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# From Cart to Closet: Elevating Order Fulfillment for Customer Satisfaction in Vietnam's Online Fashion Industry

## Graduation Thesis

Metropolia University of Applied Sciences

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From Cart to Closet: Elevating Order Fulfillment for Customer Satisfaction in Vietnam's Online Fashion Industry

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## Abstract

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The thesis focuses on order fulfillment operations and how they are shaping the Vietnamese e-commerce fashion industry. The order fulfillment operations were discussed, including the last-mile delivery process, which is crucial to customer satisfaction, and the process of inventory management. Additionally, a survey gathers insights from Vietnamese consumers in the industry, allowing them to share their views. Challenges may emerge throughout the supply chain and consumers may identify specific issues. They could express their opinions on what local players, in general, can do to better their services, given the direct impact of last-mile delivery on customer experience.

The thesis uses a qualitative-oriented method. The qualitative part is based on theoretical sources from books, articles, and educational websites to answer the four questions. Then, it assesses customer satisfaction by conducting a survey and analysing it.

The topic's outcome shows findings on e-commerce and the order fulfillment process, which contains two stages: inventory management and last-mile delivery. Subsequently, an assessment is conducted to gain insights into how the Fashion Industry, specifically in Vietnam, can improve operations and last-mile delivery.

Keywords: E-commerce, Order fulfillment operations, Last-mile delivery, Inventory Management, Fashion Industry

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The originality of this thesis has been checked using Turnitin Originality Check service.

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## **Glossary**

B2B	Business-to-Business
B2C	Business-to-Consumer
B2E	Business-to-Employee
B2G	Business-to-Government
C2C	Consumer-to-Consumer
EDI	Electronic Data Interchange
EFT	Electronic Funds Transfer
G2C	Government-to- Consumer
G2G	Government-to- Government
KOC	Key Opinion Consumer
KOL	Key Opinion Leader
PWA	Progressive Web App
SKU	Stock-keeping unit
SME	Small and Medium Enterprises

# 1 Introduction

In the modern-day global commerce landscape, e-commerce has ushered in a transformative age for supply chain management. The term "e-commerce supply chain" refers to the logistics operations of an online store. It includes raw material procurement, finished goods manufacturing, inventory management, warehousing, order fulfillment, and last-mile delivery (Wu, 2022).

More specifically, due to the online nature of the business, items, and products flow across the supply chain from sellers (or suppliers) to buyers, payments go from buyers to sellers, and information is shared along the way at practically any point. In the Vietnamese fashion market, e-commerce has great opportunities with huge growth rates. According to the Vietnamese Ministry of Finance (2015), Vietnam is considered one of the most vital keystones in global e-commerce development in the ASEAN group and generally in the world. In exporting textiles and garments, Vietnam comes fourth in line in exporting internationally, according to Vietnam National Textile and Garment Group Vinatex (2015). In the future, this market could compete in an international environment thanks to the boom in e-commerce revenue upsurges (Thong Dang, 2020). Therefore, the motives to research in this market area are increasing.

Consequently, the research also digs into the order fulfillment process, which plays a crucial role in the e-commerce supply chain. E-commerce logistics activities, including last-mile delivery and inventory management – two significant stages in the supply chains – are also important factors in this study.

## 1.1 Main Research Question

There is one main research question to define the issue.

**The main question:** What are the circumstances and trends of inventory management, order fulfillment, and last-mile delivery in the Vietnamese e-commerce fashion industry?

The topic itself is rather broad, so it is broken down into three minor sub-questions. Each question answers one aspect of the main research question.

**First sub-question:** What are the main characteristics of the Vietnamese e-commerce fashion industry?

**Second sub-question:** How are inventory management and last-mile delivery conducted in the Vietnamese e-commerce fashion industry?

**Third sub-question:** How is the overall customer satisfaction over shopping experiences in the market in Vietnam?

Answering the three sub-questions above will contribute to finding the conclusion to the main research question.

## 1.2 Research methodology and data collection

Research methodology is a structured mechanism for solving a problem and focuses on the science of how research should be conducted. It includes the procedures used to describe, explain, and predict phenomena to acquire knowledge. It aims to outline the research plan (Rajasekar, Philominathan, & Chinnathambi, 2006: 5).

Saunders et al.'s (2019) research onion describes how and which techniques are chosen to develop the research methodology, recapping the main layers of research methodology and data collection. The six main layers of the onion are philosophy, approach to theory development, methodological choice, strategies, time horizon, and techniques and methodology. Figure 1 below depicts the core

layers of this study, narrowing down to three main elements: research approach, methodological choice, and techniques and procedures.

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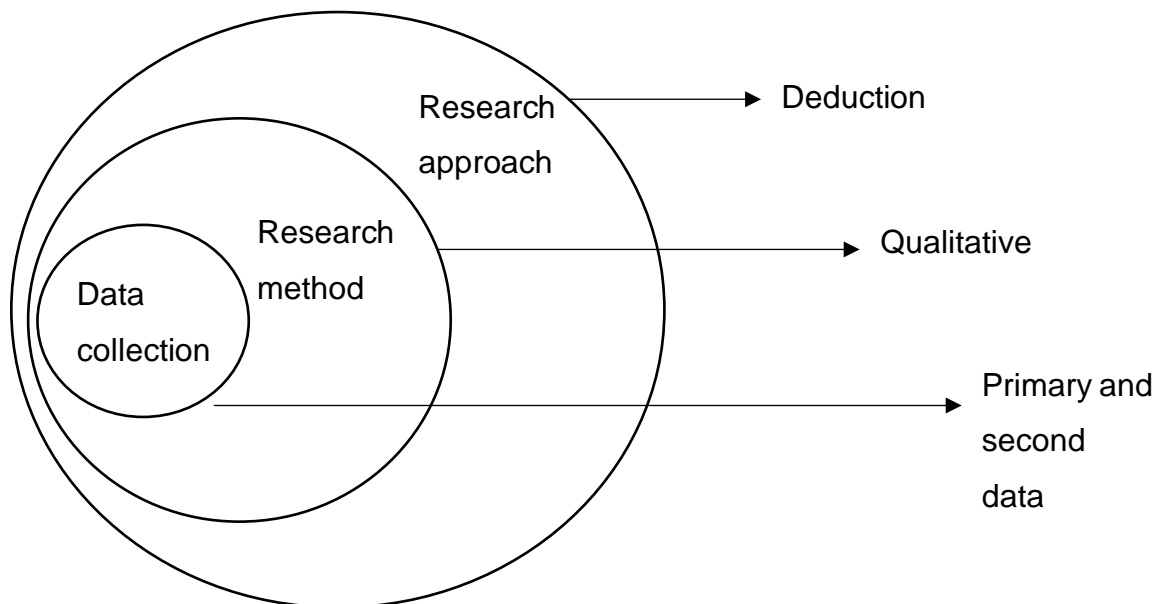


Figure 1 Research Onion

a. Research approach: Deductive

As this study uses theory, the research approach identifies whether the thesis is theory testing or theory building regarding the project's design. Inductive approaches start with collecting and analysing data to create a phenomenon or generate theories, usually in a conceptual framework. Deductive approaches are vice versa; they generate from general to the specific, starting with theory or statements, called 'premises,' often developed from academic literature and

tested by a research strategy. These premises are assumed to be true. However, they remain unconfirmed and must be accepted for investigation. The starting point of the approaches is well-established and pre-existing, and the conclusion must follow up (Saunders, Lewis, & Thornhill, 2019: 152-153 and G. Miller, Strang, & M. Miller, 2010: 2).

This research project presents the theory of e-commerce and order fulfillment operations as the general part. Then, a survey with the participation of Vietnamese e-commerce buyers is conducted and analysed. The key findings answer the research questions.

#### b. Research method: Qualitative

Qualitative-oriented research collects participants' opinions, behaviour, and perceptions. It answers questions "how" and "why," whose answers are not usually put into numerical data. It takes readers through the basic concepts, definitions, characteristics, and applications. Qualitative research can be conducted using numerous techniques focusing on textual, visual, or audio-based data, such as interviews, survey, focus groups, and observation. Naturally, it explains the processes and people's behaviours, attitudes, perceptions, and experiences that cannot be captured quantitatively (Tenny, M. Brannan, & D.Brannan, 2022; Phair & Warren, 2021).

The first sub-question, "What are the main characteristics of the Vietnamese e-commerce fashion industry?" and the second sub-question, "How are inventory management and last-mile delivery conducted in the Vietnamese e-commerce fashion industry?" will be answered using existing data from reliable sources, such as books, journal articles, verified websites, etc. A survey is used to answer the last sub-question, "What is the overall customer satisfaction over shopping experiences in the market in Vietnam?".

#### c. Data collection

Data collection and analysis is the core of the research onion, referring to the tools and procedures used, such as scales, questionnaires, surveys, etc. (Tengli, 2020: 17). The research contains two types of data: primary data and secondary data. Table 1 below shows the research method and two basic types of data, as well as a brief of the concepts.

Research method	Goals	Type of data
Qualitative method	Describe the circumstances of the Vietnamese e-commerce market in the fashion industry and significant trends in inventory management and last-mile delivery.	Secondary data (Data that is pre-existing) collected from government publications, websites, books, journal articles, etc.
	Evaluate customer satisfaction in the Vietnamese fashion industry through questionnaires, ...	Primary data (real time and first-hand data) gathered from the survey.

Table 1 Research methods and types of data (Wagh, 2024)

The qualitative method describes the circumstances of the Vietnamese e-commerce market in the fashion industry and outstanding trends in order fulfillment operations. This part collects data from government publications, books, trusted websites, journal articles, etc. Secondly, it evaluates customer satisfaction in the Vietnamese e-commerce fashion market through a short survey, which is primary data.

## 1.3 Thesis Structure

Figure 2 explains the structure of the research. It is divided into two main parts.

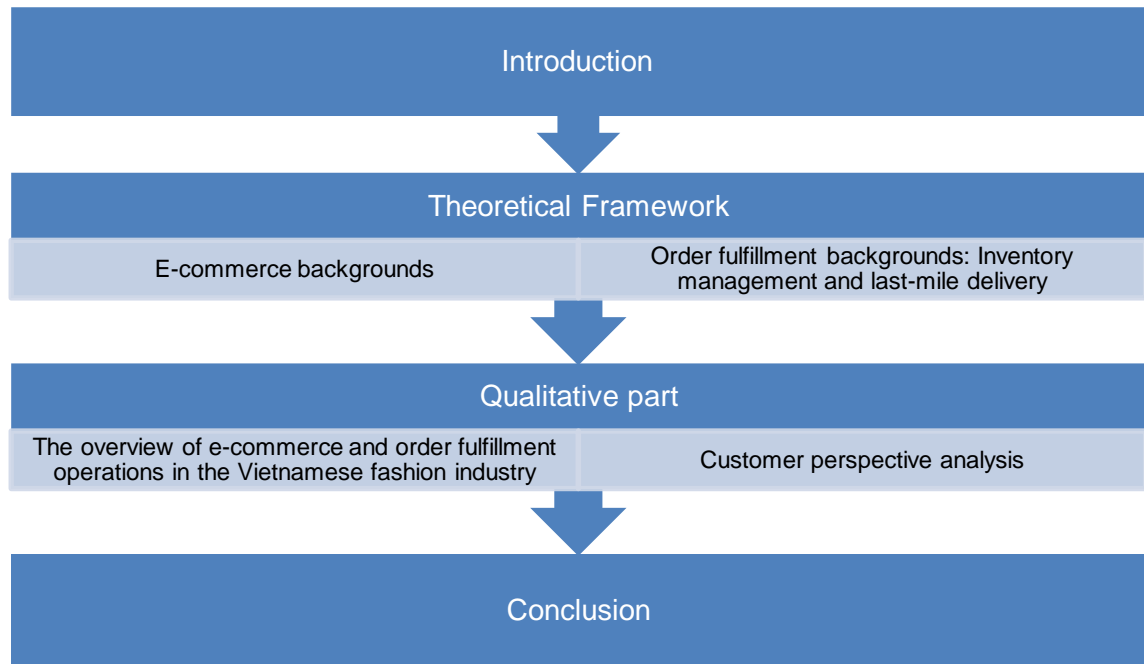


Figure 2 Thesis Structure

The introduction briefly describes e-commerce and order fulfillment backgrounds. To be precise, this part covers the topic's significance, main questions, research methods, and analytical approach.

The theoretical part encompasses the e-commerce backgrounds in general, e-commerce in the Vietnamese industry, and how it is evolving in the garments and accessories industry in Vietnam. Subsequently, it indicates the order fulfillment process, which includes two main parts: inventory management and last-mile delivery. The qualitative part is based mainly on primary data, which is conducted by a survey of consumers' perspectives in the market. This part is built on the survey's key findings.

To sum up, the last part, Discussion and Summary, points out the key takeaways of the study, and also some of the limits and restrictions are mentioned.

## 1.4 Topic Significance

This topic of e-commerce and order fulfillment operations in the Vietnamese fashion industry may pique people's interest by several factors. Vietnam has become one of the top textile-exporting countries internationally in recent years, based on export turnover in 2022. That makes textiles and footwear one of the major export products in Vietnam, as in 2022, they had an export value of \$35.75 billion and \$23.90 billion respectively (TradelmeX, 2023).

Even when becoming one of the leading exporting countries in the world, Vietnam still has the cheapest industry's labour cost. In the Apparel Industry, a Vietnamese employee's gross salary can range from 2,633,167 VND (equals €98.99/month) to 5,688,667 VND (equals €213.85, highest average, actual maximum salary could be higher). Compared to other countries in the region and globally, Vietnamese employee's salary is only 2 times higher than the minimum income. Naturally, low labour cost leads to the cheap product cost. Workers then need to simplify and design, so they have unique products that require different craftsmanship, which creates a competitive benefit (Paylab, n.d.).

Thus, the youngsters in Vietnam are considered fashion-aware, and they are easily influenced by Key Opinion Leaders (KOL) and Key Opinion Customers (KOC), considering how e-commerce is now a rising trend globally. The young generation in Vietnam makes up approximately 25% of the total population, which is about 23 million people aged 16 to 30 (United Nations Population Fund in Vietnam, 2018). For instance, the number of young people in Vietnam who own a smartphone is growing, and they use phones to surf the Internet, and use social platforms namely TikTok, Instagram, and Facebook, ... They may see influencers on these platforms, usually they are viral because of their appearances, talents, or personality. As young people admire these influencers and want to be more

like them, they purchase the products that these influencers are using, and that is how affiliate partners are created, and it is an important part of e-commerce.

As the influencers link their products on their social media, their followers click on the link and purchase the products; then, the process of order fulfillment starts. This directly affects the customers because this is when the products are prepared, wrapped, and delivered. According to the Nimbus Post (2021), 95% of customers blame retailers for poor shipping service and 37% of online purchasers cancel the order because of the longer-than-expected delivery time. So, order fulfillment becomes one of the biggest interests of companies because it represents the company.

This topic is to research many aspects of e-commerce, order fulfillment operations, and customer satisfaction and delve into the detail of their effects. Furthermore, there will be quantitative research in the form of a questionnaire, to get a better idea of customer behaviour in the Vietnamese fashion industry. It will pique the interest of many businesses (especially entrepreneurs or SMEs), online shoppers, and influencers because these are the people who are directly affected by the impact of online shopping in Vietnam. For businesses, it is their advantage to know customer behaviour as it shifts constantly every day and how to improve their order fulfillment process, customer expectations, digitalised infrastructure, and competition in the market, while the consumers can express their opinions and recommendations for the businesses to enhance their online shopping experience. For influencers, they earn a living out of social media, so they must know the background of e-commerce and how they can satisfy customers. As a result, this topic is a mutual concern of many people.

## **2 E-commerce Backgrounds**

The word “e-commerce” and its advantages are thoroughly explained in this part and its birth in the fashion industry is indicated. Subsequently, several crucial transaction parties of e-commerce are demonstrated.

## 2.1 Definition

Electronic commerce is also written e-commerce, e-comm, or eCommerce based on the writer's preference. It involves purchasing and selling on any digital device or platform, namely an online marketplace, social media, or websites (Reed, 2024). However, eCommerce has a broader definition. The UK Government defines e-comm as below:

“E-commerce is the exchange of information across electronic networks, at any stage in the supply chain, whether within an organisation, between businesses, between businesses and consumers, or between the public and private sector, whether paid or unpaid” (Cabinet Office, 1999: 10).

On a deeper level, e-commerce varies in different commercial relationships, including any potential pairing of businesses (B), consumers (C), or governments (G). For example, classical B2B (business-to-business) transactions play a crucial role in the turnover of private sector e-commerce and B2G (business-to-government) transactions, including government procurement. Additionally, the participation of end consumers directly in the transactions is increasing, most remarkably in B2C (Business-to-consumer) transactions. Furthermore, the emerging e-commerce landscape encompasses C2B (Consumer-to-business) transaction relationships and peer-to-peer relationships, which include two or more parties (OECD, 2019: 14).

Starting in 1991, e-commerce has expanded to include all business activities in a sales cycle, for example, customer service, marketing, shopping cart, payment forms, payment methods, and digital delivery. E-commerce is known to be a paperless exchange of business information using Electronic Data Interchange (EDI) and related technologies. Electronic commerce comes in several forms: Electronic mail (Email), facsimile machines (faxes), Electronic Funds Transfer (EFT)... All the main parts of paper-based workflow are substituted with much

cheaper, sufficient, and reliable communications via machines (Mourya & Gupta 2014: 23-24).

EDI is the automated exchange of a standardised business transaction between organisations over a private or value-added network (VAN). It was used mainly by cash-rich multinational corporations because of the high cost of private networks. In 1996, only about 50,000 European companies and 44,000 American companies were using the EDI system, about one per cent of the total companies in each continent. After years of development and the advantage of the Internet, e-commerce now includes all the steps in trading, such as online marketing, delivery support, ordering payment, and electronic support for collaboration between corporations such as business inquiry, contract signing, virtual meetings, and collaborative online design (Tassabehji, 2003: 11). Not only financial transactions are considered e-commerce, but non-financial transactions are, also.

## 2.2 The Birth of E-commerce

In 1979, entrepreneur Michael Aldrich invented online shopping in the U.K. by hooking up a TV to a computer using a telephone line. This technology helped transmit payment data safely. It was the start of modern e-commerce, as people in the 1990s realized the emergence of electronic shopping as we use it today (Kazinik, 2024).

During the pandemic, COVID-19, first detected in Wuhan in December 2019, there were immediate restrictions and recommendations at various degrees: wearing masks, working hybrid, social distancing, etc. Before COVID-19, e-shopping was still a relatively new definition for developing countries namely Vietnam or Bangladesh. However, when the lockdown started, the need for virtual shopping significantly rose during this period, resulting in a 31 percent increase in e-commerce purchase volume in June 2020, compared to June 2019 (Nguyen, Armoogum, & Thi, 2021). The pandemic has changed customer behaviour in the

Vietnamese fashion market, from preferring shopping in brick-and-mortar stores to purchasing online via websites and applications due to the closure of physical stores for too long. In general, it is progressively expanding to online business. E-commerce investment activities in Vietnam have gone through three phases. It was first known in the mid-2000s to 2010 with early e-commerce platform generations like Vat Gia or Cho Dien Tu. Only these two platforms could access capital, as e-commerce was still a relatively new phrase in Vietnam at the time being. The second phase started from 2011 to 2017, when Vietnam witnessed a more vibrant development in marketplace choices, with many domestic and foreign players in the market. Nhomtua was one of the biggest players and 60 million dollars from IDG Ventures Vietnam, Rebate Networks, and Ru-net Global. However, most e-commerce business models failed to maintain their growth rate and closed after a few years. Tiki and Sendo are two stable domestic companies and are still around to this day. The last phase began in 2018 and has grown significantly due to new business models. A few new business models were introduced, such as Business-to-business (B2B) distribution, sales support tools, and social commerce (VIR, 2023).

