.

Majors: SCM

No: S13

Impact of critical supply chain factors on productivity performance: Evidence from garments industry of Pakistan.

By:

Muhammad Hafeez Ullah

Enrollment 01-222212-013

Supervisor:

Asima Saleem

Department of Business Studies

Bahria University Islamabad

Spring-2023

Acknowledgment

I sincerely express my gratitude to ALLAH, whether you believe it or not, for the unwavering love He has shown me throughout my life and the strength He has bestowed upon me to navigate any challenges that may arise. I would like to extend my heartfelt thanks to my supervisor, Madam Asima Saleem, who has consistently provided guidance and displayed a supportive attitude throughout this endeavor. Her expert advice, encouraging demeanor, and unwavering support enabled me to complete my task on time. I also want to express my gratitude to my loved ones for their love and support during both the promising and challenging times of my life. My family has been the driving force behind my academic achievements and overall success. I owe a great debt of appreciation to my parents for their unwavering support and for serving as my inspiration throughout my life. Furthermore, I would like to express my gratitude to my teachers from my alma mater who have been helpful to me during my academic journey.

Abstract

Supply chain management holds a vital and crucial role in the garments industry, garnering considerable attention from both industry professionals and researchers, especially in relation to the challenges faced in the 'Last Mile' of e-commerce. This study aimed to explore the influence of critical supply chain factors on productivity performance in the Pakistani garments industry. The specific research objectives were to identify the key supply chain practices implemented by focused garments manufacturers, assess the impact of these practices on productivity performance, and examine the challenges encountered by companies in implementing effective supply chain practices. The research was guided by the Theory of Constraints, employing a descriptive research design to address the research questions and collect relevant data. The participants of the study were garments industry manufacturers in Pakistan, and a random sampling technique was utilized, resulting in a sample size of 152 as determined by Morgan's table. A modified questionnaire with closed-ended questions was administered online for data collection, and the gathered information was entered into a spreadsheet and analyzed using SPSS. The findings of the study have implications for researchers, supply chain practitioners, and various stakeholders. Due to constraints, such as limited access to certain employees and the unavailability of in-person meetings, an online questionnaire was used. The independent variables in the study were supply chain practices, including Information Sharing, Inventory Management, Logistics Management, and Capacity Planning, while the dependent variable was Productivity Performance. The study confirmed a positive and significant impact of the independent variables on the dependent variable.

Keywords

Garments, Information and Communication Technology integration, Inventory Management, Logistics Practices, Productivity Performance and Capacity Planning.

Contents

Chapter 1

Introduction

1.1 Background of Study

The creation of a supply chain network for manufacturing businesses is becoming increasingly important. The production network implies common coordination among manufacturers and specialist cooperatives so that remotely and internally available aptitude may be utilized across the whole inventory network (Liu et al., 2020). Garments companies have realized that to increase efficiency, they must expand their engagement with other inventory network partners (Gimenz and Ventura, 2019). This study investigated the impact on company yield at various levels of inventory network features, such as within-item and interaction inclusion (Zhao et al., 2018). Our findings demonstrate a beneficial influence on the efficient execution of inside and cycle intermingling. Financial growth is beneficial for domestic, item, and cycle assembly (Stratman and Roth, 2021). Furthermore, the findings indicate that technique assembly is now more effective in promoting financial development in the event of increased demand vulnerability. Given the unpredictability of interest, organizations are recommended to strengthen cycle arrangements to aid the seriousness of the production network (Cox et al. 2020).

The detailed presentation of the business is critical to the Inventory network (Huo et al., 2019). Organizations that collaborate and interact fully with their vendors and purchasers will thrive. The production network refers to providers' joint co-activity with their suppliers and clients to increase inward and outer capacity in the inventory network (Flynn et al. 2020). Inventory network partners collaborate to support competency and lead to increased seriousness due to shopper interest (Kumar et al., 2017). Inventory networks are also seen as a vital force in organizations' favor (Devaraj et al. 2021). It has been demonstrated that the organization's working and monetary productivity have significantly enhanced (Mohammadi et al., 2019). Most operations, including the acquisition of unprocessed components, quality management, and the transportation of things, are no longer performed within the limits of the organization, and have gone to the level of the inventory network. Organizations have recognized their inability to act freely and have sought the assistance and involvement of their merchants and customers, as well as various delegates of their production network (Bavarian et al., 2017). Specialists identified the benefits of a production network and coordinated efforts among production network members (Flynn et al., 2010). One of

the key determinants of company success is the production network (Van der Vaart and van Donk, 2018).

The production network can have an immediate and indirect influence on hierarchical productivity. Inspiring engagement in inventory network activities contributes to increased creation (Kim, 2009; Kumar et al., 2017). Production networks can eventually allow organizations to identify and remove operations that have little value to the general inventory network. This will work on the inventory of products, reduce production costs, and contribute to the further developed progression of interest and improved consumer loyalty (Rosen Zweig et al., 2019). The relationship between inventory network and company performance, as well as the relevant global and insurance perspectives, has several perspectives (Huo et al., 2020). The influence of various estimations on outcomes is dependent on protected standards (Huo and Zhao, 2022). Several studies, for example, have found that the effect of propagation on working proficiency is stronger than the effect of outer joining (Li, 2017). The potential viewpoint is concerned with underlying considerations, as well as climatic conditions or commercial tactics. This viewpoint shows that the relationship between inventory network and business achievement can influence these criteria (Wong et al., 2018).

In any event, the effects of the storage network on the best elements are unconnected in the study (Zhao et al., 2013). The lack of respect for mediation limits during the crisis cycle (Ketokivi, 2017) may be the cause of this difference. As a result of the great majority of these unpredictability considerations, specialized shakiness (Boonitt 2019). It is possible to articulate the demand for precariousness (Iyer et al., 2019). IT skills (Li, 2020) and item style and complexity can also influence production network achievements connection).

1.2 Research Gape Analysis

Among the changing points explored by specialists in the recent past have been factors influencing supply chain productivity performance (Dubey et al., 2021). Various researcher in Pakistan have also conducted preliminary research to study various aspects of the garments manufacturing supply chain (Munir et al., 2020). Nevertheless, the extent of research conducted in Pakistan to explore the impact of supply chain practices on the efficient productivity performance of the country's garments manufacturing sector has been considerably limited. In a non-industrial nation like Pakistan, only a handful of scholars have made efforts to comprehend the connection between supply chain practices and effective implementation, highlighting a notable gap in research (Iqbal

et al., 2019). Hence, this study has considered factors (logistics management, inventory management, capacity planning and integration) as independent variables to investigate their relationship with supply chain in garments industry of Pakistan.

1.3 Problem Statement

Over the past 2 decades, the Pakistan garments industry has experienced major changes, along with a downward trend in productivity growth, a decrease in jobs, and a rise in competitiveness with foreign goods (Shamas 2016). A move up of competition has intensified with garments imports, with the phasing out of defensive restrictions further threatens this sector's strategic capabilities (Yasmin, 2018).

To reinventory an international strategic advantage in Pakistan's garments enterprises, the sector should improve its IT capital, just so the requirements of its commercial suppliers in commodities can first be rapidly established (Lubna & Jahangir 2017). Hands with certain branding requirement knowledge will then easily provide the goods with the corporate plan by retail clients by their framework-driven multinational development and manufacturing infrastructure. This growth is expected in most sectors working in an international economy. This evolution happened a few times (Abdul Jabar 2015).

A market-based structure that helps Pakistan's garments industries to engage on economic value with lower-cost rivals in developing regions would need to incorporate the human resources of the business successfully into the main functional fields of marketing, IT, development and Supply Chain Management (Meera & Karim 2019) Planning for a method of this type would require incorporation of the corporate framework as well as experience, skills and creative technologies, marketing, and logistical alignment. Via the involvement of the proposed report, the probability of this leading integration has been carefully investigated.

The research centered on the contributions of the Supply Chain and productivity performance in organizing and improving the integration of these services. The study investigated the effects of Pakistani garments resource growth and the successful penetration of the supply chain into the entire market, goods, and services (Tara and Suleiman 2016).

Consequently, the issue examined in this research was the preparation and implementation productivity of the incorporation of the capital into the garments industry's marketing, information

systems, and production and delivery units, allowing the demanded garments to enter the market quickly (Sobia 2019). Another challenge examined was the effect on the convergence of certain individual business units in the supply chain during their activities to improve operating efficiency and overall productivity (Babar & Atta 2016).

The study was based on one garment sector as a sample because of the availability of potential participants. The study was based on this sample because it was the only readily available path to address the potentially high impact of supply chain integration on productivity performance in the garments sector (Minhas 2016).

1.4 Research Questions

1) What is the impact of logistics management on productivity performance of Pakistan's garments industry?
2) What is the impact of inventory management on productivity performance of Pakistan's garments industry?
3) What is the impact of capacity planning on productivity performance of Pakistan's garments industry?
4) What is the impact of Information sharing on productivity performance of Pakistan's garments industry?

1.5 Research Objectives

1) To find the impact of logistics management on productivity performance of Pakistan's garments industry
2) To find the impact of inventory management on productivity performance of Pakistan's garments industry
3) To find the impact of capacity planning on productivity performance of Pakistan's garments industry
4) To find the impact of information sharing on productivity performance of Pakistan's garments industry

1.6 Significance of the Research

This study investigates the influence of the convergence of the supply chain on Pakistan's productivity performance in garments sector of Pakistan's. The present research has considerable implications in both philosophy and fact. The study adopts an urgent approach for review of the

partial mediator of the interconnection (logistics management, inventory management, capacity planning and integration) to productivity performance. This research uses a worldwide sample from the garments industry to contribute to the supply chain and productivity performance. Second, this investigation explores the clear connection between the incorporation of the supply chain and the working. It also explores the direct link between supply chain variables and productivity performance. To identify the systemic dimensions, this research shows which of the two (physical or process) have a greater effect on the integration of the supply chain in productivity performance.

For managers and corporate decision making, the outcomes of this analysis are important because it gives insight into strategies for the application of supply chain. Therefore, control of the company and processes is not visible (supply chain). This research supports a hybrid supply chain approach to improving garments industry operating performance.

1.6.1 Theoretical Significance
This study implicitly strengthens the argument that factors such as logistics management, inventory management, capacity planning and integration tend to lay a foundation for improved productivity performance. Furthermore, this investigation will demonstrate its significance in assisting examination and supply chain practices the board understudies in broadening their understanding of the literature.

1.6.2 Practical Significance
The current study will most likely construct operational aid for factors (information sharing, logistics management, inventory management and capacity planning) inside a hierarchical structure, which may also be a unique source of advantage in the long run. Because the current study's aim is also to research the fundamental technique for factors, the outcome of the current review may advocate a change towards such hierarchical plans that obstruct the growth of further improved efficiency execution. Furthermore, the present study thus strengthens the argument that various factors are vital aspects that are extremely important to unleash productivity performance in the garments industry of Pakistan. This study will significantly assist stakeholders in the garments industry of twin cities of Pakistan in understanding the relationship between factors (logistics management, inventory management, capacity planning and integration) and productivity performance.

1.7 Organization of the Study

The focus of the review articles is on Pakistan's garment manufacturing industry, which holds significant importance as the country's key assembly sector. Pakistan ranks as the ninth largest exporter of garments-related goods in Asia and garments contribute 8.5% to Pakistan's gross domestic output. This sector also plays a crucial role in employment, employing approximately 45% of the country's total workforce and accounting for 38% of production. Additionally, Pakistan stands as the fourth largest cotton producer in Asia, with the third highest spinning capacity after China and India. Despite being a prominent cotton producer globally, Pakistan faces challenges in exporting value-added cotton products due to a lack of training facilities that can enhance skills and develop competent leaders with comprehensive knowledge of processes and active involvement in modern innovations. Garments manufacturing is a rapidly expanding sub-sector within the overall garments manufacturing value chain in Pakistan. It absorbs a significant portion of the labor force in the country's vast textile sector and has been a major contributor, accounting for 67% of Pakistan's exports, thereby driving high growth rates.

