



Daffodil
International
University

Faculty of Engineering
Department of Textile Engineering

**“AN INVESTIGATION TO IDENTIFY THE
CHALLENGES IN APPAREL SUPPLY CHAIN
MANAGEMENT: BANGLADESH PERSPECTIVE”**

Course code: TH-519 Course title: Thesis / Project

Submitted by:

Md. Shafiul Hoque

163-32-321

Supervisor:

Engr. Asit Ghosh

Assistant Professor

Department of Textile Engineering

This thesis submitted in partial fulfillment of the requirements for the degree of

Master of Science in Textile Engineering

January, 2023

DECLARATION

I hereby declare that, this thesis has done by myself **Md. Shafiul Hoque** under the supervision of **Engr. Mr. Asit Ghosh**, Assistant Professor, Department of Textile Engineering, and Daffodil International University. I also declare that neither this thesis nor any part of this thesis has been submitted elsewhere for award of any degree or diploma.

Name of Student with ID Signature of Student



Md. Shafiul Hoque

Program: M.Sc in Textile Engineering

ID No: 163-32-331

Daffodil International University.

Supervised by:



Engr. Mr. Asit Ghosh

Assistant Professor

Department of Textile Engineering

Daffodil International University

LETTER OF APPROVAL

To

Engr. Asit Ghosh

Department of Textile Engineering

Daffodil International University.

Subject: Submission of thesis report.

Dear Sir,

My-self **Md. Shafiul Hoque student** of Department of Textile Engineering, Daffodil International University have successfully completed my thesis. I am submitting my thesis on **“AN INVESTIGATION TO IDENTIFY THE CHALLENGES IN APPAREL SUPPLY CHAIN MANAGEMENT: BANGLADESH PERSPECTIVE”** as the part of the credit requirement for M.Sc degree to be awarded by Daffodil International University.

The thesis is being cordially submitted for your kind assessment. It would be a profound pleasure for me if you appreciate the endeavor by giving any short of recommendation and valued suggestion.

Sincerely Yours

Md. Shafiul Hoque

Program: M.Sc in Textile Engineering

ID No: 163-32-331

Daffodil International University.

Supervisor

Engr. Asit Ghosh

Assistant Professor, Department of Textile Engineering

Daffodil International University.

ACKNOWLEDGEMENT

This is an academic function of Daffodil International University. I express my heartiest thanks and gratefulness to almighty God for His divine blessing and possible to complete this thesis successfully. Many people helped me in conducting this thesis and I would like to thank all of them in particular, my parents who encouraged and support me a lot in all the way of work, my teachers, seniors of DIU and my teachers of textile department of Daffodil International University. I am highly delighted to express my regards & gratitude to honorable **Asst. Prof. Mr. Asit Ghosh**, Department of Textile Engineering, and Daffodil International University for giving me the opportunity to accomplish the thesis on **“AN INVESTIGATION TO IDENTIFY THE CHALLENGES IN APPAREL SUPPLY CHAIN MANAGEMENT: BANGLADESH PERSPECTIVE”**.

Above all, I would like to acknowledge my deep debt to my teachers of textile department for their kind inspiration and help made it possible to complete this thesis.

I would like to acknowledge that I tried to acquire and give the accurate information in the report. I remain responsible for the inadequacies and errors, which doubtless remain in the following report.

ABSTRACT

The main theme of this research project is the observation and analysis how to maintain the Shipment of the Merchandising Department on Time by expanding Supply Chain Management System. The project also highlights the comparative analysis of the practices followed by merchandisers in the retailer side, mills and those in the Agents, on the basis of the functions which support the supply chain. In the discussion, I have highlighted importance of the Role played by an Agent and by the merchandisers of Buyer and supplier in different situations. By our research work we find out the challenges face by merchandisers and then we come up with some suggestions.

By conducting research, we learn about the difficulties that merchandisers encounter and then generate some solutions. This study project was created by getting in touch with visiting and interviewing merchandisers employed by companies like GMS Composite Knitting Ind. Ltd, Palmol Group & GMS Textile Ltd. This research project has been integrated to deliver in-depth understanding about the actions which merchandisers perform in a mill and in a buying house by analyzing the information and data from the visits and the interviews.

LIST OF CONTENTS

Chapter	Contents Name	Page
	Declaration	ii
	Letter of Approval	iii
	Acknowledgement	iv
	Abstract	v
	List of contents	vi-viii
	List of Figures	ix
	Chapter 1: Introduction	1-4
1.1	Introduction	1-3
1.2	Objectives of the study	4
1.3	Why need this study?	4
1.4	Technique used in this study	4
	Chapter 2: Literature Review	5-27
2.1	Literature Review	5-6
2.2	Maintain the shipment on time by Expand Supply Chain Management System On Merchandising Department	6-7
2.3	Historical Background of Supply chain	7
2.4	Introduction to Demand and Supply Chain Management	8
2.5	Modern Demand and Supply Chain Management Systems	9
2.6	Tools of Managing a Supply Chain Management System	9
2.7	Trends in supply chain	10
2.7.1	Technologies	10
2.7.2	Lead time	10
2.7.3	Outsourcing	11
2.7.4	Cross Docking	11
2.7.5	Enterprise Resource Planning (ERP)	11
2.8	Elements that impact the implementation of an international supply chain management	11

2.9	Competitiveness in the Bangladeshi RMG areas	13
2.10	The Concept of Textile Merchandising	14
2.10.1	Retail Merchandise	14
2.10.2	Textile Mills and Buying House	15
2.11	Why Supply Chain Management in the Apparel Industry	18
2.12	Supply Chain Management Applicable to	19
2.13	Supply Chain Management is everywhere	20
2.14	Importance of supply chain Management in Apparel Industry	20
2.15	Production System in Apparel Manufacturing	20
2.16.1	Follow up's & Updates	21
2.16.2	Inter Department Co-ordination	21
2.16.3	Supply Chain Planning	22
2.16.4	Supply Chain Implementation	22
2.16.5	Strategic Procurement	22
2.16.6	Monitoring the Supply Environment:	22
2.17	The Execution of order plan by Merchandising Department	24
2.17.1	Receipt of Order	24
2.17.2	Preparing A Detailed Time and Action Plan (T&A)	24
2.17.3	Fabric Ordering	25
2.18	Skills & Knowledge Required for Apparel Merchandiser	27
2.19	Term of Apparel Merchandising	27
2.20	Main Function of A Merchandiser to Execute an Order	27
2.21	Merchandisers Work Usually Involves	28
2.22	Key of Apparel Merchandising	28
2.22.1	Quick Response	28
2.22.2	Sample Development	28
	Chapter 3: Materials and Methods	31-35
3.1	Methodology	31
3.2	Materials	33
3.3	Scopes	34

3.4	Limitation	35
	Chapter 4: Result and Discussion	36-47
4.1	Analysis & Explanation of Data	36
4.2	Merit of Supply Chain	45
4.3	Demerit of Supply Chain	46
4.4	Findings of the Study	47
	Chapter 5 : Conclusion	48-49
5.1	Conclusion	48
5.2	Recommendations	49
	References	50-51
	Appendixes	52-54
Appendix -1:	Appendices (Part-01) Sample Questionnaire	52
Appendix-2:	Open Questionnaire, if you have any other consideration factor	55

LIST OF FIGURES

Number Page

Figure 2.1 Typical supply chain	08
Figure 2.2 Factors that influence the performance of a global supply chain	12
Figure 2.3 International competitive market shares in the export of RMG	14
Figure 2.4 Traditional merchandising structure	15
Figure 2.5 Flow chart of merchandiser activities	16
Figure 2.6 Departmental structure on the basis of customers	17
Figure 2.7 Departmental structures on the basis of geography	17
Figure 2.8 Supply Chain Management in Apparel Industry	19
Figure 2.9 Basic Components of Supply Chain Management in Apparel Industry	20
Figure 2.10 Time and Action Plan (TNA) in Apparel Industry	25
Figure: 4.1 Supply Chain Activities of Garments Industry	46
Figure: 4.2 How to Reduce Air Shipment by Supply Chain	46

CHAPTER 1: INTRODUCTION

1.1 Introduction

For the past 20 years, Bangladesh's exports of ready-made clothing (RMG) have grown so quickly that they now account for the majority of the country's overall exports. RMG exports from Bangladesh were valued at approximately US\$32 million per year in 1983–84, but they continued to increase rapidly, reaching almost US\$18,000 million in 2011–12. (Export Promotion Bureau, Bangladesh, 2012). A massive industry for Bangladesh is now the apparel sector (Shahriar, 2014). It acts as an engine for the expansion and improvement of the economy. The expansion of work opportunities, particularly for women, and the capacity to do so are phenomena. The nation was among the world's poorest after gaining independence in 1971. (World Bank 2005). According to the BGMEA (2016), the sector is Bangladesh's top export earner and has a major impact on economic expansion. Bangladesh's competitive advantage in the global RMG market is mostly due to its low cost of labor. The MFA is a quota system used by the US federal government to encourage trade with nations like Cambodia, Sri Lanka, China, Kenya, and others in order to improve those nations' manufacturing capacity and competitiveness. After the MFA was rendered obsolete in 2005, Bangladesh began to see increased anticipated and unexpected competition from several countries that produce RMG (Asgari and Hoque, 2013). For all participants, the market has truly opened up. The Bangladesh RMG sector is currently having issues with lead time, pricing, quality, and customer service. Numerous reputable purchasers from various nations throughout the world are undertaking simultaneous trade activities with other nations. As inexpensive labor is abundant in some regions of the world while raw materials are easily accessible in others, globalization has become the norm. Additionally, there are several time-consuming factors that vary greatly across customers on different continents of the world, such as their sensitivity to cost, time, and quality. One could argue that Bangladesh could maintain its competitiveness by effectively implementing integrated SCM. The needed efficiency and responsiveness must be met in order to achieve this competitiveness. In the past, all businesses focused solely on enhancing their own operational effectiveness while ignoring the varied Supply Chain partners (Power, et al., 2001). This indicates that instead of using an extended supply chain, corporations used to just use a quarter supply network. The extended supply chain idea takes into account a full process, recognizing suppliers as upstream suppliers and downstream customers of upstream suppliers.

1.1.1 Apparel Supply chain

A supply chain is actually a complex and dynamic supply and demand network. A supply chain is a system of organizations, people, activities, information, and resources involved in moving product or service from supplier to customer. A clothing product may go a long way from the manufacturing of the fabric to the distribution of the garment and finally to the retail customer. (Johnson, 2002). A worldwide apparel supply network is made up of a variety of organizations, including retailers, merchandisers and designers, fabric suppliers, factories that make clothes, and firms that handle distribution, shipping, and warehousing. (Dickerson, 1999)

1.1.2 The three key entities of the apparel supply chain are:

The Apparel Importer/Buyer

- ✓ The presumption of the buyers is of utmost importance
- ✓ The buyer could be a retailer, a brand owner or a wholesaler

The Buying House

- ✓ The buying house is a mediator between the buyer and the seller
- ✓ Help to liaise all activities in the country of manufacture for its principals.

The Apparel Manufacturer/Exporter

- ✓ Most key points in the supply chain.
- ✓ The manufacturer produces the merchandise demanded/ ordered by the buyers in the specification, quality, price and time

1.1.3 Pre-condition for running the Apparel supply chain successfully

- A clear line of communication amongst all members of the value chain is of prime importance
- All efforts must be participative and must involve linking amongst all chain members

1.1.4 Key issues that need to be understood

- ✓ The different participants within the network
- ✓ The nature of their relationships

- ✓ Ownership, power and control structures
- ✓ How the network is managed, coordinated and controlled and how information flows in the network

(McCarthy and Jayathnae, 2009)

1.1.5 Competitiveness in Apparel Supply Chain

Competitive means

- To maintain and expand a firm in the global market, one must optimize their offerings in terms of both strategies and competitiveness.
- Supply-chain competitiveness is a multifaceted issue that calls for structural alignment amongst all supply-chain participants.
- Cost, logistics, a flexible supply chain, quality, delivery, product availability, new products, value-added products, and customer-supplier relationships are some crucial aspects of competitiveness. (Nowell 2005, Cooper et al. 1997).

1.1.6 Most important metrics to judge the performance of textile and apparel supply chains are-

- Cost,
- timeliness of delivery,
- quality,
- capacity,
- lead time

In this situation, merchandisers are crucial because they make sure the proper product is delivered to the customer at the ideal timing, price, and quality. However, merchandisers must overcome many obstacles to complete these jobs.

In this area, there has been a tremendous amount of methodical investigation. As a result, we continue out this study.

1.1.7 The major objectives of apparel supply chain management are:

- Time
- Cost
- Agility/Fastness

1.2 Objectives of the study

To achieve these objectives –

- In apparel industry's effective measures are taken at points which reduce the cost of goods exports.
- Identify value added at each stage of the value chain

1.3 Why need this Study?

Supply chain management is applicable to all tasks, procedures, and activities. Supply chain management guarantees the timely and cost-effective delivery of goods, resources, and services to the appropriate location. You can get a better logistical solution via SCM. In an organization, everything is interconnected; all you need to do is identify the components and processes, examine them, and make plans for a better relationship. A rational supply chain management innovation will always reward you for running an effective business, which will ultimately lead to success.

1.4 Technique used in this study

Cluster area sampling and stratified random sampling were utilized in the study's probability sampling technique to find the organizations to analyze. The probability sampling method was chosen for this investigation out of all the sampling techniques.

CHAPTER 2: LITERATURE REVIEW

2.1 Literature Review

The International Chamber of Commerce defines SCM as the management of the acquisition, transformation, and delivery processes that enable and direct the flows of products and services, as well as the supporting reciprocal flows of information and funds, along a chain leading from the sources of the original inputs up to the end customers, with the goal of achieving the best customer service at the lowest cost. Supply chain management is the systematic, strategic coordination of traditional business functions and tactics across these functions within a specific organization and across businesses within the supply chain with the goal of enhancing the long-term performance of the individual organizations and the supply chain as a whole, according to the Council of Logistics Management (2000). In order to be more competitive, organizations began to understand how important it was to improve the SC as a whole rather than just within the organization. They now understand that comprehending and putting into practice strong supply chain management (SCM) methods is a need for successfully competing in a global market (Power et al., 2001; Li et al., 2005).

