

Factors impact the current status of logistics service providers in Vietnam and strategies for development



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ARTICLE INFO

Article history:

Received 31 March 2022

Received in revised form

12 July 2022

Accepted 28 September 2022

Keywords:

Logistics service provider (LSP)

Central Vietnam

Current status

Digital transformation

Government policy

Infrastructure

ABSTRACT

Logistics service providers (LSPs) are experiencing strong growth in recent times, especially in some developing countries like Vietnam. However, the development of LSPs is affected by many factors both internal and external. This paper aims to analyze the implications for the current status of LSPs. The authors conducted a survey for LSP in Central Vietnam. The survey results show that factors such as digital transformation, government policies, and infrastructure are the factors that affect the current situation of LSPs. Based on the research results, the article also makes some policy suggestions for the government to improve the policy mechanism and encourage the development of LSPs in Central Vietnam in particular and in Vietnam as a whole.

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1. Introduction

In recent times, Vietnam's trade has grown strongly. The strong development of trade will lead to the development of other industries, including logistics. The development of logistics makes business processes more efficient as it plays a supporting role in business operations, including marketing and manufacturing. The logistics industry in Vietnam is predicted to grow faster than GDP growth (Blancas et al., 2014). However, the development of the logistics industry cannot be without the contribution of information technology. Hirt and Willmott (2014) have described the past decade as the "digital age." A series of logistics businesses have combined with the development of information technology and launched a series of logistics businesses such as Amazon and Alibaba, or digital startups. with different types of intermediaries as logistics platforms. These enterprises have already entered the logistics market with business methods based on digital transformation will be a big challenge for today's logistics service providers (LSPs).

LSPs need to improve their services and especially based on the digital transformation platform to compete in the logistics market. Technology plays an important role in distinguishing the value of logistics (Sauvage, 2003). Technology brings landmark innovations. In addition to digital transformation, institutional and infrastructure issues also have a significant impact. It makes logistics more responsive to customers. Based on innovations in logistics, supply chain members can adapt to market changes. Most logistics are provided by LSPs. Therefore, it can be seen that LSP acts as a designer for the development of technology and a backbone for the growth of e-commerce. LSPs need to develop new strategies to enjoy further growth in the near term to fully exploit the opportunities presented by new technology and digital transformation. Besides digital transformation, many factors such as government policies and mechanisms, and infrastructure also have a significant impact on the development of LSPs. This article will evaluate some factors affecting the current status of LSP in Central Vietnam as well as provide some strategic suggestions for Vietnamese LSPs in the coming time.

2. Literature review

Logistics capability provides the benefits of cost-effectiveness, improves quality, on-time delivery, customer involvement and satisfaction, fewer wastes, and employees motivation from these

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<https://doi.org/10.21833/ijaas.2023.01.017>

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practices. Although a large proportion of research has been conducted to study logistics systems at the micro or business level, the number of logistics studies at the national or regional level is still minimal (Banomyong et al., 2015). Approaching logistics from a macro perspective, according to Kampan and Tanielian, (2017) and Arvis et al. (2016), logistics plays a vital role in increasing competitiveness, adding value to the supply chain, and reducing costs. Previously, logistics has been considered a 'dark continent' with many benefits and advantages that businesses have not yet exploited (Havenga, 2018). Blanco and Sheffi (2017) have stressed the role of logistics in ensuring the availability of material requirements, i.e., raw materials, inventory, semi-finished products, and finished products in the production cycle. Therefore, logistics advances large production capacity and commercial growth. It can be implied that logistics is the backbone economy. Logistics has also been recognized as one of the important drivers for national and regional economy and business development. There exist studies on logistics that investigate the current status of logistics providers in a country/region, then offer some managerial implications on logistics competitive strategy.

