



Working Paper 2023.1.4.5
- Vol 1, No 4

PHÂN TÍCH MÔ HÌNH CROSS-DOCKING CỦA WALMART VÀ BÀI HỌC CHO VIỆT NAM

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Tóm tắt

Cùng với sự phát triển nhanh chóng của thương mại hiện nay, logistics đã trở thành một trong những vấn đề quan trọng nhất cần được quan tâm tới trong việc điều hành một doanh nghiệp thành công. Trong số tất cả các kỹ thuật được áp dụng trong logistics, Cross-docking đã trở thành lựa chọn ưa thích của rất nhiều doanh nghiệp, bao gồm một trong những nhà bán lẻ lớn nhất trên thế giới hiện nay, Walmart. Bài nghiên cứu này xác định các đặc điểm của Cross-docking và nhấn mạnh những lợi ích trong việc áp dụng kỹ thuật này. Đặc biệt, nghiên cứu của chúng tôi tìm hiểu cách Walmart áp dụng phương pháp này trong hệ thống của mình và cách Walmart đạt được lợi thế cạnh tranh so với các nhà bán lẻ khác từ việc áp dụng Cross-docking, từ đó đưa ra một số đề xuất cho các nhà bán lẻ tại Việt Nam từ thành công của Walmart.

Từ khóa: cross-docking, Walmart, chuỗi cung ứng, doanh nghiệp bán lẻ Việt Nam

ANALYSIS OF WALMART'S CROSS-DOCKING MODEL AND SUGGESTIONS FOR VIETNAM

Abstract

Along with the rapid development of trade nowadays, logistics has emerged to be one of the most important subjects to care about in order to run a successful business. When it comes to different

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techniques in logistics, Cross-docking has become a popular choice for several businesses, including one of the biggest retailers around the world nowadays, Walmart. This paper identifies the characteristics of Cross-docking and highlights the benefits of using this technique. In addition, our study examines how this technique has been applied in Walmart's system and how Walmart has gained a competitive advantage over other retailers from Cross-docking operations and from that, gives some suggestions to the retailers in Vietnam from the case study of Walmart.

Keywords: Cross-docking, Walmart, supply chain, retailers in Vietnam

Introduction

In the era of globalization, the competition among businesses is getting fiercer and fiercer, not only within the borders but also around the world. In this context, logistics service is one of the vital competitive advantages. Good connection to the global logistics service network can help businesses access many markets and consumers from countries around the world, reduce costs and improve the quality of products and services.

Cross-docking is not a new technique when it comes to logistics, and several studies and research have been conducted in order to give the businesses a better view of Cross-docking and help them implement it effectively and efficiently: "Research studies in this field applied several models in cross-docking aiming to solve different problems and improve cross-docking operations. These studies include scheduling, dock door assignment, transshipment, vehicle routing, product allocation, and layout design and network." (Reza Kiani Mavi, Mark Goh, Neda Kiani Mavi, Ferry Jie, Kerry Brown, Sharon Biermann and Ahmad A. Khanfar, 2020, p.3). Cost-effective and time-saving are two main advantages that help this technique stand out among other methods in logistics and as a result, Cross-docking is usually in big corporations' and multinational businesses' list of techniques to implement in various industries, such as in pharmaceutical industry, automobile industry and in retail industry with Walmart, one of the most successful examples of implementing Cross-docking.

Undoubtedly, Cross-docking is a beneficial technique that is worth trying. However, Cross-docking has not been widely applied in Vietnam, especially in the retail industry. An array of questions are raised. (1) What is Cross-docking and what benefits can it bring to the businesses? (2) How have large enterprises like Walmart implemented Cross-docking successfully? (3) How can Vietnamese companies follow Walmart and apply Cross-docking in their supply chain? All of the questions will be clarified in the contents of the below report.

Methodology

The approach used for the study was a qualitative research method. The researcher team's data was collected from sources such as articles, research papers, publications, PhD thesis and official data portal from companies, government and institutions around the world. With qualitative research methods such as comparison, interpretation, statistics, interpretation, analysis, induction, synthesis... the topic gives an overview of the research problem and provides in-depth analysis of each aspect of the problem to get the optimal outcomes and a precise assessment. This contributes new insights into the research area related to the topic.

1. Literature review

1.1 Research situation

Being coined in the U.S, Cross-docking was first applied in the trucking industry during the 1930s and continued to develop until the 1950s, when it began to be implemented in the retail sector. But not until the 1980s did this technique become popular when Walmart - one of the biggest retailers around the world - decided to use Cross-docking in its system.