SCM, according to Chen and Paulraj (2004), is a cutting-edge management concept that acknowledges that supply chains, rather than individual enterprises, now compete in markets. A study on the supply chain efficiency of Bangladeshi apparel manufacturing enterprises was given by Basak et al. in 2016. The investigational study's main objective was a conceptual supply chain management (SCM) model for Bangladesh's RMG industry. The study made the case that all parties engaged in extended SCM ought to cooperate with one another both vertically and horizontally.

Only a few research on various topics related to the garment industry have been conducted in Bangladesh. According to Asgari and Hoque (2013), customers' needs are growing more and more time-sensitive. Additionally, they said that shorter lead times, higher quality, and lower costs may help them earn more business from clients. The goal of the project was to "provide the Bangladeshi apparel sector a competitive advantage through an integrated supply chain. "According to Hossain and Roy (2013), SCM is essential for the Bangladeshi ready-to-wear industry to experience sustained growth. They named the pay scale, the supplier chain, the timeline, and compliance as some of the most crucial company characteristics. SCM was put out by Tanvir and Muqaddin (2013) as the new paradigm for the Bangladeshi clothing sector. The report gave a broad assessment of Bangladesh's garment industry's achievements as well as a worldwide environment for discussion. A conceptual framework for the supply chain

management of factories in the garment sector was developed by Shahryar et al. (2014), who came to the conclusion that, if used, the framework would increase both effectiveness and efficiency.

A case study on the supply chain management of clothing order processes was presented by Islam and Liang in 2015. Since more than 80% of input materials are imported, the study concluded that import dependency on backward-linked industries is the primary cause of extended lead times. For the RMG sector, importing fabrics takes 55–75 days. According to the survey, the industry generally experiences lead times of 90 to 130 days. Their investigation shows that knowledge lead time has a relatively small effect on overall lead time, accounting for only 6% of it. Agami et al. (2012) presented a variety of approaches for gauging supply chain performance, including efficiency-based, perspective-based, financial-based, and non-financial-based approaches. Additionally, offered were SCOR and Scorecard. The study listed the benefits and drawbacks of each measurement system that was suggested. Razzaque (1997) discussed the difficulties in developing logistics, using Bangladesh as a case study. According to the study, the biggest barrier to growth or change is a refusal to acknowledge the necessity of change, and competitive advantages are developed and maintained through a highly localized process.

Kader and Akter (2014) analyzed the variables influencing the lead time for exporting ready-made clothing from Bangladesh and gave related recommendations for strategically reducing the lead time. A three-step technique was suggested by the study to guarantee a reduced lead time. The effective SCM characteristics for the textile industry, according to Ali and Habib (2012), were lower inventories, cheaper costs, higher productivity, greater agility, shorter lead times, higher profits, and increased customer loyalty.

The article covered the challenges facing Bangladesh's textile business, such as poor communication, SCM's lack of visibility, lengthy lead times, etc., which would open the door for more study to advance this industry. Though there aren't many research on the RMG challenges facing Bangladesh, there aren't many on the difficulties in effectively implementing SCM.

2.2. Maintain the shipment on time by Expand Supply Chain Management System on Merchandising Department

The post-World War II supply chain consisted of a series of customized, sequential procedures that formed a human/paper chain connecting producers, distributors, retailers, and

customers. All of the chain's layers were physically connected via people and paper, which frequently led to misunderstandings between the front- and back-end operations. The coordination of inventory management, demand planning and forecasting, shipping, and tracking was hardly a precise science. However, as the economy and manufacturing grew in the 1950s, there was more awareness of the need for SCM. Manufacturing Resources Planning (MRP-II) was created in the 1980s, bringing with it technologies that could be used for scheduling all manufacturing resources, including those related to operational, financial, business, and capacity planning.

The supply chain management reflects those actions & values responsible for the continuous improvement of the design, development & management processes of an organization's supply system, with the objective of improving its profitability & ensuring its survival, as well as the profitability & survival of its customers & suppliers. A firm's supply system includes all internal functions plus external suppliers involved in the identification & fulfillment of needs for materials, equipment & services in an optimized fashion. Supply management lays the foundation for, and is the key to, successful supply chain management.

Meanwhile, to execute order properly I have included supply chain management. I identified these supply chain areas from my own observation managers may apply analysis or decision support tools. I provide a brief description of the basic content mention likely operations research based tools to aid in analysis & decision support. As a merchandiser it is so important to know the supply chain management to control the merchandising system he/she must have proper understanding about the whole supply chain management to ensure smooth handling the merchandising movement in order to succeed the merchandising plan. That is why my total dissertation basically based on the relationship between supply chain management & merchandising department which can able together to supply an outstanding feedback for the apparel industries.

2.3 Historical Background of Supply Chain in Bangladesh

Comprehending the consumer's perspective is the first step in understanding the historical basis of logistics. The year 1940 marked the beginning of the Supplier's focus on customer values. After 20 years, the first generation of modernized logistics theory was introduced in 1960, focused solely on the flow of the material to minimize the maximum cost. This idea

only becomes a good theory, not in practice (Ericsson, Key to success in the digital economy, 2001).

The second generation of logistics concepts emerged in the early 1970s, solely focused on maximizing income through organizational management restructuring and the growth of positive vendor relationships in order to meet the impending difficulties of competition. Many organizations began to integrate through global sourcing, which started to take center stage in the late 1980s. The concept of globalization has given supply chain management a firm hold to boost competitive advantage, provide value, and save costs. Globalization introduced foreign competition into formerly local markets.

Due to increased competition brought on by globalization, modern businesses are under pressure to act rapidly so they can promote their products. We can see that people are now more interested in integration or partnership building than in material planning and inventory management.



Figure 2.1 Typical supply chains

2.4 Introduction to Demand and Supply Chain Management

The supply chain management provides businesses with a platform to combine information and resources in order to accomplish objectives through planning, controlling, and organizing. Materials move upstream to downstream in a supply chain, whereas demand information moves in the other direction. To reduce the forthcoming issues of cost and inventory, businesses are moving toward new strategies to develop business-to-business

(B2B) relationships in the upstream and downstream (B2C) business to customer relationships.

See the below important elements of the supply chain management

- Customer
- Planning
- Purchasing
- Inventory
- Production
- Transportation

2.5 Modern Demand and Supply Chain Management Systems

Logistics and supply chain management are continuing to acquire relevance as the level of competition rises and customer service becomes more crucial to stand out from the competition. Supply chain management has advanced logistics management by connecting with suppliers and customers upstream and downstream, beyond business boundaries. As a result, the supply chain is viewed as an integrated system through which a new connection between a retailer and a supplier has emerged. Companies are becoming aware of the potential in supply chain management to enhance both their cost and customer service performance as supply networks become more global. Supply chain management makes a significant contribution to a company's overall performance and value proposition. It is now well recognized that all business processes and activities along the supply chain must be in balance and oriented toward a single objective in order to achieve improved service levels without imposing an excessive financial burden. Instead of having a restricted functional focus, this necessitates a complete perspective of the supply chain as an interconnected chain or network (Larsson, Integration in the Supply Chain, 2009).

2.6 Tools of Managing a Supply Chain Management System

The majority of supply chains balance speed and cost, whereas agile ones react swiftly and economically. Agile supply chains work with erratic demand, which gives them the advantage of having fewer SKUs than lean supply chains. The agile supply chain also utilizes shorter lead times, which results in greater diversity and shorter shelf lives (Larsson, Leand Logistics, JIT, Demand Driven SCM, 2009).

Vendor managed inventory is a method developed by businesses using the economy of scale to share responsibility with their suppliers. Another variation of demand chain transformation involves the provider agreeing to maintain the inventory materials. Buyer is not responsible for inventory stocks. Vendor is responsible for filling the shelves according to the demand.

2.7 Trends in supply chain

Just in time (JIT) and lean thinking are early efforts to produce and deliver on time to satisfy the actual demand, increase efficiency and effectiveness, reduce cost, and improve quality by removing waste from the production. Competition has given birth to new tools of supply and demand chain management. The market trend, however, has altered and is now more turbulent, discontinuous, and inclined to personalizing items for specific client requests. The answer is agility, which helps the supply chain by taking a proactive stance in the market, shortening product life cycles, increasing variability, and lowering the need for demand forecasting. The objective nowadays is to replace stuff with information because early information is crucial to being able to react swiftly. The current strategy for dealing with today's constantly shifting market environment uses information and communication technology to develop information-based virtual networks.

2.7.1 Technologies

New technology has changed the logistics and supply chain's entire architecture. There was no other means to record the data in the warehouses besides manually writing it down, thus hundreds of thousands of items had to be counted by hand. To address the need, nevertheless, new technologies were developed.

2.7.2 Lead time

Customers always want their orders to be filled as soon as possible, therefore suppliers and customers will constantly be at odds. Still, tactics are developed to reduce lead times and satisfy client expectations in order to meet end-user requirements.

Although other methods were offered, one method may be described as "synchronized material movement," in which data is dispersed throughout the supply chain and an appropriate link is established between the upstream and downstream parts of the supply chain flow (Harrison Alan, Van Hoek Remke, 2008).

2.7.3 Outsourcing

Every company has a core competency in which they thrive and which they represent in a unique way. It can be extremely challenging for businesses to complete all tasks within one roof, which could reduce product quality or result in a loss of revenue. For example, companies that make clothes will never choose to make clothing packaging because doing so could compromise the quality of the clothes they make.

2.7.4 Cross Docking

This procedure, which is a warehousing strategy, entails moving items quickly and directly from the receiving port to the shipping dock. This can help businesses shorten their order cycles, increasing the distribution network's adaptability and responsiveness. The supply and delivery are coordinated by cross docking so that when the goods arrive at the receiving area, they are instantly moved to the loading area and put on delivery (Harrison Alan, Van Hoek Remko, 2008).

2.7.5 Enterprise Resource Planning (ERP)

ERP software enables businesses to combine and store their data so that all operations can be found in a one location. For transparency, this program distributes the data after centralizing it. A corporation can combine various types of data with the use of ERP, and information is clearly sent to all relevant departments. For larger projects, where communication between processes and teams is trouble-free, this tool is proven to be quite active (Harrison Alan, Van Hoek Remko, 2008).

2.8 Elements that impact the implementation of an international supply chain management:

It is feasible to get a competitive edge by managing the ineffective elements of sourcing, processing, and distribution in the supply chain through the creation of partnerships and coordination. These elements, in the opinion of Prasad and Sound erpandian (2003), can be broadly categorized into three categories: the function and laws of nations, the nature of the sector, and the policies of multinational firms (MNCs)

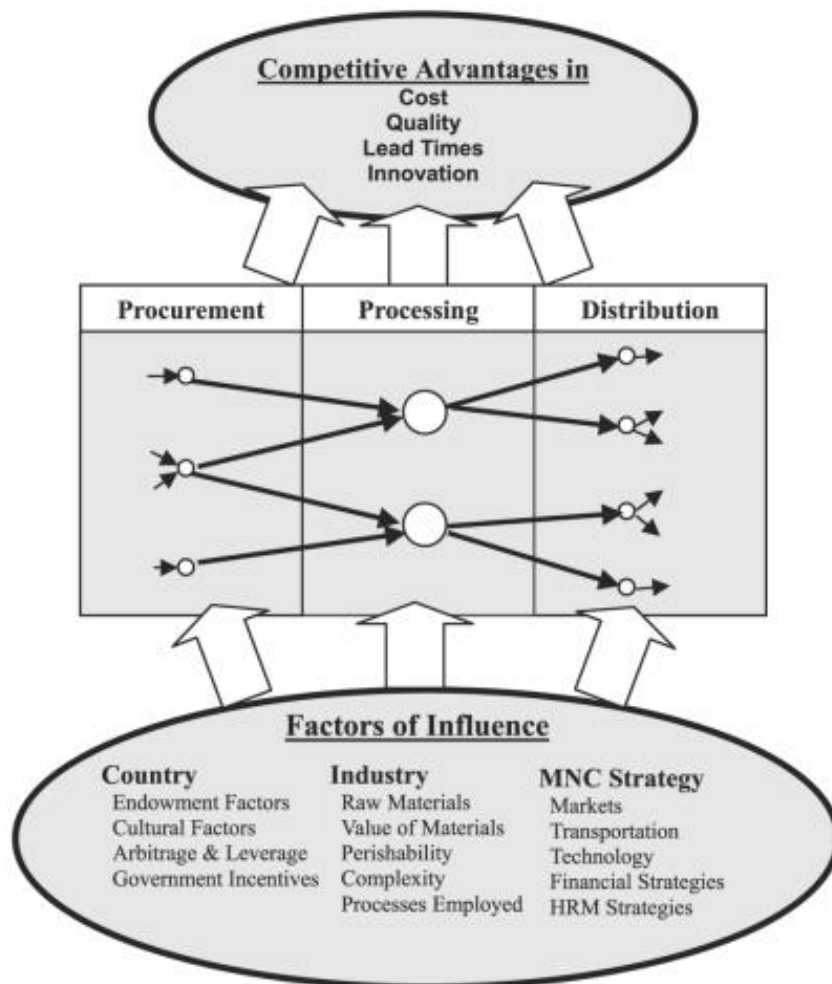


Figure 2.2 Factors that influence the performance of a global supply chain

Government incentives and regulations: to make the country a sourcing place, the government can help the MNCs by providing some incentives.

Cultural deviation: Miscommunication between the numerous supply chain management nodes is also a result of cultural differences across nations (Murphy and Dalenberg, 1989). The impact of cultural diversity, which includes differences in languages, social structures, morals, standards, etc., may have an impact on how well the global supply chain performs.

Endowment issues: Porter (1986) asserts that a nation could be a significant source of its primary, secondary, and tertiary components. Natural resource accessibility, affordable labor, and raw materials are regarded as preliminary difficulties (Kogut, 1985a).

Type Industry: The structure and supply chain management are also influenced by the type of industry. (Prasad, S., and Sounderpandian, J., 2003) state that there are a number of inefficiencies, including concerns with the perishability of the products, raw resources' relative inadequacy, raw materials' value and cost.

MNC strategy: The policies of the MNC may have an effect on the global supply chain, as was previously indicated. **Technology:** To achieve a competitive edge, MNCs use cutting-edge technology. It could be tools and machinery or working techniques (Sum and Yang, 1993).

