

A comparative Study in South-East Asia E- Commerce Logistics Models and Processes implementation.

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Abstract—Digitalization has made E-Commerce an important part of the global consumer market. With large number of enterprises carrying out e-commerce, logistics driven under the background has been largely influenced. This paper presents the certain models and practices of e-commerce logistics contributes to supply Chain Management (SCM) and the processes that booming e-commerce market a sharp increase in the demand for logistics services. In this paper implementation of techniques and corresponding models are also reviewed and compared in leading business partners of south-East Asia territory. Typical e commerce logistics leading companies from Asia pacific and their adopted models and practices comprehensively discussed in this paper to get an idea of how a stable e- commerce business can develop to reach its proposed satisfaction towards customers and business. In today's competitive e-commerce environment, speed, reliability, and efficiency of delivery network can make or break any brand's success. A well-optimized e-commerce delivery network and logistics strategy directly influences customer satisfaction, repeat purchase rates, and profitability.

The impact of e-commerce network on logistics is multidimensional, encompassing various aspects such as supply chain management, transportation, warehousing, last-mile delivery, and reverse logistics. With traditional logistics models it is merely inadequate in addressing the challenges specially in B2C e-commerce landscape. One of the significant challenges faced by e-commerce logistics is the complexity of managing a vast number of individual orders and delivering them promptly to consumers. Unlike traditional retail, where bulk shipments are sent to stores, e-commerce requires the processing and delivery of countless parcels directly to customers' doorsteps (*G Deepak Raj; SThandayudhapani, April 2024 ComFin Research*). This paper significantly describes the different ways of e commerce logistics and the practices that can stabilize the systematic logistics and supply chain management flow out.

Keywords: *Supply chain management (SCM), Logistics Supply Chain Management (LSCM), Less than Truck Load (LTL), Full Truck Load (FTL), Distribution Centre (DC), Business to Customer (B2C), Business to Business (B2B), Warehouse Management system (WMS), Delivery*

Service Partner (DSP), Internet of Things (IoT), Third Party logistics (3PL) Fourth Party logistics(4PL).

I. INTRODUCTION

Common e-commerce logistics methods include self-built logistics, courier delivery, third-party logistics (3PL), and cross-border e-commerce logistics. E-commerce companies can choose different logistics solutions based on their business characteristics and development stage. In Ecommerce Logistics and Supply chain management (LSCM) usually two types of models flourished, and major companies currently withhold different practices and processes as per characteristics of businesses to fulfil customer satisfaction. They are business to consumer or B2C and business to business refers B2B (*Bolumole, Closset al.2015*). In B2C model, business website is the only place where all the customers directly involved in different transactions (*Miangiaracina, Marchet et al. 2015*) however B2B refers to a situation where one business makes a commercial transaction with another, thus the transaction volume of B2B is much higher than the volume of B2C. To manage the e commerce logistics hence typically a challenge for B2C models where the customer chooses their satisfactory products in a single to multiple quantities without any barrier or restriction till the products visible in website. It is much complex logistics processes to be adopted for any companies with certain investments to sustain the customer demand and satisfaction for repeat placement of orders. However, B2B models always works for mutually bulk quantities purchases based on the statistical views of customer pickups. The purchase of B2B products is much riskier than B2C products as because purchasing the wrong product or quantity or at the wrong terms, can put the entire purchasing business at risk (*Sila 2013*).

The modern logistics have become the most important part for any industries to improve the efficiency of material flow as per customer satisfaction, reduce distribution costs while at the

same time, the recent development of E-commerce also contributed to the expansion of the logistics market, promote the development of technologies related to logistics. Large numbers of practices have been carried out in the E-commerce logistics (*Bask, Lipponen et al. 2012, Masmoudi, Benaissa et al. 2014, Ramanathan, George et al. 2014*).

II. UNDERSTANDING LOGISTICS PLANNING FOR E COMMERCE

Logistics planning forms the structural framework that holds an e-commerce operation together. Execution, cost, Speed efficiency and real time visibility defines the success of business at its core logistics and companies that master the logistics planning achieving the high profit margin for e-commerce. Efficient logistics responsible for moving products from point A to point B in the most efficient, cost-effective, and timely manner possible. For online retailers, this means controlling everything from inventory flows and warehouse management to last-mile delivery and returns. Before customers click 'Buy Now', the logistics network is already working behind the scenes, sourcing product inventory, allocating storage space, assigning warehouse workflows, coordinating with shipping carriers, and calculating costs to align with profit margins. Inventory management sets the pace for entire e-commerce logistics chain. While B2C business depends of products visibility over website along with satisfactory quantity available the inventory management always plays a crucial role to sustain the business. Later choosing the product and buy now for any consumers timely delivery starts a high expectation till the materials reached at hand. In this time specialized logistics planning along with the availability of tracking software made the business booming into high profitability as one shipment delivery on or before time expands the opportunity to get several consecutive orders from end customers which varying the specific product portfolio.