Chapter 2

Literature Review

2.1 Introduction

The improvement of supply chain management practices has facilitated the ability of all businesses to effectively address customer challenges and improve their performance (Folinas et al., 2018). The advantages of supply chain management encompass various aspects such as enhanced customer satisfaction, increased sales, improved product manufacturing, and a larger market share (Habib, 2019). The implementation of supply chain management initiatives aims to reduce costs, expand market share, and establish a solid foundation for organizations (Lockamy, 2017). The objective of the shop network is to provide some advantage to the end purchaser in terms of products and administration. Aside from monetary and data flows, there is a significant physical flow between inventory network members that includes raw components, work-in-process inventory, completed goods, and returned items (Doman, 2019). Dealing with these streams efficiently and productively necessitates the use of a framework to properly recognize, analyze, and organize the partnerships among the chemicals. Regardless, establishing production network reconciliation is not a straightforward task. As the number of people and cycles increases, this becomes increasingly difficult for a large gathering (Boman, 2020).

SCM functions were seen as fundamental for level turn of events. The SCM decision affects the market execution of the course of action. Some of these initiatives, such as lean inventory organization practice, supplier improvement, green inventory organization, and goods delivery, move quickly (Monga, 2016). According to Li et al. (2019), outstanding SC executives are predicted to gain an advantage. Pakistan's textile sector should adapt to new global market challenges and create both productive and responsive inventorypiling chains to suit the current economic climate (Hashim, 2019). Many forward-thinking garments organizations have quickly adjusted to these challenges and introduced cutting-edge machines, created, and obtained data advances that can consistently coordinate with global clients and profit from the change (Granger, 2018). In any event, the rate of growth is nothing near good, and it is necessary to examine the firm to recognize the exhibition bounds that would decide the future success and ensure a key piece of the pie for Pakistan's items of garments (Siddique, 2020).

Globalization and the progress of innovation have resulted in more competitive market conditions. As a result, organizations have continuously changed and carried out activities that increase their market intensity (Chieh, H.C., 2020). One such sector is inventory network executives (SCM). Controlling the Inventory network legally has been a vital component of achieving similar benefits (CA). Thus, competition among organizations has changed over the years to supply chains. To that end, organizations have attempted to blend their homegrown jobs with their SC partners and keep on focusing on feasible benefit development (Costa, C., and Rubio, S., 2020). SCM has evolved to increase corporate responsibility. The implementation of effective supply chain activities has played a crucial role in facilitating the progress of smaller organizations, enabling them to better cater to the demands of their clients (Sundaram, D., 2018). Supply chain management offers a range of advantages, including enhanced customer loyalty, increased sales volume, improved product effectiveness, and a larger market share. The adoption of supply chain management practices aims to minimize expenses, enhance efficiency, and identify areas of strength within a company (Cusmano, L., 2018).

SCM exercises were seen as an indicator of the association's success. The technique's market results are influenced by the SCM practices chosen. Some of these strategies, for example, lean inventory network practice, provider development, the green inventory network, and the opposite planned operations, change quickly (Subramanian, N., and Gunasekaran, A., 2015). SCM is an organization of inventory network organizations dedicated to providing tools and expertise to compelling management. The organization consists of partners who have participated, either directly or indirectly, in the manufacturing and delivery of labor and goods to clients, encompassing both upstream and downstream activities. The primary objectives of supply chain management (SCM) are to enhance productivity, reduce inventory costs and lead times, expand market share, and engage in long-term strategic planning for the supply chain (Connelly, B.L., 2021). SCM practices refer to the methodologies employed by organizations to streamline their processes, also known as current practices or approaches used to effectively focus on the market and reinforce organizational operations (Li et al., 2016). Implementing SCM strategies may require adjustments to the organizational structure by fostering collaboration and integration of the internal capabilities of partner organizations.

2.2 Garments Industry of Pakistan

Pakistan's textile industry stands as the country's primary industrial sector and holds the eighth position globally in terms of garment production in Asia. This sector contributes 8.5% to Pakistan's GDP and employs nearly 45% of the country's population, including 38% of factory workers. As the world's fourth-largest cotton producer, Pakistan possesses the third-highest spinning capacity, accounting for 5% of the global spinning capacity, following China and India. The country boasts 1,221 ginning machines, 442 spinning machines, 124 large spinning units, and 425 small textile units. The strength of Pakistan's textile sector directly stems from its freedom and significance in the country's development landscape. In the fiscal year 2017-2018, textile exports amounted to $3.5 billion, representing 6.5% of total cotton exports. Pakistan ranks as Asia's ninth-largest exporter of garment products and contributes significantly to the national economy. The textile sector's impact extends to the employment of approximately 45% of the general population. Moreover, textile exports witnessed a growth of $4.4 billion in the same fiscal year. Additionally, Pakistan holds the position of the world's third-largest cotton consumer. The country is equipped with a total of 464 textile facilities, with PSX production lines accounting for 5% of the overall capacity.

The total creation area of material is 5.2 billion square meters. In Pakistan, worldwide brands of local textures include H&M, Levis's, Nike, Adidas, Jaguar, Target, and others. Karachi's textile industry has 364, 3616 Punjab textile units, and 116 Sindh textile factories of 38% and 18% of Faisalabad. The leading players are Al-Karam Textile Pvt Ltd, Chenab, Mills Ltd, Kohinoor Textile, Gul Ahmad Textile, Fateh, Gul Ahmad Ltd, Hussein Factories, and Nishat Linen Group. In the following regions, the industry was represented: Chenab Ltd. Exports from Pakistan are championed mainly by regional rivals, since these countries Instead of Pakistan's administration, its parliament is promoting their material business. The Material Business Commodity Advancement Asset in Pakistan has approved a loan of Rs. 185 million. The material sector accounts for 40% of Pakistan's financial credit.

Textile production started in the 1950s, as part of Pakistan's industrialization, not long after the English gained independence in South Asia. The Pakistani government established the Cotton Product Organization (CEC) in 1974. The CEC was a barrier to private manufacturers'

participation in the global market. However, the status of the CEC deteriorated in the late 1980s, and private farmers could buy and sell cotton from domestic and foreign purchases in 1988-89. Between 1947 and 2000, the number of material factories in Pakistan increased from 3 to 600. Shafts grew between 177,000 and 805 million throughout the same period. The textile industry constitutes a significant portion of Pakistan's export earnings, accounting for 57% of the total. However, there has been a notable decline in textile exports in recent years. In 2014-2015, the value of textile exports stood at $11.625 billion, but it decreased by 7.7% to $10.395 billion in 2015-2016. To address this issue, the Pakistan Textile Mills Association has requested the exemption of duty on cotton imports and a 5% reduction in textile taxes. Pakistan faces increasing competition from neighboring countries such as Bangladesh, India, and Vietnam. Over the past decade, Pakistan's share in the global textile industry has declined from 2.2% to 1.7%, while Bangladesh has experienced growth from 1.9% to 3.3%, and India's share has decreased from 3.4% to 4.7%.

2.3 Supply Chain Practice in Garments Sector
It is critical to understand that the garment sector has a unique notion from other fields (Sushma 2015). Proficient Inventory network executives in the articles of garments area require access to the essential unrefined substances, a framework to ensure savvy supply to modern communities, and viable and effective assembling, meeting innovation challenges to foster items to meet the requirement of profoundly requesting clients (Rishab, 2018). Data is the lifeblood of every production network. The nature of this data becomes substantially more relevant in a global economy. Capability to make the business visible to potential clients, collaborate with clients to determine their needs, and fulfill the business to compete in the global market (Janson, 2017).

The purpose of this investigation is to look at the retail network components that will be critical to the success of Pakistan's garment sector in the competitive global market (Usman, 2018). As said in the study, we have identified the fundamental limits as quality administration, mechanical variety, data innovation, and client care. We suggest the accompanying hypotheses for the examination project to examine the legitimacy of these aspects (Kaiser, 2020). The executives of the production network are integrated reasoning to deal with the whole advancement of a dissemination channel from provider to extreme customer. Many organizations contemplate protest care intending to increase client responsibility and develop customer loyalty (Stephen S.

Charge, 2018). Client concerns and relationship promotion are inextricably linked due to their shared interest in customer loyalty, trust, and accountability (Morgan, 2017).

The garment industry's production network exercises are one area that is frequently overlooked in cost-cutting endeavors. Although supply chains in the garments industry are not considered a commercial movement, they may use such frameworks to work on their property. The retail network is a critical variable in the garment industry (Morais, D.O. and Silvestre, B.S., 2018). A built coordinated operations and production network with the board foundation will allow the garments sector to have a controllable advantage over independent garments organizations (Kumar, S and Haleem, A., 2016). The use of proper circulation and production network methods not only extends the items of garments area organization's proficiency of action but also reduces expenses. Building continual ties with sellers and working with areas of strength for a framework is critical for representatives in this area to improve customer support levels. The family area will benefit from the ordered and smoothed-out procedures in strategies and production network the board by delivering consistently consistent, quality services at the greatest costs (Harrison and Aitken, J., 2019).

SCM in the clothes business comprises not simply center offices, for example, facilitating, transport, restaurants, and diversion, but moreover various assistant administrations or travel industry conveniences (Bravo and Kim, 2016). The integrated architecture of the articles of the garments area company is therefore significant for immediate research of the shop network. When discussing garments, we must first identify the merchants, how to contact them, inventory administration, and the time required to organize. Various apparatuses can supply continuous inventory measures and can give deal expectations as far back as possible, enabling garments areas to avoid branch-offs more effectively (Mahankali, S., 2019). When it comes to interest for clothes area production network executives, after receiving the administrations, investigating the desires of visitors and their degree of pleasure is necessary. This investigation concentrates on the fundamental focuses and techniques of inventory network practices to get an advantage (Treblier, H., 2018).

The efficacy of the garments production network is assessed by both monetary and non-monetary measures. Aside from pay, costs, market share, and so on, measurements of customer loyalty, useful inside methods, level of inventiveness, representative fulfillment, and other development

indicators should also be completed (Panno, A., 2019). An overview of each component's participation in the chain will group items of the garments area inventory network, although a shop network model may be picked merely following a detailed evaluation. There are several reasons why textile supply chains are regarded as valuable survey items. First and foremost, because the items of the garments area inventory network are special in terms of encounters, they may be addressed by local organizations and attractions in one location.

To preserve and deal with such specific features, each item of the garments manufacturing network may demand a different technique to deal with inspection (Singh, S., Kumar, R., Panchal, R., and Tiwari, M.K., 2021). The buying board is always under pressure to meet unplanned buyer division requirements in the items of garments field. As a result, the buying manager strives for large cradle inventory piles to keep the clothes area company going, and customer divisions are not met (Adrodegari, F., 2020.). However, this does not imply that value control frameworks are completely unaware. The garments industry can handle massive numbers of goods at incredibly cheap rates. A lot of money is spent on the circuitous materials used in these things. Any of the garment sector business supplies have a transitory worth, which prevents one from saving money by purchasing in bulk (Lehner, M., 2020).

Typically, each division uses manual indents and purchases individually. Electronic tearing and purchase needs are not available in many clothes area organizations (Kavkaz 2018). To integrate these indents and particulars, a significant expenditure is required (George, 2019). Because of the solidification issue, the pieces of garments area exploits mass buys for the reasons stated above for chain characteristics where independent units are organized in comparable regions. The buying department makes single purchases for identical items (Halldorsson, 2019). The purchasing division inventorypiles large quantities of products on the expectation that they will be unable to deliver the correct items to the client divisions on time. This takes up a large area and adds to the costs. Buys are provided immediately and then regularized by doing the necessary desk work on solicitation to the clients' specializations. Crisis exchanges are not a particular example because there are no plans (Shane, 2020).