Transportations: In the RMG industry, specifically, a company's transportation system is a crucial component of supply chain management. One of the numerous factors that affects intermodal operations is the transportation mode, pricing, shipping options, services, warehouse location, carrier experiences, and on-time performance (Prasad, S., and Sounderpandian, J., 2003).

Markets: Market size, market conditions, and its rate of exchange of economies are also taken into consideration as influencing factors for competitive policies.

Financial: Due to currency value fluctuations from nation to country at various periods, MNCs in the RMG sector occasionally also receive favors in the form of favorable money exchange rates from lower rate supply countries (Kogut, 1985b).

2.9 Competitiveness in the Bangladeshi RMG areas

Competitive advantages for emerging economies should aim to "take off" during the expansion phase, according to recommendations (Porter, 1985). If they wish to boost the competitiveness of the RMG industry, it is obvious that the current export market is saturated due to the rising competitiveness of the development of the bargaining influence of international buyers, the decrease of consumer purchasing time, and low price manufacturers. (2013) Asgari and Hoque.

Market Share

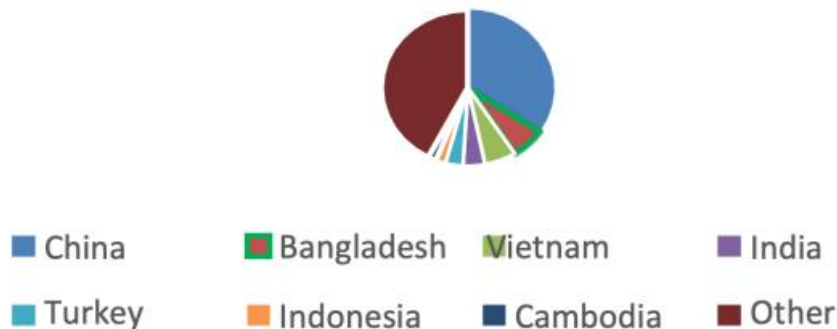


Figure 2.3 International competitive market shares in the export of RMG

(Source: WTO official website, 2017)

Other than the studies mentioned above, very little noteworthy study has been discovered on enhancing competitive advantages using SCM, particularly in reducing the lead time in the Bangladesh RMG business. With reference to the aforementioned literary works, the study's goals are to examine the supply chain management practices used by RMG manufacturers in Bangladesh to determine their competitiveness at the moment. As long as they are sufficiently appropriate to RMG business research, earlier theories from the literature may be taken into consideration.

2.10 The Concept of Textile Merchandising

Textile marketing is not the same as marketing used by businesses that produce consumer goods. Its activities, duties, and scope are significantly broader.

2.10.1 Retail Merchandise

In retailing, the phrase "merchandising" refers to the entire stock planning, management, and control process. The ability to create patterns, relationships, and co-relationships within routine sales and stock is required for merchandising. The figure below depicts the conventional structure.

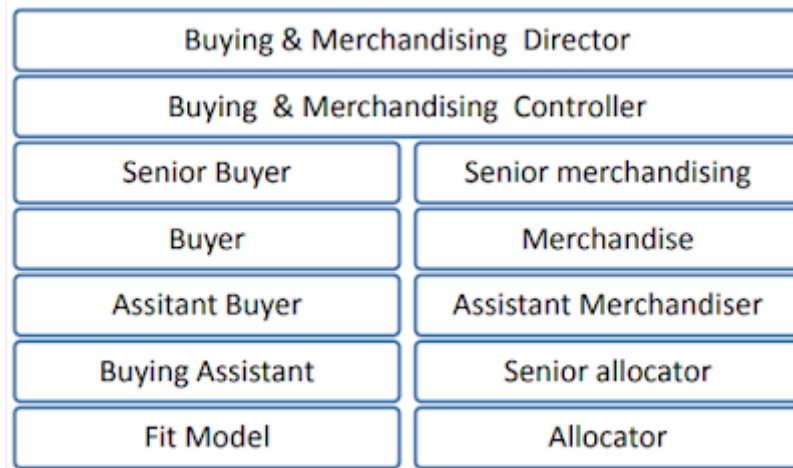


Figure 2.4 Traditional merchandising structure

2.10.2 Textile Mills and Buying House

- Merchandising can be termed as heart of making a product fail or pass
- Merchandising can be a difference between winning or losing a project/customer.
- Merchandising means finding new customers and markets.
- Merchandising means making the customers delighted/satisfied on one hand and brining profits for the company on other.
- Merchandising means completion of project/order placed by the buyer as per its requirements in right time, quality and quantity.

2.10.2.1 Flow chart of activities

You can get a comprehensive understanding of the merchandiser's role both inside and outside of a company by looking at a flow chart of operations. It begins with marketing and the receipt of a request and ends with the shipment of an order and the collection of customer reviews after the product has been used. Cotton, yarn, fabric, or clothing can all be requested. With the rise in value addition, the role of merchandiser becomes more difficult and crucial (Naseer, 2008).

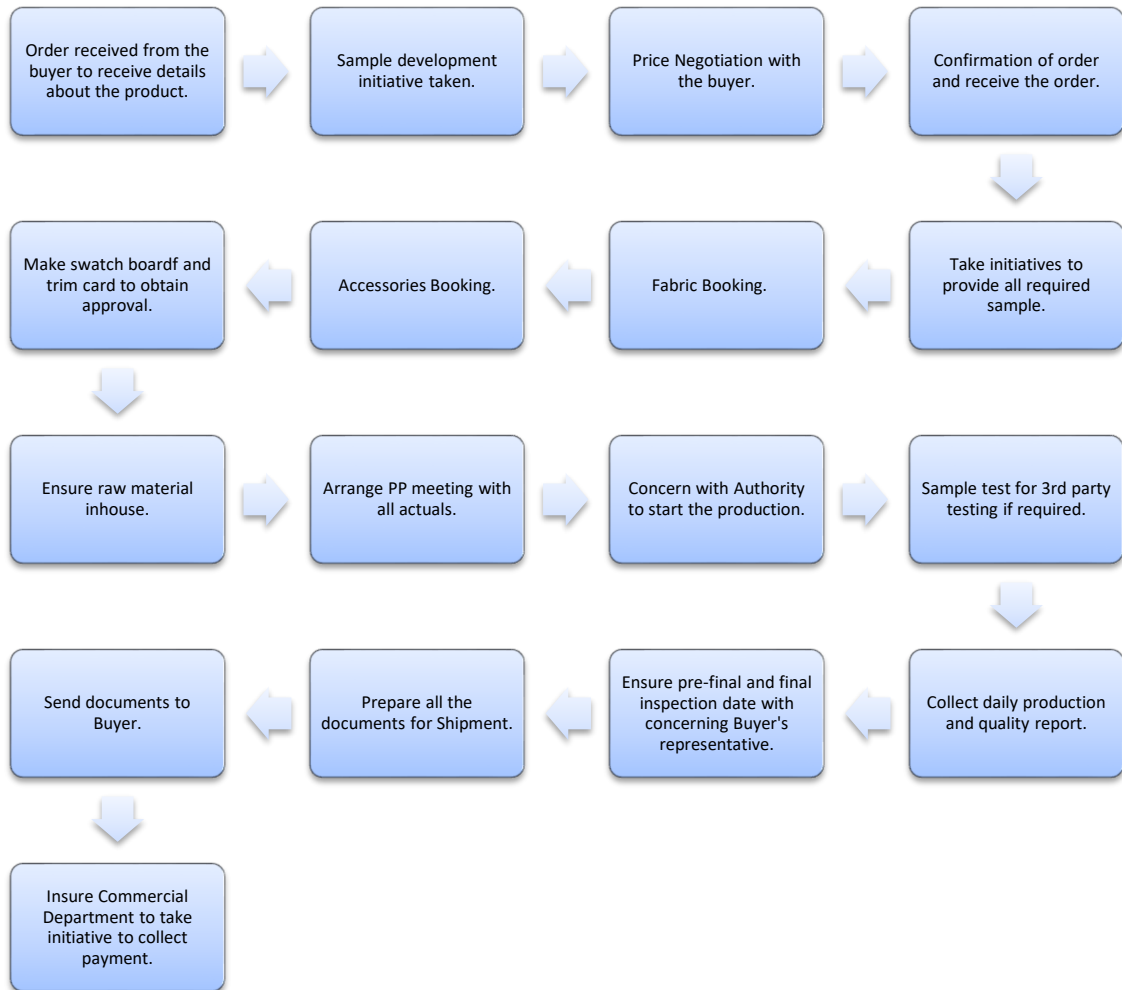


Figure 2.5 Flow chart of merchandiser activities

Departmental structures in merchandising

The choice of these structures depends on the product lines, their complexity, and the volumes being generated by the organization. Merchandising can be structured in a variety of ways, but it is most frequently organized according to "customers," "products," and "geography."

I. On Basis of Customers:

This is the most typical structure, and it also perfectly encapsulates the meaning of merchandising. From this perspective, the separation based on consumers is highly natural because merchandisers are responsible for retaining customers and act as their advocates.

Below is an example if such department:

Merchandiser A: Taking care of “S.Oliver”

Merchandiser B: Taking care of “WALMART”

Merchandiser C: Taking care of “LI & FUNGS”

Merchandiser D: Taking care of “ESPRIT”

All of the aforementioned will report to their superiors and be horizontally related to one another. With the exception of attending department meetings and dealing with some other relevant matters, these merchandisers work independently from one another. The size and complexity of a specific customer will often determine how many merchandisers are assigned to that client.

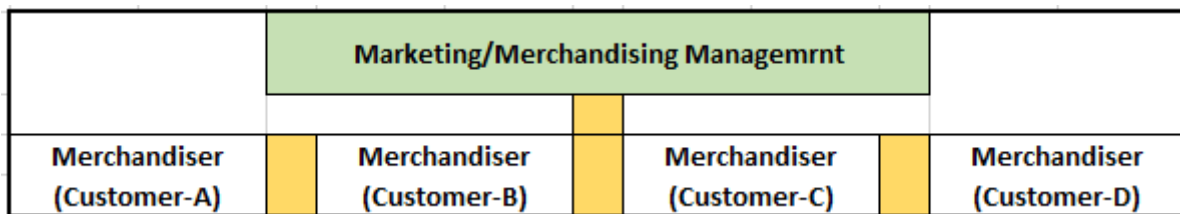


Figure 2.6 Departmental structure on the basis of customers

II. On basis of products

In this instance, the structure of the merchandise department is based on the products. In this case, the corporation has multiple readily recognized product lines. The same company offers three product ranges: yarn, textiles, and apparel. In order to increase efficiency and clarify employee responsibilities, this department is organized according to product lines.

III. On the basis of Geography

In this instance, the structure of the merchandising department is determined by markets and geographical areas. Like the Middle East, the United States, or Europe. This division's goal is to develop merchandisers into expert's in-depth understanding of customers in particular locations with regard to their culture, attitude, like, disliking response, etc.

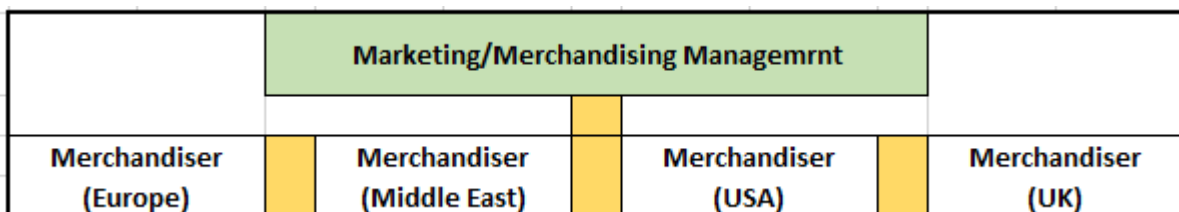


Figure 2.7 Departmental structures on the basis of geography

2.11 Supply Chain Management in Apparel Industry and Why

The apparel industry is vast industry producing millions of garments every day. One of the toughest challenges faced by this industry is increasing the cost of garments making and the price of both local imported raw materials also increasing. Manufacturing make garments both for local and export market but industrial scale production is for export. You know the export market is highly competitive because China, Bangladesh, Vietnam, India all are fighting for offering a better price to the garments buyers to hold the export share high. You can complete in the market but first of all, you need to minimize your direct and indirect cost associated with your garments production. And the right solution is to use of supply chain management by which optional sourcing is possible where cost is minimum. And this is the reason why supply chain management is important for the apparel industry.

Another thing is, we know about supply chain management but many of us are not sure of how to apply and how to plan for proper supply chain management. Apparel manager should carefully develop their supply chain and they will be successful only if they have a proper planning for supply chain management. Future is very much competitive for garments business. Those who manage Supply chain (SC) properly will get a competitors. It is the right time to hire some supply chain management (SCM) professional and develop supply chain management for your garments industry.

Now supply chain management working as a key success factor the apparel industry. That's why the core focus of to management is to develop an effective supply chain management system. Supply Chain Management is the process of managing resources, the movement of resources from on part to another, one place to another place, one department to another department, and one section to another section. Here, movement of resources should be in a way so that the availability of the right resources in the right place, at the right time, with adequate quantity, where the process cost is least.