Ray Kulwie assumed that, “Crossdocking is the transfer of goods and materials from an inbound carrier to an outbound carrier, without goods or products actually entering the warehouse or being put away into storage. Thus, the products “cross the docks” from the receiving dock area to the shipping dock area”. (Ray Kulwiec 2004, p.28)

In the point of view of Ladier, A.L. and Alpan, G., Cross-docking is a technique which “consists in unloading trucks, sorting the items they contain and reloading them directly into outbound trucks in order to minimize temporary storage” (Ladier, A.L.; Alpan, G. 2016, p.145-162)

Nowadays, cross-docking is deployed in a variety of industries in manufacturing and distribution, from retailers to retailers. The most prominent case is the giant retail company Walmart in which the cross-docking system is considered one of the most integral parts of Walmart’s supply chain. Implementation of cross-docking and related advancements have helped Walmart stay ahead of all other competitors in terms of technology, transportation and customer service.

1.2. Research gaps

However, cross-docking is relatively a less common method in Vietnam logistics industry. Due to the limitations of the global network of Vietnam, the majority of logistics businesses exclusively conduct transaction within the country and in a select number of its neighbors. In another word, our country can lack the number of warehouses, technology, and supply chain facilities. Cross-docking warehouses are still uncommon and underutilized.

Nevertheless, cross-docking is a technique that has a lot of potential for handling transportation problems, how to minimize prices, and how to ensure time without affecting the quality of the items. The cross-docking shipping method is the golden key for suppliers and retailers if they want to engage further into global supply chain in the future.

2. Theoretical framework of Cross-docking

2.1. Definition of Cross-docking

As it can be seen clearly from the above definitions, the concept of Cross-docking has not changed much throughout the time and it has still been used nowadays. Simply understood, Cross-docking in logistics is a process in which commodities are moved directly from an inbound mode of transport to the customers or to an unbound mode of transport, ready for shipping, with little or no link of picking and storage in between. The process of unloading, sorting and consolidation the goods takes place in a place called “cross-docking station”, and according to Moghadam, S.S.; Ghomi, S.M.T.F.; Karimi,

B. the goods do not stay here for more than 24 hours and then continuously reloaded onto the next shipping carrier. (Moghadam, S.S.; Ghomi, S.M.T.F.; Karimi, B., 2014, p.98-107)

2.2. Types of Cross-docking

There are numerous way to classify Cross-docking, first of all, the two main types are listed below:

Pre-distribution cross-docking is the process when the goods are unloaded, sorted, consolidated and packed as per instructions determined prior to distribution as soon as they arrive and only stay in the warehouse for a short time.

On the other hand, with Post-distribution cross-docking, the goods are kept in storage until the customers are identified meaning the amount of time they spend in the warehouse is slightly longer. Nevertheless, the distributors and the sellers can take their time to plan and make better decisions about the shipping transports and route, number of inventory, sales forecast and the current trends in the market.

Besides, cross-docking can also be divided into smaller groups with different and distinctive features as followed:

Distributor cross-docking, or consolidation cross-docking, is a process when several loads of products coming from different suppliers are combined and put into a mixed product pallets in one final shipment and delivered to the customers. In this method, the goods do require a short period of time for temporary storage in the warehouse (mostly in a staging area) until they form full truckload shipments.

On the other hand, de-consolidation cross-docking occurs when a full load of goods are broken into smaller shipments in order to reach the customers more quickly and easily. This method can be applied in case of bulky products, and will be consolidated at the final destination.

Meanwhile, with manufacturing cross-docking, the input supplies needed for the manufacturing process are gathered at the warehouse, where they are arranged and composed in subsets for manufacturing orders.

In case of opportunistic cross-docking, or continuous cross-docking, there is a continuous and direct flow of goods via a cross dock station from the inbound carrier to the unbound carrier. This method is mostly used when there are “hot” items such as re-order or late-entry goods required to be put instantly into the shipping line upon receipt or composed with other items from the warehouse to fulfill orders of customers rather than into storage. In this way, the customer service can be improved. Opportunistic cross-docking may require a short time waiting when inbound and outbound trucks do not arrive at the same time.

Retail cross-docking, which became famous after its implementation in Walmart’s system, simply consists of receiving and categorizing goods before loading them onto outbound trucks to different retailers.

Transportation cross-docking involves receiving and gathering goods from a wide range of carriers, applied in less-than-truckload (LTL) and the small package sectors in order to gain economies of scale.

2.3. Advantages and disadvantages of cross-docking

2.3.1. Advantages:

Cost-effective

One of the biggest advantages of Cross-docking is cost-effectiveness. According to some research, “The distribution process accounts for 30% of the product sale cost, and this aspect increases overheads of the overall supply chain process” (Lee, K.-Y.; Lim, J.-S.; Ko, S.-S, 2019 p.489-502) and “impacts negatively on the suppliers and manufacturing process due to high competition and ease of reach to several markets” (Daehy, Y.H.; Krishnan, K.K.; Alsaadi, A.K.; Alghamdi, S.Y., 2019, p.381-398). Hence, this benefit of Cross-docking can help a business gain a big competitive advantage over its competitors. As the goods do not require anytime in the warehouse or a relatively short time for storage, the costs of packaging and storing can be kept at a significantly low level. Even when the goods stay at a cross-dock station for some time, the cross-dock facilities are less expensive to build than an usual warehouse. The firms may need to rent a small place for unloading the goods, but the expenses they need to pay are dramatically smaller than the rent of a complete building.

