



Effectiveness of Sourcing Process of Supply Chain Management in a Textile and Apparel Industries of Bangladesh: A Comparative Case Study

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Abstract

This research aims to study the supply chain dynamics of the Bangladesh RMG industry, pinpointing factors that influence its performance. Using a mixed-methods approach, we surveyed various industry stakeholders—suppliers, manufacturers, and retailers—to uncover challenges in material sourcing. Key findings reveal significant disparities in sourcing practices among garment companies and identify hurdles such as supply chain opacity, communication breakdowns, and coordination lapses. To bolster the industry's global standing and meet organizational objectives, we advocate for enhanced transparency, better stakeholder communication, and improved coordination. Ultimately, our research underscores the pivotal role of efficient material sourcing in the industry's success and suggests avenues for future exploration, like the role of technology in refining sourcing methods.

Keywords: Supply Chain, RMG, Effective Sourcing, Textile and Apparel Industry, Sourcing in Supply Chain

1 Introduction

The apparel industry has been growing rapidly, and the success of this sector largely depends on the effectiveness of the supply chain. Material sourcing is an integral part of the supply chain and plays a crucial role in ensuring that the right raw materials are procured at the right time and at the right price. The process of material sourcing involves various activities such as identifying the suppliers, negotiating prices and finalizing the contracts [1]. The efficiency and effectiveness of this process can have a significant impact on the overall performance of the organization. In Bangladesh, the ready-made garment (RMG) industry is a key contributor to the country's economy. The RMG industry has been growing significantly in the last few decades, and Bangladesh has emerged as one of the leading players in this sector [2]. The success of this industry depends on various factors [3], and effective material-sourcing processes are one of the key factors [4]. In this context, it becomes important to understand the material sourcing process in the RMG industry and identify the barriers that affect its efficiency and effectiveness. This thesis aims to study the material sourcing process in the RMG industry in Bangladesh and identify the barriers that affect its efficiency and effectiveness. The study will provide insights into the material sourcing process and help organizations to understand the challenges and opportunities in this area. The findings of this study will be useful for the organizations operating in the RMG sector in Bangladesh, as well as for researchers and practitioners interested in supply chain management [5]. The garment industry is a cornerstone of the global economy, with supply chain management (SCM)

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being integral to its success. SCM involves overseeing the movement of materials, data, and services from providers to consumers. It's about synchronizing a company's core operations, like forecasting and order fulfillment, to serve customer demand optimally. Bangladesh's textile and ready-made garment industry has risen to prominence in the global marketplace. This study focuses on analyzing the SCM practices of three notable Bangladeshi garment firms: HKD Outdoor Innovations Ltd, Kenpark Apparel Pvt Limited, and BD Pou Hung Limited, Op-seed Co., BD. Ltd. It will juxtapose their procedures with theoretical concepts and real-world observations. To illuminate the intricacies of SCM, this research will detail its main elements [6], including customer interaction, performance metrics, and varying supply chain designs. Through a deep dive into the three companies, the study will offer improvement suggestions. The goal is to meld theoretical SCM understanding with its practical application in the garment sector, giving business students an authentic grasp of real-world operations and offering the companies insights to enhance profitability. Bangladesh's ascent in the ready-made garment (RMG) sector underscores the significance of adept SCM. Textiles significantly contribute to the nation's exports, making efficient SCM paramount for companies to stay competitive. This research aims to bridge the theoretical-practical divide in the RMG sector's SCM. By closely examining three industry leaders, it will afford invaluable insights to those wishing to refine their SCM practices. The research's recommendations have the potential to elevate these companies' operational efficiency. Moreover, this study bears significant weight because it will enrich the existing literature on SCM, especially regarding material sourcing in the garment sector. Its outcomes will guide organizations in making astute decisions, promoting competitiveness and profit. The research will also pave the way for subsequent studies, deepening the field's understanding. This research will zero in on the RMG sector's supply chain efficacy in Bangladesh, focusing on sourcing, inventory management, and commercial activities. While it will critically assess the supply chain practices of selected firms, it won't delve into the broader RMG sector or external influences like government policies [7]. .

