

T.C.
ANTALYA BILIM UNIVERSITY
INSTITUTE OF POST GRADUATE EDUCATION
BUSINESS ADMINISTRATION
THESIS PROGRAM

**OPTIMIZATION OF COST REDUCTION FOR LOGISTICS IN E-
COMMERCE INDUSTRY OF PAKISTAN**

DISSERTATION

PREPARED BY
NAQQASH YOUNUS

ANTALYA – 2020-2021

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APPROVAL/NOTIFICATION FORM
ANTALYA BİLİM UNIVERSITY
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Naqqash Younus, a master student of Antalya Bilim University, Institute of Post Graduate Education, Masters in Business Administration possessing student ID 2011101, successfully defended the thesis entitled "Optimization of Cost Reduction for Logistics in E-commerce Industry in Pakistan", which he prepared after fulfilling the requirements specified in the associated legislations, before the jury whose signatures are below.

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DEDICATION AND ACKNOWLEDGMENT

I would like to dedicate this thesis to my parents and family who helped me supported me to this day of my life (may Allah bless them).

I am very grateful and obliged to my advisor Prof. Mohammad Abu Bakar, who guided and cheered me throughout the duration of my degree and thesis, the one who motivates me, encourages me and made me to put efforts in the study efficiently.

ACADEMIC DECLARATION

I hereby declare that this master's thesis titled "Optimization of Cost Reduction for Logistics in E-commerce Industry in Pakistan" has been written by myself under the academic rules and ethical conduct of the Antalya Bilim University.

I also declare that the work attached to this declaration complies with the university requirements and is my work.

I also declare that all materials used in this thesis consist of the mentioned resources in the reference list. I verify all these with my honor.

05 /01/ 2021

Naqqash Younus

ÖZET

PAKISTAN'DA E-TİCARET SEKTÖRÜNDE LOJİSTİK İÇİN MALİYET AZALTMA OPTİMİZASYONU

Pakistan'da e-ticaret endüstrisinde son birkaç yıldır derinlemesine ve hızlı bir ilerlemeye tanık oldu, firmalar başarıya götüren stratejileri keşfetmek ve hatta firmaların rekabet avantajı elde etmelerine izin vermek için kaynaklarını sıraladılar. Çevik tedarik zincirinin ve lojistiğin başarıda önemli bir rol oynadığı kabul edilmiş olsa da, maliyetle ilişkilidir. Bu çalışmanın amacı, Pakistan'daki e-ticaret firmalarının tercih ettiği maliyet azaltma stratejileri ile lojistiğin ilişkisini araştırmaktır. Daha iyi ve derinlemesine anlayış için çalışma nitel olacak şekilde tasarlanmıştır ve birincil veriler bire bir ayrıntılı görüşmelerle toplanmıştır. Doğa fenomenolojik yaklaşımı kullanılarak analiz yapılmıştır. Sonuçlar, lojistik optimizasyonunun firmanın maliyeti en aza indirmesine izin verdiğini göstermektedir. Bu makale, gelecekteki araştırmalar için yönetsel çıkarımlar ve yönergeler üzerine son bulur.

Anahtar Kelimeler- Elektronik Ticaret; Tedarik zinciri yönetimi; Lojistik; Kurumsal Kaynak Planlama.

ABSTRACT

OPTIMIZATION OF COST REDUCTION FOR LOGISTICS IN E-COMMERCE INDUSTRY OF PAKISTAN

An immersed and rapid progression in the e-commerce industry in Pakistan has been witnessed over the last few years, firms have aligned their resources to explore the strategies that lead to success and even allows the firms to gain a competitive advantage. Even though it has been acknowledged that the agile supply chain and logistics play a significant role in the success but it is associated with cost. The aim of this study is to explore the relationship of logistics with cost-minimizing strategies opted by the e-commerce firms in Pakistan. For a better and deeper understanding, the study is designed to be qualitative and the primary data has been gathered by the one to one detailed interviews. Analysis has been done by using the approach of nature phenomenological. Results indicate that the optimization of logistics allows the firm to minimize the cost. This paper concludes on the managerial implications and directions for future research

Keywords: *Electronic Commerce, Supply Chain Management, Logistics, Enterprise Resource Planning*

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ABBREVIATIONS

SCM	Supply Chain Management
e-commerce	Electronic Commerce
ERP	Enterprise Resource Planning
IT	Information Technology
WWW	World Wide Web
B2B	Business to Business
B2C	Business to Consumer
C2C	Consumer to Consumer
C2B	Consumer to Business
3PL	Third Party Logistics
SRL	Self-Run Logistics
VAS	Value Added Service
AIT	Automatic Identification Technology

1 . INTRODUCTION

In today's digitalized world innovative and convenient ways have been introduced for well-paid profits, in which E-commerce is among one which provides opportunities to perform business globally. Specifically, E-commerce has appeared as a game-changer in the world of the Information technology sector. A study conducted by (Kawa, 2017) which explains that the process of taking virtual orders, conducting financial transactions, coordination and collaboration with stakeholders, advertising and marketing activities, procurement and retailing of the wide variety and assortment of offered products in the electronic market place, cumulatively counts in the terminology of electronic-commerce.

According to the publication from world stats (Warraich, 2017), Pakistan is the 6th most populated state on the globe which shows that it's a huge market whose potential is still not tapped so much, according to the report (E-commerce in FY18, 2018) e-commerce has gained a massive growth in last few years especially due to the digital connectivity, more accessibility to the internet and ease in financial transaction provided to the ultimate customer and e-commerce industry in Pakistan sales is projected to surpass one billion US dollar mark by 2021 with compassion to \$622 million was recorded in 2017 with the growth rate of 72% annually (Farid, 2018).

Ecommerce has been stimulated around the globe as a way to power the entrepreneurship and a catalyzer for the employment, Pakistan is the market of 36 million internet users, more than 40 million smart phones and more than 30 million mobile internet user with the increasing of 4G coverage and rapid adoption on social media are the indicators to boost the growth of Ecommerce industry (Ahmed, 2019). In this race many giant international firms have stepped into Pakistan's ecommerce market in which the acquisition of leading firm Daraz.pk by Ali baba group (China) is substantial (Qadeer, 2017).

In Pakistan's commercial market, ecommerce has become an extremely important and key source for gaining a competitive edge. ecommerce firms are rethinking deeply for the restructuring and modifying and adopting more suitable electronic business models commanding to exploit more growth, profits and on the other side decreasing the other variable as well as fixed cost to some extent, in which logistic cost is one of the top but by making sure that the supply chain model must be more effective. Logistics could

also be discussed as the flow of management i.e. includes the process of procurement, marketing, operations, warehousing, customer service thus considered to play a role of strategic tool (Imran Qadir1, 2017)

Logistics render a vital role for organizations to achieve competitive advantage by building core competencies, expanding business operations through cooperation and collaboration with different other organizations. (Rudolf Leuschner, 2013), Increasing supply chain management efficiency may lead to investigating different approaches, for instance, lead time for delivery, inventory management more associated with warehouse and its operations and adaption of technology. The effective supply chain approach is superficially critical for success the success in E-commerce (Ramanathan, 2010). Logistics abilities have been deeply and widely studies and scales for the measurement of logistics performance have been developed in relation to the competitive advantage.

The tremendous revolution of the marketplace supported by information technology illustrate the massive growth in e-commerce. In Pakistan, researchers have observed different relationships of effective supply chain strategy (logistics) with the different variables in different industries for instance in aviation, textile from different dimensions but very little is explored for the Ecommerce industry of Pakistan.

1.1 Problem Statement

In today's modern digitalized age the world has shrunk through the internet that allows a fast and rapid flow of information, whereas it also allows executing the business on the global level, and in the same race firms are being engaged in exploiting different market places electronically (Bhasin, 2005). Similarly, e-commerce has also become a contemporary way of doing business which comes with great potential for high profits, growth, and expansion of business (Dinesh Chand Gupta, 2018) as it allows to perform business on a global scale, while on the other side it is also associated with some cost and roadblocks such as Information technology infrastructure cost, operating cost, logistics cost, traceability. Pricing (The.World.Economic.Forum, 2018), which needed to play and adjusted smartly and precisely to avoid uncertainties and to gain a competitive advantage. Therefore, the main focus of this article is to explore the problems, hurdles and the cost that are being associated with the logistics in e-commerce industry of Pakistan and provides the systematized understanding of the challenges faced during logistics and also in the cost reduction of logistics in the e-commerce specifically in Pakistan based on

standing authentic literature, published interview and mainly on reviews and opinion of e-commerce specialized personals in Pakistan, therefore, the main focal objectives are set to explore the strategies and techniques adopted to minimize the cost of logistics involved in e-commerce industry of Pakistan without compromising or losing the efficiency of supply chain whereas the factors involved directly or indirectly to logistics in which the role of technology is deeply explored considering the latest and advanced developments which include the information technology and its outcomes ERP, automation, robotics, etc. Furthermore, this research tries to wire an approach for evaluating logistics opportunities in the existing market of Pakistan.

1.2 Scope and structure of the study

This study is designed as an exploratory study that provides support and assistance to the e-commerce firms, especially in Pakistan to adopt the appropriate logistics facility that matches the entire business model and also helps in cost reduction in logistics. This study also reinforces to e-commerce specialists and managers to understand the existing approaches that might fit precisely with the logistics e-commerce model.