### 2.3 Advantages of E-commerce

In 2023, the Vietnamese e-commerce fashion industry is expected to reach US \$3.129,1 million and dominate about 18.9% of the total e-commerce market in Vietnam. In the next four years, from 2023 to 2027, the compound annual growth rate is anticipated to be 2.5%, leading to an estimated market volume of US \$3.449,8 million by 2027 (ecommercedb.com, n.d.). The sudden growth in e-commerce is due to several reasons, such as the ability to buy and sell around the clock. One can shop or sell whenever, day or night, and anywhere: outside or from home. They can easily access their shopping accounts on an online marketplace and then list the products or buy just a few clicks away. Shopping online will help consumers avoid parking challenges and idling queueing, saving time. It is well-known amongst working professionals because it reduces the need to visit brick-and-mortar stores during business hours. Furthermore, consumers

can find a wide range of goods with search engines, without having to walk around stores, and sometimes even products from overseas. Users can easily make comprehensive price comparisons between e-commerce platforms and make informed decisions (Gupta, Kushwaha, Badhera, Chatterjee, & Gonzalez, 2023). Similarly, the nature of the competitiveness in e-commerce enables more pricing information from suppliers, resulting in lower purchasing costs for producers. Despite cheaper acquisitions, producers benefit from learning about the quality of goods from manufacturers due to the information-driven environment in e-commerce (Schniederjans, Cao, & Triche, 2013: 10). Artificial intelligence conducts data from consumer behaviours and allows e-commerce websites to customise and tailor product recommendations, increasing consumer satisfaction and loyalty (Gupta et al., 2023).

Additionally, by listing the products and services online, the target market expands from one door to everywhere worldwide, reaching a larger target audience, which means turnaround is much faster. Online marketplace enthralls consumers by adding discounts and promotions, making the products affordable. If this strategy is applied correctly, the business and the consumers will benefit. The e-commerce company does not have to pay rent for physical stores, less human resources, and less physical equipment, so they can invest in a smart marketing strategy and provide better prices and services. The turnaround rate and the process, messages, and transactions are completed in a more speedy, paperless, and efficient way thanks to the speed of the Internet and World Wide Web. The Internet also works as a marketing tool: besides brochures, word of mouth, flyers, and business cards, electronic commerce offers e-mail newsletters, paid online ads, websites, search engine ads, etc. With the help of secure payment sites, when purchasing online, one can use sites like PayPal to pay securely without the risk of their credit card number or bank information getting leaked. Creating and operating these e-commerce platforms and tools requires human resources, creating job opportunities: Developers, maintenance, customer service, sellers, influencers, etc., decreasing the unemployment rate significantly. Employees can work remotely or hybrid due to the flexible working

practice now that electronic devices and virtual meetings are a thing. This enables a convenient, comfortable, and non-stressful work environment. Furthermore, it reduces environmental pollution since not as many people commute daily (Mourya & Gupta 2014: 30-31).

## 2.4 Transaction Relationships in E-commerce

In this digital era, e-commerce has grown dynamically, creating innovative ways for businesses to connect with customers, partners, and their stakeholders. There are different types of relationships due to the transaction parties, namely B2C (Business to Consumer), B2B (Business to Business), B2E (Business to Employee), C2C (Consumer to Consumer), B2G (Business to Government) and G2G (Government to Government) (Mourya & Gupta 2014: 42-46).

### 2.4.1 B2B (Business to Business)

This business model happens in an industrial environment and involves transactions between two or more firms over the Internet, where one business offers its products or services to another. For example, a transaction could be between a wholesaler and a manufacturer or a wholesaler and a retailer. This relationship refers to commerce between firms rather than businesses and individual customers. This type of customer relationship is common in logistics because companies need to acquire raw materials and components for manufacturing processes (Chen, 2024). Figure 3 below shows the transaction flow in a Business-to-business relationship.

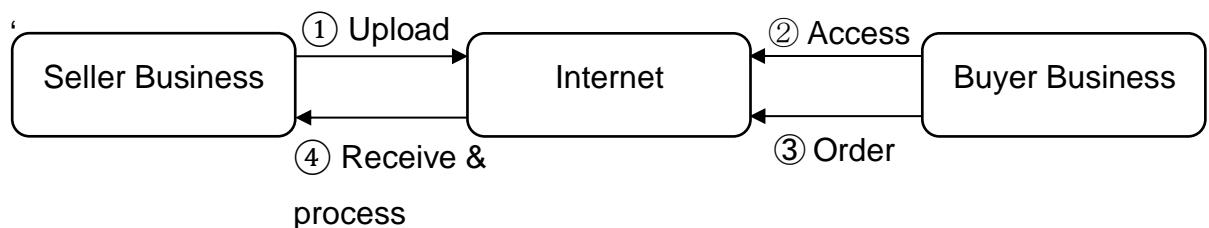


Figure 3 B2B Transaction Flow

The process starts when a business uploads product details on the Internet. The buyer accesses the information and analyses the details and orders. The seller receives the order and starts the fulfillment, packing, and delivering supply chain process. B2B e-commerce relationship is the biggest transaction relationship, in 2023, the market size of the global B2B e-commerce was approximately 18,665.95 billion dollars and is predicted to have 18.2% at the compound annual growth rate (CAGR) between 2024 and 2030 (Grand View Research, n.d.). Some of the B2B's main characteristics are mass purchases, wholesale pricing, long-term partnerships, and value-added services such as inventory management and order tracking. (Dayal, 2024).

#### 2.4.2 B2C (Business to Consumer)

In this case, businesses are the sellers, and individual customers are the end users. They mostly sell their products and services directly to end-users via digital platforms such as online marketplaces, mobile applications, and websites. Michael Aldrich first utilised it in 1979 and used television to reach customers. Before that, Business-to-consumer relationships were presented in mall shopping, dining out at restaurants, etc. The rise of the Internet created a whole new model of B2C, where businesses offer goods and services to individual consumers (Kenton, 2024). Figure 4 illustrates the flow of B2C transactions.

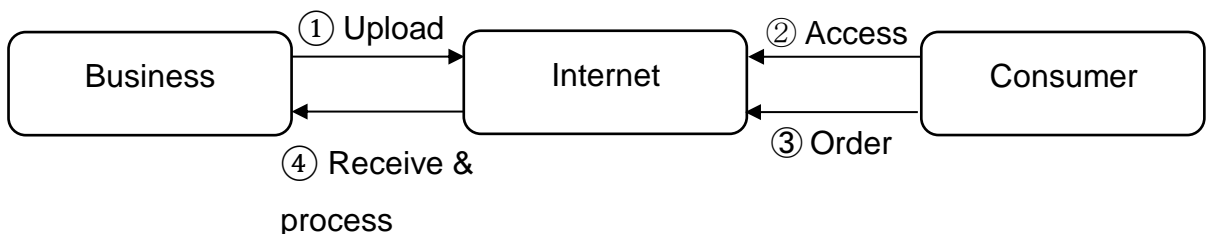


Figure 4 B2C Transaction flow

The transaction flow of the business-to-consumer model is similar to B2B, with individual customers as end users. Companies that depend on B2C sales must make sure their consumers are satisfied with the products and services. A monthly review is required to reach peak performance and adjust if needed (Kenton, 2024). The most popular B2C e-commerce websites are Amazon, eBay, and Alibaba. In this business model, companies focus on convenience and customer satisfaction, and they use marketing tools to find their target audience and make personalised recommendations for consumers. (Dayal, 2024).

#### 2.4.3 B2E (Business to Employee)

This business model is based on the intra-network companies use to provide products or services to their employees. It could be tangible or intangible products. Usually, firms use B2E intra-network to support internal processes and help manage the workforce efficiently, such as automating employee benefits, performance evaluations, or onboarding processes. The B2E systems aim to develop employee relationships for better coordination and effective communication (The Portal People, 2023).

#### 2.4.4 G2C (Government to Consumer)

When consumers expect effective, transparency and responsibility from governments, governments now have to adapt new ways to deliver public services to citizens. They use online platforms, mobile applications, text messages, and other digital channels to cover many areas, such as health, education, social security, taxation, and immigration. In Estonia, 99% of the public services are online 24/7. Its e-government platform, X-Road, allows secure data exchange among banks, hospitals, schools, and citizens (Faster Capital, 2024).

## 2.5 PWA (Progressive Web App) E-commerce

The demand for online purchases has become heavier for e-commerce companies as customers expect a more seamless experience and good user interface. They request fast, reliable, and user-friendly sites. Customer satisfaction greatly depends on the user interface design and accessibility. To enhance customer retention and satisfaction, businesses must decide which digital platform to develop: platform-specific apps, traditional websites, or PWA.

### 2.5.1 Native Apps

Platform-specific apps are developed for a precise operating system (OS) or device class, such as iOS or Android. It usually uses an SDK (Software Development kit), which the platform vendor provides. Depending on the user's device, native apps can be found on AppStore or Google Play Store. After downloading, the app icon appears on the user's home screen, acting like a permanent feature (Mozilla, 2023). Native apps offer a good overall user experience, as they load immediately and do not require a Wi-Fi connection. This feature increases consumer engaging experience and naturally leads to a significant rise in platform-specific apps. In 2017, more than 4 million combined native apps were on the AppStore and Play Store (Hume, 2017: 2).

### 2.5.2 Traditional Websites

Traditional websites can only be accessed when the user opens the browser and navigates to the site. The end user can easily share the URLs and access the link without logging in. Additionally, being cross-platform, a single website can operate on different systems and device classes from a single codebase (Mozilla, 2023). However, they require an internet connection, longer load times, and lower reliability. A flaky mobile connection or poor network speeds may negatively affect consumers (Hume, 2017: 2-3).

### 2.5.3 Progressive Web App

The progressive web app is a hybrid application that combines the best features and characteristics of traditional websites and native apps. PWAs are websites created by web platform technologies such as HTML, CSS, and JavaScript, but they enhance the user experience and act as platform-specific apps. Thanks to Service Workers, progressive web apps can work offline without an internet connection (Hume, 2017: 3).

According to Libby (2021: 1), a PWA responds rapidly to user demands and is connectivity-independent, regardless of the state of the network connection (online or offline) and device usage. Its performance is excellent due to techniques like compression, pre-caching, and code-splitting to support keeping the time-to-interactive to a minimum. Users tend to abandon websites when they take too long to load, so these techniques help to reduce these possibilities. Furthermore, PWAs are installable and optimised for mobile phones with lower hardware capacity. This feature increases engagement as PWAs use a single codebase, so they are cross-platform and can be used across multiple devices. Table 2 below denotes the characteristics of native apps, PWAs, and standard websites.

	Platform-specific apps	PWAs	Traditional websites
Installation	Available on AppStore and Play Store	For Android: click a button to add them to the home screen.  For Apple: Manually added to the home	Installation not available

		screen from Safari for iOS 13 and later.	
Updates	Required to be downloaded by users	Updates are instant	Updates are instant
Size	Take up more storage and time to download	Small and fast	Small and fast
Offline Accessible	Available	Open the app once online then the cached content offline will be available	Not available
User experience	Good if the application is well designed	Confusing due to the double menus (in-app and browser menu)	Accessible and discoverable but not seamless.
Push notifications	Yes	For Android: Yes  For Apple: Available for iOS 16.4 or later after giving consent	Same as PWAs and depends on the web browser and user consent.
Discoverability	Need to work on app store optimisation (ASO)	Good – should be optimised for Search Engine Optimisation (SEO)	Good if they are optimised for SEO.

	Rely on ratings, download times, reviews, and app category.	Not available on app store.	
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Table 2 Comparison between Native apps, PWAs, and Websites (Tandel & Jamadar, 2018: 9441; Buck, 2024; Warcholinski & Gierszal, 2024)

Big e-commerce companies are willing to develop both native apps and websites as they will reach a broader market and increase discoverability, therefore gaining more end users. Building a native app and website for an e-commerce company requires high operating costs and many human resources, including front-end, back-end, and iOS and Android developers. Consequently, building progressive web apps is a cost-saving solution for small and medium companies. Additionally, progressive web apps can convert first-time users into regulars with their simple user flow, helping the customers get used to the brand and may even install their native app for future purchases (Phan, 2021). Figure 5 below shows the simplicity of PWAs' user flow.



Figure 5 The User flow of PWAs (Phan, 2021)

End customers only need to access the website on their mobile devices, purchase, and add the app icon to the home screen. Each update is easier and more time-saving because PWAs do not require a new release on the app store. Thus, a web update is much faster. Additionally, PWAs can be optimised for SEO (Search Engine Optimisation). SEO is a methodology for making websites visible to end users in search engine results via natural or pay-per-click service. Natural

means using unforced ways to gain traffic and enhance website visibility, such as using relevant keywords, user-engaging content, etc. Investing in SEO benefits e-commerce firms in the long run, as the sites stay in the top ranking, they get more traffic and more clicks-in (Shenoy, 2016: 1).

In the future, e-commerce progressive web apps could expand rapidly in the Asian market. The Asian market has four main characteristics: a high rate of mobile device usage, e-commerce apps and social media being widely used, quick adaptability to new technology, and innovative technology companies constantly looking for opportunities. Asia has a young generation, especially Generation Z, who can adapt quickly to technology because they grew up in this era. Thus, companies in Asia mostly belong to the first generation, so they do not have 200-300 years of history, so they are more open to new trends and opportunities. Additionally, Asia has countries with over one billion in population, China and India, so this is a motivation to satisfy demands in a diverse market. Besides, Asia has both technologies developed countries like Japan and Korea and developing countries like Southeast Asia, creating an interesting, challenging, and unpredictable market. However, the e-commerce marketplace dominates the Asian market, making it hard for small and medium companies to develop creative and innovative ideas to survive in this crowded market. Progressive web apps would be the optimal alternative that brings long-term benefits to these firms (Phan, 2021).

## 2.6 Conclusions for E-commerce background

Starting from its humble beginning in 1979, e-commerce is a multi-faceted, innovative industry that has changed how companies and their end customers do business. And with the advent of technologies like EDI and the World Wide Web, it is growing even faster. Specifically, due to changed consumer behaviour and habits, the e-commerce fashion industry has developed remarkably in Vietnam during the Covid-19 pandemic. People have realised the convenience and advantages of shopping

online since the pandemic, making e-commerce a perfect place for shopping. Besides this, electronic commerce is very diversified in business models, from B2B to C2C, which allows companies to tailor their offerings to meet specific market demands. The next section gives an overview of the order fulfillment process, underlining the two primary aspects of the operations: inventory management and last-mile delivery.

### **3 Order fulfillment operations background**

In this part, the background of the order fulfillment process is explained. This process has two critical components: inventory management and last-mile delivery, which is then indicated.

#### **3.1 Definition**

Customers typically expect their products to arrive quickly and in good condition. An efficient order fulfillment process is what a business needs to make sure customers feel satisfied and repurchase. Order fulfillment is a key component of the sales process to ensure product flow, from receiving and processing consumer orders to packing, shipping, and tracking products (Inbound Logistics, 2023a). A high-quality order fulfillment ensures the items distributed meet all the customers' expectations and specifications. The process of order fulfillment is shown in Figure 6 as follow.

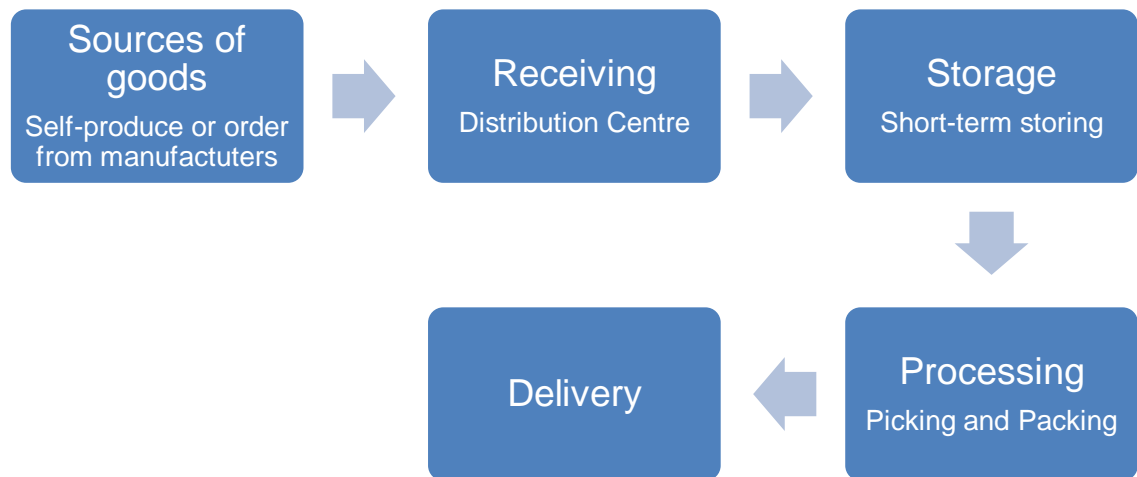


Figure 6 Order Fulfillment Process (Schwarz, 2022)

Typically, this process starts when a consumer places an order. When the business gets the order, it immediately purchases the inventory from suppliers and receives inventory at distribution centres for quality check. Next, inventory is shipped to short-term storage, waiting for pick & pack. Finally, the business ships them off to the consumers, either at pick-up locations or the consumer's doorstep (Schwarz, 2022). Consequently, order fulfillment directly affects customer satisfaction. Smooth operations can stimulate development through positive word-of-mouth marketing. Additionally, effective order fulfillment has an optimistic impact on a company's bottom line by supporting quicker turnaround times, which supports increasing sales and revenue. Furthermore, an effective order fulfillment provider creates trust and gains loyal customers for a company (Inbound Logistics, 2023a). The process also includes two main factors, inventory management and last-mile delivery. The fundamental goal is to improve customer satisfaction by handling their purchases effectually and promptly.

## 3.2 Inventory Management

In this part, the definition of inventory management is thoroughly explained and followed by the purpose of keeping inventory, different types of stock, and reorder point and safety stock.

### 3.2.1 Definition

Inventory management is a concept that helps firms identify which and how much stock to purchase at what time. All businesses keep inventory. It could be tangible and/or intangible products, including raw materials, work in progress, tools, and finished goods. Products are tracked from order to the sale of goods. This practice keeps up with the latest trends in consumption and ensures there is always enough stock to fulfil customer orders and heads up for raw materials unavailability (Jenkins, 2020). Inventory management requires planning and controlling of inventory. The inventory manager decides the time and quantity to order inventory. They are also in charge of decision-making in storing, order fulfillment, picking & packing, and inventory inbound and outbound logistics. There are two types of inventories: independent demand and dependent demand inventory. Independent demand inventory refers to finished goods that will go straight for consumption. On the other hand, dependent demand inventory is goods used to complete final products, such as raw materials, supplies, and work-in-process (WIP) items (Schniederjans et al., 2013: 172).