It is critical to recognize that there is a very clear purpose for the articles of garments are industry from various firms. The business's capital costs are considerable, but its operating expenses are moderately lower (Larsen, S., 2017). There are special features of the garments sector, for example,

customer anti-extremism, various administration styles, and so on. The garment business places a high value on visitors or clients; customer loyalty is extremely important in the garments industry (Chikoti, 2021). There are several forms of organizational plans, such as supervisory groups, establishments, and garments area retailers that function in chains. The various control strategies have varying implications for production network administration (Andria, 2017).

2.3 Information Sharing

Every component of a contemporary framework includes an information exchange stage that fosters collaboration between the organization and its inventory organization members. Information sharing is basic, however it is difficult, if not impossible, for organizations to build and maintain information sharing capacities (Mangan et al., 2016). Developing data sharing capability is difficult since it includes several impediments, including social, authoritative, and creative imperatives that make productive execution and activity difficult (Upset, 2019). Data splitting refers to the sharing of private information among colleagues, allowing them to track the progress of orders and things as they move through various phases in a shop network (Maxwell, 2018). The goal of a productive inventory network is to provide some advantages to the end user. Aside from monetary and data flows, there is a vital physical flow between inventory network members, which includes natural ingredients, work-in-process inventory, finished products, and returned items (Harshen, 2019).

Establishing effective communication channels is crucial for managing the flow of chemicals and ensuring their efficient operation. Managing a manufacturing network is challenging in any scenario, and as the number of individuals and processes involved increases, the complexity of coordination intensifies for larger groups (Feroz and Kalim, 2018). The participation of data within a retail network can offer various advantages to businesses. For instance, it allows for a better alignment of goods with customer preferences and enables adjustments to market demands. The growing utilization of advanced data technologies in supply chains, such as Electronic Data Integration (EDI) and web-based advancements, indicates that organizations are recognizing the value of data-driven planning (Impulse, 2018). Numerous inventory-related issues arise due to a lack of information exchange among individuals within an inventory organization. The objective of this research is to present a framework for managing the creation network, facilitating information sharing, identifying types of shared information, and examining the benefits and

drawbacks associated with shared information in an inventory organization (Ponting, 2017). Sharing information entails appropriating critical data for systems, persons, or forward-thinking substances.

Organizations aiming to enhance the effectiveness of information sharing should consider four key inquiries: determining which information to share initially, identifying the appropriate recipients for sharing, selecting the most suitable sharing methods, and determining the optimal timing for sharing (Green, 2017). Addressing these questions is vital as it helps prevent redundant sharing, reduces sharing costs, and fosters the generation of additional insights. The process of information sharing is often referred to as information coordination, as a supply chain encompasses a wealth of data ranging from operational and business-related information to critical and strategic insights. The potential opportunity to establish correspondence links through the inventory organization enables inventory organization representatives to communicate information regarding plans, needs, and progress, resulting in increased effectiveness in the creation organization (Zhang et al., 2016). Data commerce energizes connection among inventory organization shippers and accomplices, and collaboration is also critical to the inventory organization's ability to respond (Thomas, 2018). In the long run, all suppliers should realize the worth of the other's qualifications, bolstering the merchant's effectiveness and acquisition effort.

Making information sharing capability is difficult since it comprises a variety of hurdles, including social, progressive, and specific constraints that make appealing execution and activity difficult. Data sharing refers to the exchange of private information among colleagues, which allows them to control the progression of orders and things as they pass through various processes in a manufacturing network. The nature of the data supplied goes from strategic to critical, and it may be linked to gauges, specific orders, strategies, market activities, and so on. Gandhi and colleagues (2017). By better-controlling supplier and client connections, information sharing helps to lay out and further grow relationships with sellers and customers. Furthermore, information exchange adds significantly to inventory network coordination by having beneficial impacts on outside and inward joining (Basheer et al., 2018).

Data trade between persons in the production network plays an important role across the board, as a lack of appropriate data trade might harm production network accomplishment or organization execution (Gopal et al., 2019). The data on item supply flows downstream, whereas the data on

request flows upstream through IS from the retail location. By exchanging information with colleagues, the direction is enhanced by increasing openness and making it competitive in the endeavor and production network. Production location may be used by a conventional production network (Hashim et al., 2019). A production network's principal goal is to reduce costs. An appropriate IS device at each inventory network hub will limit inventory at production network hubs. The data framework's coordination with inventory network persons is certainly difficult because an organization does not want to share data on expenses and costs with production network individuals (Gopal et al., 2019). IS among part bunches is important for the proper execution of production network rehearsals. If the data exchanged inside the production network is substantial, correct, convenient, and secure, the IS will have a big impact on structural excellence. Legitimate information that is fabulously accessible and in an area with the proper exchange prompts greater trade with merchants, which leads to enhanced outcomes for an organization (Sukati et al., 2020).

2.4 Inventory Management

Inventory management refers to the regular practices employed by organizations to efficiently utilize, store, and track their supply of parts, raw materials, inventory, and finished goods. Inventories constitute a significant portion of most companies' assets (Prempeh, 2015). It is a carefully planned process that helps organizations effectively handle their procurement and inventory control. The implementation of inventory management techniques proves highly advantageous for commercial enterprises as it enables them to store a substantial quantity of merchandise for extended durations, allowing for an assumption of future demand. By effectively managing inventory, businesses can mitigate the risks associated with inventory obsolescence or changing consumer preferences (Stadtler, 2015). To supply demands for transitory commodities or items, inventory management has the potential for overcoming challenges such as miscalculating the timing or number of requests, and exaggerated costs due to waste (Yu et al., 2016). Inventory management is critical for all businesses, regardless of size or structure. Inventory administration is a production network the board practice that assists businesses in purchasing a particular number of raw components, replenishing various things and stuff, following through on specific prices to providers, and obtaining specific costs from customers (Govindan et al., 2015).

Lack of effective inventory management complicates decision-making processes. Businesses commonly engage in internal collaboration with utility units and external collaboration with partners in the retail network to physically track inventory and determine reorder quantities and priorities. Large corporations often employ enterprise resource planning (ERP) software, with many opting for the enhanced software-as-a-service (SaaS) model (Christopher, 2016). Managing the risks of inventory shortages and surpluses proves challenging for businesses with complex manufacturing cycles and supply chains. Two key strategies utilized by 15 company enterprises to achieve this balance are materials requirement planning and just-in-time inventory management (Mangan et al., 2016). Different personnel across various departments hold diverse perspectives on inventory. For example, the sales team seeks to maintain high levels of finished goods inventory to meet ongoing customer demand, while the production division requires sufficient raw material stocks for the manufacturing process.

Conversely, the finance department often provides minimal corporate security to redirect excess resources elsewhere. Inventory, as a vital component of current assets, holds significant importance throughout all stages of the production cycle, as well as the allocation and sales processes (Prajogo et al., 2016). Many organizations worldwide have embraced modern inventory management practices, such as the utilization of advanced inventory record software like SAP. However, there are still many small businesses that lag behind, relying on outdated and traditional administrative frameworks (Richards, 2017). Just-in-Time (JIT) enables manufacturing companies to achieve substantial cost savings and waste reduction by maintaining inventory at the necessary level for product development and sales. JIT focuses on minimizing costs related to storage, capacity, and the disposal or trade of excess inventory (Shin et al., 2015). However, inventory management through JIT carries inherent risks, particularly in the face of unexpected spikes in demand. In such cases, the manufacturer may be unable to source the required inventory to meet customer needs, resulting in reputational damage and a loss of market share.

Materials need planning is another strategy used in inventory management (Atnafu and Balda, 2018). As inventory administration assists in empowering supply partners with affixing in managing its operations and improving cooperation with its key accomplices, clients, and suppliers by ensuring the arrangement of premium quality materials and information, as better materials and information are critical for any global assembling organization (Atieh et al., 2016). Coordinated

factors are used as tasks in the production network to advance data sources and final products via various functional levels within the organization. For a good, calculated approach, start-to-finish improvement of data sources and final findings to the purchaser in a promising manner is expected. The flow of labor and products with impeccable timing to the perfect individuals in the perfect sum is fundamentally the boundary to decide that the organization is doing a very good job as strategy execution is straightforwardly corresponding to the firm's limit to work effectively (Govindan et al., 2015). A few specialists and focal points also inform us of the factors on which we wish to pass judgment on the productivity and sustainability of the tactics, as well as the presentation of the real association.

Inventory management aims to strike a balance between financial considerations and maintaining an appropriate level of inventory. Efficient packaging helps avoid costs associated with obsolescence, spoilage, theft, and poor quality, while also meeting customer demand without incurring excessive expenses (Guo et al., 2016). The process involves continuously assessing and monitoring inventory levels, considering the significant costs involved and aligning them with other strategic goals and objectives set by the management. The inventory manager in an organization focuses on serving customer demands while minimizing costs. This involves implementing inventory control programs and managing inventory turnover (Rushton et al., 2014). Inventory organizations view each inventory item within the context of business relationships, particularly emphasizing the quantity and distribution of the product being sold (Yu et al., 2016).

2.5 Logistics Management

Coordinated operations performs an interacting role in a few stages of changing resources into significant things to service the end customer. Each of these powers and sub-abilities is organized into a product improvement plan to limit the expense of clients who lay out a business coordinated operations idea (Maxwell 2016). A building should be completely controlled when it is being laid out. Frequently, these include separate associations for creation, capacity, transportation, discount, and garments area exchanges; however, on a very basic level, power age/creation plants, distribution center administration, and transportation advancement establishments (Sattler, 2015). Materials, components and supplies, handling and materials in the production line, and plant inventory must all be combined in power or collecting plants (Schon Leben, 2016).

The concept of coordinated activities is a method of conducting actual material dissemination. During the distribution stage, utilize the board to effectively combine pragmatic activities such as transportation, warehousing, stacking, and dumping, bundling, creation, and information to create value and meet the demands of customers and society. According to Kumar, A. (2015), errands are the most well-known approach for determining, completing, and controlling the consistent, logical flow and cutoff of natural ingredients, in-process inventory, finished items, and related data from point-of-reason to meet customer requirements. Kumar's viewpoint provides information about social event methods. The purpose of the board's organized exercises is to improve capability. According to Freeman and Mosher (2019), trailblazers are primarily responsible for hierarchical accomplishment, and cycles are meant to assist an organization in expanding. Coordinated operations is one of the main competencies that directly affect overall business productivity. When it comes to delivering goods to clients, an organization's coordinated operational procedures must be consistent and trustworthy. The inventory network is linked with calculated operations that center on organizing, regulating sending, executing, assessing in reverse stream and lack difficulties, and conserving complete information about products and administrations. According to Chao, (2019) strategic exercises may be classified into two types.

To carry out an operations strategy, a company should first choose the most desired exhibition levels. This option would consider aspects of the organization's overall competitive strategy, for example, item evaluation and quality positioning Kneeler, A. M. (2020). Organizations must, however, respond to changing customer demands, and coordinated factors flexibility is a critical component of that response (Sreedevi, 2017). Associations conduct coordinated factors exercises to enhance overall inventory network procedures. Some organizations end up re-appropriating their coordinated factors jobs because they lack the necessary skills and assets to completely direct the best calculated exercises (Enock 2019). Xiangfeng Chen and Li (2019) also emphasized the need to coordinate scheduled operations rehearsals across production network partners to better serve a specific client. The realization that an advantage originates as much from the circulation cycle as it does from the item has aided in the transition of coordinated factors from a private cabin to an important meeting place (Vyas, 2016).