This research focus to classified the nature of human experiences and also its essence, qualitative analysis is done on the study for getting the deep and complex insights to thoughtful aspects rather than depending more on measurable factors and elements, Integration of literature with human experiences and opinion is executed which makes this study more constructive and interpretative. The nature of this study is empirical because the researcher reinforces their own perspective for the selection of data and also cross-sectional, In-dept. semi-structured open-ended interviews have been conducted from the e-commerce professionals in Pakistan for obtaining the primary data that will further be used in critical analysis in this study.

2 . LITERATURE REVIEW

Taking consideration of commerce emphasis on the traditional practices of trading products and services primarily in one single industry and more often within specific geographical location, depends on operating and working business hours during the specific frame of time and involves primarily on occupying the retail or any physical store, moreover it depends more on a face to face communication and engagement with the customers and assume more success and prosperity on word of mouth, referrals schemes or programs and networking (Dinesh Chand Gupta, 2018),

Over the last few centuries, two major revolutions have been witnessed first is the industrial revolution and the second one is the electronic revolution i.e. the transformation of our society from being agriculture-based to industrial based and later the major transformation from being mechanical to electronic-based (Bhasin, 2005)

Taking under the consideration of mechanical or physical-based to electronic-based revolution an idea of conducting business electronically came into realization which termed as Electronic-Commerce, where the business transactions are performed electronically, with the advancement in technology and information system we have witnessed incredible transformational changes that have a significant impact on human lives and most are focalizing on exploring and exploiting the new advance and innovative opportunities to perform more competently and effectually (Bhasin, 2005).

E-commerce has gained an immense pace in the last few ages and possesses much potential in shaping the economy and highly influential in expanding the business globally (Kawa, 2017). In context to the study (Angelina C. Toomey, 2009) Electronic commerce more often referred to as e-commerce is predicted more vastly to become like a “Core” function of any business just like other business functions such as marketing, accounting, etc. Electronic commerce or e-commerce is the advanced way of marketing, buying & selling of wide variety and an assortment of products and services utilizing the internet (electronically). It encloses the whole range of merchandise with all the features, specifications, dimensions, and all required information. On the back-end, all processes, applications, task, arrangement, synchronizations are being integrated exclusively at one electronic place or server which is programmed by the business specialist and professionals to ensure the amplification, facilitation, and acceleration of the growth,

expansion, and accessibility for the web-based business (Dinesh Chand Gupta, 2018). Internet is the primary component for the e-commerce as it enables to arrange a connection between the computer to process and extract the desired information (ZoyaWajidSatti, 2014)

Since the transformation of physical marketplaces to the digital marketplaces supported by information technology, firms took the initiatives that exemplify the engagements to create several strategic models to compete on digital marketplaces that allows to exploit the potential growth. (Cho J. J.-K., 2005). Innovations in telecommunication and technology found out to be the reason for the flourish of the internet and the development of e-commerce have facilitated to foster an atmosphere that stimulates globalization of marketplace across the world

Particularly in Pakistan, which is struggling through its developing phase has now identified the one more drastic opportunity i.e. diffusion of IT with commerce may lead to cost reduction of products and services and may also result is creating jobs. Organizations may reduce their running and operational cost through ecommerce opportunities which results in high and prominent profitability and expansions (Khan, 2014). The Government of Pakistan has also acknowledged and mentioned that e-commerce holds huge potential to expand and helps in the process of stream-line the national economic growth and also allows the local manufacturers, producers, and suppliers to conduct business on a global scale.

Emerging of e-commerce comes with the numbers of challenges as in hurdle for developing countries furtherly categorized as economic, legal and political barriers are posed by the external environment, socio-culture and cognitive barriers (internal to organization), advocated by (Molla, 2005) cognitive factors and environmental factors cumulatively plays in adoption of e-commerce. Such barriers have been reported in the literature that includes technological, communication, payment, logistics infrastructure.

In this context, the study was conducted in Pakistan (Zafar, 2016) where it was discovered that several measures need to be taken for promoting e-commerce industry in Pakistan amongst which logistics and trade facilitation, E payments and raising awareness was on the top of the list after that In August 2019 Government of Pakistan and commerce ministry has conjointly circulated the new framework and policy for the e-commerce

which mainly focuses more on ease of doing business and to encourage to perform businesses digitally, such measures are taken to create an atmosphere which appraises, incentivizes and to accelerate the e-commerce industry which includes stakeholder (mainly counts manufacturers, producers, suppliers, and other companies which offer electronic market place) so that industry may also contribute towards the development of the economy (Government.Of.Pakistan.(Commerce_Division), 2019)

Since the market size of Pakistan is huge that the online shoppers grew by 12 percent to the point of 1.3 billion and merchants have increased by 2.6 times in the last 2 decades (Government.Of.Pakistan.(Commerce_Division), 2019). Ecommerce firms are restructuring their business models to gain a competitive edge. Globally renowned mega-firm Ali Baba has also been stepped into the Pakistani market (Qadeer, 2017) for compelling the provision and facilitation of Govt.'s policy framework. Such proceedings create an atmosphere that results in raising the local industry standards and also creates competitiveness. In this race, many micro-size companies have been established over the last five years (ZoyaWajidSatti, 2014). Many small retailers and producers have started setting up online stores, generally, they are operating from home using simple logistics for instance customer place an order, that order will notify on their inventory management software which is usually integrated with the website after which the time comes to pack that product and hand it over to logistics partner or courier partner (bigcommerce, n.d.).

Roads networks and toll fees have an essential role in regards to logistics, poor road infrastructure and network have been considered as the obstacle in logistics function which causes an increase in time and money for the e-commerce firms in developing countries (Charles Ooko Akelloh, 2017). Local courier service providers in developing countries lacking in terms of coverage and quality and engaging the international courier service providers like FedEx, UPS, DHL cost too high for the vendors, suppliers, and also for the online retailer, since Pakistan is considered to be in developing phase, TCS the biggest courier service providers in Pakistan that have reach across to the nation but still TCS has to joint venture with local courier providers in order to deliver to far oof villages and town, on the other hand remaining courier service providers like M&P, Leopard, OCS, SpeedEx are limited in terms of coverage to some regions or to main cities and town of Pakistan. (Ahmed, 2019)

2.1 Types of E-commerce

It is important to understand the right approach of Ecommerce to adopt. Considering that the business exists online doesn't mean e-commerce its necessary that the electronic transaction took place between two different entities (Victor, 2019)

In exploration (Hassan.A.Aljifri, 2003) explained the dynamics of e-commerce by proposing a framework, further classified e-commerce into the main four types,

2.1.1 Business to Consumer (B2C)

Business to Consumer (B2C) – This type of e-commerce involves in selling the product to its consumer or end-user. B2C commerce model is the utmost shared business model. The B2C type of e-commerce is eminent for the setting up of electronic business communications between the firms and final consumers. It links to the retail method of e-commerce, where the traditional retail trade generally functions.

Such types of dealings are easier and more dynamic, but on the other hand these are also more erratic or discontinued. This form of Ecommerce has advanced impressively, due to the advent of the worldwide web (WWW) (Victor, 2019), Virtual stores and malls have gain vigorous popularity over the internet which are involved in selling different kinds of goods to the consumer like books, food, clothes, auto parts, etc. In comparison to retail buying, the consumer has more information and options available like content, variants, etc. (DeMatas, 2021).

It is widely assumed that the decision-making process for the consumer in B2C buying is much shorter compared to business-to-business (B2B) buying, specifically for the products of low value - due to the shorter sales life cycle, firms with B2C model spend less on marketing to produce a sale, on the other side order value and frequency is relatively lower than the business-to-business (B2B) type.

2.1.2 Business to Business (B2B)

Business to Business (B2B) – This is another type of Ecommerce that involves the electronic transaction between the two firms – companies sell their products and services to other companies, most usually the buyers are not the consumer or end-user. Producers, manufacturers, wholesalers usually induct B2B model of e-commerce. B2B purchases usually have a longer sales cycle with a higher average order value and a high recurring rate (Victor, 2019). A surgical mask manufacturing company sources the

desired fabric from another company for production, such transaction by electronic medium could be referred to as B2B.

2.1.3 Consumer to Business (C2B)

Consumer to Business (C2B) - In this type of e-commerce model allows individuals to offer their products and services to firms. In this form of Ecommerce C2B, the virtual transaction takes place between the consumer who acts as a seller by offering their products or services and the buyer who are usually the companies (DeMatas, 2021). Affiliate marketing services and freelancing could be referred to as the C2B activity.

2.1.4 Consumer to Consumer (C2C)

Consumer to Consumer (C2C) – In this form of e-commerce, the electronic transaction of products (goods or services) occurs between the consumer to consumer, such transactions performed by the third parties (Hassan.A.Aljifri, 2003)– usually called an online market place that connects the consumers offering their products to the other consumer.

In context to our study further, we have focused more B2B and B2C models their impact on e-commerce found out to be significant. In the B2C model, all transaction performs digitally that the buyer visits the web site and places the order after which the firm processes the ordered product and transaction digitally and delivers the product to the buyer (Riccardo Mangiaracina, 2015). Whereas in the B2B model one firm performs the transaction to another firm, such typical supply chain encompasses of B2B transactions like procurement of raw material, manufacturing components, etc.). These transactions are associated with more risk elements like the purchase wrong component which cause jeopardy for a firm (Silva, 2014).

2.2 LOGISTICS

Logistics firms observe the great potential to exploit the business-opportunities created by the development of e-commerce, (Werner Delfmann, 2002) stresses that the logistics requirements for Ecommerce are much different from traditional logistics. Logistics involve in e-commerce is a much-advanced form of the traditional model of logistics much complex but allows real-time information to users (Kawa, 2017). Since e-commerce is gaining pace, firms are focusing on the competitiveness of their supply chain model thus, logistics in e-commerce requires relentless improvements. Change in e-

commerce has been witnessed which is directly related to emerging trends like cloud computing, personalized customer services, and engagements, mobile applications, social media, and big data (Kayikci.Y, 2019).