A measurement of good inventory management is inventory turnover. According to Fernando (2024), the inventory returner ratio is a financial ratio showing how many days it takes, on average, for a firm to sell its inventory. This ratio supports businesses to make decisions on pricing, manufacturing, marketing, and purchasing. If they have more stock than sales, it leads to deadstock or untold stock.

### 3.2.2 Purpose

As discussed above, inventory management is important to a company's financial health because it ensures the product flow, adjusts the stock on hand, and avoids shortages and inaccurate records. Public companies are required to track inventory for agreement with Securities and Exchange Commission (SEC) rules and the Sarbanes-Oxley (SOX) Act. Businesses must document their management processes to prove compliance (Jenkins, 2020).

Hence, inventory management plays a crucial role for organisations. There are a few more reasons for obtaining and holding inventory, such as Predictability. Firstly, to manage capacity planning and production planning, it is needed to control the number of raw materials, parts, and subassemblies processed at a period. The inventory provides the necessary materials for the process. Secondly are the fluctuations in demand so a supply of inventory on hand is a safeguard. Customer demand and behaviour change over the period, but a company still needs to satisfy its consumers and production demand on time to retain its reputation. Having good inventory management minimises the surprises in fluctuations in consumer needs. Thirdly, a challenge for every business is the Unreliability of suppliers. Inventory management helps detect unreliable suppliers and delays or quality issues affecting stock levels by closely monitoring inventory turnover rates. By spotting issues early, companies can discuss rehabilitating those suppliers or having them replaced. Restoration can be accomplished through master purchase orders with timed product releases. If there is non-performance or underperformance, there should be price or term penalties. They also should improve verbal and electronic communications between the transaction parties (Muller, 2002: 3).

Fourthly, inventory protects price. In other words, buying products at appropriate times can avoid cost inflation. Even when the company locks in a price with the contractor, it does not necessarily receive the purchase immediately. Instead, many suppliers prefer to deliver the products in smaller batches over time, rather

than sending an entire year's supply of a specific stock-keeping unit (SKU) at once. Stock-keeping unit is a common phrase in inventory management, referring to particular identifying numeric or alpha-numeric identifiers for a specific item (Muller, 2002: 4). This is advantageous for both parties. For the company, they do not have to store a large amount of inventory all at once. This saves storage space and reduces the risk of outdated or damaged goods. Furthermore, they can adjust more easily if there is a change in customer demand. Additionally, bulk discounts are often available if inventory managers order large quantities. Keeping inventory prevents stockouts, which lead to line strikes. Inventory management also helps product marketing by assuring the delivery of finished goods to locations with the highest demands (Schniederjans et al., 2013: 172).

Lastly, as mentioned above, buying a large quantity at once saves money for a company. This is also because the ordering costs would be lower than purchasing smaller quantities but repetitively. The agreement between the company and the supplier is called a "blanket purchase order". However, keeping large inventories for a long period would cost the company a fortune. Subsequently, they couple blanket purchase orders with periodic release and receiving dates of the SKUs called for. The company would purchase a large quantity at once, and the supplier would hold the inventory and deliver a small batch once every while (Muller, 2002: 4).

### 3.2.3 Types of Warehouses

Companies hold stocks: Raw materials, finished goods, spare parts, pipeline stocks, in-process stocks, etc. They keep stocks in storage facilities until goods are distributed to their final destinations. These storage facilities ensure the flow of goods from the manufacturer to the end consumer. Nevertheless, there are different types of storage facilities. Each type of warehouse serves a specific type of goods in coordination with their conditions (Inbound Logistics, 2023b).

The first type of warehouse is a public warehouse, which is owned by Third-party logistics (3PL) or governmental entities. This type comes in handy for personal use, entrepreneurs, or firms that need extra storage space but are insufficient to maintain their warehouses. Business owners that need to store inventory for a short period might as well find these warehouses appealing, as they are less expensive. Businesses can ask for value-added services such as inventory management, order processing, and transportation services (Inbound Logistics, 2023b) They can rent as much space as they need with multiple clients to share the costs. However, since they are sharing, they have limited control over the conditions of the storage facility and technological capabilities. Additionally, they have less direct communication and oversight over handling goods (ShipCalm, 2022).

Large companies with large inventories, suppliers, manufacturers, or distributors operate private warehouses for exclusive use. They control the conditions for each product, the processes used to manage them, and the handling and transportation costs. Thus, it offers security and confidentiality, and it is built for a company to use only. The business can adjust and customise the warehouse to meet their needs. This eventually improves the products' quality and minimises the risk of loss or damage. Usually, the company's name is linked with the warehouse for identification and maintenance. Since it is a private warehouse, it will be costly for smaller businesses (ShipHero, 2024).

The third type is a bonded warehouse, which stores imported goods before customs or cross-border deliveries. This warehouse is run by government agencies such as customs or tax authorities. Businesses do not have to pay duties or taxes until goods are exported or released (Inbound Logistics, 2023b).

The fourth type is a "Cross-docking warehouse", which directly transfers goods from incoming trucks to outgoing trucks. It has little to no storage, as it aims to reduce the inventory holding costs and shorten the delivery time. This DC usually stores seasonal products and high-demand products for a short period.

Businesses that need quick turnaround times find this kind of DC useful (Inbound Logistics, 2023b). The difference between cross-docking warehouses and transloading centres is that transloading centres support the transfer between various transportation modes, linking ocean vessels, trucks, rails, etc. (Doak, 2023).

The last type of warehouse is the government warehouse. This type of warehouse stores goods owned by the government and confiscated products by law. The storage facilities are controlled by federal, state, or local government agencies. The government's assets namely military equipment, transportation, food, medical supplies ... are kept in the warehouse. Illegal goods such as weapons, drugs, or counterfeit merchandise are also stored until used as proof in court cases or safely disposed of by responsible people (Inbound Logistics, 2023b).

#### 3.2.4 Conclusions for inventory management

To sum up, effective inventory control processes are significant to a business in ensuring that its operations run smoothly, costs are kept to a minimum, and customers are satisfied. Therefore, it becomes clear that organisations can achieve strategic objectives and rational decision-making regarding stock, e.g., reducing the risk of suppliers, cushioning against changes in demand, or getting a competitive edge due to costs.

Lastly, after a customer place an order for the picked and packed products (sourced from distribution centres), the products are dispatched to the end users. This process is referred to as last-mile delivery, which will be the focus of the next section.

### 3.3 Last-mile Delivery

In this section, the definition of last-mile delivery is indicated, followed by aspects of the delivery process, delivery systems, and different final destinations.

### 3.3.1 Definition

Last-mile delivery is the last step of the process when the parcel is moved from the transportation hub to its final destination. It could be the end customer, a retail store, or a pick-up location. This is one of the stages that directly impacts customer satisfaction because it requires information accuracy and fast and efficient delivery. Businesses are trying to catch up with the consumer demand for speedy shipping, as e-commerce platforms are rising. However, last-mile delivery happens to be the most expensive phase in the process. It also accounts for over 53% of the total shipping costs (OptimoRoute, 2020). Companies usually cover approximately 25% of that cost, but this number increases as supply chain inefficiencies become more costly (Onfleet, 2020). Some businesses struggle to optimise this process, and inefficiencies can lead to costs cutting into profits. Several underlying issues contribute to the operational inefficiencies within the last-mile delivery service, such as failed deliveries, rush hour, ineffective route planning, delivery personnel's idle time, etc. Even if the delivery man stops or is on the move, the company still has to pay them, let alone the fuel fee for the transportation. However, discounts and promotions are much needed to encourage customer loyalty. Consumers always look for the lowest price and the greatest value and expect free shipping service when purchasing online. They tend to compare prices between sites, so it is a challenge for companies to grab their attention with some steal deals. Companies have to devise solutions to apply this tactic, without cutting into their margins. Furthermore, organisations may consider adding more features to their last-mile delivery services, such as real-time traceability. Consumers would like the status of their parcels to be constantly updated until they receive them.

### 3.3.2 Process

For a better understanding, the delivery process is broken down into five major steps below in Figure 7 below.

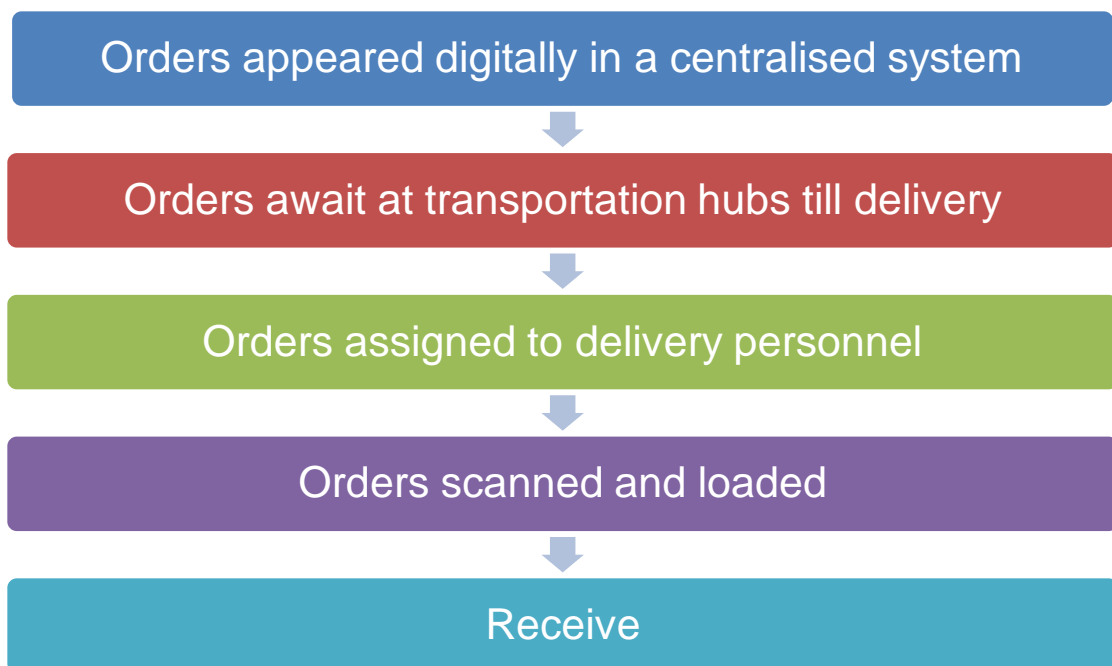


Figure 7 Steps in the last-mile delivery process (Onfleet, 2023)

First and foremost, the customer places an order. The request is automatically updated in a centralised system. The company can monitor and process the order for the following steps in the order fulfillment process. The end consumer is given the tracking code for their parcels, which can be used to follow the on-time status of the purchase (Onfleet, 2023). Secondly, the business orders or produces the products, then process to send them to the distribution centre. The last-mile delivery procedure begins from the warehouse, when the parcels are stored and sorted, awaiting the delivery schedule (Onfleet, 2023). Thirdly, the orders are strategically sorted and assigned to the delivery personnel based on recipient addresses, proximity, traffic conditions, and delivery time windows (Ivarsen, 2023). Firms usually use route optimisation, a software that helps manage delivery fleets effectively to find the shortest and quickest delivery route (OptimoRoute, 2023).

Before being loaded onto a vehicle, parcels are scanned. This provides timely status updates to both the manufacturer and the recipient tracking the delivery, while also significantly lowering the likelihood of misplacements during transit

(Onfleet, 2023). When the delivery man arrives at the end destination, they have to prove the arrival of the parcel by taking a picture of the package and updating it on the tracking system. Consequently, the buyer stays updated in real time (Onfleet, 2023).

### 3.3.3 Delivery Distribution Structures

In last-mile delivery, companies usually pick a system based on the features of each shipment, such as product characteristics, demand predictability, customer preferences, and overall business strategy. Three major delivery systems are Push-centric, pull-centric, and hybrid-centric (Lim, Xin, & Srari, 2015). Figure 8 visualises the Delivery Distribution Structure.

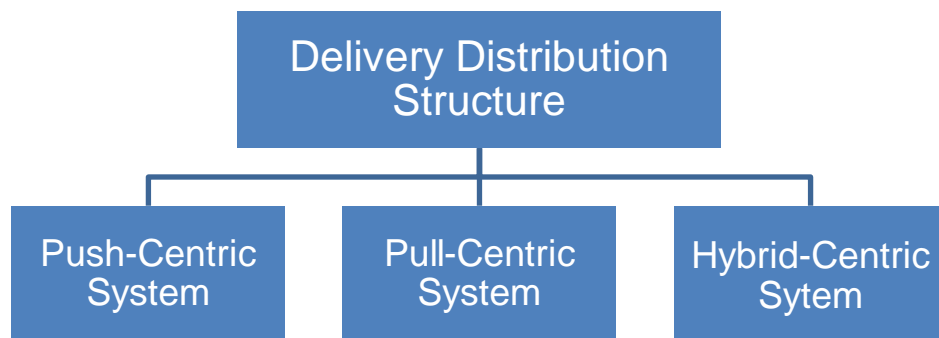


Figure 8 The delivery distribution structure (Lim et al. 2015)

First and foremost, the Push-Centric Delivery concept means retailers are in charge of fulfilling the orders and making sure parcels are “pushed” or shipped to the customers’ doorsteps. The products may be delivered directly from manufacturers, distribution centres, or brick-and-mortar retailers. In this delivery system, the distribution channel selection depends on the inventory level, transportation cost, and level of responsiveness achievable. If the picking site is close to the customer segment, the responsiveness of the channel will be higher. The products are dispersed across multiple locations, leading to low inventory aggregation and high cost (Lim et al. 2015).

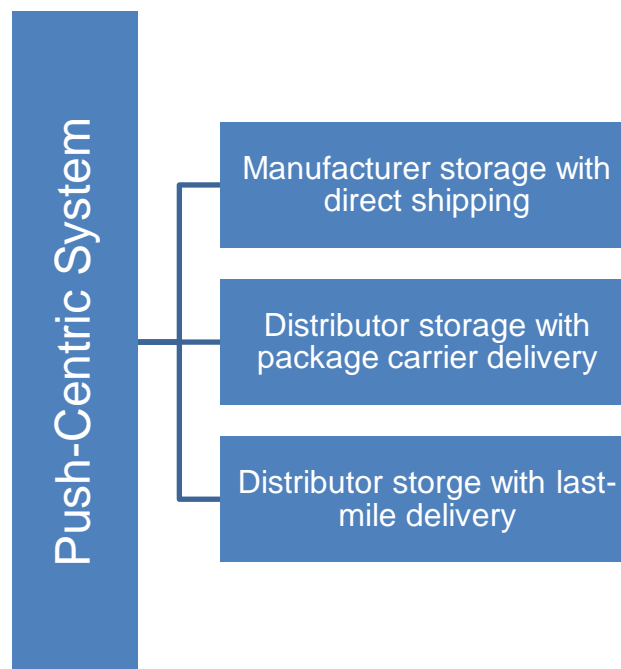


Figure 9 Push-Centric System (Lim et al. 2015 & Chopra 2003)

Based on Figure 9, there are three sub-types in the push-centric system.

- In the first sub-type, the producer delivers items directly to the end consumer when the retailer only takes orders and pledges the delivery request. In other words, it is a methodology called drop-shipping, in which the manufacturer keeps inventories, and information flows from the manufacturer to the consumer via the retailer. A manufacturer can aggregate demands and have a high level of product availability with low inventory levels (since the manufacturer is responsible for handling the deliveries). Typically, in a push-centric system, products are dispersed to various locations closer to end consumers; however, this sub-type still applies because the manufacturer is producing and holding inventory in anticipation of demand – a key characteristic of the push-centric system. Nevertheless, the shipping costs are high because the production lines are usually far away from residential areas, and package carriers must be used with higher per-unit shipping costs. Drop-shipping method requires a good information infrastructure, as it is a multi-step process when the

consumer places an order through a retailer, who then relays that information to the manufacturer. Consequently, the response times tend to be large, and traceability is low, owing to the distances and communication barriers. The return process is also more complex and costly because of the distance (Chopra, 2003).

- In the second sub-type, distributor storage with carrier delivery is denoted. Under this option, distributors or retailers hold the inventory in intermediate warehouses. Package carriers deliver products from these warehouses to the customers' doorsteps. Distributor storage requires a high inventory level because it deals with demand uncertainty, therefore holding more inventories in case of stockouts. Inventory and operations/processing costs are high, but transportation costs are somewhat lower compared to manufacturer storage. An economical mode of transportation, such as truckload, is used to transport to the warehouse nearer to the residential area. Subsequently, the return procedure is less costly and more convenient because the distributor can process the returned products. Furthermore, distributor storage bundles several orders from a customer into a single shipment, hence saving on transportation costs. The information infrastructure required is also less complex, as real-time visibility is needed only between the distributor and the end consumer, and the distributor does not need to relay it to the manufacturer. Visibility between the manufacturer and the distributor can be done at a lower cost (Chopra, 2003).
- The third model is distributor storage with last-mile delivery, referring to the inbound delivery of the distributor or retailer to the customer's home instead of hiring package carriers. The products from different manufacturers are gathered at the distributors and are shipped off from there. Last-mile delivery requires being close to the customers, leading to an increase in facilities and the costs necessary to operate them. Because of the low aggregation, fast-moving items are more suitable for this model

to avoid high inventory holding costs. However, transportation costs are high because no package carriers are hired. When distributors or retailers attempt to do last-mile delivery themselves, they do not have many packages going out on the same route, therefore increasing the delivery costs. Except for the additional proficiency of scheduled delivery, the information infrastructure is the same as the distributor storage with package carrier delivery. Response time is faster, and the returnability is higher because the delivery truck can easily pick up returns (Chopra, 2003).

Next, the pull-centric delivery process refers to the end consumers participating in the delivery process by collecting their parcels from pick-up points and performing the last-mile delivery themselves. Since no attended home delivery (AHD) is provided, businesses do not have to pay for last-mile delivery service, saving transportation costs but at the expense of lower customer satisfaction (Lim et al. 2015). Figure 10 below demonstrates the Pull-centric System.

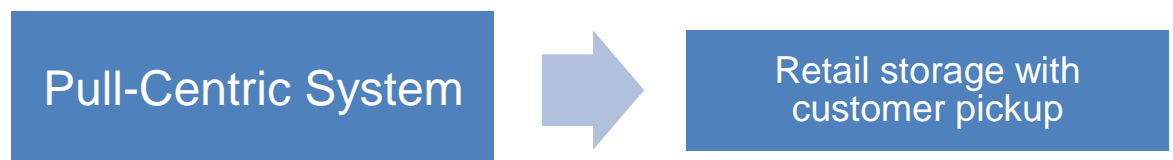


Figure 10 Pull-Centric System (Lim et al. 2015 & Chopra 2003)

- The subcategory mentions retail storage with customer pickup. In this model, customers can order online or do walk-ins. This option requires many local retail stores, leading to increased inventory and facility costs. Fast-moving items are stored in these local facilities to quickly make turnovers, while slow-moving products are placed at central warehouses. Since the customers are responsible for pickup, transportation costs are significantly low, and minimal information infrastructure is required. The

information frame is more complex for online orders to provide traceability until the consumers pick them up. Response time is at its peak as some retail stores allow same-day pickup, but the product range is not large since it could raise the inventory costs considerably. Returns can also be handled at the same place (Chopra, 2003).

