New science and technology, especially computers and the internet, dominate many essential postal services. Many postal organizations worldwide have joined the revolution to reform and turn that threat into a development tool. Apply science and technology to management and business, instead of being overwhelmed by those technologies in the market, develop a supply channel with a new chain of postal services. Currently, several enterprises have applied advanced technologies to their operations: Applying GPS technology in transportation management; Application of RFID technology in quality management for international parcels; Research and application of barcodes in postal and mail management; Organize and develop I.T. applications in the direction of

centralization; Developing tools to support tracking and positioning of postal and delivery products; Management support systems...

6. Conclusions

The research proved that six factors were affecting the Vietnamese postal enterprises' competitiveness: Financial Capacity, Services Capacity, Network development capacity, Integration capacity, Organizational and management capacities, The ability to apply science & technology, machinery & equipment utilization. The most substantial influencing factor is service delivery capacity; the weakest influencing factor is financial capacity.

The results of this study also suggest suitable solutions for postal enterprises to improve their competitiveness: (1) Improving service capacity: Postal businesses need to have an appropriate pricing strategy, ensure service quality, delivery time, or focus on necessary skills training for staff. (2) To improve the ability to apply science & technology, machinery & equipment utilization, businesses need to be equipped with a complete and synchronous system of machinery and equipment to meet the business needs. Businesses need to send staff to participate in international seminars and exhibitions on postal technology to gain the opportunity to access new technologies. It is necessary to implement the information technology and automation application projects in production and business to speed up and increase the efficiency of the new technologies applied in the 4.0 revolution era. (3) To enhance organizational, management, and company management in a new environment, especially in using contemporary and flexible management models instead of old methods. Leadership skills, change management, technical, presentation, negotiation, and communication are required of business owners daily. (4) To improve the network development capacity, businesses must organize their networks scientifically and reasonably to improve the service quality, the transportation networks quality, organize their networks logically and flexibly, improve and rationalize the journey of exploitation and transportation. (5) To improve the integration capacity, postal businesses need to coordinate and passionately associate with supporting businesses and related businesses from the machinery and equipment supplying process to support the information technology segment and the logistics supply chain to jointly exploit the parties' advantages jointly. Vietnamese postal enterprises need to unite, compete and develop together, not only aiming to increase prestige and profit for their business but should focus on the development of Vietnam's postal brand. (6) To improve financial capacity, enterprises should effectively exploit internal capital sources from shareholders, funds, etc., and external capital sources such as commercial credit, bank credit, customers advance payment, credit for purchasing assets. Businesses need to accurately determine the need for each type of capital: market, investment in equipment and technology, labor and salary, financial planning.

Research theoretical contribution: Provides a method to assess the internal factors affecting the Vietnamese postal enterprises' competitiveness and the influence level of each factor. Regarding practical contribution, managers in the postal sector have an overall view of

the importance of improving their businesses' competitiveness. Managers recognize the significance of each element to their businesses' competitiveness due to empirical study results, and they make decisions to improve their enterprises' competitiveness due to these findings.

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