New opportunities have been identified for the logistics firms concerning the emergence of e-commerce but raise new hurdles and challenges. The below figure illustrates the structure of e-commerce before and after the rise of e-commerce.

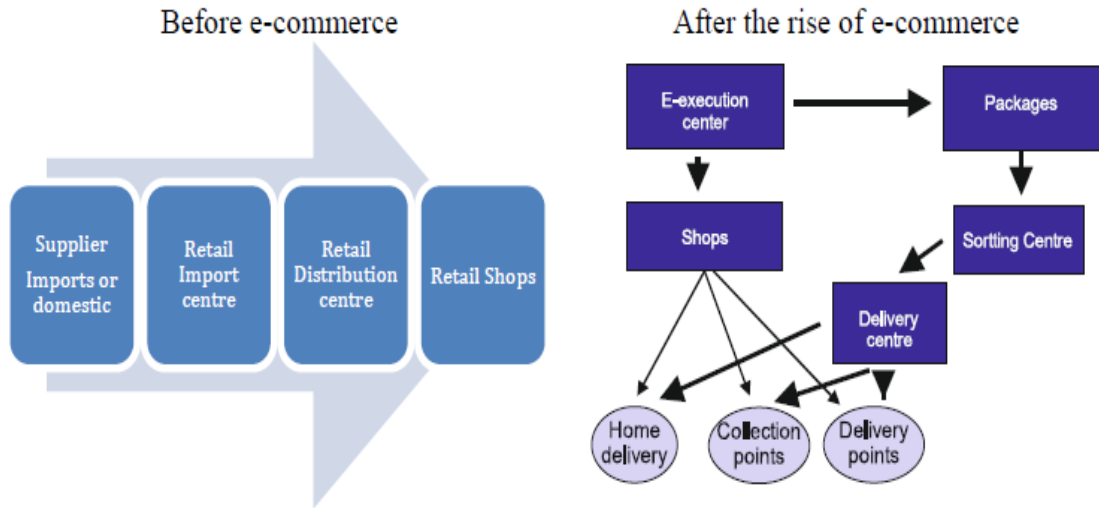


Figure 1: Overview of logistics structure before and after the rise of the e-commerce industry.

The figure illustrates, logistics considered to be a straighter and inline process before the rise of e-commerce, but with the passage of time as Ecommerce prevails, logistics structure becomes more complex in nature (Joong-Kun Cho, 2008).

In the context of an e-commerce firm, logistics capability is a very important element for competitiveness, selection of distribution mode for logistics directly effects on the firm's efficiency and cost, distribution mode needs to coordinate effectively with its supply chain model (Zhang, 2020) furtherly categorized the distribution into three modes of logistics for e-commerce firms, consist of self-fabricated logistics, third party logistics (3PL) and the joint distribution model (hybrid). For the purpose of effectiveness and to improve customer satisfaction, it is commanding for the firm to understand the pros and cons of all kinds of logistics distribution modes and adopt the appropriate one

to ensure the improve users' experience and also encourage the viable and vigorous growth of e-commerce firm.

Another exploratory study was conducted (Kawa, 2017) in which logistics in e-commerce has distributed into 4 different forms first one was insourcing logistics mostly refer to cross-dock, drop shipping, fulfillment service which is usually referred to as consignment and outright inventory, and lastly the one-stop e-commerce.

In-sourcing logistics provides better control of business operations and usually independent from vendors and sub-contractors because the operations is done by the company itself thus providing more control, usually, this form is adopted and more beneficial for the micro and small enterprises. As per (Volodymyr I. Skitsko, 2016) only a single element could be outsourced which is logistics by engaging the third-party logistics partners for deliveries.

Another form of logistics in e-commerce is drop shipping - in which the ordered goods are being shipped by another entity or externally usually these external entities are producers or distributors to the customers directly. Medium and large size e-commerce firms who do not want to freeze their resources like holding place and money generally adopt this model (Ayanso, 2004).

Fulfilment is also the form in which logistics process is done by the external entity or operator such as warehousing, picking & packing and also packaging, it could also be described as the complete route and methods from the initial point of sales to the delivery of the product to the customer (Skitsko, 2016), another exploratory study (Isac, 2014) explained about details about the process which are mentioned below.

- Collecting goods from the supplier or manufacturer by performing a quality check and then record all data such as quantity, quality, size or volumetric size or weight, dimensions into the database (ERP)
- Storing and stocking those products concerning the specification and as per the criteria of inventory operations i.e. includes the sorting and clustering according to the frequency of orders and time
- Synchronization of the whole operations with the company's web page that which order has fallen in what quantity and specification and also focusing to streamline to be on time and cost-effective.

- On order placement by a customer on the website, picking, packing and packaging operations and shipping process to the clients (customer) is done on the behalf of the company by ensuring the safety of the products that are shipped.

E-commerce companies are focusing on the fulfillment form of logistics because by this way they are able somewhat in a reduction of cost and transforming fixed cost into variable cost and also allows flexibility, boosting in terms of storage, handling, salvaging and delivering of goods more excellence (Isac, 2014).

One-stop e-commerce which is the fourth and last form of logistics in e-commerce is also referred to as the extension of the fulfillment model by counting more services (Kawa, 2017). One-stop supports in logistics same as fulfillment does but also implies support in the different fields of overall business operations through synergizing like in the customer service area, information technology infrastructure, marketing operations, and also in accounts and finance, all done by one entity (Ciechomski, 2014) an example could help in better understanding i.e. the call centers which falls under the customer services and more specifically to after-sales dept. which deals with the inquiries, complaints, order status, etc., with support of one external partner with respect to the standards of one-stop e-commerce permit and ensuring smooth coordination, synchronization, and fast communication between the company and customer, mainly it is because of the integration of processes and procedures are at one place, this same goes with other operations too like financial settlement, marketing campaigns execute in more effective ways. However, few risks are also associated with the one-stop model in which the main risk is that the prime and core processes are entrusted and dependent on one partner. Such a model is usually adopted by large scale and giant firms who consider e-commerce as the supplement of the sales channel (Niels Agatz, 2006)

Ecommerce firms with B2C model primarily implement two types of logistics distribution, self-run logistics (SRL) and third-party logistics 3PL, in comparison of these two types, SRL exemplifies with better service quality like reduction in delivery lead time, more transparency and control, safe handling which all combine results a better experience for the user but on the other hand, it requires huge investments in the initial phase of growth (Kawa, 2017).

While another study (Huang, 2015) discussed the role of 3PL, by categorized Ecommerce logistics into three phases where the first phase involves the sourcing from

the manufactures to the fulfillment houses (B2B), then the second phase is more of internal operations where the sorting, picking, and packing has been done (internal operations) and the last and third phase is about the delivery of the product to the customer (B2C). The first and third phases are more relatively associated with 3PL.

Ecommerce firms, continuously exploring new techniques for expansion and development. It is essential for the firm's with B2C business models to deliver their products and goods in a short period of time which keeps the customer happy and on the other hand, delivering the required products delivered to the customer's hands efficiently and cost-effectively have been considered as the core element for any business operation, mistakes and errors in logistics process could harm the customer experience. To overcome such issues firms often outsource their logistics and fulfillment operations to another third-party firm, also called third-party logistics (3PL).

It is much important to understand the dynamics of 3PL. In 3PL the most basic level includes the service of logistics that supports and encourages the firm's overall supply chain strategy, by scrambling and customizing, 3PL providers meet the specific needs of the customer and other stakeholders. 3PL's could be engaged for a single service or multiple services including over the multiple aspects of the supply chain. 3PL are integrated with the firm's supply chain function that provides better visibility and additionally 3PL could lead to creating the value for the firms by enhancing performances of operational and financial and customer service (Raetz, 2017). Furtherly (Reid, 2020) explained the core services of 3PL, the below table illustrate the typical operations of 3PL from the seller or fulfillment perspective.

Table 1 Core Services of 3PL

Core Services of 3PL	
Receiving	3PL's warehouses receive the firm's inventory, inbound the inventory, and store it.
Picking	Once the order is confirmed, the fulfillment center has to process furtherly by identifying the stored location of a product.
Packed	After picking, the item is packed in the best cost-effective manner ensuring the safety of the item from the damage in transit.
Shipping	It's the most complex and expensive part, where the 3PL ships the product by engaging the courier fleet.

Returns	Returns from customers due to (wrong items, damaged or faulty product, etc.) have been considered as returns, 3PL responsibility is to streamline a system to receive it.
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Apart from these functions, 3PL providers have deep extensive expertise in logistics, which could aid the firms in several ways from the optimization of cost to inventory management (Raetz, 2017) moreover furtherly elaborated that a good 3PL partner could results in value-added services (VAS) to the company by personalizing the services as per the customer requirement.

In contrast, (Bhandari, 2014) explains the technology proves itself as a significant element to enhance business competitiveness and also plays a vital role in achieving the excellence for logistics further explained that the selection of the right technology which in terms of purposiveness, integration and support is much more crucial for obtaining an edge over the competitors moreover, it requires high attention because the process of adopting the technology is considered expensive and costly but necessary for the survival in the competitive industry

A firm's business strategy has always been designed in a way to achieve competitiveness, sustainability, and growth that also includes the precise development, implementation, and synchronization of strategies for each function in a firm like finance, production, sales, etc. With the emergence of new and advanced technologies potential opportunities have been identified for the businesses in form of competitive advantages in multiple operational and functional domains of management including the supply chain and logistics management (Bhandari, 2014).