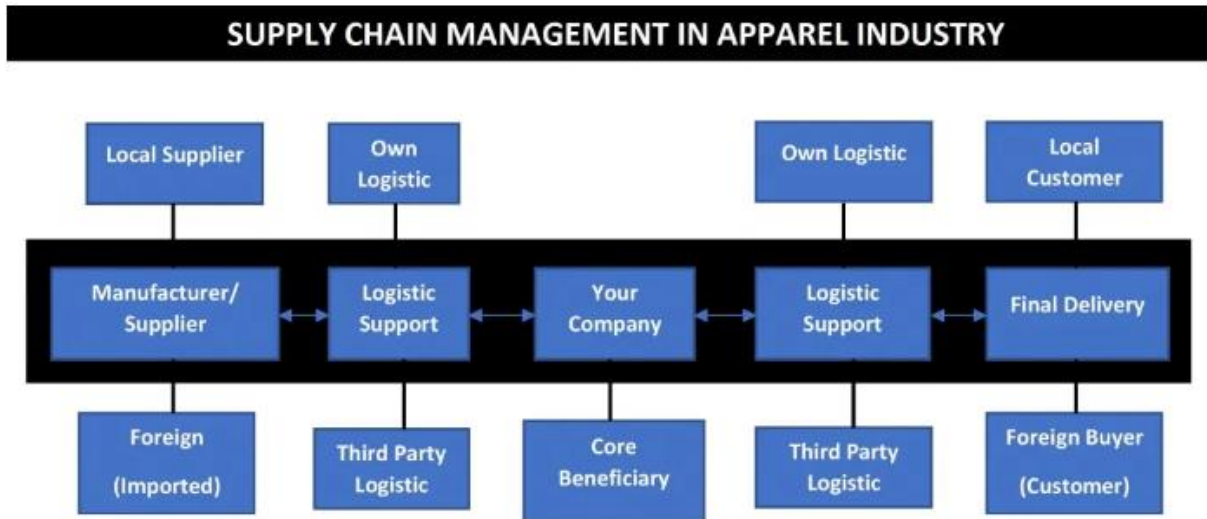
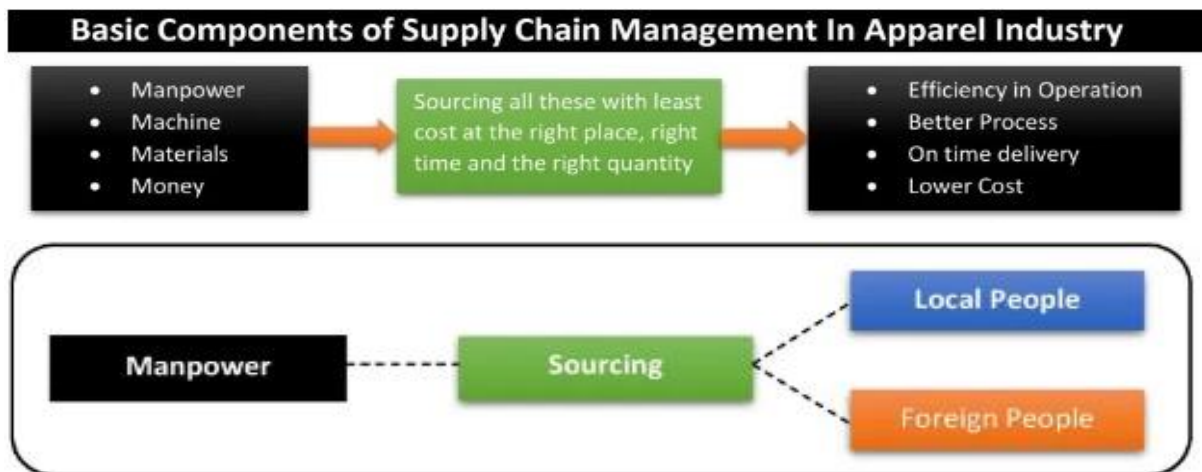


Figure: 2.8 Supply Chain Management in Apparel Industry

The important things are supplying the required resources at a minimum cost. Manage the flow of goods and service through the supply chain network and it is mainly related to logistic. For this reason, logistic planning is one of the key focuses in a supply chain management, the management of resources in every stage of manufacturing.

2.12 Supply Chain Management Applicable to

- Manpower
- Machine
- Materials
- Money



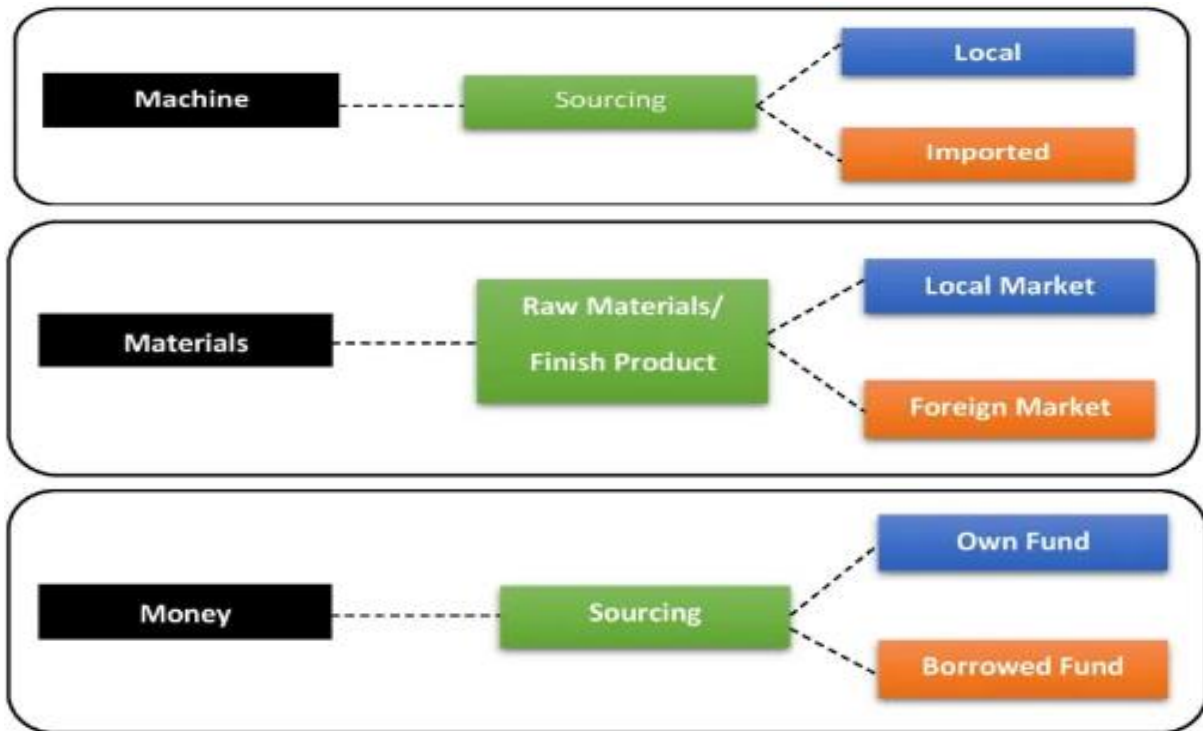


Figure: 2.9 Basic Components of Supply Chain Management in Apparel Industry

2.13 Supply Chain Management is everywhere

Within your clothing factory, supply chain management is a topic that is covered in great detail. Providing and receiving materials from one department to another, one section to another section, and one location to another location may be necessary in your factory. Therefore, three things must be done for supply chain management to be efficient in the garment industry: adequate planning, designing, and setup.

2.14 Importance of supply chain Management in Apparel Industry

1. Create flexibility in operation
2. The positive effect of mobility of resources
3. Minimization of total cost of owning (TCO)
4. Properly utilization of available resources

2.15 Production System in Apparel Manufacturing:

Apparel manufacturers' main concern was to compete in the unit cost reduction by implementing mass production systems that are characterized by standardized products, large batches, automated assembly, and long-run time. In this mass production era, companies'

strategic management was production-oriented, focusing on manufacturing productivity. Since the 1990s, as companies enter the mass customization era, manufacturers face the need to produce product quickly based on consumer-activated demand. With cost and quality as prerequisites for competition, manufacturers are seeking an increase in the agility of production systems to meet the customer demands and expand market share while maintaining low cost and high quality. In the apparel industry, four types of production systems are commonly studied:

- Bundle system
- Progressive bundle system (PBS)
- Unit production system (UPS), and
- Modular system.

Bundle system and PBS are categorized into mass production and UPS and modular systems are into flexible specialization. In Oliver, Kincade, and Albrecht's (1994) study to analyze the efficiencies of three apparel production systems (i.e., push, kanban, team) by using a simulation model, the authors identified bundle system as push and modular system as team. Production systems in the apparel industry into three categories (i.e., bundle, PBS, modular system). Those five attributes are workflow, method of retrieval between workstations, WIP inventory, number of tasks per operator, and interaction between workers. The study found that one production system could be distinguished from another according to these attributes.

2.16.1 Follow up's & Updates

- It's critical to conduct follow-ups on a regular basis to make sure that everyone involved in carrying out the style is informed and on schedule.
- A merchandiser should organize their day according to the T&A tasks that are needed that day.
- The merchandiser should start his follow-up by taking a look at the tasks that are due in the next two to three days.

2.16.2 Inter Department Co-ordination:

One of the most crucial tasks that a merchandiser must complete at all times is interdepartmental coordination. The product developer, production (sewing, finishing & packing), sampling, purchase, stores & inventory, quality, and logistics are some of the divisions that the merchandiser must collaborate with.

2.16.3 Supply Chain Planning:

First, there needs to be agreement on what supply chain management is in order to comprehend how important it is for carrying out a corporate strategy. There are several definitions and descriptions of supply chain management. The administration of materials, information, and financial flows in a network made up of suppliers, manufacturers/producers, distributors, and customers is the focus of supply chain management, according to Stanford University's Global Supply Chain Management Forum. Supply chain management "seeks to coordinate a firm's operations and those of its suppliers to match the flow of goods, services, and information with consumer demand," according to Krajewski and Ritzman, 1999." (pg. 453).

2.16.4 Supply Chain Implementation:

The company can focus on the execution phase of its strategy after a planning process (S&OP) is in place. (With that said, it should be noted that the planning process is similar to the business plan in that it is never finished and must be kept up to date with changes and trends in the market.) Supply chain management, which directs the essential activities and procedures to give the company a competitive advantage in the market, is the means by which businesses carry out their entire business strategies.

2.16.5 Strategic Procurement:

Companies usually underestimate the value of strategic procurement. It's frequently perceived as an effort to pressure suppliers into giving the lowest price feasible. Typically, this is not only ineffectual but also harmful. Companies are starting to understand that using such strategies can only result in so much savings. Long-term savings for businesses that concentrated on cultivating connections with a small number of strategic suppliers were much higher.

The benefits to a strategic procurement program are many:

- Lower total costs
- Higher quality
- Better delivery
- Fewer suppliers
- Able to outsource more non-core operations to trusted suppliers.

2.16.6 Monitoring the Supply Environment:

Supply managers are responsible for protecting their firms from unexpected threats or shocks from their supply world in the form of price increases or supply disruptions. These threats

include material shortages which effect one or more industries that supply the firm. Shortages will affect both the price & availability of purchased materials & supplies. The firm should take actions to minimize the impact of such shortages by monitoring changes in the supply environment such as follows:

- Changes in legislation that may affect the workplace. Such changes can impact both price & availability. An example is a new Environmental Protection Agency regulation on toxic wastes that affects one or more suppliers.
- War or other conflicts, which may disrupt the availability of materials the firm or its supplier require. Firms that proactively monitor the environment take defensive action in anticipation of the resulting material shortages & price increases.
- A consolidation among suppliers. The extreme case is consolidation to the point of monopoly. Such changes may require a change in the firms supply strategy.

Supply manager should have early information that will allow them to take advantage of favorable market conditions. Opportunities result both from additional capacity coming on-line & from reductions in demand for required materials, equipment or services. The responsibilities of protecting their firms from unexpected threats or shocks motivate supply professionals to develop supply monitoring systems. One of the challenges confronting today's supply professional in monitoring is the abundance of data. Monitoring supply markets is a fascinating & challenging activity. The outlines of six-step environment monitoring strategy:

- Determine the cost, supply & technology drivers of the materials & services that a supply manager is watching.
- Identify the major suppliers & customers of the materials & services.
- Determine the sources of information for those drivers.
- Build a model that predicts the material (or service) behavior.
- Monitoring the model to determine its accuracy.
- Continuously make improvements as new relationships are understood & additional data becomes available.

2.17 The Execution of order plan by Merchandising Department:

2.17.1 Receipt of Order:

Orders are officially confirmed by the customer when they are received.

This last confirmation is made using a legal document known as a PO (purchase order) or an FC because it is the last step in the process (fabric commitment).

- A purchase order (PO) is a formal document that lists the quantity, delivery date, price, style number, purchaser, and vendor information. It is crucial that the merchandiser double-checks all information after receiving a PO, including quantity, delivery date, price, style number, style description, color number & reference (if provided), shipment mode, shipment port, vendor address, and buyer address.

2.17.2 Preparing A Detailed Time and Action Plan T&A:

- In production merchandising, it is crucial to prepare a thorough time and action (T&A) schedule. The reason is that there are many actions that need to be completed for each order, and a merchandiser may be handling several of these orders, so it is crucial that all of the tasks be mentioned. This reduces the possibility of skipping any of the activities. Therefore, when creating a T&A, one should include as many tasks as possible that are crucial to the order's smooth operation. Later in this lesson, a thorough discussion of T&A is conducted.

Suppose Here,

Lead time Is 120 days

Quantity of order 65,100 pcs

Manufacturing Quality is high

Stage	Action/ Activities	Planned Date/ Duration/days	Reduction of time
1	Confirmation of order	1-Sep	-119
2	Received PO	2-Sep	-118
3	Release fabric PO	7-Sep	-113
4	Release Accessories PO	7-Sep	-113
5	Bulk fabric app.(Quality)	7-Sep	-113
6	Lap dip app.	10-Sep	-110
7	Measurement app.	15-Sep	-105
8	level app.	20-Sep	-100
9	Booking of fabric	20-Sep	-100
10	Bulk fabric (FML)	25-Sep	-65
11	Fabric in house	5-Oct	-55
12	Bulk fabric app.(for shade)	6-Oct	-54
13	Send accessories for test	10-Oct	50
14	Accessories in house	12-Oct	-48
15	PP meeting with supplier	15-Oct	-45
16	Cutting	15-Oct	-45
17	Sewing	18-Oct	-42
18	Gold seals app.	5-Nov	-25
19	test result send	15-Nov	-16
20	Pre-shipment inspection	28-Nov	-3
21	Goods Ex-factory	1-Dec	0

Figure: 2.10 Time and Action Plan (TNA) in Apparel Industry

2.17.3 Fabric Ordering:

The mill must be contacted in order to place an order for fabric. During this task, it is imperative to keep the following things in mind: precise calculation of the needed amount. This is essential to make sure that the resources don't run out during bulk production and that there aren't any leftovers once the order has been sent. The material needs can be precisely computed by carefully reviewing the BOM (bill of materials) that the buyer included in the specification sheet.

The merchandiser orders the cloth using a buy order. The purchase order should very specifically state the following:

- The title and reference number of the item, the quality description, the quantity, the price, the delivery date, the buyer's required quality specifications, the payment conditions, and, if necessary, the pilot yardage requirements.

Pilot Yardage – pilot yardage helps are ascertaining any problems that may come in the bulk adage. The mill processes the first 100 – 200 yardage to ensure that the same meets the quality, color parameters as laid down by the customer.

