

Using 3rd -Party Logistics Services OR Developing Own Capability to Cater to E-Commerce Demands – A comparative Analysis

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Abstract—Ecommerce is an inseparable part of modern global lifestyle, connecting people across international borders and enabling sellers to access global. Despite growing massively over the last couple of decades, its growth is far from over. In fact, the pandemic has acted as an accelerator and the growth momentum is continuing despite people returning to the conventional brick and mortar shops. Ecommerce innovations are constantly being rehashed and improved – especially after the global pandemic this transition is now innovating at a much faster pace. For responding to the ever-increasing demand for swifter yet efficient fulfillment of customer order along with timely shipment, a larger number of e-commerce businesses are turning towards third-party logistics or 3PL providers. While it offers them the freedom from the hassles of storing and delivering finished products to the end-users, the human resource that is therefore freed, can then focus on core competencies of the business thus allowing them to give attention to product development, innovation along with marketing and sales. There is always the risk of poor fulfillment and delayed shipments or goods getting damaged in transit which deteriorates customer satisfaction and company profitability. This article compares the use of third-party logistics (3PL) against building in-house capabilities and highlights the virtue of careful selection and employment of experienced 3PL in helping an enterprise ride the anticipated growth wave by offering cost advantages and flexibility.

Keywords— *Logistics, logistics services, e-commerce, 3rd -party, 3rd -party logistics, delivery, consumers, 3PL.*

1. Introduction

The world being a global village and trade occurring cross-border, the movement and distribution of commodities around the world assumes prime importance and are handled by the logistics industry. It goes without saying that the logistics industry plays a crucial role in the global economy and hence in trade and commerce. In case of trade and commerce, information technology has fostered both collaboration and more robust relationships with suppliers. It also encompasses the streaming and automation of the underlying business process, which empowers such activities as direct marketing, selling and customer service including call centers, fulfillment and information management. With the growth and development in the field of information and communication technology (ICT) e-commerce has also seen exponential expansion. ICT has acted as an enabler for e-commerce through the adaption of e-commerce-based technology, innovation and diffusion [1]. The growth of e-commerce has remained unabated even after COVID since people have gotten used to the convenience of sitting at home and shopping and getting things delivered at their door steps. As much as this has increased reach and sales volume for the businesses, it has also created a huge ordeal for them – the last mile delivery. This leg of the supply chain is the costliest for the businesses with little or no scope of passing the costs on to the consumers. Yet it is most important to be efficient in this leg so far as

providing superior customer service is concerned and maintain the competitive edge [2]. Efficient logistics management is a key differentiator. This article compares the two possible ways that can be adopted by enterprises for handling logistics – a) using 3rd-Party logistics services and b) developing their own capabilities to cater to e-commerce demands, and generates some important insights.

2. Literature Review

Over the last one and a half decade, there has been exponential growth in e-commerce. Thanks to the proliferation of information and communication technologies and significant push from the recent global pandemic, global eCommerce sales magnified by approximately 800% since 2010 [3]. In this era of internet and mobile technology where everything is available at the consumers' finger tips and all that he needs is just a click away, Ecommerce is one of those obvious areas which has witnessed exponential growth and is undoubtedly a key torch bearer of the growth and development for the 21st century information & communication technology segment. It is one of the most innovative and revolutionary outcomes in this era. The scope of this ecosystem is not just varied but is well diversified and is not just limited to online shopping but extends much beyond it to include other ambits such as B2B, B2C and C2C purchases and sales and the transactions range from goods and services to online data and even includes funds [4]. But from the perspective of customers one of the major factors that will make them loyal to the e-commerce business is the efficiency with which the correct finished-goods reach the correct end-user in a timely manner.

2.2 Changing Face of E-commerce

The earliest 10 years of the present century saw the ecommerce ecosystems taking baby steps while the last decade saw it growing by leaps and bounds. Therefore, there has been a paradigm shift in the fundamentals or dynamics of the ecommerce industry between 2012 and 2022 [4]. Though not completely irrelevant, but the key factors that used to influence the industry in those early years were different from what they are today.