Beside, the costs of transportation and distribution that businesses can save from applying Cross-docking is also large since the carriers need to be fully loaded to begin the delivery and all products sharing the same destination go together.

Moreover, without or with minimal involvement of the link of storage and order-picking in this technique, the number of labor can be reduced, and so as the cost of labor.

Time-saving

Another advantage of Cross-docking can be clearly seen is faster delivery and receipt. When the goods are delivered directly to the customers without being stored in the warehouse or only stay there for a short period of time meaning that the length of time that customers need to wait is significantly reduced. This is also a way for businesses to get a higher level of satisfaction from customers.

Easily-handling

Furthermore, Cross-docking makes it easier for businesses to handle the goods. It helps enhance the efficiency of the supply chain and functioning for in-motion labeling and weighing, label verification, destination scan,... As this technique reduces the time in which the goods stay in the warehouse and on different modes of transport, it also reduces the risks that the businesses may experience if the goods are damaged or stolen.

2.3.2 Disadvantages:

Despite its various benefits, Cross-docking still has some weaknesses. Though it can help them to save costs and time, at the beginning, this technique may take a relatively long time to plan and

monitor with the aim of ensuring that the process is going smoothly and effectively. More attention and management is required to effectively design a long term cross-docking system. Labour costs and technology investment are also incurred, as cross-docking needs a greater amount of works from a flow of having to ship and move stocks at many terminals

Additionally, there is little space for mistakes in Cross-docking operations since it is more likely to be a continuous process than the traditional one so if some mistakes appear in the system, they will cause a reduction in efficiency, delay in delivery and lead to some losses for both the company and the customers. One systematic error can lead to many consequences of not only one late product but possibly a chain of supply.

However, these drawbacks are dramatically less than the benefits mentioned above, so the advantages still outweigh the disadvantages. Therefore, Cross-docking is still a promising option for businesses to invest in and implement to improve their profit.

2.3.3. Products suitable for Cross-docking:

Cross-docking can be applied for a wide range of commodities. However, it is mostly suitable for:

- Perishable products requiring instant delivery: Perishable foods are usually found in refrigerated or frozen sections of the store, while food that is packaged in a sealed can, bag, or container that was not in a refrigerated case is going to be a non-perishable — making perishable goods rather easy to spot. Example of them can be listed as: berries, avocados, kale, hummus, cooked grains, yogurt, fish, cooked vegetables, etc

Transportation of perishable and fragile goods requires careful and quick execution, thus making cross-docking the favorable option

- Promotional or seasonal items just being introduced to the market: Seasonal promotions are special offers, discounts or limited edition items tied to an event during the year. The primary benefit of these promotional marketing strategies is to attract attention to business at an opportune time and increase revenue in an otherwise quiet period. In some cases, these seasons are critical to revenue because they represent a time when a substantial amount of sales takes place.

To take the best advantage of these events, it is important that products are delivered on time and the process is easily carried out. Cross-docking can assure these needs with a significantly reasonable price compared to other modes of transportation.

- Valuable products: It means commercially viable new products that need immense amounts of care and safety. Moreover, some of these products require a high security and surveillance process which can be attained with a network of modern technology.

They are the strong points of cross-docking - a transportation mode which relies on advanced technology.

- Staples and other necessities having stable demand, thus needing shipment in large volume: Necessity is something that people must have in order to live properly, which means they need instant restocking and commonly come in large quantities; for instance: staple foods and beverages such as bread, cereals and coffee

Cross-docking is not only famous for reducing the time spent transporting products by eliminating unnecessary steps, but also space-saving. This mode of transportation will reduce the needs for warehousing cost to the lowest, which is also suitable for shipments that takes up a great amount of space in storage.

- Pre-packaged goods from other warehouses: Pre-packaged goods (PPGs) often means the products placed in advance of sale, which is intended for retail sale. This process cuts down the amount of time preparation needed, making the goods available to be sold, used or purchased without further re-packaging

Cross-docking provides a helping hand in the process of fast supply-chain management in this case as it can pick up the goods from any places and ship directly to the stores or shops that have demands.

