

A STUDY ON MATERIAL HANDLING ANALYSIS IN AMITY EXPORTS

Submitted in partial fulfillment of the requirements for the award of Degree in

MASTER OF BUSINESS ADMINISTRATION

by

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**DEPARTMENT OF BUSINESS ADMINISTRATION
SCHOOL OF MANAGEMENT STUDIES**

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

**Accredited with Grade "A" by NAAC | 12B Status by UGC | Approved by AICTE
JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI - 600 119**

MAY 2023



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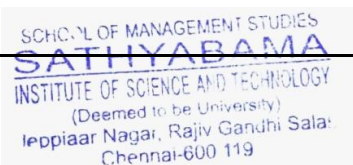
This is to certify that this Project Report is the bonafide work of **HARISH.R 41410117** who carried out the project entitled "**A STUDY ON MATERIAL HANDLING ANALYSIS IN AMITY EXPORTS**" under my supervision from January 2023 to May 2023.

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DECLARATION

I **HARISH.R (41410117)** hereby declare that the Project Report entitled “**A STUDY ON MATERIAL HANDLING ANALYSIS IN AMITY EXPORTS**” done by me under the guidance of **Dr. J. RANI., MBA., M.Phil., Ph.D.**, is submitted in partial fulfillment of the requirements for the award of Master of Business Administration degree.

DATE: 05/05/2023

PLACE: Chennai

A rectangular box containing a handwritten signature in black ink, which appears to read 'Harish R.'.

HARISH.R

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ABSTRACT

Material handling is an essential aspect of supply chain management and involves the movement, storage, and control of materials and products throughout the manufacturing, warehousing, distribution, and transportation process. Various technologies and equipment are used in material handling, including conveyors, cranes, forklifts, automated storage and retrieval system. In the context of a leather bag production company, efficient material can help reduce costs, increase productivity, and improve quality. Proper handling of leather, hardware, and other raw materials can prevent damage and ensure high-quality finished products. Various technologies and equipment are used in material handling, including conveyors, cranes, forklifts, automated storage and retrieval system. Effective material handling can also help optimize storage and transportation, reducing waiting times and improving delivery times to customers. Proper material handling techniques can improve workplace safety and reduce worker compensation costs. By studying and implementing efficient material handling practices, leather bag production companies can improve their operations, increase customer satisfaction, and gain a competitive advantage in the market. In this survey, we used a quantitative survey method using a Google Forms survey from the target individuals with a sample of 130 respondents .

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CHAPTER 1 – INTRODUCTION

1.1. INTRODUCTION:

Materials handling, the movement of raw goods from their native site to the point of use in manufacturing, their subsequent manipulation in production processes, and the transfer of finished products from factories and their distribution to users or sales outlets.

It uses a wide range of manual, semi-automated, and automated equipment and includes consideration of the protection, storage, and control of materials throughout their manufacturing, warehousing, distribution, consumption, and disposal. Material handling can be used to create time and place utility through the handling, storage, and control of waste, as distinct from manufacturing, which creates form utility by changing the shape, form, and makeup of material.

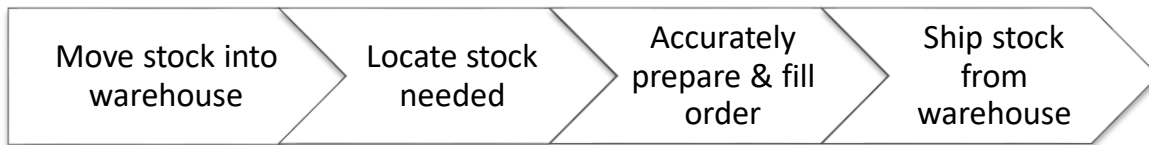
What is Material handling?

Material handling, often called material movement, is the short-range movement of materials from manufacturing all the way to distribution. The goods may go through a system of transportation, then storage, and then distribution. Material handling happens in the shipping and delivery stages throughout the supply chain, packaging and moving goods in pallets and other units.