2 Literature Review

Supply Chain Management (SCM) necessitates tailoring to customer needs, often achieved through segmentation methods like ABC analysis [8]. Different customer segments might not always require distinct logistics networks. SCM professionals often share demand data with partners to minimize stock excess. Companies like Dell stockpile components, assembling them upon customer demand, while some industries prioritize product standardization. Effective outsourcing ensures retention of core competencies. Key to SCM is integration with IT systems supporting multi-layered decision-making and considering both service and financial metrics. SCM concerns managing the flow of goods, services, and information from origin to consumption [9], optimizing the value chain. Introduced in the 1980s, SCM has evolved, presently addressing the entire value chain. It considers suppliers' processes and technologies to enhance competitive advantage, integrating production, finance, marketing, and human resources [10]. The overarching goal is to ensure timely product delivery, optimizing cost and customer satisfaction. Originating in the early 20th century, SCM has transformed from simple coordination between suppliers and manufacturers to a strategic function [11]. The 1990s introduced "partnering" for mutual benefits, leading to integrated, collaborative supply chains. Present-day SCM emphasizes sustainability [12][13], risk management, and customer service, evolving to ensure organizational competitiveness [14]. SCM is pivotal for organizational success, streamlining production and delivery processes. Effective SCM results in customer satisfaction, cost reduction, and enhanced competitiveness. Responding to market shifts while optimizing efficiency and productivity is essential. Moreover, SCM manages risk [15], ensuring resource availability to meet demands, ultimately enhancing organizational competitiveness [16]. Bangladesh's textile and garment industry is a significant economic pillar. Despite global challenges, Bangladesh's 2022 exports reached a record USD 52.08 billion, with RMG contributing USD 42.61 billion. This success is attributed to governmental and banking sector support. The RMG sector contributed 9.25% to the 2022 GDP, showcasing the industry's robustness and adaptability [17]. SCM is vital for assembling various manufacturing components, ensuring smooth goods and services flow. In Bangladesh's textile and garment industry, supply chains involve suppliers, manufacturers, consumers, and service providers. The industry serves local and foreign customers. The RMG industry navigated COVID-19 challenges [18], showcasing resilience and adaptability.

Decision Level: Effective SCM involves strategic, tactical, and operational decisions. Strategic decisions pertain to long-term supply chain activities, while tactical decisions address short-term business challenges. Integrating the latest technologies and methodologies is vital for supply chain optimization.

Production Level: The textile and apparel industry in Bangladesh employs SCM through planning, sourcing, manufacturing, and delivery [19]. Although a dedicated SCM department might be absent, tasks are performed by departments like Purchase and Merchandise. They ensure a consistent goods flow, emphasizing

timely delivery and cost efficiency. The process involves sales planning, sourcing, analyzing purchase orders, selecting suppliers, price negotiations, and understanding requirements [20].

3 Methodology

In this study, a micro-level analysis is conducted within a specific and limited time frame. The research methodology, which includes the plans and procedures for conducting the study and collecting and analyzing data, is crucial and varies depending on the nature of the research. According to Cresswell (year not specified), there are three main types of research methods: qualitative, quantitative, and mixed methods. In this study, a mixed method approach has been adopted, which involves utilizing both qualitative and quantitative methods simultaneously and then combining their results for comparison and analysis.

3.1 Questionnaires Design

A brief questionnaire was designed for the survey, with a focus on closed-ended questions and only a few open-ended questions included for exploratory purposes. To conduct this research, it has been placed the highest importance on designing a well-constructed, carefully crafted, and focused questionnaire, as this was the key input to this research process and its outcome. To gather the necessary knowledge, this has been conducted a thorough literature review and identified the problems through two sources of input - the literature review and informal discussions with experts in the Bangladesh ready-made garments (RMG) field. All the questions which deemed necessary were then included in this questionnaire. The questionnaires are more like a list of statements. The responder read each statement and rate according to his opinion. Table 1 shows the list of statements used. Each responder put a mark on the right side options marked with 1,2,3,4, and 5.