We can surely assume that online shopping trends will continue to proliferate and at the same time

will continue to keep altering according to the tastes and preferences of the online shoppers. Small and mid-sized companies in the ecommerce sector will need to do that extra bit, if they want to compete in the global market with the big and global players in the sector, and to achieve this, their operations and marketing, product delivery not to mention after sales service etc., will have to be of top notch [5]. The decade from 2010 till 2020 was interspersed by many industries undergoing great change and the ecommerce spectrum was one of the pioneers in this transition, registering remarkable growth. Within a span of 10 years, it has developed from a tottering baby to become a behemoth and an imperative in global retail [3].

Man is a creature of habit and although restrictions on physical movements of masses were ceased after the pandemic finally got over, customers had become so accustomed to doorstep delivery after placing orders online or over a phone call that e-commerce will continue to not just survive but to develop and expand. Furthermore, the products that can be availed through online purchase are usually somewhat cheaper than their offline counterparts – a consequence of reduced overhead cost for the retail stores being online and not physical, and maintaining the inventory at a minimum level. This makes it obvious that the online shopping trends are most likely to persist – may or may not moderate but will definitely not disappear. [5].

In this dynamic and rapidly moving world of e-commerce, in which the consumers' expectations keep rising higher, logistics has emerged as a critical battleground. The last mile which is the common name given to the last leg of delivery, has turned out to be the focus for major innovation and a key determinant of customer satisfaction [6]. This is precisely the reason why small and medium enterprises who intend to prosper in the ecommerce arena need to step out and vie for business advantage if they are to exist side by side with the multinational or global players [5].

2.3 Alterations in Customer Expectations & Logistical Ordeal

Merchandise sales through online portals have been greatly influenced by social media. Demonstration effects have magnified the volume of e-commerce manifold with the rising demand for

instant gratification and an urgency in the need to follow the trends. E-commerce provided the best route to fulfill the desire to be abreast of “what is trending” and be part of the crowd, fulfill one’s desires etc.

E-commerce has altered the nature of customer expectation. They now want something more than simply doorstep delivery. Present day consumers not just desire but expect their sellers to be able to deliver their purchased products within a day or two in case same day delivery is not available. Speed is of essence here which demands perfect coordination of logistics functions and good control over the various legs of the supply chain let alone warehousing of finished products and the last mile delivery. It goes without saying that in case of perishable products, the sellers’ ordeal is magnified several times.

2.4 Importance of Logistics in Meeting E-commerce

Online sales are highly dynamic in nature and logistics services form its backbone, supporting the entire operation. Logistics has a very important and multidimensional role to play in the success of e-businesses along the entire operational chain from inventory management to expanding international footprint [7]. Alibaba, Amazon, Walmart, and several other of the e-commerce behemoths have put in a lot of efforts to make sure that their customers get what they want with only a few easy taps on their smart mobile devices.

Owing to the continuous technological advancements in internet and mobile technology and the increasing want for faster, more efficient delivery procedures, considerable alterations have been witnessed in logistics during the past two decades. The improvements or transformations have affected the entire logistics market, revolutionizing it and modifying it into a dynamic sector with substantial forward-thinking which has significantly influenced the modern logistics management [8].

The logistics firms are left with no choice but to adapt to the snowballing pressures to provide delivery services that will keep the customers satisfied and happy and hence loyal. They must keep up with customer expectations in a fiercely competitive and rapidly changing business arena. Already the conventional long-haul deliveries have been replaced by Just in time delivery. A single location for warehouses appears to be one of the

best possible solutions for handling such pressures for deliveries. An increasing number of modern e-commerce businesses hence now prefer single storage location to multiple facilities for the ease of manageability and accessibility [5].

2.5 Two Major Types of Logistics Services

During the last couple of decades, e-commerce development has emerged as one of the most important changes in the sphere of logistics and transportation. The ultimate objective of any e-commerce business is getting the products delivered into the hands of its customers [9]. Managing shipments that are smaller in size and delivering them to the precise clientele is a new hurdle that modern logistics companies must cope with due to the massive expansion and growth of online retail businesses across the world [8]. Depending upon the nature of the organization, the 2 major approaches towards order fulfillment are – a) using in-house or own logistic capabilities that is handled by the company itself and b) outsourcing to a third-party logistics service provider [9].

