

Report On

**Supply Chain Management in Footwear Industries: Supply management of
Apex Footwear Ltd. (Unit2)**

By
Surojit Mondal
ID- 19382007

An internship report submitted to the Department of BRAC Institute of Governance and
Development in partial fulfilment of the requirements for the degree of
Masters in Procurement & Supply Management (MPSM)

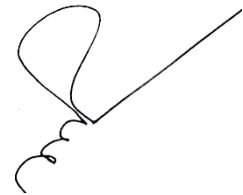
BRAC Institute of Governance and Development (BIGD)
BRAC University
April, 2023

Supervisor's Certificate

I have the pleasure to certify that the dissertation entitled “**Supply Chain Management in Footwear Industries: Supply management of Apex Footwear Ltd. (Unit2)**” submitted by Surojit Mondal for the award of the Degree of Masters in Procurement and Supply Management is his original work. So far, I know, this is the candidate's own achievement and is not a conjoint work. He has completed this thesis under my direct guidance and supervision.

I also certify that I have gone through the draft and final version of the report and found it satisfactory for submission to the BRAC Institute of Governance and Development (BIGD) BRAC University in partial fulfillment of the requirements for the Degree of Masters in Procurement and Supply Management.

Date: 12 April, 2023



(Dr. Md. Moniruzzaman)

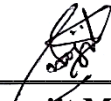
Senior Trainer & Supervisor
BIGD, Brac University

Declaration

It is hereby declared that, the internship report submitted that is my own original work while completing degree at Brac University. The report does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing. The report does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution. I have acknowledged all main sources of help.

Date: 12 April, 2023

Student's Full Name & Signature:



Surojit Mondal

ID: 19382007

Work-place Supervisor's Full Name & Signature:



Md. Alauddin Khan, FCA

Financial Controller
APEX Footwear Ltd.

Letter of Transmittal

Dr. Md. Moniruzzaman
Senior Trainer
BIGD, Brac University
66 Mohakhali, Dhaka-1212

Subject: Submission of report on “Supply Chain Management in Footwear Industries: Supply management of Apex Footwear Ltd. (Unit2)”


Dear Sir,

This is my pleasure to display my report on “Supply Chain Management in Footwear Industries: Supply management of Apex Footwear Ltd. (Unit2)”, which I was appointed by your direction.

I have attempted my best to finish the report with the essential data and recommended proposition in a significant compact and comprehensive manner as possible.

I trust that the report will meet the desires.

Sincerely yours,



Surojit Mondal

19382007

BIGD ,BRAC University

Date: 12 April, 2023

Non-Disclosure Agreement

This nondisclosure agreement come into by and between **Md. Alauddin Khan, Designation: Financial Controller at Apex footwear Ltd.** with **BRAC University**, located at 66 Mohakhali, Dhaka 1212, Bangladesh for preventing the unauthorized disclosure of confidential information as defined below.

The parties agree to enter into a confidential relationship with respect to the disclosure of certain proprietary and confidential information.

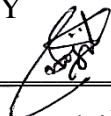
1. "Confidential information" shall include all evidence or material that has or could have commercial value or other utility in the business in which disclosing party is engage.
2. Receiving party shall hold and maintain the confidential evidence in strictest confidence for the sole and exclusive benefit of the disclosing party.
3. Receiving party shall carefully restrict access to confidential evidence to students, employees, other organization, contractors and third parties as is reasonably required and shall require those persons to sign non-disclosure restrictions at least as protective as those in this agreement.
4. Receiving party shall not, without the prior written approval of disclosing party, use for receiving party's own advantage, publish, copy, or otherwise disclose to others, or permit the use by others for their benefit or to the detriment of disclosing party, any confidential information.
5. Receiving party shall return to disclosing party any and all records, notes, and other written, printed, or tangible materials in its possession pertaining to confidential information immediately if disclosing party requests, it in writing.

DISCLOSING PARTY



Name: Md. Alauddin Khan, FCA; Date: 12 April, 2023

RECEIVING PARTY



Name: Surojit Mondal; Date: 12 April, 2023

Abstract:

Footwear supply chain management typically, an industry involves a number of phases that begin with obtaining raw materials. The next step in the supply chain is to assemble the footwear using the components that were produced in the production facility. The logistics procedure is then initiated following completion and packaging. Also, sellers receive finished goods.

This study is committed to evaluating the supply chain management of a leading footwear company in Bangladesh, Apex Footwear Ltd., in order to achieve effective supply chain management, particularly in the footwear sectors in Bangladesh. SCM also includes the creation of products, materials, suppliers, and operations to gain a competitive edge over the industry.

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List of Acronyms/ Abbreviations:

SCM-	Supply chain management
AFL-	Apex Footwear Limited
MRP-	Materials Requirements Planning
CDC-	Central Distribution Centre
CPC-	Central Purchase committee
NFT-	Non-Footwear
GRN-	Goods Receiving Note
TPR-	Thermoplastic Rubber
PVC-	Poly vinyl chloride
MOQ-	Minimum order quantity
PM-	Product Management
DL-	Design Lab
BOM-	Bill of Materials
CKD-	Complete Knock Down

CHAPTER-1

1.0 Introduction:

The traditional footwear supply chain method consists of multiple steps and begins with the acquisition of raw materials. The fabrication of components was then completed in the production facilities. The manufacture of components is followed by the assembly of components for footwear. The finished product was then packaged and submitted to the logistics procedure. The final goods are subsequently transported to stores, where they are used before being submitted for recycling.