3. Case-study of the success of Walmart in applying Cross-docking

3.1. What is Walmart?

Walmart is a retailer that operates grocery stores, supermarkets, hypermarkets, department and discount stores, and neighborhood markets. Walmart has grown to be the world's largest and most powerful retailer, with sales, inventory turnover, and operating profit surpassing those of any other retailer in recent decades. Analyze Walmart's historical stock data to have a better understanding of its performance and influence on the retail sector. Successful supply chain management is essential for corporate success as it transforms from a regional store to a global retail business. According to Supply Chain Digest, Walmart operates approximately 11,700 stores under 59 brand names, employs 2.3 million people in 28 countries, and maintains an average inventory of \$32 billion.

Wal-Mart's integrated supply chain is the key enabler of its growth from a small retailer in rural Arkansas to a global leader. Wal-Mart has become the leading retailer because of having a decision making system that relied on data analysis through a barcode scanning system, a point-of-sale system, and real time data collection [Mark 2012].

Moreover, the leadership position of Wal-Mart in the retail industry has resulted from efficient supply chain practices provided by automated distribution centers combined with computerized inventory systems [Chandran 2003]. Wal-Mart is also well known for operating successfully its own trucking system and an innovative cross-docking logistic technique whereby products can be delivered from inbound to outbound trailers without intermediate storage [Johnson 2008].

3.2. The success of applying Cross-docking

3.2.1. The story

In the 1980s, Walmart began working directly with manufacturers (Vendor Managed Inventory-VMI) to cut costs. And cross-docking is a part of their VMI initiative. Suppliers take charge checking inventory level through a database system which is shared by Walmart. Through this, inventory is replenished immediately when found necessary.

As a result, Walmart can expect the result of almost 100% order fulfillment. In 1989, it was named retailer of the decade, with an estimated distribution cost of only 1.7% of the cost of goods sold, outperforming competitors such as Kmart (3.5 %) and Sears (5%).

Suppliers can deliver goods directly to Walmart warehouses, where they are immediately packaged and distributed with almost no time storage. The elimination of preserving and storing goods activities helps decrease dramatically costs. In addition, shipping costs are also reduced by low shipping times (since each distribution warehouse is within 130 miles of any Walmart store) and allowing Walmart to negotiate better price margins with suppliers.

3.2.2. The application of six types of Cross-docking in Walmart

Throughout time, Walmart has implemented plenty of innovations that help control the flow of goods. Being the first retail store in the United States to utilize the power of computer systems and barcodes for scanning point-of-sale (POS) data, Walmart soon approved the usage of the software that collects real-time sales data to forecast demands of customers and allows suppliers to replenish products at the stores instantly. Walmart's exclusive Retail Link system, which is a satellite network, a central database, and a POS system connecting all supply chains at store level, has added to the company sales \$8.5 million dollars just within the first six months of deploying. It is fundamental for applying the cross-docking operation - a method requires swift transition and strong teamwork between store managers and suppliers.

Walmart has never shielded itself from constantly improving the transporting process. According to Walmart, "Since 2017, we've worked with Symbotic to optimize our systems and transform our supply chain. While this technology works to sort, store, retrieve and pack freight onto pallets, it also provides an opportunity to train our associates on how to use this new equipment, developing new skills and preparing them for jobs in the future. We've also rolled-out a high-tech consolidation center in Colton, California, that will enable three times more volume to flow through the center." Walmart employs the following six sorts of "cross-docking" procedures in its inventory management activities:

- Opportunity-seeking Cross-docking: Under this strategy, Walmart will precisely record information and transport items straight from suppliers to its retail outlets.
- Opportunistic cross-docking is also used in the management of WalMart's warehouse system through the information system, linking WalMart with retailers, so that suppliers regularly notify retailers of needed items that are ready to ship and can be shipped immediately.
- Flow-through Cross-docking: Walmart's distribution center has a cross-docking system, where goods are moved from one warehouse to another. This means that there is always a steady flow of goods moving in and out of the distribution center. The system is used in the distribution of goods to supermarkets and other low-cost retailers.

- **Distributor Cross-docking:** In this type of cross-docking, the goods will be delivered directly by the supplier to the retail stores. This reduces costs significantly for Wal-Mart retailers because they will not have to spend any money on inventory. The shipping and distribution must be flexible, efficient, and fully responsible for the delay in delivering the goods to the retailer.

- **Manufacturing Cross-docking:** When a manufacturing plant needs parts and materials to manufacture a part of a product, it is supplied to suppliers in a short time as needed.

- **Pre-allocated cross-docking:** In this type of case, the goods are ready to be packaged and labeled by the manufacturer. They are transported to distribution centers and shipped directly from there to stores. There is no need to repack or change the packaging of the product as it is already labeled and ready to go.

3.3. Lessons from Walmart's success through cross-docking implementation

Among the various elements that go into the effective use of cross-docking, many outstanding factors stem from the wise decisions and actions of Walmart itself.

3.3.1. Prioritizing customer experience

Customers are the ones who propel and create revenue; in all honesty, no seller could survive without buyers. Acquiring and retaining customers is not only of utmost vital for the success of any enterprise, but a customer-centric approach also provides the foundation for changes in all areas of a business, including the logistics chain.