Material handling is much more than the handling of inventory. It's the movement, protection, storage and control of materials and products throughout their lifespan of manufacturing, warehousing, distribution, consumption, and disposal.

Efficiency is the name of the game when structuring your material handling system. Efficient logistics are a necessity when reacting to and planning for customer and warehouse requirements. Because inbound inventory's material handling processes are just important as out bound's processes.

General material handling inventory flow



Time: how long products live in storage, receipt of inventory-to-shipment time frame

Quantity: how much product can be storage in the allotted space

Space: how much space is allotted or available

Material handling improves efficiency by making the logistics system respond quickly and effectively to plant and customer requirements. For efficient movement of goods into the warehouse, locating stock, accurately filling orders, and rapidly preparing orders for shipment to customers. Material handling is a systematic and scientific method of moving, packing and storing of material in appropriate and suitable location.

The main objectives of material handling are as follows:

- It should be able determine appropriate distance to be covered.
- Facilitate the reduction in material damage as to improve quality.
- Reducing overall manufacturing time by designing efficient material movement
- Improve material flow control
- Creation and encouragement of safe and hazard-free work condition
- Improve productivity and efficiency
- Better utilization of time and equipment

The importance of material handling

Materials need to be handled carefully at every step of the supply chain to make sure they arrive at their destinations intact. A material handling system should be put in place to optimize the movement of goods and materials around manufacturing and storage facilities.

Principles of Material Handling

Orientation Principle: It encourages study of all available system relationships before moving towards preliminary planning. The study includes looking at existing methods, problems, etc.

Planning Principle: It establishes a plan which includes basic requirements, desirable alternates and planning for contingency.

Systems Principle: It integrates handling and storage activities, which is cost effective into integrated system design.

Unit Load Principle: Handle product in a unit load as large as possible.

Space Utilization Principle: Encourage effective utilization of all the space available.

Standardization Principle: It encourages standardization of handling methods and equipment.

Ergonomic Principle: It recognizes human capabilities and limitation by design effective handling equipment.

Material handling equipment

Transportation

Material handling often involves moving very large, heavy and/or bulky items. With modern technology, there is a variety of equipment that can be used to facilitate the task and reduce the loads that material handlers need to move manually.

Storage

Pallet racks are shelves that are designed to increase storage space while keeping pallets accessible to forklifts and other equipment. They can be used to make the most of vertical space and liberate floor space.

Protection

Industrial packaging plays an essential part in protecting items during transportation and storage. Particularly fragile products may need cushioning and shock absorption storage. Particularly fragile products may need cushioning and shock absorption systems to keep them intact throughout the supply chain. Medical and pharmaceutical equipment and products often require temperature control.

1.2 INDUSTRY PROFILE:

The Leather industry, Leather Products, and Footwear Industry of India hold a prominent place in the Indian economy. This industry is among the top ten foreign exchange earners for the nation and is renowned for its constancy in producing significant export revenues. Read here to know more about the leather industry.

The Leather industry in India accounts for around 13% of the world's leather production of hides/skins and handles a robust annual production of about 3 bn sq. ft. of leather. India is the second-largest exporter of leather garments, third-largest exporter of Saddlery & Harnesses, and 4th largest exporter of Leather Goods in the world. The export of footwear, leather and leather products from India was to the tune of US \$ 3.68 billion during 2020-21.

The industry is bestowed with an affluence of raw materials as India is endowed with 20% of the world's cattle & buffalo and 11% of the world's goat & sheep population. Added to this are the strengths of skilled manpower, innovative technology, increasing industry compliance with international environmental standards, and the dedicated support of the allied industries.

Leather industry in India

The leather industry is an employment-intensive sector, providing jobs to about 4.42 million people, mostly from the weaker sections of society. Women's employment is predominant in the leather products sector with about 30% share.

India main leather sectors

Tanning

Footwear

Leather Garments

Leather garments and Accessories

The country accounts for 13% of the world's total leather production. It is also the second-largest producer and consumer of leather footwear.