Figure 11 displays the Hybrid-Centric System.

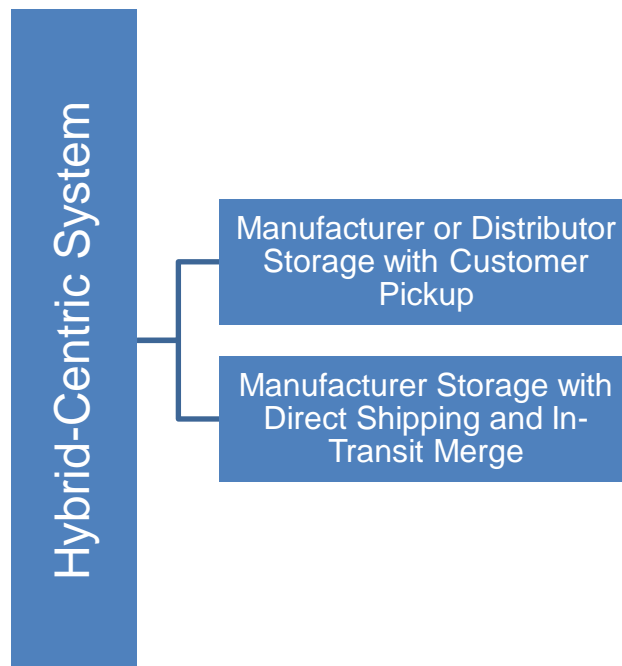


Figure 11 Hybrid-Centric System (Lim et al. 2015 & Chopra 2003)

- The first subcategory refers to manufacturer or distributor storage with customer pickup. In this option, inventory is stored at the distributor or manufacturer. The customer orders online and delivers the package to the pickup point. In this approach, customers also perform last-mile delivery themselves. Inventory and delivery costs are kept low, as the products are aggregated in one place and delivered to pick-up points using Truckload or Less-than-truckload (LTL). Facility costs are not high if businesses use existing pickup sites and do not build new ones. Processing costs at the pickup sites are high because they require appropriate storage and

information systems for accuracy. Retailers, storage locations, and pickup sites need to coordinate well. For consumers, it is convenient because they can swing by to pick up their packages in their free time and do not have to stay at home passively waiting for the packages to arrive. Thus, more payment methods are available as they can pick between paying by card or using cash at the pickup sites. Returns are handled easily at the drop-off locations. However, a good tracking system is needed to provide visibility (Chopra, 2003).

- The last subcategory denotes manufacturer storage with direct shipping and in-transit merge. The process starts when a customer orders products from different manufacturers online, but the pieces will come in one delivery. The product variety is vast, delivering a greater experience for the customer. The items are combined at the in-transit merge location, leading to low transportation costs and higher customer satisfaction. However, the in-transit merger requires a modern facility and a sophisticated information system, resulting in higher fees and slow response times as merging takes time. This approach also requires good coordination between related parties, as orders from each distributor are tracked separately until they arrive at the hub. After that, it is tracked as a single unit. Returnability is the same as drop-shipping, complex and costly (Chopra, 2003).

#### 3.3.4 Final Destinations

There are two types of delivery: attended and unattended.

Firstly, unattended delivery allows delivery personnel to drop parcels at consumers when they are not home. The personnel place the parcel in a safe place around the house: doorstep, porch, mailbox, building receptionist, etc. However, safety depends on the neighbourhood. Parcels left unattended could be stolen, making this option unfeasible. Under some circumstances, the

personnel can enter and place the parcel in-house, but this demands trust from the customer. Subsequently, Out-of-home (OOH) delivery is the most fit and sustainable alternative. Statistically, out of 10 deliveries, one or two will be failed attempts or rescheduled, carriers can make one single shipment to the drop-off locations with a 100% success rate. This may result in a lower customer experience since it is not doorstep delivery, but it saves the carriers time, miles driven, money, and sustainable plan of the company. OOH requires a change in customer behaviour to achieve this goal. However, drop-off locations are not as popular in Southeast Asia as in other countries, so it may be costly to build new pickup sites (Langley, 2023).

In contrast with unattended home delivery, attended home delivery requires the customer's presence. The service is usually characterised by the time windows assigned for the delivery (Manerba, Mansini, & Zanotti, 2018). Attended home delivery (AHD) is suitable for high-value and large-size products, some of which require delivery personnel's support to unload and install (BESTUFS n.d. & Agatz, Campbell, Fleischmann, Savelsbergh, & Stewart, 2007).

### 3.4 Conclusions for Last-mile Delivery

All in all, last-mile delivery is an important factor in the e-commerce supply chain, especially for businesses where the user has high expectations of speed and comfort. Still, this remains the least efficient and the most expensive phase of the whole delivery cycle mainly because efficiency is needed in route optimization, unfulfilled deliveries, and transport cost control. Even though push-centric delivery services respond faster, they create huge inventory and transport costs. On the other hand, pull-based regimes achieve cost reduction in deliveries, but this is at the cost of sacrificing customer satisfaction as they are left to complete the last portion of the cycle. In comparison, hybrid-centric models are very effective because they use the infrastructure and collection points in place, however, they are more complex and require advanced information systems and coordination.

In particular, in the growing e-commerce business and the fashion sector, companies have to choose the delivery method structure push vs pull vs hybrid that responds to customer demand, product type, and logistics advancements. Last-mile optimization is a crucial differentiating factor to ensure profitability and high customer satisfaction in a competitive business environment. They should keep upgrading and advancing delivery models, targeting the new behaviors and technologies.

## **4 Overview of order fulfillment operations and last-mile delivery in Vietnam**

In this numerical part, the main goal is to gain insights into the situations of the Vietnamese e-commerce fashion industry and customer behaviours and experiences in Vietnam. Consequently, the answers to the two sub-questions can be given.

- What are the main characteristics of the Vietnamese e-commerce fashion industry?
- How are inventory management and last-mile delivery conducted in the Vietnamese e-commerce fashion industry?

The answers for the two sub-questions are consolidated from trustworthy publications, reports, statistics sites, and journals. First and foremost, the growth of online shopping and customer behaviours in the fashion industry in Vietnam in recent years are discussed.

## 4.1 The growth of online shopping in the Vietnamese fashion industry

In early 2023, essential indicators of internet adoption and use were conducted by VNetwork (2023). It indicates the total number of internet users and other influenced aspects, based on Figure 12 below.

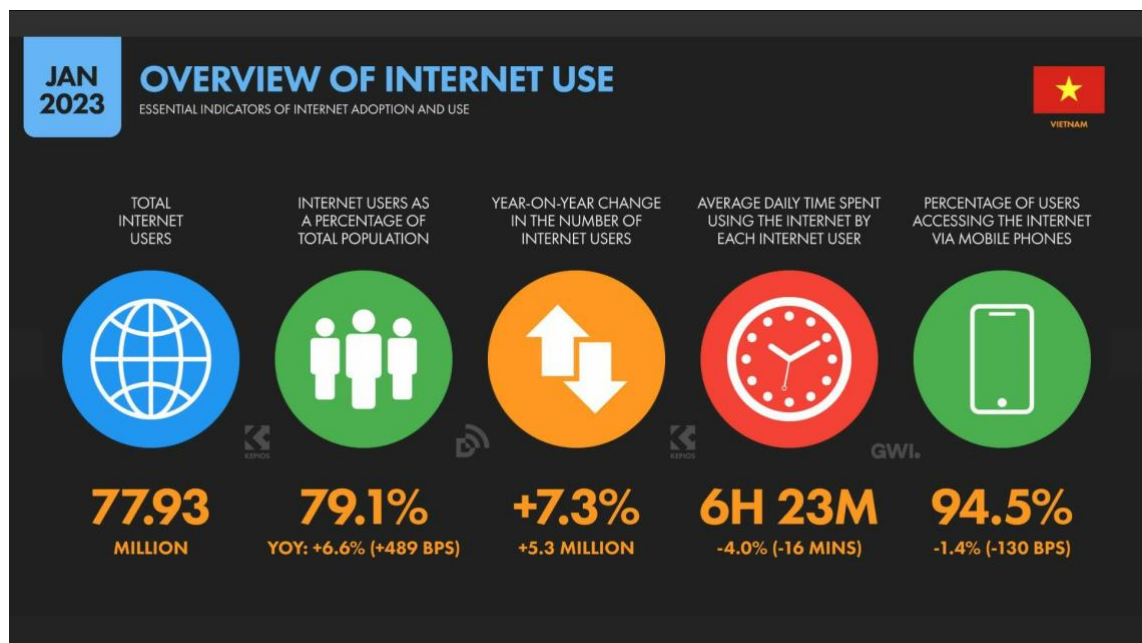


Figure 12 Overview of Internet use in Vietnam, January 2023 (VNetwork, 2023)

In January 2023, the total population of Vietnam reached 98.53 million people, of which 77.93 million have joined the Internet, approximately 79.1 per cent of the total inhabitants. Compared to the same period in 2022, there is a 7.3 per cent rise in Internet usage, about 5.3 million more people (VNetwork, 2023). Entering the digital era after 25 years, Vietnam has officially been in the top 12 countries with the highest number of Internet users. This ranking marks the effort to ensure convenience, freedom of speech, and freedom of information for the inhabitants. During the COVID-19 pandemic, support in increasing bandwidth and data capacity for people to work and study was deployed: Internet data subscription discounts, free 4GB/day for one million students from poor or near-poor

households, etc (Phan, 2023). The average monthly cost of broadband Internet in Vietnam, approximately €11.46, is significantly cheap compared to other SEA countries, such as Indonesia (around €30.02), the Philippines (around €47.21), and Malaysia (around €32.24) (Kiet, 2021). The low cellular data fee and the expansion and easy accessibility of the Internet are the main reasons for the rise of Internet usage in Vietnam. This is a chance for e-commerce players to convert Internet users into loyal customers (EVBN, 2018: 14).

It makes up about 20.9 percent of the Vietnamese population (i.e. 20.60 million people) who do not use the Internet. It is a challenge for e-commerce businesses to reach these audiences. In 2023, the percentage of users using the Internet by mobile phone has reached 94.5 per cent, and most definitely also purchasing via mobile phone (VNetwork, 2023). The percentage of people accessing online marketplace has dropped to 18 percent in 2023, compared to 46 per cent in 2022. These figures hint at the growth of digital marketplace applications such as Shopee, Tiki, Lazada, etc. (Vu, 2024). With an increasing rate of 20 percent year-on-year, eMarketer has marked Vietnam as one of five countries with the fastest e-commerce growth globally. Vietnam has witnessed steady development in the B2C e-commerce business throughout the years, based on Table 3 below.

	2021	2022	2023
Number of people purchasing online (million)	54.6	57.0	61.0
Estimated online spending of one person (EUR)	231.88	266.06	310.41

Table 3 Online shopping situation in Vietnam 2021-2023 (Kirin Capital, 2023)

In 2023, the number of people joining e-marketplaces has risen to 61 million (+7.02 per cent YoY). People can spend up to 310.41 EUR for online shopping

(+16.67 per cent YoY). Metric.vn, quoted by Kirin Capital (2023: 03), the e-commerce market in Vietnam has rocketed to become the second biggest market in Southeast Asia, only to Indonesia (Kirin Capital, 2023). Figure 13 demonstrates the GDP per capita in Vietnam from 2021-2023.

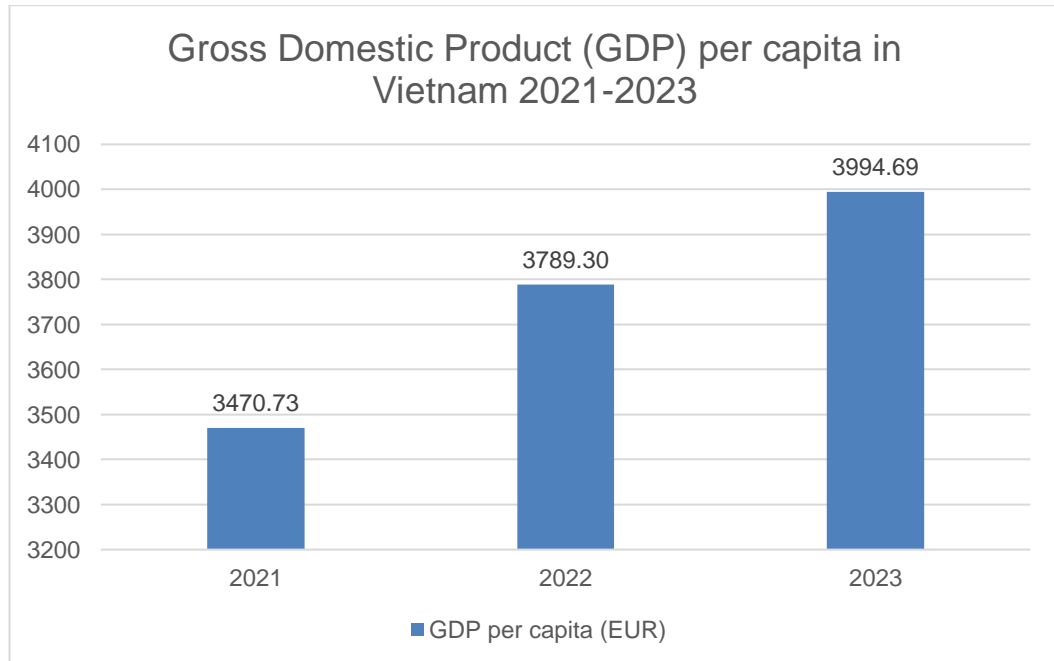


Figure 13 Gross Domestic Product (GDP) per capita in Vietnam 2021-2023 (IMF, 2024)

In 2021, the Gross Domestic Product per capita was low, increasing by only 2.58% because the Vietnamese economy was heavily damaged by the epidemic. In the next year, the GDP per capita in Vietnam witnessed a significant rise from 2021 to 2022, increasing by 9.2 percent, which is relatively high compared to other countries in the region and the world and is a record for the 2011-2022 period. From 2022 to 2023, the GDP per capita rose from €3789.30 to €3994.69, roughly 5.4 percent (Ngo, 2022). Based on the data, in 2021, Vietnamese people spent €231.88, about 6.68 percent of their salary for online shopping. In 2023, they spent roughly 7.77 percent of their salary on online shopping, reflecting the growth in the need for e-commerce retail. Furthermore, clothing, footwear, and apparel products are the fastest-moving items on the online marketplace in Vietnam, with 63 per cent of Internet users purchasing. This is followed by 53 per

cent of people buying housing appliances and 39 per cent buying technology and electronic appliances (Kirin Capital, 2023).

## 4.2 Numerical data in the Vietnamese fashion e-market

Then, it comes to some notable figures and numerical data in the Vietnamese fashion e-market.

### 4.2.1 Revenue

Revenues from the fashion e-market throughout the years from 2020 to 2023 are indicated in Figure 14 below.



Figure 14 Revenue in the Vietnamese fashion e-market 2020-2023 (YouNet ECI, 2024a)

From 2020 to 2023, the revenue in Vietnam's fashion e-market has shown a fluctuating trend. In 2020, the revenue was relatively low compared to the following years, around 1689 million EUR, but was the baseline with much growth

potential in fashion e-commerce. In 2021, the revenue was 2275 million EUR, increasing by 34.7 percent, marking the rapid expansion of fashion e-commerce. The COVID-19 pandemic has promoted the shift from traditional retail behaviour to e-commerce, and the growth rate is forecasted to continue. The upward trend continued in 2022, reaching 2398 million EUR. However, in 2023, the revenue slightly declined to 2278 million EUR, decreasing about 5 percent, suggesting normalised consumer habits post-pandemic (YouNet ECI, 2024a)

#### 4.2.2 Revenue per user

Then, it comes to the revenue per user in the Vietnamese fashion e-commerce in four years in Figure 15 below.

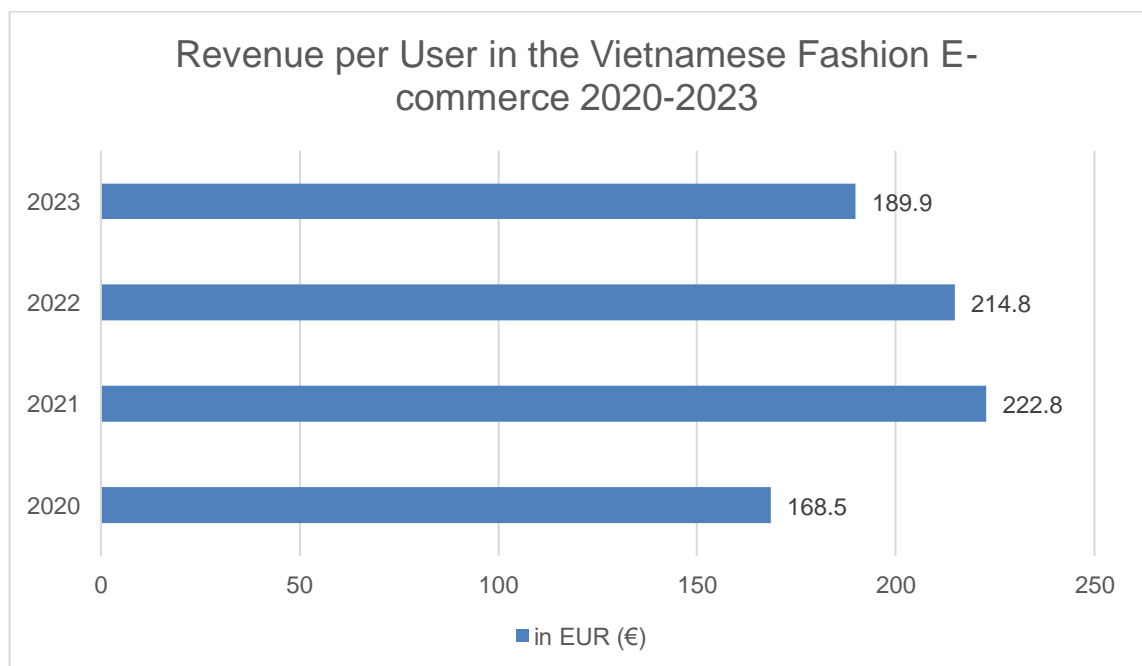


Figure 15 Revenue per User in the Vietnamese Fashion E-commerce 2020-2023 (YouNet ECI, 2024c)

The revenue per user in Vietnam's fashion e-market exhibited an unstable trend from 2020 to 2023. There was a strong 32.2 percent increase in 2021 in comparison with 2020, which reflects the adaption to online retail. However, in

2022, the revenue per user dropped by 3.6 percent despite the total revenue still climbing that year because of the 4.9 percent rise in the overall number of Internet users (WeAreSocial, 2023). By 2023, revenue per user further declined to 189.9 EUR, alongside a dip in total revenue. This pattern highlights how growth in total revenue can be sustained by an increase in user numbers and how beneficial it is for e-commerce players if they can take advantage of this.