The mill then sends fabric shade bands, fabric inspection reports, and fabric test reports before bulk fabric shipments.

- **Fabric inspection report** – This is typically a third party examination carried out by an inspection company chosen by the customer, such as ITS, MTL, etc.
- **Fabric shade band** – The mill creates a shade band and separates the fabric according to shade. Customers often accept a maximum of three shade bands, though this can vary from customer to client. Using a grey scale grading, the consumer determines which colors are acceptable.
- **Fabric test report** Fabric performance test (FPT) - yardage from bulk is delivered to the designated testing laboratory, such as MTL, ITS, for testing the fabric's physical and color parameters in accordance with the customer's requirements. The testing facility also offers a fabric wash care instruction, which essentially entails the ideal washing circumstances for the cloth.
- **Fabric shrinkage report** – 10% of the fabric is tested by the mill to ensure that it complies with the customer's criteria. For instance, if the client permits +/- 3% shrinkage, 5% shrinkage in the cloth is denied. According to the optimum washing instructions recommended by the testing facility on the fabric test report, the fabric is tested to determine shrinkage.
- **PP Sample** - A PP (Pre-production) sample is created by the factory after the fit sample has been authorized. This has various names, including sealer sample, green tag sample, etc. This sample is sent to the customer for final approval before becoming the standard by which the entire production is made and audited. The most crucial sample should be carefully examined to ensure that every element is accurate because it will serve as the benchmark.
- **Size Set Sample** – The next step is to create a SIZE SET when the PP sample has been accepted. All of the fit samples and PP samples are in the medium size, which is now

divided into the various sizes in accordance with the purchase order. Size sets are primarily used to ensure accurate grading between sizes.

- **Pre-Production Meeting** – To ensure that everyone is on the same page and comprehends the product, everyone who is affected by the style sits together at this meeting. The merchandiser, production in-charge, in-charge of cutting, finishing, fabric, line supervisor, pattern master, sample master, etc. are present at this meeting. To ensure a seamless execution of the order, all potential issues are discussed and solutions are sought after.

2.18 Skills & Knowledge Required for Apparel Merchandiser:

The following fundamental knowledge and abilities are required of apparel merchandisers: • Good command of English and effective English communication skills.

- Thorough understanding of yarn, fabric, dyeing, printing, finishing, dyes, color fastness, fabrication of garments, etc.
- A clear understanding of the common potential quality issues and clothing manufacture.
- Thorough familiarity with the standard raw material and garment inspection systems.

2.19 Term of Apparel Merchandising:

- Order confirmation through bargaining
- Purchasing supplies and accessories; producing clothing; maintaining the necessary degree of quality; and exporting the clothing on time.

A successful garment merchandiser must possess a broad variety of knowledge and abilities. The position itself is both technical and generic.

2.20 Main Function of a Merchandiser to Execute an Order:

- Calculating the amount of fabric needed (consumption, YPD).
- Calculation of the necessary accessories. (Thread, button, interlining, label, poly bag, cartoon, etc. are some examples.)
- Fabric sourcing.
- Finding accessories to buy.
- A potential fabric and accessory arrival date.
- Costing.
- Planning for manufacture and analysis of clothing.
- Producing performs, distributing swatches to the production unit, and addressing quality concerns.
- A schedule for pre-shipment inspections.

- Arranging for final inspection and shipping documentation.

2.21 Merchandisers Work Usually Involves:

- Analyzing sales data and trends; planning the range of products to be sold; understanding quick reaction for an order to progress; using computer programmers to predict future sales and profits.
- Pricing and sales targets are set, budgets are planned, sales forecasts are presented to managers, suppliers are bargained with for prices, orders are placed, and goods are delivered on schedule, stock levels are controlled, inventory is moved, and top-selling products are always available, and so on.
- promoting or lowering the cost of lines that sell more slowly
- Visiting suppliers and merchants to inquire about how goods are selling.

2.22 Key of Apparel Merchandising:

To be a merchandiser-

- Good analytical and mathematical skills, decision-making ability,
- good communication and negotiation skills,
- creative flair, ability to work well in a team,
- excellent organizational and planning skills,
- ability to work under pressure, and good computer skills, e
- Specially in using spreadsheets.
- Good business sense and an understanding of what customers or buyers want.

2.22.1 Quick Response:

“Quick Response in Apparel Management”

It is divided in the three classes. They are in the following: -

- Production Management
- Merchandisers & Designers
- Quality Management

2.22.2 Sample Development:

This is response of merchandiser and designer.

After getting the original pattern from the buyer these patterns are used to produce the sample garment before the cutting these patterns must be checked with the specification given by the buyers. These checked patterns are used to cut fabrics required to sew sample garment. To

produce sample garments actual fabrics and accessories must be used if they are not available substitute can be used but it can create problems during the mass production process therefore actual fabrics and accessories should be used whenever possible. Sample machine operators job is to assemble cut fabric panels to produce the sample garment. Sample machine operators handle sample garments separately. That means one operator does all the sewing operation required to sew the sample garment therefore that operator knows all the difficulties he faced. When mass production is done the operator who handled the sample garments can help to solve the problems faced by the personnel in the sewing department. After stitching the sample garments, they must be ironed properly. After that these samples must be checked for fit and size. If necessary, the alteration should be done. After that they must be packed according to the specifications given by the buyer.

Finally, the required number of samples is sent to the buyers and to the agents to get the approval for the mass production. These sample garments must be of high quality otherwise it is hard to get approval for mass production.

2.22.3 Types of Sample:

Sample making is one of the most important activities in the garment manufacturing process. The manufacturer always needs at least a sketch of the garment, original patterns, specification and the designer's sample to make high quality sample garments at the contractor's factories. Garments factories are used different name used for different types of samples. In the sample departments of garment factories different type of sample are made for different purposes.

Proto Sample

- Approval Sample
- Fit Sample
- Size set Sample
- Reference Sample
- Offer Sample
- Salesman Sample
- Photo Sample
- Pre-Production Sample
- Production sample
- Shipment Sample

Designer:

- The origin of style
 - Market research (fashion show, fashion journal, idea from retail store)
 - Design concept
 - Proto type pattern (sample development)
- The development of sample

Merchandiser:

Merchandising chronological processes: -

- The first pattern (first sample), the second pattern (second sample), the approved sample, and the counter sample (three pace)
- Salesman case study (For sale every chain store can take 20)
- Prototype or photograph (Original fabric & accessories are made)
- Size set illustration
- Pre-production sample (manufacturing taking place at the moment merchandiser takes);
- Sending a sample (Before shipping merchandiser takes some sample)

CHAPTER 3: MATERIALS AND METHODS

3.1 Methodology

3.1.1 Research Design

The research design for studying challenges in supply chain management should involve defining the research question, selecting the appropriate research method (such as qualitative, quantitative, or mixed-methods), selecting the sample population, collecting data, and analyzing the data.

- We have Develop a clear research question that guides the survey questions and analysis.
- We have identified the sample population, which may include managers, employees, or other stakeholders involved in the supply chain.
- We have Developed a survey instrument that includes both open-ended and close-ended questions, as well as questions that measure specific variables.
- After that administered the survey to the sample population and collect data.
- Analyzed the data using statistical techniques, such as regression analysis, to identify relationships between variables and to test hypotheses.
- Draw conclusions based on the analysis and identify recommendations for improving supply chain management.
- We have provided recommendations for future research to address limitations and build on findings.

3.1.2 Research approach

We have followed mixed research approach which integrates both quantitative and qualitative data collection and analysis methods in this study. This approach aims to take advantage of the strengths of both methods to gain a more comprehensive understanding of the research problem. The mixed research approach typically involves three phases:

- The first phase involves collecting quantitative data through surveys, experiments, or other methods.
- The second phase involves collecting qualitative data through interviews, focus groups, or other methods.

- The third phase involves integrating and analyzing the quantitative and qualitative data to provide a more complete and nuanced understanding of the research problem.

3.1.3 Sampling method

There are several sampling methods that can be used to identify challenges in supply chain management, depending on the research objectives and available resources.

We have considered Snowball sampling method where it involves identifying a number of initial participants and then asking them to refer other potential participants to the study. This method can be useful when the population of interest is hard to reach or when it is important to identify participants who have a specific characteristic or experience.

3.1.4 Data Collection method

The choice of data collection method is depended on the research objectives, the type of data required, and the characteristics of the population of interest. It is important to carefully consider the strengths and weaknesses of each data collection method and to choose the method that is most appropriate for the research question. Combining multiple data collection methods, we have considered surveys and interviews, which can help to provide a more comprehensive understanding of the challenges in supply chain management.

Surveys and Interview: We have surveyed over 50 employees who is related to supply chain by which we came to an understanding that where the most are challenges which must be taken care of.

3.1.5 Data Analysis

- We needed to define the scope and objectives of analysis, such as which parts of the supply chain we want to focus on and what specific challenges we are trying to identify.
- We gathered relevant data from various sources, such as supply chain performance metrics, customer feedback, and supplier performance data.
- Organize the data in a way that allows us to compare and contrast different aspects of the supply chain, such as lead times, inventory levels, transportation costs, and quality metrics.

- We used data visualization tools to help us identify patterns, trends, and anomalies in the data.
- We conducted a root cause analysis to identify the underlying causes of the challenges we have identified.
- We have developed a plan to address the challenges, which may involve changes to processes, policies, or technology.
- Through monitoring and measure we can calculate effectiveness of the changes we have implemented, and adjust our approach as necessary to achieve our objectives.

3.2 Materials

As mixed research approach has been selected and fifteen related questions for responsible companies in the apparel industry in Bangladesh were chosen and interviewed to collect empirical data. Third party organizations within the industry were additionally chosen and interviewed. The research design phase was done in two major steps: first, by conducting a literature review of academic papers to understand the background and identify an analytical framework and second, by collecting empirical data and analyzing the data on the basis of chosen analytical framework. I have done some of analyses question. These questions I asked some departments and some of related peoples in my factory like as asst. manager supply chain, Officer of supply chain, asst. officer of supply chain and GSM composite quality teams, GMS textile quality team, GMS composite planning team also Palmal group planning team.

3.2.1 Materials List

Sources from which we obtained this information see the below

- Factory/ Industry (GMS Composite Knitting Ind.Ltd. & Palmal Group & GMS Textile)
- Books
- Discussion
- Internet
- Library
- Annual report
- To collect information from practical knowledge.

3.3 Scopes

All of the respondents concur that Bangladesh has some internal competitive advantages, including a welcoming atmosphere for workers, affordable labor, the availability of skilled personnel, the lack of a significant capital investment requirement, cheaper energy costs, the availability of land, etc. All of these characteristics aid in boosting development and production in the garment industry in Bangladesh. Scope refers to the number of uses for this report's available space. The scopes are given bellow-

- **Low-priced employee facility:** In order to remain competitive and maintain its place in the global garment market, Bangladesh has recently seen a dramatic shift in its garment factories by establishing structures like green factories. They still have one of the lowest minimum wages in the world, though. Bangladesh is the second-largest producer of ready-made clothing in the world, attracting the interest of big clothing stores from North America, Europe, and most recently Australia, including GAP, Wal-Mart, Pierre Cardin, Levi Strauss, and Hugo Boss. The author has prioritized this choice because most stores use inexpensive labor extensively for this study issue.
- **Availability of skilled workers:** Every garment factory in Bangladesh has a practice area for teaching new employees, and a worker can become an expert at utilizing different machines within six months. By doing this, they can be employed at higher salaries and contribute their IQ, emotional intelligence, and factory loyalty to the team. In this approach, it is possible to stabilize employee skills inside a suitable framework that motivates them to perform at higher levels and, ultimately, is valued by the entire business.
- **Low energy cost:** The best way to increase Bangladesh's RMG sector's competitiveness, however, is through low energy costs. Bangladesh's primary energy sources are electricity and natural gas, both of which are supplied by the government at very inexpensive costs as compared to other competitive nations. These resources are employed in the textile industry. Because it is more affordable than other energy sources, natural gas is a major source of energy.
- **Availability of land:** For competitive advantages in the global textile industry, the availability of land is a critical factor. Despite Bangladesh's tiny size, all proprietors of the textile industry can obtain free land from the government at low costs, and

because of the scopes available, they can construct multiple projects inside the same boundary, lowering the cost of investment.

3.4 Limitation

Limitation refers the obstacles I have to face for completing this report and which I could not cover for this limitation-

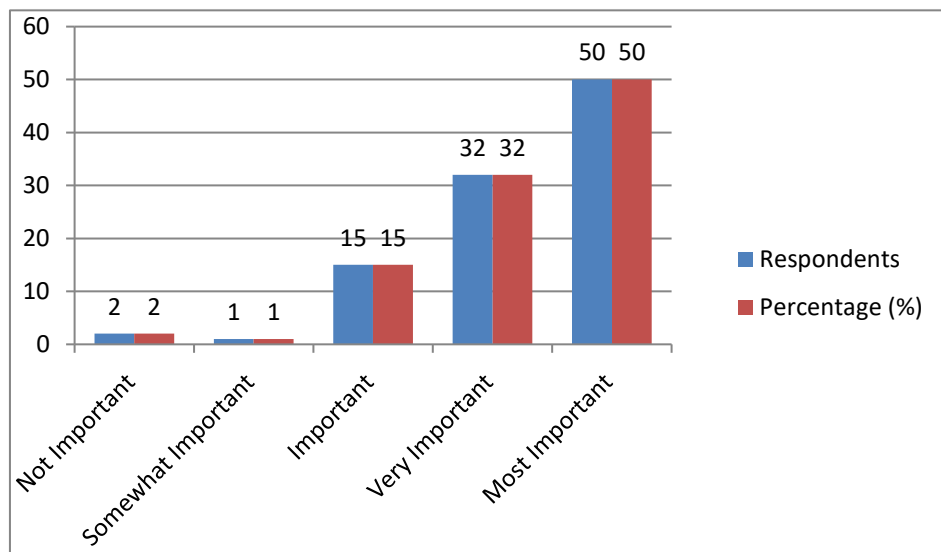
- Time constraints.
- All people don't have enough time to give the information elaborately.
- Short time visit in different work station.
- Lack of instruction book, and any change. They are following traditional business.
- As this is a new concept, no available data in the organization.
- Lack of experiences in related field.
- Adequate books, publication and journals were not available.