According to Mwangangi (2016), the use of information will benefit a variety of coordinated factor capacities, including appropriation organizations, request anticipating, flip plans, transportation

executives, client assistance, and inventory administration. It emphasizes that data and correspondence innovation aid in making coordinated factors operations more visible. Better knowledge makes it easier to meet market interest. This results in improved item handling, inventory limit quality, and transportation economies of scale for the intended variables. After seeing that the finest organizations in terms of development and benefit are inextricably linked with their retail chains, Haag and Eric (2020) proposed that undertakings may be used to gain an edge. According to Pelindo (2011), the rush for distinction considering better planned factor outcomes has recently increased the amount of depth and intricacy connected with each process step. This necessitates the development of new shared metrics to analyze the true viability of an organization's activity to ensure the delivery of its products to consumers on time, in the appropriate location, and in the proper volume and quality.

According to Christopher (2016), garments area organizations are qualified for having a long arrangement of supply bonds because of the increased quantity of merchants and suppliers. Furthermore, increased supplier and purchaser force increases the business's demand on superior tactics and transportation framework. It is obvious that productive supply chains improve the credibility and precision of an organization's relationships with outside entertainment. Expanded competition in the cutting-edge company world has aided the significance of effective inventorypile chains, which is influenced by globalization and progress in data innovation. According to Gehus and Kotze (2012)'s analysis, supply networks have become generally necessary and fundamental among other company operations. This focus also mentioned that organizations are compelled to set up distinct divisions and to send experts as inventory chain leaders to deal with its transportation and coordinated operations exercises, as both strategies and transportation are components of supply chains. Furthermore, supply chain competence is dependent on systems, codes, standards, norms, managing capability, and reconciliation of production network capabilities. Hackers and Petersen (2017) investigated the adaptability in the inventory network the board and chance assessment of the organizations.

2.6 Capacity Planning

Capacity refers to the capability of an organizational entity, whether it be a facility, process, workstation, equipment, or task, to fulfill its purpose at a given moment (Menezes, 2018).

However, Christopher (2020) defines capacity in terms of both output and input, referring to the maximum output rate of a facility or the number of resources available to generate a total output over time. The location, structure, systems, and operations of an organization all influence its capacity. Capacity management involves determining the level of resources an organization will anticipate meeting fluctuating demand patterns (Younis, 2014). Discrepancy occurs when there is a gap between an organization's capabilities and customer demand, resulting in either idle resources or unfulfilled customer orders. Hence, capacity management aims to address this discrepancy (Kalim, 2013). Various capacity quantification strategies are employed by organizations in their management practices, whether in production or service sectors. These include strategic or hard capacity quantification, total capacity quantification, constrained capacity management, also known as production scheduling, and capacity forecasting (Dekkers and Kannaki, 2019).

The concept of constraint plays a central role in board decisions. Establishing boundaries, as highlighted by Meredith and Scott (2021), ensures that costs are minimized while maintaining quality. This involves aligning inventory strategies with demand assumptions to minimize movement costs and optimize the allocation of resources, reducing waste and idle time. Capacity planning enables organizations to remain competitive and achieve their growth objectives by managing costs and establishing flexible limits that align with demand. This ensures that no profit opportunities are missed and avoids unnecessary expenses due to overproduction. Additionally, it results in shorter lead times and faster customer delivery, enhancing overall efficiency (Wheelback, 2018). Project managers employ scope assessment as a strategy to optimize resource allocation, costs, and quality, striking a balance between resource execution and desired outcomes. Quality and resource performance are of utmost importance as they directly impact the organization's ability to deliver added value to its clients (Protozoa and Goh, 2018). The implementation of scope assessment and just-in-time strategies enhances efficiency and profitability by eliminating waste of resources, time, and money. Adopting a scoped approach improves the organization's understanding, facilitating better focus and prioritization (Seriola, 2020).

The productivity proportion compares the bar's performance on a particular day to the best probable daily rate. The strong limit is an action that the cycle was designed for, but that may be

fairly expected while considering certain variables that prevent the interaction from reaching its full potential as deduced from its certainty. In the given climate, examples include maintenance, staff breaks, and so on. The best predicted degree of transit for a movement, cycle or workplace is the plan limit. The plan limit in gathering is how much result with the least usual unit expense. In an ideal environment, as much as possible, also known as the optimum working level, should be tied to efficacy; nevertheless, this isn't always the case since a few uncontrollable circumstances prohibit jobs from reaching their full potential. Limit judgements are, by definition, critical in nature, considering ventures and hence obligations for assets like equipment, offices, and work. Given this, restriction options have a significant impact on many hierarchical capacities.

When resources are provided, there is an increase in the utilization of work, resulting in significant cost implications. Additionally, the starting cost of an item is largely determined by the unit cost, which directly depends on the expenses incurred for the materials used. This influences various aspects such as transparency in management, longer timeframes, streamlined organization, and the sincerity of the organization. In the twenty-first century, globalization has played a role in the complex interplay of capacity decisions, highlighting the importance of collaboration between industry sectors and competitors on a larger scale. It is crucial to prioritize these fundamental choices early on. Capacity decisions can be categorized as long-term, medium-term, and temporary, each requiring a thorough evaluation and assessment of the resource quantities needed. As time passes, the intricacies of this process increase. The required resource levels must be compared against projected demand and exchanges. Additionally, it is essential to maintain a balance in the structure and flexibility of the resources, along with effective change planning.

Because some degree of interest sensitivity is unavoidable, organizations rely on limit pads to compensate for the risk of trades. The pad total is more than the interest-related limit threshold. As a result, limit execution rates decrease as the number of pads in inventory increases. Negative limit pads, on the other hand, arise when an organization's plan limit does not correspond to interest. The ability to have a limit pad varies greatly depending on the business. Manufacturing businesses have a greater power to adjust the pad level than management firms. A lodge does not have a plethora of rooms to serve as limit pads, but rather manages such needs through asset flexibility, for example, offering a suite to a left client without a room because of overbooking. Other specialized co-ops essentially do not have the option of not helping, hence the limit pad is

stretched to unmistakable levels under these cases. Police, fire, gas and water administrations are examples of such activities. Even though the necessity for limit pad is highlighted here, organizations should keep in mind that underutilized limit equals cash lost.

2.6 Productivity Performance

In the field of supply chain management, the concept of productivity performance is essential for developing an appropriate supply chain strategy that aligns with the overall market plan (Turkulainen and Ketokivi 2012). Each organization in the garment industry strives to adopt a specific strategic approach that is in line with its overall strategy, leveraging the necessary skills and resources to achieve its objectives. For instance, one company may focus on delivering high-quality products at higher costs, while another company aims to offer a wide range of reasonably priced products with full functionality. Yet another company may prioritize delivering a broad array of products and services with a strong emphasis on customer convenience, accessibility, and responsiveness, among other strategies. Any garment corporation aiming for success must integrate its supply chain management system with its competitive planning (Delery and Roumpi 2017). Strategic fit, originally referring to the alignment of strategic objectives with consumer requirements and competitive strategy (Chopra 2017), is crucial.

Companies employ various tactics and tools to generate performance within their supply chains. Wang et al. (2019) developed performance-based models for the supply chain, while Gimenez et al. (2018) examined earnings, production speed, and travel costs as success metrics. Vanichchinchai (2014) analyzed productivity performance, considering factors such as versatility, expense, connectivity, and responsiveness. Westbrook (2015) argued that improving operational efficiency could be achieved by reducing non-value-added operations, minimizing order variations, and accelerating inventory flows. Hult et al. (2016) suggested that technological advancements and innovative processes can significantly impact operational performance. Baird et al. (2019) emphasized the importance of understanding the trade-off between customer experience and expenses for organizations.

The aim of clothing companies is to gain a competitive advantage by aligning their supply chain practices and structures with their business strategy (Sadikoglu and Olcay, 2014). Shah (2019) argued that implementing a supply chain framework ensures that the value chain delivers exceptional value to the end-user. Zelbst et al. (2019) emphasized that an organization's success is heavily reliant on the performance of the supply chain in which it participates. Wheelen and

Hunger (2015) analyzed Porter's business strategies, such as cost reduction and differentiation, and proposed that organizational strategies should focus on strengthening the competitive advantages of a company's products or services. Wheelen and Hunger (2018) suggested that the capabilities of the supply network directly impact a company's success. Alam et al. (2014) indicated that productivity performance significantly influences the overall supply chain. Bowersox et al. (2015) stated that using external performance measurements in collaboration with other industry partners leads to successful end-customer value through operational activities and direct communication. Harrison and New (2017) emphasized the importance of productivity performance indicators as a common operational performance measurement that facilitates internal and external relationships among clothing organizations. Vaidya and Hudnurkar (2015) provided performance evaluation metrics related to cost, customer experience, efficiency, asset management, consistency, time, innovativeness, size, flexibility/adaptability, collaboration capability, supplier profile, and marketing behavior. Companies apply apparent operational efficiency criteria and resilience scales to achieve organizational efficiency, service quality, and substantial efficiency (Cao et al., 2015). The operating efficiency of the supply chain is assessed based on attributes such as flexibility, time (speed), productivity, and cost, which are considered the most valuable.

2.6.1 Flexibility in Operations

Building a strategic plan to be agile includes dedication to other behavior and practices, including recruiting workers for specific roles, encouraging employees to work more flexibly, working in teams, and strengthening internal coordination (McGovern, Small, and Hicks 2017). Flexibility is defined by Net Land (2016) as 'the company's capacity to build agile operations in a hyper-competitive environment to handle the regular quantity, product mix, and schedule changes.' In this period, flexibility is defined as a company's ability to adjust to market fluctuations in terms of good and quality of service, length and timely production (Danish, Romano, and Boscari 2017). Relevant objects that represent the organizations' ability to resolve these variations in demand were calculated.

2.6.2 Time (Speed of Service)

Planning focused on reducing the time between buyer necessities before these prerequisites are met recalls focusing on the following: anticipating the market climate, coordinating work processes, working on the functional design, and controlling vehicle (Flynn et al., 2018). The ordinary element of result computation is addressed by dissemination time and lead time. The time,

lead time, and process duration were depicted in various examinations. Period time is the time starting with one work or work finish then onto the next, i.e., starting one cycle or mission proceeding with a similar interaction or work once more, (Awasthi and Omrani, 2019). Lead time is the period taken to position a purchase order for the delivery of goods & services (company and supplier) involving production, shipping, refining, storage, and distribution to the final customer of the product or service. Gimenez et al. (2016) determined as much as feasible for the delivery of the commodities to the primary purchaser (Azbari et al., 2018). The expert accepts the dispersion time offered by the customer to disperse the administrations and goods to the client on time. These models are determined by the selected objects addressing the level of conveyance to customers of the products and administrations (Huo et al. (2014).

2.6.3 Cost Competitiveness

Creating a plan focused on minimizing total costs needs the following to run out: reduction of inventories, optimum resource efficiency, work-in-process product turnover, and removal of non-added benefit practices (Wacker 2014). Price is the most common and significant factor in determining productivity performance. Ox bowers, et.al. (2019) described the costs as the cumulative costs incurred in carrying out a specific project. The company is working to drive down costs and increase revenue (Simpson, 2015). charges were defined by Vaidya and Hudnurkar (2012) as the sum of all expenses, including inbound and outward cargo, distribution centre expenses, and capacity charges for outsiders, request handling costs, direct work costs, and management and administrative costs. Chitrita (2019) described the costs as 'outright production network functioning expenditures.' The charges in this investigation were shown by the expert as the aggregate expenses and consumptions caused by attempted all/as well as comparable errands and actions inside the inventory network (Autry, Rose, and Chime, 2015). This was calculated using selected elements that address general expenses and costs. Referring to previous studies and the significance of inventory network the executives and the consequent crucial advantages as a result of reconciliation.

