

# **Inventory management in Marine Electricals (India) Limited**

An Internship Report for

MGA-652 Industry Internship

16 credits

Submitted in partial fulfilment of Master Degree

in Finance

by

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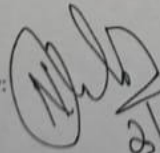


**GOA UNIVERSITY**

**Date: May 2024**



Examined by:

  
2/05/2024

Seal of the School

**DECLARATION BY STUDENT**

I hereby declare that the data presented in this Internship report entitled, "Inventory management in Marine Electricals (India) limited" is based on the results of investigations carried out by me in the Management Discipline at the Goa Business School, Goa University, under the mentorship of Prof. Nilesh Borde and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities/College will be not be responsible for the correctness of observations / experimental or other findings given the internship report/work. I hereby authorize the University/college authorities to upload this dissertation on the dissertation repository or anywhere else as the UGC regulations demand and make it available to any one as needed.



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Date: 06/05/2024

Place: Goa University

COMPLETION CERTIFICATE

This is to certify that the internship report "Inventory management in Marine Electricals (India) limited" is a bonafide work carried out by Ms Zelia Ujwala Colaco under my mentorship in partial fulfilment of the requirements for the award of the degree of Master of Business Administration (MBA) in the Discipline of management studies at the Goa Business School, Goa University

  
03/05/2024

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Website : www.marineelectricals.com CIN : L31907MH2007PLC176443 (Formerly known as Marine Electricals (I) Pvt. Ltd.)



January 10, 2024

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## TO WHOMSOEVER IT MAY CONCERN

Dear Zelia U. Colaco ,

We are pleased to extend to you, this offer as an intern at Marine Electricals (I) Ltd. The duration of your training period is from 15th January 2024 to 4th May 2024. You will be reporting to Mr. Ashish Pareek- Assistant Accounts Manager - GOA.

During your internship period, you may have access to trade secrets and confidential business information belonging to the Company. By accepting this offer of internship, you acknowledge that you must keep all of this information strictly confidential, and refrain from using it for your own purposes or from disclosing it to anyone outside the Company. In addition, you agree that, upon conclusion of your internship period, you will immediately return to the Company all of its property, equipment, and documents, including electronically stored information (as applicable).

You will observe all policies and practices governing the conduct of our business and employees, including our policies prohibiting discrimination and harassment.

During your internship, your HR single point of contact (SPOC) is Ms. Mansi Adhikari. She is reachable on: 766724735. Kindly submit your report at the end of the training period to your HR SPOC.

We welcome you to our organization and wish you all the best.

Thanking You,

Yours Sincerely,

For Marine Electricals (I) Ltd.,

(Mansi Adhikari)

HR Executive



# Marine Electricals (India) Limited

Plot Nos. N-51, 52, 54, 55, 56, 57, 59 & 60, Phase IV, Verna Industrial Estate, Verna, Salcete, South Goa, Goa - 403722. Tel.: 0832-6625650  
Website: www.marineelectricals.com CIN: L31907MH2007PLC176443 (Formerly known as Marine Electricals (I) Pvt. Ltd.)



Our Ref: G.08/NMR/2024-25/33

Date : 04.05.2024

## TO WHOM IT MAY CONCERN

This is to certify that **Miss. Zelia Ujwala Colaco**, student of **Goa Business School, Goa University**, undergoing MBA- Finance has successfully completed internship programme from 15<sup>th</sup> January 2024 to 04<sup>th</sup> May 2024 in our Company.

She actively participated in the activities during the period of her internship programme and learned the skills needed for various activities such as Accounting, attention to details, organization communication and time management.

We wish her great success in his future endeavour

For Marine Electricals (I)Ltd.,

  
(Naavin M.Rao)  
Vice President

## **ACKNOWLEDGEMENT**

I would like to express my sincere gratitude to all those who helped me to complete my project successfully.

First and foremost, I would like to express my gratitude to my mentor Prof. Nilesh Borde for his invaluable guidance, support and mentorship provided by him throughout my project. His expertise and insights were instrumental in shaping and success of my project.

I would also like to give my heartfelt thanks to sir Ashraf admin staff of Marine Electricals (India) Limited for giving me the opportunity for internship in their company. I would also like to thank the entire accounts team and the stores staff of Goa plant for their support and cooperation during my internship period. I would like to extend my special thanks to Ms Rolina accounts assistant for guiding me throughout my internship making me aware of most of the things in the company.

I would also like to express my heartfelt gratitude to my parents Mr.Jack Paul Colaco and Mrs. Josefa Colaco for their constant love, encouragement and tolerance throughout this challenging journey and for being my greatest motivation.

Finally I would like to thank my friends for their support and understanding throughout this academic journey.

## **Executive Summary**

This project is undertaken in fulfilment of a MBA degree, it analyses the inventory management practice at Marine Electricals (India) limited. It addresses the need for a cost-based inventory classification system by implementing ABC analysis based on annual consumption value.

### **Key Findings:**

- ABC analysis revealed the 80/20 Pareto principle, with A-category items contributing 80% of the total annual consumption cost. This highlights the significant financial impact of this category and necessitates stricter control measures.
- Unit cost analysis further emphasizes the importance of A-category items, as their high unit price contributes to 80% of the total cost. This reinforces the need for focused management and stricter control measures for these high-cost items.
- Reorder point analysis provides valuable insights for frequently used items, ensuring timely reorders and preventing stock outs. This optimizes inventory levels and minimizes operational disruptions.

### **Recommendations:**

- Implement ABC analysis to categorize inventory based on annual consumption cost, enabling targeted control measures and resource allocation.
- Integrate reorder point calculations with ABC classifications for optimized inventory levels across categories minimizing stock outs and holding costs.
- Consider granting C-category item purchase rights to the Goa unit, potentially reducing lead times, transportation costs, and empowering the unit with greater procurement autonomy.

### **Conclusion:**

This project provides a comprehensive analysis of Marine Electricals inventory composition and cost drivers. By implementing the proposed recommendations, the company can achieve significant cost savings, improve operational efficiency, and gain a competitive edge through optimized inventory management practices.

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## **CHAPTER 1 : INTRODUCTION**

Marine Electricals is an integrated technical service supplier in the area of electrical automation and information and communication technology solutions. The company deals with integrated and multidisciplinary total solution that leads to better business procedures and more efficiency for customers and the customers to whom they serve. The company has its substantial presence in Marine, Buildings and industrial segment. Marine Electricals also provides solution that supports a sustainable society. The strength of the company is in its capability to develop sophisticated tailor made solutions that fulfills the specific prerequisite of their diverse clientele right from conception of the project necessities through designs, manufacturing, installation and commissioning. This is attained through a combination of engineering using modern design tools and state of art manufacturing facilities existing in house to cater to every kind of requirement. In order to serve this the company upon receiving the order from the customer defines the important requirement and composes the finest suitable system in use based on their design technology.

Marine Electricals was founded by Mr. K. D. Uchil in the year 1978. He started his operation in Andheri Mumbai in order to manufacture small electrical equipment for Indian Navy. The company currently has 6 manufacturing plants across Asia and Europe, the plants situated in places like Mumbai, Goa, Chennai, UAE and Italy. They have their corporate office based in Mumbai where the company's leadership and administrative functions are decided.

The Managing Director and Promoter Mr. Venkatesh Uchil is enthusiastically participates in companies procurement, production and technical areas. He actively takes part in timely execution of the industry orders and is the guiding power behind the progress and business

strategy of the company. The Chairman, Executive Director and the Promoter of the company Mr Vinay Uchil has played a significant role in propelling the business to unprecedented height by branching out the business into different verticals i.e. Marine & Non- Marine Sector & Renewable Energy.

Marine Electricals is an integrated electrical and automation solution provider which provides complete range of electrical engineering solutions of every size such as Low and Medium Voltage, energy distribution, industrial automation, building management, integrated security, electrical propulsion etc. The company has business relationship with other global electrical players like Schneider Electric, Siemens, Orolia, Sperry Marine etc. such strategic tie ups gives the competitive edge over the competitors.

The company based their manufacturing unit in Verna , Goa in the year 1999. The manufacturing facilities are certified as per ISO 9001, ISO 14001, and OHSAS 18001 for the Quality Management system, Environmental Management System and Occupation Health & Safety Management System respectively. The manufacturing facilities have all the modern CNC bending and turret punching machines to supply equipment within the demanding tolerances to meet the requirements of this up-to-date globally offered panels, which is also supported by pretreatment and painting facilities. Currently the company has 3 units in Verna , Goa which manufactures for 3 different segments that is marine, industry, and EV.