2.5.1. Own Or In-house Logistics

As the name suggests, own logistics are the logistics service capability owned by the e-commerce business. It is the in-house logistics service. In this case, the e-commerce firm is itself the logistics service provider for its own commodities. The entire system is owned by the company and managed in-house. It becomes an essential part of the company’s operations. Logistics services is insourced and not outsourced as is the case with 3rd Party Logistics.

2.5.1. 3rd Party Logistics

A third-party logistics provider, also known as 3PL, supports the optimization of a company’s supply chain by partnering with them in their logistics operations. In terms of service provided, a 3PL company offers fulfillment services for e-commerce enterprises thereby taking logistics operations of the business and running this function for them. Inventory management, storage of finished goods in warehouses from where they will be delivered to customers, fulfillment of orders, transportation of goods and processing of returned products for refund and reverse logistics are some of the functions they specialize in. Hence a 3PL is basically a logistics company that can

offer ecommerce fulfillment services and takes the logistics operations off the hands of the business, reducing a whole lot of headaches. In fact, it has the potential to improve operations.



Figure 1: Activities in 3PL Strategy [3]

3. Comparing Owned and 3rd Party Logistics Services

The two options of logistics that are available to e-retailers have both advantages and disadvantages. This article compares these options and evaluates them under various circumstances and from various viewpoints to generate an insight into which option is the best.

3.2 Control Factor

A key perspective to consider while trying to decide whether to build one's own logistical capabilities or entrust a third party is the control factor – how much control the business needs to have over the products it intends to deliver to its clients. The control is a decisive factor especially where there is strict vigil over brands and where the company focuses great deal in providing customized delivery experiences for its customers through direct communication [10].

In-house fulfillment of consumers' orders offers any business the ultimate control over the ways in which its finished products are sorted, stored,

chosen, packed, and finally shipped to the end-users. In case the management itself or any of the personnel on board is already experienced and an expert in consumers' order fulfillment, the firm has developed its distribution network as its core capability, and / or the company has already developed its own ecommerce supply chain, the company is most likely to be in an advantageous position to supervise its own retail fulfillment procedures. The business will be the only one to have the authority to use the fulfillment facilities – the warehouse, which makes it possible for the firm to customize its space and processes to suit its requirements and preferences, rather than molding itself to fit in a given and shared standardized operational setup that is used by several businesses, across industries and products [11]. Owned warehouse facilities can also be audited at will and with a greater frequency to ensure that company's standards of customer service in terms of order fulfilment are met consistently.

The company's employees and their operations remains under its own control and therefore, the firm is in a better position to make decisions quickly or even modify processes midway to make it leaner and more flexible to ensure that consumers' demand is met in a timely fashion. This also provides the advantage of having the inventory onsite with the rest of the business allowing the business the freedom to "touch and feel" or sample a random shipment at any time without having to incur travel expenses or lose any significant time over it [12]. Also, quality control can become an issue in case the 3PL partner is not meticulously following the LIFO or FIFO rules for the finished products especially where the products have a short shelf life or are perishable. There could even be shrinkage of inventory through spoilage, breakage, or theft [13]. Once fulfillment has been outsourced, a massive part of the customer experience gets transferred to the logistics company. A third party plays a vital part bridging the gap between the business and its products, helping with all the necessities, and hence somewhat controlling the customer satisfaction metrics [12].

3.3 Cost Factor

The essence of 3PL is the outsourcing of logistics part of the supply chain management to external or 3rd party service providers [14]. Outsourcing the logistics functions can actually lead to significant cost saving due to factors such as reduction in warehousing, transportation, and overall operational expenses, since the 3P service provider leverages its already established network, technology and scale economies to provide

efficient services [15]. However, initial setting up of a 3rd party logistics function can prove to be a substantially costly affair for activities such as integrating their logistics software with the ecommerce stores of the online business, SKU upload and minute Identity and access management to various modules for the 3rd party players who will be working on company business applications. There will also be a constant monthly / quarterly/ yearly spent which usually will scale upwards over the years adding to the burdens on the revenue. This will also scale up the shipping charges and because the e-commerce businesses would not want to shift this on to the customers to retain them, their profit margins will get squeezed.