Table 1: Questionnaires Design

Statements	1	2	3	4	5
Supply chain operating costs are relevant.					
Procurement, manufacturing and delivering stages are able to coordinate to reduce time & cost.					
Company has cost effective transportation system.					
The response time of order placement is fast.					
Inventory management department maintains enough inventories to allow uninterrupted production.					
Order Lead Time is good enough compared with the industry average.					
Suppliers are reliable to supply the right materials to the right place at the right time.					
Company has cost effective warehouse strategies to reduce the cost to maintain inventory.					
Shipments are delivered as per the dateline					
Strategic planning and timely decision has taken to enhance performance					
Supplier relationship Management (SRM) is effective,					
Customer relationship Management (CRM) is effective.					
Just in Time (JIT) Supply Model is applied,					
Holding safety stock and subcontracting are practiced					
Total Quality Management (TQM) is practiced					
Proper coordination among different departments is practiced to ensure the effective supply chain management					
Proper monitoring from top level helps to increase the effectiveness of supply chain management					
Information flow is effective.					
IT Management is up to date and well-practiced					
Elimination of Waste/Unnecessary inventory level is practiced					

3.2 Sample and Respondent

The concept of supply chain management is very new in the Bangladeshi footwear industry, and in order to properly respond to the questionnaire, one's must be completely familiar with the entire supply chain. Additionally, it required proficiency with SCM. Therefore, It had to give AGM, Manager, Executives, and department heads some thought. Over 4000 textile and garment businesses are registered with BGMEA and BKMEA. My population is therefore over 4,000. Data gathering is challenging because there are so many businesses outside of Dhaka in Gazipur, Narayanganj, Cumilla, Mymensingh, and Chittagong. For data and information collection due to time and financial constraints, it is used four businesses.

3.3 Data and Information Collection

In conducting this study, data was gathered through both primary and secondary sources. The study primarily relied on secondary data, which was obtained from various sources such as publications, books, the Bangladesh Economic Review, and annual reports.

Table 2: Data Sources

Primary Sources of Information	Secondary Sources of Information
HKD Outdoor Innovations Ltd	Annual Reports and Periodic Bulletins
Kenpark Apparel Pvt Limited	Different websites
BD Pou Hung Limited	BGMEA and BEMEA
Op-seed Co., BD. Ltd	Company documents,

3.4 Measurement of the Questions -Data Analysis

In analyzing the data collected for this study, Likert's Summative Rating scale used in Section for easy construction of table analysis and reliability of data, Mean rating will be used to rate the variables. Likert's Summative Rating method of analysis was used in the analysis these research questions. The assigned weight to the various alternatives is

Strongly Agree=5, Agree=4, Neutral=3, Disagree=2 and strong disagree=1.

Mean rating was used for the variables.

$$\text{Mean} = \bar{x} = \frac{\sum x}{\sum f}$$

Where f = frequency of respondent

x = weight assigned to each alternative

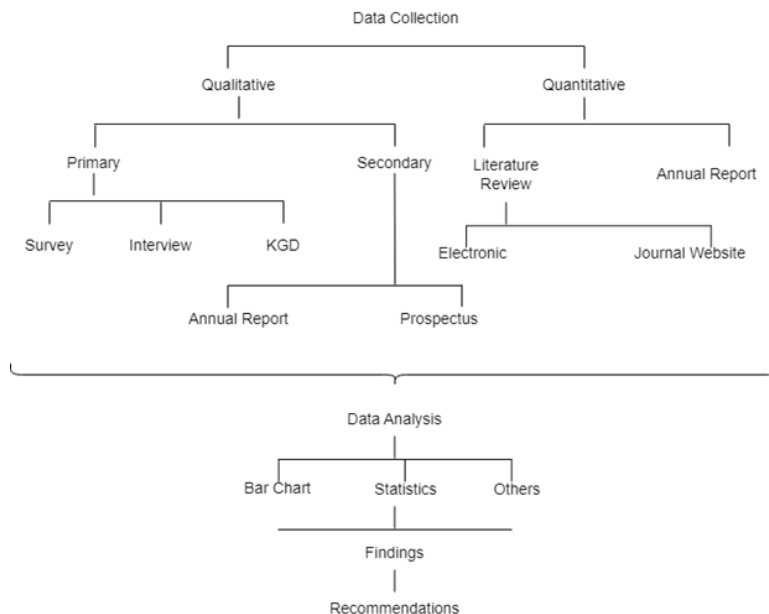


Figure 1: Research Design Processes

Table 3: The decision rule is that the mean (\bar{X}) of the total response

Range	Meaning
4.5 to 5,0	Highly Effective
3.5 to below 4.5	Moderately Effective
2.5 to below 3.5	Marginally Effective
2 to below 2.5	Ineffective
1 to below 2.0	Highly Ineffective

Formula for calculation as used in the research is by multiplication of number of respondents under each option with the weight assigned to the option and summing up to divide by the total number of respondents in order to give the mean rating.

