

LAST - MILE LOGISTICS CHALLENGES FOR E-COMMERCE IN VIETNAM AFTER THE COVID-19 PANDEMIC

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Abstract: *The Covid-19 pandemic has affected all aspects of the socio-economic life of all countries in the world. Among the few business lines that can still survive and develop during the pandemic, e-commerce is considered to be the field with the most impressive growth rate. In Vietnam, the 4th outbreak of the pandemic in the southern region was like a push to boost e-commerce growth. However, to take advantage of this opportunity, e-commerce needs to overcome significant challenges related to cost and safety during the epidemic. In particular, last-mile logistics is considered the biggest challenge for e-commerce in Vietnam today. The article presents opportunities for e-commerce in Vietnam during the pandemic. Besides, the paper also points out specific challenges for last-mile logistics in Vietnam, thereby proposing some solutions for Vietnam's e-commerce to overcome these challenges.*

Keywords: *Covid-19, E-commerce, Last-mile logistics, Pandemic*

THÁCH THỨC VỀ GIAO HÀNG CHẶNG CUỐI ĐỐI VỚI THƯƠNG MẠI ĐIỆN TỬ VIỆT NAM SAU ĐẠI DỊCH COVID-19

Tóm tắt: *Đại dịch Covid-19 đã ảnh hưởng tới mọi mặt trong đời sống kinh tế - xã hội của tất cả các quốc gia trên thế giới. Trong số ít ngành nghề kinh doanh còn có thể trụ vững và phát triển trong đại dịch, thương mại điện tử (TMĐT) được đánh giá là lĩnh vực có tốc độ phát triển ấn tượng nhất. Tại Việt Nam, đợt bùng phát đại dịch lần thứ 4 tại khu vực phía Nam như một cú hích, thúc đẩy TMĐT tăng trưởng bất phá. Tuy nhiên, để tận dụng được cơ hội này, TMĐT cần phải vượt qua những thách thức không nhỏ liên quan đến vấn đề chi phí, an toàn trong dịch bệnh. Trong đó, giao hàng chặng cuối được xem là thách thức lớn nhất đối với TMĐT tại Việt Nam hiện nay. Bài viết trình bày những cơ hội đối với TMĐT tại Việt Nam trong đại dịch. Đồng thời, bài viết cũng chỉ ra những thách thức cụ thể đối với giao hàng chặng cuối tại Việt Nam, từ đó đề xuất một số giải pháp để TMĐT Việt Nam vượt qua những thách thức này.*

Từ khóa: *Covid-19, Đại dịch, Giao hàng chặng cuối, Thương mại điện tử*

1. Introduction

The Covid-19 pandemic that broke out in 2020 has shaken the world, and its effects have not shown signs of stopping. In the early stages, Vietnam is considered a bright spot in disease prevention and economic growth. However, the 4th outbreak in the 2nd quarter of 2021, which started in Ho Chi Minh City and then spread to the southern provinces of Vietnam, has made all production - business activities, as well as transportation businesses,

are almost paralyzed. In that context, people are not allowed or restricted to go out shopping, e-commerce becomes a "salvation" in ensuring the supply of food, food and essential goods for the community. Although it has caused heavy damage, it can be said that the Covid-19 pandemic has opened up many new opportunities for e-commerce. However, to seize this opportunity and at the same time overtake competitors, e-commerce businesses need to overcome the challenges of last-mile delivery, which has always been considered as one of the solutions that create competitive advantages before the arrival of the pandemic.

This article attempts to answer the question: *In addition to the inherent challenges, what are the new post-pandemic challenges for Vietnam's e-commerce in last-mile logistics? And how to overcome these challenges?*

To answer the above questions, the structure of this article will be as follows: First, some information about the opportunities of e-commerce in Vietnam after the 4th outbreak. Next, the article points out new last-mile logistics challenges that have emerged following this outbreak. To conclude, the author proposes some solutions to overcome the challenges of last-mile logistics in Vietnam in the current period.