A firm's designed process of planning, performance, and then control of information about procurement of raw material for production to finished good and also the obligatory information from the production point to consumption point that satisfy the customer needs could be themed as logistics (Kubon, 2010), firms are focusing strategically to induce the technology in the process of logistics, as technology allows to the smooth flow of information that is widely required in the process to achieve the excellency and service goals moreover it minimizes the losses in the supply chain like idle time, duplication, handling, distribution, internal process and also provides assistance in inventory management (Silva, 2014).

Considering the technology as a medium to enhance overall effectiveness and efficiency for logistics function (Bhandari, 2014) segregated the latest technology being used in logistics operations into automatic identification technology, communication technology, information technology.

- Automatic Identification Technology (AIT): It is designed to input data and information directly into the computer system. It includes barcode, radio frequency identification (RFID). These technologies help in the identification of storage places, reduces paperwork, minimizing human error, and enhance logistics ability in terms of speed, precision, and also reliability.
- Communication Technology: enables the firm to provide premium customer service, it includes electronic data interchange (EDI), a geographical positioning system (GPS), web-based tracking, automated guided vehicle system (AGVS).
- Information Technology (IT): comprises of hardware and software that process the data and provides meaningful information to the user. IT brings transparency to the overall logistics process by aligning the necessary task and activities. Several tools of IT have been used in relation to logistics. These tools include enterprise resource planning (ERP), distribution requirement planning (DRP), automated tracking inventory system (AITS).

One of the tools of information technology is enterprise resource planning (ERP), a system that supports routine activities of business operations, and on the other hand, it also supports the process of decision-making. Initially, the ERP focused on the process of incorporation procurement, sourcing, and other supply chain activities but as the technology advances ERP had been adopted by many small to large scale industries supporting different functional areas (Baymout, 2014).

For a better understanding of ERP (Glenn Parry, 2008) took several definitions of ERP to conceptualize and summarize thus, information technology forms ERP that facilitates the integration of transaction, operations-based information within and across all functional units in an enterprise. ERP has brought changes in business processes towards betterment by offering a medium to connect across different operational departments altogether thus results in more meaningful and accurate information. ERP provides one platform for the purpose of coordination and integration of information of

business process by ensuring the smooth flow of information according to the levels and hierarchy in the organization – supports in focusing precisely towards the decision making process. (Sue Newell, 2004) further endorsed ERP systems have been diffused with immense pace and intensity particularly among the large size firms in order to get benefits in terms of enhanced productivity and speed (Davenport, 1998). ERP systems are also capable of integration that supports different web services, integrates supply chain processes, e-commerce to mobile support, etc.

ERP unifies several different functions that have possibly be fragmented in the firm- from new product development to finance to aftersales services. Through unifying, the system supports the users (employees) to utilize their time more resourcefully and centralized data-hubs and servers have been considered as an integral component that makes an ERP unique in itself as it reduces the frequency of errors occurred which further reduces the cost (O'Shaughnessy, 2016). Since the ERP is a centralized and integrated system across the firms that provides the opportunity to generate various reports based on live figures and numbers, traditionally such reports require days of research and manual work.

Another feature of an ERP system has been considered to provide assistance in improving customer satisfaction, ERP suite has been equipped customer relationship management (CRM) tool, which allows the user to get the relevant information of customers in terms of customer history, billing details, and other relevant information. ERP also offers the solutions for inventory management, utilizing the barcodes, serials, and RFID's on the inventory thus, aids in maintaining the inventory levels at different places or warehouses. Besides inventory management, ERP also aids and supports managing manufacturing by providing insights into manufacturing operations – that enable the firm to optimize production, equipment, labor, and their working hours.

Implementation of such ERP system is an ongoing process, advanced functionalities, components, sections, and modifications have been carried out with the respect of changes in businesses processes (Kræmmergaard, 2000). ERP cycle has been described by (M. Markus, 2000) into four diverse phases, the first phase is the “chartering” in which the decisions related to the funding for the ERP formulation have been made, the second phase is the “project” where the configuration of ERP takes places in relation to nature of organization business areas, after which the third phase is called

“shakedown” in this phase firms go live transitionally to check the functionalities and then the last and fourth phase is known as “onward and upward phase” – in this phase firms gains the vast range of benefits extracted by the ERP system and plans further improvement and amendments of technological implementations for the purpose of enhancing business capabilities, this phase also refers to the ERP operations, up-gradation, maintenance and fixing of error.

The strong monetary and operational motivation for firms to enhance leverage ERP knowledge and to make knowledge available to concerned entities involved in ongoing management of systems, by ignoring the significance of knowledge has become expensive and firms struggle to gain knowledge about their own existing systems and developing strategy to form a bridge over the divide (Davenport, 1998). ERP lays the foundation for the impact on systems, further explained by (Baymout, 2014) classifying impact into five segments mentioned below:

Table 2 (Baymout, 2014)

Impact of ERP	
Impact on competition behavior	Firms consider ERP as a tactical tool for creating competitive advantage, ERP enables the firms to have a better look at competitors' strategies and implementations and come up with more precise and accurate solutions for themselves. This makes the competition more innovative.
Impact on business partner requirement	Firms need to implement ERP systems that the implementation of smooth across the firm and always prepared for the future hurdles and challenges. Firms become more capable of collecting data quickly, analyzing the data, disseminating the information correctly for the change-process in certain situations business partners need to observe the change-process critically as there is no turning back and the issues arise that cause disruption for the firm.
Impact on nature of consulting firms	Firms employ ERP systems to increase efficiency by integrating the various process and shares meaningful information at different functional and operational levels which ultimately leads towards

the usage of meaningful information in decision-making process. Such systems have swapped innumerable existing inherited systems like HR, finance, logistics, and supply chain, etc by a single platform that have the capability of running all functions of a different system with more effectiveness, accuracy with low cost that causes the changes in the process of firm's businesses.

Impact on nature of Information system function

ERP has outsourced from multiple manufacturers and vendors, primarily responsible for the maintenance and updating the actions thus, avoiding the design and development phase – firms depend on several ERP merchants and vendors that have already been equipped with appropriate ERP suite that just require configuration and modifications to justify the firm's requisite and moves to next stage of implementation. Firms have the leverage to not hire human resources on account of system and data analysts and programmers because the whole system has been outsourced by an ERP firm., such systems could be operated by all employees across the firm with some basic training. Firms have flexibility and room to focus on their core function rather than being involved in creating and developing systems.

Impact on nature of jobs in all functions

ERP has a significant impact on several segments whereas the implementation of ERP creates jobs but at the same time eradicates several jobs within the organization. ERP integrates several procedures and changes the process being followed for instance abolishing certain inventory management processes as they have been automated by means of ERP. On the other hand, ERP has created certain positions within the organization that are unique in nature as the firms have the flexibility to redefine and restructure objectives by implementing ERP that could add value to the firm.

In today's market where a competitive environment is prevailing, firms have to plan very strategically for the achieving sales target (Kleab, 2017), firms have to design the entire whole process that has to starts from supply and cover all the aspects, dimension, and channels till the after-sales services .i.e. all the functions must support to other functions and forms a healthy and effective mode for information flow. (Özpeynirci, 2012) furthermore, firms need to focus actively on a customer-oriented perspective which held the firm responsible to assure delivery on time. Instead of spending more on logistics infrastructures like transportation, Inventory or stock management, etc. outsourcing of such process may help in cost management and ultimately results in an improvement in profitability (Silva, 2014). Outsourcing of such logistics processes to the third party may be referred to as 3PL which also exhibits the relationship between cost management and logistics (Özpeynirci, 2012).

Warehousing, considered as a significant component for logistics, which includes all activities related to the supplies management, or procedures of inflow and outflow of goods to a firm (Chow, 2006) more specifically it provides the storage and holding facility for raw material, supplies or finished goods. (Parham, 2018). Warehouses are considered as an integral part of a logistic chain, that are associated with tasks and functions and also considered as the important element for cost generation and in building client's trust (Kabus, 2016) further explained the functions by classifying them under three groups.

- Understanding of tasks in the warehousing process (Includes complete activities and actions executed in warehouse-like goods and products receiving or acceptance, stocking, issuance, documentation, and record-keeping)
- Warehouse management (Mainly focus on planning, organizing, coordinating, and controlling).
- Auxiliary Functions (Recording of goods, ensuring safety measures for goods, etc.)

In the context of e-commerce warehousing is considered as storage of tangible goods before generating the online sale – includes safe and secure storage of goods as per the instructed requirement depending on the nature of goods, tracking the location of goods stored in the warehouse, scheduling the process of inbounding goods and the real-time quantity of goods (Lopienski, <https://www.bigcommerce.com/>, 2017) further

explained that the management of daily warehouse activities and operations is known as “warehouse management” – such operations and activities include managing inventory, equipment handling, storing the products with respect to safety precautions, training and development of employees in warehouse furthermore, warehouse management system also supports in building and sustaining associations with shipping carriers, forecasting the volume of shipping goods, obtaining the permits, certifications and other legal licensing and much more.

In the e-commerce industry firms stores, their inventory in external warehouses by developing partnerships with 3PL service providers, by such partnerships helps the e-commerce firm to minimize shipping cost as well as the delivery lead time (Lopienski, 2020), supplementary explained the benefits of warehousing in e-commerce, supports to stay organized as warehouse management system enables to improve the accuracy of inventory tracking and lost prevention which assists in fast processing of goods and fast shipping to the customers and lessen the stress as the inventory is managed by the warehousing mechanism.