4 Result Analysis

The implementation of Supply Chain Management (SCM) has brought many benefits to the textile and apparel industries. One major advantage is the assurance of an adequate supply of raw materials, as the materials are not readily available in the local market. Through SCM, long-term relationships with suppliers can be established, ensuring a steady supply of high-quality raw materials, even during peak seasons when other companies may face shortages. This leads to lower costs for businesses, which in turn helps to retain existing customers and attract new ones. The effective use of SCM tools enables these industries to better coordinate their supply and demand, resulting in increased profitability and competitiveness in the market.

4.1 Procurement, manufacturing, and delivering stages are able to coordinate to reduce time and cost

56% of the respondents strongly agree that procurement, manufacturing, and delivering stages are able to coordinate to reduce time and cost, with a mean score of 4.40. Additionally, 28% of the respondents agree, while 16% are neutral on this statement. There are no respondents who disagree or strongly disagree with the statement. This suggests that the majority of the respondents perceive that the coordination among the procurement, manufacturing, and delivering stages is effective in reducing time and cost. The mean rate is 4.40 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.2 The response time of order placement is fast

The majority of respondents strongly agree (84%) that the response time of order placement is fast. Only a small percentage of respondents (12%) agree with this statement, while the rest are neutral or have no opinion. The mean score for this statement is high (4.80), indicating that the respondents have a positive perception of the order placement response time. The mean rate is 4.80 which falls into range between 4.5 and 5 which means it is “highly effective”.

4.3 Supply chain operating costs are relevant

The respondents have mixed opinions about whether the supply chain operating costs are relevant. While there are some who strongly disagree (4%) and disagree (36%), there are also some who agree (12%) and strongly agree (0%) that the costs are relevant. The majority of respondents, however, are neutral (48%), indicating that they may not have a clear opinion on this matter. The mean score of 2.68 is quite low, which suggests that the respondents, in general, may not view supply chain operating costs as particularly important. Further investigation or clarification may be necessary to understand the reasons behind these responses. The mean rate is 2.68 which falls into range between 2.5 to below 3.5 which means it is “marginally effective”.

4.4 Inventory management department maintains enough inventories to allow uninterrupted production

A majority of respondents (65%) strongly agree that the inventory management department maintains enough inventories to allow uninterrupted production, with a mean score of 4.58. This indicates that the inventory management strategies and policies of the company are effective in ensuring that sufficient inventory is available to support production activities. However, 27% of the respondents agree, suggesting that there may be some

areas where inventory management could be improved. Overall, the results suggest that the company is performing well in maintaining inventory levels to support production, but there may be opportunities to improve in some areas. The mean rate is 4.58 which falls into range between 4.5 and 5 which means it is “highly effective”.

4.5 Company has cost-effective transportation system

50% of the respondents strongly agree that the company has a cost-effective transportation system, while 31% of the respondents agree with the statement. This indicates that a majority of the respondents feel positively about the company’s transportation system. However, there are also some respondents who are neutral towards the statement, with 19% indicating that they neither agree nor disagree. Additionally, there were no respondents who disagreed or strongly disagreed with the statement, suggesting that there are no major issues with the company’s transportation system. Overall, the mean score for this statement is 4.31, which is relatively high and indicates that the respondents perceive the company’s transportation system to be effective in terms of cost. The mean rate is 4.31 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.6 Suppliers are reliable to supply the right materials to the right place at the right time

The majority of the respondents (88%) agree or strongly agree that suppliers are reliable to supply the right materials to the right place at the right time. The percentage of respondents who strongly agree is 46%, which is a good sign for the company’s supply chain management. The mean score of 4.35 indicates that the company has been successful in managing its suppliers effectively. However, it is worth noting that there are a few respondents who are neutral on this topic, and it would be important for the company to understand their concerns and take necessary steps to address them. Overall, the table suggests that the company’s supplier management strategies are working well, and the majority of the respondents are satisfied with the reliability of the suppliers. The mean rate is 4.35 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.7 Order Lead Time is good enough compared with the industry average

