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Master thesis in supply chain management

How Mobility through digitalization in supply chain are changing the dynamics of business

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Abstract

Purpose

The primary and initial aim of the research paper is to highlight the automation and digitalization in the supply chain management of textile industry. The context compared traditional and digitalized supply chain in the textile industry for digitalization.

Research (Methodology/Design)

The researcher adopted a qualitative approach to conduct the research on the provided topic of supply chain management. The findings and results of the research are provided based on the structured interviews conducted by the researchers. The evidence-based results will be used for porbing out the basic problems and future recommendations.

Findings

The finding of the research stated that a variety of challenges was being faced by the textile industry in achieving the supply chain goals and objectives utilizing traditional methods of processing. Based on the reviews presented by interview participants, the traditional model implemented in the textile industry was not strong enough and the industry faces issues and challenges. The modern models, techniques, and methods are presented in order to tackle the issues being faced by the textile industry. The research paper argues that the implementation of modern and innovative textile technology should be ensured to speed up the SCM mechanism.

Value/worth

The study reflected and presented useful and deep insight regarding the comparison of traditional and modern supply chain management. The digitalization that occurred in the textile industry is also highlighted in the research paper. The research also proposed a modern model and technique of supply chain that can be implemented in the textile supply chain in order to enhance the overall supply chain process.

Keywords – *Textile industry, Supply Chain, Digitalization, Mobility, Inbound Logistics, Outbound Logistics*

List of Abrreivations

SCM-Supply Chain Management

AHP-Analytical Hierarchy Process

VC-Value Chain

IBL-Inbound Logistics

OBL-Outbound Logistics

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1. Introduction

A supply chain is a network among the company and its customers or suppliers which comprises all the dealings included in changing raw goods into a saleable product. The network comprises the actions, technology, people, resources, and information whereas the functional groups included in the business network comprise sales, procurement, sourcing, logistics, production, and customer service. Supply chain managing is the management, integration, and planning that guide the flow of information, material, and resources to offer the most optimal service and products to stakeholders in the procedure of changing raw goofs to a saleable product and offering to the end users.

1.1 Background

Though the tasks of the supply chain of the firm are linked to the vision, supply chain managing leads to a major advantage as it helps the company work faster. This provides more clarity over the process to provide products and services as per the expectations of customers. Leaders in supply chain management know the importance of the process for a business that is more than the movement of raw materials. There are innovations in the supply chain that can help companies offer the best service with collaborative systems (Jie&Gengatharen, 2018).

Supply chain management performs by integrating procurement, suppliers, and facilities of manufacturers, distributors, retailers, and customers while they work together by the production, buying, and sales cycles. This supply chain needs active management since it is impacted by several aspects of the control of the business-like environmental conditions, fuel prices, and so on. While a company is more aware of these aspects, it can effectively manage them. With efficient management of supply chain, production, inventory, distribution, vendor, and sale records are in strict control. The SCM shows the management of expenses at each step and offers products to customers in a quick manner (Jie&Gengatharen, 2018).

The influence of Digital transformation issues implies that the business environment is changing and that all industries are creating ripple effects. Their effects are extremely contextual and vary from event to event (Köhler, et al., 2019). One thing is certain though, the need for companies to embrace digital technology to compete in the world market and to beat rivals is vital (Parida, Sjödin, &Reim, 2019). In addition, companies are important players for society to maintain a successful transition (Vial, 2019). The accurate balance between the digitalization of strategies and the capacity to meet sustainable objectives is an emerging but important area (Wu, Guo, Huang, Liu, & Xiang, 2018). This is particularly important if this smart transformation is to be accomplished in a manner that does not make society and companies overconsumption and unsustainable.

It presents that each product that is available for sale is present due to several members in the supply chain. The supply chain manager is an expert professional who is liable for a major part of the chain like the careful strategy for the supply, the source of goods used to make products for sale, the effective production of the manufacturing process, the delivery system for moving products and the system for management of unwanted products and returns and so on. The manager performs to save shortage and lessened costs by these aspects (Jie&Gengatharen, 2018).

When completed virtually, supply chain managing can help retail companies in the region to have an edge over rivals by offering products more time to customers. The SCM lowers the expenses of conducting business by lessening the production and buying costs. For instance, retail companies choose to buy products from farmers directly to prevent costs linked to third-party suppliers. The direct purchase of products from the source can help find the better process and offer the food to customers more effectively and quickly (Herath, 2016).

Due to its creative character digital transformation and additional ICTs are capable of increasing efficiency, promoting dematerialization, and facilitating better business strategies. In addition, digitization was posited as one of the most potential perspectives in society (Gouvea, Kapelianis, &Kassicieh, 2018) for sustainable development (SD) as well as for transitional business. These ideas are founded on how digitization allows for better

efficiency and implementation: resource productivity, proof-based decision-making, environmental social governance, and modified paradigms both for consumers as well as investors (Holst, Löffler, &Philipps, 2017). In addition, digitalization was proposed to help redefine companies' customer connections, workers, and natural resources (Vial, 2019). This kind of synergy is enabled by implementing technologies falling under the 'digitalization' paradigm, including 'Advanced Analytics, Intelligent Systems, Artificial intelligence, Blockchain or Decentralized Computing Techniques, Quantum Computing, etc.' (Ahmad, Miskon, Alabdan, &Tlili, 2020)

The SCM can facilitate the strategic planning for the enterprise and support to make the system for future advancement like international expansion. When a retail store develops strategic relations with farmers, this can help grow business operations because the company is better able to use these partnerships for business advancement. The SCM assists the business to harmonize the supply of products as per the market needs and demands. They use grocery stores as an example, if we are purchasing goods straight from the farmer, this can help to deal with the farmer better in every season. The SCM enables to be more effective and efficient in customer service (Herath, 2016).

Customers attain their products rapidly as per their expectations. For instance, in case the farmer offers the food straight to the grocery store, then the product will be of better quality and less damaged because it has taken limited traveling time. The end goals of the efficient supply chain are increased profits by better customer satisfaction and low expenses of conducting business. Profits are better while expenses are controlled and lessened to the maximum range. Working costs lessen while the expenses of purchasing raw materials reduce (Herath, 2016). The technology is linked to digital service that is helpful in improving process (Singh, Singh, &Kumari, 2020).

Formulate Practical Problem

The practical problem is linked to obstacles that might change the adjustment to the newest technology and ways several variables impact the adoption of technology in the textile segment of Pakistan. the present study considers issues that are forcing the textile segment of Pakistan to shift to technological advancement in terms of supply chain management. There is an aim to investigate the range to which several technologies like

the internet of things, multiple distribution channels, and globalization are impacting the supply chain in the textile sector of Pakistan. there is an aim to identify gaps between traditional and digitalized supply chains. there is consideration of both primary and secondary data to assess challenges of traditional supply chain and examine the effectiveness of digitalized supply chain. there is an aim to determine areas for infrastructure that need improvement. Present flaws in the supply chain are identified to identify corrections. There is consideration of different points in the supply chain that need more attention to take further steps. The research intends to assess how digitalized and centralized solutions can make sure the information is accurate and accessible.

1.2 Problem Statement

Humans live nowadays in the contemporary world of digitalization and technology. This has led to the transformation of the overall corporate work environment paradigm into an entirely new shape. Firms that seek to achieve contemporary business culture constantly adapt digitalization and advanced technology to their logistical operations, while companies that make no effort disappear from the sector (Ahmad, Miskon, Alabdan, &Tlili, 2020). Rapid changes in business activities have increased the vulnerability of supply chains, while technological integration has supplied them with many improvement methods to make them resilient and efficient. (Ahmad, Oláh, Popp, &Máté, 2018). Pakistan is in a developing stage in a third world nation, thus technical progress has been embraced later than in other areas of the globe. In this regard, this research focuses on the obstacles that may change the adjustment of 4.0 and on how a variety of variables such as technology, IoT, globalisation and multichannel distribution can influence the industrial development process in Pakistan (Imran, 2018)

Digitalization is guided by wider changes in the organization. Since companies take the benefit of the new way of operations, companies that keep several obsolete and labor-intensive processes tend to fail. There is a need to bridge gaps while a traditional organization implements more digital procedures and moves forward with an innovative approach. As per a research finding, every business has a different view regarding digitalization.

This is because of the basic uniqueness of functions. Deciding areas of infrastructure for update should happen as per the plan. the projects for advancement must fulfill present needs or flaws. The major priorities for enterprises that have started their digital supply chain include supply and demand planning, improvement of infrastructure, and risk assessment. There should be consideration of analytics improvement because several companies face challenges in terms of inaccurate predictions. There is a need to preventing uncertainty in the supply chain. This is the biggest gap that needs to be fulfilled. Supply chain gap assessment aims to calculate or determine the changes among the present situation and the needed instance. There is a need to compare what should be done to improve supply chain processes, especially for the textile segment. when gaps are located, we can work to close them. While digitalization of the supply chain is an internal program, it should not occur in a vacuum. It is essential to make sure that efforts for modernization improve the customer experience. When planning short-term aims for digital advancements, customers' choices should be a top priority.

Moreover, digitalized supply chains tend to improve access and data capture by giving better practical information to workers and consumers. Customers want choice, convenience, and control. When supply chains become more data-driven and digitalized, this creates services that offer maximum benefits. There is a need to build the needed structure. There are many important points in the supply chain that required attention to make further steps possible. An automated, centralized, and digital solution can make sure the information presenting items moving to different locations is current, accurate, and accessible. When digitalization is used, this can improve visibility. The current research highlights models of the traditional and digitalized supply chain while locating gap factors (Gupta & Gupta, 2020).

1.3 Research Questions

What is the difference between traditional and digitalized supply chain models and identification of gaping factors?

How digitalized improvement in inbound and outbound logistics can help textile industry to achieve supply chain objectives?

1.4 Purpose of Study

The present research is conducted to assess gaps in the traditional and digitalized supply chain. There is a need to know how the implementation of innovations can be an opportunity for businesses and customers. the research should model digitalized and traditional supply chains for an in-depth analysis of the supply chain in the textile segment specifically. There is a focus on digital improvement as it tends to improve outbound and inbound logistics to attain supply chain objectives. The aims of the supply chain are linked to traditional and digital modes of the supply chain to see which process is better able to fulfill customer or company needs.

1.5 Delimitation

The current research will be limited to the comparison of the digital and traditional modes of the supply chain, particularly in the textile industry. There will be a focus on comparisons of traditional and digital supply chain models to make comparisons. Comparisons will help assess why companies opt for a digital supply chain. There will be the measurement of gaps to see the difference between the present situation and the desired state. The research will discuss how the improvement of the supply chain in terms of digitalization can help textile companies to attain supply chain objectives.

2. Literature Review

This chapter will present a literature review about the digitalization of supply chain management in the textile industry. This chapter will start from the textile industry, the role of supply chain management in the textile industry, the traditional and modern structure of the textile industry, and digitization of supply chain management inbound and outbound supply chain models which are related to our research questions. The in bond and the out bond logistic process is defined in the supply chain and management. In this literature, the supply chain management process is discussed. This is followed by the discussions of the key concepts and a review of the previous study regarding the digitalization of supply chain management and its components. This chapter will end with a discussion of the supply chain model and the process of supply chain management.

2.1 Supply chain system in the Textile Industry

The term "supply chain management" is a historical term that has been explained by different researchers in different contexts. Some researchers argued that this term is also used to explain the follow of information between companies and within the companies(Dujak, 2019). This term also has been used to explain the logistic process along with planning and control of materials (Wieland, 2021, and Saberi, et al., 2019). Some researchers also described the strategic and organizational issues regarding their supply chain management system(Tiwari, Hui-Ming, & Yosef, 2018).

There are various definitions of supply chain management limited which have been defining by various researchers from 1982 to date. Desai, et al., (2016) define Supply chain management as " it is the integration of key management functions, from supplier to the manufacturer who provides final products and services by the addition of values in the final consumer product (Mukhamedjanova & A., 2020). Christopher & Matthias, (2017) define supply chain management as "The process of planning, implementing and controlling the operations of the supply chain with the purpose to satisfy customer

requirements as efficiently as possible. Supply chain management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption" (Mukhamedjanova & A., 2020).