1.1 Supply Network for Footwear Organization:

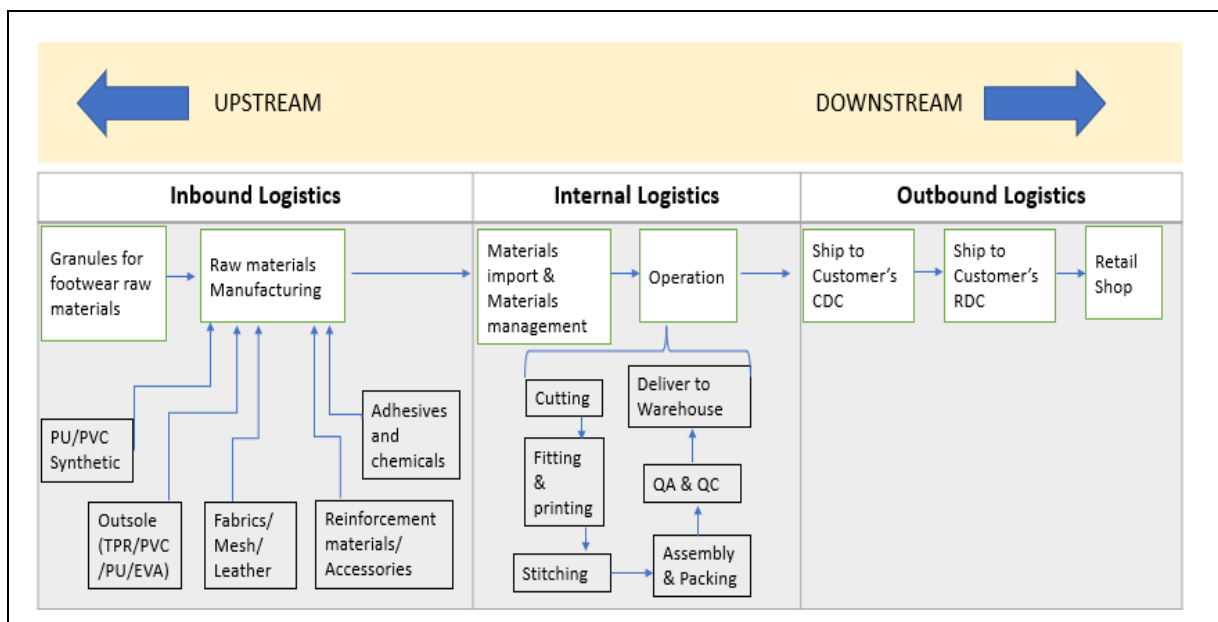


Figure 1 Supply Network for Footwear

Source: Wikipedia, Surojit (2023)

There are 2 types of manufacturing units in Footwear industries –

- I. Leather based
- II. Synthetic/Sports based.

1.2 Product development & Customer sourcing for Leather Based & Export oriented footwear:

Most of the company's develop product by their own development team as per Europe , America market analysis. Their marketing team show their developed designs to customers and customers select from them and sometimes modify from them.

Customers are sourced from Garma fair- Italy, Beijing fair-China, via LinkedIn . Some customers direct source suppliers.

1.3 Product development & Customer sourcing for Synthetic Based & export-oriented footwear:

Most of the factories get orders from Chinese traders who brings world class brand's order to Bangladesh like- Aldi, Lidl, CCC, H&M, Deichmann, Walmart, Gemo, Hey Dude etc. The trading company develop samples themselves and get order from customers. Their representatives source BD factories who are able to complete their orders in right time.

And few factories get orders directly from customers with developing samples as per their requirements.

1.4 SCOPE:

This paper's scope includes an analysis of Apex Footwear Limited's product cycle and supply management, as well as a study of the firm and a focus on determining its current position and future direction. Both seasoned professionals in the field and recent newcomers will benefit from this report's analysis in understanding the typical operating processes for the footwear sector. As I personally know the people responsible for every area of Apex, Apex Footwear was picked to help with data collection.

CHAPTER-2

2.0 Literature Review:

About Apex Footwear Limited, many people written report for –

- Brand Analysis of Apex Footwear Limited -by Saliur Rahman, A K M R Mobarak, Rahat Chowdhury, Ridwan Al-Mahmud- IBA,DU
- Analysis of The Integration of Apex Rewards Loyalty Program -by Saffat Rahman Khan - Brac University.
- Measuring & Managing the Factors behind Customer Satisfaction: A Study of Apex Adelchi Footwear Limited -by Roll No. 080070, Class ID: 777, 17th Batch, IBA, JU.
- Apex fails to become market leader in Bangladesh -by Md.Firozar Rahman & Soad Rahman.
- Backward integration of Leading Footwear industries in Bangladesh: Problems & Possibilities- by MD. Sayem Al Amin
- Recently The Business standard newspaper published that- Apex Footwear thrives despite high inflation. There published an analysis on the growth and profit of Apex in the first half of the current 2022-23 fiscal year.
- And The Business standard newspaper published also the sales status of Apex of last 5 years.

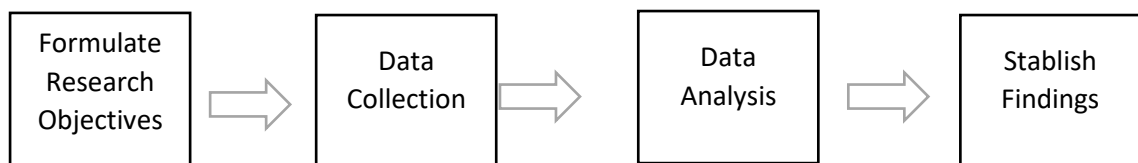
In this report, I have written the overall working procedure of footwear business from product development to customer delivery. That means full supply system including operation are described here.

