

Report On
The Operations Management of
Energypac Engineering Ltd.

By

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An internship report submitted to the **MBA Program, BRAC Business School** in
partial fulfillment of the requirements for the degree of
Masters in Business Administration

MBA Program, BRAC Business School
BRAC University
Summer 2020

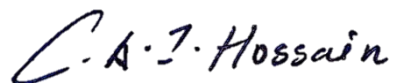
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Declaration

It is hereby declared that

1. The internship report submitted is my/our own original work while completing degree at BRAC University.
2. 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.
3. The report does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I/We have acknowledged all main sources of help.

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Supervisor Full Name - Suman Paul Chowdhury
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Letter of Transmittal

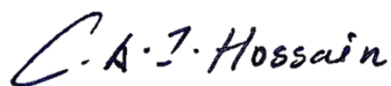
Suman Paul Chowdhury
Assistant Professor,
MBA Program, BRAC Business School
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66 Mohakhali, Dhaka-1212

Subject: Letter of Transmittal for Internship Report Submission.

Dear Sir,

With due respect I, the undersigned student of MBA Program, BRAC Business School, BRAC University, have reported on “The Operations Management of Energypac Engineering Ltd., under the course **BUS 699**. This is my pleasure to display my position in the organization along with my job responsibilities regarding improving the procurement effectiveness and supply chain visibility at Energypac Engineering Limited. Thank you for your supportive consideration for formulating an idea. 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 requirements.

Sincerely yours,

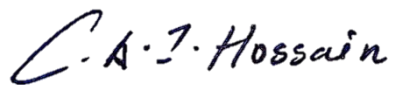


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Student ID– 18164103
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BRAC University
Date: 27th September, 2020

Non-Disclosure Agreement

[This page is for Non-Disclosure Agreement between the Company and The Student]

This agreement is made and entered into by and between **Energypac Engineering Limited** and the undersigned student at **BRAC University**.



Chowdhury Aqib Ishraque Hossain

Student ID– 18164103

MBA Program, BRAC Business School

BRAC University

Acknowledgement

First of all, I would like to express my sincere gratitude to our course instructor, Suman Paul Chowdhury, Assistant Professor, BRAC University, for giving me a proper and clear direction to conduct the internship report on the operations management of Energypac Engineering Limited.

Secondly, while making this report, all of the data and inputs have been gathered from key employees of procurement and purchase department of Energypac Engineering Ltd. Acknowledging my sincere gratitude towards Mr. Sirajul Islam, Head of Purchase & Procurement and my mentor Mr. Md. Akram Hossain, Senior Manager, Project department for their valuable time, patience and information. I would also like to thank Mr. Toufique Ahsan, Head of HR and Mr. Ishtiaque Hossain Chowdhury, Senior Executive of the HR department for their valuable time and insights on the overall company matters.

Executive Summary

Energypac Engineering Ltd. is a major player and the largest private organization in the power sector industry of Bangladesh. Problem is Energypac plays a monopoly role in the domestic power sector market. In the local market there is no competitor at the moment. This seems to be a good sign, but has some bad impact too. Due to having no proper competition, Energypac has not really felt the importance of optimized use of its resources. In this current market, there is no room for comfort. There are competitors growing in the local market, and the market is rapidly opening up to the foreign investors.

Throughout the report, the focus is to find potential improvement areas and apply my knowledge and tools for betterment of the procurement process and strategy for Energypac Engineering Limited. Firstly, I tried to figure out the problems through survey, prioritizing the list and finally propose action plan against each. Importance has been given on implementing the Enterprise resource planning (ERP) as that will solve a lot of problems, specially the inefficiency issues at Energypac. Corresponding impact forecasts are also discussed in the report and besides, other major action items are:

- Product Classification
- Value and Risk Mapping
- Value based sourcing
- Scenario Planning
- Process mobilization

Table of Contents

Declaration.....	ii
Letter of Transmittal	iii
Non-Disclosure Agreement	iv
Acknowledgement	v
Executive Summary	vi
Table of Contents	vii
List of Tables	x
List of Figures.....	xi
List of Acronyms	xii
Glossary	xiii
Chapter 1 Overview of Internship.....	1
1.1 Student Information	1
1.2 Internship Information	1
1.3 Internship Outcomes	2
Chapter 2 Organization Part: Overview, Operations and a Strategic Audit.....	3
2.1 Introduction.....	3
2.2 Overview of the Company	4
2.3 Management Practices	5
2.4 Marketing Practices	5
2.5 Financial Performance & Accounting Practices	6
2.6 Operations Management and Information System Practices	6

2.7 Industry and Competitive Analysis.....	7
2.8 Summary and Conclusions	8
2.9 Recommendations.....	8
Chapter 3 Project Part: The Operations Management of Energypac Engineering Ltd...9	
3.1 Introduction and Significance	9
3.2 Methodology.....	9
3.3 Findings and Analysis (add sub-chapters).....	10
3.3.1 Survey Outcome.....	10
3.3.2 Interpretation and problem priority.....	11
3.3.3 Prioritized Improvement Areas	13
3.3.4 Importance of Purchasing Over Time	14
3.4 Summary and Conclusions	15
3.5 Recommendations.....	15
3.5.1 Data Management System	15
3.5.2 Product Classification (ABC Categorization).....	17
3.5.3 Value and Risk Mapping	19
3.5.4 Impact of Value and Risk Mapping	20
3.5.5 Value – Based Sourcing.....	20
3.5.6 Impact of Value – Based sourcing	21
3.5.7 Scenario Planning	21
3.5.8 Process Mobilization.....	22

3.5.6 Empowerment of Managers	23
References.....	24
Appendix A.....	25

List of Tables

Table 1: Survey Outcome (Procurement)	10
Table 2: Survey Outcome (Production)	11
Table 3: Supplier Assessment.....	21

List of Figures

Figure 1: Energy Generation of Bangladesh Over Years (in Mega Watt).....	3
Figure 2: Electrical Substation Equipment Manufacturers' Market Share in Bangladesh	7
Figure 3: Survey Outcome over Procurement Team Members	11
Figure 4: Survey Outcome over Production Managers.....	13
Figure 5: Materials Value Percentage Over Time	14
Figure 6: ABC Classification based on Annual Cost in BDT (2017-18)	18
Figure 7: ABC Classification based on Annual Cost (2017-18) – Duty Excluded	18
Figure 8: Risk Mapping	19
Figure 9: Strategy for Quadrants.....	19
Figure 10: Risk Mapping for EEL Raw Material	20
Figure 11: Process Map	22

List of Acronyms

BOQ	Bill of Quantity
C&F	Cost and Freight
EEL	Energypac Engineering Limited
ERP	Enterprise Resource Planning
GTP	Guaranteed Technical Particulars
IT	Information Technology
KPI	Key Performance Indicator
LC	Letter of Credit
LCA	Life Cycle Analysis
OLTC	On Load Tap Changer
PI	Proforma Invoice
ROI	Return on Investment
SCM	Supply Chain Management
SKU	Stock Keeping Unit
TT	Telegraphic Transfer
VCB	Vacuum Circuit Breaker

Glossary

Power Transformer	A heavy static machine used for transforming power from one circuit to another without changing frequency
Risk Map	A graphical depiction of a select number of a company's risks designed to illustrate the impact or significance of risks on one axis and the likelihood or frequency on the other
ABC Category	ABC analysis is a type of inventory categorization method in which inventory is divided into three categories, A, B, and C, in descending value. A has the highest value items, B is lower value than A, and C has the lowest value.