According to Walmart CEO, Doug McMillon, the company operates the business using the following customer value proposition example: “Everyday low prices for a broad range of goods that are always in stock in convenient geographic locations.” For many years, Walmart has maintained a reputation as a customer-friendly shopping option thanks to its low prices and quick restocking of products on the shelves. To comply with this strategy, Walmart must minimize costs in its supply chain, leading to the implementation of cross-docking.

Cross-docking allows Walmart to have cost-leadership advantages as well as one of the world's fastest supply-chain management. First and foremost, cross-docking helps the business cut down a wide range of storage costs and negotiate better pricing margins with vendors. The money saved is then converted into a much lower price for similar branded products other stores provide. Moreover, cross-docking has a significant efficiency gain as well, as was already mentioned. The transportation cost and time are remarkably reduced, and “the products are brought directly from suppliers to Walmart warehouses, where they are repackaged and immediately distributed without sitting in inventory.” Constant access to needed goods greatly improves the shopping experience for customers.

3.3.2. Embracing technology and automation to better the management apparatus

Walmart has always been at the forefront of using cutting-edge technology to its advantage, and its current cross-docking-based supply chain system benefits greatly from that.

As stated before, Walmart has pioneered ways to manage large-scale inventory electronically and adjust the company's administrative control in order to support the cross-docking technique. Besides, to maximize the benefits of cross-docking as well as the technological advancement, Walmart has adjusted its management structure to a modern approach instead of the traditional way. Commonly, the corporate-level leaders are the only ones who have authority over merchandising and pricing; nevertheless, the cross-docking system requires less centralization of power and more coordination between the parties directly involved in bringing products to the customer.

This strategy also includes maintaining long term relationships with suppliers and vendors, in order to strengthen the partnership. "The system shifted the focus from supply chain to the demand chain, which meant that instead of the retailer pushing products into the system; customers could pull products, when and where they needed." Utilizing proprietary systems and other technological advancements has greatly encouraged closely consistent communication between retailers, suppliers, and distribution centers, ensuring that everyone is always aware of what products are needed, in what quantities, and at what stores.

3.3.3. Developing and enhancing the transportation department

Cross-docking is a just-in-time distribution method that relies heavily on the express and non-stop delivery of the transportation system. In the case of Walmart, the company has itself developed a massive supply chain, focusing on distribution centers - the core element of cross-docking.

Distribution centers are different from traditional warehousing, as they do not store goods for long periods of time, but rather are transshipment points for products with minimal handling and storage before shipping directly to stores. Today, Walmart has 210 distribution centers across the United States, owning one of the largest distribution centers in the world - The Casa Grande Walmart distribution center in Arizona. Each distribution center is more than 1 million square feet in size and supports 90 to 100 stores.

Furthermore, cross-docking is most efficient and viable with a high volume of inbound and outbound shipments, in order to attain smooth pick and pack warehousing, and prevent bottlenecks. In addition, the distribution system has to be quick and skillful to avoid damages, spoilages, or losses. Walmart has created a robust distribution transportation department, with a fleet of 9,000 tractors, 80,000 trailers and over 11,000 skilled drivers. This enormous investment into the infrastructure helps cut the operating costs and control the inventory flow.

Last but not least, Walmart has never shielded itself from constantly improving the transporting process. According to Walmart, "Since 2017, we've worked with Symbotic to optimize our systems and transform our supply chain. While this technology works to sort, store, retrieve and pack freight onto pallets, it also provides an opportunity to train our associates on how to use this new equipment, developing new skills and preparing them for jobs in the future. We've also rolled-out a high-tech consolidation center in Colton, California, that will enable three times more volume to flow through the center."

3.3.4. Constantly advancing marketing strategies

Walmart's ability to survive and thrive in the market in fact lies in the way it captures the market by providing consumers better prices and substantial discounts. According to Walmart, there are four factors that drive the customer's choice of retailer, which is price, accessibility, experience, and assortment.

To raise customers' awareness of the brand, Walmart advertises in a variety of ways, including TV advertisements, billboards, social media, and e-commerce websites and provides secure shipping solutions with the highest level of customer support for online shoppers. Although Walmart's target market is middle-aged housewives, it has also reached out to younger generations like Millennials and Gen Z. In addition to more traditional media outlets like TV and radio, Walmart has also been using newer channels like social media platforms, where it has been posting funny, lighthearted short videos. These platforms include Tik Tok with 1.3 million followers, Instagram with 2.9 million followers, and Facebook with 33 million. Customers will now be informed of Walmart's festive seasonal deals, which include selling costumes and decorations for Halloween, Christmas, Easter, etc.