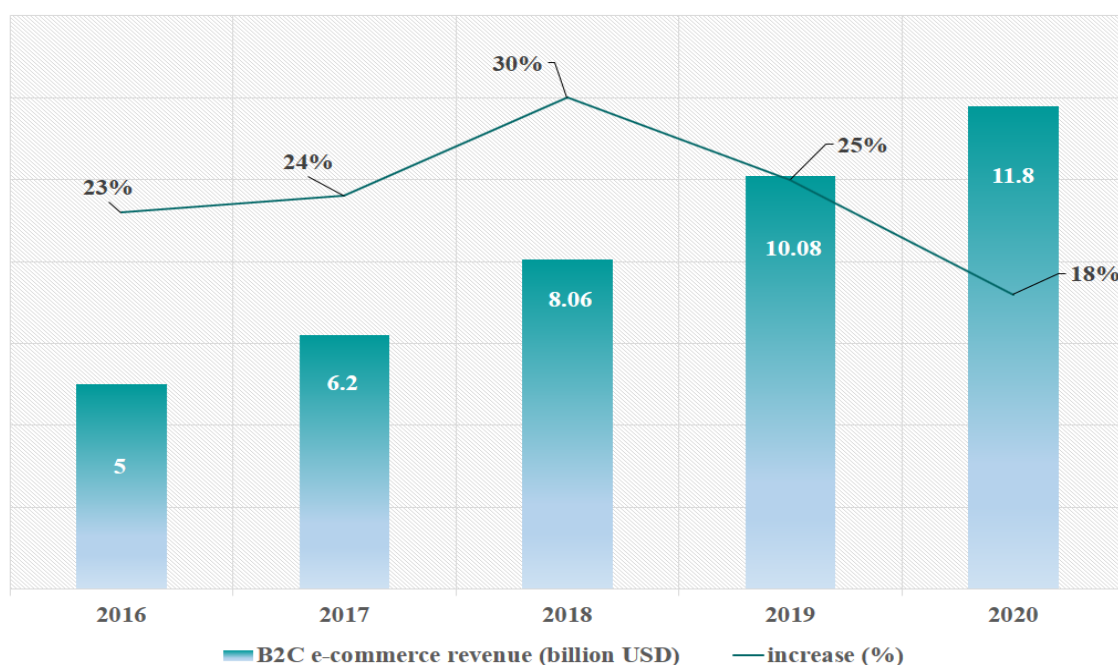
2. Vietnam's e-commerce market after Covid-19

In this context, the author mentions the situation of Vietnam's e-commerce market in two periods: the first is the period of 2020 (when Vietnam effectively fights against the epidemic and has stable economic growth), and the second is the Q2/2021 (when the epidemic broke out strongly and caused a heavy impact in the southern provinces of Vietnam).

2.1. Vietnam's e-commerce market in 2020

From the beginning of 2020 until now, the appearance of the Covid-19 epidemic has made the whole world go crazy, economic sectors have continuously adapted to maintain a state of "new normal" due to the heavy influence of the pandemic. At that time, e-commerce was the only industry that recorded normal growth amid the slowdown of economies around the world. This fact is the general situation of the world when the e-commerce industry has different advantages that can completely cope with the challenges of the Covid epidemic. The complicated and unpredictable change of the epidemic is like a boost to the e-commerce industry. With the advantages of fast, safe, convenient shopping and many incentives, the world's e-commerce industry in general and in Vietnam, in particular, has promoted its advantages, step by step promoting revenue growth.

According to the 2020 E-commerce White Paper from the Department of E-commerce and Digital Economy (2021), Vietnam's B2C e-commerce revenue in 2020 reached 11.8 billion USD, with an increase of 18% compared to 2019. (Figure 1).

Figure 1. Vietnam B2C e-commerce revenue 2020

(Source: Department of E-commerce and Digital Economy, 2021)

Along with that, the Department of E-commerce and Digital Economy reported that the percentage of Internet users and online shopping in Vietnam is also increasing sharply. In 2020, the number of online shoppers reached about 49.3 million people (an increase of 4.5 million people compared to 2019). The percentage of internet users participating in online shopping in 2020 is 88%, an increase of 11% compared to 2019 (77%).

