Optimizing the production line of leather industry in Bangladesh

By

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Declaration

Except otherwise indicated, this thesis is my own works

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Abstract

Bangladesh has major advantages in developing its leather industry but without an appropriate supply chain management Bangladesh leather industry is facing difficulties in capturing international market. Hence, its important of Bangladesh leather industry to identify the appropriate supply chain management to reach its goal. Therefore, this research aims to identify the problems in the current production line of leather industry and how to revise it. In searching with the problem of the current supply chain management, this research developed a research framework to identify the problem under performance measurement tools. To identify the problem, researcher select 5 top ranking leather company and collect 32 questionnaires from 32 key personal of the selected organization. Based on the data, this research finds that all the components in supply chain management are performing dissatisfactory.

Related policy maker should take appropriate policy to develop the supply chain management to get optimizing the resource output.

Chapter 1: Introduction

This thesis aims to identify the problems of the leather industry in Bangladesh in terms of the production of leather industry and furthermore provides solutions for optimizing the supply chain accordingly. Bangladesh already discovers the leather industry is a sector which has a demand for extensive development and is currently positioned fifth in the revenue earning system. As of now Bangladesh delivers and fares quality cow-like and ovine, caprine calf skins that have a decent global notoriety for finely finished skins. Notwithstanding, the whole cowhide part meets just 0.5% of the world's calfskin exchange worth US$75 billion. Therefore, the essence of leather industry is indeed at a remarkably high stake as of now and a lot must be done regarding the issue in hand to possibly transform the industry into an even bigger landscape.

Research Background

According to World Bank report on July 1, 2015; Bangladesh, Kenya, Myanmar, and Tajikistan are no more considered as low-income countries, now they moved a little bit ahead of economic development to lower-middle income countries (Uddin & Khanam, 2017). The GDP of Bangladesh consists with service sector contribute 53.84%, followed by industry 27.75% and agriculture 13.41%. Among the industry sectors the loin share contributes by readymade garments industry (RMG) covers 84% of total export, followed by Leather and leather manufactures (3.3%), Jute manufactures (2.9%), Fish, shrimps and prawns (1.8%) (BB, 2017). Bangladesh is now focusing more on leather and leather related products to earn more foreign remittance.

Even though the Bangladesh’s current export volume of $35 billion is rather small in comparison with countries like Vietnam ($170bn in exports and a population of 91 million), Indonesia ($220bn in exports and a population of 258 million), or the Philippines ($74bn in exports and a population of 101 million) (Razzaque, 2018). Also, countries with much less land space like Singapore, are doing much better than Bangladesh (Razzaque, 2018). With regards to export expansion through a modified export diversification, the industry that holds an extraordinary guarantee is calfskin and cowhide merchandise (LLGs) - the second biggest exporters in our economy. The fare arrangement of 2015-18 intends to find a way to raise trade profit to $60 billion fares by 2021, of which $5 billion is normal from LLGs. In any case, the two targets currently appear overwhelming prospects. In 2017, the aggregate estimation of cowhide and calfskin products sends out from Bangladesh remained at $1.2bn, representing 3.54% of the nation's aggregate stock fares. The business' commitment to add up to yield or (GDP) is evaluated to be 0.35%. Add up to work in the business in 2016 was 129,000, up from 91,000 out of 2013. Amid a similar period, the industry's offer in all out business ascended from 0.16% to 0.22%.

The cowhide trade segment has a solid in reverse linkage regarding its utilizing for the most part privately sourced crude materials. The assessed residential esteem expansion is as high as 80-95%. The worldwide experience demonstrates that effective article of clothing fabricating nations will in general think that its less demanding to create specialization in calfskin items and footwear (and the other way around). The leather industry segment should therefore be a characteristic driver of export expansion for Bangladesh. The share of Bangladesh's fares to the USA, the biggest player of LLGs, is generously lower than that of its rivals (Hira and Antunes et al., 2013). While China, India, and Vietnam send out 24%, 19%, and 41%, separately, of their fare offers of completed cowhide articles to the USA, the relating figure for Bangladesh is just 7%. The worldwide LLGs sector extended from $75bn in 2000 to $167bn in 2015 – showing developing interest far and wide and, along these lines, rewarding prospects for sending out nations (Comtrade report, 2017). Amid a similar period, Bangladesh's exports increased by about $1bn (from $200 million to $1.2 billion). A similar examination demonstrates that Bangladesh sends out top-notch crude calfskin. Albeit some Bangladeshi cowhide articles and completed items are additionally of good quality, for these items there exists a significant extent of in general quality enhancement, which will assist us with grabbing more piece of the pie and offer at higher costs. Especially in leather footwear products, Bangladesh's quality is somewhat unremarkable, as uncovered by the unit esteem costs. The incalculable and non-mechanized footwear units are in like manner working for the nearby market (Paul, Hira, Anthony, Evans, Paula, Covington and Phillips, 2013). Some place in the scope of 5 or 6 associations make quality cowhide items which are routinely conveyed in evident volume. Profit margins are predicted to reach in the accompanying 5 years with no under 12-15% advancement in revenue per year. In the forthcoming two fiscal years the present footwear mechanical offices are most likely going to operate trades on more shoes.

The Export Processing Zones (all throughout Bangladesh), at present has 18 shoe and cowhide items mechanical offices and there are something like seven enormous plants a work in progress. Given the accessibility of nearby crude materials, the know-how of the supply chain inside the export business, and communicated arrangement bolster, the leather business has an enormous potential for change, producing billions of dollars in extra fare income. Therefore, with all of that being explained, it goes without saying that the leather industry in Bangladesh is uprising and, has huge scopes of success in the days to come provided there are adjustments made in production line of the leather industry.

Problem Statement

Bangladesh with a population of 160 million survive economically through the formation of new modern employments in the calfskin business. The cowhide part can possibly take the situation of readymade piece of clothing segment gave the legislature stretches out a wide range of participation to the segment (Khaled, 2015). Partners trust that the nation's cowhide industry would see more prominent possibilities once the tanneries are moved from Dhaka's Hazaribagh to Savar. It additionally said Bangladesh Bank, (The central Bank of Bangladesh) ought to give delicate credits to the calfskin division to move tanneries from the Hazaribagh to Savar. It communicated the perspectives that in meeting with the Asian Development Bank (ADB), the World Bank (WB) and other International Development organization, Bangladesh Bank can orchestrate some Tk. 55 billion for circulating among the calfskin part at 5.0 percent financing cost. The BHSMA said Bangladeshi calfskin is the best on the planet after the French item.

As per information, the fares of calfskin and cowhide merchandise crossed US$1 billion for the second year in monetary 2014-2015. Bangladesh traded calfskin and cowhide merchandise worth US$1.13 billion out of 2014-2015, contrasted and US$1.29 billion in the past financial year 2013-2014, making it the second most astounding supporter of national fares after article of clothing industry that earned US$19 billion (Export Promotion Bureau report, 2015). The EPB information demonstrates jute and jute merchandise turned into the third most noteworthy fare worker with US$736.4 million in the FY 2009-2010. Orion Footwear said Bangladesh's footwear area was balanced for a major development. Bangladesh used to send out principally rawhide, wet blue calfskin, and hull cowhide until 1990. Be that as it may, now it is focusing on sending out completed cowhide and calfskin products. The BHSMA said the nation every year delivered 200 million to 300 million square feet of completed calfskin, the greater part of which is sent out.

At present Bangladesh sends out calfskin shoes, travel packs, wallets, belts and completed cowhide. The RMM Leather Industries was the main Bangladeshi organization to get a universal honor for generation of eco-accommodating cowhide. As indicated by the EPB, Bangladesh earned US$ 1.29 billion from fares of cowhide, calfskin merchandise and footwear in the 2013-2014 financial years; now another probability has opened for the Bangladesh cowhide industry with China's center move far from the cowhide part. The Leather Goods and Footwear Manufacturers and Exporters Association (LGFMEA) said no less than 51 remote organizations have so far communicated enthusiasm for setting up joint-adventure footwear units in Bangladesh. It is normal that if fitting measures are taken to expand the indigenous completed cowhide and calfskin merchandise industry, the nation will be spared from the hazard of the outpouring of covers up to neighboring nations through dark courses. Since Bangladesh is an aggravation with sheep eating Muslim greater part nation, covers up and skins will dependably be accessible during the time to bolster a normal prosperous and continued calfskin industry that may colossally add to the nation's financial success. At this point Bangladesh economy has gained estimable ground to have the capacity to build up this indispensable division by preparing household wellsprings of back as opposed to depending on ADB, WB or other remote wellsprings of fund that may postpone the procedure. The Bangladesh Bank may potentially give at 5.0 percent financing cost the important Tk. 55 billion that approaches truly under US$1 billion out of its over US$25 billion present remote trade hold for this promising segment or other local wellsprings of back might be tapped for the reason. It is smarter to begin or attempt to act naturally dependent in the country's improvement uses than looking for outside help in all cases.