3.3.5. Good relationships with representative offices, foreign companies, and agent network

Another factor for Walmart's success is purchasing products from both local and global manufacturers in bulk in one go and selling in relatively much smaller quantities. With the use of cross-docking, Walmart can buy and sell products quickly and conveniently, which benefits both Walmart and consumers. Buying more products from local manufacturers means they are creating more jobs and they reduce the unemployment rate.

Walmart has 138 partners, the majority of which are IT companies like Magento, WooCommerce, and Netsuite as well as media companies like Avalara, DiCentral, Celigo, and others. As for mutual good relationships, both Walmart and its business partners can easily exchange information, from supermarket to supermarket, from staff driving to brothels, from brothels to supermarkets to timely replenish stock.

Cross-docking is a technique that requires effective communication, so keeping a good relationship and communication with partners is the core thing to provide in time to customers.

3.3.6. Building logistics brand

One of the key features of Walmart's logistics infrastructure is the responsiveness and flexibility of its private transportation system. This is the premise for the success of Walmart's agile supply chain model.

Furthermore, Walmart has created a distribution platform for goods sold in stores through approximately 210 distribution centers spread across the United States, with a logistics department of up to 75,000 personnel, 7,800 drivers, and nearly 7,000 trucks. And cross-docking allows the goods to be fully prepared so that when they arrive, they can be used immediately without passing through the warehouse.

This system significantly reduces inventory costs, operating costs, saves space, and improves distribution efficiency. The self-sustained and independent logistics brand not only helps Walmart

apply cross-docking techniques easier but also raises the whole supply chain of the company to a whole new level.

4. Cross-docking in Vietnam

4.1. Overview

4.1.1. Third-party logistics (3PL)

Third-party logistics, or 3PL as it is usually known, is the practice of outsourcing logistical tasks to a different party, including customs clearance, product storage, and order fulfillment. Third party logistics may fully eliminate the requirement for a foreign firm to create a market presence in Vietnam, depending on the 3PL provider and scope of services used. Instead, all activities might be managed from a single regional management hub, where operating expenses and risks would be lower.

The global 3PL market reached \$75 billion in 2014, and grew to \$157 billion in the US; demand growth for 3PL services in the US (7.4% YoY) outpaced the growth of the US economy in 2014. As of 2014, 80 percent of all Fortune 500 companies and 96 percent of Fortune 100 used some form of 3PL services.

Working with a third party logistics provider offers many advantages. Here are some of the most commonly cited benefits of working with a 3PL:

- Gain expertise and knowledge: Supply chain logistics can be complex; fulfillment, warehousing, and shipping all come with major challenges. When it comes to supply chain logistics, 3PL organizations are experts and can support customers with years of experience and industry connections to quickly streamline processes.

Additionally, 3PLs often give insight into issues that come up when shipping internationally. Such issues include documentation, customs, duties, and differing shipping regulations. Working with a third party logistics organization can also relieve the stress of trying to comply with international shipping protocols.

- Save time and money: Using a 3PL can greatly reduce or even eliminate the need to invest in warehouse space, technology, transportation, and employees to carry out logistics processes, allowing for more focus on your core competencies.

Third party logistics providers can also make organizations proactively aware of supply chain mistakes that could be costly and risky. By providing industry forecasting, 3PLs also help optimize inventory levels to save on inventory holding costs.

- Scale operations and be more flexible: When a company uses a 3PL, they can scale space, labor, and transportation according to current inventory. Additionally, they are often able to ease the transition between seasonal periods and industry fluctuation.

When expanding into new markets, businesses can rely on a 3PL to aid growth in new regions. Always looking for ways to improve aspects of supply chains, 3PLs have the tools and technologies necessary to make adjustments that could prove challenging for businesses on their own. Management

software can analyze and monitor supply chain procedures to eliminate inefficiencies. Third party logistics providers bring continuous improvements to your logistics process, which ultimately leads to savings and greater efficiency during your logistics initiatives.

- Transportation: When it comes to transportation, 3PLs can engage carriers, consolidate less than container load (LCL) or less than truckload (LTL) freight, track freight payment and insurance documents, and work with private fleets.

Shipping globally can be complicated and stressful for businesses. A 3PL can handle global shipping logistics considerations like customs, freight forwarding, and consolidation to relieve your allocated time and money for those processes. As a representative of a customer's business, a third party logistics provider also works to ensure all trade compliance requirements are met, costs are managed, and execution goes as planned.

- Information technology: A 3PL often uses information technology to manage ecommerce, customer relationships, transportation, and warehouse operations. Tools like electronic data interchange (EDI), application programming interface (API), and cloud-based systems are the most popular tools trusted by 3PLs. No matter which tool is utilized, the goal is to provide increased visibility to supply chain processes as well as shipments in transit.

4.1.2. Types of third-party logistics services in Vietnam

Companies looking to outsource logistics tasks in Vietnam can choose from a range of services from 3PL providers. For those who are not familiar with the third-party logistics sector, the following list of popular 3PL services in Vietnam is organized according to how frequently foreign investors now use such services.