III. E COMMERCE WAREHOUSE OPTIMIZATION MAXIMIZING SPACE AND SPEED

Running an ecommerce warehouse is like conducting an orchestra while the consumers order more songs every minute. E-commerce warehouse management coordinates all activities that turn incoming inventory into shipped orders and processed returns. Unlike

traditional wholesale, e-commerce is characterized by high order volumes, many single-line shipments, tight delivery promises, and frequent returns. Good warehouse management blends people, process, and technology. There must be a *modus operandi* as where it lands, how it is verified, where it lives, how it is picked and packed, and how you measure each step. As the high volatility of market warehouse management must be prepared always to move according to consumer pick-ups. A Warehouse Management System (WMS) is crucial for e-commerce, transforming warehouse operations to meet fast, accurate, and high-volume fulfilment demands. It optimizes inventory tracking, accelerates order picking/packing via automation, manages returns efficiently, and provides real-time visibility across multiple sales channels (ex. amazon, flipkart). WMS provides real time inventory accuracy, faster order fulfilment, omnichannel integration, efficient return management services, improved shipping processes and reduce the operational costs to company. As e-commerce demand surges, especially during peak seasons, a WMS allows businesses to scale efficiently without a proportional increase in headcount. It also provides advanced analytics for forecasting and tracking productivity, aiding in data-driven decisions.

IV. SOUTH-EAST ASIA IMPLEMENTATION AND COMPARATIVE STUDY

4.1 Amazon

Amazon is an e-commerce and cloud computing company and dominates globally around 40% projected retail e-commerce sales contribution however there it has 31% market share holder in especially Asian e-commerce market major contributes to China, India and Japan. It is the biggest internet retailer in the America however it continues aggressive growth in Asian e-commerce market like in India where through Amazon global selling, the company connects Asian manufacturers and brands to global customers, with over 200,000 Indian sellers exporting products. Similarly in China it contributes 41% of Market share of e-commerce as the biggest manufacturing hub facility present there. It began as an on-line bookstore, but its current business scope covers books, video game, electronic, furniture, food, toys, jewellery and so on. Amazon saves a lot of storage costs by integrating the inventories in DC (Distribution Center) and the warehouses of their regional partners. It helps the business to reduce the

high inventory costs also. The determinants for locating DCs consist of distance from customer intensive places. Within the DC, Amazon has different processing procedure and equipment when dealing with various product groups. Those products which are easily classified and transported are stored in highly automated equipment (*Hays, Keskinocak et al. 2005*) while those irregularly shaped products are handled by equipment of low-level automation.

Amazon Optimized the logistics model of e-commerce to satisfy the high level of customer demand as they started intercity transporter hub in few districts where customer concentration is high to save the cost (Cronin 2014). Orders are integrated in the distribution centres first. After that, the LTL (Less than truckload) carrying them from DC to district wise transporter hub which often designate as injection points. The overall transportation costs could be saved in this way (Oti 2013). Also, the company uses both in-house logistics and third-party logistics (3PL) partners to maintain flexibility and scale. Route optimization algorithms help minimize delivery time and fuel costs. The most critical and complex e-commerce logistics model includes last-mile delivery which is most cost-intensive components of Amazon's supply chain. Amazon addresses this challenge through Delivery Service Partners (DSPs), Amazon Flex which in turn call local delivery partners, Pin-code level service planning and so on. These initiatives enable faster deliveries, including same-day and next-day options in major cities.

In e-commerce model Reverse Logistics and returns management also drive an important role to build up customer trust. High return rates are a major challenge in Indian e-commerce. Amazon has developed an efficient reverse logistics system to manage returns, replacements, and refunds. Returned products are inspected and either restocked, refurbished, or disposed of responsibly. Effective reverse logistics helps control costs while maintaining customer trust.

4.2 Flipkart

Flipkart is the first and most significant company in the Indian e-commerce market. Being innovator, it has moulded the course of India's e-commerce growth and established standards that other participants must attach to. Flipkart's success in a various and widely dispersed market like India can be

attributed to its focus on developing a strong supply chain and logistics infrastructure. Understanding Flipkart's logistics tactics can provide significant insights for enterprises functioning in analogous settings.