Digital transformation receives strong academic attention. However, there is no exact definition of digital transformation. Scholars view it as a strategy, a process, or a business model. Usually, studies often emphasize that "digital transformation is the improvement of new digital technologies to improve business operations. Digital transformation is not a single technology but major changes based on the combination of information technology, computing, communication, and connectivity (Matt et al., 2015). In the process of digital transformation, technologies that are not digital in themselves (such as means of transport and goods) can also become an element of the digital transformation process (if equipped with digital technology).

Globalization, outsourcing, and the development of information technology have contributed to the development of the logistics industry. Logistics service providers have evolved from a commodity industry with hundreds of thousands of companies performing logistics services such as transportation, and warehousing. LSPs vary in size, ownership structure, and scope of service. The added value of LSPs has provided added value to shippers' businesses, through volume, process, or innovation-driven models. Each business also has a different way of handling technology. Technology is one of the prerequisites for digital transformation and logistics. Mathauer and Hofmann (2019) argued that digitization even hardware solutions are being digitized and also becoming high-tech products such as intelligent conveyor belts in freight transport. New technologies form the basis of LSP innovations from incremental innovation to radical change. Research by Wagner and Sutter (2012) showed that traditional LSPs often focus on cost or service-added improvements to day-to-day operations.

Dang and Yeo (2018) evaluated the main factors influencing the improvement of Vietnam's logistics system. The study indicated a direction for the Vietnam government to follow in implementing the ideal investment prioritization and the appropriate regulations to improve its logistics system. The finding showed that the optimal order for improving Vietnam's logistics system should be logistics costs, logistics services, logistics infrastructures, connections between logistics components, institutional frameworks, and technology. Jung (2017) indicated the most striking problems are inappropriate and ineffective port investment, highway congestion and consequent delays, unprofessionalism of domestic logistics service providers, cumbersome and inconsistent institutional framework, and, finally, insufficient experienced and qualified human resources. Vietnam's logistics activities are quite limited and do not develop as expected. Therefore, it does not reach its full potential in supporting the economy (Vu et al., 2020). The Vietnam logistics industry has a lot of opportunities to develop and expand, i.e., developing new warehousing facilities, building regional logistics centers, integrating existing infrastructure with other logistics activities in the supply chain, inventory management, and improving the quality and quantity of cold storage. In addition, Vietnam's logistics sector can utilize technological advances to connect the whole process of the supply chain from raw materials to finished products and end consumers.

The central region in Vietnam offers various strategically important geographical characteristics and a well-developed transportation infrastructure that provides significant competitive advantages to investors over other areas of Vietnam. The long coastline of 1,200 kilometers and 13 seaports, including seven first-class ports, are considerable advantages for the central coastal provinces to develop the economy. The central region has good seaports, including Chan May and Da Nang, Ky Ha and Dung Quat, Quy Nhon, and Nha Trang. These could serve as the springboard to boost trade and develop the logistics industry. Central Vietnam is a land of logistics opportunities. However, there are difficulties and challenges in fully exploiting the advantages of serving logistics development in the area. The above literature review suggests that most previous studies investigate logistics at the national level, but largely ignore the assessment of logistics at the regional level, especially in Vietnam. This research attempts to analyze the factors that impact the current status of LSP in Central Vietnam and provide some managerial implications on logistics competitive strategy.

3. Methodology

A national/regional logistics system includes (1) transport and logistics infrastructure, (2) the institutional and regulatory framework, and (3) digital transformation. The assessment of the

logistics system in Central Vietnam can be based on these strategic dimensions that are considered as being the key components. This standardized logistics framework is essential in understanding the logistics system and its relationship with three logistics-related sizes.

The semi-structured interview was utilized to obtain in-depth data related to 3 logistics dimensions. The semi-structured interviews were primarily based on what was obtained through an extensive literature review. The purpose of the semi-structured, interviews and questionnaires was to get a clear picture of the factor impact on the current status of logistics-related sectors in Central Vietnam.