Chapter 1

Overview of Internship

1.1 Student Information

I Chowdhury Aqib Ishraque Hossain, bearing ID 18164103, is employed at Energypac Engineering Limited for the last three and half years and counting under Project Department. Organizational attachment is an obligatory requirement for the completion of MBA program, BRAC Business School, BRAC University, and accordingly to complete this course I find the job report work area “Supply Chain Management”(SCM) under the recommendation and close supervision of my supervisor Engr. Md. Akram Hossain, Senior Manager, Project. My supervisor helped me to find and work on the topic: “The Operations Management of Energypac Engineering Ltd.”

1.2 Internship Information

1.2.1 Period, Company Name, Department/Division, Address

Internship Period - 6 weeks (240 hours)
Company Name - Energypac Engineering Limited
Department - Project
Address - Energy Center (1st& 2nd Floor), 25 Tejgaon I/A, Dhaka – 1208

1.2.2 Internship Company Supervisor’s Information: Name and Position

Name -Engr. Md. Akram Hossain
Position -Senior Manager

1.2.3 Job Scope – Job Description/Duties/Responsibilities

The report particularly demonstrates what is done with the aid of Supply chain management, with key activities like call for forecasting, procurement, production, distribution and more. The intention is to locate how it allows gaining business objectives via easy operations and creating competitive blessings. Finally, the record shows some likely initiatives that might be beneficial to keep away from interruptions within the deliver chain and to put into effect a worldwide well known Supply chain control.

1.3 Internship Outcomes

1.3.1 Student's contribution to the company

As a part of project division and supply chain management, my job responsibilities includes communicating with both international and local vendors, arrange meetings and negotiating with the quotations provided, forecasting future demands, preparing BOQ (Bill of Quantities), shipment follow up, claim if any problem is faced on receiving of items, preparing requesting letters to banks and government utilities, keeping good communication with other Departments (Finance & Purchase) to execute import related works. To add to it, my responsibilities also include preparation of bid document for both technical and financial proposal of a tender; those are floated by the government electricity utilities.

1.3.2 Benefits to the student

The whole work process let me have deeper insights of supply chain management of manufacturing firms like Energypac, gaining new knowledge on future demands and getting accustomed to latest industry technology, ERP (Enterprise Resource Planning). To sum it up, a holistic hands on experience on entire supply chain management.

1.3.3 Problems/Difficulties (if any faced during the internship period)

Some mentionable critical problems are:

1. Lack of data.
2. Data is not organized.
3. No training and development.
4. Problems arise for selecting the product HS code which is related with the customs duty.
5. The shortage of IT knowledge among the employees at the commercial department that reduce the smoothness of the work performance.
6. No central database of the suppliers. So the information about the employers is not available.

1.3.4 Recommendations

A few possible recommendations to the company on future internships are:

1. Introduction of a holistic Enterprise Resource Planning software system
2. Training and development of the employees on ERP
3. Revisiting the global value chain and modify where possible

Chapter 2

Organization Part: Overview, Operations and a Strategic Audit

2.1 Introduction

Few years back, if any Bangladeshi was asked, what the major problems of our country are, then it was quite sure electricity would have been mentioned as one of the top five problems. But the scenario has changed dramatically in the last 10 years. Bangladesh's energy infrastructure is not small, insufficient and poorly managed anymore. For the last 7 years energy generation has climbed rapidly and continuing. The following graph will illustrate the scenario-

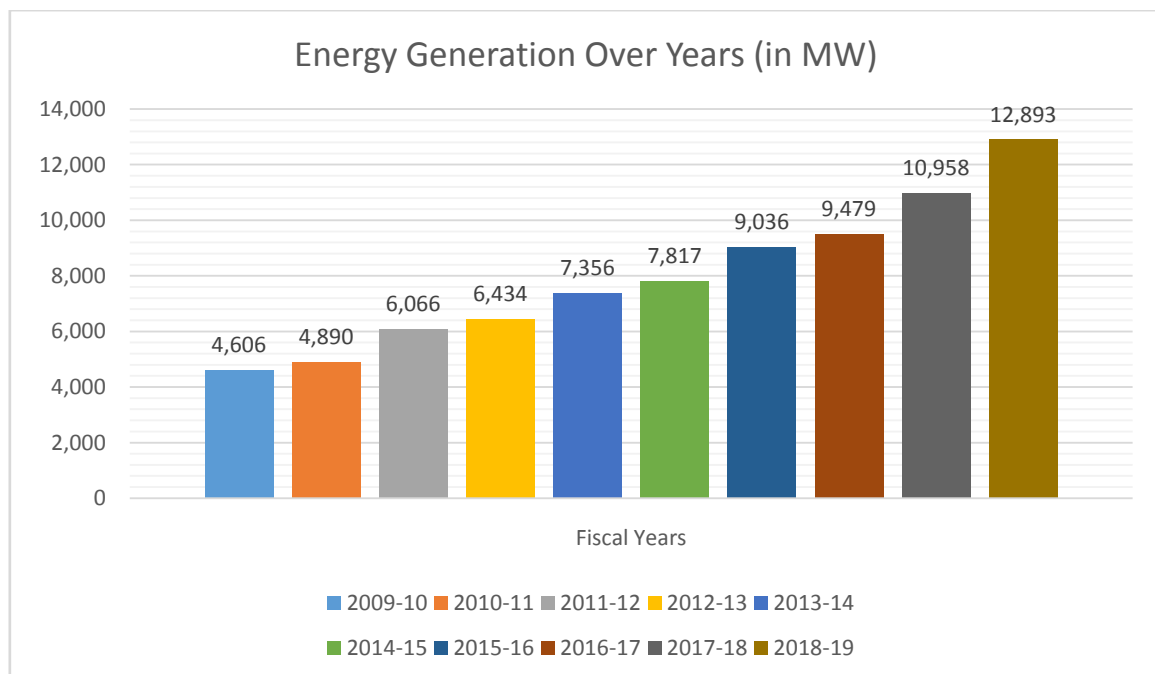


Figure 1: Energy Generation of Bangladesh Over Years (in Mega Watt)

(Source:“Bangladesh Power Development Board”, 2020)

This is done as an improved effort of both government and private companies. Traditional sources of energy usage of renewable energy are increasing, and the plan to set up country's first Nuclear power plant of 2000MW started by 2018. Government has a concrete plan for the future of power generation. By 2021 they are planning to produce 24000MW, by 2031 40000MW and by 2041 it will be 60000MW, and eventually with time Bangladesh will be able to export their surplus after meeting the local demand (Sabhasachi et al., 2018). It is apparent that the market is growing and so is the competition. Energypac Engineering at the

same time will certainly have the opportunity but to win, the organization must devise a win-win strategy.