Vietnam's e-commerce market in 2020 also witnessed a big change in the shopping and consumption trends of customers. If in 2019, the online shopping channels of consumers are mainly through forums and social networks, then by 2020, e-commerce websites were chosen by the majority of consumers (reached 74% compared to 52% in 2019) (Department of E-commerce and Digital Economy, 2021). In addition, consumers' payment habits have made remarkable changes. Although cash on delivery (COD) still dominates, there has been a slight decrease (from 86% in 2019 to 78% in 2020), while cashless payment methods (such as credit cards, e-wallets, etc.) has an increasing trend.

In general, after the appearance of the pandemic, Vietnam's e-commerce market in 2020 has had positive changes. However, e-commerce in Vietnam in this period has not had any significant changes. E-commerce in Vietnam only really "boomed" from Q2/2021, when the pandemic broke out again in Ho Chi Minh City and neighbouring provinces.

2.2. Vietnam's e-commerce market from Q2/2021

Breaking out from April 27 in Ho Chi Minh City until now, the 4th wave of the Covid-19 epidemic in Vietnam is considered to be many times more fierce than the previous 3 waves. However, a great opportunity came to Vietnam's e-commerce when Ho Chi Minh City announced a blockade, and then the social distancing of all 19 southern provinces and cities according to Directive 16 of the Prime Minister. In those days, people

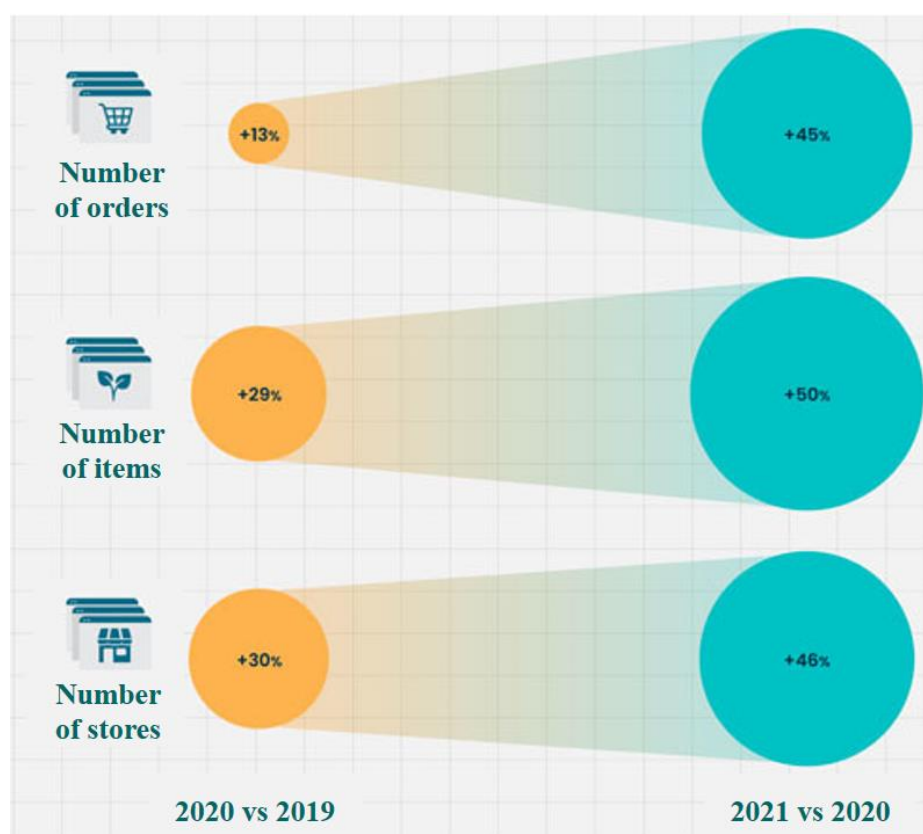
are not allowed to go out to buy food and essential goods, then all buying and selling activities can only be done through online sales channels.