27. Theoretical Framework

According to Von Bertillon (2012), an organization's inventory network practices have been described as a mind-boggling (framework) comprised of several subsystems. A serious degree of collaboration, the inclusion of organization, and coordination among all elements are critical for

the association's feasible and helpful execution. Because the inventory network of the garments business is dynamic, there should be cooperation between garments enterprises such as producers, buyers, and other partners. This pertains to the entire garment production network, encompassing supply, cycles, products, and environmental considerations. In this research, we examine the overall influence of supply chain practices on the productivity performance of the clothing industry on a large scale. For this study, we regard the supply chain as an independent variable, comprising latent variables such as information sharing, logistics management, inventory management, and capacity planning. Consequently, operational performance is regarded as the dependent variable.

2.8 Conceptual Framework
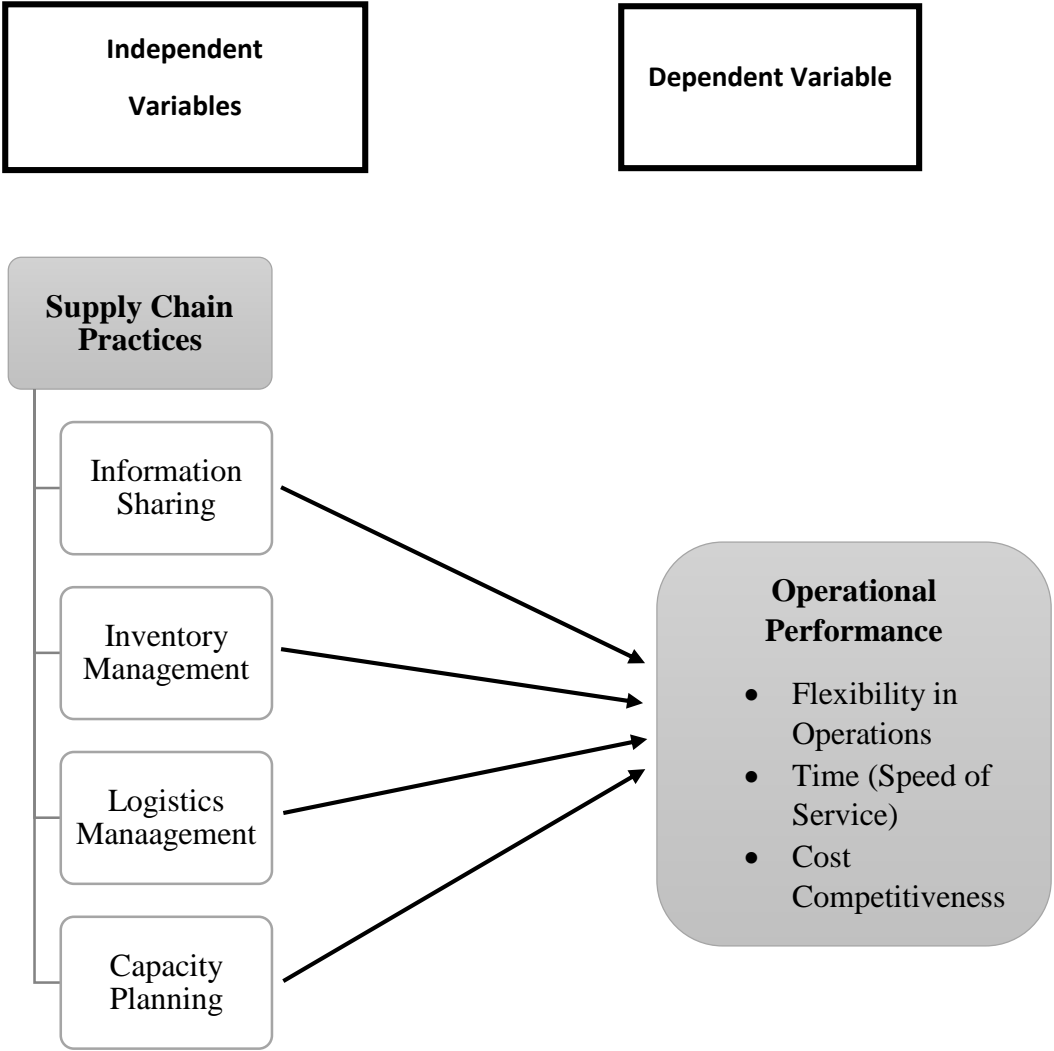
2.9 Research Hypothesis

H1: Information sharing has a positive impact on productivity performance.

H2: Inventory management has a positive impact on productivity performance.

H3: Logistics management has a positive impact on productivity performance.

H4: Capacity planning has a positive impact on productivity performance.

Chapter 3

Research Methodology

3.1 Introduction

This research focuses on the complete network involved in producing garments, which includes supply, production cycles, products, and environmental factors. The objective of this study is to analyze how supply chain practices impact the overall productivity performance of the clothing industry at a significant level. In this investigation, we consider the supply chain as a separate factor, consisting of hidden factors like information sharing, logistics management, inventory management, and capacity planning. As a result, the performance of operations is considered the outcome or result of these supply chain practices.

3.2 Research Type

The research will employ quantitative methods to examine how inventory management factors impact the operational performance in Pakistan's garment industry. By utilizing quantitative analysis, a larger sample size can be utilized, enabling a more extensive investigation that includes a greater number of participants and allows for more speculative findings. Additionally, quantitative assessment offers objectivity and precision in the research process. Since the focus is on information that is closely linked to finalized data, only a few variables are involved.

3.3 Research Design

In this research, a descriptive design was employed to gather information on the impact of critical supply chain factors on productivity performance in the garments industry of Pakistan. The use of this research design is recommended as it enables the researcher to gather data that answers questions about the current state of the subject being investigated. As stated by Karasti (2018), the objective of descriptive research is to establish the current situation, which helps in understanding the present nature of the subject under study. Moreover, a descriptive research design allows for a comprehensive examination of factors and demographic characteristics, while also facilitating cost-effective data collection on a large scale. It enables the collection of precise study data as it heavily relies on secondary data, which helps in constructing a case based on factual information, figures, and descriptive analysis of archived materials and data.

3.4 Research Approach

Our research utilizes quantitative data analysis methodology. This approach involves the statistical collection of data, which is then subjected to detailed and analytical analysis. The objective of employing quantitative research techniques in this study is to compare and objectively determine the outcomes related to the impact of critical supply chain factors on productivity performance in the garments industry of Pakistan. In line with a recent study, we have adopted a deductive approach to address our research questions. The deductive approach is commonly used to test existing hypotheses. By analyzing the problem description, we aim to provide theoretical explanations and answers to the identified challenges.

3.5 Type of Research

The proposed examination will utilize a quantitative research approach. Test surveys will be utilized to collect feedback from the target audience as part of the quantitative examination technique. The research strategy refers to the method employed to gather information for the examination process, while allowing for some flexibility. Scientists employ various strategies when collecting information. Our survey was structured into several sections, with the primary section focusing on socioeconomic aspects, while others addressed dependent and independent variables separately. To enhance data quality, respondents were asked to rate the extent to which statements representing variables applied to their businesses using a Likert scale consisting of five points. The research questionnaire utilized structured questions to facilitate the analysis process. This approach allowed participants to take a moment, reflect, and respond in the most appropriate manner. Respondents' feelings, emotions, and thoughts were kept confidential throughout the survey.

3.6 Research Philosophy

Positivism, as a method of inquiry, asserts that knowledge obtained through empirical evidence, including measurement and observation, is reliable. In specialized research, the role of the researcher is primarily focused on gathering data and objectively analyzing it. These types of studies typically prioritize quantitative and tangible outcomes. Positivism is grounded in the use of quantitative observations to investigate real-world phenomena. It aligns with the empiricist perspective, which recognizes that data originates from human experiences. Positivism adopts an atomistic ontological view of the universe, perceiving it as composed of distinct, observable entities and events that interact in a non-linear and conventional manner.

3.7 Population

In this study, the population under investigation consisted of individuals involved in the management, employment, and other aspects of the supply chain within five Textile Corporations located in Islamabad Rawalpindi, Pakistan. The data for this research was collected from these specific regions and focused on assessing the impact of supply chain integration on the operational performance of the textile industry. The selected companies for this study were Koh E Noor Textile, Al-Karam Textile, DM Textile, Sarhad Textile, and Redco Textile. The target population for this research comprised 250 individuals, including employees, supervisors, and managers working in the textile industry, with referrals from friends, colleagues, and relatives.

3.8 Unit of Analysis

This study's unit of examination was a single survey respondent from Pakistan's companies of garments manufacturing. Information was acquired from members of the garments business in Rawalpindi and Islamabad.

3.9 Sample Size

Sampling the research is a significant method for collecting information on the sample size of the population. It describes the method or framework for the researcher while choosing the best sample items. The sample size for this research is 150 respondents under the population of 250. Considered 5 textiles companies (Koh E Noor Textile, Al-Qaram Textile, DM Textile, Sarhad Textile and Redco Textile.) which are operated in Islamabad & Rawalpindi. Fill out 30 questionnaires by each company of textile from supply chain and operational managers, employees, and supervisors.

Formula of sample size

$S = X2N\text{P}(1-\text{P})/d2s(N-1)+X2\text{P}(1-\text{P})$

S= Sample size requirement

N= Give population size

P= Population Proportion (Expressed as decimal) (assumed to be 0.5 (50%))

d= Degree of accuracy (5%) expressed as proportion (0.05), margin of error 61

$S = 1.96\hat{}2 * 250 * 0.5(1-0.5)/0.5\hat{}2(250-1)+1.96\hat{}2 * 0.5(1-0.5)$

S=152

Hence the sample size calculation used Krejcie and Morgan table 1970 to define a sample size of 152 respondents from a population of 250.

3.10 Sampling Technique

For the research information used in this research, a random sampling method was used. This way of investigating is mostly used to acquire information from larger sample sizes.

3.11 Field of the Study

Garments sector of Pakistan will be chosen for this result. Supply chain managers, supervisors and employees are the target audience. In garments sector we will distribute questionnaire to the target audience and will get responses on Physically and virtually basis through goggle docs. Questionnaires will be floated in excess amount and will consider only accurate responses.

3.12 Research Instrument

Data collection for this study will involve the use of a standardized and adaptable survey aimed at assessing respondents' opinions on the specific factors of interest. Multiple methods will be employed to gather information effectively. Given the quantitative nature of the research, a survey based on a 5-point Likert scale was specifically designed as the data collection instrument. A modified and flexible survey approach was utilized to capture respondents' perspectives on the variables being investigated. The data collection process has been carried out in various ways, ensuring the reliability and validity of the collected information. This survey method is not only straightforward but also follows a well-designed protocol for obtaining accurate data. Creating diagrams and graphs to analyze quantitative data is a straightforward process. Primary data collection for this thesis was conducted using a validated and verified standardized questionnaire. The questionnaire used in this study was developed based on previously conducted research. Questionnaire was adopted from Ronald Cheboi Chesaro (2016) Supply Chain Management Practices and Operational Performance of Multinational Manufacturing Firms in Kenya, *Master of Business Administration Degree School of Business, University of Nairobi.*

3.13 Measurement of Scale

A proper survey was used as an important information gathering tool. The Five Point Likert scale was used to measure the reactions that will be received. Every piece of information was derived using a 5 Likert scale factor. Anchor amounts on a Likert scale include: -

5=Strongly Agree,

4=Agree,

3= Neither Agree/ Disagree,

2=Disagree,

1=Strongly Disagree

3.14 Data Collection Process
Following the change of the surveys, they were also altered for the benefit of respondents to obtain exact and dependable responses. Information was acquired through the distribution of organized polls to respondents (employees) working in garment organizations in Pakistan's twin metropolitan areas. The analyst distributed the overviews using "Google Docs" online. The poll results have been correctly synchronized to improve the review's practical outputs and ends. 152 surveys were collected over the course of 10 days. The responses were not typically restricted, and all of the surveys received comprehensive results.

3.15 Data Collection Sources
Data was collected with a primary source. The survey questionnaire was shared with the target audience in the industry and got responses. The idea was made clear to the responders, and their comments would be asked after a thorough knowledge of each scale. Volunteers revealed the specifics before replying, which energized member participation in the evaluation.