CHAPTER 4: RESULT AND DISCUSSION

4.1 Analysis & Explanation of Data

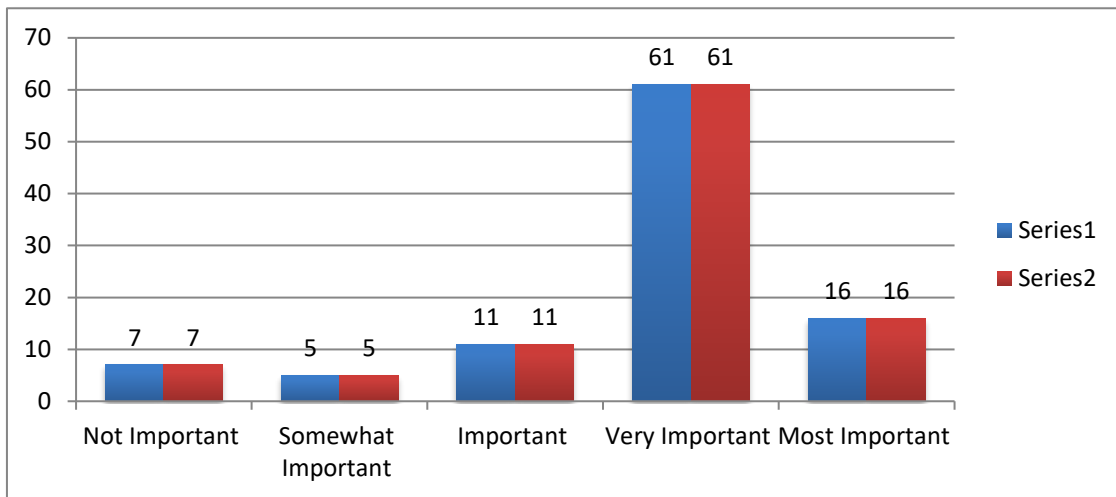
As I am preparing a thesis paper on “An Investigation to Identify the challenges in Apparel Supply Chain Management: Bangladesh Perspective” have designed a Questionnaire to know your views and in Apparel Supply Chain Management: A Case Study on Selected Buying House. I have conducted a survey which includes the following questionnaire surrounded by above organizations employees.

Q:-01 Raw material crisis for supply chain management



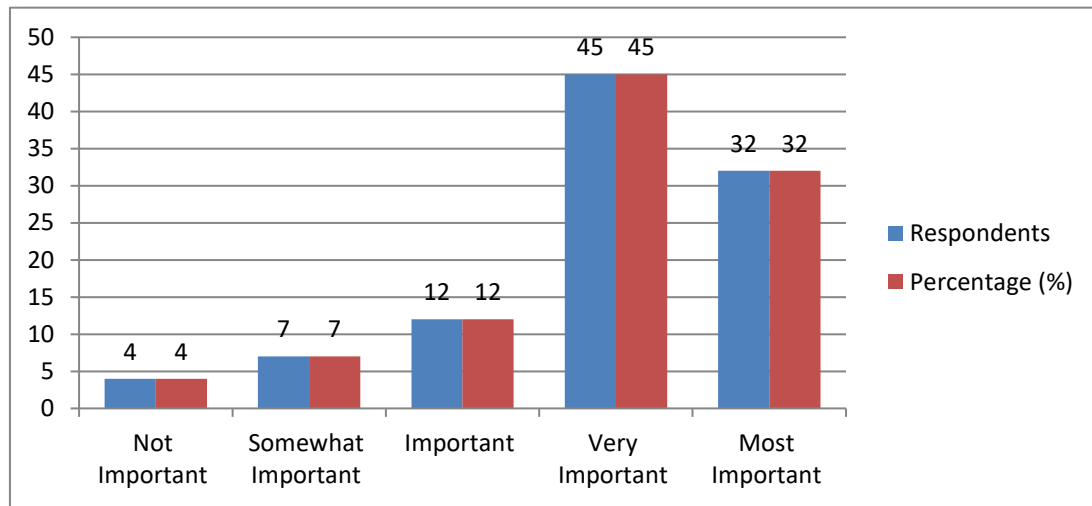
Interpretation: In response to this statement, 2% of total respondents replies that they are Not Important with this statement. 1% of total respondents Somewhat Important, 15% of total respondents Important, 32% of total respondents Very Important and 32% of total respondents Most Important. So it can be said that majority of respondents are in the Most Important position about their feeling.

Q:-02 Lack of Central bonded warehouse facility in supply chain management



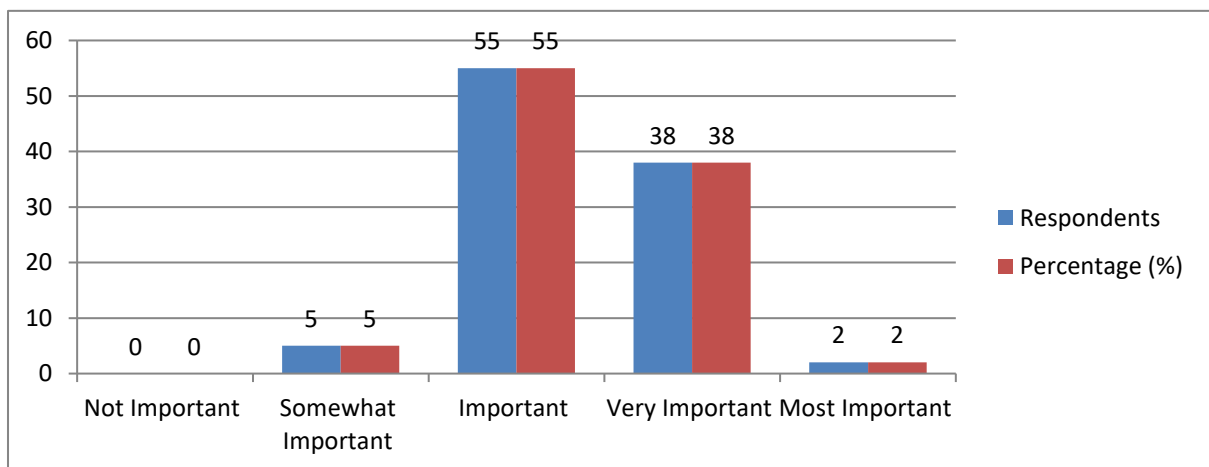
Interpretation: In response to this statement, 7% of total respondents replies that they Not Important with this statement. 5% of total respondents Somewhat Important, 11% of total respondents Important, 16% of total respondents Very Important and 61% of total respondents are most Important. So it can be said that majority of respondents are in the Very Important position about their feeling.

Q:-03 Lack of customs clearance of Supply chain management



Interpretation: In response to this statement, 4% of total respondents replies that they Not Important with this statement. 7% of total respondents Somewhat Important, 12% of total respondents Important, 45% of total respondents Very Important and 32% of total respondents are most Important. So it can be said that majority of respondents are in the Very Important position about their feeling.

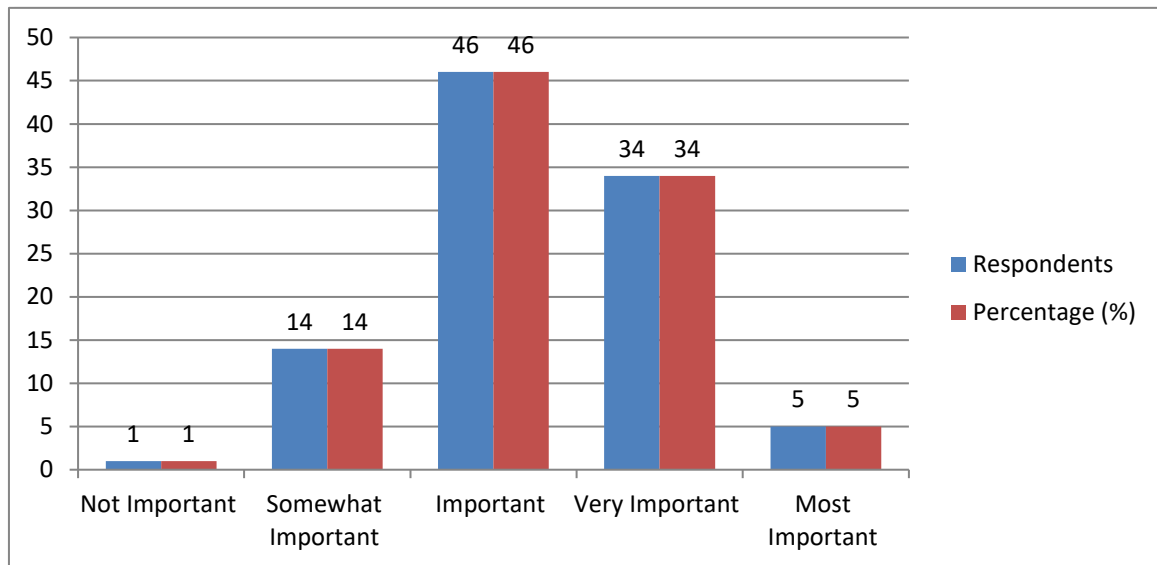
Q:-04 Political unrest in Bangladesh Apparel industry



Interpretation: In response to this statement, 0% of total respondents replies that they Not Important with this statement. 5% of total respondents Somewhat Important, 55% of total respondents Important, 38% of total respondents Very Important and 2% of total respondents

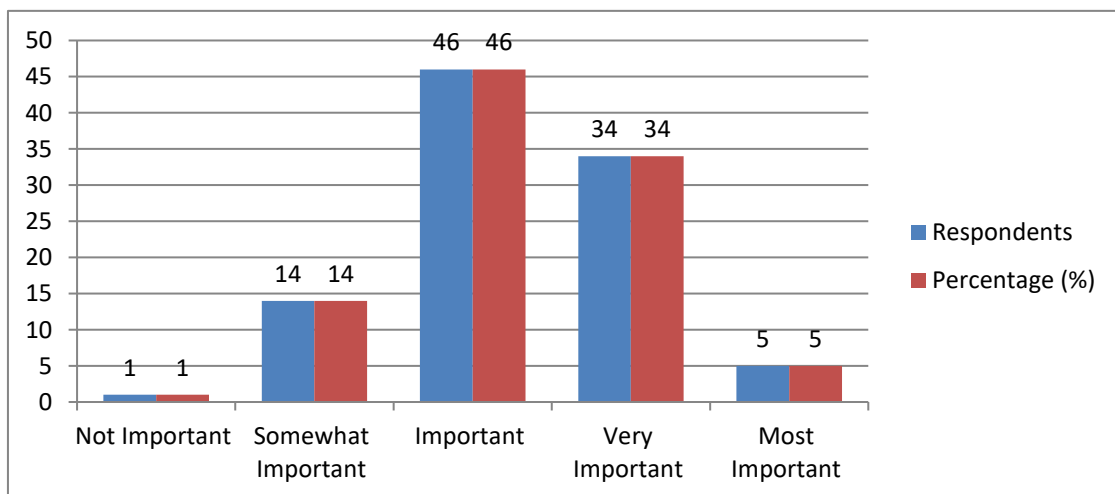
are most Important. So it can be said that majority of respondents are in the important position about their feeling.

Q:-05 Labour unrest in Bangladesh Apparel industry



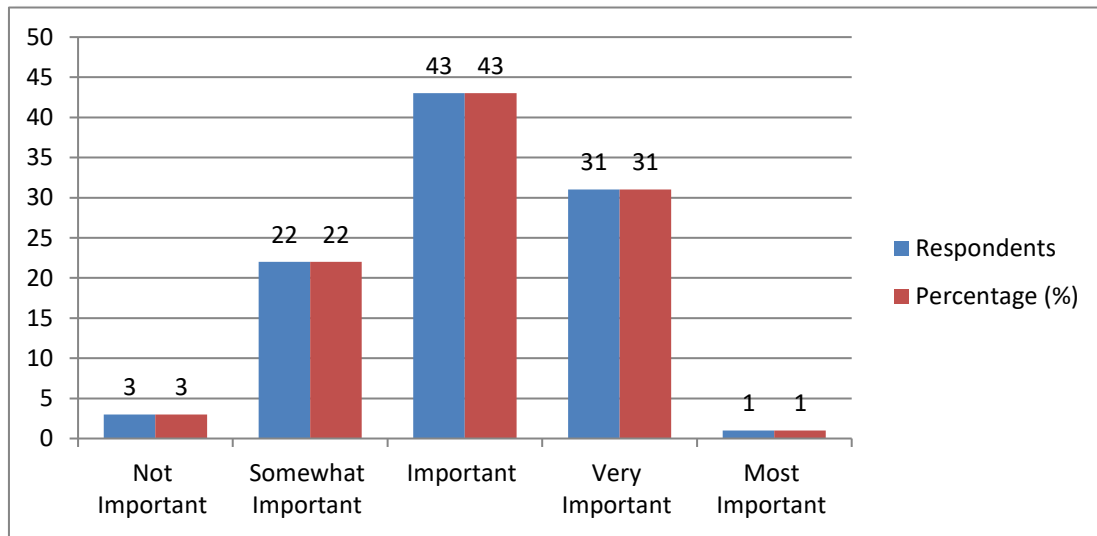
Interpretation: In response to this statement, 1% of total respondents replies that they Not Important with this statement. 14% of total respondents Somewhat Important, 46% of total respondents Important, 34% of total respondents Very Important and 5% of total respondents are most Important. So it can be said that majority of respondents are in the important position about their feeling.

Q:-06 Lack of EPZ raw materials release system



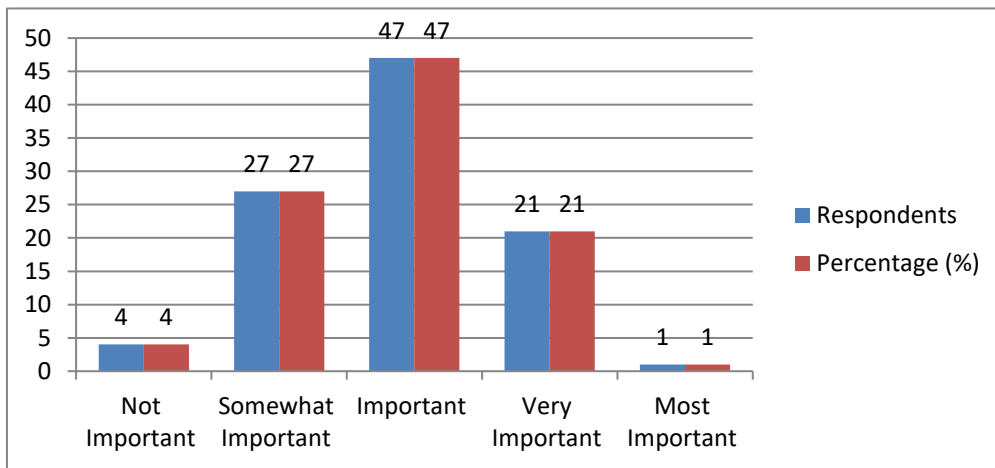
Interpretation: In response to this statement, 1% of total respondents replies that they Not Important with this statement. 14% of total respondents Somewhat Important, 46% of total respondents are important, 34% of total respondents Very Important and 5% of total respondents Most Important. So it can be said that majority of respondents are in the important position about their feeling.