As per the LGFMEA, by and by 110 fare situated processing plants produce footwear in Bangladesh. Of them, Apex, FB, Picard Bangladesh, Jenny's, Akij, RMM Bengal and Bay have their very own tanneries and cowhide preparing units. There are another 207 cowhide preparing units in the nation. They anticipate that Bangladesh will be an appealing goal for calfskin part business people as China, the world's biggest footwear maker, is moving concentration from this segment. Bangladeshi makers are presently intending to fill the vacuum in the worldwide footwear showcase being left by China. According to ADB (2018) Bangladesh has major advantages in developing its leather industry but without an appropriate supply chain management its Bangladesh leather industry face difficulties in capturing international market. Hence, its important of Bangladesh leather industry to identify the appropriate supply chain management to reach its goal. Therefore, this research aims to identify the problems in the current production line of leather industry and how to revise it.

Research Questions and Objective

This thesis is an aim to identify the limitation of the current supply chain management in Bangladesh leather industry by answering the following questions

- What are the problem(s) in the existing production line of leather industry of Bangladesh?
- What to be changes to receive an optimal level outputs?

- What are the external factors that could bring in a change in the production line of the leather industry?

By answering those above question this research wants to fulfill the following objectives

- Figuring out the probable factors which hinder the growth of leather industry of Bangladesh.
- Explanation of aids which will enhance the supply chain in the industry.
- Pointing out the differences between "to do's" and "not to do's" for the betterment of understanding from stakeholders' perspective.

Significance of the research

The leather sector in Bangladesh directly employs around 558,000 people. Most tanneries they do not have adequate effluent treatment plant facilities and even some don't have an appropriate supply chain, backward and forward. The scope of the industry or in simple the demand of the leather goods in the international market are increasing and the world largest exporter like, China are going to moving for this industry. This creates an opportunity for Bangladesh leather industry to move ahead to capture the vacuumed area. But the industry if failed to fill the international demand. Therefore, in this situation, it is necessary to dig into this industry why it's not exporting as it was expected. Therefore, its timely needed to see what hindering the performance of current leather industry. As a, this research is an initiative to explore the reason and open a new window in the current literature for further discussion.

Organization of the thesis

This thesis organizes in the following order. Chapter 2 discuss about the literature review and some key concept and finally develop a research framework. Chapter 3 deals with research design, sample selection, and data collection. Chapter 4 provide overview of Bangladesh leather industry. Chapter 5 presented the results and conclude in chapter 6.

Chapter 2: Literature Review and Key Concept

Introduction

This section, the paper discusses the current literature gap and develop a conceptual framework to analysis the current problems of the leather industry in Bangladesh thoroughly to provide a general understanding of the leather industry of Bangladesh and accordingly discusses possible solutions that will change the landscape of supply chain and production of Bangladesh's leather industry.

Supply Chain Management

Supply chain is the system of procuring any product in a manufacturing unit. Production line is a segment of supply chain itself that emphasizes on the ends product (Storey, Emberson, Godsell and Harrison, 2006). There are several key aspects of supply chain modification that will enhance the performance of the leather industry of Bangladesh on a whole and this paper aims to identify these supply chain adjustments as well as the production line arrangements.

Handfield and Nichols (1999) define Supply chain management as the management of the stream of merchandise and ventures and incorporates all procedures that change crude materials into definite items. It involves dynamically streamlining a company's supply side activities to increase customer awareness and high priority in business alignment. SCM addresses the endeavor of suppliers to design and complete supply chains that are as feasible and cost-saving as the normal situation could be. Supply chains cover everything from creation to the expected information structures that would facilitate these businesses (Ortiz and Park, 2010).

Conventionally, SCM tries to control the time, shipping and distribution of a thing. Supply chain management helps organizations reduce their filling costs and make things faster to the buyer.

This is done by controlling the internal inventories, internal time, history, bargains and stocks of the liaison carriers even more closely. SCM relies on the likelihood that anything that arrives at exhibits will result from the commitments of the various affiliations that make up a supply chain. Regardless of the way supply chains have been around for a long time, most associations have been late to take their responsibilities into account. A supply chain is the associated ordering of individuals, affiliations, resources, activities, and advancements associated with creating and offering a thing or organization. Harland (1996) explains that a supply chain begins with the conveyance of crude materials from a provider to a producer and closures with the conveyance of the completed item or administration to the end customer. SCM administers each touch purpose of an organization's item or administration, from introductory creation to the last deal. With such large number of spots along the supply chain that can include an incentive through efficiencies or lose an incentive through expanded costs, legitimate SCM can build incomes, diminish expenses, and affect an organization's primary concern.

Geissdoerfer et al. (2018) defined Circular Supply-Chain Management (CSCM) is "the arrangement and coordination of the hierarchical capacities promoting, deals, R&D, creation, coordination's, IT, back, and client benefit inside and crosswise over specialty units and associations to close, moderate, escalate, restricted, and dematerialize material and vitality circles to limit asset contribution to and waste and discharge spillage out of the framework, enhance its agent adequacy and effectiveness and produce upper hands". By lessening asset info and waste spillage along the supply chain and arrange it to empower the distribution of assets at various phases of the item or administration lifecycle, potential financial and natural advantages can be accomplished. These include e.g. a diminishing in material and waste management cost and decreased discharges and asset utilization. Therefore, it is important to understand the conceptual framework behind the concept of circular supply chain management.

Components of supply chain management

Hugos, (2018)[1] in his book the "Essentials of supply chain management" mention there are five core components of supply chain management a) Production, b) Inventories, c) Location, d) Transportation and e) Information.

Production

Production denotes to the capacity of a supply chain to produce and inventory the products. The manager faces a dilemma how much they produce and how much the store. The tradeoff become difficult for the production manager. The excess production helps manager to response in immediate demand, on the other hand excess demand required huge inventory cost.

Inventories

The inventory is distributed throughout the supply chain, encompassing everything from raw material to product processing to the end-products that manufacturers, retailers and retailers have in a supply chain. Moreover, managers have to identify where and which part they should keep for improve the efficiency and avoid misuse of the materials. By maintaining large inventories, a company or the whole supply chain management can be very sensitive to oscillations in customer demand. Conversely, formation of large inventory and maintaining the overall storage of inventory is very cost effective. That is why company should always have retained inventory costs as low as they can.

[1] Hugos, M. H. (2018). *Essentials of supply chain management*. John Wiley & Sons.

Location

The location refers to the geographical location of the facilities in the supply chain. This also includes the decision on what activities should be carried out in the individual plants. The trade-off between response speed and efficiency is deciding to centralize activities in fewer locations, achieve the cost effective and efficient, or decentralize activities at many sites near customers and suppliers to improve response times

location decisions require a number of factors related to a specific location, including equipment costs, labor costs, available labor, infrastructure conditions, taxes and fees, and the proximity with suppliers and customers. These are often very strategic decisions, since they represent large sum of money as well as long term plans. Location decisions have a solid impact on the cost and performance features of a supply chain. After determination the size, number and location of the equipment, this also defines the number of possible ways in which the products can flow on the way to the final customer. Decisions about location represent the fundamental strategy of a company to manufacturing and launch its products to the market.