## **1.1 Overview of the company**

### **1.1.1 Key Values of the company**

Marine Electricals is very customer-driven. Marine Electricals provides customers with high-quality complete solutions via one contact point. This permits customers to better focus on their personal core activities.

Marine Electricals aspires to establish enduring partnerships with both customers and suppliers.

Marine Electricals is an independent Indian source of technical service.

Marine Electricals is a desirable place to work with inspired employees that demonstrate professionalism and quality. Additionally, employees are given every opportunity to progress further.

Marine Electricals assigns great importance to its responsibility for the environment and people's safety and health.

### 1.1.2 Mission

- **Technology that improves society** Technology has become such an essential chunk of our society that imagining our society without it is difficult. Technology provides solutions for society's basic problems in the field of energy and environment. Marine Electricals develops incorporated technological solutions that contribute towards a sustainable and livable society.
- **Technology that improves business** Marine Electricals accomplishes added value for its customers through knowledge of their procedures and an understanding of the technical needs within the sectors in which they work. Customers can concentrate on their core events; Marine Electricals take full (results) responsibility for the technology infrastructure and guarantees the technological performance all through the utilization phase. This is how co-operation and process innovation result in the design of value and a lower total cost of ownership.
- **Technology that works naturally,** Technological solutions must first and foremost work and provide measurable outcomes. Their know-how stretches back over more

than 35 years. They have been leaders in various innovations, their professionals work on this, with passion for technology and emphasises customer needs.

### **1.1.3 Vision**

- **Vision for Marine Business**

Marine Electricals aims to be one of the top ten players in the global marine market. They will achieve this by becoming a true life cycle management partner, merging two key roles as system integration partner and maintenance partner to all their customers and constantly emphasis on exceeding their expectations. Last but not least, they are devoted to create smart and green solutions at a competitive cost of ownership.

- **Vision for Industry Business**

Marine Electricals will provide premium industrial solutions for LV, MV, & Automation addressing requirements of diverse customers thru top-notch standards. We aspire to take leadership position in Western region of India.

### **1.2 Products of the company**

The company is known for its switchgears in industry and marine sector. Electrical switchgear regulates, protects, and isolates a power system with a multiplicity of controls contained in a metal enclosure. It is an important system in industries that undergo electrical faults or those that require to frequently de-energize equipment for maintenance, such as industrial environments and electrical functions. Switchgear comprises of fuses, switches, and other power conductors. Circuit breakers however, are the most widely used component in switchgear. During an electrical fault, a circuit breaker senses the irregularity and cuts the power flow, effectively minimizing damage to the system. A switchgear is premeditated to

control the flow of power. It plays a role in improving a facility's energy efficiency and well-being.

Marine Electricals also manufactures EV chargers through its subsidiary company Evigo. The company provides a comprehensive EV charging solution that includes designing, installing, and managing charging stations. Their Bijlify app allows users to locate charging station, check availability.

Electricity demand in India is rising year on year. Excluding for the pandemic year, when most business activities came to a halt, the country's power requirement increased in each years since 2001-02. On an average the country's power requirement trebled from 507.2 billion units in 2000-01 to 1.51 trillion units in 2022-23. Per capita electricity consumption increased from 566.7 kWh in 2002-03 to an projected 1331 kWh in 2022-23. Growing population, prompt urbanization, surge in grid connectivity, rising industrial activities, and rising temperatures led to an increase in the consumption of electricity year by year. Increasing demand and an expansion in electricity generation ability led to an increase in power generation. The electricity generation increased at a CAGR of 5.8 per cent from about 558 billion units in 2003-04 to 1.62 trillion units in the year 2022-23. To evacuate this gigantic power generation, noteworthy investments were made in the power transmission & distribution segment. As per CMIE's project machinery, a total of 50 GW of new power generation capacity is anticipated to come on stream by March 2025. Power transmission & distribution projects worth over Rs.610 billion are planned for commissioning in the next two years. This is anticipated to augur well for the power transmission & distribution apparatus such as transformers, switchgears and motors.