The role of the supply management system in the textile industry has been explained by various researchers. Prior research indicated that supply chain management is one of the key factors or priorities for apparel and textile companies(Oelze N. , 2017). These companies have been using various approaches to improve their supply chain management system, its inbound and outbound management system(Lee K. E., 2017). They apply different approaches are related to the strategic management process, strategies reading product, investment, performance evaluation, and sustainability of the environment. Shen, et al., (2017) investigated fifteen articles in this context and find that all of these approaches play a significant role in the supply chain management process of the textile industry(Shen, Qingying, Ciwei, & Patsy, 2017).

The supply chain process plays a very important role in the marketing and textile industry (Tseng, K.Lim, Kuo, & Wong, 2019). Outbound and inbound process of the manufacturing through the raw materials is according to the supply chain of the textile industry. This process also provides opportunities for the supply chain and enhances the consumer's nuying behavior. (Kouhizadeh & Joseph,. 2018). The new process of digitalization is very helpful to the textile industry because all the innovative ideas and new information can enhances the worth if this industry in the market.

2.2 Digitalization in Supply chain of textile Industry:

Digitalization is the process in which new technologies and processes are implanted in the company to improve its process. The Textile industry also needs digitalization in this era and mostly supply chain process is taken into account. The digital supply chain is one in which the major control center views the complete process of the supply chain by using technological advancements for instance a network of sensors and social technologies. This is later managed by an additional data analytics engine. In the digital supply chain, there is a control tower that monitors the overall process as compared to the traditional model of supply wherein there was no visibility and control. The traditional supply chain only offers a limited overview of the supply chain; on the other

hand, the digital supply chain offers an overall view of the complete supply chain. Information is usually delayed in the traditional supply chain as it moves by each person or company in the classical model. On the other hand, there is better access to information for all supply members in the digital mode.

Different members of the supply chain can collaborate simultaneously which is impossible in the traditional model of the supply chain. In the traditional supply chain, collaboration is usually hindered because of the limited visibility of the complete process. Whereas, the digital supply chain leads to better information sharing which helps in natural cooperation thereby improving the worth of the supply chain. In the traditional supply chain model, the need of the end-user in the process is not accurate and precise since the information flow moves over the material path.However, because of control, the shifts in customer needs are more implemented, enhancing the effectiveness of the supply chain. Related to responsiveness, the classical mode led to delays and responses that were not in place. In the digital supplies, on the other hand, there can be the implementation of real-time reactions while planning and executing.

This study and model find and provides the specific and innovative ideas to all the employee which is relevant to the textile industry and beneficial strategy developed through the different types of the innovative ideas. SMM is still evolving, with stages ranging from the 4Ps to the 7Ps. The customers are satisfied through this approach. This model could serve as a foundation for further validation of the developed investigation framework. This study also finds the different types of customer behavior. The result of this study is to develop the different types of the competitive plan and strategic ideas relating to the textile industry provides the employee and company move to the progressive sight (Othman, Amran, Nuno, & Zana, 2020).

This study is conducted by the operational process of the textile industry. AI can be used in sales and operations planning, as well as other large supply chain operations. The different types of abilities are used in the supply chain and different types of the management process. The Company faces many critical problems relating to the supply chain. Supply chain production is very helpful to provide the customer services of all the individuals (Hofmann, Henrik, Haozhe, Alexander, & Günter, 2019). Supply chain

management provides the best services to the different types of customers which is relevant to the textile industry. Management and manipulation are becoming increasingly important in businesses in different types of data sourcing. Several cutting-edge and different organizations relating to the textile industry have been researching and testing the restrictions of machine learning to improve performance (Makkonen & Hanna, 2018). And also provide artificial intelligence regarding supply chain management of the business. Sub-application problems that AI and machine learning algorithms can solve through the supply chain and management of the textile industry. Through this study enhance the management process of decision-making (Elbegzaya, 2020).

There is a study conducted by Vijayendra Gupta et al. in which the main purpose is to track the enhancements that have been occurred in the textile industry. digitalization has occurred in each field of life so the textile industry also updates over time. Numerous researchers have stated that the transformation has occurred in the field of the textile industry(Gupta & Gupta, 2020). According to the researchers, the digitalization process can be physical, locational, and operational. Physical digitalization is referred to the changes and enhancements that have been occurred due to digitalization that can be examined physically. The locational is in the perspective that the changes, improvement, and enhancement can be tracked in warehouse operations of the textile industry(Banga & Banga, 2020).

2.3 Key Concepts

Variables	Definitions
Supply chain Management	Oliver and Webber (1982). Define supply chain management as the process of scheduling, executing, monitoring the procedures related to Supply chain management to satisfied the requirements of the customers efficiently and effectively (Dujak, 2019).
Logistics	The council of the supply chain

	management defines logistics as the set of different activities which create, plan and control the products on different stages by the cost-effective flow of raw material, finished and semi-finished goods, towards the final consumer to meet the requirements of the consumer (Chami, 2019).
Inbound Logistics	It is the process of receiving raw material from the supplier to the manufacture at his warehouse (Wang, 2021)
Outbound logistics	These logistics are the actions required for the transfer of final goods to the consumer (Kimaro, 2020).

2.4 Traditional Structure of the Supply Chain Management System of the Textile Industry

A study by Mani, et al., (2020) has explained the supply chain role in the development of small and large scale organizations and has focused on the supply chain management operations for the success of a business. In a similar research area Khan, et al., (2021) investigated the framework of the supply chain management system in the textile industry. This study has focused on the evaluation of the traditional supply chain management system in the textile industry.

This study found that the main focus of the textile industry is always on the improvement of its supply chain management system(Khan, Ishizakab, & Genovese, 2021). The latest study of Shen, et al., (2017) investigated the sustainable issues regarding supply chain management systems in the textile industry. They studied the traditional factors which are associated with the supply chain management system. The author found

that sustainable factors like organizational strategies, performance strategies can improve the supply chain management system of the organization(Shen, Qingying, Ciwei, & Patsy, 2017).The traditional form of supply chain managing includes several steps. There is a collection of raw materials. The first step of collecting raw materials helps make the final product. There can be single or several raw materials. There can be different sources for the collection of raw materials. In the second step, the raw materials are further collected from the suppliers. the manufacturers deal with suppliers or middlemen to collect materials. The third step is manufacturing. The manufacturing starts and finishes all the procedures needed for making the ultimate product.
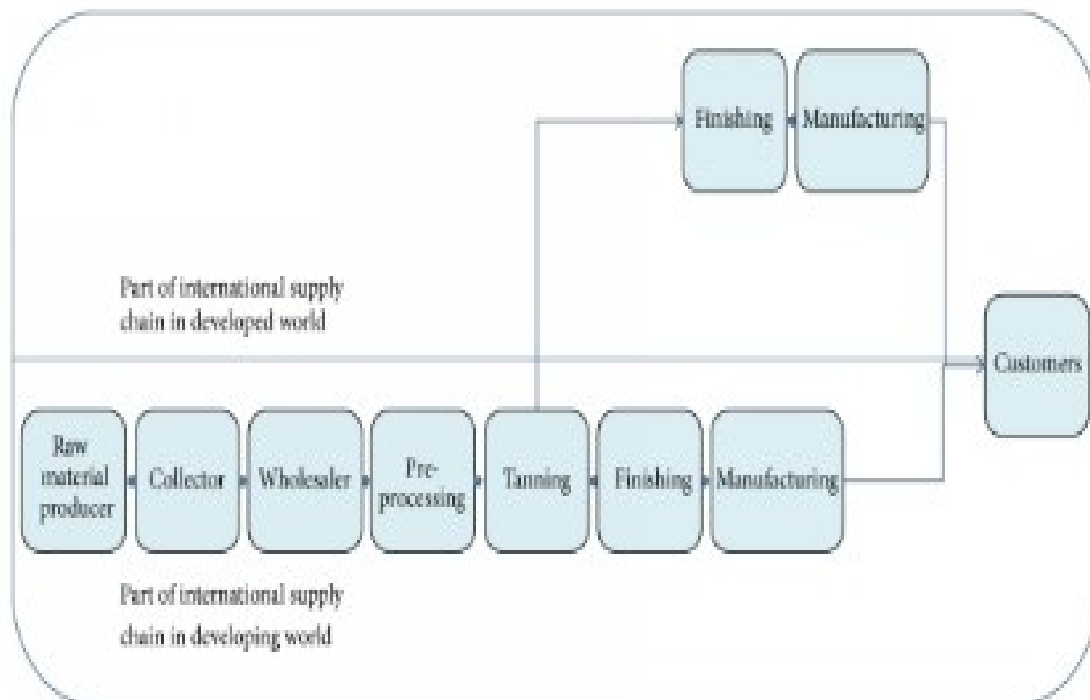
Figure 1 Supply Chain Model (Barbosa, Ana & Jose,2020)

2.5 New Opportunities to Traditional Management

The digitalization of businesses opens up new possibilities for traditional management control. The main purpose of this article is that new and different types of managerial settings are formed (Bhimani, 2020). A digital enterprise is shaped and reshaped by new information systems. Case descriptions from various information

systems provided the empirical material for this study. And the company presents the different types of the product (Anthony & Sobah, 2020). Videos and films are used in this to understand the different approaches of business and management related to digitalization. The digital enterprise has an impact on a company's whole operations (Sabrina, A.Maspupah, & F.R.Umbara, 2019).

One of the most basic conclusion is that various types of digital alterations in traditional management increase effectiveness. As optimization is predicted and the entire atmosphere around processes becomes responsive, intelligent sensors can meet the needs of an organization (Möller, Utz, & Frank, 2020). Mobilization changes the whole process relating to digitalization. The changes affect the dynamics of different types of business. Digitalization makes it easier to adapt to new efficiency problems or possibilities. Because logistical challenges such as product handling in the port region affect many large-scale firms, the competence of the business is also impacted (Kohtamäki, Vinit, C.Patel, & Heiko, 2020). The digital enterprise is dependent on the technological imperative. The digital enterprise is formed within an existing business to improve its efficiency (Bredmar, 2017).

2.6 Comparison of the Traditional and Modern Textile Industry

Several studies have compared the traditional and modern textile industry of the world. The main focus of these studies was on the evaluation process of the textile industry and its supply chain management system of the world(Khan, Ishizakab, & Genovese, 2021). A study by Priya & Vishal, (2019) investigated the supply chain management system in the textile industry. The focus of this study was on two important elements of the supply chain management system. These elements are inbound and outbound transportation systems. These elements are related to the handling of materials, designing of the network from supplier to the organization, from organization to the customer, customer care services, planning regarding supply and demand, and fulfillment of the requirements of the order. This study also found that the modern supply chain management system is based on the advancement in technology(Priya & Vishal, 2019). Another study by kt, et al., (2019) subject regarding the role of the modern supply chain management system. They investigated the framework of the inbound supply chain management system which is associated with the risk factors related to the modern supply

chain management system of the organizations. This study found that the electronic supply chain management system is the most important factor which plays a significant role in the formation of the framework of the overall inbound supply chain management system in the textile industry(kt, Sarmah, & Tarei, 2019).

2.7 Application of Digital Technologies

Digital technologies such as 3D printing and digital printing have seen increased demand and applications. To improve the supply chain system and increase customer consummation, computer vision in the textile industry is being used. These different types of technologies contribute to long-term sustainability by allowing manufacturers. Many retailers are reducing product lead times to respond quickly to market demand. There is a scarcity of research on in-depth reviews of these technologies' applications in the textile business and approach transactions. Different types of technology methods are used in this (Rahman M. , 2021). Graphic and different types of digital design are used in this. Many base technologies increase the production and profitability of the textile industry increase.

The customer is satisfied through the different types of technologies and it can enhance the improvement of the business. Through the supply chain and management process of digital technologies, fashion designers, textiles and vendors can create modified clothing designs using 3D printing. Designers can use the 3DP technique to create complex and flexible structures using computer-assisted enterprise and manufacture. Consumer acceptance of 3D printed products will steadily increase as research progresses. It is related to the uniting soft threads with strings. 3D printing textile produces different types of soft properties. The use of digital technologies in textile and fashion manufacturing has more beneficial properties and it is more common (Rahman M. , 2018).