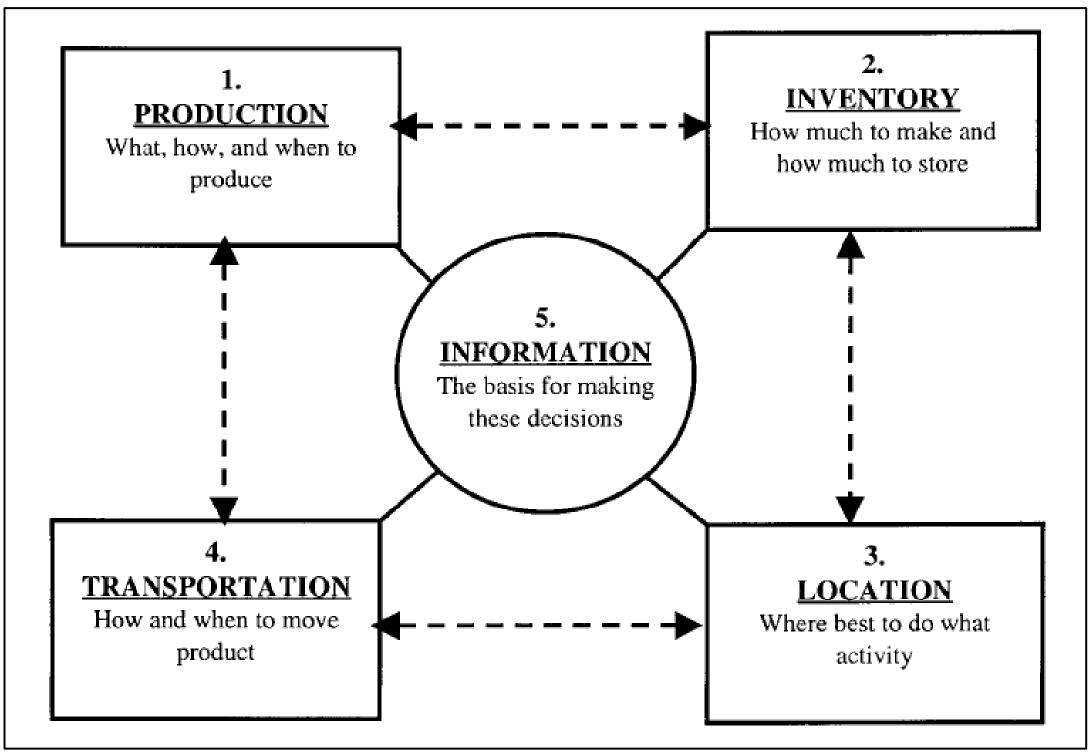
Transportation

Transportation denotes basically the movement of raw material in final products between different segments in a supply chain. Flow of raw materials reflects the compensation between responsiveness and effectiveness in the selection of transportation mode. Fastest mode of transport is very sensitive like airplanes, but also more expensive. The sluggish modes of transportation such as train, ship are very profitable, but they are time consuming. As transportation costs can reach up to one-third of a supply chain's operating costs, the decisions of transportation in this regard is important.

Information

Proper information is the base of decision making for the other four drivers of the supply chain. Information connect all the taken actions and processes in a supply chain. To some extent that, this linking is robust, companies in a supply chain can make decent resolutions. This also tends to maximize the profitability of the entire supply chain. In this way, the securities markets or the free markets work and the supply chains have a similar dynamics as the markets.

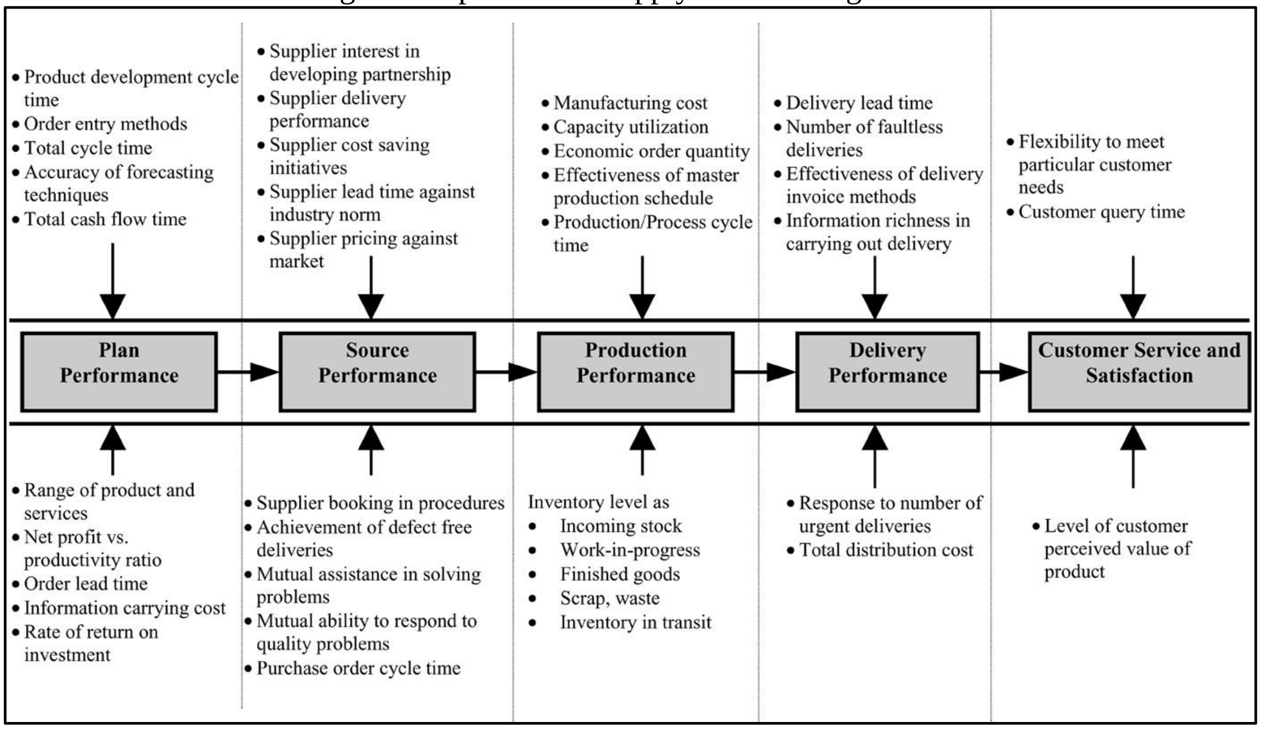
Fig 1: Component of Supply chain management



Source: Hugos, M. H. (2018).