CHAPTER-3

3.0 Methodology

Any research project must include a methodology since systematic study is impossible without the choice and use of an appropriate methodology. The study of how research is carried out scientifically or how a research topic is methodically handled is known as research methodology (Kotahari, 1990). The phrases "method" and "Hodos" are two Greek words that originally meant "a method of carrying out a work systematically." The process of establishing a general hypothesis through the collection and evaluation of evidence is known as the research method (Hans Raj, 1987).

This study's primary goal is to assess Apex Footwear Ltd.'s SCM. The research used cross-sectional data analysis methods and tools to pinpoint various Apex Supply Chain Management elements. The process outlined in this article will be followed:



3.1 Data Sources

Primary Source

Primary data refers to data that has been directly observed or gathered through first-hand experience with a focus on the current study endeavour. Personal interviews and own work experience made up the main sources for the data used in this paper.

The most of the data was gathered through in-depth interviews with organization executives and managers.

Secondary Source

The secondary data is that are some previously collected and utilized that primary data of someone collected before. Secondary data collected from- Company profile, Company Website, Newspaper, Publications, reports.

3.2 Overview of Footwear Sector in Bangladesh

Although Bangladesh's footwear industry has been around since the colonial era, modernization did not start until the late 1980s. During the British era, Bangladesh had no large footwear manufacturing. In the district town at the time, there was a typical cottage-style footwear business that was in skeletal shape and had little opportunities for manufacturing. Most shoes were brought in from Calcutta. When Bangladesh was divided in 1947, West Pakistan was the source of the footwear imports. The Bata shoe business built its Tongi production facility in 1962, making it the first facility in East Pakistan to make shoes on a substantial scale. Eastern Progressive Shoe Industries (EPSI) built its first production facility in 1967. It started shipping shoes to the UK, Czech Republic, and USSR. Major market shares in the local footwear market were held by both Bata and EPSI. During the liberation war, the footwear industry was severely damaged, but it recovered once the country gained its independence. Recently, new shoe production facilities have been developed. These include Apex Footwear, FB Footwear, Lalmai Footwear, Fortune Shoes, Edison Footwear, Royal Footwear, Smart Shoes, Parasole Footwear, Western Footwear, OMC Footwear, MAF Shoes, Blue Ocean Footwear, Patenga Footwear, Bay, US Bangla Footwear, and many others.

The footwear market includes all styles of shoes made for individual consumers, such as leather, athletic, and other town footwear (such as those with textile uppers), but excludes work and safety footwear. The footwear market is currently being shaped by a significant shift in consumer purchasing behaviour, much like the apparel sector. Stationary retail stores are under a lot of strain due to the growth of e-commerce and store designs developed by large sportswear manufacturers.

Following apparel, footwear is the second-most significant fashion category in the retail industry. The footwear market includes all varieties of shoes made for individual end users. Despite being one of the top 10 producers of footwear in the world, Bangladesh is not one of the top 10 exporters. It manufactures primarily for internal consumption and formerly relied on exporting leather footwear to Europe.

Table 1 List of top footwear producers and top footwear exporters

Source: *Footwear Exchange (2022)*

TOP 10 FOOTWEAR PRODUCERS				TOP 10 FOOTWEAR EXPORTERS			
Rank	Country	Pairs (Millions)	World Share	Rank	Country	Pairs (Millions)	World Share
1	China	13475	55.50%	1	China	9542	63.60%
2	India	2600	10.70%	2	Vietnam	1419	9.50%
3	Vietnam	1400	5.80%	3	Indonesia	427	2.80%
4	Indonesia	1228	5.10%	4	Germany	350	2.30%
5	Brazil	908	3.70%	5	India	286	1.90%
6	Turkey	535	2.20%	6	Turkey	275	1.80%
7	Pakistan	481	2.00%	7	Belgium	269	1.80%
8	Bangladesh	407	1.70%	8	Italy	201	1.30%
9	Mexico	251	1.00%	9	Netherlands	183	1.20%
10	Italy	179	0.70%	10	Cambodia	165	1.10%

Because of the epidemic and the continued drop in demand for leather shoes worldwide, the industry is at a crossroads. Athletes have long dominated the market. This may be seen in the development and expansion of the Vietnamese footwear market. Only a small number of sportswear companies import their shoes from Bangladesh.

3.3 Strength of Bangladesh for Footwear business:

1. There is a demand for affordable, high-quality footwear items worldwide.
2. A flexible labor market that promotes growth and progress
3. Leather demands can be met by a nearby tannery.
4. Having export relationships with more than 150 nations
5. Environmentally friendly and socially responsible manufacturing

3.4 Weakness of Bangladesh for Footwear business:

1. The footwear business lacks technology-oriented machinery and production methods.
2. Dependence on China due to lack of synthetic raw materials from own source.
3. A lack of marketing specialists who can source customers for footwear.

3.5 APEX FOOTWEAR LIMITED - THE COMPANY OVERVIEW:

A significant producer and exporter of leather shoes is Apex Footwear Limited (AFL). From Bangladesh to well-known shoe stores in Western Europe, North America, and Japan. AFL Value Added finished Pioneer engages with local shoe retailers' business with the nation's largest shoe retail network and exports goods to Bangladesh's leather industry. AFL went public in 1993 and began trading after that. Today employs approximately 10,000 people here.

The year 2021–2022 was not advantageous for Apex Footwear Company's export business because of the world's unstable supply chain structure, rising prices for goods, and shifting consumer behaviour. Utilizing plant capacity and obtaining reasonable purchase orders from European clients were difficult for the company. On the other hand, Apex Footwear's local market sales increased at a fair rate throughout the years 2021–2022 by constantly launching new international brands and providing overall experience and best service in retail marketing.