2.2 Overview of the Company

Energypac is one of the leading power engineering companies in Bangladesh. Continual research and development, state of the art production facility, quality products, competent services, and countrywide operations have made it warmly acceptable to the customers. Energypac was incorporated in 1990 as a private limited business enterprise. It is powered by almost 2000 skilled manpower. The relentless efforts and dedication of these people are providing continual help to improve technology to innovate and develop new products, just in time delivery, pre and post sales services to maintain a long term business relationship with the customers. To meet countrywide demand of its products and services, Energypac has extensive distribution network throughout Bangladesh with full-fledged offices in the major cities like Chittagong, Khulna, Rajshahi, Sylhet, and Bogura. In an effort to introduce its products globally, Energypac has established its offices in India, Nepal, Italy and China. Energypac has already experienced its products and service supply to India, Nepal, Yemen, Ghana, Uganda, Nigeria, Saudi Arabia, Vietnam, Korea, Philippines and United Kingdom, and has won the national export award in 2019 for the year (2017-2018).

Products:

- Power Transformer
- Oil type distribution transformer
- Cast Resin (Dry type transformer)
- Switchgear and Control Panel
- Busbar Trunking System
- Switch, Isolator and Connectors
- Instrument Transformer
- Rectifier
- Vacuum Circuit Breaker

Also, the organization provides all kinds of EPC (Engineering, Procurement and Construction) services.

2.3 Management Practices

The management of Energypac Engineering Ltd practices a rather vertical organizational structure. Under the guidance of the Chief Executive Officer Engr. RabiulAlam, there are separate divisions for each operational sector. Each of the division is solely responsible for production and delivery of its respective equipment. There are different divisions for project tendering, equipment manufacturing (for each type of equipment), material purchase, commercial, delivery, installation and customer support. Each division is led by a departmental head and under his or her guidance; there are two or three sub-divisions. Each sub-division is accountable for their well-defined job responsibilities and is dependent on other sub-divisions for cross-functional tasks.

Major strategic decisions are practiced in a top down approach. The values, requisites, objectives and alignment are flowed from the top management to the middle management and all the way down to each employee level. Energypac usually follows broad differentiation strategy in its product marketing. The products are highly technology based and tailored to specific client requirements. All the equipment are targeted towards government and non-government electrical substation needs across the globe and the prices are moderately higher than that of the local competitors with a promise of exceptional quality.

2.4 Marketing Practices

Energypac Engineering Ltd. follows the marketing concept orientation in their approach. In case of the government tenders, the project division bids as a prime bidder or as a sub-contractor. The long-achieved goodwill and world class product quality with best value for money has brought Energypac to the spot it is today. Energypac customizes each of its products according its clients' unique needs. The company positions itself as trustable manufacturer and supplier of electrical substation equipment with state-of-the-art production and testing facilities at the best value for money. Its main target group is mainly government utilities and electricity producers around the world and private companies in need of end-to-end power system solution. Energypac's marketing communication channels are usually newspaper print ads, highway billboard announcements and social media communication. Energypac also partakes in local and foreign international power exhibitions and sponsors certain events within the country.

2.5 Financial Performance & Accounting Practices

From the financial statements of the company, it is clear that Energypac has been experiencing growing revenue for quite a long time now. Energypac was able to earn revenue of more than BDT 15 billion in the fiscal year 2018-19. This was a growth of about 3.4% as opposed to the previous year (Energypac Engineering Ltd., 2019).

For almost all of the government projects, which is the major source of revenue for the company, Energypac is offered a certain percentage of the total contract amount, depending on the contract agreement of the buyer and the seller, as an advance payment upon being awarded any tender. With this advance payment, raw materials are outsourced and value addition occurs at the factory. Upon delivery of the products, another agreed percentage is received and upon successful hand over of the project, after testing and commissioning, the rest of the amount is cleared. The factory, offices and sites' overhead, utility and miscellaneous operational expenses sum up to a huge amount of cost for the company. Energypac is aiming to downsize these operational costs as much as possible. Product pricings are determined by considering the minimum possible profit margin on the fixed and variable expenses of each product. This margin is determined by industry and competitor analysis on tender basis.

2.6 Operations Management and Information System Practices

As has been mentioned before, Energypac's primary customers are various government utilities worldwide. These government purchases are usually done on tender basis. Open competitive bids are released and Energypac as a prime bidder or as a joint venture bids on the tenders. Upon being awarded a contract, Energypac places order for its raw materials in accordance with the buyer's requirements. Designs are approved and finalized meanwhile and upon receipt of the raw materials, manufacturing works begin. Production is made on the exact numbers of equipment; no excess is produced. After the production, inspection testing happens at the factory and then upon successful quality checking products are delivered to the site determined by the customer. Based on the contract, installation and commissioning are also sometimes under the scope of EEL. Based on experience and market study, some extra raw materials are sometimes requisitioned by the end of each fiscal year in order to cope up with the increased demand of the months followed. EEL closely monitors and tabulates its inventories by internal auditing at regular intervals. This in turns results in increased

efficiency. For instance, if the specification prerequisites allow, EEL utilizes its existing steel cores in a FIFO (first in, first out) method in order to maintain quality of the production.

The information management system in EEL allows open access to its system architecture lets the company comply more easily with external regulations and internal requirements. Open access means that EEL can more easily integrate the MIS with existing systems. This ability reduces the need for outside service people to perform internal service changes. Open access also reduces maintenance expenses because internal resources can manage the maintenance of the system. Energypac uses a central server to provide its employees access to his or her required software services. Database of ongoing and completed works are maintained both for tender and compliance applications. The relevant certificates, standards and testing procedures are also available online with open access on the intranet. Employee databases including check in and check out time are also maintained, monitored and updated electronically.

2.7 Industry and Competitive Analysis

Incorporated in 1990, Energypac Engineering Ltd. was the pioneer in the Bangladesh power equipment manufacturing. Before its inception, substation equipment had been entirely dependent on imports for Bangladesh. Initially Energypac started its operation by repairing faulty transformers from the electricity utilities. Soon Energypac accumulated the manpower and the skill sets and began manufacturing transformers for the first time in the history of Bangladesh. Now after 30 years of being the market leader Energypac still holds a significantly higher market share than any of its competitors. Considering the local market with its local players, Energypac holds the highest market share at 68% followed by its closest competitor Reverie Power and Automation Engineering (17%)

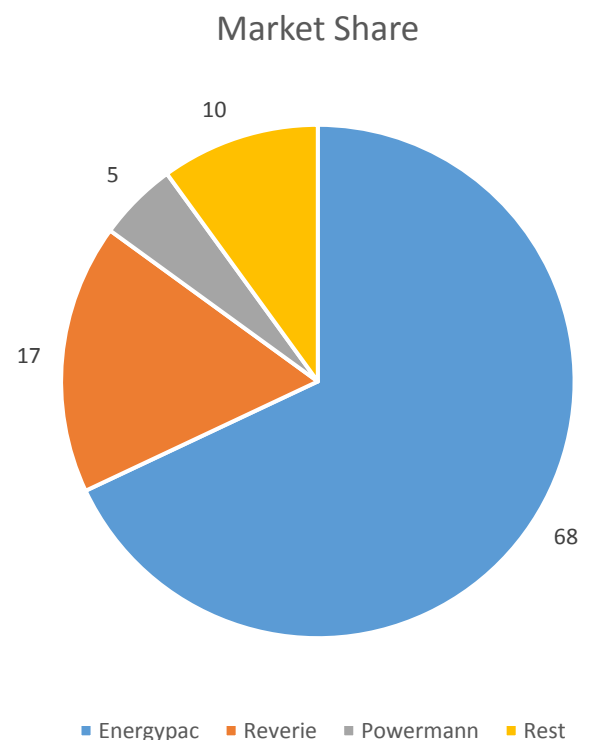


Figure 2: Electrical Substation Equipment Manufacturers' Market Share in Bangladesh

and Powermann Bangladesh Limited 5%. The rest of the 10% shares are distributed by the lesser known companies including Transpower Engineering Ltd., Shakti Engineering Ltd., Betelco and many more.