93% of the respondents agree or strongly agree that the order lead time of the company is good enough compared to the industry average. The mean score of 4.23 also indicates a high level of satisfaction with the order lead time. Only 8% of the respondents were neutral, indicating that they neither agree nor disagree with the statement. No one disagreed or strongly disagreed with the statement. This suggests that the company is performing well in terms of delivering orders within a reasonable time frame, which is a critical aspect of supply chain management. Meeting or exceeding industry standards in this regard can help the company maintain a competitive advantage, retain customers, and enhance its reputation in the industry. The mean rate is 4.23 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.8 Company has cost-effective warehouse strategies to reduce the cost to maintain inventory

only 12% of the respondents strongly agree that the company has cost-effective warehouse strategies to reduce the cost of maintaining inventory, while 42% agree with this statement. On the other hand, 27% of the respondents are neutral, 19% disagree, and no respondents strongly disagree with the statement. This indicates that there may be room for improvement in the company’s warehouse strategies to reduce the cost of maintaining inventory. The neutral responses suggest that some respondents may not have enough information to make an informed judgment, while the disagree responses suggest that some respondents may have concerns about the effectiveness of the company’s current warehouse strategies. The mean rate is 3.46 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.9 Shipments are delivered as per the dateline

A majority of the respondents (60%) agreed that shipments are delivered as per the deadline in the supply chain management process. Additionally, 24% of the respondents strongly agreed with the statement. The mean score of 4.08 suggests that the respondents had a positive perception of the timeliness of shipments in the supply chain management process. A smaller percentage of the respondents (16%) were neutral, indicating that they may not have a strong opinion or may have limited knowledge of the delivery process. None of the

respondents disagreed or strongly disagreed with the statement, indicating that the delivery process is generally perceived positively. The mean rate is 4.08 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.10 Strategic planning and timely decision has taken to enhance performance

Based on the responses of the four companies, it appears that there is a relatively positive view of the strategic planning and decision-making processes within their respective supply chain management systems. 64% of the respondents agree that strategic planning and timely decision-making have been taken to enhance performance, which suggests that there is a general sense that the companies are taking the right steps to improve their supply chain management. However, there are some concerns, as 28% of respondents were neutral on this issue and 8% disagreed. This suggests that some companies may not be doing enough in terms of strategic planning or that their decision-making processes may be lacking in some way. Overall, the mean score of 3.56 suggests that while there is some confidence in the strategic planning and decision-making processes, there is also room for improvement. This may require companies to invest more resources into planning and decision-making or to review and refine their current processes to ensure they are effective. The mean rate is 3.56 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.11 Supplier relationship Management (SRM) is effective

The majority of respondents (96%) either strongly agree or agree that Supplier Relationship Management (SRM) is effective in the four companies surveyed, with a mean score of 4.40 out of 5. This suggests that the companies have implemented effective strategies and practices to manage their relationships with suppliers, leading to positive outcomes in their supply chain management. It is noteworthy that one company did not provide a response for the “Neutral” category. This may indicate that the respondents had a clear opinion about the effectiveness of SRM in their respective companies. Additionally, no respondents indicated any disagreement with the statement, suggesting that SRM is a strength in the companies surveyed. Effective SRM can lead to several benefits, including reduced lead times, improved quality, lower costs, and increased innovation. Companies that have strong relationships with their suppliers can collaborate more effectively to achieve common goals, such as improving product quality or reducing costs. The mean rate is 4.40 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.12 Customer Relationship Management (CRM) is effective

44% of the respondents strongly agree that CRM is effective, with a mean rating of 4.44. In addition, 56% of the respondents agree with the statement, but none of them were neutral or disagreed with the statement. There were no respondents who strongly disagreed with the statement. Looking at the company-wise data, it can be seen that Pou Hung had the highest number of respondents (5) who strongly agreed with the statement, followed by Op-Seed with 4 respondents. HKD had 2 respondents who strongly agreed with the statement, while Kenpark had 6 respondents who agreed with the statement. The mean rate is 4.44 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.13 Just in Time (JIT) Supply Model is applied

Just in Time (JIT) Supply Model in four different companies: HKD, Kenpark, Pou Hung, and Op-Seed. The data was collected from a survey, and the respondents were asked to rate their agreement with the statement “JIT Supply Model is applied.” 24% of the respondents strongly agree that the JIT Supply Model is applied, with a mean rating of 4.00. In addition, 52% of the respondents agree with the statement, while 24% were neutral about the statement. There were no respondents who disagreed or strongly disagreed with the statement. Looking at the company-wise data, it can be seen that Op-Seed had the highest number of respondents (4) who strongly agreed with the statement, followed by Kenpark with 1 respondent. HKD and Pou Hung had no respondents who strongly agreed with the statement. However, it is interesting to note that the majority of the respondents from all four companies either agreed or were neutral about the statement, indicating that the JIT Supply Model is being applied to some extent in these companies. The mean rate is 4.00 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.14 Holding safety stock and subcontracting are practiced