In the context of adopting technology (Baker, 2007) explained that an automated warehouse is considered for improvising service quality and also minimizes the cost. The report (World.Economic.Forum, 2017) explained that the high levels of speed and accuracy in warehousing functions could be achieved by automation. Automation is referred to the control of handling, movement, and storing of goods without workers or operators (Kostrzewski, 2012). The results of the study (Baker, 2007) emphasize the different aspects of the automated warehouse, motivates to achieve business growth, provides supports in inventory management, and also explains that the implementation of automation is a lengthy process that requires lots of efforts and cost furtherly it is more beneficial where management of big inventory is concerned.

Immense numbers of orders in e-commerce justifies the automation of warehousing operations in order to enhance the productivity, service quality and on the other hand, reduces the cost (Huang, 2015) furtherly explained the importance of automated storage and retrieval system (ASRS) in the warehouse management system (WMS) – which is capable of sorting, aligning, buffering and storing a vast range of products with high accuracy and efficiency rate. Precision shelves let the storing process of the inventory with more density and access to the fast reachable location. Handling

equipment (cranes, fork lifters, etc) which moves up and down has been programmed in relation to volumetric weight, size and dimensions, and shape.

From the existing literature, movement of goods from one point to another is involved in logistics and covering entire management functions which also include the aspect of packaging (Szymonik, 2016) that need to be designed concerning customer requirement, identification, transportation with realizing that the cost is associated.

Utmost ground level, product packaging functions to protect the product from inside. Packaging's prime purpose is to ensure the safety of goods during the transportation (freight) from the manufacturing place to the retailer place (White, 2019) further clarified various functional aspects of packaging which includes – promotion of goods, Gaining the attraction of buyers provides essential information regarding the product and also helps the firms in creating the differentiation from competitors. From a view of managerial perspective packaging needs to accomplish numerous roles, formerly researcher's stresses the logistic function composes of the marketing function and the packaging function that provides handiness in handling and stocking goods

Upright packaging of goods has a significant impact on the layout of the warehouse and its overall productivity – packaging dimensions have been considered as a very critical factor for efficient storage. Packaging from retailers' and manufacturers' perspective has been associated with sustainability, branding, cost aspects moreover it also aids in traceability and product protection whereas the packaging.

In the context of logistics involved in e-commerce, the role of packaging has shifted with the immerse pace in e-commerce, technology has been infused which creates the massive potential for the manufacturing to retail operations to service operation and transform supply chain management (Regattieri Alberto, 2014) further added that the shifting role of packaging in e-commerce businesses, buying process of the product makes it anticipated and promising to deliver more considerations to buyer's perception towards a brand and reduces the attention towards the shelf presentation of the product

A paradigm has been proposed by. (Regattieri Alberto, 2014) for the packaging for e-commerce – based on three pillars (design, logistics, and environment) considering logistics component from the framework, illustrate the characters in relation to e-commerce orders as the frequency of orders are high of diverse products in small

numbers. Packaging has classified the logistics cost into two segments, material cost, and process cost. Material costs include the material used in packaging which is typically a small share of whole logistics cost while on the other hand, the distribution process effectiveness is much more important and involved cost factor at all points.

(Majchrzak-Lepczyk, 2018) explained that it is important to understand that it cannot only be determined the well-defined standards and criteria of logistics process for accommodating customer service, but that could also be referred to different sectors and industries, customer care or support unit has been considered with the capability and skills to meet the customer requirements specifically in terms of the time and delivery destination, selecting the suitable and efficient channel for distribution that includes transportation, information sharing, stocking or warehousing, inventory management, packaging and customer returns. After defining the key elements for the customers' firms need to measure their performances. Logistics processes and services have to ensure the high level of customer satisfaction from the point of placing the orders to the acceptance from the customers, therefore, it is essential to understand from different dimensions and perspective: duration of the delivery time from customer's standpoint, availability and reliability that enables to maintain inventory, effective communication ensuring the rightful sharing of information across the firm and in-directly to customer and dealer relationship, opportunity required firm's adaptability in relation to supply chain. Hence considering the multi-dimensional approach towards customer service for better customer satisfaction, firms take related areas of logistics into consideration for better customer service.

2.3 Cost of Logistics

Logistics has been considered as the most significant driving force for the development and success, several costs are associated. It has been important to understand and measure the cost element that allows the determination to gauge the development of the logistics industry (Zhao, 2009). Logistics operations significantly contribute to the whole firm's strategy and performance also provides the essential competitive competency (Cho J. J.-K., 2005). An effective strategy helps in logistics cost management which supports the firms to minimize the overall cost and in the improvising of logistics. The factors influencing the logistics cost have been classified under macro, micro, and industry level. (Zhao, 2009).

Engaging the modern and advance information technology, the flow of smooth information, processing, and timely delivery of goods from the manufacturers' site to the customer site, conversely, costs are associated with it. (Rushton.A, 2006) proposed the main components of logistics, warehousing, storage, inventory management, picking and packing, transportation, and flow of information. Considering these components for the better and diversified understanding of logistics cost (Amy Z. Zeng, 2003) introduced the components for the cost calculation of logistics, their work demonstrates transportation holding, inventory holding, administration, customs, risk and damage, handling, and packaging. The below table shows each component, its counterparts, and description.

Table 3 Source: Amy Z. Zeng, 2003

Components of Logistics Cost	Description
Transportation	<p>Freight Charges – Cost of using transportation mode and medium.</p> <p>Consolidation – charges of merging small packages into big shipments.</p> <p>Transfer Fee – Cost generated against the transfer of goods amongst different modes of transportation</p> <p>Pickup and delivery – Charges of transportation between the warehouse and air, rail terminal.</p>
Inventory Holding	<p>Pipeline holding – Cost incurred of holding goods during the process of transfer.</p> <p>Safety stock – Cost for holding the safety stock</p>
Administration	<p>Order Processing – Order managing cost occurred, employees' salaries,</p> <p>Communication – Telephone, the cost associated with information transfer.</p> <p>Overhead – Rent, wages, utility</p>
Customs	<p>Customs clearance – Charges enacted by local customs for the clearance of goods.</p> <p>Brokerage fee – Fee pf agent who acts on the behalf of shipper to receiver party</p> <p>Allocation fee – per house-bill</p>

Risk and damage	Damage/loss/delay- A small percentage set against each unit shipped in case of lost, damaged, or delayed Insurance- Cost incurred of insurance
Handling and packaging	Terminal handling – charges for handling goods Material handling – labor and equipment cost for handling and moving of goods in the warehouse. In/out handling - Charges imposed by the freight company for using their facilities Disposal charge – charges for moving the empty container back from the receivers’ warehouse/place. Packaging and storage – Cost incurred during the preparation of goods for shipment also includes the storage fee of using the space in the warehouse.

Even the slight reduction in cost, allows the firms to remain competitive and may result in additional market share. Traditionally firm’s cost comprises of labor cost, direct cost, and manufacturing/producing cost, however in e-commerce transaction took place over the internet (digitally) which cause a reduction effect on the labor cost directly (Pishvae, 2009) furtherly explained the factors in relation to logistics cost.

Table 4: factors affecting logistics cost Source: Pishvae, 2009

Factors	Description
Geographical region	The cost of logistics varies due to the geographical region and situation, It’s widely assumed that the places near airports, cargo terminals, ports have improved logistics infrastructure with lower operation and logistics costs.
Logistics Infrastructure	Logistics infrastructure that offers a wide range of logistics facilities with different transportation modes. Distribution and information and communication networking also count as the counterparts of it.
Human resource	Skilled and trained workers and availability- supports strategically for enhancing the efficiency of logistics and also in minimizing the cost.
Administration	Through administration, logistics activities become more effective and efficient as it prevents carelessness and leads towards cost minimization.

Technology	Technology plays an important role in the overall logistics process, researchers believe that the information and communications technology is one of the prime reason for the logistics cost reduction and still have a great potential for further reduction in logistics cost.
Political and economic stability	It reduces the risk and more specific effects on the cost of insurance.
Business legal rules	Compatibility in the areas of custom fees, duties, insurance law, and documentation affects the logistics cost.
Rate of interest	This is a macroeconomic factor but affects significantly on logistics cost.
Energy price	An increase in energy prices prominently affects the cost of logistics like an increase in fuel prices may cause an increase in the logistics cost.