2.8 Summary and Conclusions

Energypac Engineering Limited (EEL)'s technical prowess, board of directors visions and research prioritize strategy has made them a market leader in power equipment manufacturing industry. Although a market leader, Energypac did not succeed enough because of a vertical organization structure and centralized decision making culture. With change in technology, Energypac's practices and ways of operating the organization did not change much in the last 30 years. What sets Energypac Engineering Limited (EEL) apart from their counterpart is their product oriented and differentiation strategy: robust product design, European design team and state-of-the-art high voltage testing facility.

2.9 Recommendations

Some mentionable recommendations:

1. Training and development
2. Benchmarking against the competition
3. Surveying employees
4. Align training with management's operating goals
5. Keep innovating and keep measuring results
6. Research and development
7. Increase digital presence, i.e. online marketing
8. Introduce cost leadership strategy exclusively for foreign market.

Chapter 3

Project Part: The Operations Management of Energypac Engineering Ltd.

3.1 Introduction and Significance

If one cannot win by buying, then one cannot win by selling. Therefore, in this brutally competitive world, one must come up with a winning Supply Chain process. The goal is to find out the problem(s) in the Energypac Engineering Limited (EEL) supply chain, prioritize the list and come up with specific actions. During writing the whole report focus is given mostly on foreign procurement part, but recommendations are applicable to both foreign and local procurement teams.

3.2 Methodology

A survey was conducted on the team members of production and procurement departments, as they are the people who decide and drive the process. Please note that

- It is population survey
- Mean, Median, Mode and Standard deviations were calculated
- Based on the above assessment first priorities are selected
- Based on experience, action items are prepared specific to Energypac Engineering Limited

The survey questionnaire was prepared to take opinions from the people in Procurement department of Energypac. The questions were based on Likert scale 1-5. Another important feature is that it is a population survey, not a sample survey. Besides, 10 department heads from the production facility in the factory, who heads respective departments as well as coordinates the communication between production needs and procurement, were also interviewed over a short survey. Both the groups were chosen for survey as they are the people directly involved strategically with the supply chain process of Energypac as per current structure.

3.3 Findings and Analysis (add sub-chapters)

3.3.1 Survey Outcome

Survey result over six employees from procurement department:

Statement over (Scale 1-5, 1-Completely disagree, 5-Fully Agree)	S-1	S-2	S-3	S-4	S-5	S-6
1. The existing process of procurement is sufficient for the supply chain flow of EEL.	2	3	1	1	2	4
<u>Remarks: Process should be easier and faster</u>						
2. You're given enough training for your activities to give effective result.	2	3	1	2	1	3
3. You're quite familiar with the following keywords: Cash to cash cycle, Activity Based Costing, Key Performance Indicator (KPI), ABC Categorization, Weighted criteria based suppliers selection process, Scenario Planning.	1	4	1	1	4	1
4. You are clearly understood about your KPI.	3	4	2	2	2	5
5. There is excellent coordination/support from other departments to achieve result.	2	3	3	2	1	4
6. There's an effective data management system in EEL.	2	1	1	1	2	1
7. I have a fair understanding of the processes going on in other departments like finance and commercial.	3	3	2	3	2	4
8. I face no fund crisis while dealing with suppliers.	5	4	5	3	4	4
9. I think the number of suppliers being managed by me is ok to manage by myself	4	3	4	3	2	4
10. I believe we've enough manpower for procurement there at EEL	4	2	3	3	3	4

Table 1: Survey Outcome (Procurement)

On the other hand, the survey outcomes over the production guys (Population size- 10) are as following:

Statement over (Scale 1-5, 1-Completely disagree, 5-Fully Agree)	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10
1. I usually have enough stocks so that I face no problem with my production.	4	3	5	5	4	3	4	4	4	2
2. I usually face no problem with the quality of material	2	2	3	4	3	4	2	2	4	3
3. The expected arrival times are met regularly for the materials	3	2	4	3	2	5	3	4	3	3

Table 2: Survey Outcome (Production)

3.3.2 Interpretation and problem priority

The procurement team survey stats:

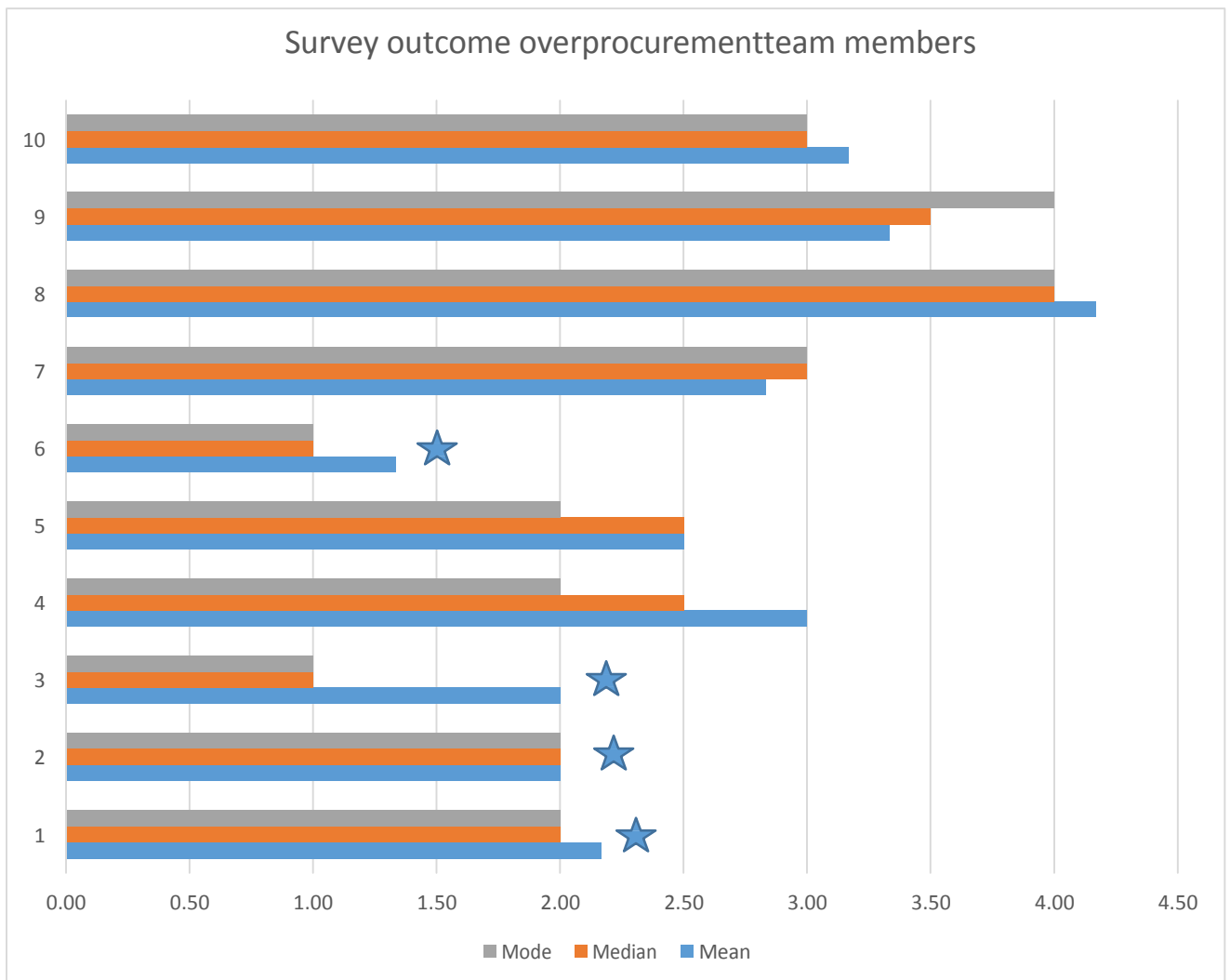


Figure 3: Survey Outcome over Procurement Team Members

Standard deviations are found to be less than 1 in every case except one (where it was 1.07). Because of the low values, they are considered as ignorable and therefore not shown in the above chart. However, the table of corresponding values can be found in Appendix-A.

Now, let's dive a little deeper for interpretation:

1. *The existing process of procurement is sufficient for the supply chain flow of EEL.* Corresponding- Mean and Median difference is very small and leaves us with big improvement opportunity here.
2. *You are given enough training for your activities to give effective result.* Zero Mean and Median difference and again leaves us with big improvement opportunity here.
3. *You're quite familiar with the following key words: Cash to cash cycle, Activity Based Costing, Key Performance Indicator (KPI), ABC Categorization, Weighted criteria based supplier selection process, Scenario Planning.* The low population score suggests that familiarity with basic modern tools is very thin
4. *You are clearly understood about your KPI.* The data indicates some abrupt findings. Therefore we are taking it out from the scope of this study.
5. *There is excellent co-ordination / support from other departments to achieve result.* Again everything on lower side and seeks attention for improvement.
6. *There's an effective data management system in EEL.* The statement where the lowest score came for EEL and needs the most serious move.
7. *I have a fair understanding of the processes going on in other departments like finance and commercial.* Very even response with a slightly higher satisfaction compared to others.
8. *I face no fund crisis while dealing with suppliers.* Again very even response with even more satisfaction
9. *I think the number of suppliers being managed by me is ok to manage by myself.* People have quite different opinions!
10. *I believe we've enough manpower for procurement here at EEL.* Population seems to be ok with the manpower but opts for more for comfort.

On the other hand the survey outcomes over the production managers are as follows:

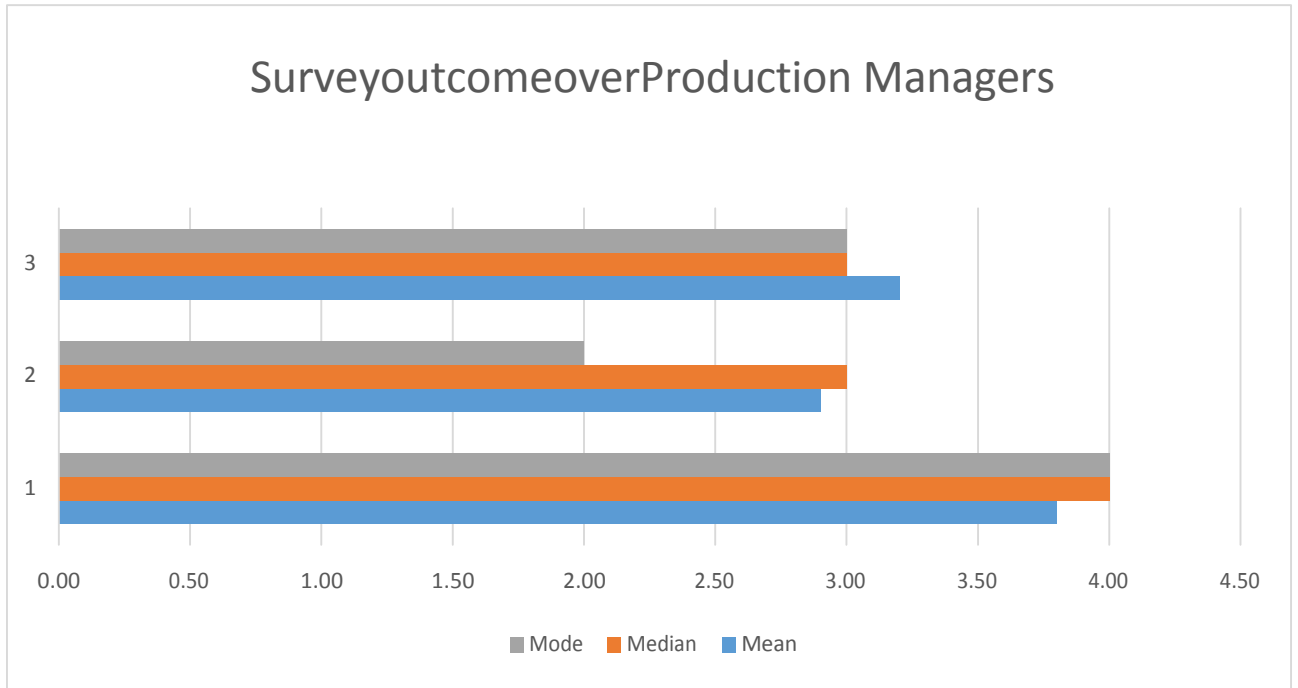


Figure 4: Survey Outcome over Production Managers

Standard deviations are found to be less than 1 in every case. Because of the low values, they're considered as ignorable and therefore not shown in the above chart. However, the table of corresponding values can be found in Appendix-A.

Now, here's the interpretation:

1. *I usually have enough stock so that I face no problem with my production.* - Factory seems not to have much difficulty here at the moment.
2. *I usually face no problem with the quality of material.* Looks like a concern about 'Quality' is there.
3. *The expected arrival times are met regularly for the materials.* Again population is ok with delivery but prefers an improvement.

3.3.3 Prioritized Improvement Areas

Now, based on survey outcome, we identified the following areas for improvement as first priorities:

- Data Management System
- Introduction of basic modern tools for increasing procurement effectiveness.
- Design and implement effective Training module for the department employees

- Process mobilization
- Material Quality Issue

However, as per our objective and constraints of this internship, further discussions on only the following issues are included:

1. Data Management System
2. Introduction of basic modern tools for increasing procurement effectiveness. However, **Cash to Cash Cycle and KPI** are exempted due to EEL's heavy involvement with government funded slow moving cycle where EEL has very little to do (the first one) and corresponding necessary research will be too extraneous for the time frame given (the later one).
3. Design and implement effective Training module for the department employees
4. Process mobilization

3.3.4 Importance of Purchasing Over Time

Historically, purchasing has played a key role in “getting the lowest possible price.” Until the 1960s, this largely involved order-placing and was primarily a clerical position. However, as the development of strategic planning and the advent of just-in-time purchasing made purchasing a more crucial business function. This can be illustrated from the following figure showing how material procurement is increasingly contributing towards the revenue.