According to statistics, the web visits of the top 50 shopping websites on the Vietnam e-commerce map in the first six months of 2021 reached more than 1.3 billion, up 10% compared to the first quarter of 2021 (Iprice, 2021). This is also the highest growth rate ever in Vietnam. Specifically: Shopee Vietnam obtained 73 million visits in Q2/2021, an increase of 9.2 million compared to Q1/2021. Lazada Vietnam's average website traffic increased 14% over three months at the beginning of the year, reaching 20.4 million visits. Meanwhile, the average visits to the websites of the two domestic e-commerce platforms Tiki and Sendo decreased slightly, reaching 17.2 and 7.9 million respectively. Especially impressive is the growth of the e-commerce site Vo So. Although slower than competitors in entering the e-commerce market (born in July 2019), thanks to reasonable campaigns, even though it is not at the top of websites with a lot of visits or a high number of visits, but Vo So still ranks 8th in the top 10 most rated e-commerce websites. (Reputa, 2021).

This shows that Vietnam's e-commerce business has a bright future ahead and has many opportunities to continue to grow rapidly. Specific opportunities for e-commerce in Vietnam from Q2/2021 are detailed below:

- Firstly, if before, the products on e-commerce sites were mainly fashion, cosmetics, entertainment,... Now the number of items has increased significantly, mainly groceries goods. This is an inevitable consequence of prolonged social distancing, increasing consumer demand for fresh foods, beverages, prepackaged foods, fruits and vegetables. This helps e-commerce expand its scale, including the number of orders, the number of items as well as the number of stores participating in sales. Actual data collected on Sendo for agricultural products and specialities of Vietnamese origin also shows that the number of Vietnamese speciality agricultural products sold on this floor has skyrocketed by 50% in 2021 compared to the same period last year. Previously, in 2020, this number also increased by 29% compared to 2019 (Figure 2).

Figure 2. The growth in speciality agricultural products on the Sendo e-commerce platform



(Source: Vân Anh, 2021)

- Second, the 4th outbreak of the disease, along with a long time of social distancing, put people in a miserable situation. Fearing the epidemic and having no income, thousands of people living in Ho Chi Minh City, Dong Nai and Binh Duong find ways to return country home. Not to mention the risks of disease and labour shortage, this relocation has created a new opportunity for Vietnam's e-commerce. If in the past, consumers shopping on e-commerce were mainly people living in urban areas, then now, people from big cities returning to their hometowns have brought their shopping and consumption habits with them and spread to residential areas in rural areas. Not only that, the age of online shopping in the past was mainly young people, but after the pandemic, the number of middle-aged shoppers (especially women in charge of housework in the family) increased up significantly.

Thus, the Covid-19 pandemic has brought two great opportunities, with unique characteristics for Vietnam's e-commerce, which are: (1) more diversified sales channels, especially creating development opportunities for Vietnamese agricultural products; and (2) online shopping habits have been gradually formed in rural communities. However, to seize these opportunities, Vietnam's e-commerce needs to overcome many challenges, including those that existed before the pandemic and new challenges that appeared to adapt to the "new normal" period.

3. The last-mile logistics challenges for Vietnam's e-commerce

3.1 The role of last-mile logistics in e-commerce

Last-mile is defined as the final stage in the distribution process in online retailing and is one of the most challenging parts of the supply chain (Esper et al., 2003). That is, last-mile delivery is about delivering a product to the final consumer mostly at their doorstep and it is the only stage that has direct contact with the customers.

Lim et al. (2015) proposed LML is the last stretch of a business-to-consumer (B2C) parcel. It takes place from the order penetration point (i.e., fulfilment centre) to the final consignee's preferred destination point (e.g., home or cluster/collection point), for the reception of goods.

A summarized definition of LML is proposed Wohlrab et al., (2012): "LML is the last part of a B2C delivery process. It takes place within a predefined delivery area (e.g. urban area); including the upstream logistics to the last transit point until the destination point of the parcel. It involves a series of activities and processes, of critical value to all the involved stakeholders (e.g. Customer, Industry and Institution) within the delivery area".