### 4.3 Leading fashion e-commerce platforms in Vietnam

Table 4 below shows the most common e-commerce platforms offering fashion products in Vietnam in Q1 2024.

Merchant	Monthly Web Visits	Type	Year of launch	Products	Revenue (EUR)
Shopee VN	145.7M	C2C	2015	Fashion & Accessories	531.2M
TikTok Shop	N/A	C2C	2023	Fashion & Accessories	294.82M
Lazada VN	19.9M	B2B2C	2015	Fashion & Accessories	25.58M
Tiki	6.7M	B2B2C	2010	Fashion & Accessories	410.85K
Dong Ho Hai Trieu	400K	B2C	1991	Watches	N/A

Table 4 Common e-commerce platforms in the fashion category in Vietnam Q1 2024 (YouNet ECI, 2024d; Vu, 2024)

One of the e-commerce players in Vietnam is Shopee. Shopee was founded by a Singaporean company in 2015 and has since expanded to many other Southeast Asian countries. Shopee Vietnam is a big market with over 50 million downloads on mobile phones, 2 million plus sellers, and about 16 million visits daily. (Ezbuy Japan, 2023a). In 2022, TikTok – a platform for watching and creating short videos released TikTok Shop, tapping into the rapidly developing e-commerce landscape and quickly becoming one of the e-commerce giants dominating Vietnam, surpassing Lazada. With its new concept, “Shoppertainment,” TikTok has great potential in the Vietnamese fashion market, with up to 294.82 million EUR in the first 3 months of 2024 (Vu, 2024). The two remaining e-commerce platforms, Tiki and Dong Ho Hai Trieu, are both local businesses launched in 2010 and 1991, respectively. They may have lower revenue and traffic compared to larger platforms, but they prove the adoption of e-commerce and the huge potential in the Vietnamese fashion e-market.

#### A) Payment methods

As Vietnam’s e-commerce landscape flourishes, various payment methods cater to diverse consumer needs and preferences. Research among online shoppers nationwide conducted by iDea (2023) is visualised in the Figure 16 below.

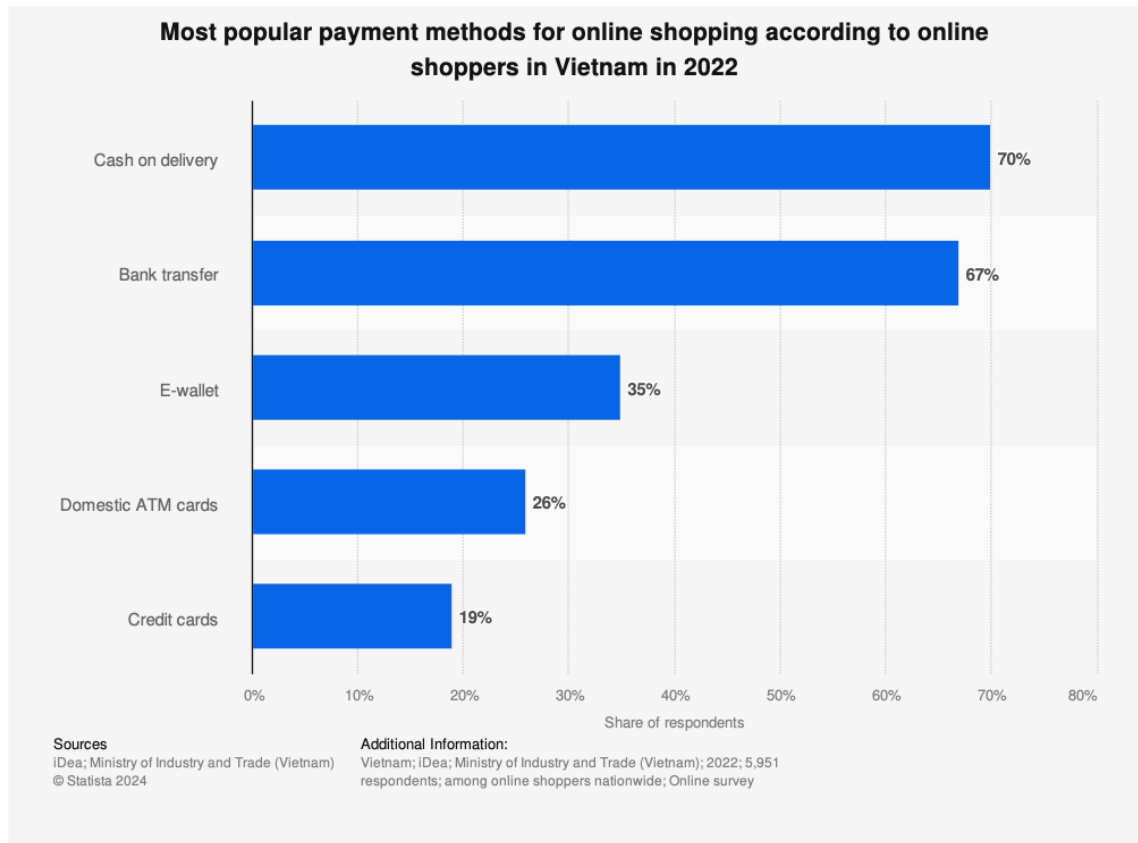


Figure 16 Leading e-commerce payment methods in Vietnam 2022 (iDea, 2023)

As with many other markets in the world, Vietnam is adopting a surge in digital payment after the COVID-19 pandemic and during the booming of the digital landscape. Although Vietnam is traditionally cash-heavy, with Cash-on-delivery (COD) making 70 percent of the preferred payment method for online shopping in 2022, there is still a place for the expansion of e-payments. Coming in second, bank transfers made roughly 67 percent due to the convenience and significant collaborations between banks and tech firms. Bank transfers provide a secure, real-time, and reliable way for end users. Most banks highlight the cost-effectiveness and offer free transaction fees, making it an attractive option. Another well-known cashless payment method is e-wallet, which accounts for 35 percent, around half the percentage of bank transfers (iDea, 2023; Transfi, 2024; NORBr, 2024). Even though there are now over 40 e-wallets, compared to only five e-wallets just 6 years ago, only a few options stand out. The top e-wallets in Vietnam in the second quarter of 2024 are shown in Figure 16 below.

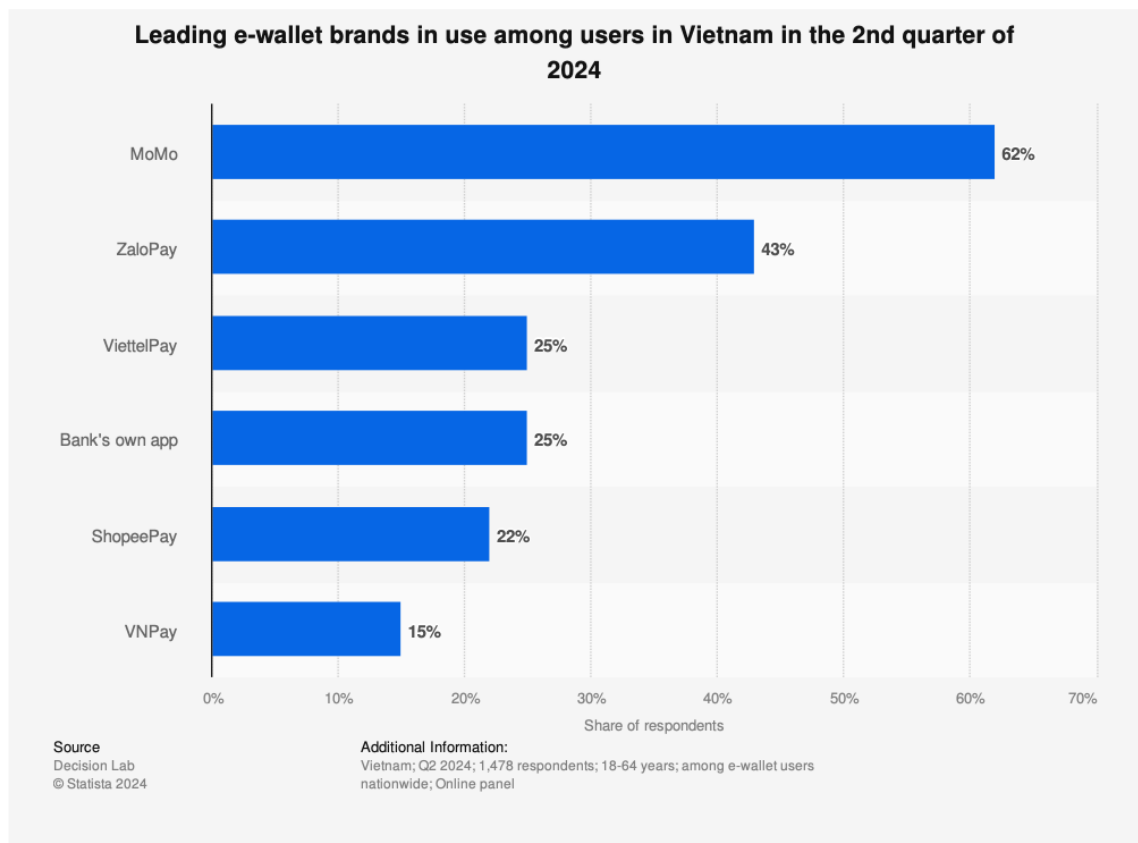


Figure 17 Leading e-wallet brands in Vietnam Q2 2024 (Decision Lab, 2024)

Momo is a well-known Vietnamese independent e-wallet that offers fast payment and is accepted not only on online platforms but at many physical stores. It also provides many handy in-app functions, such as shared piggy banks with family and friends (Trinh, n.d.). It has become the top e-wallet in Vietnam in the second quarter of 2024, dominating 62 percent of the e-wallet market. Viettel Pay and Zalo Pay are both Vietnamese companies, which indicates their dominance and fast-growing local businesses in digital transactions in the region (Decision Lab, 2024). Furthermore, the Vietnamese government has supported fostering the development of fintech startups, which rely heavily on technology and cloud services to provide financial services for end users. In 2016, the National Agency for Technology, Entrepreneurship, and Commercialisation Development (NATEC) was published. They offer training, mentorship, business incubation and acceleration, and financial aid to entrepreneurs (The ASEAN Post Team, 2019).

## B) Key drivers

The fashion e-commerce in Vietnam is robust, and some reasons contribute to this. In 2023, Vietnam's average population reached 100.3 million people, of which the male and female population ratio is considerably balanced (50.1 percent of females and 49.9 percent of males) (General Statistics Office, 2023). Vietnam has a young population, with 35 percent of Millennials (Gen Y) born between 1981 and 1996. Generation Z, born in 1997 to 2012, comprised about 20 percent of the Vietnamese population (Ngan, 2021). Thanks to the young population structure, high consumption needs, fashion awareness, and the ability to catch up on the latest trends in technology, they tend to join and boost the growth of the fashion e-commerce market. The employed population also increased in the fourth quarter of 2023, reaching nearly 51.5 million people, a rise of 130.4 thousand compared to the previous year's same quarter (General Statistics Office, 2023). The developing living standards, salary, and occupation opportunities push Vietnamese people to spend more on their needs.

According to statistics from the International Institute for Strategic Studies and Public Policy, by early 2024, about 400 e-commerce platforms have registered to operate in Vietnam, indicating the acceleration phase in Vietnamese e-commerce. Clothing and apparel continue to maintain their leading position in sales on e-commerce platforms, reaching over 1 trillion EUR after the first five months of 2024. Among product categories, women's fashion has recorded the highest growth, followed by men's fashion (Hao, 2024). After COVID-19, the Ministry of Industry and Trade supported the economy by coordinating with the localities to connect with the e-commerce industry. This has helped the adoption of e-commerce among the Vietnamese population and changed consumer behaviour. In particular, Vietnamese goods have been promoted and exported through cross-border e-commerce programs with large international e-commerce players, such as Amazon and Alibaba. During this program, many small and medium-sized companies were supported to boost exports (Tap chi Kinh te va Du bao, 2023).

#### 4.4 Order fulfillment in Vietnam

Given the booming fashion e-commerce sector in Vietnam, specifically in urban hubs such as Hanoi and Ho Chi Minh City, order fulfillment operations and last-mile delivery drastically shape consumer satisfaction and the ranking among existing e-commerce players. Despite the high demand in the market, the quality of inventory management in Vietnam is still unstable. E-commerce companies want to improve profits by boosting production activities, so the need for warehouses is extraordinary. In 2023, Vietnam had about 850,000 square meters of storage space, and increasing. However, in general, warehouse systems in Vietnam are still overloaded and are yet to operate smoothly. One of the causes of goods overload is the small warehouse area. Currently, there are various delivery companies, but only a few of them meet the demands of consumers. When the need for product delivery is high, it means that the quantity of goods also rises, and warehouses become overloaded if not managed well. This can lead to inaccuracy, late shipments, and lost or damaged goods (RTC Technology, n.d.).

To achieve higher customer satisfaction, e-commerce companies in Vietnam should choose a suitable fulfillment service provider. The order fulfillment process can be done in-house or by third-party logistics. This applies to purchases in B2C or B2B models. There are two common methods of order fulfillment process in Vietnam: In-house order fulfillment and 3PL order fulfillment.

The first one is called in-house order fulfillment, also known as the self-fulfillment model, which refers to businesses that complete each step of the process themselves without the help of a third party. This model is common to startups and even big firms. While it is cost-saving for small companies because they have not received big orders, bigger companies also use this model because they have larger budgets to invest in warehouses, hire employees, and operate the management and transportation (InterLog, 2023). The model is displayed in Figure 18.

## The Self-Fulfillment Model



Figure 18 The Self-fulfillment Model (Lopienski, 2018)

This model requires storage, human resources, equipment, inventory management software, and labour insurance. Companies have full control over inventory and the process of picking, packing, and shipping. This is not suitable for developing companies as they start to receive more orders, and it can cost time to operate the process on their own or money to invest in bigger warehouses, specialised tools, etc. (Lopienski, 2018). An example of self-fulfillment order in Vietnam is TikiNOW Smart Logistics, the fulfillment service operated by Tiki, one of the top e-commerce platforms in Vietnam (Ngo, 2024).

The second type is 3PL order fulfillment, also called outsourced fulfillment, a form in which third-party logistics perform the management and transportation of goods. E-commerce businesses invest in hiring a professional fulfillment firm to perform the whole process of receiving, storing, labeling, picking, packing, transporting, collecting money, etc. Third-party logistics is held responsible for activities related to goods, even for potential issues (InterLog, 2023). The third-party fulfillment order is displayed in Figure 19 below.

## The 3<sup>rd</sup> Party Fulfillment Model



Figure 19 Outsourced Fulfillment Model (Lopienski, 2018)

Using this model, e-commerce organisations can save storage costs, employee wages, and less effort in activities before and after orders. However, they cannot participate fully in inventory management, so the quality of goods cannot be ensured. This model is familiar to SMEs, as they can save operating costs and focus on other business activities in the market, like marketing. In 2015, the concept of fulfillment was still moderately new in Vietnam, but these services are now trusted by businesses (ZenTech, 2017). Outsourcing warehousing services reduces storage costs by 50-70 percent in comparison with operating warehouses (Ezbuy Japan, 2023b). Some of the significant examples of 3PL logistics companies are Viettel Post, Giao Hang Nhanh (GHN), Giao Hang Tiet Kiem (GHTK), etc. (Baspro, 2024).

## 4.5 Last-mile delivery in Vietnam

Alongside the booming of e-commerce and technology in the Industrial Revolution 4.0, last-mile delivery has experienced rapid progression. According to the Vietnam E-commerce Association, the surge in online shopping after the pandemic has led to growing demand for effective and reliable last-mile delivery services.

### 4.5.1 Overview

Efficient last-mile delivery is an opportunity to make a good impression on end users, providing essential data to improve the process and optimise costs, increasing the brand's reputation. Vietnam has unique geographical features regarding the density of urban areas like Hanoi, the capital city, and Ho Chi Minh City, and thin-populated rural regions, indicating both chances and challenges in last-mile delivery. Big cities have robust e-commerce activities, but logistics companies find it hard to reach vast areas. Furthermore, cash is still the king of payment methods in Vietnam, which adds difficulty to the delivery process (the-shiv, 2024).

Currently, there are around 3000 logistics and transportation companies and about 25 top multinational inbound and outbound logistics businesses operating in Vietnam. According to Mordor Intelligence (n.d.), the last-mile market size in 2024 has reached 1.54 billion EUR and is anticipated to rise by 2.4 billion EUR by 2030. The projected CAGR in this period is 7.76 percent. The industry has witnessed competitiveness among logistics firms in pricing, timeliness, services, etc. According to the World Bank's rankings, Vietnam ranks 64<sup>th</sup> out of 160 countries in logistics development and number four in the ASEAN region, after Singapore, Malaysia, and Thailand. The annual growth rate is 14 to 16 percent, around 38 to 40 billion EUR (Pham, 2023). However, the industry still faces some constraints and boundaries: the need for more centralised warehouses, the lack of synchronisation in transportation and logistics infrastructure, traffic jams in

urban areas, complicated customs, etc. The local service providers in Vietnam are still developing enterprises, so they lack experience and professionalism. Most businesses are in urgent need of human resources training, as 93 to 95 percent of the employees are not formally trained (247Express, n.d.)

In addressing the challenges, trends and innovations are emerging to shape the future of the industry. Logistics enterprises are adopting technology and modern software to optimise last-route delivery. These artificial intelligence and machine learning support providing an effective delivery route, forecasting demands, lowering costs and delivery time, and rocketing overall productivity. Another current trend is the utilisation of local warehouses and micro-fulfillment centres. By moving closer and decentralising inventories near the consumers, businesses save shipping costs and reduce lead times. This can be very effective in urban areas where large population concentrations have space constraints, as well as bad traffic that is a cause of worry. Companies like Tiki and Shopee build local warehouses to facilitate customer service and ensure quicker delivery. Increased usage of alternative delivery methods, such as drones and electric motorcycles, is the next innovation being put into practice. In light of city traffic congestion and rural areas that are difficult to get to, these methods seem to offer a more decent alternative for improving delivery efficiency. Additionally, a factor driving the changes in last-mile delivery is social commerce growth, involving direct transactions on social media sites. Logistics companies are developing bespoke solutions for this growing market, with flexible delivery options and integrated payment solutions, as more companies and consumers join social commerce (the-shiv, 2024).

#### 4.5.2 Leading last-mile delivery services in Vietnam

Table 5 depicts the top last-mile delivery corporations in Vietnam. These companies make use of technologies, huge local networks, and alliances with large electronic commerce platforms to guarantee that deliveries occur quickly and safely. They also form one of the most essential parts of the overall logistic

ecosystem and strongly influence what shapes consumer experiences within Vietnam's fast-growing e-commerce market.