Nevertheless, where activities such as warehousing is concerned, insourced strategies might limit flexibility – financial as well as operational. Warehouses entail significant initial outlay and operational costs can be high in times of downturn in the business when its capacity remains underutilized. The company will continue to bear the fixed costs [12]. 3PLs can offer order fulfillment solutions that are less expensive through the provision of better rates of shipping. Due to their volumes, these 3PL companies have better bargaining power over the carriers and sometimes even pass the benefits of lower rates onto the e-commerce companies [16]. A 3PL should be able to reduce transportation costs by at least 5% and ensure full management of your inventory while using up-to-date equipment and software. This allows more time for employees to complete other tasks [17].

3.4 Difference in Working Hours

Other than the costs involved there is the problem of difference in working hours. The two inherent principles currently playing a big role in shipping and fulfillment arena are “fast” and “free” and both have a significant bearing on the e-commerce company’s reputation pertaining to customer satisfaction and order gratification. When faced with a backlog of orders yet to be fulfilled, such businesses will be tempted to ensure orders are shipped out as fast as possible and the natural inclination would be towards retaining the command and control of moving shipments so as to get the products delivered at the earliest possible time. This attitude might not work with the 3 PL, who maintain their independent working hours for workflow and operations. This can have a trickle-down effect on the e-commerce firm’s on-time fulfillment reputation and its goodwill with customers [14].

3.5 Scalability & Access to Professional Expertise

Irrespective of the nature of business, all e-commerce companies look for the opportunity to grow and develop. Large scale operations bestow the benefits of scale economies. Outsourcing offers the flexibility necessary to scale up delivery operations in accordance with the needs of a growing business besides providing the benefits of access to professional prowess needed to streamline the delivery operations [18]. In-house logistics would not always have the bandwidth to handle the growing needs of the business, especially where the business is growing internationally and has to fulfill overseas demand [16]. Besides, as operations grow and diversify, inadequacy of professional competency might crop up leading to the need for training the existing employees and even hiring new ones with the required skillsets [10]. That will be a long-drawn process as both training of existing staff and recruitment of new ones is a lengthy process. Hence outsourcing takes away the headache of planning for the infrastructure necessary for business growth and expansion along with doing away with the ordeal of scaling up headcount [11]

4. Discussion

Undertaking order gratification upon itself is no easy task for any e-commerce business especially where the business expense is huge – intra country or intra continent. Nevertheless, under certain circumstances it becomes essential to take the pain. There are circumstances which necessitate transferring the responsibility to a third party. As is evident from the above paragraphs, outsourcing delivery services can be a strategic move for the e-commerce firm and it can bring in substantial benefits. There are clear advantages available from engaging a 3PL firm and these range from cost reductions and scalability to superior customer satisfaction together with access to knowhows.

As populations increase so does the number of consumers and the need for gratification, which makes it imperative for businesses to grow. Owing to the rapid development in ICT, e-commerce businesses see their area of serving also expanding. Businesses have no choice but to scale up, without losing efficiency or without compromising on product quality that matches their reputation. Scaling up is surviving. So, it becomes essential to shift at least a part of the burden of operations to ensure that the limited resources can be put to the use that is best suited for maintaining operational

excellence. Essentially, a 3PL company acts as an outsourced logistics department, allowing businesses to focus on their core activities while the 3PL handles the logistical operations [16].

3PLs provide efficient and scalable opportunities to businesses to service enhanced order volumes, react quickly to changing market dynamics and make their operations more flexible and agile. To add, 3PLs even frequently offer advanced technology solutions, which includes both inventory management systems as well as tracking of goods and shipments on a real-time basis. This leads to simplified processes and enhanced customer satisfaction. With continued logistical support, 3 PLs bring down operational overheads for ecommerce enterprises and play a commendable role in making the ecommerce enterprise scalable, flexible while creating more scope to exploit the emerging opportunities for growth in a fiercely competitive retail market.