The authors surveyed logistics services to understand the factor that impacts the current status of LSP in Central Vietnam. A thirty-item questionnaire was designed after careful discussion by logistics researchers and practitioners from VLA (Vietnam Logistics Business Association), VCCI (Vietnam Chamber of Commerce and Industry), and UTT (University of Transport Technology), and in consultation with several logistics managers who are familiar with the context of Vietnam. The questionnaire included two major parts:

1. The basic information about enterprises

2. The respondent's perception of the logistics service in Central Vietnam regions

The first part consisted of questions on company information such as type of business ownership, the number of operation years, and the central area of operation. In part two, close-ended questions were utilized to investigate the current status of logistics services in Central Vietnam and other regions in Vietnam. The questionnaire was developed in the Vietnamese language and then distributed through an electronic survey system (Google form). In September 2021, the survey was delivered to 600 firms, and an official note from the UTT requesting cooperation. After two weeks, a total of 488 valid questionnaires were collected, with a response rate of 81.33%. The survey data were analyzed to investigate the factors that impact the current status of logistics services in Central Vietnam. Fig. 1 shows the expected relationship between the independent variable and the dependent variable. The independent variables include three variables: Digital transformation application at LSPs, The role of infrastructure for LSP, Government policy mechanism for LSP, and the dependent variable is the current status of LSP.

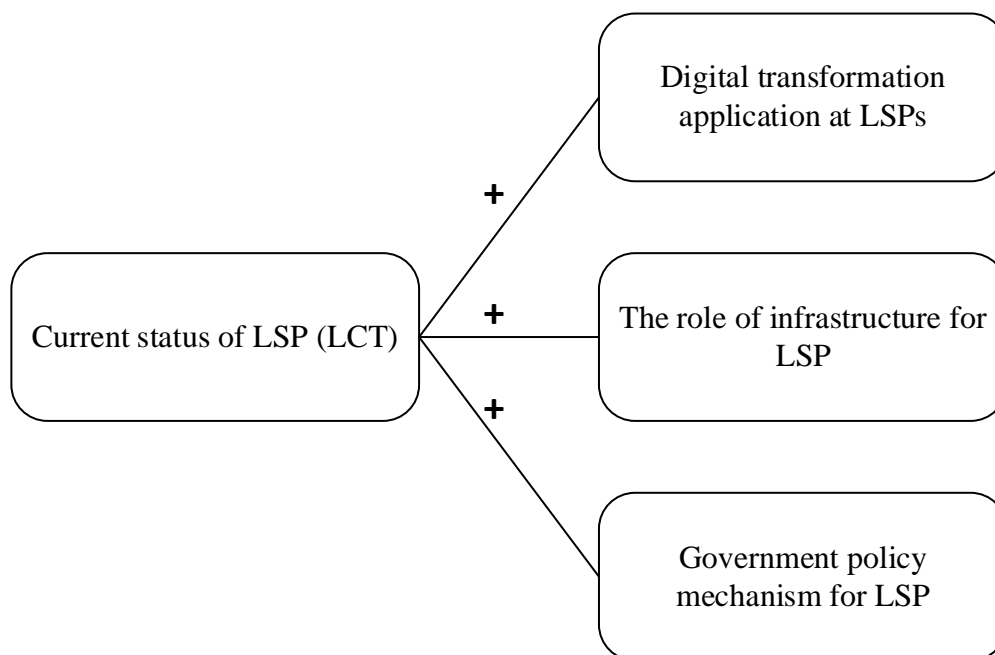


Fig. 1: The research model

Table 1 shows the coding symbols of the model. The research hypothesis is put forward as follows:

- H1: Digital transformation factors will positively affect the current status of LSP
- H2: Infrastructure will positively affect the current status of LSP
- H3: Government policies and mechanisms will positively affect the current status of LSP

4. Research results

4.1. Respondent profile

The survey has gathered information concerning the respondent profile, which is essential because it provides basic information. Several firm profile issues addressed in the questionnaire are reported and discussed in Table 2.