52% of the respondents strongly agree that holding safety stock and subcontracting are practiced, with a mean rating of 4.36. In addition, 36% of the respondents agree with the statement, while 8% were neutral about

the statement. Only 4% of the respondents disagreed with the statement, and there were no respondents who strongly disagreed with the statement. Looking at the company-wise data, it can be seen that Kenpark had the highest number of respondents (4) who strongly agreed with the statement, followed by Pou Hung and Op-Seed with 3 respondents each. HKD had 2 respondents who strongly agreed with the statement. The mean rate is 4.36 which falls into range between 3.5 and below 4.5 which means it is “moderately effective”.

4.15 Total Quality Management (TQM) is practiced

56% of the respondents strongly agree that TQM is practiced, with a mean rating of 4.52. Additionally, 40% of the respondents agree with the statement, while 4% were neutral about the statement. No respondents disagreed or strongly disagreed with the statement. Looking at the company-wise data, it can be seen that Op-Seed had the highest number of respondents (6) who strongly agreed with the statement, followed by HKD, Kenpark, and Pou Hung with 2, 3, and 3 respondents, respectively. The mean rate is 4.52 which falls into range between 4.5 and 5, which means it is “highly effective”.

4.16 Proper monitoring from top level helps to increase the effectiveness of supply chain management

Only 1 respondent strongly agrees with the statement, and the overall mean rating is 2.88, which is quite low. The majority of the respondents, i.e., 38%, agree with the statement, while 25% are neutral. However, a significant proportion of the respondents, i.e., 38%, disagree or strongly disagree with the statement. Looking at the company-wise data, it can be seen that HKD had the highest number of respondents (4) who disagree with the statement, followed by Op-Seed with 2 respondents. Kenpark and Pou Hung had relatively fewer respondents who disagreed with the statement, with 0 and 1 respondents, respectively. The mean rate is 2.88 which falls into range between 2.5 to below 3.5 which means it is “marginally effective”.

4.17 Information flow is effective

The results indicate that the majority of the respondents agreed that the information flow is effective, with 52% of them choosing “Agree” and 16% choosing “Strongly Agree.” However, 28% of the respondents were neutral about the information flow. Additionally, 4% of the respondents strongly disagreed that the information flow is effective, while no one chose “Disagree” for this statement. The mean score for this statement is 3.76, which suggests that the respondents are generally positive about the effectiveness of the information flow in the supply chain management. The mean rate is 3.76 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.18 IT Management is up to date and well-practiced

The results indicate that a majority of the respondents strongly agree (48%) that IT management is up to date and well-practiced. Additionally, 36% of the respondents agree with the statement. This suggests that the companies are implementing IT management practices that are effective and current. Furthermore, 16% of the respondents were neutral, indicating that they neither agreed nor disagreed with the statement. This may suggest that some respondents are unsure of the effectiveness of IT management practices in their companies. Notably, none of the respondents disagreed or strongly disagreed with the statement, indicating that the companies are effectively managing their IT systems. The mean rate is 4.32 which falls into range between 3.5 to below 4.5 which means it is “moderately effective”.

4.19 Elimination of Waste/Unnecessary inventory level is practiced

The majority of the respondents, 54%, strongly agreed with the statement. Meanwhile, 42% agreed with the statement, and only 4% remained neutral. There were no respondents who disagreed or strongly disagreed with the statement, indicating that there is a general consensus among the respondents that this practice is being implemented in their companies. Overall, this shows that the companies are taking measures to eliminate waste and unnecessary inventory in their supply chains, which can help to improve their efficiency and reduce costs. By eliminating waste and reducing inventory levels, companies can ensure that they are only producing what is needed, reducing the risk of overproduction, and minimizing the need for storage space. This can lead to a more streamlined supply chain, which can result in faster delivery times and improved customer satisfaction. The mean rate is 4.50 which falls into range between 4.5 and 5 which means it is “highly effective”.