Q:-07 Lack of infrastructures (road, highways, railway, sea port, airport etc.)



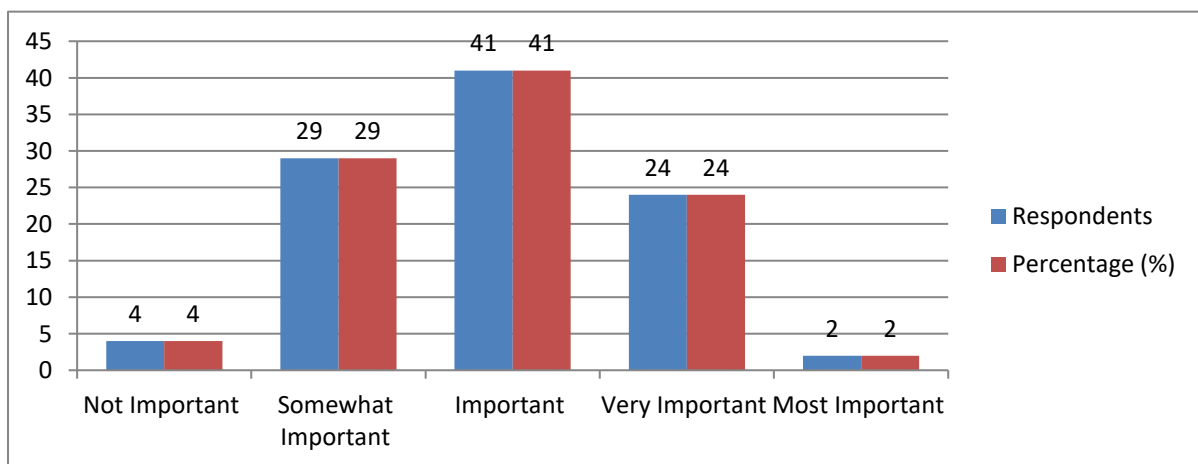
Interpretation: In response to this statement, 3% of total respondents replies that they Not Important with this statement. 22% of total respondents Somewhat Important, 43% of total respondents Important, 31% of total respondents Very Important and 1% of total respondents Most Important. So it can be said that majority of respondents are in the important position about their feeling.

Q:-08 Lack of smooth traffic movement (traffic jam)



Interpretation: In response to this statement, 1% of total respondents replies that they Not Important with this statement. 27% of total respondents Somewhat Important, 47% of total respondents Important, 21% of total respondents Very Important and 1% of total respondents Most Important. So it can be said that majority of respondents are in the important position about their feeling.

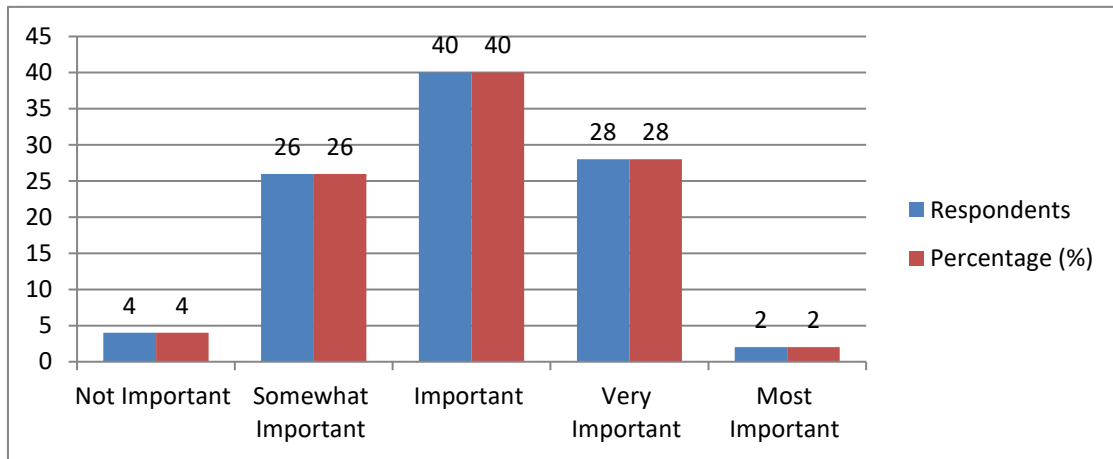
Q:-09 Natural calamities (flood, cyclone)



Interpretation: In response to this statement, 4% of total respondents replies that they Not Important with this statement. 29% of total respondents Somewhat Important, 41% of total respondents Important, 24% of total respondents Very Important and 2% of total respondents Most Important.

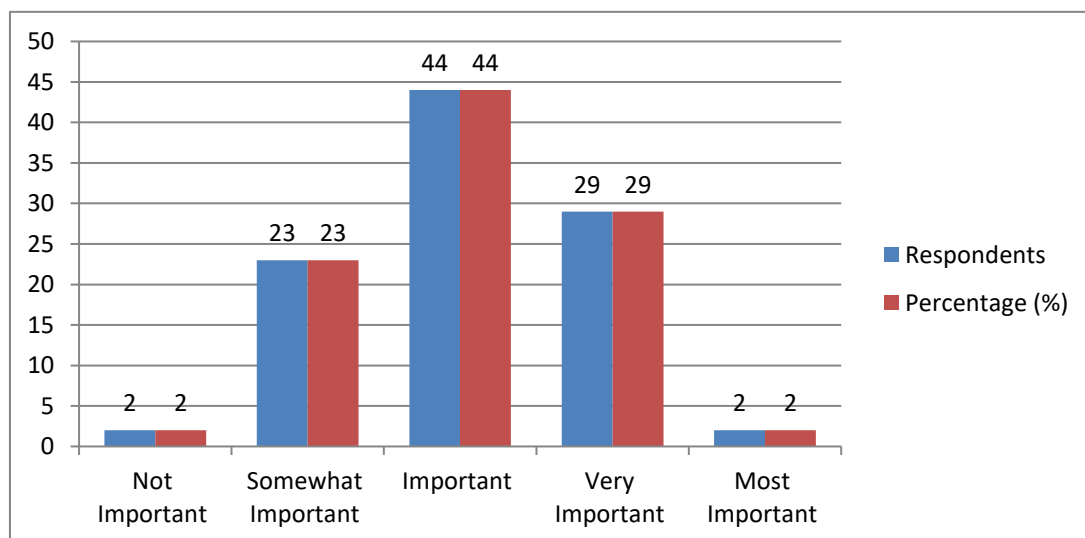
Most Important. So it can be said that majority of respondents are in the important position about their feeling.

Q:-10 Lack of garment hubs (haphazardly located)



Interpretation: In response to this statement, 4% of total respondents replies that they Not Important with this statement. 26% of total respondents Somewhat Important, 40% of total respondents Important, 28% of total respondents Very Important and 2% of total respondents Most Important. So it can be said that majority of respondents are in the important position about their feeling.

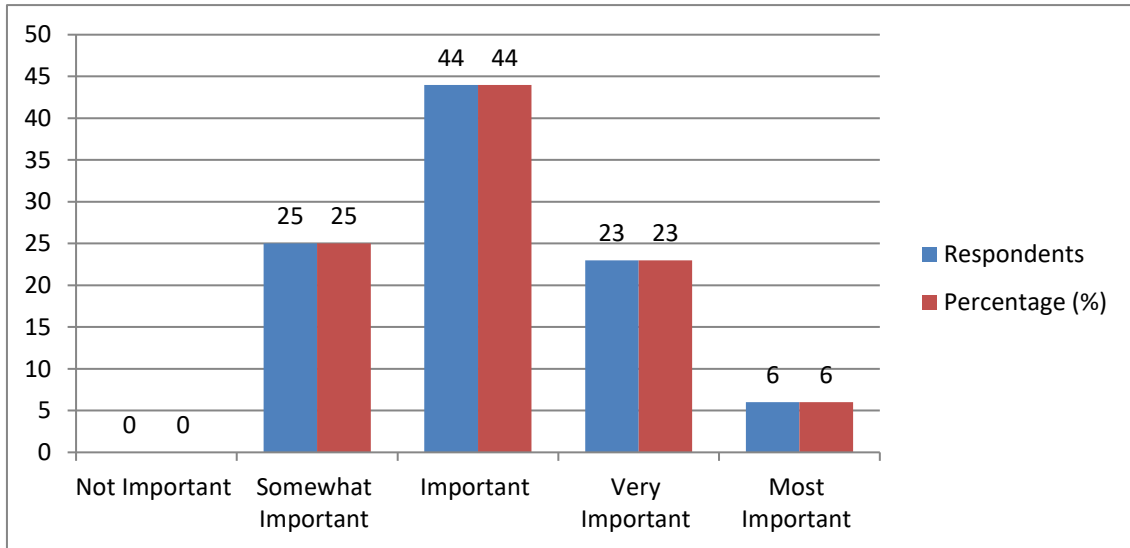
Q:-11 Inefficiency in banking transactions and loans etc.



Interpretation: In response to this statement, 2% of total respondents replies that they Not Important with this statement. 23% of total respondents Somewhat Important, 44% of total

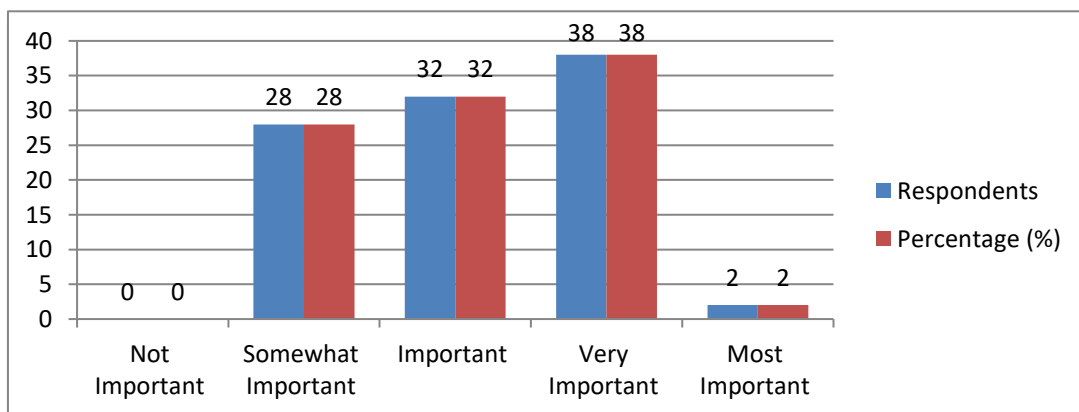
respondents Important, 29% of total respondents Very Important and 2% of total respondents Most Important. So it can be said that majority of respondents are in the important position about their feeling.

Q:-12 Lack of proper training



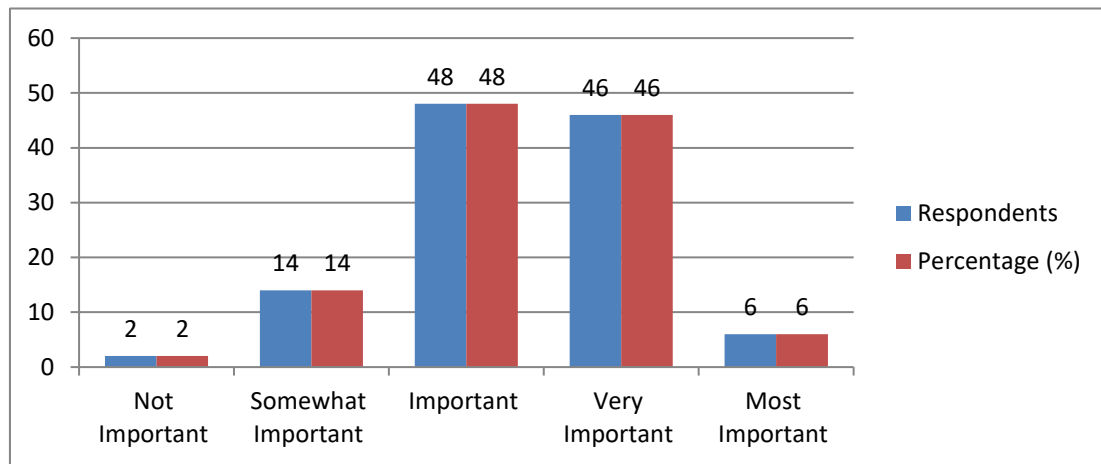
Interpretation: In response to this statement, 0% of total respondents replies that they Not Important with this statement. 26% of total respondents Somewhat Important, 45% of total respondents Important, 23% of total respondents Very Important and 6% of total respondents Most Important. So it can be said that majority of respondents are in the important position about their feeling.