Table 1: Coding table

DTA	Digital transformation application at LSPs
DTA1	LSP enterprises apply information technology in human resource management
DTA2	LSP applies information technology in the management of transportation activities
DTA3	LSP applies information technology in activities related to customs declaration
DTA4	LSP applies information technology in order to management
DTA5	LSP applies information technology in warehouse management
DTA6	LSP applies information technology to the connection of the logistics system
DTA7	Forwarding management systems (FMS), transportation management (TMS), warehouse management (WMS), and resource management (ERP) within logistics companies are only sporadically applied to suppliers.
DTA8	Cloud computing applications are also very unfamiliar to companies
IFL	The role of infrastructure for LSP
IFL1	Transport infrastructure strongly affects the operation of LSP
IFL2	Warehousing infrastructure strongly affects the operation of LSP
IFL3	Information technology infrastructure affects the operation of LSP
IFL4	Infrastructure costs affecting the operation of LSP
GPL	Government policy mechanism for LSP
GPL1	Local strategies, visions, and plans to encourage LSP
GPL2	The LSP mechanism (tax, administrative management, service prices) is transparent and clear
LCT	LSP's current status
LCT1	LSP's current status increases its position and image in the logistics market
LCT2	LSP's current status increases the efficiency
LCT3	LSP's current status increases stability and sustainable development in the future

Table 2: Respondent profile

Firm characteristics	Firm group	Frequency	Percentage
Headquarters location	Northern Vietnam	96	19.67%
	Central Vietnam	371	76.02%
	Southern Vietnam	21	4.3%
Ownership	Limited liability company	60	12.30%
	State-owned enterprise	18	3.69%
	Shareholding company	324	66.39%
	Private enterprise	66	13.52%
	Joint venture company	8	1.64%
	Enterprise with 100% foreign-owned capital	12	2.46%
	Less than 10	26	5.33%
Number of employees	11-30	35	7.17%
	31-50	49	10.04%
	51-100	100	20.49%
	101-200	215	44.06%
	200 or more	63	12.91%
	Major logistics activities	Sea freight service	322
Airfreight service		313	64.1%
Rail transport service		312	63.9%
Road transport service		344	70.5%
Delivery service		338	69.3%
Warehouse service		334	68.4%
Freight forwarding and customs declaration service		290	59.4%
Loading and unloading service		312	63.9%
Analysis and verification		296	60.7%
Direct delivery service		299	61.3%
Others		265	54.3%

Several company characteristics are as follows. The survey results indicate that more than 66% of respondents are shareholding companies, which has caused a more significant proportion of non-state-owned firms to exist in the logistics industry. The employment base in the survey varies substantially among the respondents. At the same time, 12% report less than 30 employees, and another 30% report at least 200 employees.

Fig. 2 shows the self-evaluation of the quality of personnel. Fig. 2 indicates that most employees meet standard work requirements.

4.2. The reliable scale

The test results show that Cronbach's Alpha coefficient of all the scales has a value greater than 0.9 (the lowest in the price competition scale with

$\alpha=0.784$). The correlation coefficient of all variables is more significant than 0.3 (Table 3).

4.3. Factor analysis (EFA)

The analysis for three factors impacting competitiveness (except for the destination environment factor, a dependent intermediate variable) includes 17 observed variables. The factor analysis results showed that the variables were extracted into four groups, with the total variance extracted =62 %>50%, and the scale was accepted (Table 4).

4.4. KMO and sig coefficient

The exploratory factor analysis for the independent variables reveals that Bartlett's test p-value of 0.000 permits us to reject the null

hypothesis H0 (H0: Factor analysis does not match the data). The KMO value of 0.897 indicates that the model is highly relevant (Table 5). The Durbin-

Watson test (Table 6) and the Anova test (Table 7) also give results consistent with the model.