Activities involved in each logistics model					
	1PL	2PL	3PL	4PL	5PL
Manufacturing	🏠	🏠	🏠	🏠	👤
Packing	🏠	🏠	👤	👤	👤
Storage	🏠	🏠	👤	👤	👤
Delivery	🏠	👤	👤	👤	👤
Optimizing	-	-	-	👤	👤
Planning	-	-	-	-	👤
Technology integration	-	-	-	-	👤

Legend 🏠 In-house 👤 Outsourced - Depends on business

Figure 2: Activities involved in Various

Having control over own products and their movements is important especially because it gives the scope for interacting directly with the clients. However, everything comes at a price and a portion of this cost of self-fulfillment remains concealed or obscured and is not always apparent for the company to consider during decision making. This part can be very expensive and may require serious consideration [11]. There are several industries where surge in demand is seasonal in nature and hence might warrant expansion and contraction of warehouse capacity accordingly. This involves significant cost. The rapid growth in ecommerce has led to the need for expansion and construction of warehouses to ensure timely fulfillment of customer demand, this has push up the rates significantly for logistics warehouse tenants and as businesses continue to grow so will the demand for warehouses which will lead to further rate hike.

While money is just one of the resources that is getting expended, several of the ecommerce companies many realize that they are significantly short in terms of the time that they can expend on managing these warehouses, inbound and outbound logistics processes. For most businesses it would make more sense to scale up spending on strategic activities such as innovation, product development, advertising, and marketing, that can bring in higher growth for their business. The optimum use of resources would necessitate outsourcing of logistic activities.

Smaller businesses are characterized by particularly limited resources and are most likely to recognize that outsourcing to a 3PL makes their businesses scalable and economically viable. Larger enterprises who already have the necessary infrastructure set up in place and have very specific operational requirements may decide to retain control over the movement of their produce through the ownership of their transport and logistics operations.

4.2 Outsourcing Logistics Services Can be Beneficial

The modern business landscape is highly dynamic and is evolving very rapidly. Economic viability or cost-efficiency and competence are the key differentiators and drivers of success. Among the ways available to achieve these goals for the e-commerce firms is to outsource their delivery services. Despite the loss of control over the last leg of the supply chain, outsourcing confers several advantages to the e-commerce firms that have the potential to transform how an e-commerce business operates and prospers [18]. Although not exhaustive, some of the most compelling arguments behind the rationale for outsourcing an ecommerce firm's delivery needs are the following.

E-commerce enterprises can cut down their operational headache of running complex supply chain by partnering with third party logistics firms. Through such partnership with a 3PL firm, the company can shift the burden of handling logistics and inventory. This creates the opportunity for these e-commerce firms to direct a larger chunk of their resources towards activities that focus on growth and expansion, such as innovating on new product frontiers or discovering novel customer segments. Some ecommerce companies are also seen working with 4 PLs or fourth party logistics providers. 4PLs act as consultants and managers by designing, running day-to-day operations as also adjusting the supply chain and logistics for the enterprise to provide the best possible logistical solution. They may also help by sourcing and

managing 3PLs for the company [19].

Ecommerce business can rely on outsourced fulfillment services to maintain their steady growth and prosperity. A key benefit of using a 3rd-party logistics provider is that it does not require to lease warehouse space directly, upscale, or downscale warehouse space thus saving money on storage space and yet making expansion storage space requirements easier to obtain. Through a 3PL service provider, the company can have its products warehousing done in a location that is closer to a customer base which translates into delighted consumers who get quicker deliveries and the enterprise also saves on shipping costs [20].

A 3PL partner also has the ability to save money on shipment of goods. As has already been pointed out that the fulfillment warehouses might have discounted shipping costs for major carriers. They rely on huge volumes of shipments in the warehouse that offer the advantages of scale economies. This is specifically true if the company is shipping gigantic, massive or heavyweight goods. By availing 3PL services e-commerce businesses can get access to other value-added services, such as outfitting, package consolidation, sorting as well as freight shipments, that improve the business house's operations. A technology focused 3PL can leverage their expertise and in-house technology team to ensure these connections are setup correctly and maintained. A 3PL can provide the necessary tools to give their sellers a real-time look of their inventory and fulfillment processes [21]. The 3rd party logistics providers are expert partners and thus helps companies choose the best packaging, shipping, inventory management and reverse logistics solutions which is the optimum fit for the company. Customer delight and loyalty is also enhanced as fulfillment professionals provide high end professional collection, packaging and delivery services for fulfilment of the customers' orders.