3.16 Data Collection Techniques
Through a survey, information was collected from junior employees, line managers, center director's superiors, and heads of divisions in Pakistan's items of garment manufacturing industry. The point was clarified for the responders, and their comments would be asked after a thorough examination of each scale. Volunteers will be notified of the specifics prior to replying, allowing empowered members to contribute to the evaluation.

3.17 Analysis
The data for the study was obtained through a survey utilizing quantitative data analysis methods. Statistical techniques, including regression and correlation analysis, were employed with the assistance of SPSS software to assess the strength and direction of the relationship between variables such as information sharing, inventory management, logistic management, and capacity planning (independent variables), and productivity performance (dependent variable). These

statistical tools, widely used for data analysis, have demonstrated high accuracy and significance in various research studies worldwide.

3.18 Time Horizon
This cross-sectional examination's information was gathered over the course of four months.

Chapter 4

Result & Analysis

4.1 Introduction

This section will delve into the methodologies and tools employed in the study. The findings of the research were recorded and analyzed using SPSS software. This section validates the consistency and credibility of research models, including frequency distribution, regression analysis, and correlation. Given that the focus of this study is to examine the "Impact of critical supply chain factors that influence productivity performance: Evidence from the garments industry of Pakistan," the independent variables are information sharing, inventory management, logistics management, and capacity planning, while productivity performance serves as the dependent variable.

4.2 Demographic description

To facilitate comprehension, the researcher has categorized the collected data into multiple classifications. The sample for this study consists of employees from Garments companies located in the Twin Cities of Pakistan, namely Koh E Noor Textile, Al-Qaram Textile, DM Textile, Sarhad Textile, and Redco Textile. Demographic variables such as gender, age, education level, and experience were utilized for classification purposes. The sample size consisted of 152 individuals, and the respondents from garments companies were classified into three categories: junior staff, executives, and management.

4.2.3 Respondents Experiences

The respondents' experiences were categorized into five groups. The first category included individuals with less than one year of experience, the second category consisted of those with 1-3 years of experience, the third category encompassed individuals with 4-6 years of experience, the fourth category included those with 7-9 years of experience, and the fifth category comprised individuals with more than 9 years of experience.

Table 1

Demographics		Frequencies	Percentages	Cumulative Percentage
Gender	Male	117	77	77
	Female	35	23	100
Age	20-30	134	88	88
	31-40	12	8	96
	41-50	3	2	98
	Above 50	3	2	100
Education level	Matriculation/O-Level	1	1	1
	Intermediate/A-Level	6	4	5
	Bachelors	54	35	40
	Masters	90	59	99
	PhD	1	1	100
Professional Experience	Less a year	56	37	37
	1-3 years	56	37	74
	4-6 years	19	12	86
	7-9 years	6	4	90
	Above 9 years	15	10	100
Designation	Senior Manager	20	13	13
	Middle Level Manager	38	25	38
	Supporting Staff	49	32	70
	Executive	24	16	86
	Front Line Manager	21	14	100

4.3 Reliability test

The consistency and reliability of questionnaire items for each study variable have been assessed using a reliability test. Based on Chang's (2017) classification, Cronbach's alpha values provide four levels of reliability. An alpha value of 0.9 and above signifies excellent reliability, 0.70-0.9 indicates high reliability, 0.50-0.70 indicates moderate reliability, and values below 0.50 indicate low reliability. The tables below display the results of the SPSS reliability test, indicating that the five variables utilized in this study exhibit satisfactory reliability.

Table 2 Cronbach's Alpha
Reliability Test Results Summary

Variables	Sample size	items	Cronbach's Alpha	Reliability
Information sharing	152	5	0.817	High
Inventory Management	152	5	0.860	High
Logistics Management	152	5	0.866	High
Capacity Planning	152	5	0.820	High
Productivity Performance	152	5	0.842	High

The reliability analysis conducted in this case indicates that the Cronbach's alpha values obtained for the dependability measures are remarkably high. The results clearly indicate that the survey utilized in the research study exhibits a substantial level of reliability and consistency. The Cronbach's alpha values, ranging from 0.7 to 0.9, indicate a high degree of reliability for both the survey instrument and the respondents' responses. This Cronbach's alpha analysis demonstrates the consistency of the Likert scale and confirms the validity and clarity of the survey used for this quantitative assessment.

4.4 Correlation Analysis

The relationship between the dependent and independent variables is examined and evaluated through correlation analysis, which measures the strength of their association. The Pearson correlation coefficient, known as "r," is widely employed for this purpose. The correlation findings of our study are presented in the provided table.

Table 3

Correlations		Information Sharing	Inventory Management	Logistics Management	Capacity Planning	Productivity Performance
Information Sharing	**Pearson Correlation**	1	.			
	Sig. (2-tailed)					
	N	152				
Inventory Management	**Pearson Correlation**	.755**	1			.
	Sig. (2-tailed)	<.001				
	N	152	152			
Logistics Management	**Pearson Correlation**	.803**	.830**	1		
	Sig. (2-tailed)	<.001	<.001			
	N	152	152	152		
Capacity Planning	**Pearson Correlation**	.721**	.814**	.707**	1	
	Sig. (2-tailed)	<.001	<.001	<.001		<.001
	N	152	152	152	152	1
Productivity performance	**Pearson Correlation**	.794**	.818**	.776**	.818**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	
	N	152	152	152	152	152
**. Correlation is significant at the 0.01 level (2-tailed).						

Correlation between Information Sharing & Productivity Performance

Correlation, r1= 0.794

The significance of the relationship between productivity performance and information sharing is observed at a significance level of 0.01. The Pearson correlation coefficient value of 0.794 indicates a positive relationship between information sharing and productivity performance. This suggests that the two variables are positively associated with each other.

Correlation between Inventory Management & Productivity Performance

Correlation, r2= 0.818

At a significant level of 0.01, a significant relationship is observed between productivity performance and inventory management. The Pearson correlation coefficient value of 0.818 indicates a positive correlation between productivity performance and inventory management. This implies that there is a positive association between the two variables, indicating their interconnectedness in a positive manner.

Correlation between Logistics Management & Operational Performance

Correlation, r3= 0.776

At a significance level of 0.01, a significant relationship is observed between productivity performance and logistics management. The Pearson correlation coefficient value of 0.776 indicates a positive correlation between productivity performance and logistics management. This suggests a positive association between the two variables, implying that they are connected in a positive manner to each other.

Correlation between Capacity Planning & Operational Performance

Correlation, r4= 0.818

At a significance level of 0.01, a significant relationship is found between productivity performance and capacity planning. The Pearson correlation coefficient value of 0.818 indicates a positive correlation between capacity planning and productivity performance. This implies that there is a positive relationship between the two variables, indicating their positive connection to each other.

4.5 Regression analysis

The existence of a relationship is assessed through correlation analysis, while the nature of the relationship is determined through regression analysis. The table provided below is commonly utilized to present the outline of the regression model.

Table 4

		Model Summary		
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.892[a]	.796	.791	.3278

a. Predictors: (Constant), Information sharing, inventory management, logistics management and capacity planning

The model summary provides a comprehensive overview of the regression analysis. With an R-value of 0.892, there exists a strong and significant relationship between the independent variables (Information sharing, inventory management, logistics management, and capacity planning) and the dependent variable, which is productivity performance. The coefficient of determination, represented by R-square, is calculated as 0.796. When multiplied by 100, this yields a percentage of 79.6%. This indicates that approximately 79.6% of the variance in productivity performance can be explained by the supply chain practices (Information sharing, inventory management, logistics management, and capacity planning) examined in the study. The remaining 20.4% of the variance may be attributed to external factors that have the potential to either enhance or hinder productivity performance. These external variables can encompass any factors beyond the scope of the independent variables mentioned in the study (Information sharing, inventory management, logistics management, and capacity planning).

4.6 ANOVA

Table 5

		ANOVA				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	60.467	4	15.117	91.652	<.001[b]
	Residual	15.476	144	.107		
	Total	75.943	148			

a. Dependent Variable: Productivity performance
b. Predictors: (Constant), Information sharing, inventory management, logistics management and capacity planning

The ANOVA table provides evidence of the overall significance of the regression model. For the regression model to be considered significant, the F-value must exceed 4 and the p-value must be

less than 0.05 (p<0.05). In this case, the F-value exceeds 4, and the p-value is less than 0.05, indicating that the entire regression model is indeed significant.

4.7 Coefficient

Table 6

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	**Std. Error**	**Beta**		
1 (Constant)	.407	.166		2.449	.016
Information sharing	.246	.063	.262	3.872	.000
Inventory management	.208	.080	.226	2.584	.003
Logistics management	.460	.071	.210	2.397	.000
Capacity Planning	.379	.071	.377	5.376	.002
a. Dependent Variable: Productivity Performance					

Based on the provided table, each indicator exhibits a positive relationship with efficiency execution accomplishment and is statistically significant at a 95% confidence level. These coefficients elucidate the importance of the relationship between the independent and dependent variables. The presence of a significant association between the dependent and independent variables is confirmed by the fact that all t-values are greater than 2 (t > 2) and the p-values are less than 0.05 (p<0.05). The constant value (0.407) signifies that if all observed supply chain practices were rated as zero, there would be a reduction of 0.407 in the productivity performance of garments manufacturing businesses. According to the study, a unit increase in information sharing leads to a productivity performance improvement of 0.246. Similarly, a unit increase in inventory management results in a productivity performance improvement of 0.208, logistics management leads to a productivity performance improvement of 0.100, and capacity planning contributes to a productivity performance improvement of 0.379. Barreto (2017) suggests that robust and efficient supply chain procedures enable businesses to gain a competitive edge by providing excellent customer service.

4.9 Results

Table 10

Varibales	Significance level	Result	Outcome
Information Sharing	0.000	Positive impact on productivity performance	Hypothesis accepted
Inventory Management	0.003	Positive impact on productivity performance	Hypothesis accepted
Logistics Management	0.000	Positive impact on productivity performance	Hypothesis accepted
Capacity Planning	0.002	Positive impact on productivity performance	Hypothesis accepted

Chapter 5

Discussions, Conclusion and Recommendation

5.1 Discussions

The supply chain encompasses all the processes, operations, inventories, logistics, capacity planning, and other activities involved in transforming raw materials into finished goods. In order to enhance customer value and achieve productivity performance in both consumer and production markets, garment manufacturing businesses need to standardize their supply-side operations. This research aims to examine the impact of key supply chain practices on productivity performance within Pakistan's garment manufacturing sector. The study focuses on one dependent variable, which is productivity performance, and four independent components of the supply chain, namely information sharing, inventory management, capacity planning, and logistics management. Four hypotheses were formulated and all of them were validated through correlation, regression, and coefficient analysis. The findings of this study underscore the significance of the supply chain as a vital approach and methodology for garment manufacturing organizations. It reveals that various supply chain measures, such as inventory management and capacity planning, have a positive influence on productivity performance. In recent years, significant technological advancements, including advancements in supply chain networking, have empowered global suppliers to establish these capabilities. However, it is important to note that with the benefits of modern technology, the required investment levels have been steadily rising. This transformation also implies a shift in investment expenditure from suppliers to automakers at a faster pace.

Garment manufacturing companies need to acknowledge that the key factors determining their success are the supply chain and productivity performance. By establishing robust supply chains, forging strategic partnerships, and continuously developing their products, these companies can consistently identify clients and effectively respond to their needs in a timely manner. Research findings emphasize that implementing supply chain management systems enables garment manufacturing enterprises to navigate fluctuating financial systems, capitalize on market opportunities, and adapt to shorter product life cycles more efficiently.One of the primary advantages of supply chain management in the garment manufacturing industry is the enhancement of information sharing and fostering effective collaboration. This applies to various aspects such as production, logistics, inventory, and capacity management. By promoting

collaboration and partnership across these areas, garment manufacturing organizations can ultimately elevate their profit levels. Furthermore, embracing new technologies and improving communication across different departments play a crucial role in driving the growth and success of these organizations.