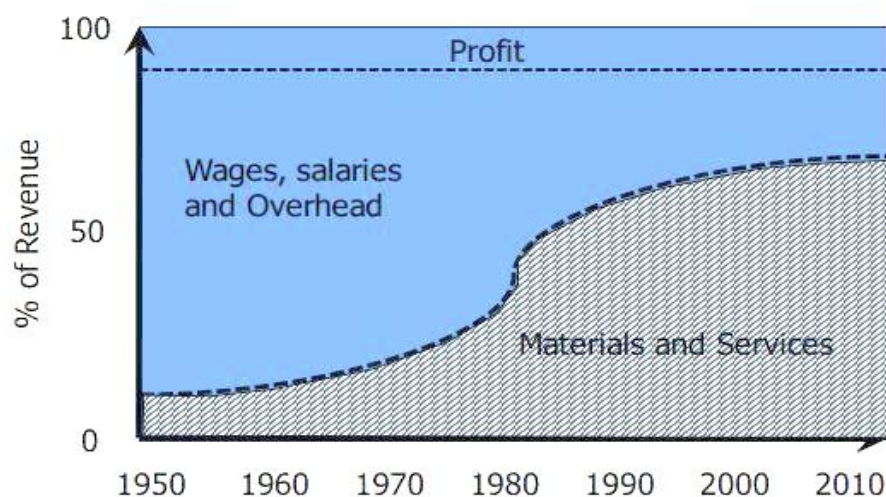


Figure 5: Materials Value Percentage Over Time

3.4 Summary and Conclusions

- In this report, due to time constraints, the prioritized action items are highlighted only. Improvement is always an ongoing factor.
- Due to company policy, only representative financial figures are published. The data are manipulated but relative to one another as they are in reality.
- Against one question (Statement 4 to procurement dept.) some abrupt statistics were found. For time constraint, further action is avoided.

The recommended actions take time to showcase their results which is not possible to see within three months. Therefore only conservative projections are made to forecast effect. The recommendations made are based on partly on survey result, consultation with experts and on first-hand experience. EEL must devote with strict commitment towards the actions to see result. But it will take approximately minimum two years to see the change. At first, efficiency will drop as is seen in case of others (mandatory part of change management), but will eventually pick up if implemented properly.

3.5 Recommendations

3.5.1 Data Management System

Right now, EEL is in need of ERP (Enterprise Resource Planning) software which should replace it is a manual operation especially in SCM. Because EEL has grown in terms of

- Volume (no. of employee) and
- Value (Revenue/Profit)

In absence of ERP, there incurring are functional losses in for example:

- Visibility of Inventory
- Generating an analytical report
- Approval Process
- Budgetary overrun
- Supplier assessment
- Payment
- Customer Service Responsiveness

As a result, work flow is being severely hit by

- Multiple sources of data
- Loss of relevant data
- Manual and non-standard entry of data
- Painful, time consuming and yet false or incomplete retrieval of data
- Waste of time in collection of data
- Soloed operations of departments
- Frustrated and non-performing employees

So, to minimize the negatives, ERP can provide a permanent yet dynamic solution. But it's compulsory that EEL must have

- Strong and long term commitment from top management
- Significant investment specially (as a large organization)

And EEL should start from SCM. Here's why

- This is where record keeping, documentation and tracing back are of most importance
- The opportunity of pilferage is highest here
- Most number of inter-departmental processes are involved in operation and therefore digitizing is required most
- 45-50% of a manufacturer's working capital is tied up in Supply Chain in any moment. Apparently we must bring efficiency here first. Freeing up capital makes business more responsive to change

And for the first target area, Inventory Management is suggested as across all industries, most anomalies are found there.

Impact / ROI of ERP:

Due to confidentiality issue, numbers can't be published. However, some points should be mentioned:

- ERP Automation saves time in document creation of document & report and also in approval.

- ERP saves unpleasant Annual Inventory Cost, Purchase Cost, Freight Cost
- Reduces Accounts receivable write-offs
- Reduces Revenue loss and stock write-offs

In nutshell, ERP saves a lot of precious man-hours. Also, it helps to retain data in a systematic manner and enables user to access, sort and analyze data efficiently.

3.5.2 Product Classification (ABC Categorization)

No. of SKUs for EEL is somewhere between 2700 and 2800. But they can be grouped as per common supplier. The groups are as follows:

- Silicon Steel Sheet
- Circuit Breaker
- Cu Strip
- Cu Rod and Busbar
- OLTC
- Transformer Oil
- Chemical
- MS Cold Rolled Sheet
- Insulation Paper, Pressboard and Strip and Insulation Components
- VCB Components

As per 2017-18, the representative and relative figures are like this:

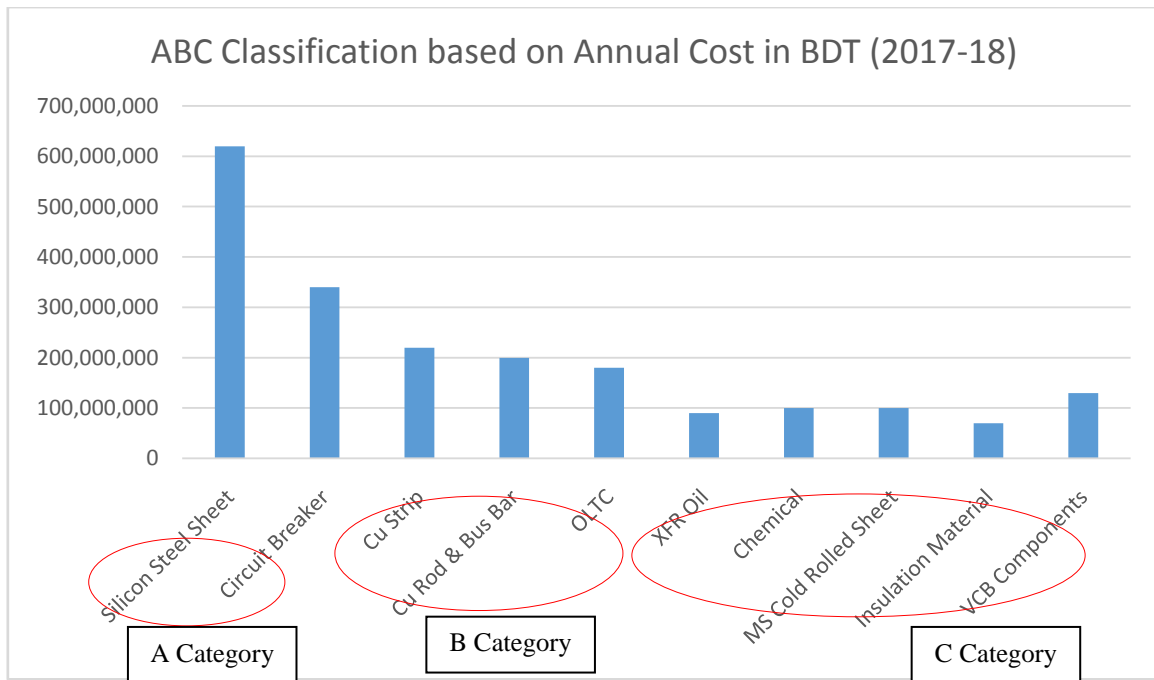


Figure 6: ABC Classification based on Annual Cost in BDT (2017-18)