A study is conducted by researchers named Chong, Bessie. The study aims to track the step required by the textile industry globally to enhance the quality of the workforce by employing digital empowerment. The study identifies the techniques to change the workforce having less knowledge of digital and modern textile equipment into confident and efficient users of modern and innovated technology. The researcher conducted an A/B test in order to compare and contrast the workforce along with digital empowerment(Chong, 2019). The study comprises a regression model to identify the

influence of different variables. The findings and results of the research reflected digital empowerment is a potential technique to lead the textile industry to success. By employing digital empowerment, the engagement of the workforce and employees can be improved. It is mentioned by Honigsberg that digital patterns can be implemented in the organization by employing digital empowerment. Digital communication technology should be utilized to enhance the mobility of textile data(Hönigsberg, Dinter, & Wache, 2020).

Martina conducted a study in which he identifies the influence of the modern and innovative technology of the textile industry. The purpose behind the conduction of the study was to track and identify the historical roots and context current situation hamper the outlook of technology driver n patterns and programs. The context contains an exploration of textile production in the country named Germany(Fromhold-Eisebith, Marschall, Peters, & Thomes, 2021). The empirical mixed methodology was employed by the researcher to track the production of the textile industry production in Germany. The stakeholder's workshop was also conducted to identify techniques for the implementation of textile modern and innovative technology. The finding and results of the research highlighted different techniques that could be implemented by the textile industry. Three narrative upcoming scenarios and policies are also mentioned so that the production of the textile industry could be enhanced. Industry 4.0 technology is proved to be beneficial in digitalizing the textile industry and must be adopted by the textile industry existing in Germany. The 4-0 technology caused a revolution in the textile industry and is the reason for digitalization mentioned by Dalmarco et al(Dalmarco & Barros, 2018).

2.8. Gaps in Textile Industry Supply Chain Management

Technology selection is still a difficult task in many manufacturing industries. The different methodology employed to find the two challenging lamination technologies. The different technologies are related to the high levels of the organization. The empirical data is taken from the different technology of the textile industry. In the different terms of the index, the different technologies related to AHP and in the supply chain of the textile industry (Torğul, Turan, & Sandra, 2020). Organizations understand that manufacturing technology. The technology of the supply chain and management selection has a significant impact on business performance. Specific technologies and evaluation

techniques can be found in the academic literature and it is related to the specific and employment of different technologies. The decision-making process is very helpful in different technologies. AHP technology is applicable in the lamination process. Many innovative products are enhanced through the different types of technology. The approach of this technology is increased in the manufacturing supplier (Mondragon, Ernesto, Jung, & J.Hogg, 2019).

Kapustin, et al., (2020) had conducted the research in which the issues and advantages related to digitalization in textile industry. The concept of a logistics unit, as well as logistical and digital hubs, is described in this article. International logistics and different types of hubs are related to digital technology. To attract the greatest number of partners and customers, the Confederation in its chunk of the worldwide logistics system (Cichosz & A.Michael, 2020). The studies relating to different technology in the field of public administration and it can use modern digital communications and digital security technologies were undertaken during the research. The logistics have taken many advantages in this network. The issue of establishing logistics hubs and centers along major transportation strips, the goal of which is to keep routes running smoothly. Digitalization and a methodical shift are relating to an IT environment are tremendously profitable for all the country and have enormous possibilities (Kapustina, Vladimir, Sergei, Egor, & Kseniya, 2020).

BASHA, (2017) had conducted an impact of industrialization on the textile industry. In different countries emerging and developing economies have benefited greatly from the textile industry. This study has described the major role in the industrialization of the textile industry. Emerging and developing market economies may lose their cost advantage as a result of digitalization. Traditional fields have been destroyed as a result of global factors such as modernization, globalization, and technological advancement (Ganeshbabu, P.Sundara, G.Paulraj, K.Jeganathan, & Ali, 2020). The fundamental principles of digitization and the logic of the digitization process in textiles are used in a large amount. In the textile industry, new business models and organizational principles are required due to technological advancements and altering purchaser opportunities (Mahmood & Muhammad, 2020).

This study conducted the supply chain management of the textile industry. Digitalization also changes the textile industry, salary process of the employee, and customer process. The textile industry and the value chain of the organization are also linked to the manufacturing process (Morgan, 2017). The demands of the different types of customers are increased with the communication skills and global environment of industrialization. Different types of differential analysis are linked to the accounts of customer digitalization.This study creates the marketing process of different business which is relevant to the textile industry. New and digital innovation of different ideas relating to textile is created in this study (Stjepanovič, Ion, Paolo, Mirela, Luis, & Andreja, 2017). The data of this study is taken from the book, journals and different types of articles are included in this. Great and beneficial business planning is developed through the implication of the textile industry. It provides different opportunities to the customers and a new and beneficial production mechanism is used in this (BASHA, 2017).

The authors of the study JAIN, M. the study aimed to track the potential challenges being faced by the uncertainties and challenges being faced by the textile industry before digitalization. The challenges and uncertainties were causing consistent loss to the textile industry(JAIN, 2018). The paper examined second-hand data to provide deep insights into the challenges and problems being faced by the textile industry. The finding stated a variety of issues that are tracked and faced by the textile industry. Atstaja highlighted challenges include lack of adaptation of textile machinery, absence of knowledge and implementation of productivity enhancement tools, etc. (Atstāja, Cudečka-Puriņa, Vesere, Ābele, & Spivakovskyy, 2021). The result of the stated the modern and innovative tools and methods should be adopted to eliminate the issues being faced by the textile industry(JAIN, 2018).

Another study that is conducted by EssiKarell et al examined the low textile recycling rates causing uncertainties. The initial and primary purpose of the research is to evaluate the design for recycling approach effects and its implementation in the global textile industry. The factors that were considered by the author of the study include design sorting technique and recycling in the textile industry to produce more products(Karell & Niinimäki, 2019). The research implemented a qualitative approach and qualitative

interviews were conducted by the researchers. The finding of the research reflected the importance and cruciality of the active dialogue that presented useful design and sorting methods. The result highlighted that the entire textile industry perspective should be amended to reflect leading changes. The recycling techniques should be utilized so that the textile wastage could be eliminated properly is stated by Bartl et al (Piribauer & Bartl, 2019).

SnöfridBörjesson Hero conducted research that aimed to explore textile industry dynamics and the knowledge relatedness in the textile industry. The primary purpose of the thesis is to identify and track the influence that information has on the on-textile industry dynamics. The knowledge of West Swedish region VästraGötaland's textile industry is examined. The quantitative mythology is being adopted by the researcher named Hero to relate the workforce and employer data collected by the researcher (Herou, 2018). The research reflected that the Swedish textile industry must consider the industry life-cycle phases to enhance the mobility and effectiveness of textile data. Modern and innovative technology should be adopted so that the productivity of the textile organization could be enhanced properly. Kirill highlighted the importance of textile modern technology and mentioned that productivity is also enhanced by it(Kirill, Bobir, & Ziedulla, 2018).

2.10 Variation Inbound Logistic and Outbound Logistic

The traditional model is used to enhance the supply chain management and customer services of the stimulation. Through the supply chain, new ideas are developed with many types of new sources. The supply chain provides the organizational changes in the global environment and the industrialization of the textile industry (AYANTOYINBO & Adeolu, 2021). The supply chain process continues between the employee and the customers through the many different types of sources. All these processes are relevant to the digital marketing of the textile industry. The online process is developed in the industrialization of the textile industry. In his way, the best customer services relating to management are applied (Barbosa, Ana, & José, 2020).
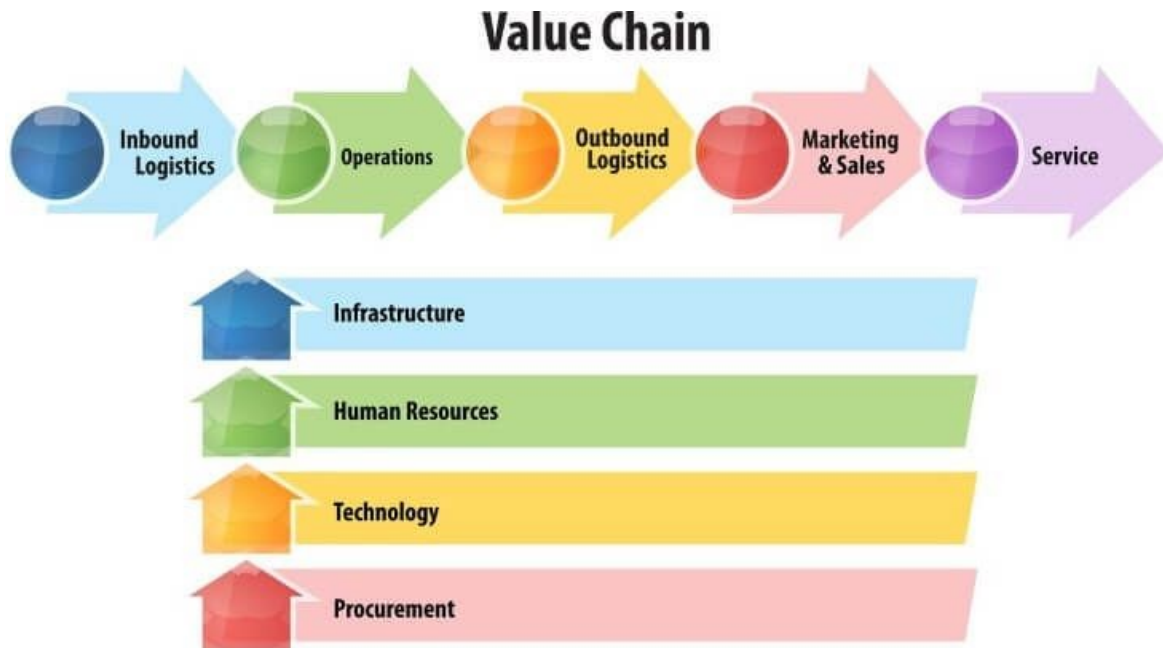
Value Chain

Figure 2 Inbound and Out-bound Logistics(Marques, Ricardo, Maria, & Pedro, 2020)

This study also conducted an impact of the organization relating to the supply chain inbound and outbound process. The supply chain is linked to the different types of organizations in which all the activities are involved in the dynamic forces of management (Nguyen, 2019) . Customers' feelings are comfortable through the sustainability and the different supply chain management of the textile industry (Kouhizadeh & Joseph, Blockchain practices, potentials, and perspectives in greening supply chains., 2018). Because in the modern textile technology, the new and innovative ideas are produced and it. The raw material which is linked to the in-bond technology can be used in the different methods of eternalization. If the employee compares the new technology with the previous technology then it can find that the new technology of digitalization regarding the textile industry. New methods give the different approaches of textile industry and new strategic plan and model of supply chain process is produced (Gong, Fu, Steve, & Lenny, 2018).

This study was conducted through the different dynamic processes of the supply chain. The textile industry moves to the beneficial dynamic markets and in bond and out bond technology makes the good relationship with customers. Different types of planning and analysis processes are used in the manufacturing of textiles (Watanabe, 2020). Different management process relating to supply chain and management of textile gives

the digital planning of 3D textiles. It gives the best supplier process to the customers and gives a good opportunity to the textile industry. It is very beneficial and its approaches are regarding the textile system of the textile industry and the supply chain management process of the customers (Barbosa, Ana, & José, 2020).

3. Conceptual Framework

This chapter covers the theoretical perspective how digitalization is occurred as paradigm shift in the process of supply chain and how this shift has brought changes to the inbound and outbound logistics activities.

Currently the need for the "perpetually connected" business surroundings and customers are making companies of every size consider ways they should make transformations and changes digitally in the supply chain operations. There is an expectation for companies to offer the highest quality products and services as fast as possible(Ali & Basha, 2019). There are considerations for costs as well with the capacity to monitor development to ultimate users from the supply of raw products on the beginning. To manage this change supply chain executives are needed to reassess the traditional supply chain management operations and practices to pave way for digital supply chain managing. The benefits of change are not realized in one day or month. But it has been established from the literature review of the current study that when operational areas like logistics and sourcing are interlinked on the same platform four things happen(Anthony & Sobah, 2020).

There is visibility, collaboration, advanced logistics, and better information sharing. Visibility is developed at each phase of the product life cycle and while linked with a strong digital chain of supply collaborating channels, leads to a major decrease in time. Earlier collaboration in the lifestyle of products tends to lessen the turnaround and development time. Multimodal logistics integration helps locate inefficiencies in the shipment and lessen costs for transportations(Banga & Banga, 2020). While linked to present and updated trade information, automated information lessens taxes and duties while lesser customs audits. Merely by eradicating traditional and outdated processes in the supply chains, especially in logistics and sourcing, there is the true and digital transformation of the supply chain. Developing that bigger picture view of the supply chain is essential no matter it is having all the current shipments on the map and knowing

where they are or having a precise picture of the downstream and upstream supply chain tasks(Bredmar, 2017).