## Marine segment product portfolio



Integrated Platform Management System



Main switchboards



Engine Order & Propeller Order Telegraphs

## Industrial segment product portfolio



MEcubeE<sup>+</sup>



MEpowerR<sup>+</sup>



BlokSeT



BUSDUCT

## Electrical Charger range

### Through EVIGO....



**75%** owned by Marine Electricals;  
balance by management team



EVIGO to provide **360°** EV charging solutions



Marine Electricals to **Manufacture & Supply Electric Chargers**

### ...developed Electrical Chargers across range

22kW AC Wallbox



15kW - 30 kW DC Mobile



43kW AC Wallbox

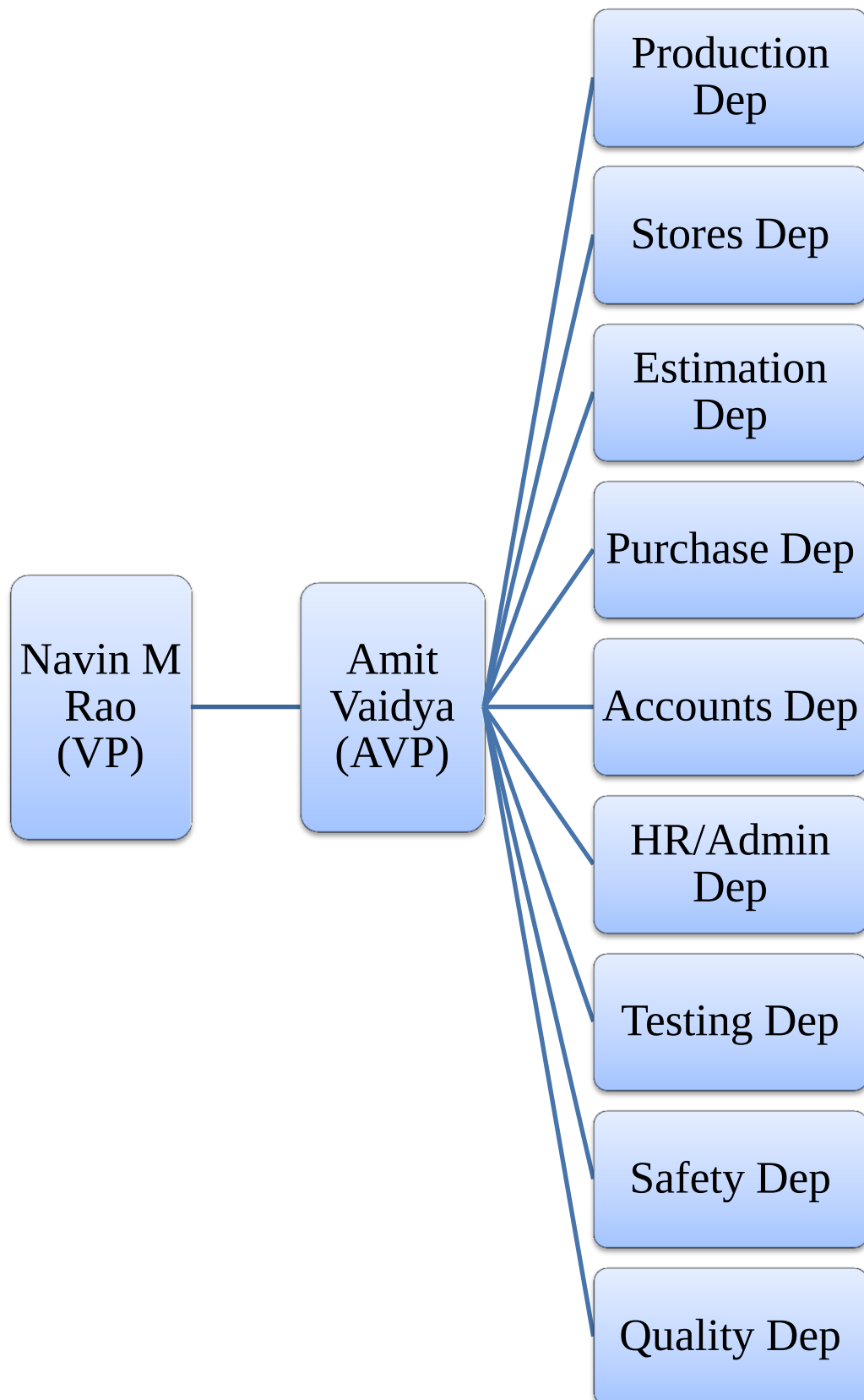


D3 AC & DC fast charger



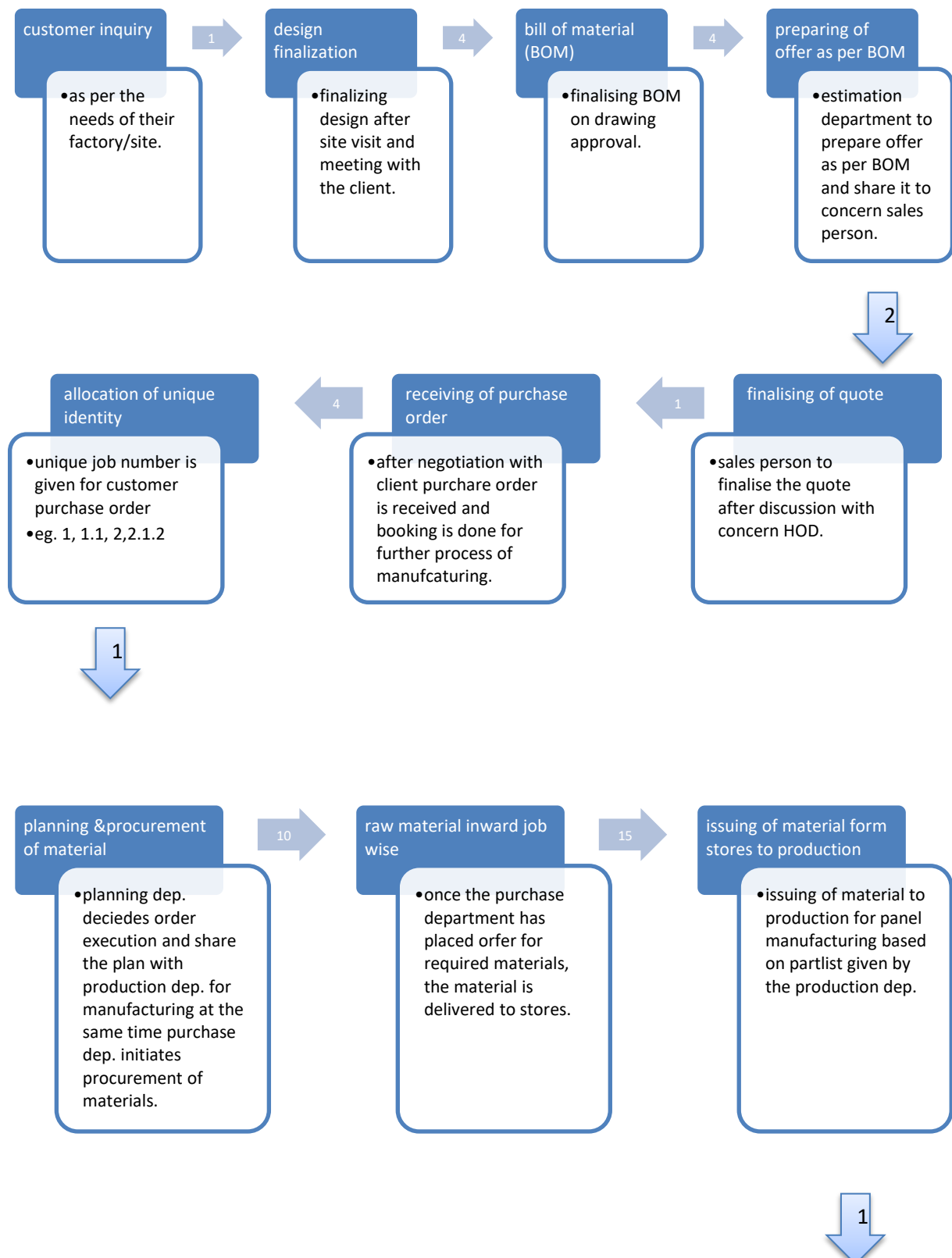
Marine Electricals

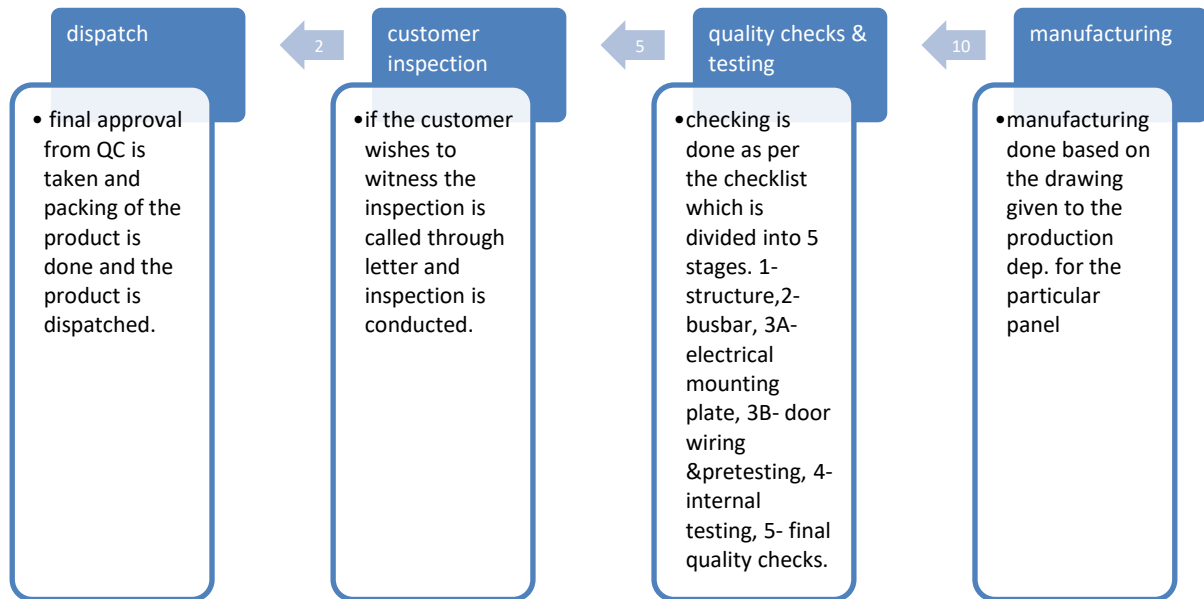
### 1.3 Organizational structure





### 1.4 Manufacturing Process of the company showing the number of days it takes to complete each stage





## 1.5 Internal and External Environment Analysis of the company

### 1.5.1 Internal analysis

An internal analysis helps an organization to identify its strength and weaknesses in relation to its resources, competencies, and competitive advantages. Once the analysis is complete, the organization will have a clear idea of area in which it is excelling, where it is doing okay, and where it lacks. The analysis furnish the management with the knowledge to leverage the company's strengths, expertise, and opportunities. It also facilitates the management to frame strategies that mitigate threats and compensate for known weaknesses and disadvantages.

### VRIN

VRIN framework is a tool of strategic planning which assists the company to identify certain resources and capabilities that can provides them with a sustained competitive advantage. Not all the resources of the company carry the same strategic significance. This is where VRIN/VRIO comes into picture, as this helps the company to identify which features make the resources relevant in a way that offers a competitive advantage.

Table showing VRIN analysis

| Resources           | Valuable | Rare | Inimitable | Non-substitutable |
|---------------------|----------|------|------------|-------------------|
| Financial resources | Yes      | No   | No         | No                |
| Brand Awareness     | Yes      | No   | No         | No                |
| Partnerships        | Yes      | Yes  | No         | No                |
| People              | Yes      | No   | No         | No                |
| Facilities          | Yes      | No   | No         | No                |

## SWOT Analysis

SWOT stands for acronym of Strengths, Weaknesses, Opportunities, and Threats. A SWOT analysis is a framework to help gauge and understand the internal and external forces that may generate opportunities or risks for an organisation.

Strengths and weaknesses are part of the internal factors. They are the features of a business that give it a comparative advantage or disadvantage respectively against its competition. Opportunities and threats, on the other hand, are external factors. Opportunities are elements of the external environment that management can grab upon to improve business performance. Threats are factors of the external environment that may endanger a firm's competitive advantage or even its capability to operate as a going concern.

Let's see into SWOT analysis of Marine Electricals (India) limited

### ➤ Strengths (S)

- Strong technical expertise: Marine Electricals offers a comprehensive suite of electrical automation, including custom-made system for diverse clientele.
- Integrated Services: The company provides a one-stop shop for project needs, encompassing conception, design, manufacturing, installation, and commissioning.
- Global presence: Marine Electricals has established a strong footprint with 6 manufacturing plants across Asia and Europe, catering to a wider market.
- Experienced leadership: The company benefits from the active involvement of the promoters family in key areas like procurement, production, and business strategy.
- Quality Certification: The company's manufacturing facilities are ISO certified, ensuring quality, environmental responsibility and occupational health & safety.
- Strategic Partnerships: Alliances with global players like Schneider Electric and Siemens enhance competitiveness.