But, as this is with duty, let's check another time if things change without duty:

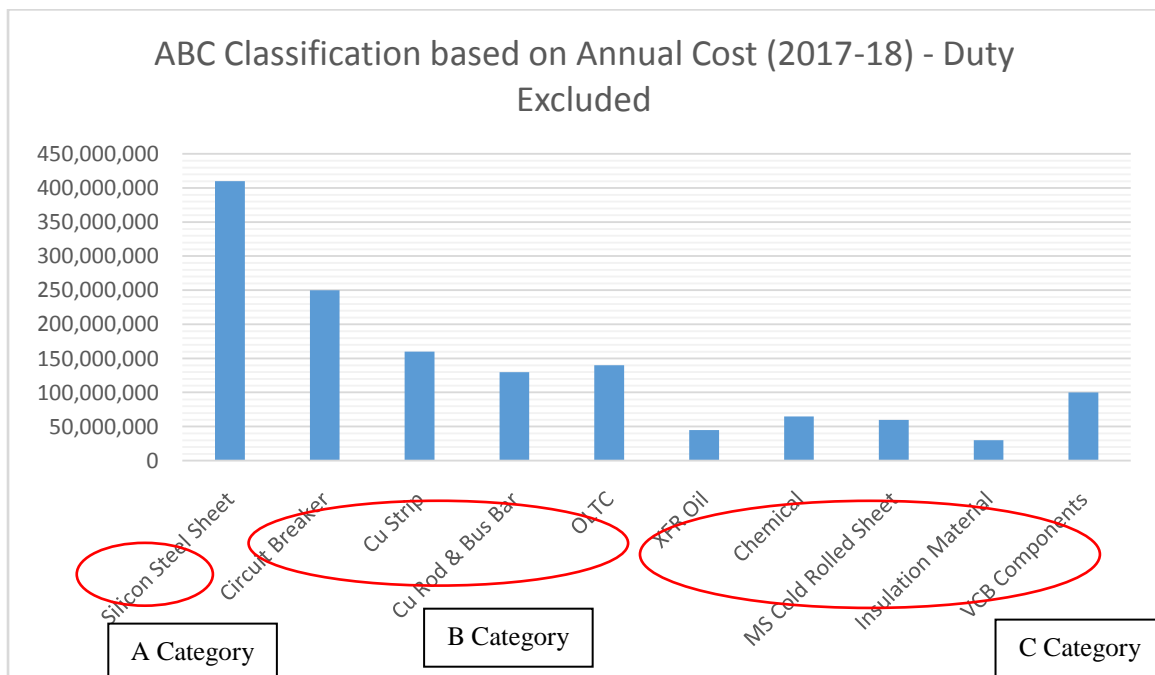


Figure 7: ABC Classification based on Annual Cost (2017-18) – Duty Excluded

As per EEL threshold value, no changes occur.

3.5.3 Value and Risk Mapping

The impact of ABC categorization is in supplies' value and risk mapping. This is part of purchasing strategy and is briefed below:

One way to differentiate the purchasing portfolio is by considering where an item falls along two dimensions: 1) the supply risk and, 2) the annual spend (or profit impact on business). Based on this, a two-by-two matrix can be created to describe all items. For each quadrant, different types of procurement strategies are suitable.

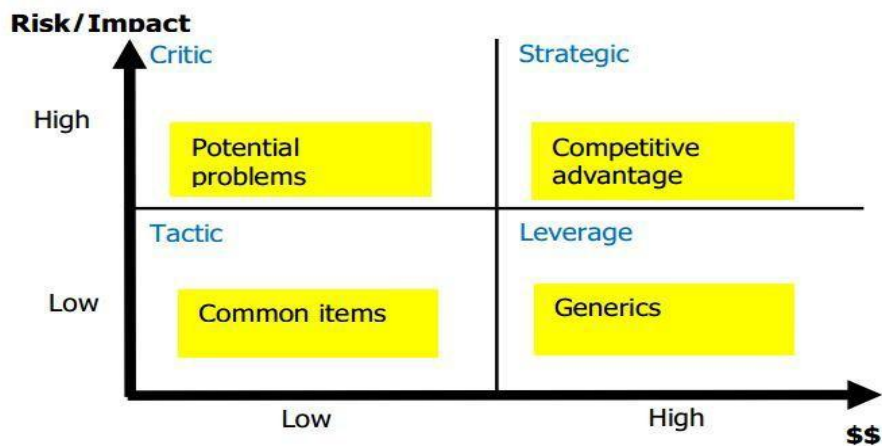


Figure 8: Risk Mapping

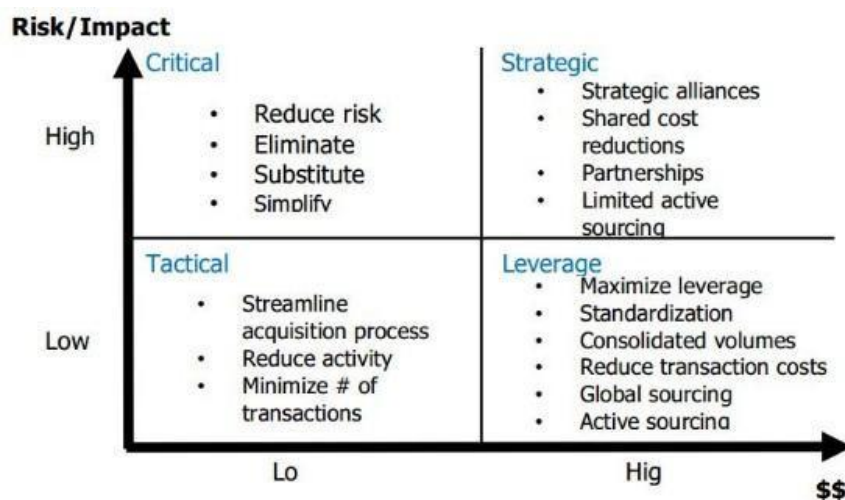


Figure 9: Strategy for Quadrants

From our ABC analysis and on subjective judgment of product **complexity, customization and supplier power**:

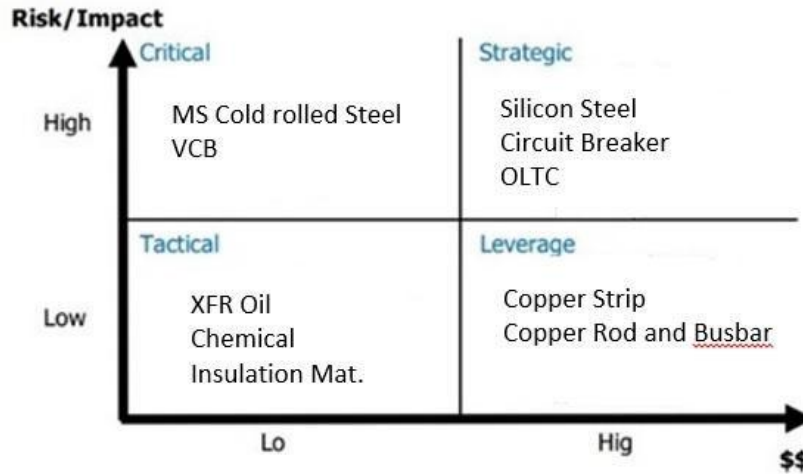


Figure 10: Risk Mapping for EEL Raw Material

3.5.4 Impact of Value and Risk Mapping

For example, ABB is the biggest supplier of an ‘A’ category item- Circuit breaker. This supplier provided products worth 200 million (example only) BDT last FY 2017-18. If EEL goes for yearly or five yearly contracts with a clause of minimum purchase, the unit price will be noticeably lower than the current fixed price. Even if they provided 2% discount on contract, EEL could save **4 million BDT** a year. The ‘A’ category cost over 1000 million and thus EEL could have saved **20 million BDT** by establishing strategic alliance which seems to be a minimum. Besides, this strategic move leads to better partnership with supplier, saves man-hour and thus improves competitive advantage.