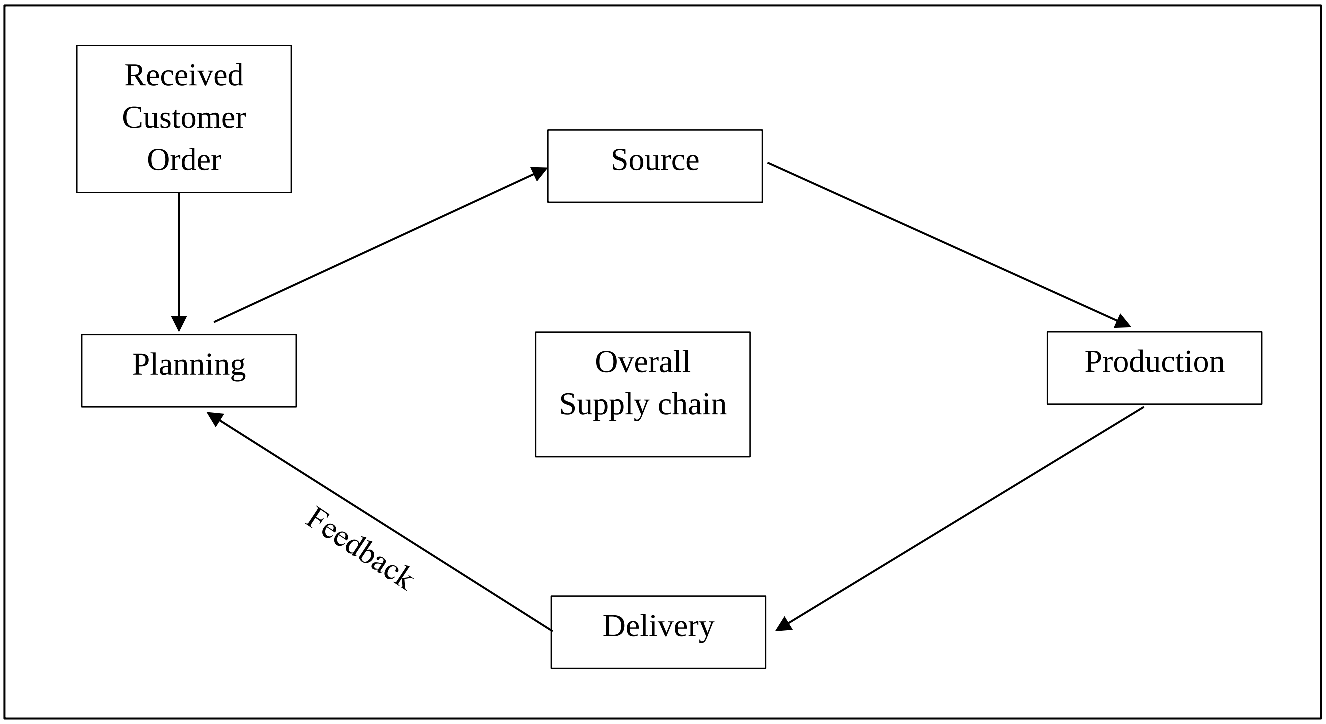
Based on the performance analysis of supply chain management Gunasekaran, Patel, and Tirtiroglu, (2001) provide four basic component of supply chain management 1) Planning, 2) Sources 3) Make and 4) Delivery. And to measure the performance of the whole supply chain management, it must be calculated the individual component performance. There is no concreate measuring tools to measure the performance of supply chain management. But Gunasekaran, Patel, and Tirtiroglu, (2001) developed a performance measurement framework. They used different parameters to measure the individual components performance (fig 2). It is difficult to measure the performance of all the parameters. For example, measuring the actual productivity in labor incentive industry become difficult. To avoid this difficulty, Gunasekaran, Patel, and McGaughey, (2004) develop a rank of all the parameters based on the importance. They mention that in planning phase the customer query is highly important to measure planning performance of supply chain management. They kept Product development cycle time as moderate and forecasting, planning process cycle time as less important. In source or supply side, Supplier delivery performance found highly important and suppliers lead time, Pricing of the product found as moderate important and Supplier booking in procedures found as less important. In production line the percentage of defects items, capital utilization found as highly important and range of product and service found moderate and economic order quantity found as less important. On the delivery components, Quality of delivered goods, on time delivery of goods, Flexibility of service systems to meet customer needs found as highly important and Effectiveness of enterprise distribution planning schedule, Effectiveness of delivery invoice methods, Information richness in carrying out delivery found as moderate important.

Fig 2: Components of Supply chain management



Gunasekaran, Patel, and Tirtiroglu, (2001) Based on the above discussion, researcher develop a conceptual framework to analysis the overall performance of the supply chain management of Bangladesh leather industry.

Fig 3: Research Framework



Source: Authors creation

Figure 3 represent the conceptual framework created based on previous study. Here, the supply chain starts after the leather industry received the order and the supply chain consists of four components that already discover by Gunasekaran, Patel, and Tirtiroglu, (2001). So, the overall performance of supply chain depends on every component of the supply chain.

Chapter 3: Methodology

Research Design and Method

Research methodology can be categories qualitative; quantitative; or as involving both qualitative and quantitative methods, often known as mixed method (Harwell, 2011, p148). In the literature there is some controversy in using qualitative, quantitative because several researchers considered qualitative and quantitative research are opposite. But Creswell (2013) said, research methods “qualitative” or “quantitative” are not opposite each other’s but it’s the different methods to measure same things. Creswell (2013) offers five qualitative research approaches: ethnographic, grounded theory, case study, phenomenological and narrative research, and two types of quantitative research approach survey and Experimental research.

Survey research provides a quantitative or numerical overview about the attitude, trends or opinion of a population. Survey data can be collected by using structured questionnaires or face to face interviews. On the other hand, experimental research identifies the influence of one or multiple factor over another and vis-a-vis. This research is going to use survey methods quantitative research.

Sample Selection

The aim of this research to find the performance of SCM in Bangladesh leather industry. This research considered three prominent leather organization that suited in Dhaka EPZ. Those three organization are as follows

- ❖ Austan Ltd.
- ❖ DongA Leather Limited
- ❖ Savar Industry (Pvt) Ltd

- Apex Tannery
- US-Bangla Leather products Ltd.

There reason behind selecting those three organizations are, the Austan Ltd., DongA Leather Limited and Savar Industry (Pvt) Ltd. all are 100% export-oriented organization operating in Dhaka Export Processing Zone (DEPZ). It produces high quality leather products including hand-bags and shoes and export throughout the world. The focus market of Austan Ltd. Australia Footwear and Leather goods are North America, Europe, China, Hong-Kong, Australia, Japan and Korea. DongA Leather Limited has a trade relation with Europe and US and some parts of Asia and Savar Industry (Pvt.) limited export all over the globe.

Apex tannery is one of the old leather product producer in Bangladesh. It starts its operation in Bangladesh in 1976. Apex Tannery is the first ISO certified tannery operated in Bangladesh. Apex Tannery has export relations with more than 30 countries including Italy, China, Japan, India, Hong Kong, Vietnam, Korea, and United States. US-Bangla Leather products Ltd. is also a 100% export-oriented leather goods manufacturer in Bangladesh. It is a joint venture initiative between United State and Bangladesh which has emerged as one of the vital concern of US-Bangla Group in the process of Group business diversification. It provides various range of Leather bags, Ladies bag and various Leather goods & services precisely developed to the needs of each client.

This five organization represent the whole tannery industry in Bangladesh. Researcher has also dealing with those organization when research employed in the same industry. Hence, research select those five organization as the sample organizations. From the above five organization researcher select 7 employees from each organization who are directly related with supply chain management to measure the performance of SCM of Bangladesh tannery industry.

Data Collection

Based on the literature survey, researcher developed a questionnaire to analysis the performance of supply chain management of Bangladesh tannery industry (the same sample question Presented in Appendix). As there is a time limitation, therefore, researcher was unable to go for field study. Rather, researcher develop an online questionnaire in Google Docs and mail the link to the respondent. Among them researcher received 32 responses. 1 employees replay, the respondent went to a business trip and unable to fill the questionnaire. One respondents did not reply the mail and another one respondent replay as “I am sorry to say that I am busy now, and don’t have enough time to fill out your questionnaire”.

Chapter 4: Bangladesh Leather industry

Overview of leather industry of Bangladesh:

The leather industry is one of the main industries in Bangladesh, and the government of Bangladesh has made it a priority sector. The leather sector is the second largest export earning sector after the apparel sector. According to the Export Promotion Bureau (EPB), Bangladesh earned from leather sector $ 1.23 billion in FY 2016-17. That solid execution had even incited Prime Minister Sheik Hasina to declare declared as the Product of the Year for 2017, saying the legislature would "help this industry to achieve its maximum capacity".

Table 4: Bangladesh Export data (Category-wise)

(US$ in million)

Particulars	July-October, 2018	July-October, 2017	Changes during July-October, 2018 over July-October, 2017	
			In amount	In percent
1. Woven garments	5457.83	4451.53	+1006.30	+22.61
2. Knitwear	5875.26	4986.20	+889.06	+17.83
3. Specialized Textiles	45.33	29.76	+15.57	+52.32
4. Agricultural Products*	366.53	203.21	+163.32	+80.37
5. Jute and Jute Goods	288.85	345.01	-56.16	-16.28
6. Leather and Leather Products	345.20	428.44	-83.24	-19.43
7. Frozen and live fish	197.31	226.91	-29.60	-13.04
8. Chemical Products	63.19	45.00	+18.19	+40.42
9. Plastic Products	39.61	29.75	+9.86	+33.14
10. Engineering products	108.32	96.30	+12.02	+12.48
11. Others**	864.35	663.69	+200.66	+30.23
TOTAL	**13651.78**	**11505.80**	**2145.98**	**18.65**

Source: Bangladesh Bank, 2018

Development of Bangladesh Ternary Industry

The processing of leather is an old sub-segment of assembly in Bangladesh with a long legacy of more than six decades. The accessibility of the domestic raw material (hides and skins) promoted the establishment of the company in the mid-1940s in the former East of Bengal. At that time, leather processing was limited up to the wet blue leather (semi-tanned tanned leather).