- Sustainable Solutions: Marine Electricals offers solutions that contribute to a sustainable society, which is becoming increasingly important.

➤ Weaknesses (W)

- Dependence on Key Personnel: The company's success might be overly reliant on the involvement of the promoter family.
- Limited Public Information: More information about the company, financial performance and future plans could be beneficial.

➤ Opportunities (O)

- Growth in Marine Sector: The increasing demand for technologically advanced marine vessels presents a significant opportunity.
- Focus on renewables: Marine Electrical's expertise in electrical systems can be leveraged for the growing renewable energy sector, particularly electric vehicles (EV).
- Expansion into New Markets: the company's global presence can be further strengthened by entering new markets.
- Technological Advancements: Embracing advancements in automation, digitalization can enhance efficiency and product offerings.

➤ Threats (T)

- Competition: The electrical automation sector is highly competitive, with established players and new entrants vying for market share.
- Fluctuation in Raw Material Prices: rising costs of raw materials could impact profitability.
- Stringent Regulations: Stricter environmental and safety regulations might necessitate additional investments.
- Economic Downturn: Economic slowdowns could lead to reduced demand from core sectors like industry and marine.

### 1.5.2 External Analysis

External analysis means examining the environment of the industry in which it operates including factors like competitive structure, competitive position, dynamics, and the history of the industry. On a larger scale external analysis also focuses on global, political, social, demographic, and technological analysis. The key purpose of external analysis is to find out the opportunities and threats in an industry in which it belongs or any section that will drive profitability, growth, and volatility of the company.

#### Porter's five forces model

Porter's Five Force model is a strategic framework that assists to identify and analyse five forces that affects a company's profitability in any particular industry. It gives a complete overview of any industry and helps strategists to recognise the most important aspects that can affect their position in the industry. It also aids the strategists to think more widely about the industry structure and discover opportunities that can attract greater investments and affects the company's future growth.

- Threat of new Entrants:

Entering the ship panel markets requires significant expertise, capital investment and regulatory approvals thus making it moderate for new entrants.

The industry panels market is less specialized than the ship panel market, but still requires technical expertise and established relationship with the distributors and contractors thus making it moderate to high.

The EV charger market is relatively new and has lower barriers to entry thus making it high for new entrants.

- Bargaining power of the suppliers.

Key raw materials like copper and steel are subject to price fluctuations. Specialized components for ship panels and EV chargers may have limited suppliers increasing their bargaining power. The suppliers for industry panels are more diversified for giving more bargaining power to the company.

- Bargaining powers of buyers.

Shipyards and other major buyers have some bargaining power due to their large order volume. The EV charger market is still evolving and bargaining power of the buyers is currently fragmented.

- Threat of substitutes

There are few direct substitute for ship panels, as they are essential for the safe and reliable operations of ships. However advances in automation and alternative propulsion systems could indirectly threatened demands for some types of ship panels. Industry panels can be substituted with other types of electrical equipment, such as circuit breaker or fuses. There are several potentials substitute for EV chargers, such as batteries swapping station or home charging kits.

- Competitive Rivalry.

The ship panels market is fragmented, with several established players. Competition is intense on price, product features, and service offerings. The Industry panels market is also fragmented, with many regional and niche player. Competition is less intense than in the ship panels market but price and product differentiations are still important factors. The EV charger market is rapidly growing, and new players are emerging all the time. Competition is intense on price, technology, and charging speed.

## PESTEL Analysis

PESTEL analysis is a commonly used tool in strategic framework to evaluate the business environment in which a firm operates. Traditionally, it was denoted as PEST analysis an acronym for Political, Economic, Social, and Technological. In recent history, the framework was stretched to include Environmental and Legal factors as well. This framework is used by boards and management teams in their strategic planning practices and enterprise risk management planning.

- Political (P)

Government initiative: Indian government's focus on shipbuilding, port development and renewable energy can boost demand for Marine Electricals products.

Political Stability: Political instability in regions where Marine Electricals operate could pose challenges for project execution and business continuity.

- Economic (E)

Economic Growth: A strong economy fosters increased demand for Marine Electricals services, specially in the marine and industrial sectors.

Interest rates and inflation: High interest rates and inflation can increase production costs and reduce customer investment in projects.

Currency Fluctuations: Fluctuations in exchange rates can impact the competitiveness of exports.

- Social (S)

Rising urbanization: increasing demand for electricity and infrastructure requires control panels solutions



**Skilled Workforce Availability:** The availability of skilled engineers and technicians is crucial for Marine Electricals ability to deliver complex projects.

**Focus on Sustainability:** Growing public awareness of environmental issues creates a demand for sustainable solutions, which aligns with Marine Electricals offerings.

**Shifting Customer Preferences:** Evolving customer needs regarding efficiency, automation, and digitalization necessitate continuous product and service innovation.

- Technology (T)

**Advancement in Automation:** Embracing new technologies in automation, communication and digitalization can enhance efficiency and improve product offerings.

**R&D investments:** Investing in research and development is vital for staying ahead of the curve in a rapidly evolving technological landscape.

- Environmental (E)

**Environmental Regulations:** stricter environmental regulations subject to waste disposal, emissions and energy efficiency may call for alterations and an additional investment.

**Focus on sustainable practices:** The company's commitment to sustainable solutions can fascinate environmentally conscious clients and investors.

**Climate Change concern:** A change in climate can disrupt supply chains and necessitate alterations in product design and manufacturing processes.

- Legal (L)

**Labor laws:** Compliance with labor laws as regards to employee safety, working hours and wages is crucial for smooth functioning of the organization.

Data privacy regulation: adhering to data privacy regulations like General Data Protection Regulation is essential when handling customer information.

## **CHAPTER 2 : INVENTORY MANAGEMENT IN MARINE ELECTRICALS (INDIA) LIMITED**

### **2.1 Introduction**

Working capital management (WCM) is regarded as very important in organisations' financial performance, fundamentally, Working capital management (WCM) denotes to the management of current assets and current liabilities (Seth, Chadha, & Sharma, 2020). The components of Working capital include receivables, inventory, payables, and using cash efficiently for day-to-day tasks ( Gill & Biger, 2013). Ensuring liquidity on daily basis in business operations to be assured to meets its commitment is fundamental in managing working capital (Amponsah-Kwatiah, Kofi , & Asiamah, 2020). Managing working capital helps in the functioning of the firms but avoiding efficient management of working capital makes it difficult for the firms to withstand in repetitively fluctuating markets. It is a challenging task for managers to make sure that the business is performing in a well-organised and advantageous manner. There are tendencies for inequality of current assets and current liability which affects firm's growth and profitability. Thus, efficient WCM is documented as one of the vital pieces of financial management practices in all forms of organisation whether small or large in size. The optimization of working capital balances helps decreased working capital requirements, which in turn, escalate firms' free cash flow. Inefficient working capital management policy, induced by poor corporate governance, has a negative effect on shareholders' wealth. Effective corporate governance functions as a check on the management of the firm's resources.

In today's time, the organizations save a large percentage of their total investment in the inventories, every manufacturing company have to maintain inventory to facilitate smooth production and to guard against unpredictable risks. Maintaining inventories involves blocking of companies fund for a certain period. Inventories are stock of components that

make up the product. Inventory is both an asset and a liability (Koumanakos, 2008). Too much inventory requires physical space, generates a financial burden, and increases the probability of damage, spoilage and loss. Further, excessive inventory often compensates for sloppy and inefficient management, poor forecasting, haphazard scheduling, and inadequate attention to process and procedures. On the other hand, too little inventory often interrupts manufacturing operations, and escalates the likelihood of poor customer service.