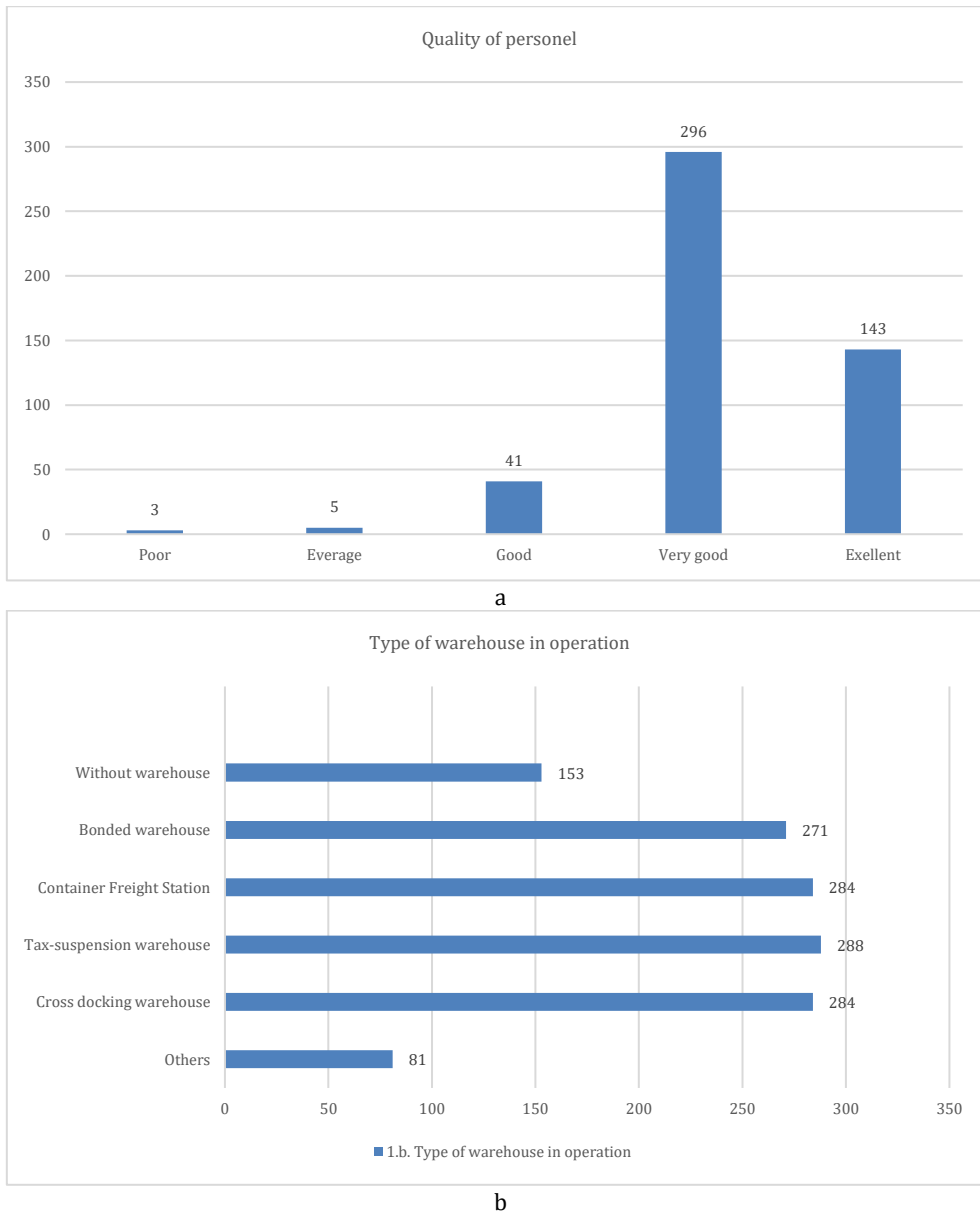


Fig. 2: Facilities and human resources

Table 3: Item-total statistics

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Squared multiple correlation	Cronbach's alpha if item deleted
DTA1	66.77	103.196	.635	.630	.923
DTA2	66.74	102.052	.688	.719	.922
DTA3	66.81	101.838	.706	.684	.922
DTA4	66.86	101.746	.616	.539	.924
DTA5	66.88	102.587	.626	.502	.924
DTA6	67.08	101.114	.597	.562	.925
DTA7	67.39	102.337	.592	.535	.924
DTA8	67.29	103.070	.544	.558	.926
IFL1	67.19	103.390	.662	.634	.923
IFL2	66.91	100.659	.690	.694	.922
IFL3	66.89	101.343	.612	.650	.924
IFL4	66.60	103.695	.605	.622	.924
GPL1	66.82	102.301	.602	.521	.924
GPL2	66.56	103.679	.591	.521	.924
GPL3	66.87	103.120	.625	.547	.924
LCT1	66.89	103.446	.608	.618	.924
LCT2	66.71	103.922	.618	.595	.924
LCT3	66.88	103.592	.601	.585	.924

Table 4: Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	8.169	45.385	45.385	8.169	45.385	45.385
2	1.626	9.033	54.419	1.626	9.033	54.419
3	1.304	7.245	61.664	1.304	7.245	61.664
4	1.118	6.209	67.873	1.118	6.209	67.873
5	.984	5.467	73.340			
6	.708	3.934	77.275			
7	.616	3.424	80.698			
8	.494	2.742	83.440			
9	.479	2.661	86.102			
10	.392	2.180	88.282			
11	.357	1.983	90.264			
12	.350	1.944	92.208			
13	.316	1.755	93.963			
14	.291	1.617	95.580			
15	.224	1.247	96.827			
16	.207	1.149	97.976			
17	.191	1.062	99.038			
18	.173	.962	100.000			

Extraction method: Principal component analysis

Table 5: KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		.897
Bartlett's test of Sphericity	Approx. Chi-Square	1973.913
	df	153
	Sig.	.000

Table 6: Model summary^b

Model	R	R square	Adjusted R square	Std. error of the estimate	Change statistics				Durbin-Watson	
					R square change	F change	df1	df2		Sig. F change