Logistics and sourcing team should share information to improve their tasks, seek new prospects and chances, like new carriers, and save costs. But digital supply chain changes go beyond the attainment of visibility to monitor the container(Wang, 2021). Digitalization tends to correlate all information that explains what is in the supply or container like design, costs, sourcing, production, order, classification, shipment, regulation, and so on. There is the presentation of information in a single detailed and sophisticated view. This sort of knowledge allows actual supply chain monitoring and visibility but there are many other differences between traditional and digital supply chain, so the gap is bigger.

Digitalization of the international or overall supply chain gives more power to companies in terms of planning, sourcing, and logistics groups to automate, collaborate, and leverage analytics in an effective manner. Digital supply chain allows collaboration in several external and internal people or systems. This is one of the features that make a control tower. Collaboration makes chances to lessen and eradicate the disintegration in terms of information sharing wherein information is help in separate packed boxes or spreadsheets. The unified and complete view of the supply chain by a single platform-like portal as compared to a network of forty plus points for integration speeds up cross trading and cross-department partner visibility and relationship(Ali & Basha, 2019).

This makes the SCM more agile and responsive. Both of these aspects are a major part of the digital supply chain. Automation is an end-to-end platform digitally. It makes efficient, eradicates manual repeated errors, enhances the accuracy of the information, and improves the speed of the supply chain by automating several manual and labor-intensive processes. Moreover, digital processes help decision-making at several processes of the lifecycle. For instance, initial costs are automated, and alerts can be generated automatically while purchase orders are at risk of complications or postponements(Ayantoyinbo & Adeolu, 2021). Likely, the tasks of locating and qualifying goods eligible for free trade initiatives are identified. Automation further decides the most

suitable mode of shipping, carriers, and planning when taken into view speed, time, and purity in terms of other elements. As a major rule, digital supply chain flows are based more on automated processes. Overall supply chains make massive amounts of data. by making a digital model of the end-to-end chain of supply, comprising previous records, the performance of suppliers' records, and overall cost situations, currently, analytics can now identify issues, patterns of problems, hurdles, and identify cost reduction or saving opportunities. Analytics can also look for forthcoming and future hazards and suggest solutions in a proactive manner (Atstāja, Cudečka-Puriņa, Vesere, Ābele, & Spivakovskyy, 2021).

Analytics allow practical transactional reporting and presentation assessments for ongoing betterment over the chain of supply. Firms that are still coping with the burden of spreadsheets, making calls, and sending emails for the data are far behind. While we add the logistics and sourcing information, the situation becomes more challenging. More efficient links in internal groups and between suppliers, brands, and logistics providers is crucial to attaining products to supply them faster in the market. Moreover, it helps deal with customer demands rapidly other than reducing costs. So, we can say that a digital supply chain is a holistic approach. when logistics and sourcing both have access to practical information from reliable sources through the digital mode of SCM, the SCM leader and efficiently deals with options and spends time performing other important tasks than locating spreadsheets for data(Ali & Basha, 2019).

There can be used on computer processes as well. This offers more value and develops flexibility and adaptability for the operating channel. Once developed, the digitalized chain of supply needs fewer human resources and fewer workers because of a reduction in manual tasks. This lessens the overall cost and time needed to run the supply chain. The other benefit is a more consistent and predictable supply chain that enable shippers to lessen levels of inventory and safety stock, particularly in the more competitive business. To work effectively, textile companies need to take an integrated and holistic approach. this broad-ranging approach to making a digital supply chain comprises the development of the product, optimization of sourcing, international supply

managing, factory or product risk, assurance of quality, and management of global transportation, import, duty, and logistics process.

4. Research Methodology

In this research methodology is used. There was a research requirement to interview managers from five different textile companies. There is a discussion of choices to research the methodology section. Deductive methods are used in this and also differentiate the traditional and digitalization supplier chain. The research method shows how data was collected from both primary and secondary sources. There is a description of chosen data collection methods with an explanation of traditional and digitalized supply chains. There is a brief presentation of the supply chain of companies and ways data is analyzed and examined. The research proves a sufficient level of reliability or validity is present for the new digitalized methods.

4.1 Research Approach

In this research, the approach used for conducting a research is deductive one. The research also differentiates the traditional and digitalization supplier chain (Lee & A.Fields, 2017). The present research is based on the deductive method. Because the researcher is conducting a qualitative investigation, there can be the use of a deductive approach. But, there are some rules to follow. The deductive approach is one in which people mainly relate to scientific research. The investigator explored what others have studied in the secondary research and primary data as well. There are many advantages of the deductive approach. There is a chance to explain the causal relation among aspects and ideas while making use of the deductive approach. It can be assessed qualitatively. The research findings can be generalized to a bigger level as well(Lui, Yasmin, Breanne, Justice, & Sari, 2021).

The researcher made simple assumptions. The research questions are tested by primary data. The researcher has adopted the deductive approach as it started with the common ideas and approaches that are strong enough. Moreover, these approaches can be tested and there is the testing about the usefulness and importance of data obtained from primary and secondary data. There is a shift from the general to a more specific idea. The

deductive approach is more related to empirical evidence. There are fewer chances of subjective bias. The research is more objective and based on proof(Lee & A.Fields, 2017).

4.2 Research Method

There are many different types of methods used in the research. In this study, there is the use of the qualitative method. This is because the research is based on interviews conducted with five managers from textile companies. There is a need for detailed data to analyze facts. The qualitative study depends on the inductive approach of traditional and digitalization (Abdissa, Worku, & Shekar, 2018). The reason for choosing qualitative research is that it addresses "why" and "how" aspects of research and offer deeper knowledge about context and phenomena. This method enabled to ask quesitons that cannot be stated as numbers and used to understand real experiences. The qualitative research can be adapted to the context of the present research. this is an open ended approach that was changed through the research to enahcne the quality of insights and data generated.

In this study deductive approach is used which depends on qualitative interviews. There will be a structured interview with 5 questions about the SCM and digitalization in textile industry(Roslan, Izzaty, & Azwady, 2018). This is useful as it helps to see features, regularities, and trends (Hollis, 2018). Descriptive research is explained as a research method that shows the aspects of the concept and phenomena being studied. Descriptive research is a suitable choice when the investigation's aim is to locate characteristics, trends, frequencies, and categories. It is useful when there is not much information about the topic. Before researching for why anything occurs, there is a need to know where and when it happens. One of the major benefits of descriptive research is in data collection. The researcher can conduct descriptive research with the use of the survey method(Taweewattanakitborvon, Achara, & Chandrachai, 2018).

4.3 Research Strategy

The present research is based on a deductive approach. But the deductive data will be analyzed and presented more clearly if its is explained properly.(Rahman M. S., 2017). So, for this research, as it is known that it is based on interview method, the qualitative approach is used, the explorataory nature will also be included. The exploratory nature of

this research will help to get better insights of responses. There is an exploratory strategy for the research that is used to know about issues that are not clearly explained. The present research is conducted to have a better knowledge and understanding of the supply chain in the textile segment of Pakistan, comparing digital and traditional supply chain and gaps as well. There are no conclusive results but an explanation of present factors only.

4.4 Data Collection

Different theories are used to collect the data in this study.In the data collection, there are interviews of 5 textile managers. The primary data collection is through the telephonic interviews from the 5 managers of the supply chain and it belongs to the different textile industries(Silva, Anabela, & António, 2019). Because the textile industry is relevant to the primary concern of different design and production so all the questions in interviews also belong to it. There are different managers related to the different textile companies in Pakistan. The primary data is taken from the different interviews. The conduction of the interviews belonged to the primary data (Caldeira, Antunielle, Débora, & Karine, 2017).

The present research also includes secondary approach for collecting data from the relevant and authentic sources. There is an effort to bring deeper knowledge and information about the topic with the help of secondary information in the form of research. This is a much simpler way of secondary data collection. There is the use of coding for the analysis of data. Secondary research comprises research material published in research reports and other documents. These documents can be available on websites, governmental and non-governmental agencies, and libraries. This information is used for research purposes and retrieved as per the convenience of the investigator.

The information for the secondary research is collected from several non-governmental and government sources such as the census bureau, small business development centers, and so on. The advantage of obtaining information from these sources is that the information is trustworthy and credible. Public libraries are another source of data for secondary research. They have copies of significant research conducted by some other investigators. This storehouse of information helps the researcher to find

out valuable information. There are huge collections of government publications, market statistics, business directories, and so on that are helpful for the researcher. There is an importance of information collected from educational institutes(Khan, Ishizakab, & Genovese, 2021). Through the secondary and primary all the data processing of analyzing and strategic process of the textile industry is developing.

Secondary data is used in the present study because there is much information is already available. This information cannot be ignored by the researcher and saves efforts or time for collecting data that would otherwise have to be attained directly. The use of secondary data may not appear as excting source of data collection like surveys, but this helped the researcher make present research that leads to better reslts and prevents finances and time. secondary data was particualry helpful in the collection of data because it provided support for data explored previously. The present research used secondary data to support insights obtained from primary research. in the present study, secondary data improved reliability and validity of the research.

4.5 Interviews

The interview is used for collecting data. There are 10 interview questions for conducting this interview (Appendix 1). The interview will be taken from 5 managers of the textile industry of Pakistan who are willing to respond according to the questions. Specific modes of collaboration are also taken from the different types of interviews. Structure and unstructured types of interviews are relevant to the normal conversation of interview questions. As there are many types of interview methods or mediums established by the researchers, but for this purpose, only telephonic medium is used for conducting interview. The interview questions will be asked from the managers after taking permission from them. the telephonic interview is convenient in present situations so it will help the researcher to collect relevant information.

4.6 Operationalization

Most of the question are based on broad topic and are open-ended which describe the relationship between the different variables. In this study, choose the telephonic interview because it gives the best way of broadcast defendants. Because many occupations and sectors are underrepresented on online boards, the phone interview

method is the only good method(Khan, Ishizakab, & Genovese, 2021). Use this type because the company employs telephone interviews to select candidates and restrict the pool of aspirants. They assist firms to save money by reducing the costs of interviewing candidates from out of town. The interview is conducted through skype. The timing difference is around about 8 hours. Many different languages are used in this. But English is the most prominent language. All the interview is translated into English(kt, Sarmah, & Tarei, 2019).

4.7 Sampling

The purposive sampling approach is used wherein the investigator selected the sample on the basis of their information about the investigation and population. The participants are chosen based on the purpose of the sample. Participants are chosen as per the needs of the study. This is a non-probability sampling that receives selection based on the overall study and population investigation. The reason for selecting a purposive sampling approach is that the research can take the benefit of creating generalizations from the information(Etikan, 2016).

The purposive sampling technique helps to make generalizations from their sample. The sampling technique saves money and time. There is the flexibility of the design that enables researchers to save money and time when collecting data. It provides a procedure that is accommodative and changes as per the situation. There is the fulfillment of needs and interests. There is a possibility to achieve a maximum range of variation. The design aims to provide researchers with a chance to develop as much information as they probably can(Etikan, 2016). There is a low margin of error information collected through purposive sampling; this is because the information is collected from a straight source. Moreover, purposive sampling will offer results that are accessible in real-time. There is the usage of surveys to collect data from a specific sample of the population. The members of the sample group have a suitable range of information and knowledge related to the subject being studied(Etikan, 2016).Supply chain managers conveniently approach the non-probability samples. Because those candidates are selected for the interviews which are accessible and probable for interview.