Apex footwear ltd (unit2) is the local manufacturing and retail arm of Apex Footwear Limited. While Apex aims to leverage on its competence in offering premium and attractive footwear to Bangladeshi consumers, AFL has gained both critical and commercial recognition primarily through exporting high-quality leather footwear to the foreign market. The sole retail chain, Apex, has 254 owned locations and more than 250 franchise locations across all 64 districts of Bangladesh. Also, it does a lot of business in the wholesale market and with corporate clients. Venturini, Apex, Sprint, Maverick, Moochie, Nino Rossi, Twinkler, School-Smart, Fly, Feellight, and Dr. Mauch are among the in-house brands of Apex. Together with footwear, Apex also produces clothing and NFT (non-footwear) goods like belts, wallets, backpacks, and women's bags.

3.5.1 VISION

AFL is dedicated to productivity and quality growth in order to fulfill its aim of "Honest Growth" and become a leading footwear producer in Asia.

3.5.2 MISSION

To achieve the vision of honest growth, AFL has set their missions:

- To ensure sustainable growth

- To be a vendor of choice for customers
- To create value for shareholders
- To be proactively compliant with global best practices & standards
- To be a responsible corporate citizen

3.5.3 VALUES

Along with the Vision and Mission goals, the AFL is very committed to their core values - ICURES.

1. INTEGRITY

Honesty in practice. They live with integrity with themselves, their customers, their stakeholders and their community through their products and services.

2. COURAGE

Innovation in approach . They are determined to continuously challenge themselves with the strength of conviction for the excellence in business.

3. URGENCY

Smart Decisions With Confidence. What needs to be done immediately, without being asked and in the most thorough way possible in order to create change.

4. RESPECT

Mutual Respect, Genuine Harmony. They always treat people the way they want to be treated—with respect. They value and respect their colleagues, customers, stakeholders, competitors, community and environment for their support and contribution to their business.

5. EMPOWERMENT

Walk the talk. They empower people through providing the right environment and a level playing field to perform their responsibilities.

6. SUSTAINABILITY

Economic, Social & Environmental Responsibility. They are committed to continuously change their business practices for paving the path towards creating Economic, Social & Environmental sustainability.

CHAPTER-4

4.0 Data Analysis

4.1 Supply Management of Apex Footwear Ltd.

A supply chain is a networked system of businesses, people, information, and assets created to locate, produce, and transport items from their point of origin to their final destination, which is often from a supplier to a customer. Even though the supply chain and logistics are sometimes confused, logistics is actually only one part of the supply chain. The material handling and software used by today's digitally based SCM systems is available to all parties engaged in the development of goods and services, order fulfilment, and data tracking, including suppliers, manufacturers, wholesalers, providers of transportation and logistics, and retailers. Procurement, product lifecycle management, supply chain planning (including inventory planning and the upkeep of enterprise assets and production lines), logistics (including transportation and fleet management), and order management are just a few of the activities that fall under the purview of the supply chain. SCM can also be used to manage activities related to international trade, such as managing multinational production systems and managing global suppliers.

Working flowchart of Apex footwear Limited (U2) is given below:

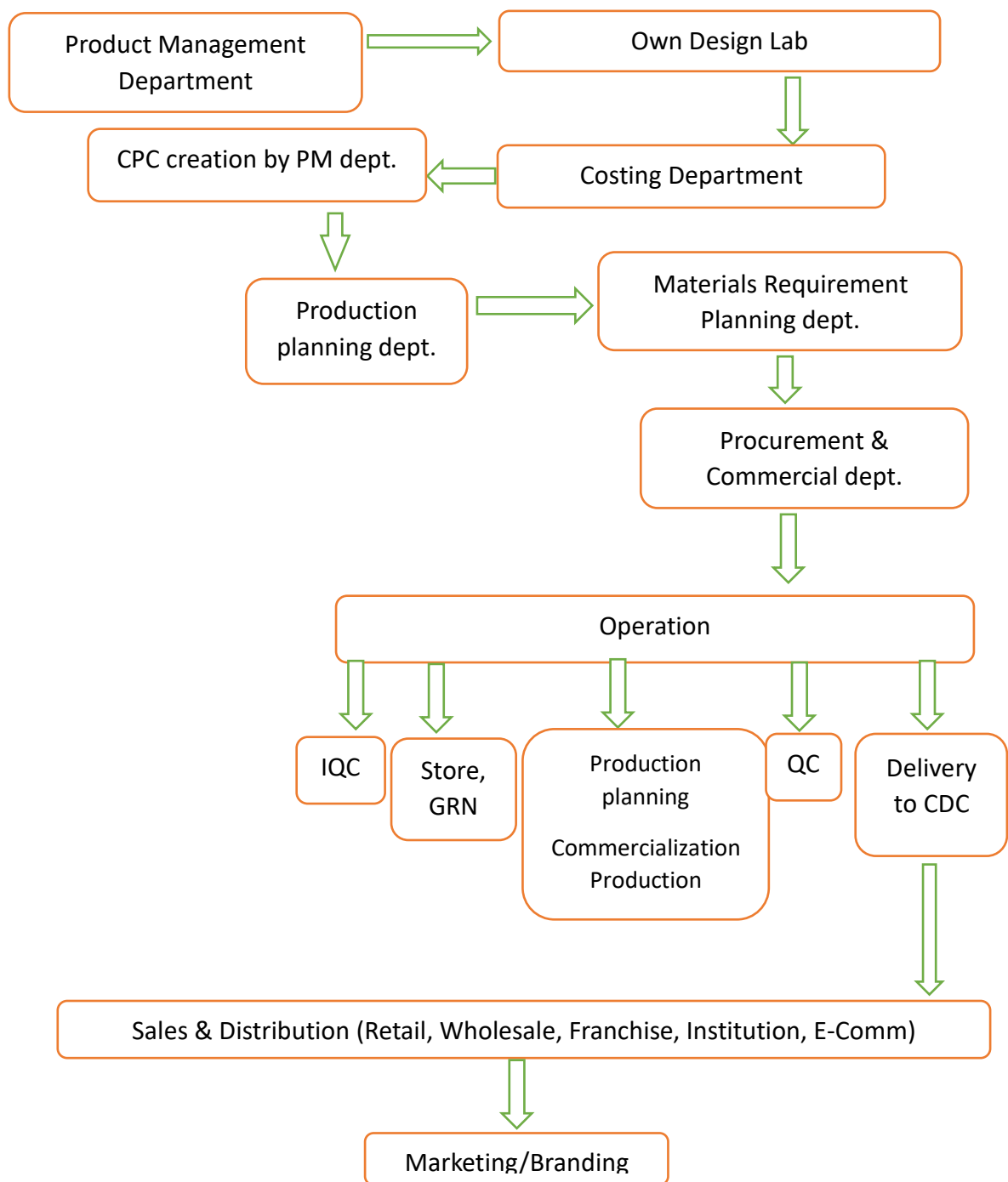


Figure 2 Working flowchart of Apex footwear ltd. U2

Source: Surojit (2023)

Others Department of Apex Footwear Ltd. Are- HR, Finance & Accounts, SDD, Demand planning, IE, IT, Maintenance.

4.1.1 Product Management

The Product Management division serves as the merchandiser. To determine consumer preferences, current trends, and market demand, they analyse the market. Therefore, they also share new product design ideas to their Design lab team. Also, they determine which product is perfect for which franchise, retail, or wholesale location.

4.1.2 Design Lab

New goods are developed by design labs, product development departments by the guide of the PM's ideas and their own ideas. The Category PM then presents all of the items at a Shoe Line Meeting that takes place about four to five days. Top management also present at that meeting, along with representatives from each department that needed to be addressed. Category PM presents their product, season's goals, and previous season's accomplishments. Following the choice, the Spec team (part of DL) creates specifications for each SKU for the own factory-developed goods. They gather all the data from the design team, product manager, commercialization team, and materials sourcing team before compiling it into a BOM. In OMS software, they create specs or BOMs.

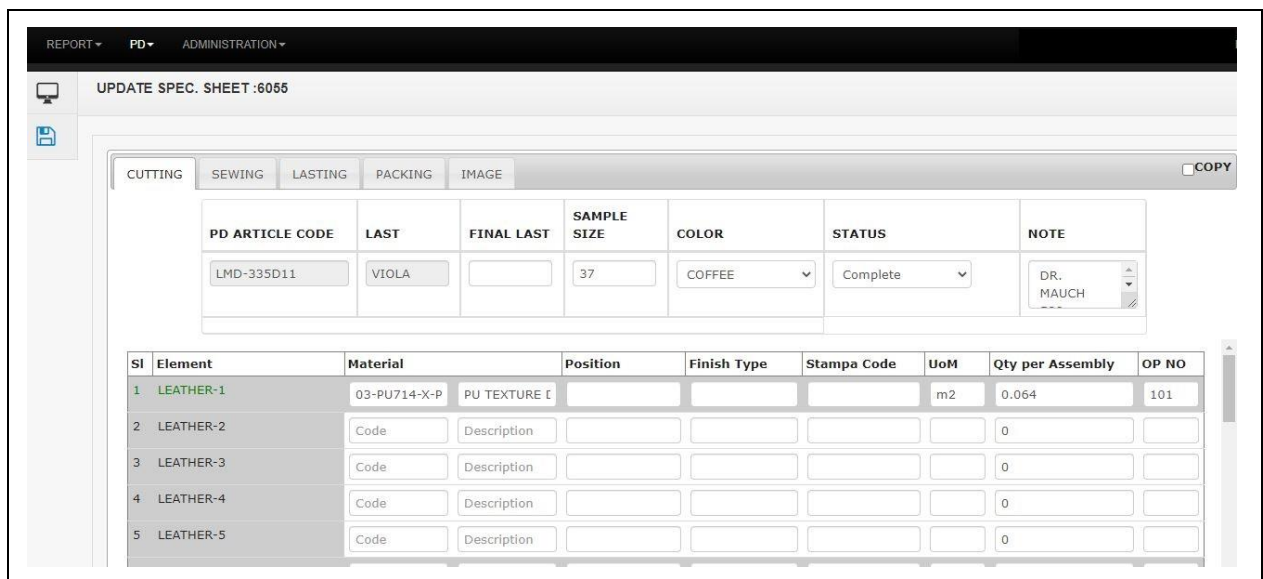


Figure 3 Spec/BOM creation in OMS (sample)

Source: AFL U2 OMS (2023)

4.1.3 Costing

- A key role is played by the costing department. The Costing team enters their OMS window after the completion of the Spec team release. To determine a product's pre-costing, they look at the following factors:

- Consumption of Spec: If the spec team receives any incorrect input, let them know so they can fix it. Check the consumption sheet again if consumption seems excessive.
- Cost of the materials: Get the cost of new materials from the sourcing team. If necessary, the costing team bargains with the supplier to find ways to cut costs. Checking prior purchase rates and inventory costs are used to gather regular materials prices from the IFS system.
- Tools for development. They assess the requirement for new molds, shoe lasts or forma, knife expenses, and other expenditures associated with development, as well as their amortization costs. If any tool costs have already been depreciated, they are not considered into the cost of the final product.
- Labor and overhead cost. costing team obtains SMV (standard minute value) from the IE team for each article and CPM (cost per minute) from the finance team in order to fix labor and overhead expenses.