3. METHODOLOGY

Conferring the nature of research objectives, it has been determined to adopt the qualitative research technique that enables more and deep understanding regarding the appropriate approaches and techniques for exploring the minimizing or reduction of the logistics cost in the e-commerce industry in Pakistan. The qualitative approach or technique is more likely to adopt when a detailed explanation is more obligatory rather than the projection of facts, figures, and frequencies, qualitative also allows one to comprehend deeper meaningful awareness and mastery (Vasileiou, 2018). In another study (Williams, 2007) explained that the qualitative method provides more of a holistic overview as it provides an in-depth understanding of actual events and experiences by unfolding, amplification, and interpreting the gathered data. In Pakistan several e-commerce companies are operating and shift electronically which are classified under table 1. (Eurpeon.Commission, 2016):

Criteria	No. of employees	No. of operating firms
Micro Size	up to 9	18 to 22
Small Size	10 to 49	10 to 15
Medium Size	50 to 249	5 to 7
large Size	More than 250	3

Table 5 Classification of enterprises (source: Eupeon Commission. 2016)

At the time of conducting this research, the above numbers were operating in Pakistan, considering the sum of these numbers is the total population. It is important to consider the element of bias, for detraction of bias factor interviews was conducted from different firms among each classification (B.MacKenzie, 2012)

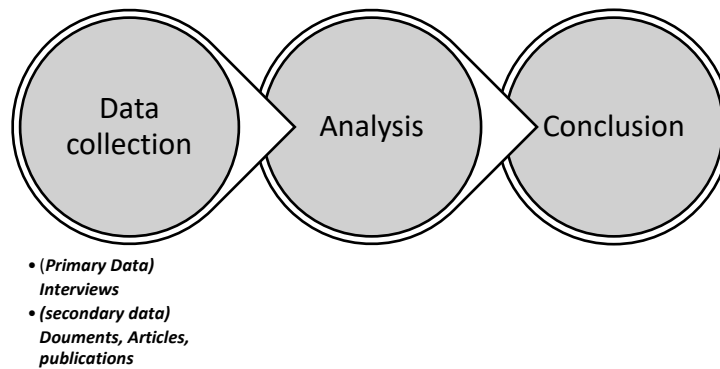


Figure 2: Methodology representation

For better understanding and insights, one to one semi-structured interviews by telephone were conducted from the personals of the e-commerce industry in Pakistan, who directly have vast knowledge and experience of logistics function in their companies

Following are the questions used during the interview

	Questions	Notes
1	As an important player in the E-commerce industry, how important is logistics to your firm? What are the supporting factors? please explain	Discussed the role and importance of logistics and the factors, elements associated with it.
2	What is the influence of technology in terms of logistics in B2B & B2C? <i>How technology effects the logistic & to which model effects more and how (insights)</i>	Dialogue about the IT implementation in the logistics practice and to investigate the impact of sharing information among stakeholders.
3	Do you think automation in the warehouse and in its operation will help you to gain more edge?	To investigate the impact on customer satisfaction, cost, and lead time affected by automation and its necessity.
4	What are the prime challenges for reducing the logistic cost? How does reverse logistics contribute to the overall logistic cost? Please explain	Conferred, product handling, and the mode of transport. Determined the reverse delivery solutions and cost associated with it.

Table 6 Questionnaire Structure

. Considering that the content and development of data to questions could be modified to match the environments of the respondents (Sobh, 2006). Respondents were allowed to go into detail and provide about their diverse experiences. Each interview lasted for about 20 to 25 minutes and all interviews were recorded with the consent of the interviewee moreover, at the end of each interview the summary of the entire interview was shared with the interviewee to ensure that everything recorded was approved after which all were translated and processed for analysis, qualitative data software named QSR NVIVO 10 was used for analysis.

The primary aim to collect relevant data from the selected sample frames i.e. personals belongs or associated with logistics functions from the existing e-commerce companies, Judgmental sampling techniques (non-probabilistic) was adopted, the interviews were conducted till the point of “saturation” (Francis, 2010), refers to the point where the data or information become repetitive and no new or advance information has been learned (Malterud, 2015). In the bargain (Guest, 2006) adduces, the point of saturation in qualitative analysis occurs within the number of first twelve interviews, further argued information obtained in the first six interviews got endorsement in the next six interviews. Moreover in another admirable and much similar studies (ZoyaWajidSatti, 2014) the sample was taken of 10 whereas in this research the sample is of 12 in which 9 was the point of saturation.

4 . ANALYSIS AND RESULTS

Depicted in figure 2 represent the attributes of the interviewee, distinguishing from the above-said classification (firm-size), The participants were taken in to account that all the must-have deep knowledge and experiences about the logistics function in any e-commerce company in Pakistan

	Designation	No. of Employees	Firm Size
Respondent 1	Internal operations Head	6000	Large Enterprise
Respondent 2	Warehouse manager	2300	Large Enterprise
Respondent 10	E-commerce specialist	240	Medium Enterprise
Respondent 4	Operations Supervisor (WH)	200	Medium Enterprise
Respondent 5	Senior executive and analyst	190	Medium Enterprise
Respondent 7	E-commerce specialist	80	Medium Enterprise
Respondent 11	Sales manager	40	Small & Micro Size
Respondent 12	Chief Executive officer	25	Small & Micro Size
Respondent 3	Chief Executive officer	20	Small & Micro Size
Respondent 6	Chief Executive officer	8	Small & Micro Size
Respondent 8	Chairperson	8	Small & Micro Size
Respondent 9	Asst. Supply chain manager	8	Small & Micro Size

Table 7 Descriptive profile of interviewees

Attaining information from diverse dimensions and aspects aids to assemble a holistic image about the cost minimization strategies for logistics in the e-commerce industry of Pakistan. Interviewees were first requested to comment and to provide insights on the importance of logistics as being a player in the e-commerce industry in Pakistan including the favorable and unfavorable factors for logistics and its related operations – which helped in attaining the deep insights of the industry more specifically towards the supply chain management.

Then the interviewees were requested to share their opinions based on their professional experiences about the effects of technology on business activities especially about the role of technology in transforming the whole supply chain structure. Automation and smart warehousing concepts were discussed in-depth. After that, the challenges and hurdles faced during the process of logistics were discussed for better-understanding ground reality-based scenarios, and examples were argued.

Since the aim of the study is to establish an optimization approach to minimize the cost of logistics in the e-commerce sector in Pakistan, and ascribed by nature phenomenological approach was adopted as it allows to establish construct based on the conscious experiences (Shahid.N.Khan, 2014). During the analysis of interviews, 26 initial codes have been developed into 2 sublevels furtherly formed 3 main and focused themes.

Table 8: Coding of qualitative data

Initial coding	Concordant respondents	Focused themes
Supply chain fit	1/12	Importance of logistics
The core component for survival	10/12	
Customer satisfaction	10/12	
Unique selling proposition	3/12	
Identifying future trends	3/12	Impact of technology
ERP	5/12	
Forecasting	3/12	
Inventory management	11/12	
Shipment tracking	10/12	
Reverse logistics	9/12	Cost factors
Packaging cost	7/12	
Insurance Cost	4/12	
Express Deliveries & 3PL	7/12	

4.1 Theme 1: Perception towards the importance of logistics

To explore and investigate more specifically about the perception towards the logistics, about its importance has been identified as the prime focus theme, Logistics is one the most essential constitute that helps to boost the sales and profit margins. Primarily deals in the domain of sourcing production phase, freight, warehousing, and shipping deliveries. The logistics exhibit a very prompt advancement from on-site outlets to an online store, timely delivery of goods is an elementary component of e-commerce. Interviewees emphasized the importance of logistics by describing it as “crucial”, “core

element for success and survival”. One of the respondent from a large-size enterprise quote *“Logistics is the core component for us”*

Knowledge of interviewees exemplified in the relation with literature that the respondents more of having the same opinion about logistics that it is a very crucial element that integrates various operational functions in any enterprise includes procurement, production, distribution, sales & marketing which firms use to gain competitive advantages by creating and providing value to the customer. Most respondents believe that the quick transfer or flow of information within multiple departments including suppliers, vendors, and manufacturers fall under logistical activities, which also ensure the firm’s plans and determine the company’s resources to the production output moreover, it also establishes a linkage with other stakeholders – real-time information across the operational department supports to minimize the lead time. Such operations running flawlessly have provided support to enhance customer satisfaction.

Firm’s success ratio is highly subjective by the liaison of logistics integration fit and other performances of other operational departments, one of the respondent belong to a large enterprise said *“A good and effective approach of logistics may lead towards a perfect supply chain fit”* while other respondents also explain that they consider and focus on logistics to find the perfect supply-chain fit which enables them not only minimize the cost but also to create the differentiation with the competitors, in the formation of logistics strategies for the supply chain it has been taken each component into the consideration that supports cost minimization, fast and efficient that may result in increasing the customer satisfaction, the right approach enables the firm to complement the basic procedures and long term goals, to acquire the right unit to right the right destination within the right and committed time frame., endorsed by another interviewee quoted *“Logistics is one of those things by which you be able to compete and create differentiation from your competitors”* often logistics is considered as an important variable for achieving customer satisfaction.

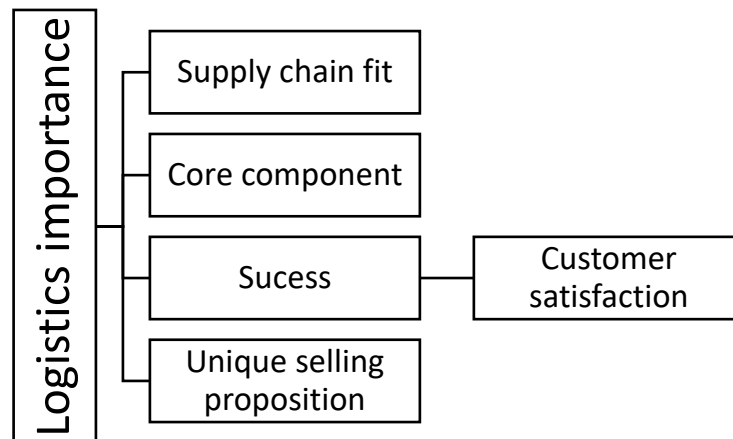


Figure 4 Representation of Theme 1

4.2 Theme 2: Impact of Technology on Logistics Function

The impact on logistics caused by the element of technology has been involved in this second theme. One of the interviewees also shares their experiences about the role of technology-induced logistics by quoting *“You can track your order at every step of transit. The correct system (information) needs to be in place and your workforce must be capable of using it efficiently. (Referring to ERP) because it’s necessary to record every step and stage of every SKU for accountability and all this cannot be possible without a system.”*. Such statements clarify the importance and role of ERP, streamlining the task and schedules, and helps in enhancing efficiency. On the other hand, ERP also eradicates the double-handling, unnecessary operations and assigns daily task automatically, furtherly explained that the optimization of inventory management has been done by the ERP by providing more control over logistics and different departments as all the information stored in a singular system which provides more transparency among different operational departments.