1	.665 ^a	.442	.433	.54458	.442	47.521	3	180	.000	2.207

a. Predictors: (Constant), GPL, DTA, IFL; b. Dependent variable: LCT

Table 7: Anova^a

Model	Sum of squares	df	Mean square	F	Sig.	
1	Regression	42.280	3	14.093	47.521	.000 ^b
	Residual	53.382	180	.297		
	Total	95.661	183			

a. Dependent variable: LCT; b. Predictors: (constant), GPL, DTA, IFL

Table 8 shows the multivariable regression results of factors affecting the quality of competitiveness of enterprises in Vietnam. The

degree of influence of the independent variables on the dependent variable is shown through the standardized regression coefficient.

Table 8: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. error	Beta			
1	(Constant)	.929	.264		3.516	.001
	DTA	.370	.095	.398	3.918	.000
	IFL	.221	.087	.031	1.369	.007
	GPL	.405	.078	.337	5.167	.000

a. Dependent variable: LCT

Regression results show that all the independent variables included in the model are correlated with the dependent variable (sig value<0.05). We have a normalized regression model: We have a normalized regression model:

$$LCT = 0.398DTA + 0.031IFL + 0.337GPL + e_i$$

The results of the investigation of the factors affecting the status of LSPs in the central provinces satisfy the proposed hypotheses. It can be seen that the digital transformation factor has the strongest impact on infrastructure with the largest impact with a regression coefficient of 0.398. The second factor affecting the status of LSPs in central Vietnam is government policy and mechanism factors with a regression coefficient of 0.337. Finally, the infrastructure factor has a regression coefficient of 0.031. Thus, the digital transformation factor is one

of the most important factors affecting the development of LSPs in Central Vietnam.