The export of processed leather until FY1980-81 consists entirely of wet blue leather. After 1981, policies to increase added value in the industry created an incentive for a new private attention in the leather industry. In June, 1991 the ban on the export of wet blue leather led to the creation of modern leather tanning industry and facility for the production of high quality upper leather (leather tanned after further processing wet blue leather) and finish leather. And it carried out new investment in leather products industry, especially footwear industry.

The leather industry is now reasonably well established in Bangladesh, with about 200 Government-recognized leather plants processing raw hides and skins into wet-blue, crust or finished leather, and over 2,000 leather footwear and leather-goods units (over 90% employing less than 9) producing various kinds of leather footwear and other leather products such as garments, ladies bags, suitcases, wallets and some fancy items Now, the leather industry is already well established in Bangladesh. Around 200 government recognized tannery process raw hides and skins in wet blue, crust or leather and more than 2,000 footwear and leather Goods Company running with their full capacity.

Hazaribagh in Dhaka, the industry is mainly located. Two third of the tannery is located in this area. In addition, Hazaribagh has a large number of cottage type tanneries also. Such a merger is likely to provide share knowledge within the industry, availability of raw materials, spare parts and so on. However, Hazaribagh is not the right place for the concentration of an industry like leather manufacturing. The area was originally developed as a place of residence. Therefore, narrow streets and limited drainage facilities are extremely inadequate for the needs of a growing industry such as leather manufacturing. That is why government has taken up the project to relocate the tanneries from Hazaribagh to Savar.

In the year 2017 the tannery industries were shifted to new tannery estate Savar from Hazaribagh. In order to establish an environmentally sound sector, the government initiated CETP, the chromium recovery unit, the water treatment plant, the central zone for the discharge of solid waste and other infrastructures currently in operations.

The main advantage of the leather industry in Bangladesh is the sufficient supply of raw materials. The accessibility of raw materials is the industry's biggest strength. As Bangladesh's RMG operates smoothly, If RMG has led many leading brands in Bangladesh with its direct presence, they will be happy to order their own leather products in the country where they buying garments item. The growth of the textile sector and RMG is actively contributing to the growth of the leather industry and related industries such as footwear and other leather products industry.

The present export earnings from the leather sector shows that there are certainly many challenges in which the target size could not be achieved. There is no integrated policy yet for the leather sector; absence of long-term policy regarding the Common Facility Center (CFC), the development of SME groups and the branding/ promotion of leather products in Bangladesh. Political instability, corruption. The potential buyer stands for compliance issues and delay in the construction of the CETP in Saver Leather Village, Dhaka.

Future of Bangladesh Tannery Industries

According to the Bangladesh Tanners Association, the country annually produces 220 million square ft. (apprx.20 million square meters) of hide, of which 64.82 percent cowhide, 2.25 percent buffalo hide 1.2 percent sheepskin. More than half of them are collected from during the Eid-ul-Azha festival. Another survey shows that around 16.5 million hide and skin pices are collected each year in this country. Although Bangladesh exported only wet blue leather until 1990, it has now begun to export finished leather.

According to the International Trade Council (ITC), in year 2015 Bangladesh exported $ 311 million of leather, about $ 700 million in footwear and $ 206 million in leather goods. The average value added in this sector is 85%. The world leather market is about 215 billion US dollars, Bangladesh accounts for only 0.5%.

Table 5: Bangladesh Export value of Leather Related items

Year	Leather	Footwear	Leather Products	Total (Mn USD)
2005-2006	257.27	95.44	7.12	359.83
2006-2007	266.08	135.94	11.03	413.05
2007-2008	284.41	169.60	8.87	462.88
2008-2009	178.20	182.92	18.78	379.90
2009-2010	226.10	204.09	28.96	459.15
2010-2011	297.83	297.80	55.40	651.03
2011-2012	330.16	335.51	99.36	765.03
2012-2013	399.73	419.32	161.62	980.67
2013-2014	505.54	550.11	240.09	1295.74
2014-2015	397.54	249.16	483.81	1130.51
2015-2016	277.90	714.01	388.22	1380.13
2016-2017	232.61	536.96	464.43	1234.00
2017-2018	183.00	565.60	336.8	1085.4

Source: BTA, 2018

The domestic leather and leather goods market is quite large with 162 million people. Domestic production leather and leather-oriented goods value is around 17 billion euro. About 6 billion pairs of leather footwear are sold internally, while about 45 percent of local production is exported. In addition, the Bangladesh Bureau of Statistics (2016) found that the domestic footwear market is $ 2 billion. According to the Bangladesh Investment Development Authority (BIDA), the leading national organization that promotes investment, there are more than 3,500 national shoemakers and more than 110 export-oriented entities supported by more than 250 tanneries.

Some Leading Company Name

1. RMM Leather Industries Limited
Corporate Office: Level-6, Suite-601, Concord Tower
113 Kazi Nazrul Islam Avenue,
Dhaka-1215. Bangladesh.
Ph: +88 02 9345270, 9345963-4
Fax: +88 02 9345271
Website: www.rmmleather.com

2. Apexadelchi Footwear Limited
Corporate Office: House No. 06, Road No.137
Block. SE (D) Gulshan -1, Dhaka-1212. Bangladesh.
Ph: +88 02 8820300/8821591/8828258
Fax: +88 02 8813038
Website: www.apexadelchi.com

3. APEX TANNERY LIMITED
Plot no: XA1. XA2, XA3 & XS8 BSCIC Chamra Shilpa Nagari, Harindhara, Hemayetpur,
Savar, Dhaka 1340 Phone : +8801711686592

4. Picard Bangladesh Ltd.
Head office:
Skylark Point, Suite 9J1-224/A Bijoy Nagar, Dhaka, Bangladesh
GPO Box No 3018
Factory: Boro Rangamatia (Kathgora), Ashulia Savar, Dhaka - 1341, Bangladesh
Tel: +88 02 9354570,9354993-4,9354116, 7792798, 7792930, 7793162, 7792257, 7791202,
Fax: +88 02 9332569, 9354569, 7793133

5. Apex Footwear Ltd.

Adderss : House # 06, Road # 137, Block # SE(D), Gulshan-1, Dhaka-1212. Bangladesh.
Tel : +88 02 55044841 (Hunting)
Fax: +88 02 55044843
Website : http://www.apexfootwearltd.com

6. US-Bangla Leather Products Ltd.
Factory: Holding # 38/1,
Kuturia, Ashulia,
Savar, Dhaka 1344
Mobile: +8801730018676
Phone: +88-02-7792650
www.us-banglaleather.com

Organization related to the industry:

Bangladesh Tanners Association

Bangladesh Tanners Association (BTA) is an association, non-profit organization of the leather industry in Bangladesh. BTA playing a vital role to in different issues such as export certificate, negotiation with govt. and so on. Currently, BTA is carrying out EU-funded projects for environmental management systems, eco-labels in the leather industry in Bangladesh (ECOLEBAN) and organizes several training programs together with LSBPC & BEGP, the Ministry of Commerce, to develop the sector. BTA look after the well-being of tanneries throughout Bangladesh.

BTA began their journey in 1963. Currently, BTA is carrying out projects that are funded by some organizations. It also organizes special training programs mutually. It guarantees the safety of tanneries throughout Bangladesh by issuing export certificates that allow for proper assessment. It also arranges seminars, workshops to increase the compliance and safety at workplace jointly with ministry of commerce. Association provide the support and idea for set up new plant for new investors. They offer trade union and support between companies and their employees. The Bangladesh Tanners Association is headed by an executive committee chaired by a president. Md. Shaheen Ahmed is the current president of BTA.

The other related organizations are; Leather Engineers & Technologists Society, Bangladesh (LFMEAB) is founded and registered at 2003. The main objective is to establish a proper business environment and maintain a good relationship with manufacturer and buyers.

Export Processing Zone

Dhaka Export Processing Zone is the largest and centralized export zone of Bangladesh with an area of 356.22 acres. It was established in the year of 1993 and is located on the outskirts of the capital at Savar, 35 kms away from the capital city of Dhaka. A report by Bangladesh Export Processing Zone Authority (2018) suggests that, as of the year of 2017-18, it became a home to more than 90000 workers, and by the year 2017-18, this special zone exports more than US $24000 alone. The justification behind choosing Dhaka EPZ as a research base is mostly due to its economic contribution to the nation’s global industrial image, Additionally, the research, if conducted in Dhaka EPZ, allowed a diversification in data findings with a mix of both local and international manufacturers which contributes significantly to the prospects of the research in the first place.