In order to lower the cost of a product, costing also work with the development team to employ alternative materials or pattern re-engineering. They update the price of the materials in the IFS system, and the OMS system automatically updates the prices. After a product's costing is finished, they release it to the OMS system so that the PM team may view it in their window.

The screenshot displays the 'LEATHER MATERIAL COST INFORMATION MANAGE' interface. On the left, there is a sidebar for 'ENTRY MATERIAL COST CALCULATION FOR SPEC ID : 278'. It includes fields for 'PSL NO : 15G031703', 'VAT %', and product details: Brand (SCHOOL SMART), Project (RACER), Target MRP (590.0 TK), Target Cost Price (220.0 TK), Sample Category (CASUAL SHOES), and Sub Category (VELCRO). Below this is a 'Picture' section showing a white sneaker. The main area on the right is titled 'Sample PSL Material Cost Calculate' and contains a table with the following data:

Element	Material	Material Desc	UoM	Quantity	Rate/UoM	Cost
EYELET REINFORCEMENT	03-GW-A-510	GLASS WOOL COL-510	m2	0.0080	10	0.08
SOCKS MATERIAL 1	03-MESH-60-BLK	MESH LINING 60	m	0.0300	10	0.3
LINING-1	03-MESH-60-BLK	MESH LINING 60	m	0.0500	10	0.5
LINING-2	03-TELLA-STRONG-BLK	SYNTHETIC LINING-TELLA STRONG(NON-WOVEN) COL-BLK	m2	0.0560	10	0.56
REINFORCEMENT QUARTER	03-TX001-S-WHT	COTTON FABRIC COATED-38844 COL-WHT (INTER LINING EVA-002)	m2	0.0600	10	0.6
LEATHER-1	03-VB-CMPT-TW-BLK1	VIBOX-COMPACT-DOUBLE TWISTED -MATT BLK thick 1.4 mm	m2	0.1600	20	3.2
TONGUE FOAM	04-A-04-06-WHT	PU FOAM WITH ADHESIVE-4 MM-(100 X 183 CM) DEN-40 COL-WHT	m2	0.0110	10	0.10999999
COLLAR FOAM	04-A-10-02-WHT	PU FOAM WITH ADHESIVE-10 MM-(100 X 183 CM) DEN-75 COL-WHT	m2	0.0140	20	0.28
ACCESSORIES-1	05-H102-BLK	VELCRO TAPE-4.00	m	0.0900	1	0.09
ACCESSORIES-2	05-L102-BLK	VELCRO TAPE-4.00	m	0.0900	1	0.09
SOCKS FOAM/SOCKS CUSHION	10-EVASHT-3MM-BLK	EVA SHEET -2.75-3.25 MM COL-BLK HARDNESS 41-45 C	m2	0.0400	10	0.4

Figure 4 Costing in OMS (sample)

Source: AFL U2 OMS (2023)

Final costing- In addition to pre-costing products, they also perform final costing before the production of each article and after receiving the set of materials before production.

For final costing preparation costing team have to check below points:

- Actual materials' purchased prices, transport cost, costs for customs duties and others costs.
- Recheck with technical team- during production trial before production if needed to correct any consumption, add, or reduce any supporting materials etc.
- Then check with pre-costing sheet and find out the gap between pre-costing and final costing and share it to all the concerns the final costing and final margin before the production.

Beside pre-costing and final costing they analyse also post-costing, Gross margin, sometimes visit materials market for checking the materials prices and aid to sourcing team and SCM team.

After cost releasing in OMS, PM team get it in their OMS window. They calculate as per their seasonal budget and finally select articles and fix quantity for upcoming season. Final order quantity, article list, MRP are signed by management and it is called CPC.

4.1.4 Demand Planning & Production Planning

Demand planning and Fulfilment department share the goods demand plan month wise to all the concerns.

Production planning team push the BOM from OMS to IFS and in IFS product structures are auto created as per BOM.

Product Structure - 92XXXXXX

Part No: 92XXXX Description: SANDAL.XXXXXXXXXX Site: UNIT2 Description: UNIT - 2 Factory Structure Effectivity: Date

Revision No: 1 Revision Text: 1 Structure Type: Manufacturing No of Revisions: 1

Phase In Date: 10-Sep-22 Phase Out Date: Unit of Measure: prs Manuf Engineer:

Planner: * Eng Rev: Eng Rev Desc: Latest Revision: 1

Part Status: A ACTIVE Customer Warranty Notes Document Text Lot Size Based

Product Structure Where Used Serial Eng Change Order Structure Lot Size Design FMEAs Product Structure MRB

Alternate: * Alternate Description: Status: Buildable Packing Instruction ID: Packing Instruction Description:

Notes Use By-product Cost Distribution Document Text

Components By-Products By-Product Cost Distribution Multi Level Structure

Line Item No	Line Sequence	Component Part	Part Description	UoM	OP No	Qty per Assembly	Reserve
4	4	01-VELR-427	COW VELOUR(1.4-1.6), COL-427	ft2	107	0.00	Reserve
1	1	01-VELR-427	COW VELOUR(1.4-1.6), COL-427	ft2	101	0.00	Reserve
3	3	01-VELR-910	COW VELOUR(1.4-1.6), COL-910	ft2	107	0.00	Reserve
2	2	02-LAMB-63	LAMB LINING (0.7-0.9), COL-63	ft2	106	0.00	Reserve
8	8	04-N-08-03-WHT	8 MM PE FOAM FOR PACKING FILLER (PIPPA FOAM), COL: WHT	m2	108	0.00	Reserve
13	13	06-BE24-BLK	BUCK ELASTIC-24 MM COL-BLK	m	401	0.00	Reserve
7	7	10-GRPR-065-4-202	6-6.5 MM GRIPPER EVA SHEET, COL-NAVY BLUE, HARDNESS...	m2	108	0.00	Reserve
5	5	10-SBR01-040-14-BLK	3.5-4 MM SBR SHEET, COL: BLACK, HARDNESS: 13-17 C	m2	107	0.00	Reserve

Figure 5 Product structure in IFS (sample)

Source: AFL U2 IFS (2023)

As per requirements, production planning team create Shop Orders as from the product structures. There mentioned total materials requirements to fulfil a order quantity and also mentioned related all the data like size wise quantity, probable production start date, end date, materials issued in production, etc.