E-commerce has more challenges than the offline market. One of them is the higher complexity of the logistics activities, in particular the LML (Mangiaracina et al., 2019). LML has become one of the most important concepts on the frequently changing and emerging e-commerce stage. At the launch of e-commerce, consumers were fine paying high shipping prices and waiting days for their goods to come in. The Internet was still new, and the idea of buying online was still fresh. As shopping online has grown more commonplace, consumers have begun to demand more with the transportation of their online purchases. Without LML, e-commerce cannot thrive as consumers will not be able to get goods at their doorstep, one of the advantages compared to offline shopping. Through LML, consumers can experience convenience, simplicity and time efficiency when making online purchases (Chen and Dubinsky, 2003). Therefore, even though it is only a small segment in the entire supply chain, LML can be seen as the only direct link between an e-commerce enterprise and the end consumers. Understanding LML and its role in effect on customer satisfaction are critical to every business today, from global enterprise to smaller e-commerce sellers. Companies that are looking further down the road, are already identifying and implementing last-mile logistics solutions to help them compete with the giants of e-commerce.

3.2. The last-mile logistics challenges for Vietnam's e-commerce

According to D.T. Phuong (2020), last-mile logistics (hereafter: LML) in Vietnam in the pre-pandemic period had several challenges that needed to be addressed, which are: (i) Fierce competition from shipping companies involved in LML; (ii) the underdevelopment logistics infrastructure, including narrow roads, traffic jams and means of transportation in e-logistics is not diversified, lacking, and high cost; (iii) the consumers' behaviour in payment (with mostly COD); (iv) the shortage of technology from both of e-logistics providers and customers; and (v) other challenges such as legal corridors and administrative procedures, human resources,...

When the pandemic occurs, the above challenges have not been completely solved. Except for consumers who are gradually getting used to the cashless payment method, the problems of e-logistics infrastructure, the technology as well as the shortage of human resources are still obstacles to Vietnam's e-commerce. In addition, when great opportunities come to Vietnam's e-commerce from social distancing, new challenges have also arisen. Those are challenges related to the operation of e-commerce businesses, related to transportation and delivery costs, and challenges of ensuring safety against epidemics. (Figure 3). Details of these emerging challenges are as follows:

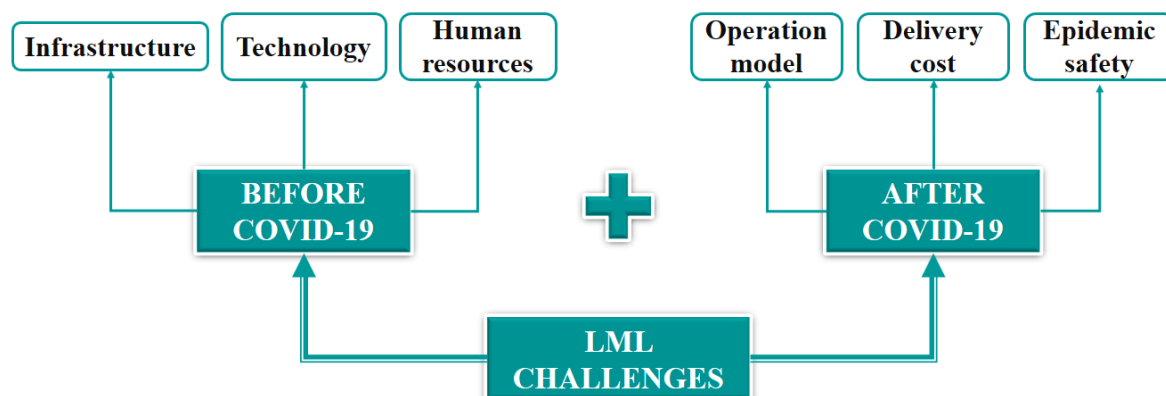
Operation model:

As mentioned above, after the pandemic, the number of items on e-commerce floors increased, especially fresh goods (which are perishable). However, issues related to the supply of this item to customer are radically different from previous operating models, which were mainly for general goods. Those are:

+ Firstly, the requirements for quality as well as the assurance of food safety and hygiene. This is always a consumer concern. This forces e-commerce to be careful in choosing reputable suppliers. Therefore, e-commerce businesses must both set certain criteria for product suppliers and quickly respond to quickly fulfil orders for consumers.