3PL services in Vietnam	Popularity
Domestic transportation	92%
International transportation	89%
Warehousing	70%
Customs clearance	68%
Forwarding	60%
Shipment consolidation	40%
Product labeling/packaging	33%

Transportation management	25%
Reverse logistics	25%
Cross-docking	25%
Freight auditing and payment	18%
Fleet management	15%
Order entry, processing, and fulfillment	12%

Source: Vietnam Briefing, July 2017

4.1.3. Situation in Vietnam

Large exporters frequently have an internal department that is solely responsible for the import and export procedure in Vietnam. Foreign logistics companies, such as Maersk Logistics, APL Logistics, NYK Logistics, and MOL Logistics, are dominating Vietnam's market, holding 80% of the market share and up to US\$48 billion in sales as of January 2014, the first month that the Vietnamese government began to permit fully foreign-invested enterprises to enter the logistics market (Vietnam Briefing, 2014). With an estimated \$1.5 billion in sales in 2014, accounting for 7.4% of GDP, third-party logistics (3PL) in Vietnam showed encouraging trends.

Image 1: Global logistics costs and third-party logistics revenues (US\$ Billions)

Country	2014 GDP	Logistics (GDP %)	Logistics cost - 2014	3PL Revenue %	2014 3PL Revenue
China	10,360.0	18.0%	1,864.8	8.0%	149.1
Indonesia	856.1	10.7%	91.6	7.2%	6.6
Malaysia	336.9	10.7%	36.1	7.1%	2.6
Philippines	289.7	10.7%	31.0	7.1%	2.2
Singapore	307.1	8.5%	26.1	11.5%	3.0
Thailand	380.5	10.7%	40.7	7.2%	2.9
Vietnam	187.8	10.7%	20.1	7.4%	1.5

Source: Armstrong & Associates, Inc., 2016

Due to the characteristics of businesses that haven't yet expanded their global networks and the peculiarities of the Vietnamese business sector, few businesses build their own distribution hubs for cross-docking purposes. Three-party logistics businesses (3PLs) mainly cross-dock in Vietnam and

export goods to customers abroad when combining products from various Vietnamese companies. Since domestic and regional business is currently the sole focus of Vietnam Logistics firms, for those involved in international logistics, the main role is acting as an agent or having control over each stage.

Over 25 global logistics businesses are now active in Vietnam, and they hold 70–80% of the country's market for logistics services. Therefore, while combining items at cross-docking, 3PLs are mostly chosen from reputable firms like APL Logistics and Maersk Logistics, OOCL Logistics...

All logistics businesses provide shippers warehousing and freight services. The warehouse service offered today, meanwhile, still adheres to the conventional approach. In other words, the warehouse's primary purpose is to store products. In Vietnam, the cross-docking warehouse concept hasn't been employed frequently or successfully.

4.2. Achievements and challenges of the Vietnamese economy in the field of Logistics and international transportation

4.2.1. Success

Vietnam is geographically positioned in a strategic location. Vietnam's government made the appropriate choice to pursue an ambitious shipping strategy. From the northern to the southern areas, ports have been built and expanded with hundreds of millions of US dollars invested since 1995. In 2014, the country of Vietnam had 44 seaports after approximately 10 years. In order to assist transportation activity, highway and railroad networks were also modernized.

Comparatively to other, more developed economies in the same area, recent investment in Vietnam's infrastructure is noteworthy. For example, Vietnam's national budget for infrastructure development increased gradually and now is maintained at 12% of GDP. Other countries such as Taiwan or Korea, in the 1970s, spent on average around 9.5% and 8.7% of GDP, respectively (Nguyen T. X., 2010).

Another factor supporting the shipping-focused strategy was the abundance of young workers with competitive pay. For example, in 2013, the average monthly income in Vietnam was US\$197, just below the US\$215 average wage in the Philippines and India, and around half that in Thailand and a third of the average wage in China (ILO, 2014). As a result, Vietnam consistently ranks among the top 10 nations in Asia that attract the greatest foreign direct investment (FDI) (UNCTAD, 2014).

4.2.2. Challenges

The dependence on foreign inputs has a negative impact on the Vietnamese economy. It suggests that a sizable portion of the retail price breakdown is utilized to pay for import costs. This is due to the poor, small-scale, and antiquated technology used by the industrial sector. For example, the manufacture of garment exports uses imported raw materials that contribute 70–80% of the end product's worth. 50% or so of footwear shipped in its equivalent amount (The World Bank, 2014).

However, it also affects the trade balance and makes the economy more vulnerable to shifts in the global market. This overreliance on imports is caused by the lack of supply clusters and an

integrated supply chain. The establishment of intricate supply clusters and supply chains received significant financial and regulatory support from the government. Nevertheless, a lot of them are still in the early phases of development due to ineffective financial management and murky, contradictory legislation.