Shop Order - 230XXXX * ⚙

Order No: 230XXXX Rel: * Seq: * Part No: 21XXXXX Description: CLOSE SHOE XXX Site: UNIT2 Advance Cutting Rate:

Shop Order Type: Manufacturing Earliest Start Date: 20-Mar-23 Start Date: 21-May-23 Lot Size: 2201 Lock Shop Order: YES

Sched Direction: Backwards Scheduling Need Date: 01-Jul-23 Finish Date: 30-Jun-23 Status: Planned

Details	Materials	Operations	Operation Tools	Misc Order Info	By-Products	By-Product Cost Distribution	Shop Order Splits	Handling Unit Struct
Line It...	Component Part	Component Part Description	OP No	UoM	Qty per Asse...	Qty Required	Qty Issued	Qty Rem
✓ 1	03-SY046-C0T3-M04	SYN GLITTERING AT T13 #4 1.0MM COL-NAVY+WHITE	101	m2	0.000	0	0	145
✓ 2	03-PV022-COT1-201	PVC SERICCO COL-NAVY BLUE Thick~ 0.7~0.75 mm (...)	101	m2	0.000	0	0	13
✓ 3	03-TX788-FM30-205	MERRY MESH (D02)-01 ,(GSM-200)+ 3MM FOAM BAC...	106	m2	0.000	0	0	136
✓ 4	03-PV022-COT1-201	PVC SERICCO COL-NAVY BLUE Thick~ 0.7~0.75 mm (...)	106	m2	0.000	0	0	14.3
✓ 5	03-TX912-S-WHT	INTERLINING EVA COATED SS-200-TMI-12 COL-WHITE	107	m2	0.000	0	0	145
✓ 6	51-TP-06	COUNTER MATERIAL-0.6 MM TP SHEET (L06S)	108	m2	0.000	0	0	18.4
✓ 7	03-TX788-FM30-205	MERRY MESH (D02)-01 ,(GSM-200)+ 3MM FOAM BAC...	108	m2	0.000	0	0	52
✓ 8	10-EVA02-030-SS-BLK	2.75-3.25 MM SUPER SOFT PLAIN EVA SHEET, COL- B...	108	m2	0.000	0	0	68
✓ 9	05-H102-BLK	VELCRO TAPE-4.00" HOOK COL-BLK	108	m	0.000	0	0	33
✓ 10	05-L102-BLK	VELCRO TAPE-4.00" LOOP COL-BLK	108	m	0.000	0	0	6
✓ 11	03-TX005-S-BLK	SYNTHETIC LINING-DRILL TERMO C-38105-002 COL-...	108	m2	0.000	0	0	17
✓ 12	11-C40-287	40/3 THREAD COL-287(thread india-25998)	401	m	0.000	0	0	15
✓ 13	11-C40-201	40/3 THREAD-11-40-201 (Thread India-9411)	401	m	0.000	0	0	13

Figure 6 Shop Order in IFS (sample)

Source: AFL U2 IFS (2023)

4.1.5 Materials Requirement Planning & Procurement

MRP department check the materials status, stocks and calculate which materials need to purchase and their quantity. As per Shop order and demand plan, Materials requirement Planning (MRP) department create PR (purchase requisition) and send it to Procurement department.

For regular materials they can check from multiple suppliers about prices, quality and delivery schedules. But for the new materials which used for the new season products, they don't get much time to develop those materials from multiple suppliers. Procurement department negotiate with suppliers before placing purchase order to supplier. Before materials purchasing procurement team prepare a CS and take approval from finance department. Then they place PO to suppliers and follow up until they delivered goods.

Sometimes some materials have to purchase from single source due to unique design materials and small quantity of materials which are difficult to meet MOQ of suppliers.

Procurement team regularly follow up with suppliers and commercial team about the goods production status and delivery status.

Materials sourcing and development:

Table 2 Main materials for footwear manufacturing:

Leather Based Footwear materials	Synthetic Based Footwear materials
1) Leather	1. PU/PVC
2) Adhesives	Synthetic/Mesh/Flyknit/Fabrics
3) Outsole	2. Adhesives
4) Reinforcement materials	3. Outsole
5) Trims & Accessories	4. Reinforcement materials
	5. Trims & Accessories

Leather: EU and US customers demand for LWG certified leather. In Bangladesh, there are many tanneries but less amount of LWG certified and their finished leathers. That’s why most of the leathers for upper are imported from China, Pakistan, India, Brazil, Russia, Italy.

Which factories are manufactured for local market, they purchase about fifty to sixty percent leather from domestic tanneries but all are not satisfied due to low quality and poor commitment but some percentages are purchased from locally due to short lead time and low-price benefits.

Adhesives and chemicals: For footwear manufacturing mostly used adhesives are- Latex, Neoprene, PU adhesives, Hardener. And primers used- Leather primer, PU primer, Rubber/TPR primer.

For finishing process need some finishing chemicals and colours for giving shinny coating and different colour shade on shoes.

Most of the adhesive & chemicals are import from China. In BD recently some companies started to manufacturing adhesives and primers that is very positive side for the supply management of this materials.