Most views of interviewees justify the existing literature that technology drastically influences the shape of traditional logistics. One of the respondents from SME said *“You can track your order at every step of transit”* which explains an important function of shipment tracking. Tracking of shipment and goods at every step from origin to the final destination is being recorded purposefully with the help of integrated softwares usually refer to enterprise resource planning ERP which allows the smooth flow of information between different departments and units which could be retrieved and

extracted that information at any stage or any point of operations to achieve operational excellence, could be understandable by the comment of one respondent that “*We have implemented ERP that indicates and perform all the necessary task itself like intimation to vendors, packages that are being returned to vendors and much more, this all is possible just because of our technology*”. ERP has a significant linkage with several operational departments across the company, smooth flow of information has been considered as the dominant tool for logistics. ERP supports in fleet operations, inventory management, advanced distribution operations, maintenance operations, and staff management.

One interviewee said, “*we can optimize route plans, planning and forecasting, and much more and all commutatively leads towards the excellence and adds value to the company.*” Apprehending the stored data on ERP allows the company the prediction of future trends, patterns, and forecasting based on the information established and provided by the ERP. Decision-makers have more relevant and accurate information which helps in decision making. ERP enables the handling and inventory management to perform operations more efficiently, providing more accurate data and reports that reduces the manual work, helps to avoid mistakes and error in stock keeping, dispatching, packing and picking. ERP has considered as an advanced employing technology that reduces the margin of error, saves time, and being more productive, endorsed by a respondent “*without technology we cannot even get to know about our inventory levels, the status of In-transit packages*”.

It has also been noticed that the influence of technology especially in the e-commerce industry in Pakistan has affected immensely on B2C model, stated by one of the interviewees that “*B2C model is more affected by the technology, the power is much shifted to the ends of customers moreover customer satisfaction also revolves around the usage of technology.*” Other interviewees also asserted due to technological advancement the shift of power towards customers from the company has been observed. Customers have been allowed to buy their desired products from their homes because the companies have provided more control to the customer that how, when, and what customer wants to buy.

Another accomplishment of technology is “automation”, interviewees have inhabited almost the same opinion that the automation saves from manual work, stated

by one respondent that “*automation is very important as it allows to save time and also from manual work*” explains deeply that technology allows more room towards time management, reduces losses and damages occurred during the manual handling, reduces labor cost but the implementation of the automation process is considered as a lengthy project for any company which requires expertise and also demands huge budgets and spending which also extracted by the comments of respondents “*Automation is more good for maintaining big inventories*” and “*new technology is always expensive*”. Such opinions also illustrate (Baker, 2007) further adding that firms need to understand their existing logistics model from different dimensions concerning the selection of right technology for the deliberation of necessity, integration, and provision is very critical obtaining the competitive edge but the process is measured pricy and overlong but crucial for the survival in a competitive environment

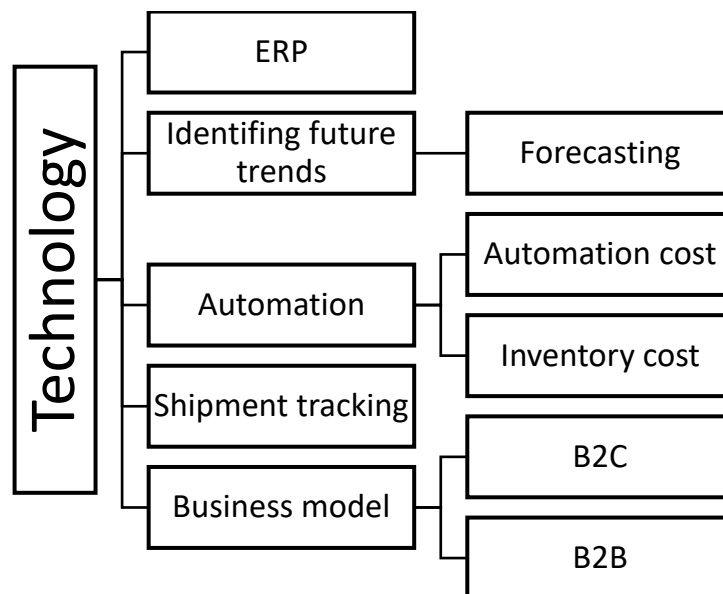


Figure 5 Representation of Theme 2

4.3 Theme 3: Challenges and cost factors during the logistics process

In discussion with the interviewees about the hurdles faced during the entire logistics process, hurdles which delays the operations, causing losses, increases cost, and interrupt the flow. Packaging came out as the most intervened factor. Since the packaging ensures the safety of products till the time of delivery to their final destination and the products remain intact and unharmed. Packaging also provides essential information for

stocking and during transportation, furtherly explained that the packaging possesses the key significance and plays a fundamental role in supply chain management. In order to formulate and achieve strategic SCM packaging needed to be associated with the aspects of sales and marketing, logistics and transportation, production and manufacturing, and also the environment. Interviewees stated that the guidelines and Sop's regarding packaging are not uninformed among courier providers that leads to an increase in cost. Packaging optimization is required for focusing on the enhancement of SCM, as it increases the efficiency and it also optimizes the whole SCM cost that clues to maximize the returns.

While discussing the role and engagement of 3PL partner Interviewees expresses their thoughts that the 3PL logistics firms have a broader and extensive network as compare to the firm's own supply chain operations and network, furtherly 3PL service providers possess deeper and extensive knowledge and expertise, Firms establishes a relationship by partnering up with 3PL service providers. By the integration of 3PL service provider's firms have been able to minimize their cost as the firm saves from hefty investment on logistics infrastructure includes transportation, warehouse, technology, and human capital. By outsourcing the logistics unit to 3PL provides flexibility and liberty to focus on core competencies. Interviewees also highlighted the obstacle is the selection of 3PL partner, respondent quoted "*Another challenge is that selection of logistics service as there are multiple courier companies in which few are not up to the benchmark*" also stated by the other interviewees (from small and micro-size enterprise) that mostly cheap service providers (3PL) are not up to the benchmark which makes delay in delivery time which ultimately cause harm and leaves a question mark on the brand image and fails to achieve the desired customer satisfaction level, another concern in the selection of 3PL is about the incompetence handling of packages but on the other hand interviewee associated from large-size enterprise expresses his thoughts about the same day delivery principle could only be possible by engaging 3PL in Pakistan.

While analyzing it has been observed that the existing large firms in Pakistan are identifying the potential for growth and expansion in e-commerce and focusing to get on board, in this contrast very well-known brands are adopting the one-stop e-commerce and fulfillment approaches, such approaches are usually adopted by the large scale enterprises who consider e-commerce as the supplement method for sales (Niels Agatz, 2006)

It has also been observed that the medium and large enterprises have also adopted the drop-shipping approach in their business models as it allows more flexibility in investing principle but loses some degree of control, certified by a respondent *“In dropshipping you do not have much control”* such theory was also explained by (Ayanso, 2004) further adding in the light of respondent *“we have to work as the intermediary which sometimes leads us conflicts between customer and vendor or supplier than our company steps in for addressing such conflicts in which usually we have to take the hit for the sake of better customer service and maintain good relationships with suppliers and vendors.”* Further explained that often firms have to work as an arbitrator in conflicts between the supplier and vendors and most of the time company has to accommodate the customer as well as to supplier by accepting the loss due to the grey area.

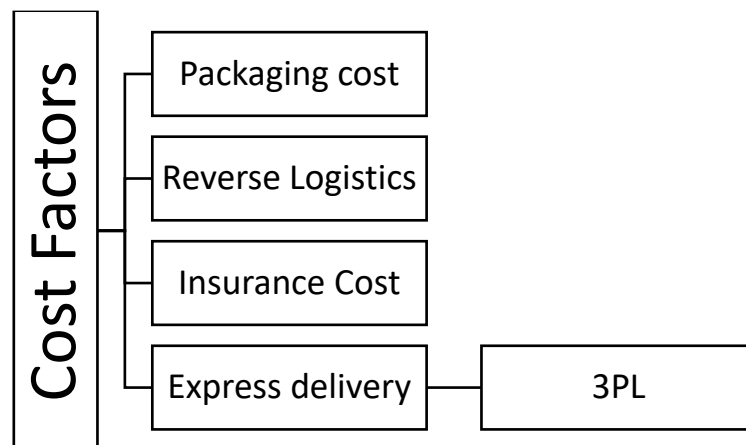


Figure 6: Representation of Theme 3

5 . DISCUSSION

It has been argued that logistics has a significant impact on the account of cost for E-commerce companies in Pakistan, on the other hand, logistics plays a vital role to upsurge the success factor for any firm. The firm's success is highly dependent on its capability of coordination and integration of manufacturing and production events (Stock, 2000). Logistics have massive significance for e-commerce companies, firms utilize modern and advance logistics for maximizing the effectiveness of material flow at the same time reduces the cost of distribution and provides the massive potential to e-commerce firms for growth.