There is a huge number of tanneries acknowledged the open entryway in 1990s for the creation of outside layer and completed calfskin. There are approximately 220 tanneries in Bangladesh yet, honestly, among them 113 tanneries are in a convincing action, out of these 20 units are represented to be truly colossal, around 45 units are considered of medium size and around 48 units are meager social affairs (BTA, 2010). 105 of the tanneries are arranged abstractly in the

Hazaribagh area in Dhaka where 84 percent of the total supply of stows away and skins are dealt with in an exceedingly stopped up district of only 29 hectares of land. Cowhides speak to 56% of the creation, goat skins for 30% and buffalo makes up the rest. The current yield in Bangladesh is around 200 million sq.ft. of calfskin yearly (HSMA, 2005). Beside bull like covers, buffalo, goat, and sheep; a lot of kangaroo stows away (restored condition/wet-blue) are remote from Australia and finished in Bangladesh, shoes are made of this kangaroo cowhide for the admission, generally to Japan. Some ostrich cowhide is also outside produced using Australia for the making of high bore and exorbitant sacks and wallets for re-admission to Australia. The attribution of the calfskin business to the Bangladesh economy was about US$500 million, speaking to 3% of country's admissions in 2010-11 (EPB, 2011). The progressing charge designs demonstrate that the footwear fragment (esteem included stock), is turning into a downgraded aspect (Paul et al., 2013).

The first and one of the most important export processing zone is Chittagong Export Processing Zone (CEPZ), located in south Halishahr in Chittagong. It was founded in 1983 on the basis of a law passed in 1980 by the Government of Bangladesh. In 2010, by FDi magazine, CEPZ ranked third in cost competitive port and number fourth economic prospective port among 700 economic zones around the world. The Adamjee Export Processing Zone, which is commonly known as also Narayanganj Epz, it is established in especial economic zone on behalf of manufacturing the export-oriented products. Founded in 2006, total area is 245 acres with 229 industrial plots. The Uttara Export Processing Zone (UEPZ): The only export processing area of northern part of Bangladesh. Location of UEPZ is in Nilphamari district. UEPZ started journey at 2001 with 213.66 acres of land. Chinese famous leather bag manufacturing company Ventura leather manufacturing co. (MFY) set up their Bangladesh plant at this EPZ.

Recently, Bangladesh government taken initiative to set up 37 new economic zones, these are involves governmental, private and Particular Economic zone. Bangladesh government declared to set up new tax relief hi-tech city and export processing zones also.

Competitiveness of Bangladesh Leather Industry

SWOT Analysis

Strength	Weakness
a) Leather can be identified as a renewable form of resource or item. b) Alignment of an integrated production systems and supply chain from the very raw materials to tanneries and leather products. c) An abundant yet moderately inexpensive labor force in comparison to other manufacturing societies in geographic areas or countries with similar economic systems. d) Recognition of Bangladesh's premium grain leather. e) Competitive advantage (price) of Bangladeshi Leather in International market f) Lifecycle of leather products. g) Efficient business environment, i.e: EPZ	a) A clear lack of R&D practices (research and development). b) Lack of optimal use of supply chain management c) Insufficient knowledge on proactive leather marketing. d) Lack of promotions for locally manufactured products. e) Lack of financial aspects and funding to aid the industrial ecosystem f) Shortage of chemical supplies g) A regressive demand scale in domestic market. h) Inability to procure trendy and innovative products. i) Dysfunctional vertical integration (forward linkage, backward linkage) j) Lack of brand exposure. k) Absence of professional training institutes for professionals and labors alike.

Opportunity	Threat
a) Optimizing global demand for moderately cheap leather products. b) Potential for quality raw materials within the country. c) Optimize the cheap labor force. d) GSP (Generalized system of preferences) facilities to exporters. e) Duty free trades in financially beneficial markets. f) Possible expansion to the growing footwear market in Middle East and the southern parts of Africa. g) Opportunity in initiating a by-product industry based on both solid and liquid waste tannery, animal slaughter house etc. h) Making the most out of leather products that are hygienic and most importantly environment friendly and biodegradable. i) Promise of setting up ETP with allocation of a substantial modern industrial place in Savar by the government.	a) Delay in introduction of integrated government policy for the advancement of leather industry. b) Leather sector growth was going downhill in some years because of political instabilities leading to negative feedbacks from international investment communities. c) Political instability of Bangladesh, poor governance at all levels from micro to macro. d) Intensive competition for gaining market because of strong competitors in geographic zone. e) Huge dependency on high priced imported chemical and affiliated accessories. f) Limited product diversification compared to competing countries in geographic regions. g) Illegal export of raw hides and skins to neighboring countries is creating scarcity of raw materials for local production. h) Insufficient measure to address the environment pollution, health and safety issues by the tanneries.

Chapter 5: Findings and Discussion

In this section, the paper discusses the range of findings of the research. First this research presents the demographic background and later it will provide a deeper analysis of the performance of the supply chain management of Bangladesh Leather industry. For this research send a total of 25 questionnaire to selected leather industry personal. Among them 19 fill out the questionnaire.

Descriptive Statistic

This section of the research provides the demographic information of the respondants.

Table 5.1: Current Position of the respondents

Position	Frequency	%
Logistic Officer	5	16%
SC Analysts	7	22%
SC-Manager	7	22%
SC-A. Manager	6	19%
SC-S-Logistic Officer	7	22%

Source: Authors Calculation based on Data

Table 5.1 represent the current position of the total respondents. There are 5 (16%) respondents current role is logistic officer, 7 (22%) is Supply chain analysts 22% (n=7) are holding as the supply chain managers.19% (n=6) are Assistant supply chain manager and 22% (n=7) work as a senior logistics officer

Table 5.2: Age of the respondents

Age	Frequency	%
Below 40	6	19%
40-45	13	41%
45-50	9	28%
More than 50	4	13%

Source: Authors Calculation based on Data

Table 5.2 represent the age group of the respondents. Among the 32 respondents, 6 were below 40 years old, 13 (41%) were between 40 and 45 years old, 9 (28%) are between 45-50 and 4 were more than 50 years old.

Table 5.3: Educational Background of the respondents

Education	Frequency	%
Below SSC	7	22%
SSC	6	19%
HSC	11	34%
Bach	5	16%
Master	3	9%

Source: Authors Calculation based on Data

Table 5.3 represent the educational Background of the respondents. Among the total 32 respondents, 7 were below SSC (Secondary School Certificate), 6 respondent completed SSC, 11 completed HSC (Higher Secondary Certificate exam), 5 completed their bachelor's degree, and only 3 completed their master's degree.

Table 5.4: Experience in Current Position of the respondents

SCM Experience	Frequency	%
Below-5	5	16%
5-10	10	31%
10-15	8	25%
15-20	4	13%
20+	5	16%

Source: Authors Calculation based on Data

Table 5.4 represent the experience in the current position, that is the experience in the supply chain management of the respondents. Among the total 32 respondents, almost 16% (n=5) below 5 years of experience in relevant field, 31 % has between 5 and10 years of experience in the relevant field. 26% has an experience between 10 and 15 years of experience, 13% has experience between 15 and 20 and 16% has experience more than 20 years.

Results

Planning Process

To identify the performance of the production process of the leather industry we asked the following question.

1. Are you Satisfy with replaying to Customer query?
2. Are you Satisfy with Product development cycle time?
3. Are you Satisfy with organization's forecasting?
4. Are you Satisfy with organization Planning process cycle time?

We ask the respondents to answer in 1-5 Likert scale. 1 represent the Strongly Satisfied and 5 represent the Strongly Dis-satisfied. Table 5.5 show the results of the Production process performance. From the table we see the mean value of question 1 (PL-1) is 3.5 and median value is 4 with standard deviation 1.05. In Question 2 (PL-2) the mean value is 3.28 and median value shows at 3.50 with standard deviation is 1.28. in question 3 (PL-3) the mean value is 2.84 and median value is 3.00 with 1.32 deviation. The last question in production process (PL-4), mean represent as 3.41, median is 3.50 and standard deviation is 1.13.