5.2 Conclusion

The significance of supply chain management in the garment manufacturing industry is widely acknowledged. The variables within the supply chain have a notable impact on the productivity performance of this sector. Given the vast and intricate nature of the garment manufacturing supply chain, effective strategic planning and assessment are crucial at all levels. Productivity performance holds utmost importance in the garment manufacturing sector. The findings of this study indicate that managers, supervisors, and employees in Pakistan's garment manufacturing industry possess an understanding of the criteria and dimensions for evaluating supply chain and productivity performance. Such criteria contribute to the continuous growth and development of garment manufacturing organizations within the sector. The garment manufacturing industry's supply chain is extensive and complex. It significantly contributes to enhancing productivity performance. Factors such as quality commitment, competitive strategy, financial efficiency, technical support, and skills that optimize logistics, procurement, inventory, and operational cost control all play a role in an organization's success. Each of these supply chain factors directly influences productivity performance. In this era of market competitiveness, productivity performance plays a critical role in the operational success of the garment manufacturing industry. The primary objective of the supply chain is to achieve cost and time savings while offering quality and flexibility throughout the entire network of the garment manufacturing business. As we all know, garment manufacturing goods are increasingly competitive, and they rely on supply networks, which require more effective supply chain management to sustain and improve product performance. For garment manufacturing enterprises, strengthening the supply chain network is critical. The supply chain is a key measure of the overall success of the garment manufacturing business. The supply chain's variables are connected and interdependent. Garment manufacturers implemented a wide range of supply chain practices to increase their performance by performing aggressively in all supply chain activities and functions. All the factors included in the study demonstrate that the supply chain has a favorable influence on the productivity performance of Pakistan's garment manufacturing sector. Manufacturing garments Companies should manage

their supply chains under emerging technology. Future advancements in the supply chain of electric vehicle technology the global supply chain practices are used not just in Pakistan but also in the worldwide garment manufacturing business. The garments industry faces various challenges and uncertainties, encompassing political, legal, global, and environmental aspects. The supply chain serves as a vital mechanism for the garment manufacturing sector to streamline processes, systems, and business strategies, ensuring smooth operations. Within the garment manufacturing business, factors such as cost-effectiveness, commitment to quality, efficient logistics management, effective inventory management, and strategic capacity planning all contribute to sustaining consistent performance and enhancing competitive advantage. Inflexibility and uncertainty are major concerns in the present era of the garment manufacturing industry, particularly concerning logistics and inventory storage. To address these challenges, integrated process management, information exchange, and effective communication are pivotal in driving improvements in productivity performance. Leveraging efficient supply chain management, garment manufacturing companies can identify opportunities and mitigate risks, resulting in cost and time savings while attaining optimal levels of productivity performance.

5.3 Recommendations
The quantitative research approaches used for the evaluation show that the largest barrier is maintaining perfect hierarchical proficiency across the whole inventory management. Pakistan's garments manufacturing business is struggling to keep up with backed access to outstanding quality products with real supply at a reasonable cost. This is entirely due to inadequate institutional implementation and arrangements. The garment manufacturing industry's problems are closely related to both internal and external causes. The garment manufacturing industry is influenced by several external factors, including intense competition in industrialized economies, environmental challenges, and limited access to market resources such as vendor connections and technological advancements. On the internal front, variables like supply chain management, inventory levels, logistics, information handling, and customer satisfaction directly impact the industry's business model. It is evident from the data that inefficient supply chain operations have a significant negative impact on the industry's profitability. The challenges faced by the garment manufacturing industry, including difficulties in competing at both national and corporate levels, industry integration, unfavorable business conditions, and limited collaboration among supply chain participants, have intensified the need for coordinated efforts. There is a clear requirement

for a focused and strategic approach to address the challenges specific to the garment manufacturing sector in Pakistan. To remain competitive, Pakistani garment manufacturing companies must develop and implement a comprehensive plan and strategy. There are various avenues to pursue to achieve this objective.

5.3.1 Recommendations for Policymakers

Pakistan's garment manufacturing business need policy stability to gain the trust of present and potential investors. To that purpose, all key parties, particularly retailers, must collaborate, engage, and participate in the following: Participants in the garment manufacturing business must collaborate on the most important key performance metrics, such as collaboration and encouragement from associative organizations. To attain the objectives of effective supply chain management, policymakers and manufacturers must collaborate to reduce costs and enhance customer service. It is crucial for authorities and governments to implement global best practices, such as adopting national policies for material procurement that are agreed upon by all industry stakeholders. This may entail measures like tax reconciliation and implementing specialized approaches to determine production costs and triggers. Encouraging industry players to establish a trade organization can yield positive outcomes, as they are more likely to respond to collective lobbying efforts compared to individual companies. Establishing a fair system for allocating the responsibility of maintaining supply chain operations in the garment manufacturing industry, including managing dead inventory and strategic reserve inventory, is essential. This approach aligns with the collaborative and cost-sharing principles of supply chain management. To achieve cost reductions, it is imperative for the entire supply chain to collaborate on various operations, including planning, forecasting, cooperative purchasing, and inventory management. This collaborative effort will help optimize efficiency and drive down expenses across the supply chain.

5.3.2 Recommendations for Business and Supply Chain

Consequently, industry experts can utilize these findings to inform funding decisions and incentives related to supply chain activities in the garment manufacturing sector. This data can guide the optimization of supply chain operations at the individual firm level during budgetary planning processes. The emphasis should be on supporting the critical success factors identified through the study. One recommendation is to revise the firm's aggregate sourcing policy, allowing

the company to engage a single importer who is not directly involved in downstream activities within the garment manufacturing sector. By consolidating orders with a single importer, larger quantities can be procured, leading to potential discounts that can be passed down the supply chain. This approach offers increased flexibility, presenting alternative policies for the garment manufacturing industry. Given the organization's need for adaptability, a progressive or comprehensive approach to supply chain management is strongly advised. This approach will enable the industry to effectively navigate the dynamic nature of the market and respond to changing demands and conditions.

5.3.3 Recommendation for Future Research

Establishing excellence in the garment manufacturing supply chain is crucial due to the criticality of supply chain management issues in the sector. A research and consulting center dedicated to the garment manufacturing industry can serve as a vital resource for supply chain management techniques. By operationalizing a center of excellence focused on researching and addressing shared concerns of supply chain members, garment manufacturing companies can benefit from development programs. Researching supply chain models based on global best practices, particularly in developed countries, can yield valuable insights. The findings of such investigations have the potential to address bottlenecks that hinder the competitiveness of garment manufacturers. It is important to note that the study's small sample size limits the generalizability of conclusions regarding supply chain management as a key contributor to a company's competitiveness. Future studies should explore areas such as material acquisition and manufacturing efficiency to provide garment manufacturing enterprises with insights into optimal procurement practices, which is a fundamental requirement for any garment manufacturing organization. This aspect should be considered in future research endeavors.

5.4 Research Limitations

Researchers are often faced with constraints and limitations when conducting studies, and this inquiry was no exception. Several restrictions were encountered throughout the research process. One of the limitations was the limited sample size, which was a result of time constraints. The extensive review of literature on the role of supply chain management in enhancing garment manufacturing productivity performance required a significant amount of time. Additionally, the study had a short deadline, making it challenging to gather responses from a wide range of supply

chain members in the garment manufacturing industry. To overcome these limitations, it is crucial to develop a comprehensive timetable that allows for sufficient time to conduct thorough research, including obtaining responses from various sectors within the country's garment industry. Conducting research over an extended period is necessary to ensure its completeness and accuracy. Another limitation was the small sample size, which prevented comprehensive coverage of the entire garment manufacturing industry in a single study. Therefore, future research should be conducted across multiple departments within the garment manufacturing industry to gain a more comprehensive understanding.

5.5 Research Implication

This research exhibits common sense in assisting those in the garment manufacturing area, partners connected to the manufacturing area, supply chain practices the board understudies and people, research understudies, and so on. This study aids in the development of awareness among supply chain executives of garment manufacturing the place towards the job (data sharing, strategies the board, inventory administration, and scope quantification) plays an important role in further developing efficiency execution. Furthermore, this research is extremely compelling in assisting management in comprehending the fundamental commitment that coordinated operations executives make towards assisting the Pakistani articles of garments producing area in better management of their supply chains.

References

Amatulli, C., De Angelis, M., Costabile, M. and Guido, G., 2017. *Sustainable luxury brands: Evidence from research and implications for managers*. Springer

Benedito, E., Martínez-Costa, C. and Rubio, S., 2020. Introducing risk considerations into the supply chain network design. *Processes*, *8*(6), p.743

Bettiga, D. and Ciccullo, F., 2019. Co-creation with customers and suppliers: an exploratory study. *Business Process Management Journal*

Bocken, N., Morales, L.S. and Lehner, M., 2020. Sufficiency business strategies in the food industry—the case of Oatly. *Sustainability*, *12*(3), p.82

Byrne, G., Dimitrov, D., Monostori, L., Teti, R., van Houten, F. and Wertheim, R., 2018. Biologicalisation: Biological transformation in manufacturing. *CIRP Journal of Manufacturing Science and Technology*, *21*, pp.1-32

Calatayud, A., Mangan, J. and Christopher, M., 2019. The self-thinking supply chain. *Supply Chain Management: An International Journal*

Cao, Q., Schniederjans, D.G. and Schniederjans, M., 2017. Establishing the use of cloud computing in supply chain management. *Operations Management Research*, *10*(1-2), p.4

Chen, H., Zang, S., Chen, J., He, W. and Chieh, H.C., 2020. Looking for meaningful disruptive innovation: Counterattack from Pinduoduo. *Asian Journal of Technology Innovation*, pp.1-22.

Chen, J., Sousa, C.M. and Xinming, H., 2016. The determinants of export performance: a review of the literature 2006-2014. *International marketing review.*, *33*(5), pp.626-670

Chiminelli, A., Verpoest, I. and Kiekens, P., 2019. Research and development in carbon fibers and advanced high-performance composites supply chain in Europe: a roadmap for challenges and the industrial uptake. *Journal of Composites Science*, *3*(3), p.86

Cusmano, L., 2018. SME and Entrepreneurship Financing: The Role of Credit Guarantee Schemes and Mutual Guarantee Societies in supporting finance for small and medium-sized enterprises.

Czinkota, M.R., Kotabe, M., Vrontis, D. and Shams, S.M., 2021. Direct Marketing, Sales Promotion, and Public Relations. In *Marketing Management* (pp. 607-647). Springer, Cham

Delic, M. and Eyers, D.R., 2020. The effect of additive manufacturing adoption on supply chain flexibility and performance: An empirical analysis from the automotive industry. *International Journal of Production Economics*, *228*, p.107689

Delic, M., Eyers, D.R. and Mikulic, J., 2019. Additive manufacturing: empirical evidence for supply chain integration and performance from the automotive industry. *Supply Chain Management: An International Journal*

Demir, E., Huckle, K., Syntetos, A., Lahy, A. and Wilson, M., 2019. Vehicle routing problem: Past and future. In *Contemporary operations and logistics* (pp. 97-117). Palgrave Macmillan, Cham

Domadenik, P., Painventory, F., Koman, M. and Redek, T., 2020. Innovation for a Greener and More Profitable Future: A Conceptual Approach. In *Challenges on the Path Toward Sustainability in Europe*. Emerald Publishing Limited.

Faleiro, J., 2018. Automating Truth: The Case for Crowd-Powered Scientific Investigation in Economics. *arXiv preprint arXiv:1809.02671*.