Outsole: Outsole is a main material for footwear as leather. Some factories have own outsole production unit. Apex footwear produce maximum outsole in their own factory. They produce – TPR outsole, PVC outsole, PU outsole and EVA outsole. And Various types of sports outsoles they import from China. For short quantity if they want to develop new mould that will be costly than importing. In Bangladesh there are some outsole manufacturing factories also, they produce only outsole.

After goods delivery commercial department follow up it for supplier payment, for shipping mode selection, vessel tracking, bank to bank documents and coordinate with CnF for goods releasing from customs and to deliver it to Factory.

For local purchasing procurement team follow up with suppliers until getting goods in factory.

4.1.6 Operation

After materials arrival IQC department check the materials quality and quantity. If any deviation found, they share report to procurement dept. then procurement department take action against that supplier to adjust value of rejected materials with next consignment or collect replenishment materials from suppliers.

The right materials are received by materials store and proceed GRN. MRP team inform to Production planning department about materials receiving style wise or shop order wise. Production planning make plans for next 4 weeks accordingly.

Commercialization team (part of design lab) coordinate with production team to feed a new article in the production line. They lead for production trial and arrange meeting with designer, production, spec team. Then as per production plan Production are starts.

In production there are some sub department- cutting & Fitting, Sewing or stitching, Lasting or assembly and packing. Each sub dept. receive materials from store by giving shop order materials requisition in the IFS. Cutting department generally receive upper, lining, interlining materials which need to cut. At first they check consumption physically and match with BOM.

If any deviation found they arise it before starting cutting. There are two types of cutting machine- Beam press and Sewing arm. Generally Non-leather materials like PU, PVC synthetic, Mesh, fabrics, foam etc are cut by beam press machine. Leather and small accessories items are cut by sewing arm machine.



Figure 7 Beam Press cutting machine

Source: AFL U2 (2023), Surojit (2023)



Figure 8 Sewing arm cutting machine

Source: AFL U2 (2023), Surojit (2023)

After cutting some components are need to do skiving operation to reduce thickness of stitching area. Size mark, branding and others information are set by stamping or printing or by embossing.



Figure 9 Printing process

Source: AFL U2 (2023), Surojit (2023)



Figure 10 Embossing process

Source: AFL U2 (2023), Surojit (2023)

Then the cut components are received by sewing or stitching department for making upper part of shoes. Different types of stitching machine are used for different process- Flat bed machine, post bed machine, Strobel stitching machine, hammering machine. To get best productivity line layout are arranged accordingly. Style wise layout are changed slightly. After completing full upper part that are dispatched to Lasting or Assembly area.



Figure 11 Sewing or Stitching Floor

Source: AFL U2 (2023), Surojit (2023)

In the lasting or assembly area below procedures are follows to get a complete shoe:

- Upper and Outsole priming. Primer chemicals are applied to Upper and outsole edge. It cleans the bonding area of upper and outsole and activate also for better bonding.
- Size wise shoe last and upper are feed in the conveyor and it goes through the heat chamber then shape is given by using toe lasting and seat lasting machine.



Figure 12 Toe lasting machine.

Source: AFL U2 (2023), Surojit (2023)

- After marking on upper edge , they remove oily area by roughing operation and apply PU adhesive or glue to the upper and outsole 2 times and pass through the heat chamber.
- Then Outsole operators are set upper and outsole carefully and then it is pressed in sole pressing machine.



Figure 13 Sole pressing machine

Source: AFL U2 (2023), Surojit (2023)

- Then shoe last is removed by delasting tools and shoes are passed through chilling chamber.
- Then finishing and packing processes are done- lace attaching, shapper insert, tag attaching, shoes insert in a Box and then box insert in carton as per assortment.

In every process cutting, stitching, Lasting QC team check quality in line. And finally before packing QC check the final products and good quality products are passed for packing. Which are repairable they send back to repair zone.

The CDC receives the finished goods (Central Distribution centre) from factory. CDC receives products from outsourcing vendors as well. The CDC team also measures the amount of items and moves on to GRN.

4.1.8 Sales & Marketing

To distribute items in retail, franchise stores, and wholesale settings in accordance with sales team demand, the distribution team collaborates with the CDC team. Sales department build

and maintain relationship with customers, responsible for increase sales, make sales plan and handle sales issues.

The marketing team creates and puts into action plans to market new goods and brands and increase Apex sales. To enhance sales, they advertise, issue discounts, and engage in a number of other promotional activities.

CHAPTER- 5

Limitations:

Although Apex Footwear Limited Unit-2 has good and standard working procedures, some points are described below:

A wide range of processes, including gathering RFQ and RFP, PO procedure, preparing CS, maintaining contracts, managing suppliers, acquiring new vendors, and much more, are overflowing the supply chain environment. At times of turmoil, procurement team sometimes lack the time to address all procurement processes. Sometimes they have to purchase from single sourcing because of unique design materials and low quantity items which are less than MOQ demand from suppliers. The following are some of the most prevalent procurement challenges I have seen.

The design team, the materials sourcing team, procurement team and costing team should work more closely from the materials selection for new season development to create multiple options for costing savings.

Conclusion:

Apex Footwear Limited is a pioneering company in Bangladesh's footwear industry and an inspiration to the country's other footwear manufacturers. They adhere to a beautiful, regular working cycle. Apex's business model is unique and very strategic compared to those of other established market participants. For the company to have continuous success, the Apex family believes that investing in the development and upgrading of human resources is essential. As a result, the diversity, quality, and productivity of the team members must continue to be improved through human resource development efforts. In the future, I hope Apex will expand their retail operations into more Asian and European nations.

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