Supply chain management deals with the formulation of the plans, collaborate, regulate and optimize the whole logistics process, information flow to cash flow across the system to ensure the accurate product, quantity, quality on correct time on the exact place which overall yield the results as a minimizing factor in overall cost. Due to the massive development of e-commerce focus of logistics system has been shifted from retailer to consumer, new expectation of consumer emerges, the consumers strive for new and innovative techniques and methods to maximize their accessibility, selection, and price that institutes entirely diverse shopping experience – with an increase in online buying and selling demand has been created which retailers and suppliers fulfil by discovering modern and innovative options.

Firms desire to provide and sustain value to the customer by delivering and meeting their expectation in terms of reliability and speed of delivery lead time (Lekovic, 2013). From the analysis, the importance of logistics has been stated by the interviews as the core and crucial element for business operations, it is cumulative of various functions that include procurement, production, distribution, sales & marketing by endowing other functions with the flow of information. In the same context, (Bhandari, 2014) explained, logistics is one of the significant element to obtain a competitive edge over the competitors by meeting the customers' expectation through better supply chain function, further explained by the (Kubon, 2010), the processes of planning, performing and control of information including procurement for raw material to the production of finished goods

to utmost the point of consumption fall under the logistics, it also wires to the statement of the interviewee that *“A good and effective approach of logistics may lead towards a perfect supply chain fit”*. Whereas the study (Lekovic, 2013) explained that customer satisfaction is based on several factors in which higher quality of supply is the most prominent one, logistics companies have focused a lot and attempt to integrate such a system which allows more leverage to the firm by adding value and for this reason, firms diffuses the technological elements in the process, exemplifies by the study (Silva, 2014) stress that the technology is so important for achieving operational excellence and furthermore, minimizes the losses in the supply chain like idle time, duplication, handling, distribution, internal process and also provides assistance in inventory management.

It has also been observed that the role of technology-induced in logistics has a significant impact as it re-shape the structure of conventional logistics function in e-commerce industry in Pakistan, which was attested by the interviewees stating *“You can track your order at every step of transit”*, furtherly emphasizes that technology allows the flexibility for rapid response to customer requirement and also provide room to adjust correction without affecting the operational productivity.

Interviewees argued, firms were struggling to get on a single platform from where they could retrieve all real-time information and performs operations at the same time across all departments (internal) and also includes stakeholders (external), and firms come up with a solution by inducing the information technology thus, emphasis about the importance of integrating enterprise resource planning referred to ERP, by which all operations, as well as information, could be processed with minimal chances of error, helps in reducing the processing time span. ERP has integrated so efficiently that it offers to minimize the cost in logistics adduces more ERP enhances the potential of the entire supply chain structure – ERP also aids to optimizes the storage, stocking by offering a high level of visibility and transparency, provide real-time information that supports in decision making too. Such observation was also witnessed by (Baymout, 2014) ERP is the extension unit for logistics that counts organizational functions that team up with other logistics functions and also allows networking among each other, is such function inventory management is also included, ERP also assist in abating the risk to the firms by the assistance in providing the best outcome solution. The interviewee quoted *“without technology, we cannot even get to know about our inventory levels, the status of In-transit*

packages". Such integrated systems also allow the firm to optimize route plans, planning, and forecasting which is now much more reliable due to the assistance of technology (Ayanso, 2004).

Another broad aspect of information technology on logistics specifically on warehousing and inventory management,

Interviewees share their concerns about the impact of modern technology on warehousing and inventory management, by integrating ERP, the shape of the entire inventory management system has re-structured as it reduces the manual work, supports in inbound process then aids in storing as per the nature of consignment furthermore helps in picking the right article from right defined place to the instructed place and delivers all the relevant information and data regarding the process – indicates the level of inventory which supports in minimizing the replenishment time for inventories. Such highlights also much resemble' to the finding of another research (Bhandari, 2014), Inventory management has always been considered as important and vital for any firm, ERP enables the firm to optimize it.

Since the ERP manages the effective flow of information among different operational departments from a centralized hub (Handex, 2019) thus, offers the live and real information in the forms of reports, charts, indexes, and dashboards – eventually helps in the process of the decision-making process by creating the opportunity to identify the future demands by accessing the previous sales data, generating better and more effective reports, reduces the human labor which supports in minimizing the errors and also helps in boosting sales (Sikder, 2020). ERP supports the firm to maintain the pace with current and future trends and also focus to keep the cost minimum and improving the efficiency, on the other hand, it allows to make the changes in the system when it is required. Workforce management could also be elevated by ERP as it reduces the element of duplication of work and helps in time-saving and cost-saving.

One of the interviewees shed the light on automation driven by the factor of technology. The progress and enhancement of logistics have been entrenched in automation. It has been argued on many forums that automation helps in reducing labor cost and increase the speed of operation, such opinions are much like that has already been proposed by another study (Baker, 2007) that automation could be the factor for

motivation which could lead to business growth and also support in inventory management system but obligatory to understand the requirement very precisely as automation is a lengthy, costly and hefty process but helpful in the management of huge inventories.

Several elements have been argued to understand about the strategies that cause a significant effect on the cost. The quality offered by the company is compromised by the logistics hurdles which lead to very problems like package loss, item damage in transit, failed deliveries but still the expansion of logistics facilities, warehousing and operations may require to meet the demand of excessive growth in the e-commerce business, in order to meet the demand agile logistics plays a dynamic role, requires the collaboration with other logistics firm (3PL), which have much more expertise, infrastructure and much more diverse network in terms of reach. furtherly (Huang, 2015) discussed the role of 3PL, by categorized Ecommerce logistics into three phases where the first phase involves the sourcing from the manufactures to the fulfillment houses (B2B), then the second phase is more of internal operations where the sorting, picking, and packing has been done (internal operations) and the last and third phase is about the delivery of the product to the customer (B2C). The first and third phases have been considered relatively associated with 3PL. Such partnerships and alliances are supposed much more than minimizing cost or efficiency – it has been considered as a strategic tool for firms in relation to the competitive advantage that enhances the service quality, flexibility, and reliability, such as cooperation's, alliances, and partnerships between e-commerce firm and logistics service provider integrates so well by sharing information in order to justify the requirements of the unsettled market, attain mutual objectives and results in the win-win situation.

It was astonishing, the impact of 3PL where the interviewees expressed that they have to spend more for express deliveries under the 3PL account but necessary for the firm's image which opposes (Özpeynirci, 2012) also exhibits the relationship between cost management and logistics. Interviewees also share that the selection criteria of 3PL partner are much more complex, many elements have been taken under consideration like the performance which includes the effectiveness, responsiveness, documentation, and false delivery ratio. Selection is not limited to performance only, furtherly includes the cost element, equipment, customer support, quality assurance, experience, and most

importantly the information technology infrastructure related to the reliability, scope, and stability of the system. By engaging 3PL partner's firms has more time to focus on their core competencies. Another aspect of 3PL is to improve customer satisfaction, as it improves in response time of delivery with better reliability.

While arguing Packaging came out as another factor that affects the cost, packaging has a significant impact as the first physical impression of the customer on the product, helps to gain customer loyalty. Interviewees shares that the boom in e-commerce has re-structure the operational activities and business models for traditional enterprises shifts the power towards the consumer and creates the "highly self-select environment" in the same context, re-structuring the packaging as per the consumer requirement is very important for the business as new packaging makes the product more desirable and highlights more of its functions. In the study (Regattieri, 2015) explained that the packaging provides more opportunity for the firm to make their operations more efficient by opting the good packaging. The packaging is not only responsible for ensuring the safety of the product that the item remains intact moreover it helps in minimizing the cost of returns usually called reverse logistics line. Diffusion of essential information has also been done by packaging, as packages illustrate the usage, stocking, handling and also the directions for the delivery to its destination (Regattieri, 2015).

6 . CONCLUSION AND FUTURE RECOMMENDATION

Ecommerce is flourishing in Pakistan parallel to the advancement of information technology resulting in great demand in logistics too. logistics in e-commerce in Pakistan still have much room for betterment and expansions. Utilizing modern information technology this gap possibly be occupied. Global tech-giants, logistics firms, and e-commerce firms have been witnessed the entrance into the market in order to exploit the opportunity. The e-commerce industry in Pakistan is a rapid emergent industry, Government of Pakistan is also considering for creating a favorable environment for the purpose to prevail the economy and during the interview respondent also explained that 2018-2019 till 2022 will be the best time to board online due to the state policies and regulation, therefore it is a right time to optimize the logistics that enables to gain more rather than spending more.

The cost optimization for logistics involved in the e-commerce industry of Pakistan is relatively much not explored in the existing literature. Several different aspects have been taken into account in this research to examine the factors associated with cost, performance, and reliability. While conducting the research it has been observed that logistics makes highly considerable factors for success, moreover, technology changes the game, new innovative ways have been introduced employing technology which leads towards excellence and expansion. This research is more focused towards the cost elements associated to the logistics and supply chain structure in Pakistan. Impact on logistics caused by the ERP is needed to explore further in the geographical location of Pakistan which could help in the future for the e-commerce and logistics firms in Pakistan. It is also important to understand the impact of new and advanced technologies under three perspectives Internet of Things (IOT), cloud computing, and big data analysis. These three technologies have the potential to upgrade and transform the logistics involved in the e-commerce industry of Pakistan not only limited to the big giants but also for the small and medium-size firms thus, future research is vital in this capacity.

Collaboration with 3PL has been considered a very vital partnership which could just not lead to minimizing the cost, enhances the efficiency and reliability but also allows the firm to gain the competitive advantage, therefore, detailed and diverse exploration in this context for Pakistan's geographical region is much needed which must also consider the selection criteria of 3PL which might help to small and medium-size firms in Pakistan.

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