+ Second, fresh goods have a low life cycle, and quality quickly deteriorates if transportation and storage times are too long. In addition, there are requirements for ensuring the necessary temperature to keep goods from being damaged. So, the time allowed for LML will be reduced compared to conventional goods, and shippers need to be equipped with coolers.

Figure 3. LML challenges for Vietnam's e-commerce



(Source: Author's works)

Shipping and delivery costs

The cost burden on e-commerce during the period of social distancing arises from the requirement to maintain business operations while ensuring safety against the epidemic. To meet this, first of all, e-commerce businesses must implement "3 on the spot" rule (working on the spot, eating on the spot and resting on the spot). If businesses cannot do this, they must implement a 'one route, two destinations' model which means businesses must arrange transportation on one route between the accommodation location such as dormitory, hostel, or

hotel, and the work venue. This forces businesses to spend extra costs to arrange a rest area for employees, and at the same time to pay additional allowances to encourage employees to accept to stay in the working area for a long time. In addition, to meet the State's regulations on epidemic prevention as well as create a trust for customers, e-commerce businesses must organize periodic testing for staff, especially shippers crew. It's about 350,000-700,000 VND per test for only 5 days of expiring, this cost is a big challenge.

When the social distancing is finished, another arising cost is fuel. The increase in world oil prices causes domestic fuel prices to increase as well. That makes the cost of shipping and delivering goods in LML continue to increase, while e-commerce businesses cannot include this in the cost of goods, because low freight rates are also one of the priority options of consumers when making a purchase.

Epidemic safety

Currently, although almost all production and business activities in Vietnam have been resumed, to ensure safety against the epidemic, e-commerce businesses in particular, as well as all other industries, still need to rearrange the working personnel (about 50%) to ensure the maintenance of operations in case of Covid-19 appears at the workplace. Employees also need to be equipped with protective equipment such as masks, disinfectant sprays,... However, after a while, there will be subjective psychology in both delivery staff and customers. Therefore, e-commerce businesses still need to regularly remind and check the compliance of employees with epidemic prevention regulations. This will increase their administrative workload.

4. Conclusion and recommendation

After the pandemic, e-commerce developed rapidly in Vietnam. However, customer demand for LML has not changed: Consumers want fast home delivery, but they are still price sensitive. In addition, due to the requirements of epidemic prevention, LML needs to meet the requirement of contactless delivery. For e-commerce companies, LML is important because its accuracy, timeliness, and quality are the key factors for customers to return to purchase in the future. The development of e-commerce in general and online retail, in particular, has brought some trends in the LML field such as Changes in warehousing network respond to the needs of prompt, reliable delivery and growing volumes of parcels; or Own delivery services of e-commerce companies (Varvara Krechetova, 2021). Reality proves the success of Lazada Vietnam in catching up with this trend to overcome the period of social distancing. To meet the requirements of transporting perishable goods, Lazada Vietnam has built a system of micro-satellite warehouses, located at the gateway of Ho Chi Minh City and districts. This helped the classification and distribution of goods are done quickly. Besides, at the beginning of social distancing (August 2021), they carried out the transportation and delivery for 80% of the orders in HCMC and now this figure is 98%.

Therefore, to overcome the mentioned challenges and catch up with the current development trend of LML, Vietnamese e-commerce companies need to implement the following solutions:

Firstly, continue to ensure safety and prevent epidemics through contactless delivery. Currently, Viettel Post has piloted the use of smart delivery boxes (Post smart). Through automatic delivery boxes, people can receive goods without having to be in close contact with delivery staff or tellers. This is an effective solution to contribute to ensuring public health during the epidemic. However, these post smarts are currently only used for general goods and parcels. For fresh and perishable goods, e-commerce businesses need to do more research to solve problems such as the power supply for cold post smart, or the temperature monitoring device of the boxes,...