5. Discussions and conclusions

According to the Prime Minister's Decision No 221/QD-TTg, the action plan for improving the competitiveness of Vietnam's logistics industry to 2025 has been improved. Vietnam is planning to raise the contribution of logistics services to its GDP to about 6% by 2025 (Nguyen, 2020). Several critical managerial implications could be drawn for logistics service providers and managers in Central Vietnam.

5.1. Solutions for digital transformation

Today's logistics industry depends on complex activities between many stakeholders. The need for

quick and on-time delivery forces companies to digitally transform their systems and businesses. Businesses will lack the necessary transparency and clarity with traditional operating methods. In addition, logistics enterprises also have to face fierce competitive pressure in the market, leading to the need to optimize time, costs, and operations. Congestion due to the pandemic is especially difficult for companies that do not have enough coherence in their operations.

The digital transformation of logistics will help businesses be transparent about information, optimize operating costs, and quickly handle unexpected problems in the process of transporting goods. Blockchain is a decentralized data technology, that achieves clear transparency and collects valuable system-wide information on the delivery path. This high technology enables the rapid development of global trade and increases GDP. Through technologies such as sensors, IoT, data analytics, and robotics, block chaining makes the transportation of goods more optimal than ever. Activities such as calling and faxing for orders and shipments can be found to be ineffective, mainly due to their lack of transparency and inability to detail the progress of shipments. Logistic argument passing can provide real-time data on each step of the domestic as well as international freight process, thereby increasing transparency in the shipping process of each business.

The outsourcing of logistics activities to logistics service providers has now become widespread. Therefore, as an integral part of the business environment, the logistics industry has attracted much attention from academia and practitioners. This study has attempted to study the current status and prospects of the logistics industry in Central Vietnam. Various important characteristics and managerial implications have been derived.

Future studies with larger samples and more comprehensive survey questions will provide invaluable information for local providers and government authorities. It could also be helpful for foreign logistic service providers to understand the logistics industry in Central Vietnam better and take an appropriate strategy when they enter it. At the same time, the study provides a valuable reference for future studies in studying the logistics industry in other regions.

5.2. Resolutions on several specific mechanisms and policies

Several logistics policies should be taken into account as follows: Logistics zones should be provided to create logistics activities and added value clusters. Still, these zones may not fit well the needs of logistics service providers, particularly with the ongoing change in manufacturing around automation and robotization.

The findings also indicate that the institutional problem is one of the most serious barriers that prevent the development of the logistics industry. It

is necessary to strengthen the coordination between logistics-related authorities, prevent regional protectionism, and take policies to encourage state-owned logistics users to detach in-house logistics departments.

The government should promote transparency in customs clearance in particular or in other rules and regulations in general. The goal is to establish a solid base ground for consistent implementation, interpretation, and enforcement. The draft of any new law should be widely publicized to survey and collect comments and suggestions. For instance, before coming into effect, new regulations regarding custom clearance should be made public so that practitioners, including freight forwarders, shipping agents, shippers, and customs officers, could contribute their idea. Local government agencies should facilitate international trade through their efficient customs administration, security, good sanitation, and business environment, and give foreign logistics companies easy access to funds.

5.3. Resolutions on infrastructure development

The government should liberalize and privatize the transport sector and break public monopolies, particularly in the road, port, and airport sectors. These measures may enable the logistics industry in Central Vietnam to improve its performance and competitiveness. A significant transshipment hub and its logistics zones should be developed. This will be expected to build new linkages with global supply chains, mainly through its expanded connectivity as a transshipment hub. It is necessary to strengthen and diversify investment capital sources for developing transport infrastructures for developing logistics infrastructure. Also, government bodies must encourage and create conditions for all economic sectors, including foreign-invested enterprises, to participate in infrastructure development, concentrating resources to prioritize renovation, upgrading, and constructing new transportation systems.

Acknowledgment

This research is funded by the University of Transport Technology and the Ministry of Transport Technology under the project with grant number DT214030.

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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