The techniques of Inventory control are employed by the inventory control organization within the context of one of the fundamental inventory models, viz., fixed order quantity system or fixed order period system. Inventory control techniques symbolize the operational aspect of inventory management and help achieve the objectives of inventory management and control. Numerous techniques of inventory control are in practice and it depends on the convenience of the firm to adopt any of the techniques. What should be stressed, however, is the necessity to consider all items of inventory and all stages, i.e. from the reception from supplier's stage to the stage of their use. One of the most common methods which is widely used for planning and inventory control is ABC analysis. ABC analysis is a business term used to describe an inventory categorization technique often used in materials management. It is also identified as 'Selective Inventory Control.' ' ABC analysis provides a mechanism for identifying items which will have a significant impact on overall inventory cost whilst also providing a mechanism for identifying different categories of stock that will require different management and controls. Generally, the above tactic has been formed fundamentally on the Pareto Principle which is also known as "20-80" law. Regarding the organizations' inventory, this principle will be expressed as follows: In the manufacturing organizations, there are only a few inventories which mostly contribute to the annual consumption cost of the organization's inventory and there are few inventories with a slight contribution to the dollar value of the annual consumption of the inventory system.

## 2.2 Literature review

(Inegbedion, Eze, Asaleye, & Lawal) This study assesses the impact by using traditional inventory control approaches (EOQ, cycle time, reorder level) on a door sales company in Nigeria. According to the study, there is no formal inventory management strategy in place at the company, which results in stock outs and overstocking expenses. Through the application of determined EOQ and reorder levels for every kind of door, the business can drastically reduce its overall inventory expenses. This study advances the field by offering a real-world example of how to optimize inventory costs within an actual organization by utilizing the EOQ model. It highlights how crucial precise data collection and recordkeeping are to the effective application of inventory management.

(Bhattacharyya, Chanu, & Dutta, 14) The methods of inventory management used by different industries are examined in this study. It identifies and highlights popular methods such as EOQ, ABC analysis, and perpetual inventory systems, emphasizing their advantages in terms of efficiency and cost savings. The study delves deeper into the variations in procedures across the manufacturing, retail, and service industries. Retail places more emphasis on reducing stock outs and increasing profit than manufacturing, which places more emphasis on tracking and precision. The service sector makes use of procedures for improved planning and handling of surplus.

(Koumanakos, 2008) This study looks into the connection between Greek manufacturing companies financial performance and lean inventory management. It makes the assumption that greater financial returns follow from lower inventory levels, which signify leaner operations. The study's data-driven findings indicate a negative correlation between return rates and inventory levels, indicating that companies with lower inventory levels have stronger financial results. Robust statistical testing confirms this result even more. But only

in the chemicals industry is the relationship statistically significant, indicating the need for additional research using different models in the food and textile industries.

(BN & YR, 2022) This study looks at the inventory control procedures used by the electrical component company Regency Electrical Private Ltd. it uses a number of ratios, including the current ratio, working capital turnover ratio, inventory turnover ratio, etc., to analyse the financial performance of the business.

The results of the study show that although the working capital and current ratios stayed constant, the debtor and inventory turnover ratios dropped, suggesting that better credit management techniques and inventory optimization may be required. Over the last three years, the company has seen a notable increase in sales and profits overall, but more progress can be made by implementing improved inventory management techniques.

(Hukum & Shrouy, 2019) The use of ABC analysis, a popular inventory management method, inside an organization is the main topic of this study. Inventory items are categorized using ABC analysis according to their annual consumption value (A being the highest, C being the lowest). The study shows that tighter control over A-category items is necessary through data analysis, and it suggests heightened management focus and possibly shorter lead times for these essential materials. The company can optimize inventory management, possibly minimizing waste, cutting holding costs, and guaranteeing effective supply and demand fulfillment, by putting ABC analysis into practice.

(Karthick, Karthikeyan , & Pravin, 2014) In order to maximize inventory control, this study uses ABC analysis, a popular inventory management technique, to a college hostel mess store. Inventory items are categorized using ABC analysis according to their annual consumption value (A being the highest, C being the lowest). The study establishes essential standards for inventory management, stressing the significance of precision in A-category

item ordering. The study shows that by using ABC analysis, the mess stores can ensure effective supply chain management and minimize inventory holding costs by concentrating on stricter control and possibly reducing lead times for critical A-category items.

#### Analysis of an Economic Order Quantity and Reorder Point Inventor

(Gonzalez & González) This study tackles Company XYZ's poor inventory control, which results in stock outs and decreased sales. The study evaluates their current forecasting model and suggests an enhanced one that combines two forecasting techniques with the Economic Order Quantity (EOQ) and Reorder Point (ROP) models. By putting this model in practice, the company can potentially save \$8,300 per quarter by optimizing order quantities, minimizing stock outs, and significantly reducing overall inventory costs by about 61%. The study emphasizes how crucial precise inventory control and forecasting models are to sustaining product availability, boosting sales, and preserving competitiveness in the volatile market of today.

### 2.3 Research Gap

While the company currently categorizes inventory based on material type (cables, hardware, copper, aluminium), it lacks a cost-based classification system like ABC analysis. This research will bridge the gap in cost based inventory classification within the company, integrating reorder point for frequently consumed items and granting some rights to Goa unit for the purchase of raw material from local vendors based on the least price category of the item. This presents a significant opportunity for my project to contribute to improved inventory management practices in this organisation.

### 2.4 Research Objectives

- To categories the inventory of the company into different price group.

- To identify the most cost effective category of inventory to purchase from local vendors.
- To recommend the reorder point for commonly used inventory items.

## 2.5 Research Question

How can categorizing the inventory of the company into distinct price groups and identifying the category of inventory to source from local vendors while establishing optimal reorder point improves the overall inventory management strategy of the company?

## 2.6 Research Methodology

For the purpose of the study, the data is collected from Marine Electricals (India) company. The company uses eFame software for their functioning. The software allows to generate reports on any particular day. The data for my study is been collected with the help of this software. The given raw data is than organized and used for the analysis. In this project I have analyzed the data using ABC technique of inventory management.

## 2.7 Data analysis and interpretation

### 2.7.1 ABC analysis

The ABC analysis helps to categories the items of inventory based on its value. The highest value item s are classified as A category and would be under the tightest control. C category represents relatively least value and would be under simple control. B category falls in between these two categories and require reasonable attention.

Table showing ABC analysis (based on annual consumption cost)

| Category | No of items  | cost of category | percentage |
|----------|--------------|------------------|------------|
| A        | 131          | 604863037.8      | 80%        |
| B        | 409          | 113774822.9      | 15%        |
| C        | 1165         | 37935580.39      | 5%         |
|          | <b>Total</b> | <b>756573441</b> |            |



In the above table ABC analysis is done based on the annual consumption cost required to procure inventory. This is done to know how much fund is blocked and which items contribute most in it and to categories it accordingly as per the funds used. The annual consumption cost of three categories of the inventory is 756573441 out of which 80% of the cost that is 604863037.8 is by “A category” items which is a larger portion followed by “B category” items which forms 15% of the total costs that is 113774822.9 and “C category” comprising of 5% of the total cost which is 37935580.39.

Table showing ABC analysis (based on Unit cost)

| category | No of items  | cost category wise | percentage |
|----------|--------------|--------------------|------------|
| A        | 181          | 3572761            | 80%        |
| B        | 334          | 672938.9           | 15%        |
| C        | 1190         | 224234.1           | 5%         |
|          | <b>Total</b> | <b>4469934</b>     |            |

In this table we can see that items are categorized into 3 categories based on their unit cost. 181 items are categorized as “A category” which forms 80% of the cost these are the costliest items. 334 items are categorized as “B category” which comes up to 15% of the cost, these are the second costliest items and 1990 items are categorized as “C category” which is the largest group contributing to 5% of the cost this is the least costly category.

### 2.7.2 Reorder point

Reorder point is certain point of inventory level at which an order should be placed to restock the inventory. To determine reorder point under certainty, we should know lead time and average usage. Lead time is the time normally taken in replenishing inventory after the order has been placed. Reorder point is basically that inventory level which will be preserved for consumption during the lead time. It is difficult to predict the actual usage or the lead time as there may be fluctuation in demand for material on daily or weekly basis similarly the actual

delivery time may be differ from normal delivery time. For this in order to guard against the stock-out the firm may maintain some minimum or buffer as a cushion against uncertainties.