Company	Introduction	Advantages	Disadvantages
Vietnam Post (EMS)	<p>Established in 2005 and large expansion across the country</p> <p>Always in the Top 5 best delivery services in Vietnam</p>	<p>Well-trained employees, professional, and good attitude</p> <p>Various delivery option (express, standard, etc.), low shipping fees</p> <p>Responsible and reliable</p> <p>Low damaged and lost parcels rate</p>	<p>Slightly longer delivery time</p> <p>Customers have to retrieve parcels at the postal if there is an issue occur during delivery.</p>
Viettel Post	<p>Founded in 1997</p> <p>A branch of Vietnam Military Telecom Corporation</p> <p>Now operated in foreign markets (Cambodia and Myanmar)</p>	<p>Doorstep delivery, able to deliver to suburb areas</p> <p>Good customer service</p> <p>Good tracking system</p> <p>Offers promotions and discounts for consumers</p>	<p>High delivery fee</p> <p>Long delivery time</p> <p>Changing to COD payment method is not supported during the delivery</p>

Giao Hang Nhanh	<p>Founded by a group of newly graduated university IT students in 2012</p> <p>Expanded to 15 other regions after 1 year of operation</p>	<p>Fast delivery (1-3 days depend on locations)</p> <p>Professional customer service (from the website or in-app)</p> <p>Product insurance and compensation policies in case of damaged or lost goods</p>	<p>Very expensive delivery fee</p> <p>Careless goods preservation during storing</p>
Giao Hang Tiet Kiem		<p>Reasonable delivery fee</p> <p>Nationwide, convenient tracking software system</p> <p>Express delivery option for urban area citizens</p>	<p>Require improvements in preserving parcels during storing and delivering</p> <p>Long waiting time in general compared to other logistics companies</p>

Table 5 Top local last-mile delivery services in Vietnam in recent years (Nhanh.vn, 2024; Tran, 2018)

Last-mile delivery services play a critical role in the e-commerce supply chain in Vietnam. Local companies like Vietnam Post, Viettel Post, and Giao Hang Nhanh... each bring unique strengths and characteristics and are on a fast growth trajectory to overcome Vietnam's logistical challenges.

## 5 Consumer's point of view

Understanding customer behaviour and opinions has always been the key factor in shaping customer satisfaction in Vietnam's dynamic e-commerce fashion industry. With the rapid growth of online shopping, each e-commerce brand aims to stand out to the end users to thrive in this competitive market. By analysing responses on delivery efficiency, product quality, and customer support, this research reveals what Vietnamese consumers expect from their online fashion orders. The insights gather not only the key satisfaction drivers but also offer a strategic roadmap for e-commerce platforms to enhance their services and foster loyalty by looking at international e-commerce brands.

### 5.1 Survey design and data collection

The data is collected from an online form published by the author on 20 September 2024 and ended on 28 October 2024. The survey was sent to family and friends who have purchased from Vietnamese e-commerce platforms. There were 150 respondents in total.

The questionnaire has three parts:

- a. Part 1: Users' personal information and their shopping preferences. This part uses multiple-choice questions.
- b. Part 2: Consumers' opinions on several factors of last-mile delivery and the quality of products. The multiple-choice grid questions are used for consumers to rate from a scale of 1 (Poor) to 5 (Excellent).
- c. Part 3: Problems arising in the Vietnamese e-commerce fashion industry from consumers' perspectives. Participants answered what annoyed them most when purchasing fashion products online.

## 5.2 Data analysis

Data are collected, analysed, and visualised by Google Forms and Microsoft Excel.

### 5.2.1 Consumers' personal information

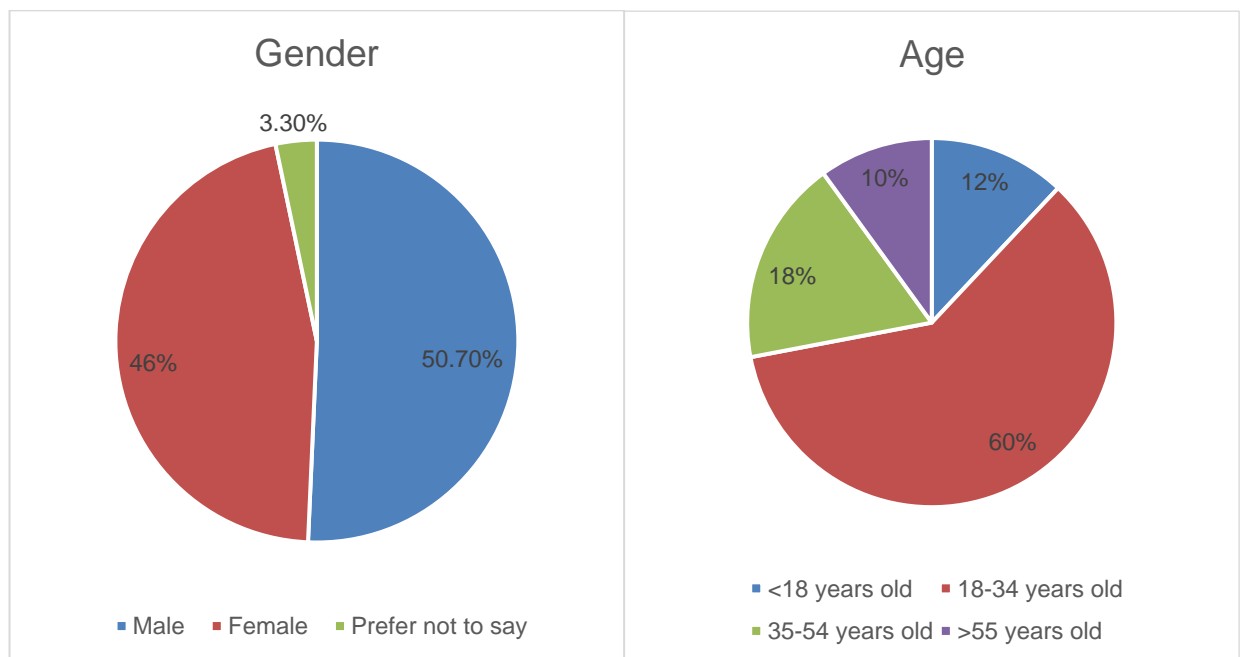


Figure 20 General information of users (n= 150)

The survey sample consisted of 150 participants representing a wide range of demographics, providing an overview of customer satisfaction and behaviour in the e-commerce fashion industry in Vietnam. Hence, the share of female respondents was slightly higher according to the gender distribution of participants than that of males - 50.7% compared to 46%. Also, 3% did not disclose their gender. This relatively good balance in gender representation allows drawing insights into both male and female viewpoints in the e-commerce fashion market.

Since 60% of all subjects were in the bracket of 18–34 years, it shows a very strong interest in the e-commerce fashion of the younger generation. Younger generations are one of the biggest customer segments for any e-commerce platform because they are more digitally literate and spend quite a lot online. Moreover, 18% of the respondents were between 35 and 54 years of age, which means middle-aged people support the online fashion industry, too. While 12% of consumers are under 18 years old, they are the emerging ones who might activate the trends of the future as they reach the primary consumer age bracket. Another 10% of shoppers were over 55 years old, which is relatively lower yet significant engagement of older shoppers.

A small group of people cannot define the Vietnamese market, however, according to the statistics of the General Statistics Office (2023), in 2023, people aged 15-59 years dominated 62.3 percent of the total population, indicating that young adults and adults contribute the greatest to the e-commerce fashion consumption. Figure 21 depicts the occupation of participants.

Occupation Tick all that apply.

150 responses

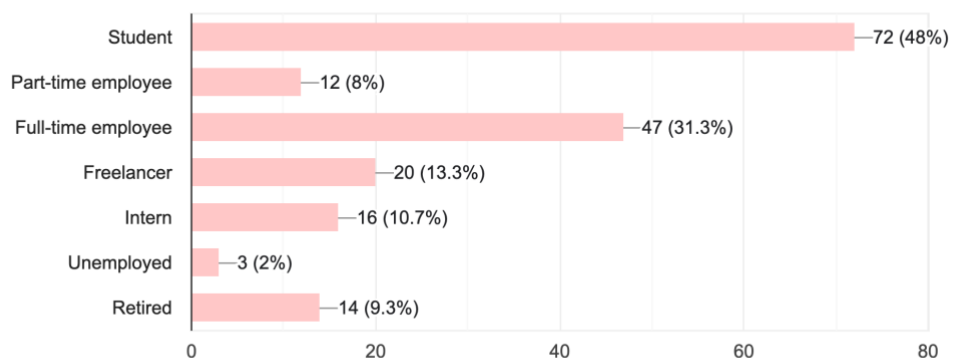


Figure 21 Employment status of the respondents

Students are the biggest category, comprising 48% of the participants. This means that a substantial proportion of students who are usually cost-sensitive and value-conscious constitute the online fashion market. In this view, discounts

and promotions, new trends, and reasonable prices are likely to play a key role in the purchase decisions of this popular demographic. Full-time workers make up the second largest representative group, receiving 31.3%. This would imply a fairly sizeable customer base with regular salaries and, as such, a good target for firms trying to establish themselves in mid-to-premium fashion categories, as they are generally better positioned to spend their money on higher-quality products. Whereas interns only make up 10.7 percent of this younger professional demographic, which would be somewhat fashion-forward with workwear but still affordable, freelancers and part-time employees at 13.3 percent and 8 percent, respectively, also want to have some flexibility concerning the choice of attire. Retirees, at 9.3 percent, are quite a significant population in that they show older consumers are purchasing online as well and that marketers should introduce comfortable, age-related fashions.

Overall, this diversity in the employment landscape points out an important fact: brands will have to come up with flexible strategies to appeal to a wide length of preferences, ranging from students to quality-conscious professionals.

### 5.2.2 Consumer behaviour

The first question in Figure 22 aims to find out the favourite options among the diversity of popular e-commerce marketplaces in Vietnam.

What Vietnamese e-commerce websites/applications do you use to shop for clothing and apparel products? Tick all that apply.

150 responses

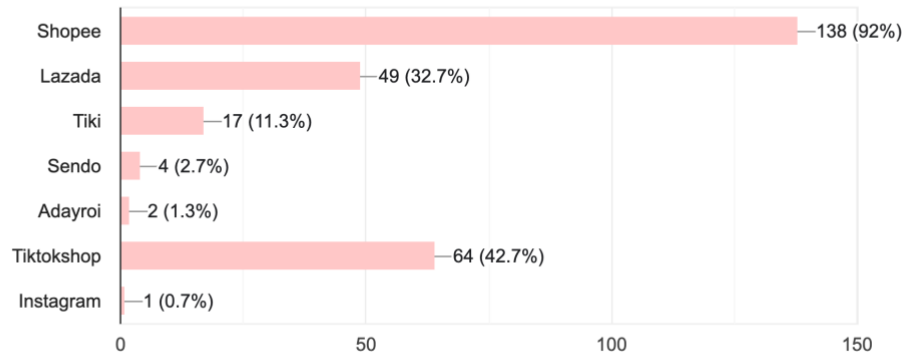


Figure 22 Popular e-commerce platforms in Vietnam.

Based on the data, Shopee VN is the obvious dominant in the fashion e-market, with 92 percent of the respondents having it installed and used. TikTok Shop, a new player in the industry, has proven its fast growth with nearly 43 percent of users. Its unique model of “Shoppertainment” is one of the key drivers. Users can scroll through short and visually appealing videos or watch live streams with the participation of influencers to purchase. This reflects a shift to social commerce, suggesting fashion brands should focus on their marketing content. Lately, Shopee has adopted this short videos and live stream feature, making it even more enthralling to consumers. While Lazada holds a smaller share of 32.7 percent, they remain relevant. Tiki, Sendo, and Adayroi have trouble gaining traction due to their comparatively low preference (11.3, 2.7, and 1.3 percent, respectively). In addition to enhancing user experience and marketing outreach, these two platforms might need to set themselves apart by concentrating on particular categories or local products and consider collaborating with influencers as they help attract many more users, just like the marketing strategies of Shopee and TikTok Shop.

The second question in Figure 23 seeks the online purchase frequency with five options, ranging from a few times a year to daily.

How frequently do you shop online for fashion & apparel items on Vietnamese e-commerce websites/applications?

150 responses

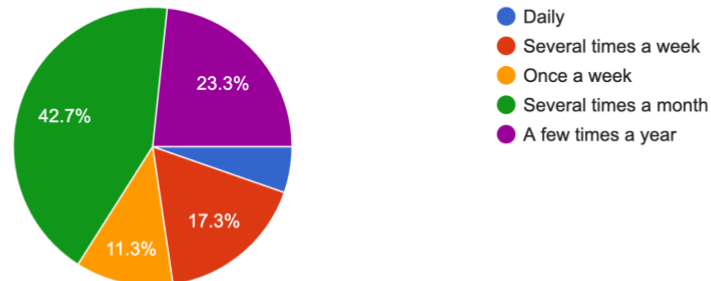


Figure 23 Purchase Frequency

42.7 percent of the respondents purchase fashion items online several times a month. Even though this is not a daily habit, it still happens on a regular basis. The number of people who rarely purchase clothes online throughout the year makes up half the percentage, with 23.3 percent. This could mean they prefer to shop at brick-and-mortar stores or make fewer purchases but spend more money each time. This number indicates the number of people who have a tighter budget or like to purchase during sales like Black Friday only. 17.3 percent claimed to make purchases several times a week, indicating a significant chunk of fashion lovers. 11.3 percent of the participants purchase once a week, and only 5.3 percent buy clothes online daily.

The next question in Figure 24 asks about the budget of the consumers, varying from under 100 000 VND (about under 3.65 EUR) or more than 2 000 000 VND (over 72.95 EUR).

How much are you willing to spend on online shopping for fashion & apparel items on Vietnamese e-commerce websites/applications?

150 responses

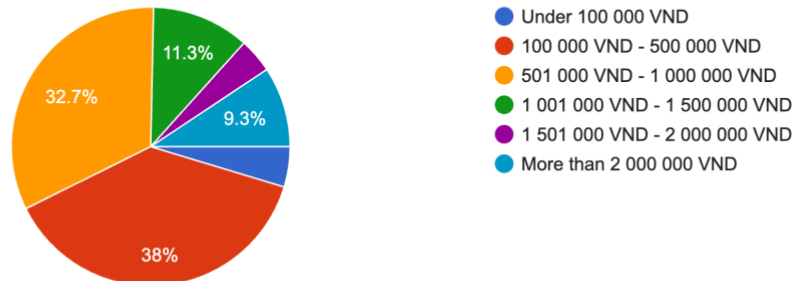


Figure 24 Budget

A significant 38 percent of the respondents are willing to spend from 100,000 to 500,000 VND (about 3.65 to 18.24 EUR), suggesting a high demand for affordable but quality clothes. 32.7 percent of the participants spend about 501,000 to 1,000,000 VND (18.27 to 36.47 EUR), showing a willingness to pay a little more for each purchase of higher and more durable clothes. 11.3 percent of customers prefer their clothes to distinctive designs, so they spend 1,001,000 to 1,500,000 VND (36.51 to 54.71 EUR). Vietnam is a niche market for high-end luxury goods, as only 9.3 percent are willing to pay 1,501,000 to 2,000,000 VND for clothing products (54.75 to 72.95 EUR). It is the same situation for people who spend over 72.95 EUR on their fashion purchases, made up to 4 percent, while 4 percent show interest in buying fashion products below 100,000 VND (around 3.65 EUR), this could most likely be cheap clothes with bad quality or accessories.

Next, businesses should learn how consumers prefer to receive their parcels to expand their delivery options. Figure 25 shows the preferences in receiving orders of customers.

How do you prefer to receive your purchases? Tick all that apply.

150 responses

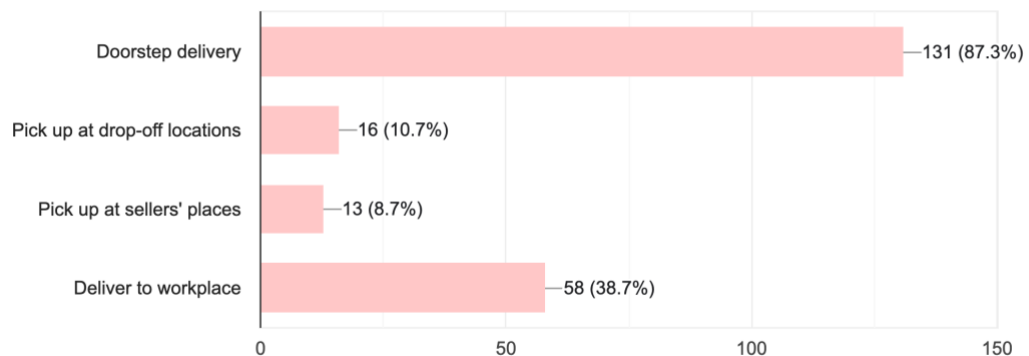


Figure 25 Preferred delivery options

In this online survey data, a huge preference for delivery at the doorstep is indicated among Vietnamese e-commerce fashion buyers since 87.3% chose convenience and comfort at home for delivery. This shows that customers will prefer hassle-free services because they will be free from the discomfort of traveling to get the product. 38.7 percent of busy workers who spend most of their time at their offices prefer to have parcels delivered to the workplace to be more proactive with the delivery time. For those who can receive packages at work, this adds convenience and underlines how delivery options should fit in with contemporary lifestyles, often frenetic. 10.7% prefer pick-up at drop-off sites to allow flexibility in time or simply to lower delivery costs. The last and least favorite option is pick-up at sellers' places, standing at 8.7 percent, suggesting that the majority cannot give up the convenience and privacy of online buying and refuse to travel to sellers. All these statistics show that customers' expectations within the context of e-commerce fashion in Vietnam are quite high insofar as the services are delivered at their convenience, specifically to their homes and offices.

Then, Figure 26 shows the expected delivery time of customers, ranging from within a day to over a week.

What is usually your expected delivery time?

150 responses

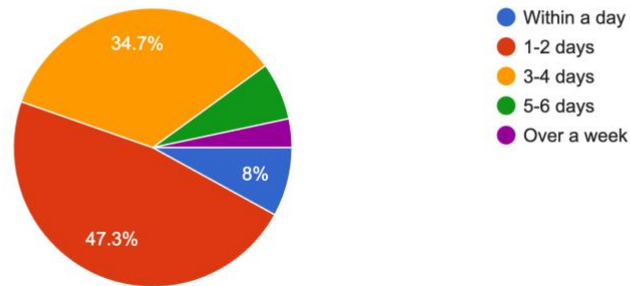


Figure 26 Expected delivery time

While almost half of the respondents, 47.3 percent, expect delivery in one to two days, under pressure from the competitive landscape of e-commerce and increasing consumer demand for quick service, about 34.7 percent are willing to wait three to four days, flexibility around delivery speed, even though fast delivery is one of the key factors to customer satisfaction. Only 8% of participants expected same-day delivery, so express shipping is not a standard expectation for most consumers due to significantly higher fees for ultra-fast delivery. On the other hand, 6.7% tolerate a five to six-day wait, and only 3.3% are comfortable with over a week's delivery time, which reflects minimal acceptance of extended wait times.

Next, consumers get to rate the last-mile delivery services provided by e-commerce platforms, as shown in Figure 27.