Table.2 List of Textile Companies Interviewed

Firms	Selected Managers	Date of Interview	Medium
Ravi Spinning Mills	Assistant Manager	2nd May 2021	Telephone
Nisha Mills Ltd	Assistant Manager	07th May 2021	Telephone
Ideal spinning	Manager	12th May 2021	Telephone
Zain textile	Manager	12th May 2021	Telephone
Ravi Spinning	Assistant Manager	19th May 2021	Telephone

4.8 Data Analysis

After the data collected from the interviews, all the voice recording data will be translated into the following different types of scripts. The next step is used to analyze the data. To maintain consistency with the research strategy, the grounded theory technique of data analysis was adopted. Firstly, identification of the different types of questions and open coding procedure of all the questions is started. This open coding structure of the questions makes the list of the questions such as why should I hire you? What are your goals? Why you are interested in textile designing? The benefits of this analysis are that the list of all the questions and then coding (Koksal, Jochen, Martin, & Matthias, 2017). The next step of the interviews of data analysis moves to the axial coding. In the interview lower and higher categories are related and select the most relevant categories from both of these. In both of these coding, takes the ideas of different questions. Preliminary notions concerning the connections between categories like "cause-effect" and "context-strategies" were possible to form. As a result of this procedure, a concept of the causes of specific attitudes among textile managers and owner-managers may be outlined. The data analysis of the interviews is taken from the different levels of questions.

4.9 Validity and Reliability

The different types of principles are related to the validity and reliability of qualitative research which is used in the interview script of supply chain and management. In the validity of the interview, many impacts are developed. The validity of telephonic interviews decreases cost and increases interview safety. When the same measures are administered to a separate participant group by various investigators, reliability refers to the potential of obtaining the same results. Through qualitative research, it does not

separate the knowledge of interviews. The real and unique properties of the textile managers can be found through the validity. Telephonic skills give the best way to check the qualification and different skills. There must be a one-to-one relationship between the interview questions asked and the underlying competency to achieve optimum validity. Some question is easy during the telephonic interview. It means the great way of reliability is belongs to this and it takes a short time. In the reliability, a telephone interview is a cost-effective alternative to a face-to-face interview since it allows for interpersonal communication without the need for face-to-face interaction. Telephone interviews are frowned upon by traditionalists because they lack visual contact between the interviewer and the interviewee. These objections to the usage of the telephone are only now being investigated by academics. The reliability of the interviews provides a beneficial way to the textile industry and supply chain manager of new 5.

4.10 Research Ethics

It has an impact on how companies in that industry handle innovations in sustainable supply chain management. All the researchers and agree upon the rules and responsibility of conducting the interviews. The interview practices are through conducting research (Sabrina, A.Maspupah, & F.R.Umbara, 2019). During the interview, every participant was treated with full respect and also maximize the ability of intellectual and mental disability. Research ethics also finds the principles of humanity and justice because through the telephonic process the persons feeling comfortable. Every individual is treated with full respect to maximizing the interview scripts. Followings ways are necessary for the interview script (Mondragon, Ernesto, Jung, & J.Hogg, 2019).

4.11 Voluntary Participation

Only those persons are selected who are interested in the interviews of supply chain managers Because these types of managers are selected, they cause problems and create many types of personal issues. So, it is necessary to check the information and voluntary participation (Möller, Utz, & Frank, 2020).

4.12 Confidentiality

All the linformaetion of the participant belongs to the company. The owner gives the promise to the manager is that not give the personal information to other company. This

confident level of the interviews is also necessary to choose the manager of the supply chain.

4.13 Honesty and Ingenuousness

The unbiased way is used during the interview and the selection of 5 supply chain managers. Many issues are created and find out the different issues through the honesty and communication of the participant. The reader of the interview script finds the all findings. The interview selection is due to the following different characteristics. And 5 employees of the supply chain manager is selected (Rahman M. , 2021).

5. Results and Analysis

This chapter covers the results based on interviews conducted from textile companies' managers in Pakistan. The responses taken by the interviewers about the related problems and issues will help to get an insight for driving out recommendations for making the process much better. The managers of the companies selected above gave responses relevant to the asked questions about the supply chain management and related operations.

By comparing the traditional and modern mode of supply chain and asking about it the responses showed that there should is a need of innovations and replacing traditional methods as shown by response of one respondent as *"There are problems in the traditional mode of outbound and inbound supply chain"* and the solution for this was responded as *"There is a need to use new technology issues to make goods to fulfill the demands of extremely demanding consumers"* (IP-1).This situation has not been and never been planned for the Pakistani textile sector. No transportation and supply planning systems are available despite the newest computerised production equipment. In terms of the human element, the bulk of industrial planning is carried out by aim and objective and less qualified managers, primarily owing to assumed motives for reducing costs. Same response is given by other maanger about the drawbacks of the traditional mode of SCM as *"The traditional supply chain, in my view, is not as per the aim of managing the supply chain like there is no connectivity of major components to meet supply and demand in an effective manner"*(IP-2). The growing need for transportation has highlighted issues such as investment, fluctuating energy costs and pollution. The industry has therefore created a transport system, which, due to mobility solutions, can fulfil the future requirements of the economy and society. Mobility Supply Chain Solutions and Logistics seek to improve both transport efficiency and safety, in combination with increased environmental sustainability. The traditional supply chain structure and model presents various stages of this process which has many stakeholders that are equally important for the company. The miscommitment or problems in one area of the process can cause problem for overall process of the SCM (Barbosa, Ana & Jose,2020). Related to the findings of this question

and the traditional model, presents a way that agrees that traditional structure has more complexities in textile industry and due to the complexity of issues, the respondents think that traditional supply chain is less productive than modern method. In Pakistan, the growing interest of majority of customers in clothing and textile related products, the traditional structure needs to be recuilt and updated so to avoid the challenges faced by the company. There is always a problem in collaboration among stakeholders and sometimes the complete process is delayed to hindered. The traditional model states that the customer needs do not fulfill and accuracy is compromised (Othman, Amran, Nuno, & Zana, 2020).

Same type of responses are given by the other managers of different companies of Pakistan (IP-4 & IP-5). The third interviewee responded and addressed the issue in different way as he addressed *"We have issues linked to communication and information sharing in the traditional way where there is no use of technology and digitalization. There are problems linked to increased cost for transportation, lack of fair pay for farmers, poor quality products for companies, and many others. The list is unlimited"* (IP-3). So, from these responses we can conclude that traditional mode of supply chain management is not effective and need innovations.Supply chain management applications can help businesses utilise vital research and development data. With considerable market of supply chain as well as logistical services, businesses can evaluate and manage reasonable volumes of company data. Supply chain mobility is the main element for your firm to rationally handle and use self-generated data for enlightening and data-driven choices. The issues related to traditional mode of supply chain is yet identified by the managers and there are numerous findings that explained the loss to textile industry due to challenges and problems encountered before digitalization. The lack of knowledge about the tools and its implementation results in lack of adaptation of digital technology in the industry and this ultimately reduces the growth of the industry (JAIN, 2018).

Introducing digitalization in the companies to improve supply chain mechanism is yet another important aspect. The response by the interviewee explains this in a brief and concluding manner as *"Improved digital transformation can reduce costs of moving goods; provide better speed and quality services"* (IP-4). The e-commerce industry has a direct effect on client satisfaction and retention according to different B2B and B2C companies. This implies that operations and supply chains businesses require more speed,

flexibility and dependability to continually improve the quality of service for merchants and retailers, since, ultimately, online retail is the main driver for company development. The challenges addressed by one of the respondent that can be solved through digitalization are *"like higher transportation costs, dealing with people, payment issues and so on that can solve with digitalization"* (IP-3). Because of its creative aspect, digital transformation and additional ICTs are capable of improving efficiency, promoting management of information and facilitating more optimal business models. Furthermore, digitization was suggested as among the most promising opportunities in society's and transitory sustainable development. These views are founded on the way that digitisation allows for increased efficiency and execution of: production efficiency, knowledge decision-making and changing corporate and consumer mindsets. The classical model is relatable with the above reported responses as the responsiveness in traditional structure of SCM is delayed and has more flaws than digital supply structure. The respondents think that the traditional structure was followed for a long time but in new world of high demand of customers and market, the new methods should be employed to restrains from the uncertainities caused by the old methods (Hönigsberg, Dinter, & Wache, 2020).

One of the respondent claimed that *"the relationship among suppliers and companies can be improved because of digitalization"* (IP-5). So, there are different perspectives of every one about the introduction of digitalization in the textile company.In the interviews there were several instances that were symbolic of a current topic; as companies embrace more sustainable business practises and digitalize, their suppliers too need more value. As in the traditional structure, there is a probability of low communication and weak relationship while delivering and managing different proceedings. Through digitalization, using new technology that enhances the communication system over large distances, is appreciated and the former weak areas will be resolved or improved due to new methods. The middleman in the traditional inbound supply chain is important for maintaining the relationship between the cutomers and sellers as response shows *"one who maintains the flow of critical activities from farmers to end-users"* (IP-1) same response was given by other manager as *"The middleman is specialized in performance-critical activities like the sale and purchase of goods, the flow of goods from farmers to the ultimate users"* (IP-3) and *"The role of the middleman is to*

act as a bridge between farmers and companies" (IP-4)Traditionally unaccounted (or moderately managed) supply chain is characterised by adverse customer-supplier relations, including wind-up negotiations; little consideration of benefit/risk sharing; short-term concentration, with little interest in long-term mutual success; primary cost, low value-adding emphasis and limited information exchange. But as there were some questions related to the loss or damage caused by these middlemen stated as*"Middleman cause losses for farmers. This is because farmers are not aware of actual market conditions"* (IP-5) so this traditional method can be somehow problematic for company and farmers.The textile industry can florusih if it has good suppliers and cutomer's behavior is enough satisfactory with its supply chain process. Through traditional methods sometimes the late delays cause problems for the customers and the cutomer's satisfaction is important for every industry to grow and success. The middleman act as a bridge between this process and if digitalization is achieved through modern processes these issues will be encountered. The digital planning and enhanced supplier process is beneficial for the company and also customers (Barbosa, Ana, & José, 2020).

As there are many issues associated with inbound supply chain mechanism so the responses also shows tha this method should be changed as response shows *"I believe there is a loss of companies more in terms of the inbound supply chain"* (IP-1). While supply chain activities may be performed by companies alone, supply chain intermediates remain constant. This assumes that intermediaries always add to the generation of value inside the supply chain or assist supply chain operations in some manner, because businesses choose to employ intermediaries. Therefore, businesses may maintain their emphasis on their core competences inside the supply chain while utilising these intermediates.The company can face loss in inbound supply chain because of presence of intermediaries and these people cause loss to the company as one of the respondent responsed as *Intermediaries usually have poor after-sale performance and they do not accommodate firms in extreme needs*(IP-3). These responses shows that inbound logistics should be replaced by some new and innovative ideas so that company can grow and prosper. The inbound supply chain structure is a more responsible and active stage of SCM whose productivity and efficiency leads to the successful port for the company and vice versa. The operations of the company are related to inbound logistics as the company

needs that raw material that is operationally suitable for products manufacturing department. As the multimodal logistics describe the inefficiencies caused by the logistic departments due to late delays so according to this theory and the available information, it can be considered true that inbound logistics have more complexities in the tectile industry of Pakistan and it needs more attention for cutomers satisfaction (Banga & Banga, 2020).

As far the responses were taken from the managers of textile industry so question was asked from them about the challenges textile industry is facing due to traditional method. The responses were according to the given above like one respondent said *"In both outbound and inbound logistics, there are issues linked to the reduction of transportation expenses, improvement of business processes, customer service, and so on"* (IP-1) Numerous stakeholders are engaged in the production and distribution network. They have the function to play in the procedure from the original product to the end consumer. The standardised flow begins at the original product (the manufacturer), from the distributor, from the wholesaler, from the retailer to the end consumer. The actors described above confront a number of difficulties related both to the activity and the resource level in order to remain in the Supply Chain. As businesses strive to be productive and appropriate and to create profits, the intermediaries are searching for value-generating activities. To generate value, intermediaries must be capable of working economically, on just one hand, and sophisticated skills and competencies are needed for procedures.Another response state as *"There are disturbances, lack of notification, and alerts in emergency cases. There are issues linked to the flow of work, lack of planning, and many others"* (IP-2) one of the respondent clearly said that supply chain issue is the main challenge in textile company as *"But I tell you about the main issues that are risks in the supply chain"* (IP-3). From these responses it can be deducted that suplly chain mechanism is disturbed due to the implications of traditional mode of supplying things. The logistics and performance of the firm is also distrurbed due to inbound logistics and supply chain mechanism.