Thus the formula to determine reorder point when safety stock is maintained is

$$\text{Reorder point} = \text{lead time} * \text{average usage} + \text{safety stock}$$

Table showing reorder points of frequently consumable items

| Code       | Item                                                           | 1 week's Avg. stock | Safety Stock | Lead Time (in weeks) | Reorder Point |
|------------|----------------------------------------------------------------|---------------------|--------------|----------------------|---------------|
| X/SC/30001 | Adhesive Gasket 18 x 3mm One Sided                             | 40                  | 10           | 2                    | 90            |
| X/SC/30002 | Gasket U Type – Black                                          | 5                   | 1            | 2                    | 11            |
| X/EM/00013 | EPDM Neoprene Rubber Gasket 18 x 3 MM                          | 5                   | 1            | 2                    | 11            |
| X/MS/00003 | 3.2mm Sleeve White Colour (100 Mtrs.) in Coils                 | 25                  | 6            | 2                    | 56            |
| X/MS/00004 | 4.2mm Sleeve White Colour (100 Mtrs.)In coils                  | 20                  | 5            | 2                    | 45            |
| X/PM/00040 | Powermat Busbar Insulator M 10 x 40                            | 5                   | 1            | 2                    | 11            |
| X/PM/00003 | Powermat Busbar Insulator M 8 x 40                             | 10                  | 3            | 2                    | 23            |
| X/PM/00002 | Powermat Busbar Insulator M 8 x 30                             | 10                  | 3            | 2                    | 23            |
| X/PM/00006 | Powermat Hexagonal Type Busbar Supports 8 x 35                 | 8                   | 2            | 2                    | 17            |
| X/PM/00001 | Powermat Busbar Insulator M 6 x 30                             | 5                   | 1            | 2                    | 11            |
| X/PM/00004 | Powermat Busbar Insulator M 10 x 50                            | 5                   | 1            | 2                    | 11            |
| X/PM/00047 | Powermat Polyamide Standoff Busbar Insulator M 8 x 30          | 8                   | 2            | 2                    | 17            |
| X/PM/00107 | Powermat Polyamide Standoff Busbar Insulator M 10 X 35         | 8                   | 2            | 2                    | 17            |
| X/PM/00108 | Powermat Busbar Support(Insulator) for 6mm Busbar Black Colour | 75                  | 19           | 2                    | 169           |
| X/PM/00112 | Powermat Polyamide Standoff Busbar Insulator M 10 x 45         | 3                   | 1            | 2                    | 6             |
| X/SC/10008 | PVC Grommet - Closed 2"                                        | 20                  | 5            | 2                    | 45            |

|            |                                                 |       |      |   |       |
|------------|-------------------------------------------------|-------|------|---|-------|
| X/SC/10018 | PVC Grommet - Closure 1 1/2"                    | 20    | 5    | 2 | 45    |
| X/SC/10006 | PVC Grommet - Closure 1"                        | 20    | 5    | 2 | 45    |
| X/SC/20031 | PVC Cable Channel, Type C, 25x60mm.             | 5     | 1    | 2 | 11    |
| X/SC/20032 | PVC Cable Channel, Type C, 40x60mm              | 5     | 1    | 2 | 11    |
| X/SC/20033 | PVC Cable Channel, Type C, 60x60mm              | 3     | 1    | 2 | 6     |
| X/SC/20034 | PVC Cable Channel, Type C, 80x80mm              | 3     | 1    | 2 | 6     |
| X/CD/00001 | Cands-Neutral link rated 15/30A                 | 10    | 3    | 2 | 23    |
| X/CD/00002 | Cands-Neutral link rated 100/125A               | 5     | 1    | 2 | 11    |
| X/CD/00003 | Cands-Neutral link with 63/100A                 | 5     | 1    | 2 | 11    |
| X/EA/01016 | Cable Tie ST-00 White (100mm) in Pkts\          | 750   | 188  | 2 | 1688  |
| X/EA/01017 | Cable Tie ST-0 White (150mm) in Pkts            | 250   | 63   | 2 | 563   |
| X/EA/01018 | Cable Tie ST-06 White                           | 50    | 13   | 2 | 113   |
| X/EA/01023 | U' Clamp Small Size in pkts                     | 38    | 9    | 2 | 84    |
| X/EA/01024 | U' Clamp Big Size in pkts                       | 25    | 6    | 2 | 56    |
| X/PA/00002 | Adhesive Backed 4 Way Ties Mount - Big in pkts  | 8     | 2    | 2 | 17    |
| X/PA/00001 | Adhesive Backed 4 Way Tie Mount (Small) in pkts | 25    | 6    | 2 | 56    |
| X/TI/00001 | 6 Sq.mm Braided Copper                          | 2     | 0    | 2 | 3     |
| X/RC/01026 | S.S. Star Head Screws 3 x 6mm                   | 15000 | 3750 | 2 | 33750 |
| X/RC/01088 | MCB Channel (White)                             | 5     | 1    | 2 | 11    |
| X/MN/00037 | 16MM Grey Colour in Mtrs                        | 5     | 1    | 2 | 11    |
| X/MN/00029 | 20MM Flexbile Pipe Grey Colour in mtrs          | 5     | 1    | 2 | 11    |
| X/MN/00014 | 25 mm Flexible Pipe Grey Colour in mtrs         | 5     | 1    | 2 | 11    |
| X/MN/00013 | 32 mm Flexible Pipe Grey Colour in mtrs         | 3     | 1    | 2 | 6     |
| X/MN/00031 | 40MM Flexible Pipe Grey Colour in mtrs'         | 3     | 1    | 2 | 6     |
| X/SC/010   | Insulator (Qty in Box)(705658)                  | 1000  | 2500 | 2 | 22500 |

|            |                                              |       |      |   |       |
|------------|----------------------------------------------|-------|------|---|-------|
| 02         |                                              | 0     |      |   |       |
| X/SC/01006 | Blokset Aluminium Busbar Support(S1B7345202) | 10000 | 2500 | 2 | 22500 |
|            | 50MM Flexbile Pipe Grey Colour in mtrs       | 2     | 0    | 2 | 3     |
| X/3D/00002 | Pin type Copper Lugs 2.5 Sq.mm               | 5000  | 1250 | 2 | 11250 |
| X/3D/00003 | Pin Type Copper Lugs 4 Sq.mm                 | 5000  | 1250 | 2 | 11250 |
| X/3D/00004 | Pin Type Copper Lugs 6 Sq.mm                 | 5000  | 1250 | 2 | 11250 |
| X/3D/00005 | Pin Type Copper Lugs 10 Sq.mm                | 5000  | 1250 | 2 | 11250 |
| X/3D/00006 | Pin Type Copper Lugs 16 Sq.mm                | 5000  | 1250 | 2 | 11250 |
| X/3D/00014 | Ring Type Copper Lugs 1.5E5                  | 2500  | 625  | 2 | 5625  |
| X/3D/00018 | Ring Type Copper Lugs 2.5E4                  | 7500  | 1875 | 2 | 16875 |
| X/3D/00019 | Ring Type Copper Lugs 2.5E8                  | 2500  | 625  | 2 | 5625  |
| X/3D/00021 | Ring Type Copper Lugs 2.5E5                  | 2500  | 625  | 2 | 5625  |
| X/3D/00022 | Ring Type Copper Lugs 2.5E6                  | 3000  | 750  | 2 | 6750  |
| X/3D/00023 | Ring Type Copper Lugs 4-6E6                  | 2500  | 625  | 2 | 5625  |
| X/3D/00032 | Ring Type Copper Lugs 10E6                   | 5000  | 1250 | 2 | 11250 |
| X/3D/00033 | Ring Type Copper Lugs 10E8                   | 1000  | 250  | 2 | 2250  |
| X/3D/00034 | Ring Type Copper Lugs 16E6                   | 2500  | 625  | 2 | 5625  |
| X/3D/00035 | Ring Type Copper Lugs 16E8                   | 2000  | 500  | 2 | 4500  |
| X/3D/00036 | Ring Type Copper Lugs 16E10                  | 500   | 125  | 2 | 1125  |
| X/3D/00040 | Ring type Copper Lugs 25E8 (Big )            | 1500  | 375  | 2 | 3375  |
| X/3D/00046 | Ring Type Copper Lugs 35E10                  | 1000  | 250  | 2 | 2250  |
| X/3D/00049 | Ring Type Copper Lugs 35E8 (Big Size )       | 750   | 188  | 2 | 1688  |
| X/3D/00053 | Ring Type Copper Lugs 50E8                   | 750   | 188  | 2 | 1688  |
| X/3D/00048 | Ring Type Copper Lugs 35E6                   | 1250  | 313  | 2 | 2813  |
| X/3D/00050 | Ring Type Copper Lugs 35E10(Big Size)        | 500   | 125  | 2 | 1125  |
| X/3D/000   | Ring Type Copper Lugs 50E10                  | 500   | 125  | 2 | 1125  |