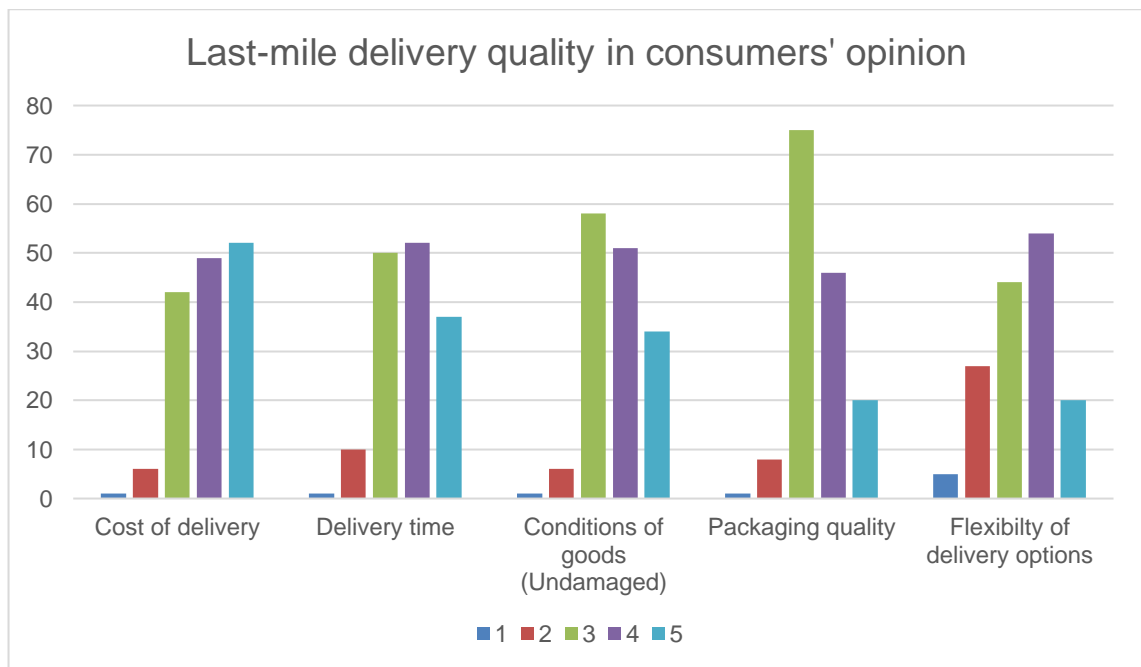


Figure 27 Customer satisfaction in delivery service in general (1 = Poor, 5 = Excellent)

The survey results indicate favourable ratings for various last-mile delivery service aspects, though certain areas could benefit from enhancements. Delivery cost received strong approval, with 52 respondents rating it as excellent (5) and 49 rates as good (4), showing satisfaction with the delivery fees. Delivery time was also exemplary; whereas 50 participants rated it a 4, 37 rated it excellent. However, ten people gave this aspect a 2, which signifies dissatisfaction with long arrivals. Conditions of good were also highly appreciated, with 51 respondents rating a 4 and 34 at 5, meaning that items usually are in good shape, not damaged or lost. Answers to the questions about packaging quality differed: 75 marked 3, while 46 gave 4, which is Satisfactory; it leaves room for improvement. The highest dispersion was in the question about flexibility within the range of delivery methods, with 54 replied with 4 and 27 gave 2, proving that the biggest part was satisfied, but not everybody needed flexibility in the options. Overall, the delivery experience rooted in the data is good, while further improvements should be made concerning flexibility and packaging quality.

Figure 28 indicates the quality of purchase according to users' opinions, with a scale from 1 (Poor) to 5 (Excellent).

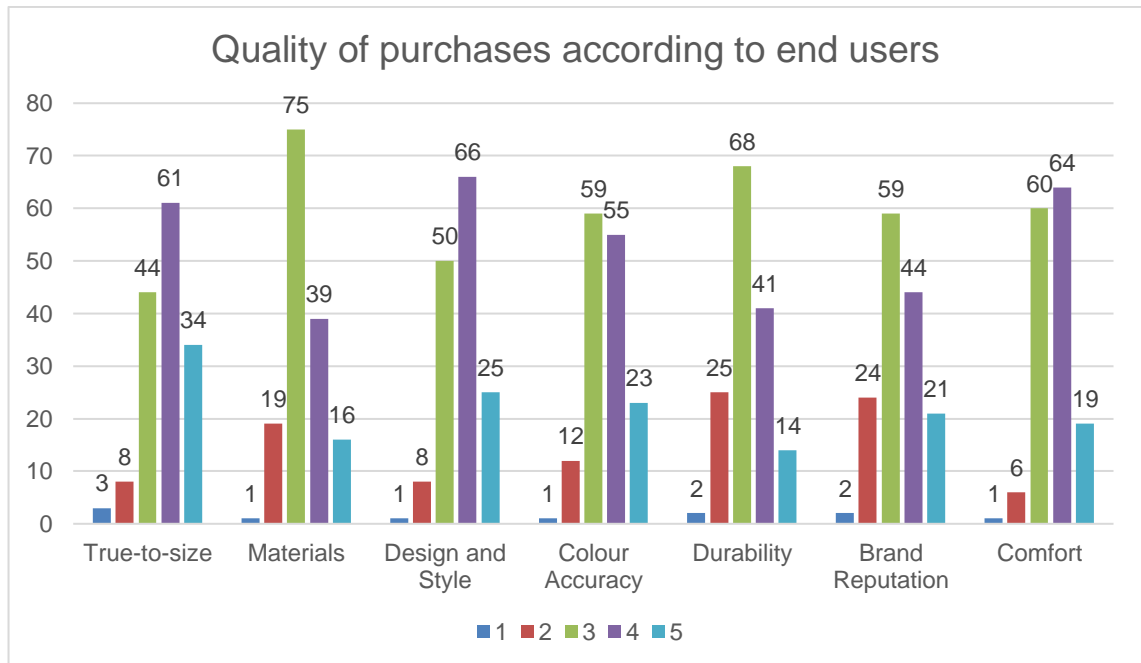


Figure 28 Quality of the purchase in end users' opinions (1 = Poor, 5 = Excellent)

Overall, product quality had positive ratings, though not in every area. Regarding true-to-size ratings, those markings with the majority rating at 4 or 5 denote good size charts. The material quality is more mixed, with a huge number of orders rating it at 3 and a quite large portion at 2, indicating several dissatisfactions. Designed and styled to expectations, several marked 4 or 5. Colour accuracy was rated fairly well; there were some colour-matching issues. Durability scores are low, with most ratings at 2 or 3, showing concern as time goes by with the products. Comfort was rated well at 4 or 5 mostly. The overall view of this product is that it is satisfactory but needs improvement in durability and the quality of materials to realize better satisfaction.

A good tracking system helps consumers keep up with real-time information about their orders and enhances transparency. Respondents got to assess the tracking system of e-commerce platforms in Vietnam. The opinions of users on tracking systems are demonstrated in Figure 29 below.

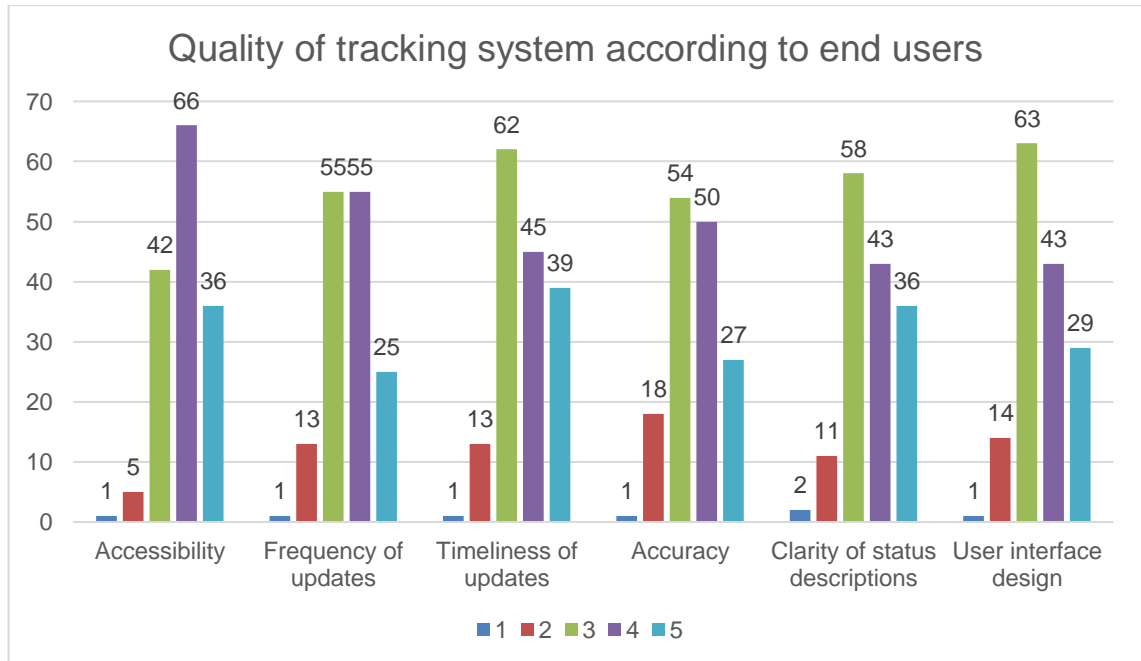


Figure 29 Quality of tracking system based on end users' opinions (1 = Poor, 5 = Excellent)

The general scores of the tracking system came out moderately high, showing good service on the utmost of the features. The accessibility was somewhat excellent, with an average of 66 participants voting 4 and 36 as excellent. This shows that users can access the system with little to no issues. The frequency of updates and accuracy of information had similar responses, with about 55 and 50 users, respectively, giving a 4, insinuating the information to be up-to-date and accurate. However, a notable 18 people rated the accuracy of the information a 2, indicating problems from time to time. The timeliness of updates was ranked highest at 3 with 62 people, showing that the updates are frequent but take some time to be uploaded on the system for users to see. The clarity of the status descriptions was adequate, but 63 of the respondents assessed the clarity as no

more than functional, a 3, so e-commerce platforms are recommended to give more detailed and transparent information about the parcels to consumers. The tracking system, in general, satisfies the demand of users but would benefit from a more precise and user-friendly interface design.

The attitude and behaviours of delivery personnel towards customers also have a huge effect on consumer satisfaction. Consumers rated these, as shown in Figure 30.

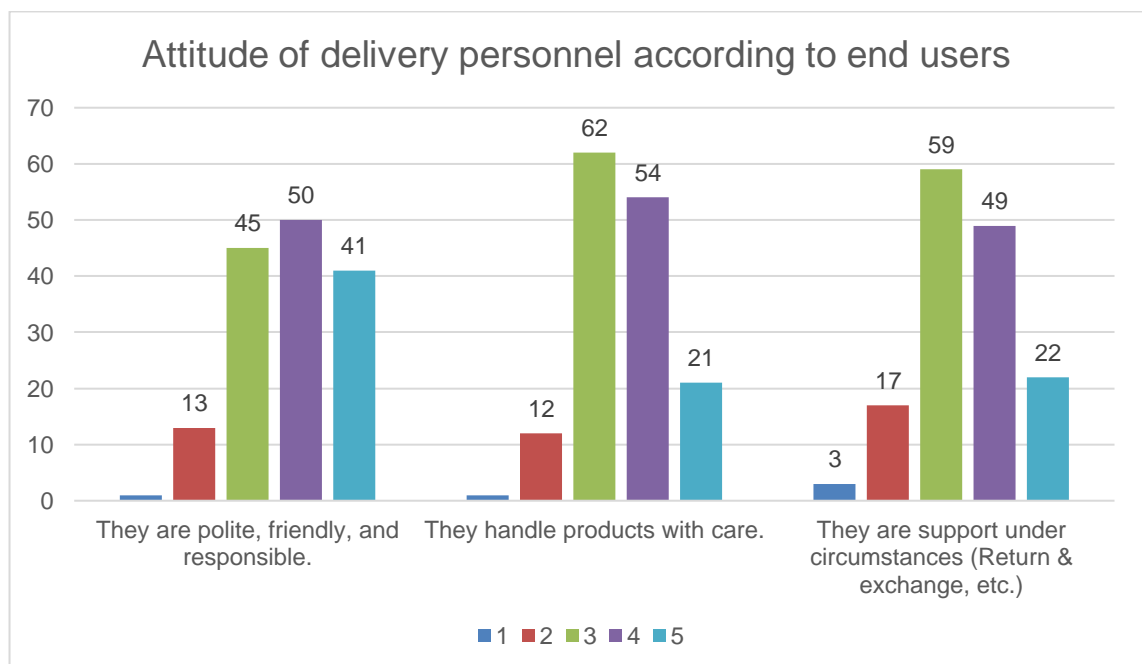


Figure 30 Attitude and behaviour of delivery personnel in consumers' opinion (1 = Poor, 5 = Excellent)

In general, delivery personnel are rated well regarding behaviour and attitude and reflect a decent interaction experience for the greater part of the customers. For politeness or friendliness, 50 rated it as a 4, and 41 gave an excellent score of 5, meaning customers appreciate a professional and friendly approach. The situation is somewhat similar for handling with care, though the scores are less glowing: 54 respondents rated it 4, suggesting that while most customers were satisfied, there was some room for improvement in making sure all items were

treated with due care. Return or exchange supportiveness pits more variable ratings, whereby 59 marked it as average at 3, while 49 landed at 4. This divergence somewhat points to the very fact that while many customers find delivery personnel helpful during difficult situations, there is ample room for much more consistency in support where it counts. Overall, the comments about the delivery personnel are mostly good, though certain concerns should be emulated more consistently for enhancement.

In Figure 31, the satisfaction of consumers with the exchange and return policies is shown.

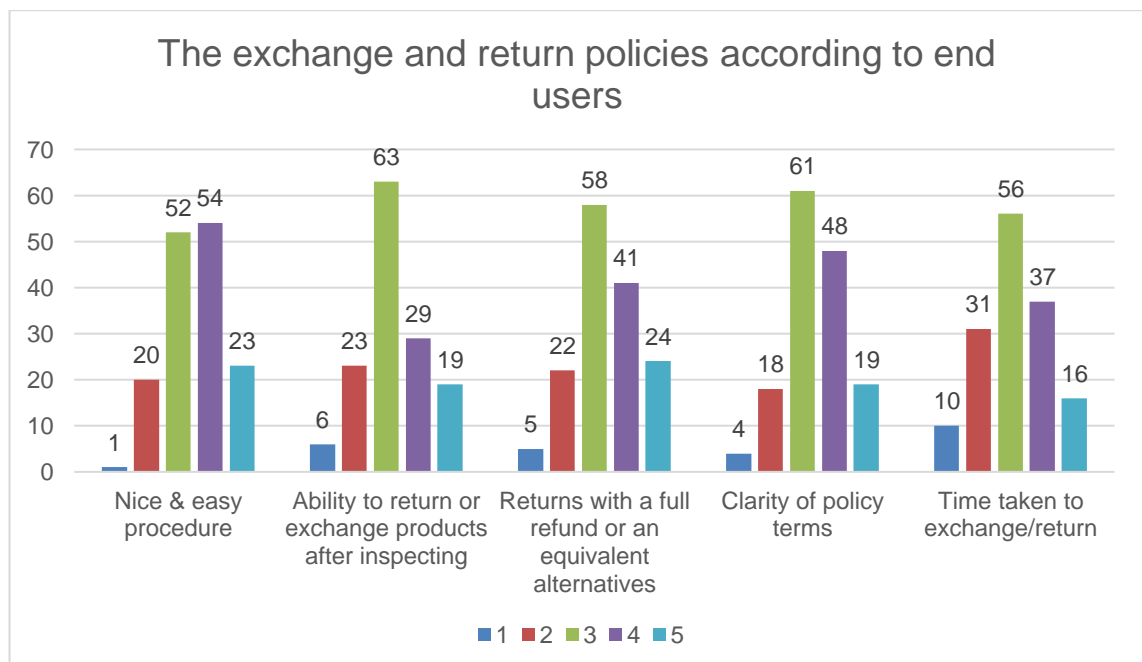


Figure 31 The exchange and return policies in end users' opinion (1 = Poor, 5 = Excellent)

It is important to gather insights into customer perceptions regarding exchange and return policies in the Vietnamese fashion e-commerce landscape from the survey results. Indeed, quite a significant percentage of the respondents were satisfied since 54 rated the general process of exchange and return as good or excellent. Besides, the possibility to return or exchange products after being

inspected received quite worthy scores since 63 respondents welcomed the possibility of doing so, which would mean a lot in building customers' trust. On the other hand, aspects such as clarity about policy terms and time used for exchanges or returns had more room for improvement since 61 and 56 respondents rated these aspects as average. This would hint that while the base of customer satisfaction may be strong, fine-tuning in the areas of policy clarity and processing time would much benefit the overall experience and loyalty in this competitive industry.

After all, consumers demanded on practical solutions for better user experience, as demonstrated in Figure 32.

What are the practical solutions to improve customer experiences in the standard delivery service in this industry? Tick all that apply.

150 responses

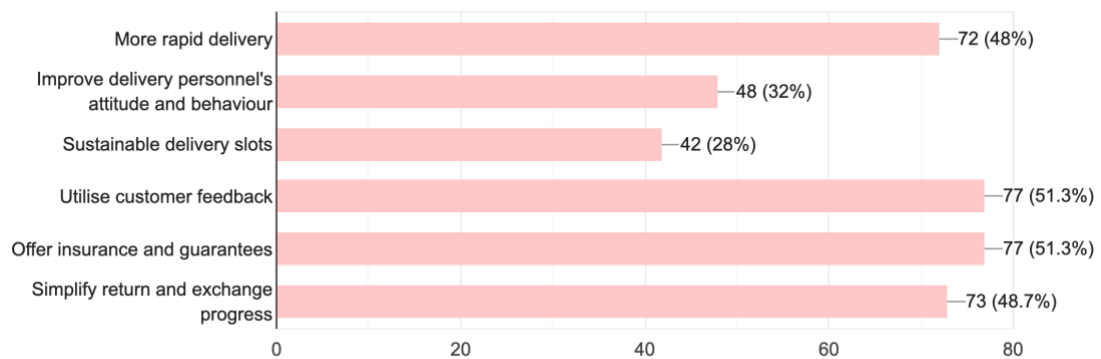


Figure 32 Practical solutions for the delivery service in the e-commerce industry, according to end users

The insights obtained from the respondents regarding useful solutions for perfection in customer experience in standard delivery services identified a few areas where changes must be made. Respondents identified faster deliveries, at 48%, as one of the main features to be improved upon, and speed would help satisfy customers. Further, 32% felt that there should be attitude and behaviour changes by delivery persons, and this means the quality of the interpersonal

interaction is as important as the logistics. High percentages of those surveyed favour customer feedback and insurance or guarantees: 51.3% agreed on both questions. There is a dawning recognition that the customer relationship is one where engagement and building trust can only be improved through proactive effort. Besides, 46.7% of the respondents favoured simplifying the return and exchange process, which would further indicate that intuitiveness and ease are buried in the ability to create loyalty. This data suggests that a holistic approach that places efficiency, great service, and responsiveness to feedback mechanisms at the core could go a long way in improving the delivery experience for the fashion e-commerce industry in Vietnam.