4.20 Proper coordination among different departments is practiced to ensure the effective supply chain management

The majority of respondents, which make up 54% of the total, strongly agreed with this statement, giving it a mean score of 4.50. Additionally, 42% of the respondents agreed with statement. It can be inferred that proper coordination among different departments is effectively practiced to ensure the smooth flow of the supply chain management process. A majority of the respondents strongly agree that this practice is being implemented, which indicates that the different departments are working together seamlessly towards achieving the organization's goals. This collaboration ensures that each department's activities align with the overall supply chain management process and contributes to the achievement of the organization's objectives. Furthermore, the high percentage of respondents who agree with this practice suggests that there may be some minor areas for improvement in coordination among different departments. These improvements could be in the form of regular communication between departments, establishing common goals, and ensuring that all departments have access to the same information. The mean rate is 4.50 which falls into range between 4.5 and 5 which means "highly effective".

4 is a summary of the findings.

Table 4: Findings from the survey

Variables	Mean
Supply chain operating costs are relevant.	4.40 (Moderately Effective)
Procurement, manufacturing and delivering stages are able to coordinate to reduce time & cost.	4.80 (Highly Effective)
Company has cost effective transportation system.	2.68 (Marginally Effective)
The response time of order placement is fast.	4.58 (Highly Effective)
Inventory management department maintains enough inventories to allow uninterrupted production,	4.31 (Moderately Effective)
Order Lead Time is good enough compared with the industry average.	4.35 (Moderately Effective)
Suppliers are reliable to supply the right materials to the right place at the right time.	4.23 (Moderately Effective)
Company has cost effective warehouse strategies to reduce the cost to maintain inventory.	3.46 (Marginally Effective)
Shipments are delivered as per the dateline	4.08 (Moderately Effective)
Strategic planning and timely decision has taken to enhance performance	3.56 (Moderately Effective)
Supplier relationship Management (SRM) is effective	4.40 (Moderately Effective)
Customer relationship Management (CRM) is effective	4.44 (Moderately Effective)
Just in Time (JIT) Supply Mode! is applied	4.00 (Moderately Effective)
Holding safety stock and subcontracting are practiced	4.36 (Moderately Effective)
Total Quality Management (TQM) is practiced	4.52 (Highly Effective)
Proper coordination among different departments is practised to ensure the effective supply chain management	2.88 (Marginally Effective)
Proper monitoring from top level helps to increase the effectiveness of supply chain management	3.76 (Moderately Effective)
Information flow is effective	4.32 (Moderately Effective)
IT Management is up to date and well-practiced	4.50 (Highly Effective)
Elimination of Waste/Unnecessary inventory level is practiced	4.50 (Highly Effective)

5 Discussion

The response time for order placement, order lead time, dependable suppliers, supplier relationship management, and customer relationship management are considered to be moderately effective across all factories in the textile industry in Bangladesh. According to the findings, 56% of respondents think that the activities are just mildly and somewhat effective. This suggests that while the supply chain management in the textile industry is functioning, it still has room for improvement.

The findings also suggest that some aspects of supply chain management in the textile industry in Bangladesh are not effective. The table shows that just-in-time inventory management, supply chain management cost, information flow, strategic planning, appropriate monitoring, and transportation and warehousing costs are not moderately effective or are unsuccessful. This highlights the need for improvement in these areas to ensure that supply chain management is more efficient and effective.

The commercial department, the procurement department, and the retail department are each responsible for different aspects of supply chain management. However, there is a lack of coordination among these departments, which can lead to inefficiencies and negatively impact the supply chain management process. To ensure that the supply chain management is effective, it is important for the different departments to work together and coordinate their efforts.

One of the major challenges faced by the textile industry in Bangladesh is the lack of financing to import high-quality raw cotton, textiles, dyes, and textile industry chemicals. Without adequate financial assistance, sourcing and purchasing cannot be successful, which can result in long lead times and lower-quality raw materials. This hinders the effectiveness of supply chain management and negatively impacts the profitability of the industry.

The lack of raw materials for the textile industry in Bangladesh makes it difficult and dangerous for supply chain workers to do their jobs, which also lengthens lead times. When raw cotton, textiles, dyes, and chemicals are imported from other countries, sometimes the expected level of quality is not upheld. This can result in the production of subpar products and negatively impact the reputation of the industry.

There are several obstacles that can hinder the improvement of supply chain management in the textile industry in Bangladesh. Unfair customs, clearing and forwarding agency practices, labor practices, unlawful shipping and transportation harassment, political turmoil, and self-interested individuals can sometimes seriously hinder the improvement of the supply chain's function in the industry. To overcome these obstacles, it is important for the government to provide a stable and supportive environment for the textile industry to thrive.