Flipkart's e-commerce logistics model revolves around Ekart, its in-house supply chain arm, which handles the majority of its shipments to ensure speed, reliability, and low costs, especially for its massive "Big Billion Days" sales. Using a mix of advanced AI, micro-warehousing, and automated fulfilment centres, Flipkart minimizes inventory congestion and streamlines last-mile delivery to both urban and remote Indian areas. Flipkart operates large, high-tech fulfilment centres across India. These centres use automated sorting and AI-powered tools to manage inventory, significantly speeding up order processing. By utilizing smaller warehouses located closer to customers, Flipkart achieves faster last-mile delivery, crucial for meeting customer expectations and managing high-volume, quick-turnaround orders. Around 60% of the total orders are delivered by inhouse logistics arm and for rest FK (flipkart) tied up maximum courier service providers. To meet different business requirements, Ekart offers tailored supply chain solutions. They have warehouses in more than 20 locations that enable faster fulfilment. Ekart has a fleet of more than 7,000 trucks also it has more than 70 fulfilment centres and 3,500 delivery hubs. Ekart ensures timely delivery in more than 14,000 pin codes. The Ekart shipping charges are also quite affordable when compared to its competitors.

Ekart offers e-commerce shipping services to its customers. It provides B2C (Business to Customer) services, retailers, SMEs, and even e-commerce firms. They offer the best conversion rate in the country. Ekart shipping guarantees timely delivery, whether it is same-day or next-day delivery. Also, Ekart promises to deliver packages and parcels within 48 to 96 hours for long distances. The success of Ekart logistics operation in B2C segment stay ahead as because of several offerings like the next day, delivery will be done to improve the customer experience, value-added services include reverse pickup and quality checks for return pickups. Other services include exchanges, open box deliveries, and data-driven insights and timely tracking, dedicated seller platform for dispute resolution.

Ekart also offers a wide range of transportation services for B2B shipments. With extensive network hubs across India, it successfully handles regular as well as seasonal business fluctuations. Ekart offers full truckload (FTL) and even lesser truckload (LTL) shipping solutions.

Ekart offers customised 4PL solutions for supply chain operations. These comprehensive solutions ensure that different operations in a supply chain, such as warehousing, inventory management, and logistics, are seamlessly operated and integrated.

The Success behind Ekart based on one specialized concept called community warehousing. It is specially designed for the sustainable growth of a large online marketplace that offers multiple product segments. A fully integrated and tech-enabled warehousing service that offers state-of-the-art performance, faster delivery, and almost zero losses in the community warehousing service from Ekart. The community warehousing offers some remarkable features like tech-enabled warehousing with packaging solutions for tailored services, vast network with proper placement intelligence, fulfilment service that offers easy onboarding and integration. It also allows access to all major sales channels, stock placement and planning services, along with real-time operations and inventory visibility, line hall and drop Services with accessibility to more than 15,000 pin codes services (Mariyam Jameela; July 18, 2025).

V. CHALLENGES AND FUTURE DIRECTIONS

The relation between logistics performance and e-commerce customer loyalty is much closer in e-commerce business than any other industry. E-commerce orders are always small, but the shipment of these orders is rather complex, so the scope requirement for the role of logistics is much larger, and the logistics service is directly provided to the final customer who always has high expectation on the logistics service level. Future logistics model should focus on controlling the last mile distribution service quality. Companies' self-support logistics team such as Flipkart they provide good logistics service experience to customers, and the rates of customer satisfaction of these companies are high. However, considering the cost, revenue and others some organizations adopt outsourcing the logistics model, but this is not very easy to control as there are some negative impacts of also towards high-capacity logistics companies (Graham, Manikas et al. 2013).

Considering the advantages and disadvantages of self-built and outsourcing, usually companies must decide after trade-off. There are several factors to be considered like potential of fund, sales volume, management level and capability. There are few technological supports like Internet of Things (IoT), Big Data Analytics, and Cloud Computing may help to build a sustainable e-commerce logistics operation. These technologies may be able to upgrade and transform the e-commerce logistics into a wider implementation for any leading e-commerce organizations (Xu, Xu et al. 2014, Qiu, Luo et al. 2015, Zhong, Huang et al. 2015).

VI. CONCLUSION

This paper talks about the e-commerce logistics in supply chain management from a practice perspective. Due to the fast development and large influence of e-commerce, logistics has been greatly changed compared with several decades ago. This paper highlights the logistics models and best practices which have improved the e-commerce logistics significantly nowadays. Some leading organization of Asia pacific also prominently and briefly presented to know how the organization operates the e-commerce segment and the parameters that adopted successfully and being a leader worldwide. In this paper it has also been lighted the technologies that supports the logistics model to reach to its high success in this fast-growing industry.

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