Table 5.5: Performance of Planning Process

Que	Strongly Satisfied	Satisfied	Neutral	Dis-satisfied	Strongly Dissatisfied	Mean	Median	Std Dev
PL-1	3%	16%	25%	41%	16%	3.50	4.00	1.05
PL-2	9%	19%	19%	31%	19%	3.28	3.50	1.28
PL-3	19%	25%	25%	19%	9%	2.84	3.00	1.32
PL-4	3%	22%	25%	31%	16%	3.41	3.50	1.13

Source: Authors calculation based on Primary data

Source/Suppliers

The table 5.6 represent the result of sources/suppliers. In this section researcher ask three questions. Those are as follows,

1. Are you Satisfy with Supplier delivery performance?
2. Are you Satisfy with Supplier lead-time?
3. Are you Satisfy with Supplier pricing against market price?

From the table it was identified that in question (SP-1) the average value of the respondents is 3.34, mean value is 4.00 and standard deviation is 1.26. in the second question (SP-2), mean value is 2.69 and median is 3.00 and the value of standard deviation is 1.38. and the last question in source section (SP-3), mean value represent 3.38 with median value is 4.00 and standard deviation is 1.21.

Table 5.6: Performance of Source/Suppliers

Que	**Strongly Satisfied**	**Satisfied**	**Neutral**	**Dis-satisfied**	**Strongly Dissatisfied**	**Mean**	**Median**	**Std Dev**
SP-1	9%	19%	19%	34%	19%	3.34	4.00	1.26
SP-2	28%	19%	22%	22%	9%	2.69	3.00	1.38
SP-3	6%	22%	19%	34%	16%	3.38	4.00	1.21

Source: Authors calculation based on Primary data

Production Process

The next supply chain component is production process. In the production process related, we ask three questions. The questions are as follows

1. Are you Satisfy with Percentage of defects?

2. Are you Satisfy with total Capacity utilization?
3. Are you Satisfy with Utilization of economic order quantity?

In the first question (PD-1) we find the average value is 3.16 the maximum frequency appeared in the respondent is 3.00 and the standard deviation is 1.25. The result of the second question (PD-2); the mean value is 3.03 and medial value is 3.00 with standard deviation is 1.33. the last question (PD-3) the result shows, the mean value is 3.19 and median value is 3.50 with standard deviation 1.38.

Table 5.7 Performance of Production Process

Que	**Strongly Satisfied**	**Satisfied**	**Neutral**	**Dis-satisfied**	**Strongly Dissatisfied**	**Mean**	**Median**	**Std Dev**
PD-1	9%	25%	22%	25%	16%	3.16	3.00	1.25
PD-2	19%	16%	22%	28%	13%	3.03	3.00	1.33
PD-3	16%	19%	16%	28%	16%	3.19	3.50	1.38

Source: Authors calculation based on Primary data

Delivery

The last component in measuring the performance is delivery process. In this section we ask 6 questions as follows;

1. Are you Satisfy with the Quality of delivered goods?
2. Are you Satisfy with systems to meet customer needs?
3. Are you Satisfy with Effectiveness of enterprise distribution planning schedule?
4. Are you Satisfy with Effectiveness of delivery invoice methods?

5. Are you Satisfy with Number of faultless delivery notes invoiced?
6. Are you Satisfy with Delivery reliability performance?

The mean value of the question one (DL-1) is 3.50, median 3.00 and standard deviation is 1.02. In the second question (DL-2) the mean value is 3.47, and the median value is 4.00 with standard deviation 1.11. The third question in this section (DL-3) shows the mean value is 3.19, median 3.00 and standard deviation 1.28. In question no fourth (DL-4), mean 3.09, median 3.00, standard deviation 1.33. the last two questions (DL-5 and DL-6) mean, 2.81 and 3.44; median 3.00 and 4.00 and standard deviation 1.49 and 1.22 respectively (Table 5.8).

Table 5.8: Performance of delivery unit

Que	Strongly Satisfied	Satisfied	Neutral	Dis-satisfied	Strongly Dissatisfied	Mean	Median	Std Dev
DL-1	3%	6%	41%	28%	16%	3.50	3.00	1.02
DL-2	3%	19%	25%	34%	13%	3.47	4.00	1.11
DL-3	13%	16%	25%	31%	13%	3.19	3.00	1.28
DL-4	16%	19%	25%	25%	16%	3.09	3.00	1.33
DL-5	28%	13%	25%	16%	16%	2.81	3.00	1.49
DL-6	9%	13%	19%	41%	16%	3.44	4.00	1.22

Source: Authors calculation based on Primary data

Discussion

This thesis is not going to measure the total performance of the leather industry in Bangladesh. Rather this thesis is works to identify the reasons why Bangladesh failed to scale up their operation to capture the international market demand. This thesis hypothesis that, the supply chain may restrict the overall performance of leather industry in Bangladesh. Therefore, in the questionnaire researcher also ask some performance indicator questions which are as follows.

1. Are you Satisfy with the Sales?
2. Are you Satisfy with on time Deliveries?
3. Are you Satisfy with Customer Retention?
4. Are you Satisfy with Repeated order?

Table 5.9 represent the result of overall performance of selected leather industry in Bangladesh. In the first question we ask the satisfaction level of the Current Sales. From the response we see, the mean value is 3.47 and medial value is 4.00. this specifies that the firm's employee expect some more sales volume with current inputs. In case of on time delivery, the respondent also not satisfied. The maximum frequency appears in dissatisfaction response and the medial value is also 4. This means the organization failed to deliver their product on time. Which emphasis the problem in either one of the three main component problems like, planning, source or production. If one or two or three of those main unit failed to perform, then overall supply chain faces a problem especially the delivery unit. In customer retention organizations seems to be satisfied, the mean value shows 2.72. The respondent also satisfied in repeated order by their clients.

Table 5.9: Results of Overall performance

Que	**Strongly Satisfied**	**Satisfied**	**Neutral**	**Dis-satisfied**	**Strongly Dissatisfied**	**Mean**	**Median**	**Std Dev**
OP-1	3%	19%	22%	41%	16%	3.47	4.00	1.08

OP-2	6%	19%	19%	34%	22%	3.47	4.00	1.22
OP-3	19%	28%	25%	19%	9%	2.72	3.00	1.25
OP-4	19%	38%	22%	13%	9%	2.56	2.00	1.22

Source: Authors calculation based on Primary data

Even though the Bangladesh leather industry good in maintaining customer retention and repeated order. But the main goal of firm the sales volume was not satisfactory and not satisfied in delivery process. Then if we dig the problem we see, in planning process, out of 4 sectors, three section (Customer Query, Product development cycle and Planning process cycle time) found dissatisfactory results. Only the forecasting shows a bit satisfactory results. In the source or suppliers case out of three points, only one points found satisfactory level of performance. For example, the selected organization are not satisfied in supplier's delivery performance and supplier pricing against market pricing, this emphasis the suppliers or source also not performing was expected. In the production units, the three units, percentage of defects, total capital utilizations and utilizing the economic order quantity all three variables shows the dissatisfactory results. It is also found that the delivery unit also not performing well.

Chapter 6: Conclusion and Recommendation

Conclusion

China, the world's biggest footwear maker, is moving concentration from this segment. Bangladeshi makers are presently intending to fill the vacuum in the worldwide footwear showcase being left by China. According to ADB (2018) Bangladesh has major advantages in developing its leather industry but without an appropriate supply chain management Bangladesh leather industry is facing difficulties in capturing international market. Hence, its important of Bangladesh leather industry to identify the appropriate supply chain management to reach its goal. Therefore, this research aims to identify the problems in the current production line of leather industry and how to revise it. In searching with the problem of the current supply chain management, this research developed a research framework to identify the problem under performance measurement tools. In the research frameworks, research try to identify the problem of every components, planning, sources/suppliers, production and delivery units. To identify the problem, researcher select 5 top ranking leather company and collect 32 questionnaires from 32 key personal of the selected organization. Based on the data, this research finds that all the components in supply chain management are performing dissatisfactory.