|            |                                                                      |           |      |   |       |
|------------|----------------------------------------------------------------------|-----------|------|---|-------|
| 51         |                                                                      |           |      |   |       |
| X/3D/00007 | Pin Type Copper Lugs 25 Sq.mm                                        | 750       | 188  | 2 | 1688  |
| X/3D/00016 | Ring Type Copper Lugs 2.5E10                                         | 1000      | 250  | 2 | 2250  |
| X/3D/00029 | Ring Type Copper Lugs 10E5                                           | 2500      | 625  | 2 | 5625  |
| X/3D/00044 | Ring Type Copper Lugs 25E10                                          | 1500      | 375  | 2 | 3375  |
| X/3D/00097 | Fork Type Copper Lugs without Insulating Sleeve 1.5E3.5              | 5000      | 1250 | 2 | 11250 |
| X/3D/00098 | Fork Type Copper Lugs without Insulating Sleeve 2.5E3.5              | 5000      | 1250 | 2 | 11250 |
| X/3D/00068 | Tubular End Sleeves Lugs 1.5 Sq.mm                                   | 1500<br>0 | 3750 | 2 | 33750 |
| X/3D/00069 | Red Insulated Lug 1Sq. Mm (Tublar)                                   | 4000      | 1000 | 2 | 9000  |
| X/3D/00070 | Black insulated lugs 1.5 sq.mm (Tublar)                              | 1500<br>0 | 3750 | 2 | 33750 |
| X/3D/00079 | 1.5 Sq.mm Black Insulated Tubler twined n Sleeves Lugs (12mm Length) | 1000<br>0 | 2500 | 2 | 22500 |
|            | 1.5 Sq.mm Black Insulated Tubular Twined n Sleeves Lugs(8mm Length)  | 5000      | 1250 | 2 | 11250 |
| X/3D/00080 | Tubular End Sleeves Lugs 2.5 Sq.mm                                   | 1500<br>0 | 3750 | 2 | 33750 |
| X/3D/00091 | 4-12 Sq.mm Tubular Twin End Sleeve with Insulation Sleeve            | 2000      | 500  | 2 | 4500  |
| X/3D/00025 | Ring Type Copper Lugs 4.6E10                                         | 2500      | 625  | 2 | 5625  |
| X/3D/00043 | Ring Type Copper Lugs 25E6                                           | 2500      | 625  | 2 | 5625  |
| X/3D/00129 | Tubular End Sleeves Lugs 2.5 Sq.mm                                   | 1500<br>0 | 3750 | 2 | 33750 |
| X/3D/00008 | Ring Type Copper Lugs 25E8                                           | 250       | 63   | 2 | 563   |
| X/3D/00030 | Ring Type Copper Lugs 25E9                                           | 250       | 63   | 2 | 563   |
| X/3D/00009 | Pin Type Copper Lugs 50                                              | 250       | 63   | 2 | 563   |
|            | Ring Type Copper Lugs 50E12                                          | 250       | 63   | 2 | 563   |
|            | Ring Type Copper Lugs 25E12                                          | 250       | 63   | 2 | 563   |
|            | Ring Type Copper Lugs 35E12                                          | 250       | 63   | 2 | 563   |
| T/CW/00009 | Clip On Type Terminal 6 Sq.mm.                                       | 1000      | 250  | 2 | 2250  |
| T/CW/00010 | Clip On Type Terminal 4 Sq.mm.                                       | 7500      | 1875 | 2 | 16875 |
| T/CW/00102 | End Plate for CTS4UN                                                 | 1000      | 250  | 2 | 2250  |
| T/CW/001   | End Clamp                                                            | 5000      | 1250 | 2 | 11250 |

|            |                                                     |      |      |   |       |
|------------|-----------------------------------------------------|------|------|---|-------|
| 25         |                                                     |      |      |   |       |
| T/CW/00024 | Clip on terminal double decker type                 | 2500 | 625  | 2 | 5625  |
| T/CW/00041 | Stud type terminal 6-35 Sq.mm                       | 750  | 188  | 2 | 1688  |
| T/CW/00103 | End Plate for CTS 6U                                | 500  | 125  | 2 | 1125  |
| T/CW/00126 | Group marker Holder                                 | 7500 | 1875 | 2 | 16875 |
| T/CW/00142 | Permanent 10 way shorting assembly for CTS4UN       | 250  | 63   | 2 | 563   |
| T/CW/00206 | End Plate for 4 sq.mm Double Level Terminal Blocks. | 1500 | 375  | 2 | 3375  |
| T/CW/00208 | 6 mm <sup>2</sup> M4 Stud Slide Link Disconnect TB  | 2500 | 625  | 2 | 5625  |
| T/CW/00209 | End Plate for CBDT4U                                | 1000 | 250  | 2 | 2250  |
| T/CW/00236 | Partition Plate for CBB35/50/CBB70                  | 500  | 125  | 2 | 1125  |
| T/CW/00003 | Clip On Type Terminal 35 Sq.mm.                     | 500  | 125  | 2 | 1125  |
| T/CW/00005 | Clip On Type Terminal 25 Sq.mm.                     | 500  | 125  | 2 | 1125  |
| T/CW/00007 | Clip On Type Terminal 16 Sq.mm.                     | 500  | 125  | 2 | 1125  |
| T/CW/00008 | Clip On Type Terminal 10 Sq.mm.                     | 750  | 188  | 2 | 1688  |
| T/CW/00226 | Stud Type Power Terminal Blocks 50 sq.mm            | 500  | 125  | 2 | 1125  |
| T/CW/00227 | Stud Type Power Terminal Blocks 70 sq.mm            | 500  | 125  | 2 | 1125  |
| T/CW/00228 | Stud Type Power Terminal Blocks 95 sq.mm            | 250  | 63   | 2 | 563   |
| T/CW/00161 | Terminal Marker for CTS4U                           | 100  | 25   | 2 | 225   |
| T/CW/00408 | Clip On Type Terminal 4 Sq.mm Blue Colour           | 500  | 125  | 2 | 1125  |
| T/CW/1008  | Clip On Type Terminal 4 Sq.mm.(RED)                 | 500  | 125  | 2 | 1125  |
| X/IT/00001 | IT Stub Drill Bit 2.5mm                             | 5    | 1    | 2 | 11    |
| X/IT/00004 | IT Stub Drill Bit 3.5mm                             | 5    | 1    | 2 | 11    |
| X/IT/00007 | IT Stub Drill Bit 4.5mm                             | 5    | 1    | 2 | 11    |
| X/IT/00009 | IT Stub Drill Bit 5.5mm                             | 5    | 1    | 2 | 11    |
| X/IT/00011 | IT Stub Drill Bit 6.5mm                             | 5    | 1    | 2 | 11    |

|            |                                                                                                                                                                                                                       |     |     |   |      |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---|------|
| X/IT/00013 | IT Stub Drill Bit 7.5mm                                                                                                                                                                                               | 5   | 1   | 2 | 11   |
| X/IT/00015 | IT Stub Drill Bit 8.5mm                                                                                                                                                                                               | 5   | 1   | 2 | 11   |
| X/IT/00017 | IT Stub Drill Bit 9.5mm                                                                                                                                                                                               | 5   | 1   | 2 | 11   |
| X/IT/00019 | IT Stub Drill Bit 10.5mm                                                                                                                                                                                              | 5   | 1   | 2 | 11   |
| X/IT/00023 | IT Stub Drill Bit 12.5mm                                                                                                                                                                                              | 5   | 1   | 2 | 11   |
| X/IT/00043 | IT HSS Tap Set M3                                                                                                                                                                                                     | 5   | 1   | 2 | 11   |
| X/IT/00044 | IT HSS Tap Set M4                                                                                                                                                                                                     | 5   | 1   | 2 | 11   |
| X/IT/00045 | IT HSS Tap Set M5                                                                                                                                                                                                     | 5   | 1   | 2 | 11   |
| X/IT/00046 | IT HSS Tap Set M6                                                                                                                                                                                                     | 5   | 1   | 2 | 11   |
| X/IT/00054 | IT HSS Tap Set M12                                                                                                                                                                                                    | 5   | 1   | 2 | 11   |
| X/SC/10021 | Double Bit Keylock, I (Without Spring & Small Cam).                                                                                                                                                                   | 500 | 125 | 2 | 1125 |
| X/sc/10022 | Square Keylock, (Without Spring & Small Cam)                                                                                                                                                                          | 250 | 63  | 2 | 563  |
| X/EM/00002 | Double Bit Keylock for D,DC,MF,MS with Special Pawl for Internal Arc                                                                                                                                                  | 500 | 125 | 2 | 1125 |
| X/Em/00003 | Square Keylock for D,DC,MF,MS with Special Pawl for Internal Arc                                                                                                                                                      | 250 | 63  | 2 | 563  |
| X/SC/10023 | Square Bit Door Lock (Metal) – Keys                                                                                                                                                                                   | 500 | 125 | 2 | 1125 |
| X/SC/10024 | Double Bit Door Lock (Metal) – Keys                                                                                                                                                                                   | 500 | 125 | 2 | 1125 |
| X/sc/10039 | DC Panel Lock with Knob                                                                                                                                                                                               | 500 | 125 | 2 | 1125 |
| X/MT/00001 | Locks IP65 Double Bit Insert having Internal Locking arrangement with Marine Logo, with O Ring, Compression Spring, Sealing Washer for IP 65 Rating, Nut, Cam, Locking Screw, Housing & Insert (RHS -Right hand side) | 500 | 125 | 2 | 1125 |