Q:-13 Lack of government policy



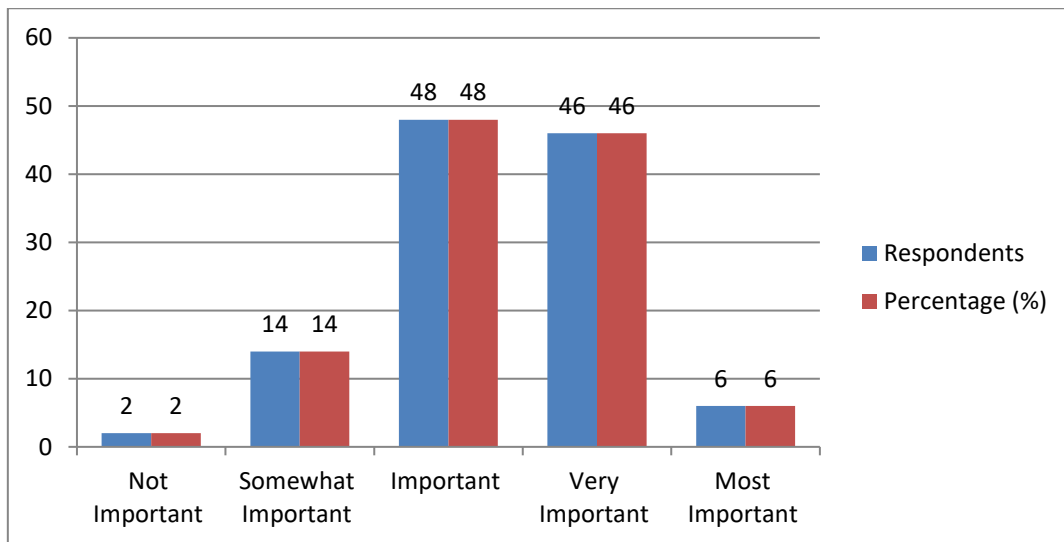
Interpretation: In response to this statement, 0% of total respondents replies that they Not Important with this statement. 28% of total respondents Somewhat Important, 32% of total respondents Important, 38% of total respondents Very Important and 6% of total respondents Most Important. So it can be said that majority of respondents are in the Very Important position about their feeling.

Q:-14 Lack of work place safety



Interpretation: In response to this statement, 2% of total respondents replies that they Not Important with this statement. 12% of total respondents Somewhat Important, 41% of total respondents Important, 40% of total respondents Very Important and 5% of total respondents Most Important. So it can be said that majority of respondents are in the important position about their feeling.

Q:-15 Lack of information technology



Interpretation: In response to this statement, 2% of total respondents replies that they Not Important with this statement. 12% of total respondents Somewhat Important, 41% of total respondents Important, 40% of total respondents Very Important and 5% of total respondents Most Important. So it can be said that majority of respondents are in the important position about their feeling.

4.2 Merit of supply chain

For the GMS Composite Knitting Ind. Ltd Established in 1998. At the time there was no supply chain management only few merchandiser is available in this factory. Merchandised did everything then. Due to this there was a lot of pressure on them and the on time shipment. Sometime the shipment has been air due to pressures. Factory since 2008 to solve it inducing a department of supply chain to help the merchandiser. See the below activities of supply chain department.

- Pre-Process activity finished at right time in factory.
- We are getting delivery of fabrics within time and fester.
- Cutting, Sewing and print process takes less time and is it smooth.
- There is no chance to air the goods.
- Problem identify in proper way and proper time.
- Better visibility and data analytics
- Reduced inventory and overhead costs

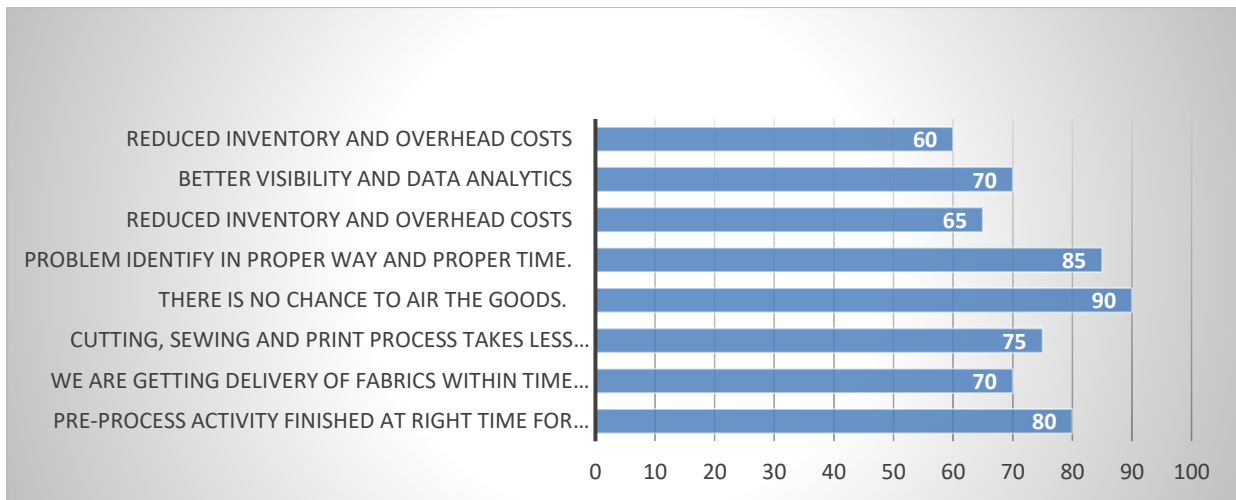


Figure: 4.1 Supply Chain Activities of Garments Industry



Figure: 4.2 How to Reduce Air Shipment by Supply Chain

4.3 Demerit of supply chain

- Lack Of Co-Ordination Among Departments
- Delivery problem of internal commination problem
- Expensive To Implement

4.4 Findings of the Study

Following things are found out from my observation:

- One of the main issues in our country with regard to importing raw cotton, textiles, dyes, and chemicals for the textile industries is financing capital.
- We don't have access to raw cotton, raw textiles, dyes, or textile industry chemicals in our nation.
- When raw cotton, textiles, dyes, and chemicals are imported from other nations, sometimes the expected level of quality is not upheld.
- Numerous labor organizations occasionally engage in unfair activities out of self-interest.
- Because the standard wage rate in our spinning industry is not properly maintained, workers occasionally gravitate toward setting up their own firms.
- Our domestic textile industry is heavily contested by nations like China, Pakistan, and India. The textile industry's supply of raw fabrics is not consistent.
- Political upheaval can occasionally seriously hinder efforts to advance the textile industry.
- Illegal delivery and shipment practices are used against the textile industry
- Technology has always been essential to the survival of any industrial business. As ours is a labor-intensive nation, the development of new, affordable technology could lead to the obsolescence of existing technology, which could have detrimental effects.

CHAPTER 5: CONCLUSION

5.1 Conclusion

Sophisticated technology and high thought laboratories have been introduced in the production process, which brought new dimension in the purchasing, procuring, storing and maintaining supplies and inventories. The improved transportation and communication as well as competitors threat has made the issue more challenging and competitive. Thus, the usage and need for supply chain management are increasing dramatically. Further, global competitions require the companies' continuous response to the customer with new products and replace those that become obsolescence, for these reason companies are combating to find new suppliers and building strong and long-term relationship with them. Hence, managers must have to very rational, logical and sensitive in designing and implementing proper supply chain management in order fight and compete against competitors and attaining organizational goals. Before selecting a supplier, a firm must decide whether it will use single sourcing or will have multiple suppliers from which to source the product. Single sourcing is used to guarantee the supplier sufficient business when the supplier has to make a significant buyer-specific investment. Once suppliers have been select, contracts have to be structured between the buyer and each supplier. Supply chains can influence demand by using pricing and other forms of promotion. Marketing and sales often make the promotion and pricing decisions and they typically make them with the objective of maximizing revenue. Pricing decisions based on revenue considerations often result in a decrease in overall profitability.

5.2 Recommendations

Basing on the analysis, following few recommendations have been made addressing which would facilitate efficient implementation of SCM in the Bangladesh apparel industry to become competitive.

- Shippers must ship the consignment of raw fabrics within the stipulated date as mentioned in the Letter of credit. Delay in shipment shall be entertained without prior approval of the buyer for extension of shipment date.
- Government should reduce tax and tariff on Textile spares, Textile dyes, Chemical, screen, sizing materials and others accessories.
- A committee to be formed with members from various importing and exporting countries to review the existing rules and procedures and suggest reformulation of new rules due to changes that are being taken place in World Trade.
- Arbitration Board to be reconstituted with members from buyers and sellers country and one to be inducted on the recommendation of ICA.
- Arbitration to be held in the country of buyer.
- Compensation to be paid due to supply of inferior quality raw materials should be fixed on the basis of nominal rate fixed by ICA from time to time.
- Membership fees should be reduced to attract more individual members.
- The home textile sector offer slower interest rate on long term and working capital.
- The compensation as well the benefit package will restrain the employees to leave their assignment and go for any employee movement for higher benefit packages.
- The Sector should prosper in a situation of political stability and a congenial business environment. Political turmoil and the disturbance are bad for the economy and so also for us. So, Proper steps should be taken by the government to keep this sector free from politics.

Finally, the project should be equipped with world's modern and latest machinery and technology to cope with the pace in harmony with modern textile world.

References

- Agami et al. (2012). Supply Chain Performance Measurement Approaches: Review and Classification. *Journal of Organizational Management Studies*, Vol.2012 (2012), Article ID872753, 20 pages DOI:10.5171/2012.872753.
- Asgari, B. and Hoque, A. (2013). Lead-time management in Bangladesh garments industry: A system dynamics exploration. *Asia Pacific Business & Economics Perspectives*, 1(2).
- Ali, M. and Habib, M. M. (2012). Supply Chain Management of Textile Industry: A Case Study on Bangladesh. *Int. J Sup. Chain. Mgt Vol. 1, No. 2*.
- Basak. Aviji, (2016). Importance of Human Resource Management and the Competitive Advantage: A Case Analysis on Basis of the Textile Industry of Bangladesh. *Global Journal of Management and Business Research: Administration and Management*, Vol.14 (9), 93-115.
- Council of Logistics Management, P. M. Swamidass.(2000). *Encyclopedia of Production and Manufacturing Management*, Print ISBN 978-0-7923-8630-8.
- Gonzales. Patricia M. (2002). The Effects of Stereotype Threat and Double-Minority Status on the Test Performance of Latino Women. *Personality and Social Psychology Bulletin*, Vol. 28, Issue 5.
- Hossain. Md. Uzzal and Ishita Roy. (2016). Supply Chain Management for Sustainable APPAREL Growth in Bangladesh. *International Journal of Science and Research (IJSR)*, Vol. 5 Issue 4.
- Islam. Mohammad Safiqul and Mr. Gu Qing Liang. (2015). Supply Chain Management on Apparel Order Process: A Case Study In Bangladesh Garment Industry. *Asian Journal of Business and Management Sciences*, ISSN: 2047-2528 Vol. 2 No. 8 pp.60-72.
- Joardar, Momin. (2016). Post-MFA Performance of Bangladesh Apparel Sector. *International Review of Business Research Papers*, Volume 6. Number 4. September 2010. pp. 134 – 144.
- Kader, S. and Akter, M. M. K. (2014). Analysis of the factors affecting the lead time for export of readymade apparels from Bangladesh; proposals for strategic reduction of lead time. *European Scientific Journal*. Vol. 10.

- Li, S., Ragu-Nathan, B., Ragu-Nathan, T.S., & Rao, S. S. (2005) Development and validation of a measurement instrument for studying supply chain management practices. *Journal of Operations Management*, Vol. 23, pp. 618–641.
- Nuruzzaman, M. and Haque, A. (2009). Lead time management in the garment sector of Bangladesh: an avenue for survival and growth. *European Journal of Scientific Research*, Vol. 33, No. 4, pp. 617-629.
- Paulraj, A, & Chen, I. J. (2004). Understanding Supply Chain Management: Critical Research and a Theoretical. *International Journal of Production Research*, vol. 42, no. 1, 131–163
- Krejcie & Morgan. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, Vol. 30, pp. 607-610.
- Power, D J., Sohal, A., & Rahman, S.U. (2001). Critical success factors in agile supply chain management: an empirical study. *International Journal of Physical Distribution and Logistics Management*, 31 (4): 247-265.
- Razzaque. Mohammed Abdur, (1997). Challenges to logistics development: the case of a Third World country - Bangladesh". *International Journal of Physical Distribution & Logistics Management*, Vol.27, Issue 1, pp.18-38.
- Rayhan, MD. Zahir. (2016). The Competitiveness of RMG Industry of Bangladesh after Some Tragic Incidents: An Overview of the Present Compliance Practice at RMG Sector of Bangladesh, *Research Journal of Social Science and Management*, Vol. 05, No. 10.
- Shahriar et al. (2014). A research framework of supply chain management in readymade garments industry of Bangladesh. *International Journal of Business and Economics Research*. 3(6-1): 38-44.
- Tanvir, S.I., & Muqaddim, N. (2013). Supply Chain Management Offering the New Paradigm for Bangladesh Garment Industry. *Journal of Economics and Sustainable Development*, 4, (20), page no. ISSN: 2222-1700 (Paper) ISSN: 2222-2855.
- World Bank (2005), Country Brief, World Bank in Bangladesh.

An investigation of Supply Chain Management to Identify the Challenges for Apparel Merchandising: Bangladesh Perspective

Appendices (Part-01)

Sample Questionnaire

1. Name of interviewee:

.....

2. Designation of interviewee:

.....

3. Name of Department/ Section:

.....

4. Email:

.....

Please rate the degree of importance and circle the appropriate number (1 = not important, 2 = somewhat important, 3 = important, 4 = very important, 5 =most important) or please Bold and highlights by green color on your opinion. The Most important you can only one consideration from these total questionnaires, thanks in advance

	The Process of data analysis	Not Important	Somewhat Important	Important	Very Important e	Most Important
1	Raw material crisis for supply chain management	1	2	3	4	5
2.	Lack of Central bonded warehouse facility in supply chain management	1	2	3	4	5
3	Lack of customs clearance of Supply chain management	1	2	3	4	5
4	Political unrest in Bangladesh	1	2	3	4	5

	Apparel industry					
5.	Labor unrest in Bangladesh Apparel industry	1	2	3	4	5
6.	Lack of EPZ raw materials release system	1	2	3	4	5
7.	Lack of infrastructures (road, highways, railway, sea port, airport etc.)	1	2	3	4	5
8.	Lack of smooth traffic movement (traffic jam)	1	2	3	4	5
9.	Natural calamities (flood, cyclone)	1	2	3	4	5
10.	Lack of garment hubs (haphazardly located)	1	2	3	4	5
11.	Inefficiency in banking transactions and loans etc.					
12.	Lack of proper training					
13.	Lack of government policy					
14.	Lack of work place safety					
15.	Lack of information technology					

Appendices (Part-02)

Open Questionnaire, if you have any other consideration factor

1. What are the factors affecting the Supply Chain Management (SCM) performance of textile Industries in Bangladesh?

Answer:

2. How these factors affect the supply chain management (SCM) performance and what are the impacts of inefficiency factors on the entire value chain system?

Answer:

Thank You for giving your valuable time