4.3 Development & Traction in Third-Party Logistics (3PL)

Irrespective of the industry, 3PLs are in high demand within ecommerce. They are the shipping and fulfillment experts who provide warehouses for your inventory, pick the product, package and ship the product to your customers [14]. The exponential growth of the ecommerce market has brought with it a similar surge in the third-party logistics market. The 3PL market is estimated to reach \$1.59 trillion by the year 2028 [14]. According to another estimate, the present market size of global 3PL is estimated to be approximately \$1.29 trillion in 2024 and is anticipated to reach

\$1.68 trillion by 2029 [15]. Yet another research anticipates the 3PL market to grow at a CAGR of 8.8% to reach \$2.8 trillion by 2031 from \$1.3 trillion in 2021 [22]. This is indicative of an increasing number of businesses turning in favor of outsourcing their logistical operations and getting interested in leveraging the benefits of employing 3PL.

Dropshipping is a vital phenomenon in the ecommerce segment that has attained huge popularity among small and mid-sized business owners. Finished products are shipped directly to sellers from the manufacturing unit or from designated warehouses. Dropshipping facilitates online selling of products and does away with the hassle of procurement of inventory, management of the inventory and other delivery logistics. One of the greatest examples of a dropshipping supplier in the current scenario is Amazon [4]. Here though the company maintains its own warehousing facilities, for delivery of products it partners with 3P logistic service providers. This is particularly advantageous where the operational expanse is across geographies and the company is not well versed with the geographical peculiarities of those areas, the traffic conditions and the roads, rather the fastest and the most convenient ways to reach the customers' locations. This becomes especially relevant and important for last mile delivery requirements such as same day or within a day doorstep delivery.

4.4 Future of Delivery

Technology is reshaping the face of 3PL. The rapid development of IT is likely to result in human delivery executives getting replaced by delivery drones. Though in its nascent stages this replacement has started maturing pretty quickly over the past decade. Currently, it is on the edge of mass adoption in ecommerce order fulfilment space. Companies like Amazon are already using drone delivery to get more advantage. Several 3PL delivery concerns have begun trial runs to test efficacy and technological viability [4]. 3PL customers can also benefit massively from application AI in last-mile delivery. Expectations of swifter deliveries, lower costs, and higher overall competence is becoming a reality with the seamlessly integration of AI-powered technologies into logistics operations [23]. Players can also use machine learning to create and implement competitive strategy and minimize breakage or damage to any of the products. These technologies, besides providing cost advantages also reinforce the capability of the 3PL players to provide reliable and resilient supply chain solutions [24].

5. Conclusion

To summarize, e-commerce growth has fueled the higher growth in use of technology with increased focus on sustainability and trade globalization have played significant role in bringing about a sea change in the logistics industry in the last 2 decades. These changes have turned the logistics sector into a vigorous innovation-centric sector that continues to invigorate the modern world of e-commerce. Consumer expectations are evolving constantly, and online sales enterprises must devote in flexible yet robust logistics technologies to stay competitive, go the extra mile to attain customer delight while steering the complex global marketplace. Effective and seamless integration of logistics services is not merely a contemporary business need; it is the pilot for growth and success in the digital era.

This article highlights the virtues of the modern concept of 3PL SCM while recognizing the absence of a one-size-fits-all solution. The choice between involving a 3PL logistics provider or owning logistics operations should depend on the business's goals and needs. Sometimes a hybrid approach, in which e-commerce companies own certain aspects while outsourcing others, is more practicable. This article also sets the stage for further in-depth analysis of the possibilities and usabilities of hybrid systems and the application of modern technologies in 3PL.

For business looking to optimize logistics operations, AI-powered optimization solutions in logistics management works well. Where the company wants to expand its customer base by venturing into new markets, outsourcing to a 3PL logistics will make more sense. Also, for businesses that witness seasonal order volume surges, like during festive seasons, investment in 3PL logistics providers makes sense as they can quickly handle surges in sales increase despite such solutions not being much cost-effective. The team can then focus on core competencies of the business thus allowing them to give attention to product development, innovation along with marketing and sales. Poor fulfillment and delayed shipments or goods damaged in transit deteriorates customer satisfaction and company profitability, whereas an experienced 3PL can help an enterprise for anticipated growth.

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