|                |                                                                                                                                                                                                                        |      |     |   |      |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|---|------|
| X/MT/000<br>02 | Locks IP65 Double Bit Insert having Internal Locking arrangement with Marine Logo, with O Ring, Compression Spring, Sealing Washer for IP 65 Rating, Nut, Cam, Locking Screw, Housing & Insert (LHS - Left hand side)  | 500  | 125 | 2 | 1125 |
| X/MT/000<br>03 | Locks IP65 Square Bit Insert having Internal Locking arrangement with Marine Logo, with O Ring, Compression Spring, Sealing Washer for IP 65 Rating, Nut, Cam, Locking Screw, Housing & Insert (RHS - Right hand side) | 500  | 125 | 2 | 1125 |
| X/MT/000<br>04 | Locks IP65 Square Bit Insert having Internal Locking arrangement with Marine Logo, with O Ring, Compression Spring, Sealing Washer for IP 65 Rating, Nut, Cam, Locking Screw, Housing & Insert (LHS - Left hand side)  | 500  | 125 | 2 | 1125 |
| X/DS/000<br>41 | Complete Hinge with Pin for Mw2(HRB8316102)                                                                                                                                                                            | 1000 | 250 | 2 | 2250 |
| X/DS/000<br>42 | Hinge without Pin(HRB8316102)                                                                                                                                                                                          | 1000 | 250 | 2 | 2250 |
| X/DS/000<br>43 | Hinge with Pin(HRB4012102)                                                                                                                                                                                             | 1000 | 250 | 2 | 2250 |
| X/DS/000<br>44 | Hinge without Pin(HRB4009302)                                                                                                                                                                                          | 1000 | 250 | 2 | 2250 |
| X/SB/000<br>02 | Complete Hinges with Pin with olive green passivation (51127582)                                                                                                                                                       | 1000 | 250 | 2 | 2250 |
| X/SB/000<br>03 | Complete Hinge without Pin with Olive Green Passivation (51127730)                                                                                                                                                     | 1000 | 250 | 2 | 2250 |
| X/SB/000<br>01 | Upper / Lower Hinge(51127667) with Pin                                                                                                                                                                                 | 1000 | 250 | 2 | 2250 |
| X/SB/000<br>04 | Hinge body(51127529)                                                                                                                                                                                                   | 1000 | 250 | 2 | 2250 |
| S/SU/000<br>01 | Female Hinge -Mild Steel 2.5 Thk ( Drawing No.ME-HI-1 SHT.31)                                                                                                                                                          | 2500 | 625 | 2 | 5625 |



|                |                                                                    |      |     |   |      |
|----------------|--------------------------------------------------------------------|------|-----|---|------|
| S/SU/000<br>02 | Hinge Bracket - Mild Steel -2.0 Thk<br>(Drawing No.ME-HI-1 SHT.32) | 2500 | 625 | 2 | 5625 |
| S/SU/000<br>06 | Hinge Pin - Mild Steel 2.0 Thk (Drawing<br>No.ME-HI-1 SHT.33)      | 2500 | 625 | 2 | 5625 |
| M/MP/00<br>001 | Hinge-1 Male ME-HI-1 SHT.30                                        | 2500 | 625 | 2 | 5625 |
| X/DS/000<br>30 | Spider (51127592)                                                  | 1000 | 250 | 2 | 2250 |
| X/DS/000<br>06 | M.S.Bush/Spacer 10mm ID Yellow Zinc<br>Plated.                     | 1000 | 250 | 2 | 2250 |

The above table shows varies items that are used on daily basis. These items have to be ordered regularly therefore it is required to known exactly when we need to order these items.

The above table shows the average stock required for a week, lead time that is the time the it takes from the order of the stock till the time it reaches the destination which is 2 weeks. The safety stock that is the stock that is kept for safety against unpredictable risk to prevent from stock out situation and the reorder point at which stock needs to be reorder.

## 2.8 Findings

Under total annual consumption value the ABC analysis shows 80-20 Pareto principal in inventory management with “A” category item comprising of 80% of the total annual consumption value. This highlights the significant financial impacts of this category and necessitates stricter control measures, like more frequent order monitoring or smaller order quantities. “B” category items have less annual consumption value as compared to “A” category contributing to 15% value still there is the need to have appropriate inventory management strategy for this items. “C” category items have lowest annual consumption value that is 5%. These items could have less control but should not be neglected completely.

Under unit cost based of ABC analysis 181 items forms “A” category which contributes to the 80% of the total cost due to their high unit price. This sheds light on the need of the management to and stricter control measures for high cost items. “B” category having 334

items indicates the need for balanced management strategies considering cost and volume. “C” category is the largest group having 1190 items representing to least expensive items on per unit basis. Though their unit price is low they have to be ordered in bulk and need to have some level of management control.

The reorder point table provides a stock level at which stock needs to be reordered in order to maintain optimal inventory level minimizing the risk of stock out. For this, factors like average weekly usage, lead time and safety stocks are taken into consideration.

## **2.9 Suggestions**

The ABC analysis along with the unit cost analysis provides a comprehensive understanding of inventory composition and cost divers. “A” category of items need to be prioritized as they involve highest cost. There should be strict control measures for this category, this can include ordering frequently in small volume as they need to be ordered only when it needed. “B” category requires less control compared to “A” category items. These items shouldn’t be neglected completely as they add up to the cost when it comes to their volume and cost. The management should see that there is a balance between volume and cost. “C” category items are least expensive; the company can purchase these items from local vendors. This will reduce their lead time and the items can be cheaper as compared to when ordered from Mumbai as the delivery charges would be less. The reorder point analysis can be used to determine the level at which the order should be placed for frequently used items.

## **2.10 Conclusion**

This project provides insightful information for inventory control management in the company as ABC analysis based on both annual consumption value and unit cost. The 80/15/5 Pareto principle observed in ABC analysis highlights the important financial impact of A- category items demanding strict control. B- category items though less impacts still

require appropriate management strategies. C- category items have lower cost but still should not be neglected entirely. The reorder point table calculated for frequently used consumable items provide information for maintaining optimum inventory level and minimizing stock outs.

By effectively utilizing ABC analysis along with unit cost and reorder point calculation, can achieve significant cost savings and improved operational efficiency in the inventory management system of the organization.

### **CHAPTER 3 : TASK HANDLED AND LEARNING'S**

Invoice booking: here the invoices that are received against material purchase needs to be booked in the system. This gave me idea of the things that need attention like rate, voucher date, purchase category that is interstate or intrastate which helps in calculation of GST on items, their GST number which is state wise. In case of new vendor we have to feed in their details like license, pncard or adhar card. Incase if the vendor is MSME than MSME certificate.

Ledger reconciliation: here the vendors send their ledgers before the payment date which is cross checked with the ledger of the company. This helps in knowing whether the company has taken into account all the invoices or not. This also helped me in knowing how to take follow up if there is any discrepancy in the ledger.

Bookkeeping: in this I was given the responsibility of keeping the invoices in proper files and maintaining proper track record of which invoice is submitted on which day in the office after doing the goods receipt note. And to see that all the invoices received are original copy and duly signed by the vendors.

Maintaining record of vehicle like the time it left from the company with the product and the time at which it reaches the destination, the size of the vehicle, vehicle number, basic charges, additional charges if any. This details are available on the

## **CHAPTER 4 : Challenges faced**

As the managers and assistant managers were busy with their work load they were not able to explain me in detail about their work.

There was no vacant PC in the office because of which I was not able to do things like invoice booking and other things. It was possible to me only when any person of accounts department was on leave.

Data collection for my project was really challenging as the company was reluctant to give financial related data of the company.

As the corporate office of the company is in Mumbai I was not able learn about the major activities like preparing the financial statements of the company and other major decision.

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## Companies brochures

## Appendix