Second, encourage consumers to use cashless payment methods to avoid risks caused by customers refusing to receive goods, or risk of loss or robbery for shippers (DT Phuong, 2020), and prevent the risk of disease transmission as well. Currently, e-commerce sites are also actively launching many incentive programs and promotions for online payment transactions, thus attracting more customers. In addition, some e-commerce sites also cooperated with banks to introduce co-branded credit card products to the market such as Tiki launching Sacombank Tiki Platinum linked credit card in May 2020. Or recently, Shopee has cooperated with VPBank and Visa to launch a VPBank-Shopee credit card. However, the reality shows that the rate of cashless payment when buying online is still modest. Therefore, to improve this ratio, e-commerce businesses need to continue to implement promotional activities for customers using electronic payment forms. Besides, e-commerce sites need to tighten management of the quality of products and goods sold to create trust and protect the interests of consumers.

Third, Vietnamese e-commerce businesses need to quickly implement digital transformation in their operations. Besides investing in hard infrastructure for digital transformation such as physical infrastructure, data infrastructure, artificial intelligence computing, connectivity and digital identity, ..., e-commerce businesses also need to focus on developing soft infrastructure, including training and developing human resources in the direction of digitalisation, as well as changing thinking about the digital transformation at the management level.

However, for e-commerce in general and LML in e-commerce, in particular, to be able to seize opportunities and keep up with the world's trends, in addition to the efforts of e-commerce businesses, it is necessary to have the support of related parties. That is the drastic measure of the State in perfecting the legal framework for e-commerce as well as propaganda activities to form and maintain the habit of cashless payment for consumers. The participation of banks to support and encourage online payment methods is very necessary. And last, the support of telecommunications units to ensure the stability of the internet network can help improve customer satisfaction when shopping online.

REFERENCES

1. Cục Thương mại điện tử và Kinh tế số, *Sách Trắng Thương mại điện tử Việt Nam năm 2020*, Bộ Công Thương, 2020
2. Chen, Z and Dubinsky, AJ., *A conceptual model of perceived customer value in e-commerce: A preliminary investigation*, Psychology and Marketing, 20(4), 323-347, 2003

3. D.T. Phuong, *Last-Mile Logistics in Vietnam in Industrial Revolution 4.0: Opportunities and Challenges*, Advances in Economics, Business and Management Research, volume 115, 17th International Symposium on Management (INSYMA 2020), 2020
4. Esper, T., Jensen, T. and Turnipseed, F., *The last mile: an examination of effects of online retail delivery strategies on consumers*, Journal of Business Logistics, (24)2, pp. 177-203, 2003
5. Iprice, *E-commerce Q2 2021: Vietnamese's Interest in Online Grocery Stores Is Skyrocketing*, https://a.ipricegroup.com/media/Duy/Content_MKT/MoE_Q2_2021/EN_-_E-commerce_Q2_2021_Vietnameses_Interest_in_Online_Grocery_Stores_Is_Skyrocketing__1_.pdf, accessed on 12nd Nov, 2021
6. Mangiaracina, R., Perego, A., Seghezzi, A., & Tumino, A., *Innovative solutions to increase last-mile delivery efficiency in B2C e-commerce: a literature review*, International Journal of Physical Distribution & Logistics Management, 49(9), 901-920, 2019
7. Reputa, *Bản tin ngành Thương mại điện tử tháng 8/2021*, <https://www.reputa.vn/>, accessed on 12nd Nov, 2021
8. Stanley Frederick W.T. Lim, Xin Jin and Jagjit Singh Srαι, *Last-mile logistics models: A literature review and design guideline*, 20th International Symposium on Logistics Conference. Bologna, Italy, 2015
9. Vân Anh, *Doanh nghiệp Thương mại điện tử trong nước đang “vẽ” bản đồ nông sản, đặc sản Việt*, <https://ictnews.vietnamnet.vn/>, accessed on 12nd Nov, 2021
10. Varvara Krechetova, *Green and sustainable logistics network: micro mobility in the first - last mile*, United Nation, ESCAP, 2021
11. Wohlrab, J., Harrington, T.S. and Srαι, J.S., *Last Mile Logistics Evaluation-Customer Industrial and Institutional Perspectives*, 23rd Annual Production and Operations Management Society (POMS) Conference, Chicago, Illinois, USA, 2012