The logistics and performance of the company are also distressed due to inbound logistics and supply chain mechanism. The digitalization is the last option for the textile company to overcome these issues. Digitalized processes can improve and offer practical insights in the chain of supply, offer people more control over the chain. The findings

emphasize the implication of using digitalization in the capacity development process of conventional organizations, to improve the performance levels of the employees. For outbound logistics, there can be the use of digitalization to know customer demands and deal with them efficiently. Digitalization can enhance processes and products. It is the most wanted and important aspect for improvement in the textile industry and solve the issues related to SCM (Banga & Banga, 2020).

The digitilizations is the last option for the textile company to overcome these issues as asked by respondents, the role of digitalization in supply chain management. The present competition in the market within same industry and differnet industries in increasing the customer's traffic, alterations in the old methods is the ultimate demand of this modern world. On interviewing the importance of digitalization from the respondents, most of the responses are positive and up to the date as said by one of them *"Digitalized processes can improve and offer practical insights in the chain of supply, offer people more control over the chain"* (IP-5). The findings underline the significance of engaging younger "digital natives" in the capacity development process of conventional organisations, in order to enhance the performance levels of the staff. The top consultants stressed the necessity to establish a balance between the improvement of the digitalization of externally designated and internally trained employees. Interviews discussed the difficulties to develop the capacity to redesign internal structures and suggested that competitors must build a management team, approach, and marketing strategy that isdigitally focused. Participants, for instance, used a recent digital consulting project to demonstrate the strategic leadership to rethink management structure and gave responses that it can lead to improve outbound logistics as *"For outbound logistics, there can be the use of digitalization to know customer demands and deal with them efficiently"* (IP-4), same as *"Digitalization will enhance processes and products"* (IP-2) so it can be said that digitalization is the most wanted and important aspect for improvement in textile industry and solve the issues related to SCM and other in the firms. There are complexities in the supply chain because of several channels to the market. Customers purchase goods through many channels and when routes to market increase, the basic supply chain should accommodate. Managers are needed to make changes to supply chain processes to deal with every channel. It is assessed that customer demands drive needs for better speed,

service, and quality. Customers have more choices and each segment is facing troubles. Companies are needed to offer excellent services and products. Customers want retail goods instantly. There must be the safety of products while they are supplied to consumers (Kouhizadeh & Joseph, 2018). The most beneficial products are those that are as per customer needs of availability, quality, and price. The basic supply chain is essential for fulfilling these requirements. Global complexity, ecological changes, and trade disruptions pressure the supply chain. This stress is changed into issues and risks causing major problems. There is a need to implement digitalization in supply chains to meet demands and cope with challenges. The use of digitalization in the supply chain can offer more visibility, reduce costs for the overall supply chain mechanism (Djulius, Juanim, & Ratnamiasih, 2018). The research paper intended to have an appraisal on SCM and the latest technologies in the industry 4.0 revolution. It is proven in the review of literature that automation and digitalization of supply chain management provide infinite prospects of exploration as the market dynamics are changed because of regions, economies, time zones, political systems, demographics, and climates and so on. The segment of digital supply chain continues to improve the world as part of the one bigger international market. There is a scope of digital advancements in fields such as wearable devices, logistic visibility, smart factory, autonomous vehicles, and so on.

The main concern of this research is to know about the digitalization process in textile industry of Pakistan so by evaluating the results the managers felt that there is a need of innovation in this industry as it is more demanding in Pakistan to improve its SCMs. The response of one respondent shows how digitalization can be used as shown "*There can be the use of digitalization in production, quality monitoring, monitoring, and control, and so on*" (IP-1). Some responded as "*In the textile segment of Pakistan, there is much need to follow digitalization because it is the provider of the highest employment after agriculture.*"(IP-3).Although Pakistan's textile sector has state-of-the-art engineering and capital requirements, it is continuously forced to make and export rough, non-seasonal and low quality textile goods, where significant capital is needed to produce at a much lower margin. Of this way, the total competitiveness in the country is reduced. One manager said that companies are using new technologies "*The textile segment of Pakistan is already using technology in supply chain functions. Some companies are using digital mediums for*

better control and integration of processes" (IP-4) but still there are no establishment towards SCM. The main reason that is given by this respondent is that the system is run by most of the illiterate people like farmers who has less knowledge of latest technology and the inbound logistics is controlled by most of them. There is a need to educate them or to make a system that is acceptable for them. The focus of SCM is practically less as compared to other industries. One of them said that Pakistan is lacking the new technology in this sector, responded as *"In Pakistan, there is no concept of using digitalization in the supply chain functions of the textile segment"* (IP-5).The manufacturing of clothing and fashion work in underdeveloped as well as developed countries equally. However, the greatest economic, environmental and social problems are faced by emerging nations, emphasising the necessity of implementing the norms of sustainable manufacturing.

6. Discussion

This chapter covers the discussion on results and its comparision with previous available arguments. However, this sections will elaborate the findings comparatively with the context of theory.

Keeping in view the research findings and reactions of the interviewee the requirement for digitalization in the textile segment appears to be essential for its prosperity and advancement. The demand for new technology is challenging in the modern world. to enhance the value of a product portfolio, textile companies should find new demands and modern customers by innovative business plans that are worthy. There is a great potential in digital technologies in supply chain managing, hence it is critical for supply chain management to know ways these technologies may be used and how they may be applied in existing contemporary supply chain operations (Holmström, Jan, Matthias Holweg, Benn Lawson, Frits K. Pil, &Wagner., 2019).

The research conducted by Zimon and Domingues in 2018 supported the findings of this research by explaining the issues of sustainable supply chain management and its reduction through various ways. The author has presented the same concern that traditional methods can bring about a tough time for the industry and there should be an implementation of sustainbale supply chain in textile industry. The aim of the research is linked with the present research by showing that there are issues related to traditional supply chain management and the sustainable methods are suggested (Zimon & Domingues, 2018). The new methods are also appreciated by the researchers and recommended to the companies for better and growing stance for their companies. The Pakistani textile industry managers also give insight to increase and bring about new technologies and digital tools for effective and efficient performance of textile industry among other industries of the market. the traditional method should be changed with the modern system linn which digitalization and new technological apporcahes are highly appreciated (Anthony & Sobah, 2020).

Marmolejo& Hartmann (2018) researched advances in technology and their impacts on supply chain management. The fourth industrial revolution has forced the digitalization of logistics and supply chain generally. Merely companies that are ready for and adopt change tend to survive in the latest business scenario. Businesses in a segment that does not accommodate the latest tiles of the game will be outdated in terms of market share. The changes of a logistics and supply chain, from a traditional model to a digitalized one, need a stern arrangement. It is a tremendous attempt on a human range, with the simplicity of needing lower operating expenses(Marmolejo& Hartmann, 2018). The literature of this paper has also highlighted the importance of digitalization as this process is important for the textile industry as the inbound and outbound logistics being the most important process need innovations at every minute stage of its operations (Kouhizadeh & Joseph, 2018).

The compensation for attaining this adaptation is flexible to the international business where the chances increase proportionally and exponentially with the capability of the accessible work team. Big data has emerged as the starting of the digitalized supply chain and logistics internationally. The modern scenario requires a constant update of services and software based on market needs. In general, this does not mean a technology change instantly. But, the aim is to be prepared for the advancement while novelty is referred to as improvement. The research presented the advancement of supply chains in a digital context in terms of operational aspects (Marmolejo& Hartmann, 2018).

The findings of this research are consistent with the primary data. For example, an interviewee in the primary research stated that "There are problems in the traditional mode of outbound and inbound supply chain" and the solution for this was responded as "There is a need to use new technology issues to make goods to fulfill the demands of extremely demanding consumers". The findings of the secondary researches state that the modern supply chain needs to evolve to fulfill new demands and cope with challenges linked to the supply chain. The supply chain managers of textile companies in Pakistan should plan to keep everything moving in a smoother manner. A blend of customer expectations, more ways to market, global challenges, and additional aspects develop major challenges over the supply chain network. There are issues like increase costs. Profits margins are under pressure because of rising costs throughout a network of the

supply chain. These expenses are incurred because of several areas like a lack of visibility and responsibility for lessening them can cause more operational costs (Kouhizadeh & Joseph, 2018).

Menon& Shah (2019) researched rapidly increasing technology and a digitally focused globe that have opened for a new era of automation. Industry 4.0 plays a major part in supply chain management that needs ongoing improvement and research because of high demand to fulfill their international competitive markets (Menon & Shas,2019). As an element of attaining this higher demand, SCM should be integrating the up-to-date rising technologies by automating and digitalizing themselves to improve their financial earnings and competitiveness in the market (Hönigsberg, Dinter, & Wache, 2020).

The findings of this research are consistent with the primary data. Because of its creative aspect, digital transformation and additional ICTs are capable of improving efficiency, promoting management of information, and facilitating more optimal business models. Furthermore, digitization was suggested as among the most promising opportunities in societies and transitory sustainable development. These views are founded on the way that digitization allows for increased efficiency and execution of production efficiency, knowledge decision-making, and changing corporate and consumer mindsets (Dalmarco & Barros, 2018).

Attaran (2020) researched some technologies that drive digital trends and changes in supply chain management. They include artificial intelligence, 3D printing, cloud computing, blockchain, advanced analytics, and the internet of things. These technologies are shifting the appearance of the segment, changing several factors of business models, products sales, supply chain, and services. The research included a literature review that intends to locate present research and directions in case of were these technologies can facilitate or improve other than streamlining the performance of the digital supply chain(Attaran, 2020). The research presented the significance of these technologies for logistics and supply chain, assessed their challenges and trends in facilitating the performance of the digital supply chain, and found out the practice and managerial issues of making new intgræted channels of the digital SCM. The research explored possible barriers to digitalized supply chain and procurement and methods to cope with them.

There is consideration of 5G as a major technology for increasing segment digitalization. Companies over the world are considering methods to enhance the performance supply chain as a way to lessen operating expenses, enhance margins, keep and increase market share, and enhance responsiveness to customers. Firms intending to improve their present supply chain performance have to depend on technology to offer a higher level of performance in meeting consumer needs. In the past few years, many technologies have developed that are changing classical supply chain presentations (Rahman M. , 2018).

The research discussed a range of emerging and present digital solutions accessible for practical inventory managing, movement, and monitoring of assets and so on. The research explored that technology is important in the improvement of the classical supply chain. The findings indicated that digitalization of supply chains and procurement can offer many benefits to companies such as more transparency, and better supply chain-related decisions, and so on. The application of technology like digitalization in the supply chain can improve the use of assets, increase the flexibility of SCM, lower inventory and warehouse expenses, lessen delivery costs and improve the delivery of products to customers (Attaran, 2020).

The findings of this research are consistent with the primary data obtained by research participants. There are disturbances, lack of notification, and alerts in emergency cases. There are issues linked to the flow of work, lack of planning, and many others in the classical supply chain. One of the respondents clearly said that the supply chain issue is the main challenge in a textile company. From these responses, it is assumed that the supply chain system is troubled because of the implications of the traditional mode of supplying things. Ali &Habib (2012) researched the present situation of the textile segment in Bangladesh. The research demonstrated mentioned the situation in terms of supply chain management in Bangladesh. The textile segment is an important industry in the manufacturing segment of Bangladesh and plays a critical role in this financial development. The textile section meets all domestic demands other than fulfilling the external need for apparel and clothing to a bigger range in Bangladesh. The textile segment is a longer chain composed of materials manufacturing, complement production, and so on. Supply chain managing idea is possible as a traditional management device for all producers.

There is a need to enhance product quality, lessen their service and products costs, and reduce their response and delivery time in the extremely competitive market. The research was created based on secondary data comprising online databases, review papers, journals, and so on. The efficient SCM of the textile segment is composed of lower inventories, higher productivity, lower costs, greater agility, higher profits, more profits, and greater consumer dedication. The research presented that the textile segment of Bangladesh faces challenges because of the traditional and ineffective supply chain such as longer lead time, the invisibility of SCM, and so on (Ali &Habib, 2012).

The results of primary research indicated similar issues because of the traditional supply chain. This situation has not been and has never been planned for the Pakistani textile sector. No transportation and supply planning systems are available despite the newest computerized production equipment. In terms of the human element, the bulk of industrial planning is carried out by aim and objective and less qualified managers, primarily owing to assumed motives for reducing costs. Traditionally unaccounted (or moderately managed) supply chain is characterized by adverse customer-supplier relations, including wind-up negotiations; little consideration of benefit/risk sharing; short-term concentration, with little interest in long-term mutual success; primary cost, low value-adding emphasis, and limited information exchange.