The administration and regulation systems also have problems that need to be fixed. Red tape and burdensome bureaucracy are the main causes of their production. The administrative load of freight stakeholders is further increased by regulatory uncertainty, who are required to monitor approximately 5,700 administrative processes and 9,000 legal papers (EuroCham, 2012). Inconsistencies in the law have led to a variety of interpretations, which can make it difficult for businesses to communicate with government representatives.

4.3. Recommendations to improve the efficiency and quality of the cross-docking techniques in Vietnam

4.3.1. Improve the quality of customer service

First and foremost, companies need to perfect the client services they are already offering, which are regarded as the foundational elements of an integrated logistics chain. That includes storage, domestic transportation, forwarding, and transportation services. The next step in enhancing service quality is investing in new, improved, and modernized equipment, opening new locations to expand the current infrastructure, surveying the market to understand its needs and volatility, focusing on customers to create a service strategy, and making an effort to respond to complaints in a better, quicker, and more efficient manner.

4.3.2. Promote the development of multimodal transport services

To achieve this, Vietnamese businesses must establish connections, work in harmony with the transporting and freight forwarding section, set up transshipment points to facilitate the flow of goods, compare the costs, benefits, and advantages of various vehicle types, and design a route that is appropriate for the type of goods being transported as well as the terrain.

4.3.3. Apply e-commerce and modern management methods

This program enables businesses to tightly regulate the movement of products, interact with stakeholders fast and correctly, manage issues rapidly, and assist consumers in monitoring items efficiently. The most recent logistics technology approaches, such as SCM (Supply Chain Management), JIT (Just in Time), CCMS (Cargo and Container System), CIS (Customer Information System), TMS (Transport Management System), and WMS (Warehouse Management System), should be used by businesses.

4.3.4. Develop a marketing strategy for logistics services

Study the market's demands in detail, especially those of domestic production and commercial companies to imitate various kinds of logistical services. Expand and finish the supply chain gradually. To increase demand, promote and introduce logistics services to clients more frequently.

Currently, many domestic manufacturers and company exporters are unaware of the notion of logistics, much alone understand why there is a need for contracting services to support this activity.

4.3.5. Cooperate closely with representative offices and foreign companies in Vietnam

Maintain regular contact with foreign trade offices and international organizations in Vietnam and abroad to take advantage of information about trade and investment agreements in order to participate in the procurement of logistics services for clients. Building an agent network, increasing service areas to provide packages, and closely connecting freight movements to clients are all under progress.

4.3.6. Build logistics brands

Vietnamese businesses have an advantage over their overseas competitors because they have a greater awareness of the home market as well as the attitudes, traditions, and identities of domestic businesses. The goal is for Vietnamese forwarders to emphasize this and work together to create a genuine Vietnamese logistics brand.

5. Conclusion

This study aimed to provide the Vietnamese logistics businesses with an ideal investment prioritization for the improvement and development of cross-docking techniques. It also worked to deliver logistics stakeholders and international investors with suitable strategies and investments and a list of common goals that they could share with the Vietnamese logistics businesses.

Since 2007 up to now, logistics cooperation between Vietnam and other members of the WTO has achieved many good results. That is to point out development efforts on building regional economic corridors, improving the quality and scale of infrastructure, constantly improving legal institutions, creating favorable conditions for logistics operations, raising awareness of enterprises about the role and significance of logistics, to name a few.

However, there are still many limitations. Technical infrastructure is not up to standard, remains weak and lacks synchronization. The legal corridor for logistics activities is incomplete and asynchronous. These are the two biggest reasons that limit the development of Vietnam's logistics activities as well as Vietnam's logistics cooperation in the last decade. In addition, human resources operating in the logistics sector lack professional knowledge, logistics enterprises in Vietnam are small-scale, have poor management, inharmonious operations with no linkage, and are not able to get access to the most state-of-the-art technicals.

From these limitations, the thesis proposes a number of solutions to improve logistics competencies of Vietnamese freight forwarding companies such as creating a legal environment for logistics service development, investing in building and upgrading technical infrastructure for logistics, enhancing information exchange and cooperation between existing firms (domestic and foreign) within the market, applying information technology in logistics management, human resource development, and promoting the role of associations. These solutions, however, require efforts from both the companies and the government to achieve optimal results. Meaning every single body

belonging to the supply chain, including LSP, transporter, storage owner, trade partners, the state, chambers, ministries, traffic officials and even the construction industry must invest their money, time, and human resources into overcoming these shortcomings for the deal to work.

Hopefully, with enhanced cooperation, coordination and unified action, logistics activities in Vietnam will be further developed, bringing great benefits to the region, contributing to the vision of an integrated, harmonious, and prosperous new economic world.

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