3.5.5 Value – Based Sourcing

Value based sourcing is the name given to the practice of going beyond the purchase price in a procurement event. For instance, instead of focusing on price, focus is on value; instead of focusing on total cost of ownership, focus is on total contribution. Other than price other criteria that can be considered are- supplier support in inventory management, after sale support and product development; supplier response in critical parts purchasing, during disruption and exchange rate fluctuations; suppliers flexibility in addressing new customer needs.

For EEL procurement team is assessing the following criteria (relative to product group) selected based on mutual agreement among the members:

Item	Criteria	Weight	Supplier-1score	Supplier-2score	Supplier-3score
OLTC	Price	0.3	7	5	8
	AfterSalesService	0.3	6	8	7
	Quality	0.2	6	9	8
	Previousdeliveryperformance	0.1	8	8	8
	PresenceofBangladeshoffice	0.05	10	0	0
	Overallreliability	0.05	9	8	9
Aggregateweightedscore			6.85	6.9	7.35

Table 3: Supplier Assessment

The criteria and weight change from product group to group. OLTC's table is given as an example only.

3.5.6 Impact of Value – Based sourcing

Not applicable at the moment, because the result can only be seen after at least two years.

3.5.7 Scenario Planning

Scenario Planning refers to preparing the organization for the possible situations in future.

EEL is has taken some initiatives like

- Opening India branch office
- Exporting to Nepal and India even at loss to gain experience and prepare for BD tender.
- Horizontal expansion

Need to explore more for further comments.

3.5.8 Process Mobilization

Let's look at the process map first:

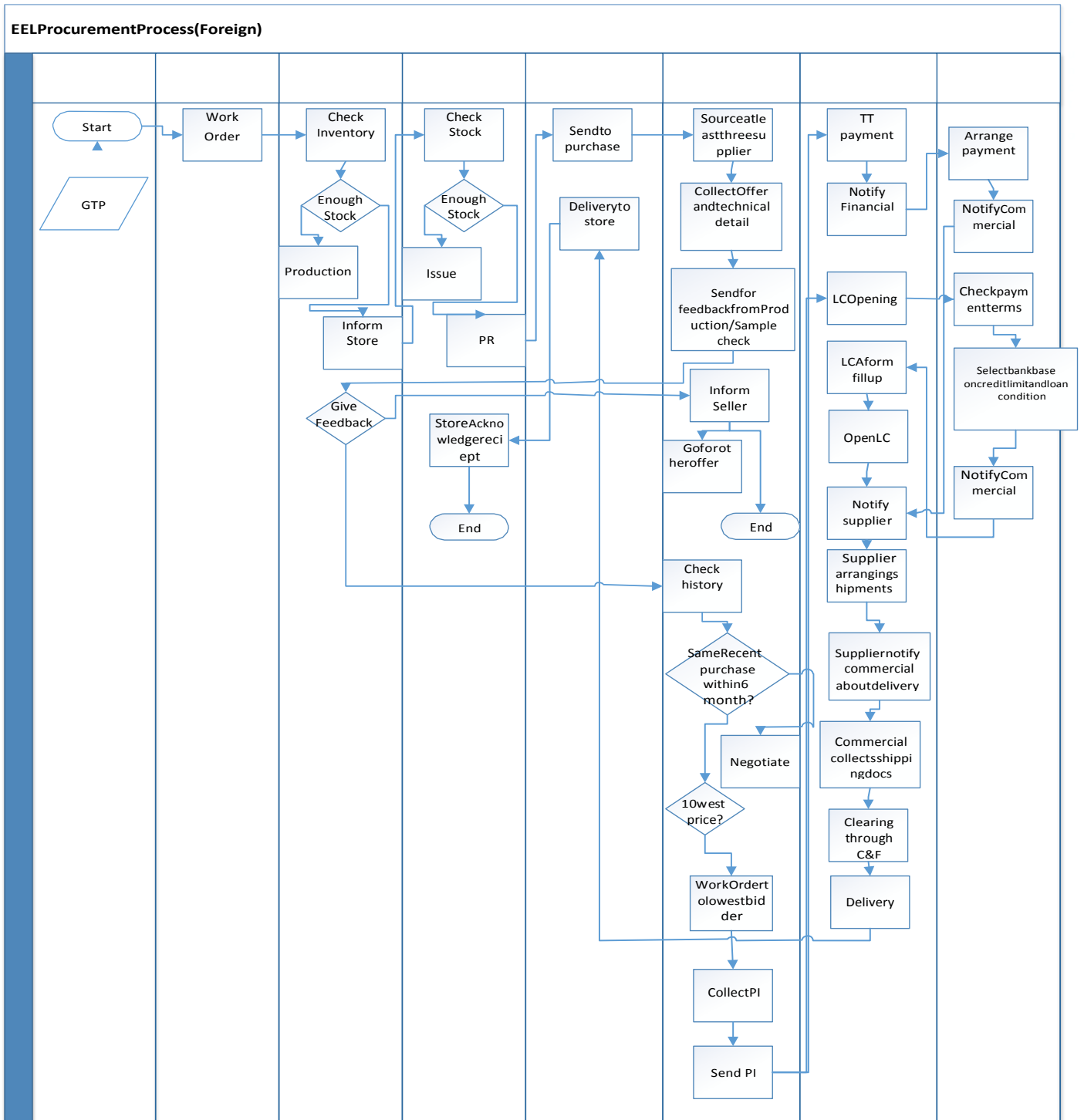


Figure 11: Process Map

Not much can be done with mobilizing the process here. But, implementation of ERP or digital solution can minimize a lot of processing time for example by automating Stock Check or Order Generation.

3.5.6 Empowerment of Managers

Right now, the CEO or Managing Director gives approval on PI or LC by signing. On their busyness or absence, these regular business operations get stuck and thus slow the whole process down. Empowering others managers to take over these operations will ease up things. That's short term solution.

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Appendix A.

Survey outcome (Procurement)

Mean	Median	Mode	Std. Deviation
2.17	2.00	2.00	1.07
2.00	2.00	2.00	0.82
2.00	1.00	1.00	1.41
3.00	2.50	2.00	1.15
2.50	2.50	2.00	0.96
1.33	1.00	1.00	0.47
2.83	3.00	3.00	0.69
4.17	4.00	4.00	0.69
3.33	3.50	4.00	0.75
3.17	3.00	3.00	0.69

Survey outcome (Production)

Mean	Median	Mode	Std. Deviation
3.8	4.0	4.0	0.87
2.90	3.00	2.00	0.83
3.20	3.00	3.00	0.87