Figure 33 dictates the customers' decision to repurchase fashion products from the e-commerce industry. This data could get better if e-commerce firms resolve the underlying issues.

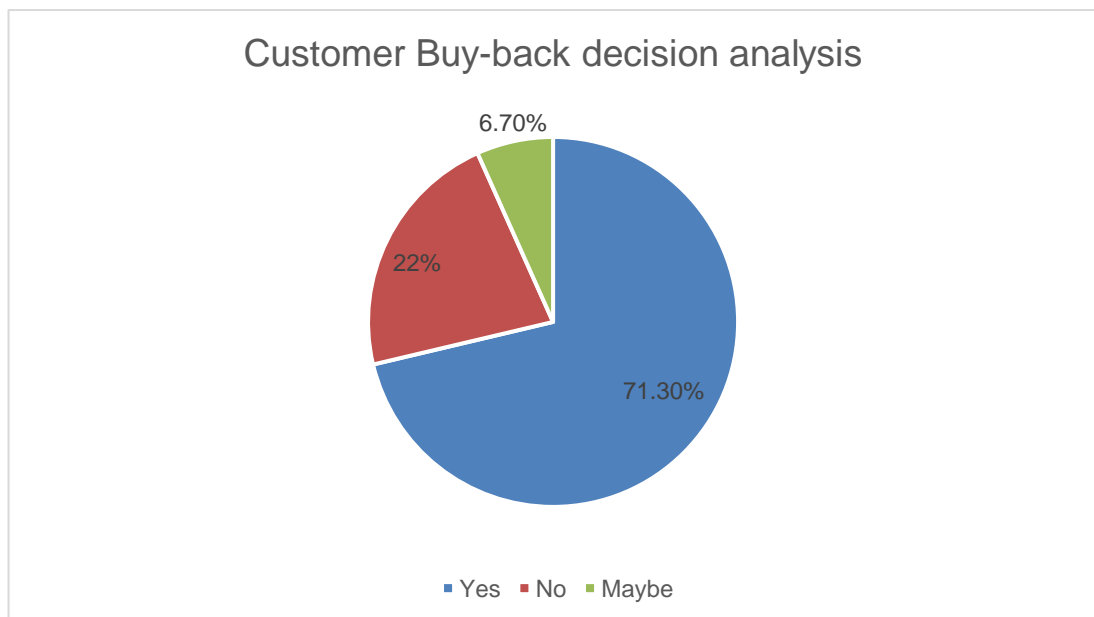


Figure 33 Repurchase decision of consumers

The analysis of the buy-back rating among 150 end consumers shows a promising inclination for the fashion e-commerce sector in Vietnam. A strong base of customer loyalty and satisfaction is reflected by an absolute "yes" for

repurchasing by 71.3% of the subjects, while 22% were recorded with a "no," pointing to grey areas that need more analysis to understand why they hesitate. The "maybe" responses totalled 6.7% and thus were cautiously indicative of optimism, demonstrating the potential for conversion with targeted strategies. This points out that strong service is imperative at all times, and engagement with customers will further improve their shopping experience in pursuit of a long-term loyalty effect that evokes repeat purchases.

Word-of-mouth is one of the best marketing strategies, as it depends on trust. Figure 34 shows the percentage of the decision to recommend to family and friends.

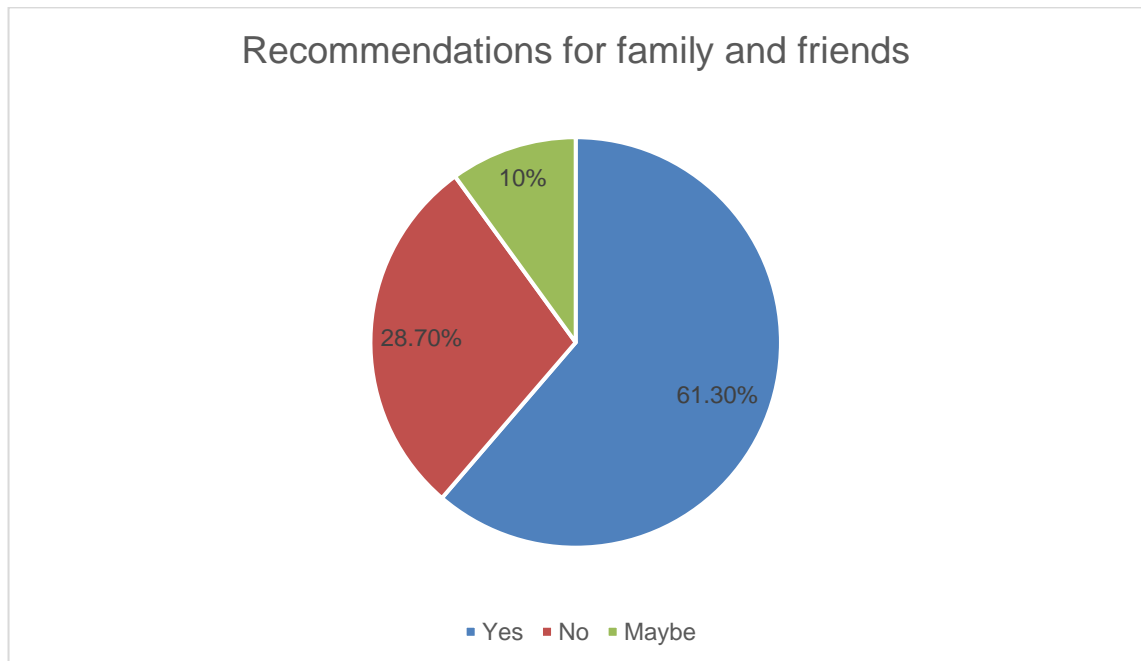


Figure 34 Recommendation for family and friends' tendencies

The responses to the question of recommending online fashion shopping to family and friends provide the clearest view regarding customer sentiment in the e-commerce market in Vietnam. Fully 61.3% of the participants marked a definite "yes," which denotes a very strong propensity to recommend shopping online for clothing and apparel to family and friends, thus helping to contribute to general

satisfaction with the service and products received and the rapid growth of e-commerce trends. Whereas 28.7% responded "no", explaining those points that may fail the expectation of experience and should, therefore, be interrogated further to find out the strongly underlying concerns, 10% said "maybe," representing those that could be persuaded through strategic adjustments of improvements or savvy marketing. These are insights on how important it is to create positive experiences for customers since enthusiastic recommendations can substantially extend brand visibility and credibility in a more competitive market.

### 5.3 Results

Regarding the survey, consumers' backgrounds, behaviours, experiences, and suggestions are summed up.

**Personal background:** Most respondents belong to the age group of 18-54 years old. These people are of working age, so they tend to spend more money on fashion products. The rest are usually students or retired. The number of male and female respondents is moderately equal.

**Consumers' behaviours in online fashion shopping:** Shopee is the most used e-commerce platform among various online marketplaces available in Vietnam. Shoppers either buy clothing products several times a month or a few times a year, depending on the amount they are willing to pay. Vietnamese consumers can spend from 18.27 – 36.47 EUR for each purchase, considering cheap labour and materials in Vietnam, they prefer durable and quality clothing products. They also value the convenience of doorstep delivery or delivery to the workplace, as these two options were commonly chosen. They expect delivery time to vary from one to two days.

**Consumers' experiences:** Participants look forward to faster delivery service, highlighting the essential of timeliness. They also appreciated the exchange and

return policies, but the clarity of terms is not clear, and the time taken for the process is still long. The timeliness of updates and user interface design of the tracking system could use some improvements.

**Underlying issues and suggestions:** The users indicate a desire for customer feedback utilisation, insurance and guarantee options, return and exchange progress simplification, and more rapid delivery. Also, a notable of users demand developments in delivery personnel's attitude and sustainable delivery slots, as carbon footprint and sustainability are not yet well-known among Vietnamese users.

## 6 Conclusion

### 6.1 Research questions' answers

In addressing the main research question, this study delves into the background of e-commerce and order fulfillment operations in the Vietnamese fashion industry and gathers insights from a comprehensive survey of end users.

#### 6.1.1 Sub-questions

**SQ1: What are the main characteristics of the Vietnamese e-commerce fashion industry?**

The Vietnamese e-commerce fashion industry is characterised by rapid development, growing digital accessibility based on year-on-year data, and an evolving trend of consumer demographics that keeps changing between tradition and modernity. Whereas 79.1% of the population are online, mobile phone penetration leads to access to e-commerce, putting Vietnam at the rank of the top 12 countries in the world regarding internet users. Besides, low internet costs, coupled with government support, have worked to ensure that e-commerce

access cuts across all income brackets. The presence of a young and trend-conscious population, of whom Millennials and Gen Z together make up over half the population, whose spending on fashion, footwear, and apparel drives sector demand. Major platforms like Shopee, TikTok Shop, and Lazada have given immense support to the marketplace, providing accessible and diverse products both for urban and rural consumers. Apart from that, the e-commerce ecosystem of Vietnam is highly reliant on cash but very quick at switching toward digital means of paying for a solution, as seen by the more notable rise in e-wallet adoptions. Some key government initiatives also drove this growth, especially post-COVID, placing Vietnam as the second-largest e-commerce market in Southeast Asia. These dynamics define a digitally enabled, youthful, and economically active market that keeps on growing.

(A more detailed answer is provided in the 4.1 to 4.3 part).

**SQ2: How are inventory management and last-mile delivery conducted in the Vietnamese e-commerce fashion?**

In the fast-growing e-commerce fashion industry of Vietnam, inventory management and last-mile delivery are very crucial for effective order fulfillment with a high level of customer satisfaction. The demand from this fast-expanding industry is being satisfied by a limited but growing storage infrastructure of about 850,000 square meters of warehouse space as of 2023. The capacity has often been stretched because the logistics landscape has been fragmented, characterised by small storage spaces and facilities that are highly loaded. Companies in the industry are following both in-house and third-party logistics models to manage inventories and facilitate smoother delivery. Big companies like Tiki have built self-fulfillment models with an owned logistics branch called TikiNOW Smart Logistics. Small and medium enterprises are increasingly using 3PL providers like Viettel Post and Giao Hang Tiet Kiem for their storage, picking, packing, and last-mile delivery.

As in sub-chapter 3.3.3, the definition of a Push-Centric System is mentioned. Based on the definition, the ongoing trends of the industry, and customer preference, this model is widely used among e-commerce platforms in Vietnam. In this model, the manufacturer cooperates with domestic delivery companies to carry parcels to consumers' doorsteps.

In urban centres like Hanoi and Ho Chi Minh City, last-mile delivery becomes an important differentiator where firms use local networks and technology to keep up with the rising demand. Innovations such as micro-fulfillment centres and advanced routing algorithms are used by top delivery players to overcome urban congestion and reach rural areas effectively. Although facing infrastructure and operational synchronisation challenges, this integration of advanced logistic practices raises customer experiences, consolidates brand reputation, and drives the competitive advantage of Vietnamese e-commerce fashion platforms in a densely demanding market.

(A more in-depth answer can be found in sub-section 4.4 and 4.5)

**SQ3: How is the overall customer satisfaction over shopping experiences in the market in Vietnam?**

The data from the survey on customer satisfaction for Vietnam's e-commerce fashion reflects both strengths and challenges, which captures the all-inclusive view of shoppers' experience in this market. Convenience, product variety, and easy accessibility are the biggest aspects to enthrall consumers, especially in big cities like Hanoi and Ho Chi Minh. In general, however, satisfaction is tempered by the demand for speed and certainty of delivery and the quality of the products. The most significant issues arising from the delays of information in last-mile delivery, occasional mishandling of products, and communication gaps tend to lower customer satisfaction. Generally speaking, in towns, customers report considerably more effective delivery services due to better infrastructure and larger warehouse capacity, hence the higher availability of logistics providers. In rural areas, delays are much greater, and there are fewer options. This suggests

that a need for the development of better logistics infrastructures is nationwide. Besides, very high dependence on cash-on-delivery in Vietnam means operational complexity since service providers have to handle either the payment collection or the logistics of delivery, which may imply delays or misunderstandings. The data, therefore, operationally suggests that superior inventory management for tracking, handling, and centralized control increases the reliability of the order fulfillment manifold. Another very important factor driving customer satisfaction from the responses to the survey has been responsiveness in customer service. Customers are seen to be more satisfied, even with problem areas in the logistics, when issues are resolved quickly and communicated candidly and when follow-through is proactive.

Logistics innovation and the use of high-tech should be applied to improve fulfillment operations' and, thus, customer satisfaction. This becomes necessary because of the further expansion and shaping of the e-commerce market in Vietnam, which would go in tandem with the expectations of urban and rural consumers to call for these considerations.

#### 6.1.2 Final answer

Order fulfillment within the e-commerce fashion industry of Vietnam holds a number of privileges and challenges typical for such fast-growing sectors with intrinsic logistical complications.

In the process, the high demand for online fashion has triggered innovation in the management of inventory on the positive side. Firms required more automated and efficient systems for very high order volumes. Similarly, last-mile delivery is faster in cities like Hanoi and Ho Chi Minh City through tech-enabled options that improve consumer satisfaction, hence strengthening the competitiveness of the market. Also, decentralized warehouses and micro-fulfillment centers closer to urban populations have reduced lead times, thus allowing quicker responses to consumer queries and enhancing the effectiveness of delivery.

However, there are also some disadvantages: generally, the warehousing infrastructure is still undeveloped in Vietnam. That means it overloads sometimes, besides some problems in inventory accuracy and order processing. This constraint may affect shipment delays and delivery timelines, and damaged or lost goods can negatively affect customer satisfaction. Logistical challenges in rural areas are more pronounced: fewer last-mile delivery options, for example, and a higher reliance on cash-on-delivery, with longer processing times and complications in fulfilling orders. While local logistics companies are rapidly modernizing, the overall market is highly fragmented, with many providers lacking standardized processes or advanced technology, even further limiting how consistently e-commerce order fulfillment can occur across the varied regions.

More specifically, Vietnamese e-commerce will need to invest more in infrastructure, workforce training, and technology integration for both operational efficiencies and high levels of customer satisfaction.

### 6.1.3 Limitations

This research only examines the circumstances of the Vietnamese fashion industry from 2018 to the first quarter of 2024, so the data recorded in the future may change significantly due to the shift in consumer behaviour and real-time trends.

Secondly, the survey responses are from a limited sample size, so it may not fully capture diverse perspectives across all consumer demographics. The respondents are consumers, so the viewpoints of businesses are lacking. Also, this research mainly focuses on urban areas like Ho Chi Minh City and Hanoi, insights into rural logistics operations were limited regarding their unique challenges. Thus, this study is conducted in Vietnam, so the geographical scope is Vietnam only. Any data related to other countries rather than Vietnam is only used to support the study of Vietnam's market.

Lastly, the topic narrows down to order fulfillment operations in the Vietnamese e-commerce fashion industry, even though order fulfillment operations are applied in many other parts rather than fashion e-commerce, such as traditional commerce or different industries.

These limitations suggest areas for future studies, including broader geographic sampling, different industries, traditional commerce, and the ongoing developments of the market.

## **7 Conclusion**

Web fashion is on a high growth curve in Vietnam through changing consumer habits and increasing frequency of online shopping. At the same time, effective order fulfillment - inventory management, and last-mile delivery remain critical to customer satisfaction. Companies sometimes face difficulties with an inconsistent logistics landscape and limited options in warehousing, which creates latency and distrust among shoppers.

Nevertheless, businesses were finding ways to adapt to each of these challenges by leveraging technology for innovative fulfillment models, including in-house models and third-party logistics providers. Each option has advantages and disadvantages that influence how well each firm will manage inventories and deliver goods to the customer.

Suppose every e-commerce company wants to perform business well in this competitive market. In that case, it has to enhance its logistical performances through high-quality service: building stronger partnerships, investing in workforce training, and using new technologies to drive further efficiencies. Due to such challenges, the Vietnamese e-commerce fashion sector is in a position to create a much more friendly shopping environment for customers, thus helping it to grow in the future.



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## Appendix – The Questionnaire

### PERSONAL INFORMATION

Your gender \*

- Male
- Female
- Prefer not to say

Age \*

- <18 years old
- 18-34 years old
- 35-54 years old
- >55 years old

## CUSTOMER BEHAVIOUR

What Vietnamese e-commerce websites/applications do you use to shop for clothing and apparel products? \*

*Tick all that apply.*

- Shopee
- Lazada
- Tiki
- Sendo
- Adayroi
- Tiktokshop

How frequently do you shop online for fashion & apparel items on Vietnamese e-commerce websites/applications? \*

- Daily
- Several times a week
- Once a week
- Several times a month
- A few times a year

How much are you willing to spend on online shopping for fashion & apparel items on Vietnamese e-commerce websites/applications? \*

- Under 100 000 VND
- 100 000 VND - 500 000 VND
- 501 000 VND - 1 000 000 VND
- 1 001 000 VND - 1 500 000 VND
- 1 501 000 VND - 2 000 000 VND
- More than 2 000 000 VND

How do you prefer to receive your purchases? \*

*Tick all that apply.*

- Doorstep delivery
- Pick up at drop-off locations
- Pick up at sellers' places
- Deliver to workplace

What is usually your expected delivery time? \*

- Within a day
- 1-2 days
- 3-4 days
- 5-6 days
- Over a week

How would you rate your satisfaction with <sup>\*</sup>  
the delivery service in general? (1 = Poor, 5  
= Excellent)

	2	3	4	5
Cost of delivery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivery time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conditions of goods (Undamaged)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Packaging quality	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Flexibility of delivery options	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How would you rate the quality of your purchases in general? (1 = Poor, 5 = Excellent) \*

	1	2	3	4
True-to-size products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Design and Style	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Colour Accuracy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Durability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand reputation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comfort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How would you rate the tracking system <sup>\*</sup>  
after making a purchase online in general? (1  
= Poor, 5 = Excellent)

	1	2	3	4
Accessibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Frequency of updates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Timeliness of updates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accuracy of information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarity of status descriptions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
User interface design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How would you rate the attitude and behaviour of the delivery personnel in general? (1 = Poor, 5 = Excellent) \*

1      2      3      4

They are polite, friendly, and responsible.

They handle your products with care.

They are supportive in certain circumstances (exchange & return, etc.)

How would you rate the exchange and return \*  
policies of e-commerce brands in Vietnam?  
(1 = Poor, 5 = Excellent)

	1	2	3	4	5
Nice & easy procedure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to exchange or return products after inspecting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Returns with a full refund or equivalent alternatives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarity of policy terms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time taken to exchange/return	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What are the practical solutions to improve customer experiences in the standard delivery service in this industry? \*

*Tick all that apply.*

- More rapid delivery
- Improve delivery personnel's attitude and behaviour
- Sustainable delivery slots
- Utilise customer feedback
- Offer insurance and guarantees
- Simplify return and exchange progress

Would you repurchase fashion and apparel \*  
items from Vietnamese e-commerce brands?

- Yes
- No
- Maybe

Would you recommend purchasing fashion \*  
& apparel items from Vietnamese e-  
commerce brands to your family and  
friends?

- Yes
- No
- Maybe