The researcher is successful in attaining its aims to research questions. There is the use of already available secondary data available in the form of research articles published in reputable journals. The analysis of secondary data showed that there are gaps present between traditional and modern supply chains. There is more efficiency and effectiveness in the digitalized supply chain because of more visibility and reduced costs. There is improved agility in the digitalized supply chain. The researcher used journal articles to compare and contrast findings. The context identified the ways outbound and inbound logistics are enhanced with digitalized supply chains. The researcher in secondary data pays high attention to the improvement and enhancement that are possible in the supply chain.

An interesting factor that is identified in the secondary data is linked to the ongoing advancement of the supply chain in the textile segment. There are prospects for better

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information sharing by using 5G technology that is not explained in primary data. Overall, all researches chose as part of secondary data identified the significance of technology and advancement for businesses, particularly the textile segment. Research on the textile sector of Bangladesh provides information similar to Pakistani background. This helped provide realistic information about issues of traditional supply chain and a need for digitalization.

7. Conclusion

This chapter concludes the study based on overall research and findings from textile sectors and provides managerial implications to the textile managers and future directions to the research those who want to conduct researchs on similar areas in future.

The researcher was successful in achieving its objective to and the research questions were successfully answered following the basis of evidence-based facts. The gaps that exist between the traditional and modern and innovative supply chain model are identified efficiently and effectively. The research includes the literature review of various scholarly articles for assessing the gap between traditional and modern or innovative supply chain models. The context also identifies that in which way the inbound logistics and also the outbound logistics contribute to uplifting the supply chain conditions of the textile industry. The context pays high attention to the improvement and enhancement that are possible in the supply chain.

For comparing the traditional supply chain model and modern and innovative supply chain model and technology latest scholarly articles were analyzed. The researcher also indicted structured interviews in order to collect the opinion of the textile industry and supply chain experts. The deficiencies in the traditional supply chain model were identified and the challenges that the textile industry was facing due to the implementation of outdated methods of production are stated in the context. The research not only answered the research question but also presented the sustainable solution to the challenges being faced and a model is presented to be followed. It is stated in the context that the implementation of modern and innovative textile technology help in achieving the supply chain goals and objectives.

The finding and the result of the research contain final facts according to the interview conducted by the researchers. The context is helpful not only for educational purposes but also can be utilized by the technical facility in order to resolve and eliminate textile industry issues and challenges. The research paper provided deep and useful

insights regarding the mobility that occurred through digitalization in the textile industry and modern supply chain management.

7.1 Managerial Implication

The managers of the supply chain are liable to overlook and maintain the company's overall supply chain. The supply chain manager has a crucial role in the organization as it is essential for maintaining the supply chain so the manager looks after the process of the supply chain. The supply chain manager must observe the whole process of production of the product and track for any changes required. The issues being faced by the supply chain of the organization, company, and firm are identified by the supply chain management and the supply chain manager should take required and essential steps to eliminate them.

All the purchasing of the material required for the production to the finishing process of the product is conducted in the provision of the supply chain manager. In this case, the supply chain manager is required to take strategized steps to make the production process easy and sustainable for the stakeholder. The supply chain manager should conclude the required and qualifying management skills in order to perform his duty properly efficiently and effectively. In the case of digitalization, the supply chain manager should adopt the modern and innovative technology that is required to enhance the supply chain process. The manager should provide the required and essential training and understanding of modern and innovative textile supply chain technology.

The manager of the textile supply chain should be able to track and eliminate the issues being faced by the workforce in order to achieve supply chain objectives and goals. The manager of the textile supply chain should be able to observe the technical improvement and enhancements that are required in order to uplift the production and quality of the textile products. The whole supply chain of the organization should be conduction according to eth modern patterns as the modern method uplift the quality and production of the product.

7.2 Future Direction

Future research on the is presented and well-elaborated topic should be done in the direction that how the modern and innovative textile technology will be implemented. The

problems that are being faced in the proper and accurate implementation of the modern and innovative tetchily technology and supply chain models. The research on the challenges faced in the implementation and adaptation of modern technology will help in identifying the modern era challenges. It is essential to track the leading issues being faced by the textile industry in the adaptation of modern technology and their elimination is also required. The research on the identification will make possible the elimination of the modern challenges and ensure the adaptation of effective and efficient textile technology including 4.0 technology. The researches in regards in regards of digitalization issues of the textile industry will also enhance the process of digitalization globally.

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Appendix

Interview Questions

1. What is the traditional mode of inbound and outbound supply chain? If there is anything which should be changed?

2. Which are the challenges in supply chain that can be solved with digitalization?

3. What is the role of middleman in traditional inbound supply chain?

4. Do you think there is any loss for farmer in the traditional inbound supply chain?

5. If there is any loss for the company in inbound supply chain?

6. How companies, farmers and suppliers collaborate in terms of payment?

7. Do you think traditional supply chain or role of middleman causes loss?

8. What are the challenges for textile companies and farmers in inbound logistics in traditional supply chain?

9. What can be the role of digitalization in supply chain, both inbound and outbound?

10. How digitalization is being followed by supply chain functions of Textile Sector of Pakistan?

Interview 1

Interviewer: Hello Sir.

Interviewee: Hi.

Interviewer: Sir, my name is **Ammad.** I have to conduct interview for dissertation. Do you have spare time to answer some questions linked to supply chain management and issues in the textile sector of Pakistan?

Interviewee: Sure, why not.

What is the traditional mode of inbound and outbound supply chain? If there is anything which should be changed?

There are problems in the traditional mode of outbound and inbound supply chain. Effective supply chain in the textile segment needs to access basic raw materials, a mechanism to make certain cost-effective supplying to the segment, and efficient production. There is a need to use new technology issues to make goods to fulfill the demands of extremely demanding consumers.

Which are the challenges in the supply chain that can be solved with digitalization?

The issues in the supply chain that can be solved with digitalization are linked to over process. I think we cannot use digitalization for one or specific process. There is a need to consider a bigger view. It is important to connect all parts of supply chain management like farmers, middlemen, companies, customers, and so on. This can be done by digitalization.

What is the role of the middleman in the traditional inbound supply chain?

I know there is a major role of a middleman who is an intermediary in the transaction and distribution chain who helps in the communications that include parties like farmers and companies. Middleman is specialized in doing critical activities included in the buying and sale of goods. Middleman is one who maintains the flow of critical activities from farmers to end-users.

Do you think there is any loss for farmer in the traditional inbound supply chain?

There are losses for farmers in the traditional supply chain, I mean there is no training of farmers to make better quality products, use technology, play a role in modern supply chain management, and many others. There is a need to give special attention to women in the Pakistani textile segment. Farmers are not getting a fair price, unfortunately.

If there is any loss for the company in inbound supply chain?

I think most of the companies are aware of the losses and they are giving more attention to the outbound supply chain. I believe there is a loss of companies more in terms of the inbound supply chain. Most of the companies I work with have a lack of control and no visibility in the inbound supply chain. This is more problematic and leads to losses.

How companies, farmers and suppliers collaborate in terms of payment?

The mode of payment includes a middleman in the supply chain. There is an integrated process of production in which the supplier provides raw goods and half-finished goods to the producer or factories. The finished goods are sent to retailers and wholesalers. The processor mode of payment in my view is the main segment that should be overlooked.

Do you think traditional supply chain or role of middleman causes loss?

Yes, the traditional supply chain has a major role of middleman as I stated before, the middleman offers quick funding for raw materials and machines to the farmer. He can also support, I mean, give finances to farmers in time of need and this way manipulate farmers. The farmer is not in a good financial position to demand higher prices mostly. There are agents who sell harvests to companies and earn better than farmers.

What are the challenges for textile companies and farmers in inbound logistics in the traditional supply chain?

Umm, challenges for textile companies and farmers are many. In both outbound and inbound logistics, there are issues linked to the reduction of transportation expenses, improvement of business processes, customer service, and so on. There is a challenge for both farmers and companies in my view, that is, less visibility of the supply chain.

What can be the role of digitalization in the supply chain, both inbound and outbound?

There can be a role of digitalization. It can reduce barriers and issues in the supply chain like less visibility and improve business processes from the beginning till products are supplied to end customers. Technology can allow the supply chain to be more efficient and faster. There can be real-time checking of resources, stocks, and finances. The traceability of products can be easier.

How digitalization is being followed by supply chain functions of the Textile Sector of Pakistan?

Yes, for the textile sector of Pakistan there is a need for digitalization because it is a growing business in the region. There are the highest potentials if digitalization is used. Companies can use digitalization in several ways. There can be the use of digitalization in production, quality monitoring, monitoring, and control, and so on.

Interviewer: Thank you so much sir for your time.

Interview 2

Interviewer: Hello Sir.

Interviewee: Hi.

Interviewer: Sir, my name is **Ammad**. I have to conduct interview for dissertation. Do you have spare time to answer some questions linked to supply chain management and issues in the textile sector of Pakistan?

Interviewee: Sure.

What is the traditional mode of inbound and outbound supply chain? If there is anything which should be changed?

I think there are several problems in the traditional model of the supply chain, both outbound and inbound. There are no coordinated techniques to execute and plan steps in the overall supply chain network used to attain raw materials from vendors, changing them into goods, and offering goods to customers. There is a lack of information sharing as the main issue which leads to additional problems like handling complaints. The traditional supply chain, in my view, is not as per the aim of managing the supply chain like there is no connectivity of major components to meet supply and demand in an effective manner.

What is the role of the middleman in the traditional inbound supply chain?

In the traditional inbound supply chain, the middle man is the informal term, mostly we say him an intermediary in the process chain and transaction. The intermediary or as you are saying him, middleman, usually has a commission or fee. There is a view that we should cost middleman because of increased commissions and costs. I think this is true because middlemen earn more finances than the purchase price. I see intermediates flourishing at the expense of farmers and they have large companies.

What are the challenges for textile companies and farmers in inbound/outbound logistics in the traditional supply chain?

In the traditional supply chain, there is a need to improve visibility. There is no relation of companies with farmers directly that is a challenge. There are disturbances, lack of notification, and alerts in emergency cases. There are issues linked to the flow of work, lack of planning, and many others. There are challenges linked to cash flow. Higher costs for transportation are a challenge.

Do you think there is any loss for farmer in the traditional inbound supply chain?

There is a loss of farmer, look, when there is a middle man in the traditional mode of payment and supplies, there is no earning for the farmer as per the quality of products supplied. There is a lack of faithfulness in the middleman which I think leads to issues like poor quality from farmers as they are not getting enough finances. The condition of a farmer is not good.

If there is any loss for the company in inbound supply chain?

When a farmer suffers, there is some impact on companies as well. Because there is a lack of integration, both farmers and companies suffer. For companies, there is a loss in terms of poor after-sale service. Moreover, there is a failure to restock products in time. There are problems because the farmer is hardly connected with the company.

How companies, farmers and suppliers collaborate in terms of payment?

There is the traditional mode of payment wherein companies need middlemen to connect with farmers and pay to them. The farmer, in most situations, depends on a middleman to sell goods. Intermediaries are ones who make money in the process after textile companies. They sell products more than their purchase price.

Do you think traditional supply chain or role of middleman causes loss?

As I am saying that middle man causes loss for farmers. They are earning better than farmers because they have access to better companies and factories to sell cotton. Farmers are at a loss because they have limited finance. I have seen that farmers, to fulfill any urgent need for raw goods, get finances from middlemen before supplying the product or them get finances in form of credit which is a huge loss.

What can be the role of digitalization in the supply chain, both inbound and outbound?

Digitalization can play a great role in the supply chain both inbound and outbound. There can be the improvement of many variables with digitalization like warehouse inventory, processing orders, attaining goods, and packing goods, transportation of goods to customers, scheduling drivers and staff for the warehouse, and working with third parties. There can be the use of digitalization to reduce costs by working with third-party logistics and minting them digitally for example. There can be the development of planned links with suppliers with the use of digitalization. There can be the use of transport management system for better and reduced prices.

Which are the challenges in the supply chain that can be solved with digitalization?

Digitalization can solve issues. As I mentioned to you there are problems finding transportation that is cost-effective. I suggest the use of third-party sources for logistics and digital monitoring make sure monitoring of the process. There can be the management of inventories with digitalization. Farmers can become part of earning process with the use of digital connections. Supply chain risks like delays and poor quality can be solved with digitalization. Digitalization will enhance processes and products. There will be fewer operating issues with the help of digitalization.