The lack of documentation of planning and process has been seen in the textile industry in Bangladesh. This can result in a lack of transparency and accountability in the supply chain management process [21]. There are also problems with communication and transparency among the workforce, which can lead to inefficiencies and mistakes in supply chain management [22]. In conclusion, the textile industry in Bangladesh is facing several challenges in terms of supply chain management. From the analysis of the findings, it is clear that there are several areas that need to be improved and rationalized, including the responsibilities and authority of the SCM department, the information flow and communication challenges, the transportation system, raw material sourcing, documentation, and workforce training. To address these issues, the government, top management, and all stakeholders must work together to find effective solutions. This can be achieved through research and development initiatives, improving the local distribution route, establishing productive cooperative associations, penalizing delays in shipment, taking action against unfair practices, increasing accountability, investing in technology and automated production machinery, and engaging qualified personnel for SCM. By implementing these measures, the textile industry in Bangladesh can improve its supply chain management, which in turn will increase efficiency, reduce costs, and enhance the competitiveness of the industry.

6 Conclusion

Supply Chain Management is a critical aspect of any business and its effectiveness has a direct impact on the success of the organization. Bangladesh is one of the leading textile and apparel industries in the world, it is imperative that the supply chain management practices are optimized to improve the efficiency and competitiveness of the industry. This essay will highlight some of the challenges faced by supply chain management in Bangladesh and will suggest some ways to improve and rationalize the responsibilities and authority of the supply chain management department. The first challenge faced by the supply chain management in Bangladesh is the lack of coordination between the commercial department, procurement department, and retail department. Each department is responsible for different aspects of supply chain management, and there is a need for a better alignment of responsibilities to improve the overall efficiency of the supply chain. Another challenge faced by the industry is the lack of effective information flow and communication between different departments. This often leads to a lack of transparency and leads to difficulties in making informed decisions. Improving the infor-

mation flow and communication within the organization is crucial to enhance the efficiency of the supply chain. Transportation and logistics are a crucial part of the supply chain and play a significant role in determining its success of the supply chain. In Bangladesh, the transportation and warehousing costs are not effective, and the government needs to take action to improve the local distribution route and stop the highway bribe and theft. Additionally, the factories need to send their goods by ship to avoid airplane transportation and produce the product within the stipulated timeline. One of the main challenges in Bangladesh's textile industry is the lack of raw materials. The Cotton Development Board under the Ministry of Agriculture should conduct more research and encourage the production of quality cotton in Bangladesh to minimize the lead time in a great percentage. The industry should also make a productive cooperative association with national and international manufacturers, suppliers, and customers for information exchanging, sourcing, and negotiating, which will help to improve transparency and communication problems. The government should take action against unfair practices of highway traffic police, customs, C&F agents, and labor, illegal harassment in shipment and transportation, and ensure political stability. Additionally, shippers must ship within the stipulated date as mentioned in the letter of credit, and without prior approval of the buyer for an extension of the shipment date, delay in shipment must be penalized. Top management plays a crucial role in improving supply chain management practices in Bangladesh. They need to monitor the supply chain process and increase accountability without partiality. Engaging qualified people for SCM and training the workforce is also essential. The top management should also prioritize more on automated production machinery and technology rather than human-reliant production. In conclusion, the textile and apparel industry in Bangladesh faces various challenges in its supply chain management practices. Improving and rationalizing the responsibilities and authority of the SCM department, improving the information flow and communication, finding cost-effective transportation systems, improving the raw materials' quality, and promoting transparency and communication are some of the ways that can help the industry to overcome these challenges. One of the major limitations of this study is the scope of the research, which is limited to the textile and apparel industry in Bangladesh. Another limitation is the availability of data, as data collection from the textile and apparel companies can be challenging, especially in terms of confidentiality and accuracy. This study makes a significant contribution to the existing literature by examining the current state of supply chain management practices in the Bangladesh textile and apparel industry and providing recommendations for improvement. The findings of this study could be used by practitioners and researchers as a reference to develop future research in this field. Future research could focus on the implementation of the recommended improvements and the impact they have on the competitiveness of the Bangladesh textile and apparel industry. Another area of future research could be to expand the scope of the study to other countries and industries and to compare the supply chain management practices in these industries.

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