To conclude, the research has explained the fundamentals of the leather industry in Bangladesh through secondary data, described the production system of Bangladesh as well as the ideal production strategies with an aim to provide a detailed ideation of the leather industry in Bangladesh to the readers. Furthermore, the paper has also dived deep into analyzing the industry with frameworks, quantitative studies and has accordingly formulated the key takeaways regarding the production line of the industry. The paper has also provided recommendations which can bring about a positive change within the leather industry ecosystem of the nation and boost the industry’s export numbers, revenue and profit turnover accordingly. The research will redeem to it’s success if it aids the understanding about every aspect of the leather industry of Bangladesh, be it a micro or a macro issue.

Recommendations

The leather industry of Bangladesh is the second biggest contributor to the nation in terms of industrial revenue but since the target market is saturated, the industry is better off targeting a new market with less competition barrier and existing demand. Hossain (2018) claimed that Bangladesh's export earnings from cowhide endured an immense drop of over 12% in the last financial year, with producers accusing the constrained movement of the focal point of the nation's tanning industry. The cowhide part, the second biggest export earner after clothing items, contributed $1.08 billion - or just shy of 3% - of the aggregate national exports of $36.66 billion in the monetary year 2017-18. Of the aggregate earnings from leather in FY18, the Export Promotion Bureau (EPB) computed that cowhide items earned $336.8 million - a year-on-year fall of 27% - regardless of whether calfskin footwear resisted the descending pattern, developing by over 5% to $565.6 million in the last monetary year. As per Export Promotion Bureau (EPB) information, nonetheless, Bangladesh earned $1.23 billion from the segment in the FY 2016-17. Friedman (2017) explains how Prime Minister Hasina declared that the point is to reach $5 billion in the fare of cowhide, calfskin products, and footwear as a major aspect of the administration's arrangement by 2021. The nation's cowhide industry has been moved as of late to a recently created zone in Savar after its development inside Dhaka city's Hazaribagh territory. Hasina asked outside speculators and purchasers to put more in the nation's calfskin area and purchase more Bangladeshi cowhide items, as indicated by the Leatherwoods and Footwear Manufacturers and Exporters Association of Bangladesh. The government intends to continue a

15 percent money impetus for calfskin sends out for the following five years. And since, the markets that Bangladesh currently export to are saturated with competition, it is about time that the industry identifies a niche leather market with needs i.e Japan's automotive industry which requires leather parts.

The main reason to why the labors intend to move from the leather industry to a more modified garments industry is due to the progress and prospects as a labor in the readymade garments industry of Bangladesh. Since, readymade garments industry is already a much bigger industry in Bangladesh than that of leather industry; the centralized committee for the leather industry must revisit the idea for labor wages and increase them above the minimal limit of garments industry wage to provide the labors an incentive to stay at their jobs and work harder to boost the production output of leather industry itself. It is important for businesses in the industry to understand that the labor market is saturated as well, and retention is the only way to keep a great scope of production marching forward. Hence, to increase the retention rate and create a long-term commitment among the labors, the minimal wage of labor in the leather industry should be greater than that of the minimal wage of labors in readymade garments industry.

Yet another crucial aspect that the paper needs to focus on is the lack of machinery knowledge among labors which harm the production range to some extent. Of course, it goes without saying that learning about machinery operations will enhance a labor's understanding of production strategies and implementation and thus optimize the production line truly. The training procedure should comprise of (1) clarifying and exhibiting right assignment performance; (2) helping workers to perform under supervision; (3) enabling staff to perform alone; (4) assessing laborer performance; and (5) instructing employees dependent on assessment results. These means may must be rehashed various occasions previously an employee will adequately get a handle on what should be finished. When an employee has aced the required performance, he can additionally bond his expertise by instructing another. A training staff should need to: 1) ceaselessly survey workers' dimension of comprehension; 2) outfit training to the members; 3) present just a couple of ideas at any given moment; 4) where required, partition errands into streamlined segments; 5) include all workers (don't accept different employees will get on by watching one laborer being prepared); 6) utilize visual guides and 7) encourage questions and participations from workers.

Last but not the least, the impact of political factors on the leather industry should be mitigated by the businesses in the industry. A lot of damage has been suffered off late by mere relocating a lot of production units to Hazarbagh and in such a crucial time, the industry cannot afford a political shakedown. The only way to secure a strong political standing in the midst of political chaos as an external factor, the industry needs to form a new backbone by forming an unified labor body which preaches labor rights and will aid the production of leather industry in the days to come. Forming a strong labor union will unify the labors working in the industry, allow them to speak for themselves and substantially remove the political barriers, be it a road blockage, a strike on working operations and what not. The centralized labor body will also incentivize the labors to be more dedicated towards their work acknowledging the fact that there rights to employment and a secure wage is protected under the principle guidelines of the union.

To conclude, the above mentioned recommendations might have their own range of limitations but on the longer run, these recommendations will prove to be fruitful for the betterment of the industry and the production line on a whole since it tackles internal problems of production line, supply chain etc. and handles the external problems such as : political factors effectively as well. If the labor issues can be handled throughout the political instability and machinery knowledge can be implied with designing a new ideal industrial supply chain model, the supply chain of the leather industry can be truly optimized.

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Appendix

Questionnaire

STATEMENT OF APPRECIATION

Dear Respondents,

Thank you very much for your willingness to participate in this study. This study is an attempt to address issues relating to Supply Chain Management operation in Bangladesh Leather Industry in Bangladesh. The main objective of this study is to check whether Bangladesh Leather industry ore operating in optimal level or not?

Your kind cooperation will be highly appreciated. All the information you will provide will be remain confidential.

DEMOGRAPHIC INFORMATION:

Name of the company : …………..…………………………………………………

Position : ………………………………………………………………

Gender : □ Male □ Female

Age : ……… ……………………………………………………………

Education : ……… ……………………………………………………………

Year of Experience : …………………………..……………………………………..

SCM Experience : …………………………..……………………………………..

Sector Wise Question

Planning Process

Question	Question	Answer
PL-1	Are you Satisfy with replaying to Customer query?	① ② ③ ④ ⑤
PL-2	Are you Satisfy with Product development cycle time?	① ② ③ ④ ⑤
PL-3	Are you Satisfy with organization's forecasting?	① ② ③ ④ ⑤
PL-4	Are you Satisfy with organization Planning process cycle time?	① ② ③ ④ ⑤

Supplier Performance Metrics (Answer 1 is strongly satisfied and 5 strongly dissatisfied)

Question	Question	Answer
SP-1	Are you Satisfy with Supplier delivery performance?	① ② ③ ④ ⑤
SP-2	Are you Satisfy with Supplier lead-time?	① ② ③ ④ ⑤
SP-3	Are you Satisfy with Supplier pricing against market price?	① ② ③ ④ ⑤

Production metrics (Answer 1 is strongly satisfied and 5 strongly dissatisfied)

Question	Question	Answer
PD-1	Are you Satisfy with Percentage of defects?	① ② ③ ④ ⑤
PD-2	Are you Satisfy with total Capacity utilization?	① ② ③ ④ ⑤
PD-3	Are you Satisfy with Utilization of economic order quantity?	① ② ③ ④ ⑤

Delivery performance measures (Answer 1 is strongly satisfied and 5 strongly dissatisfied)

Question	Question	Answer
DL-1	Are you Satisfy with the Quality of delivered goods?	① ② ③ ④ ⑤
DL-2	Are you Satisfy with systems to meet customer needs?	① ② ③ ④ ⑤
DL-3	Are you Satisfy with Effectiveness of enterprise distribution planning schedule?	① ② ③ ④ ⑤
DL-4	Are you Satisfy with Effectiveness of delivery invoice methods?	① ② ③ ④ ⑤
DL-5	Are you Satisfy with Number of faultless delivery notes invoiced?	① ② ③ ④ ⑤
DL-6	Are you Satisfy with Delivery reliability performance?	① ② ③ ④ ⑤

Overall Performance (Answer 1 is strongly satisfied and 5 strongly dissatisfied)

Question	Question	Answer

OP-1	Are you Satisfy with the Sales?	① ② ③ ④ ⑤
OP-2	Are you Satisfy with on time Deliveries?	① ② ③ ④ ⑤
OP-3	Are you Satisfy with Customer Retention?	① ② ③ ④ ⑤
OP-4	Are you Satisfy with Repeated order?	① ② ③ ④ ⑤