How digitalization is being followed by supply chain functions of the Textile Sector of Pakistan?

Digitalization can be followed in the supply chain functions of the textile segment by improving visibility. We can adopt ways of companies that are already using IT in different processes.

Interviewer: Thank you so much sir for your time.

Interview 3

Interviewer: Hello Sir.

Interviewee: Hi.

Interviewer: Sir, my name is **Ammad**. I have to conduct interview for dissertation. Do you have spare time to answer some questions linked to supply chain management and issues in the textile sector of Pakistan?

Interviewee: yes.

What is the traditional mode of inbound and outbound supply chain? If there is anything which should be changed?

The effective management of the supply chain is the major issue. We need to know the definition of the supply chain to know issues. I think any mode of the supply chain, no matter traditional or modern is challenging if the demand and supply are not as per needs. We have issues linked to communication and information sharing in the traditional way where there is no use of technology and digitalization. There are problems linked to increased cost for transportation, lack of fair pay for farmers, poor quality products for companies, and many others. The list is unlimited.

Which are the challenges in the supply chain that can be solved with digitalization?

There are many challenges in the supply chain like higher transportation costs, dealing with people, payment issues and so on that can solve with digitalization. For example, the mode of payment can be better when digitalized. The estimate for demand and supply will be better when technology is used.

Do you think there is any loss for farmer in the traditional inbound supply chain?

There is no loss of farmers as such. I think farmers have become smarter. They are not backward despite the way the supply chain is traditional. Farmers know that they are exploited and some also sell harvests at a good price. There can be fluctuations in demands that can be a loss for farmers. Moreover, I think farmers are also in link with companies directly. So there are fewer losses or issues for farmers.

If there is any loss for the company in inbound supply chain?

There are losses for companies in the inbound supply chain. This is because companies are dependent on third parties or intermediaries mostly. Intermediaries usually have poor after-sale performance and they do not accommodate firms in extreme needs. There is no control of companies in the visibility of supply chains. I tell you that several companies utilize buying conditions that make suppliers liable for shipments. This is the critical step. There might be issues in delivery leading to losses. There is much inefficiency because of a lack of control.

How companies, farmers and suppliers collaborate in terms of payment?

I think we all are familiar with the traditional mode of payment. There is a cash mode of payment. The farmers sell products to third parties; these parties sell products at a greater cost to companies. Companies make products from raw material supplied from farmers or third parties. These goods are furnished and sold to customers at a suitable price. I think this mode needs to be changed. There should be the use of technology like other parts of the world to increase convenience.

What is the role of the middleman in the traditional inbound supply chain?

The role of the middleman is that of an intermediary in the supply chain who makes possible the interaction among involved parties. The middle man can play a role that can be positive or negative. The middleman is specialized in performance-critical activities like the sale and purchase of goods, the flow of goods from farmers to the ultimate users. I tell you an interesting thing, that is, the middleman usually makes money by selling products more than the purchase price.

Do you think traditional supply chain or role of middleman causes loss?

The traditional supply chain offers funds in a quick way for fertilizers and seeds as I heard from farmers. They are the agents that can help in the weighing, grading, selling, and packing of the harvest to companies. But, the middleman cause losses for farmers in my view. I think a farmer has a limited and quite distorted view of the business. There is the no bigger aim. The middleman increases the product costs that are seen in the selling

expenses. There is also a practice of black marketing. It is the artificial demand for goods. This causes higher prices. This way, both farmers and customers suffer.

What are the challenges for textile companies and farmers in inbound logistics in the traditional supply chain?

There are challenges for the textile segment lime less visibility of supply chain, higher costs for transportation, driver shortage, governmental regulations, and others. But I tell you about the main issues that are risks in the supply chain. There is a need to deal with higher business uncertainty. I have learned that logistics are stressful. You will be responsible for many things that not in your control. We have to deal with low and shady people.

What can be the role of digitalization in the supply chain, both inbound and outbound?

Digitalization can bring down issues, and make the supply chain more integrated. Technology has made way to make supplies more efficient and faster.

How digitalization is being followed by supply chain functions of the Textile Sector of Pakistan?

In the textile segment of Pakistan, there is much need to follow digitalization because it is the provider of the highest employment after agriculture. There can be the adoption of IT and digitalization in production, quality monitoring, and transportation. There can be the use of ERP to increase the efficiency and quality of production.

Interviewer: Thank you so much sir for your time.

Interview 4

Interviewer: Hello Sir.

Interviewee: Hi.

Interviewer: Sir, my name is **Ammad.** I have to conduct interview for dissertation. Do you have spare time to answer some questions linked to supply chain management and issues in the textile sector of Pakistan?

Interviewee: Sure.

What is the traditional mode of inbound and outbound supply chain? If there is anything which should be changed?

In the traditional model of the supply chain, there are issues because of outdated systems and technology. There is a challenge to coordinate activities to execute and plan all steps in the overall network used to offer goods to customers. There is no link among components so that market demand is fulfilled efficiently.

Which are the challenges in the supply chain that can be solved with digitalization?

There are challenges in the management of the supply chain that can be reduced with digitalization. This is because digitalization can be used to make better plans and partnerships; the ultimate process is conducted by companies, farmers, and suppliers. Improved digital transformation can reduce costs of moving goods; provide better speed and quality services. Moreover, there will be fewer operating issues.

Do you think there is any loss for farmer in the traditional inbound supply chain?

The loss of farmers in the traditional inbound supply chain is massive. There is a role of a middleman in the selling of harvests that are purchased from farmers at a lower price. Moreover, farmers do not have a mechanism to see the actual need of products, they are not able to sell products at are actual market price. There are issues like lack of training and updated technology which is a loss for farmers.

If there is any loss for the company in inbound supply chain?

In the traditional inbound supply chain, the companies which are not using technology and digitalization are at loss. We see that the world is progressing, customers have become demanding, and the supply chain should be advanced as well. In Pakistan, we have a traditional way of supply chain except for some companies and segments. There is no concept of using technology to make bigger payments for example. This makes a loss for companies to find new sources for supply of goods, relate with farmers directly, and lessen costs of transportation, and so on.

How companies, farmers and suppliers collaborate in terms of payment?

The mode of payment as I have stated before is not based on technology. Companies are not using technology to purchase products from farmers directly. There is a dependence on their party sources which may lead to issues in terms of profits and payments.

Farmers are not using technology for payments and there is a lack of trust in online financial transactions.

What is the role of the middleman in the traditional inbound supply chain?

The role of the middleman is to act as a bridge between farmers and companies. Companies have links with farmers in some cases, but most farmers are exploited by middlemen. We see that a major criticism of the middleman is that he is making more commissions and finances. But that is not true in all situations. There are intermediaries that make business processes simple and convenient.

Do you think traditional supply chain or role of middleman causes loss?

The traditional supply chain I tell you is a process wherein both farmers and companies are not aware of each process. This may lead to issues. The traditional supply chain causes issues for farmers because farmers do not know how products are sold to companies. Moreover, companies do not have control over the cost of products and supplies. There is no positive link among farmers and companies. This lack of collaboration is the basic problem that needs to be solved. I think companies only care for end-users and outbound supply. There should be more focus on the improvement of inbound supplies or links with farmers.

What are the challenges for textile companies and farmers in inbound logistics in the traditional supply chain?

There are challenges for the textile segment in terms of the inbound and outbound supply chain. I think challenges for inbound supplies are more. This is because companies give more attention to customers. There is a better link of companies with their customers as compared to the source. Customers are updated about any changes or betterment in products. But companies have little collaboration with farmers but intermediaries. This lessens the visibility and leads to challenges for textile companies. The logistic costs and performance are also an issue.

What can be the role of digitalization in the supply chain, both inbound and outbound?

There are many variables included in the successful digitalization of both inbound and outbound logistics. The outbound supplies can be better when technology is used because of improvement in the processing of orders, inventory management, scheduling, working with third parties, and so on. For companies who desire to lessen costs of transportation, the role of digitalization can streamline processes. This can improve inbound logistics. There can be the development of strategic links with suppliers. Companies can develop vendor inbound compliance standards. For outbound logistics, there can be the use of digitalization to know customer demands and deal with them efficiently.

How digitalization is being followed by supply chain functions of the Textile Sector of Pakistan?

The textile segment of Pakistan is already using technology in supply chain functions. Some companies are using digital mediums for better control and integration of processes. However, there is no efficient production and planning inventory system. Industrial planning is completed by illiterate people. There is less focus on SCM practically. This is the major reason the Pakistani textile segment is losing its charm in the competitive business internationally.

Interviewer: Thank you so much sir for your time.

Interview 5

Interviewer: Hello Sir.

Interviewee: Hi.

Interviewer: Sir, my name is **Ammad.** I have to conduct interview for dissertation. Do you have spare time to answer some questions linked to supply chain management and issues in the textile sector of Pakistan?

Interviewee: ok.

What is the traditional mode of inbound and outbound supply chain? If there is anything which should be changed?

I have seen several problems because of the traditional model of the supply chain. Farmers tend to suffer because of a lack of communication among partners. There is no way to monitor all processes of the supply chain which creates issues. Information is the lifeblood of any supply chain. As operations have become more advanced and globalized, there is a need for better information-sharing mechanisms as compared to the traditional model of the supply chain.

Which are the challenges in the supply chain that can be solved with digitalization?

There are major challenges in the supply chain because of transparency as I have mentioned before, which can be solved with the help of digitalization. Moreover, the relationship among suppliers and companies can be improved because of digitalization. Operating issues can be solved with digitalization.

Do you think there is any loss for farmer in the traditional inbound supply chain?

The loss of the farmer is that he cannot find better customers. I have seen that farmers keep on working with customers that are poor in terms of payment. In Pakistan, it is not easier to get paid because of delays and postponements on the side of buyers, especially in the agriculture and textile segments. Farmers are not paid on a fair basis.

If there is any loss for the company in inbound supply chain?

I think there are hardly any losses for companies. This is because companies have strict policies when it comes to the supply of raw products for production. Moreover, companies maintain an extremely positive relationship with their customers, so they earn a good amount. Companies can choose from a range of middlemen or intermediaries, so they have lower chances of losses.

How companies, farmers and suppliers collaborate in terms of payment?

The mode of payment is by cash. There is an important role of the banking system in the payment of dues or costs. Farmers have limited access to banks so they are paid directly. There is minimal use of online systems for payments. However, companies can use online modes of payment for intermediaries.

What is the role of the middleman in the traditional inbound supply chain?

A middleman is a person who has a major role in the transaction or distribution. I have seen that there are reliable middlemen and frauds as well. In the traditional inbound supply chain, the middle man is the casual term, mostly we say him an intermediary in the process chain and transaction. The intermediary has a commission or fee. I think this middleman earns more finances than the purchase price. I have seen intermediates flourishing at the cost of farmers.

Do you think traditional supply chain or role of middleman causes loss?

Middleman cause losses for farmers. This is because farmers are not aware of actual market conditions. They sell harvest at lesser price and middleman earns most from it. the companies have a range of intermediaries so they are not affected by the blackmailing. Moreover, farmers have limited finances that make them vulnerable to sell products at lower prices to meet immediate needs.

What are the challenges for textile companies and farmers in inbound/outbound logistics in the traditional supply chain?

There are challenges in the textile companies and farmers in the traditional supply chain. Companies and farmers are not able to form collaborations that increase the chances of earning for a middleman. There are issues like lack of alerts in emergency cases as well.

The transportation costs are not monitored by companies because of the traditional mode of supply. There are problems linked to cash flows as well.

What can be the role of digitalization in the supply chain, both inbound and outbound?

Integration of digitalization can improve the supply chain. In a system having end-to-end transparency, every member in the network of supply has access to information regarding every process. Digitalized processes can improve and offer practical insights in the chain of supply, offer people more control over the chain. Digitalization lessens issues linked to the supply chain. Digitalization can make the supply chain more transparent.

How digitalization is being followed by supply chain functions of the Textile Sector of Pakistan?

In Pakistan, there is no concept of using digitalization in the supply chain functions of the textile segment. There is a lack of literate staff to make industrial planning; however, the segment is facing real-time issues because of a lack of advancement like higher transportation costs.

Interviewer: Thank you so much sir for your time.