Felsberger, A., Qaiser, F.H., Choudhary, A. and Reiner, G., 2020. The impact of Industry 4.0 on the reconciliation of dynamic capabilities: Evidence from the European manufacturing industries. *Production Planning & Control*

Fernando, Y., Jasmi, M.F.A. and Shaharudin, M.S., 2019. Maritime green supply chain management: Its light and shadow on the bottom-line dimensions of sustainable business performance. *International Journal of Shipping and Transport Logistics*, *11*(1), pp.60-93

Ferrer, M. and Santa, R., 2017. The mediating role of outsourcing in the relationship between speed, flexibility and performance: a Saudi Arabian study. *International Journal of Productivity and Quality Management*, *22*(3), pp.395-412

Fox, M., Mitchell, M., Dean, M., Elliott, C. and Campbell, K., 2018. The seafood supply chain from a fraudulent perspective. *Food Security*, *10*(4), pp.939-963

Ghadimi, P., Wang, C. and Lim, M.K., 2019. Sustainable supply chain modeling and analysis: Past debate, present problems, and future challenges. *Resources, conservation, and recycling*, *140*, pp.72-84

Hall, D.M., Algiers, A. and Levitt, R.E., 2018. Identifying the role of supply chain integration practices in the adoption of systemic innovations. *Journal of management in engineering*, *34*(6), p.04018030

Halldórsson, Á., Sundgren, C. and Wehner, J., 2019. Sustainable supply chains and energy: where 'planet 'meets 'profit'. In *Handbook on the Sustainable Supply Chain*. Edward Elgar Publishing

Harrison, A., Skipworth, H., van Hoek, R.I. and Aitken, J., 2019. *Logistics management and strategy: competing through the supply chain*. Pearson UK

Harrison, P.H., 2017. *The Participatory Design of a Human-Powered Shredder for Urban Farmers in Soweto* (Doctoral dissertation, University of Johannesburg

Jochem, P., Gómez Vilchez, J.J., Ensslen, A., Schäuble, J. and Fichtner, W., 2018. Methods for forecasting the market penetration of electric drivetrains in the passenger car market. *Transport Reviews*, *38*(3), pp.322-348.

Kaur, J., Sidhu, R., Awasthi, A., Chauhan, S. and Goyal, S., 2018. A DEMATEL based approach for investigating barriers in green supply chain management in Canadian manufacturing firms. *International Journal of Production Research*, *56*(1-2), pp.312-332

Kenyon, G.N., Goldsmith, M., Neureuther, B.D. and Zhou, D., 2018. Improving the return on investment in ports: opportunities in data management. *Maritime Economics & Logistics*, *20*(4), pp.514-530

Khedmatgozar, H.R., 2021. The impact of perceived risks on internet banking adoption in Iran: a longitudinal survey. *Electronic Commerce Research*, *21*(1), pp.147-167.

Kumar, S., Luthra, S., Govindan, K., Kumar, N. and Haleem, A., 2016. Barriers in green lean six sigma product development process: an ISM approach. *Production Planning & Control*, *27*(7-8), pp.604-620

Langley, D.J., van Doorn, J., Ng, I.C., Stieglitz, S., Lazovik, A. and Boonstra, A., 2021. The Internet of Everything: Smart things and their impact on business models. *Journal of Business Research*, *122*, pp.853-863

Mahankali, S., 2019. *Blockchain: The Untold Story: From Birth of Internet to Future of Blockchain*. BPB Publications

Marchi, B. and Zanoni, S., 2017. Supply chain management for improved energy efficiency: Review and opportunities. *Energies*, *10*(10), p.1618

Martinez-Sanchez, A. and Lahoz-Leo, F., 2018. Supply chain agility: a mediator for absorptive capacity. *Baltic Journal of Management*.

McBeath, A., 2020. Doing Quantitative Research with a Survey. In *Enjoying Research in Counselling and Psychotherapy* (pp. 175-193)

Miles, I. and Boden, M., 2019. Introduction: Are services special? In *Services and the knowledge-based economy* (pp. 1-20). Routledge

Mohajan, H.K., 2020. Quantitative Research: A Successful Investigation in Natural and Social Sciences. *Journal of Economic Development, Environment and People*, *9*(4), pp.50-79

Morais, D.O. and Silvestre, B.S., 2018. Advancing social sustainability in supply chain management: Lessons from multiple case studies in an emerging economy. *Journal of Cleaner Production*, *199*, pp.222-235

Ojha, D., Acharya, C. and Cooper, D., 2018. Transformational leadership and supply chain ambidexterity: Mediating role of supply chain organizational learning and moderating role of uncertainty. *International Journal of Production Economics*, *197*, pp.215-231

Packowski, J., 2013. *LEAN supply chain planning: the new supply chain management paradigm for process industries to master today's VUCA World*. CRC Press.

Pala, M., 2018. *Implementing inter-organizational information systems for the integration of construction supply chains* (Doctoral dissertation, Loughborough University)

Panno, A., 2019. Performance measurement and management in small companies of the service sector; evidence from a sample of Italian hotels. *Measuring business excellence*

Petricevic, O. and Teece, D.J., 2019. The structural reshaping of globalization: Implications for strategic sectors, profiting from innovation, and the multinational enterprise. *Journal of International Business Studies*, *50*(9), pp.1487-1512

Plotkin, S., Robinson, J.M., Cunningham, G., Iqbal, R. and Larsen, S., 2017. The complexity and cost of vaccine manufacturing–an overview. *Vaccine*, *35*(33), pp.4064-4071

Rajaguru, R. and Matanda, M.J., 2019. Role of compatibility and supply chain process integration in facilitating supply chain capabilities and organizational performance. *Supply Chain Management: An International Journal*

Rajini, J., Nagaraju, D. and Narayanan, S., 2018. Integration of lean, Six Sigma and theory of constraints for productivity improvement of mining industry. *International Journal of Productivity and Quality Management*, *24*(3), pp.424-440.

Rapaccini, M., Saccani, N., Kowalkowski, C., Paiola, M. and Adrodegari, F., 2020. Navigating disruptive crises through service-led growth: The impact of COVID-19 on Italian manufacturing firms. *Industrial Marketing Management*, *88*, pp.225-237

Reefke, H. and Sundaram, D., 2018. Sustainable supply chain management: Decision models for transformation and maturity. *Decision Support Systems*, *113*, pp.56-72

Rejeb, A., Keogh, J.G., Wamba, S.F. and Treiblmaier, H., 2020. The potential of augmented reality in supply chain management: a state-of-the-art review. *Management Review Quarterly*, pp.1-38

Robinson, J., Harrison, P., Shen, J. and Wu, F., 2020. Financing urban development, three business models: Johannesburg, Shanghai and London. *Progress in Planning*, p.100513

Sardesai, S., Stute, M., Fornasiero, R., Kalaitzi, D., Barros, A.C., Multu, C. and Muerza, V., 2021. Future scenario settings for supply chains. In *Next Generation Supply Chains* (pp. 61-78). Springer, Cham

Severo, E.A., Dorion, E.C.H. and Guimarães, J.C.F.D., 2017. Innovation and environmental sustainability: analysis in Brazilian metal-mechanic industry. *International Journal of Innovation and Sustainable Development*, *11*(2-3), pp.230-248.

Singh, R.K. and Kumar, R., 2020. Strategic issues in supply chain management of Indian SMEs due to globalization: an empirical study. *Benchmarking: An International Journal*

Singh, S., Kumar, R., Panchal, R. and Tiwari, M.K., 2021. Impact of COVID-19 on logistics systems and disruptions in food supply chain. *International Journal of Production Research*, *59*(7)

Souza-Luz, A.R. and Gavronski, I., 2019. Ambidextrous supply chain managers in a slow clockspeed industry: evidence from a Brazilian adhesive manufacturer. *Supply Chain Management: An International Journal*

Subramanian, N. and Gunasekaran, A., 2015. Cleaner supply-chain management practices for twenty-first-century organizational competitiveness: Practice-performance framework and research propositions. *International Journal of Production Economics*, *164*, pp.216-233

Susanto, A. and Meiryani, M., 2019. The impact of environmental accounting information system alignment on firm performance and environmental performance: A case of small and medium enterprises s of Indonesia. *International Journal of energy economics and policy*, *9*(2), p.229

Tiwari, S., Wee, H.M. and Daryanto, Y., 2018. Big data analytics in supply chain management between 2010 and 2016: Insights to industries. *Computers & Industrial Engineering*, *115*, pp.319-330

Treiblmaier, H., 2018. The impact of the blockchain on the supply chain: a theory-based research framework and a call for action. *Supply Chain Management: An International Journal*

Uebel, T., 2019. Verifications and (Some of) its Discontents. *Journal for the History of Analytical Philosophy*, *7*(4).

Ulucak, R. and Khan, S.U.D., 2020. Does information and communication technology affect CO_2 mitigation under the pathway of sustainable development during the mode of globalization? *Sustainable Development*, *28*(4), pp.857-867

Vijayvargy, L., Thakkar, J. and Agarwal, G., 2017. Green supply chain management practices and performance: the role of firm-size for emerging economies. *Journal of Manufacturing Technology Management*

Wimschneider, C., Agarwal, N. and Brem, A., 2020. Frugal innovation for the BoP in Brazil-An analysis and comparison with Asian lead markets. *International Journal of Technology Management*, *83*(1-3), pp.134-159

Wowak, K.D., Craighead, C.W., Ketchen Jr, D.J. and Connelly, B.L., 2021. Food for thought: Recalls and outcomes. *Journal of Business Logistics*

Xu, X. and Gursoy, D., 2015. A conceptual framework of sustainable hospitality supply chain management. *Journal of Hospitality Marketing & Management*, *24*(3), pp.229-259

Yeung, H.W.C. and Coe, N., 2015. Toward a dynamic theory of global production networks. *Economic geography*, *91*(1), pp.29-58

Yu, V.F. and Tseng, L.C., 2014. Measuring social compliance performance in the global sustainable supply chain: an AHP approach. *Journal of Information and Optimization Sciences*, *35*(1), pp.47-72

Zandieh, M. and Aslani, B., 2019. A hybrid MCDM approach for order distribution in a multiple-supplier supply chain: A case study. *Journal of Industrial Information Integration*, *16*, p.100104

<div align="center">**Questionnaire**</div>

Name: _____

Gender: _____

Work Experience: _____

Designation _____

Scale:

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

Information Sharing	SDA	DA	N	A	SA
Integrated database & access methods to facilitate an information system in the organization					
Shares business units' proprietary information with trading partners is important					
Share operational and market information externally with the selected supplier and customers is important					
Informing trading partners in advance of changing needs are important					
Sharing information helps in finding new business opportunities					

Inventory Management	SDA	DA	N	A	SA
Our firm and supply chain partners know precisely how to manage inventory					
Our firm and supply chain partners are actively involved in standardizing					
Supply chain practices and operations					
Our firm has inventory system that alerts the user if inventory levels are below or above					
Our firm has the process for alerting the purchasing agent that more inventories should be ordered					
Our firm has the system to take care of damaged and stolen inventory					

Logistics Management	SDA	DA	N	A	SA
Logistics plays an important role in effectiveness of supply chain					
Logistics handled by the procurement department in our firm					
Our firm's logistics department is helping in right material at amount, place, time, and cost					
Logistics help in gaining competitive advantage					
Effective logistics is necessary for any business firm to satisfy the needs and wants of its customers					

Capacity Planning	SDA	DA	N	A	SA
	1	2	3	4	5
Supply chain help in demand management					
Supply chain help in quick response					
Supply chain help in workers utilization & optimization of facility					
Supply chain help in maintain the schedule of activities					
Supply chain help in production process and record keeping					

Productivity Performance	SDA	DA	N	A	SA
	1	2	3	4	5
Supply chain helps Increase in productivity					
Efficient supply chain helps in cost reduction					
Supply chain helps in product quality and product development					
Supply chain helps in improving the overall value chain					
Supply chain helps in improving competitive advantage					

Thesis