India is the second-largest exporter of leather garments, the third-largest exporter of saddlery & harnesses, and the fourth-largest exporter of leather goods in the world. The garments sector accounted for 7.03% of the country's total leather export in 2021-22. Out of the total leather and leather products exported out of India, the footwear segment accounts for the majority of exports India exports leather to more than 50 countries. USA, Germany, the UK, Italy, France, Spain, Netherlands, China, Belgium, UAE, Australia, Poland, Hong Kong, Denmark, Canada, Vietnam, and Portugal are among the top importers of leather and leather products from India. The USA is the largest importer of leather and leather products from India.

Council for Leather Exports (CLE)

Formed in 1984, the [CLE](#) is the largest and apex body for trade promotion of the leather and leather industry of India. The objectives of the council are to develop and strengthen the leather industry, undertake promotion and market development activities, assist importers, provide guidance and act as a liaison between the government and industry.

India as Footwear hub

The country accounts for 9% of the world's footwear production and is the second largest footwear producer and consumer in the world. India is the Second largest footwear producer after China, with Annual Production of 2.58 billion pairs (2018). India is also the second largest consumer of footwear after China, with a consumption of 2.60 billion pairs. For every 1,000 pairs produced and sold in India per day, the sector has the potential to create 425 jobs spanning manufacturing, allied industries, and retail. In terms of volume, India is expected to produce almost 3 bn units by 2024 growing at more than 10% annually.

Strengths of the Indian leather industry

- Own raw material source – About 3 billion sq ft of leather are produced annually
- Some varieties of goat/calf/sheep skins command premium position
- Strong and eco-sustainable tanning base
- Modernized manufacturing units
- Trained / skilled manpower at competitive wage levels
- World-class institutional support for Design & Product Development, HRD, and R & D.
- Presence of support industries like leather chemicals and finishing auxiliaries
- Presence in major markets – Long Europe experience
- Strategic location in the Asian landmass
- Government initiatives for the leather industry
- Indian Footwear and Leather Development Programme (IFLDP)

India leather industry – Overview, Export performance & Prospects

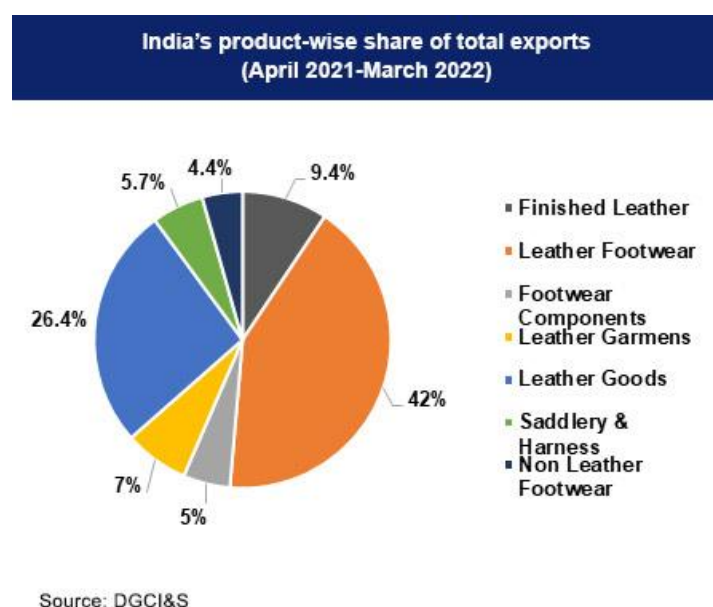
The Indian Leather, Leather Products and Footwear Industry holds a prominent place in the Indian economy. This sector is known for its consistency in high export earnings and

it is among the top ten foreign exchange earners for the Country. The export of footwear, leather and leather products from India was to the tune of US \$ 3.68 billion during 2020-21. The industry is bestowed with an affluence of raw materials as India is endowed with 20% of world cattle & buffalo and 11% of world goat & sheep population. Added to this are the strengths of skilled manpower, innovative technology, increasing industry compliance to international environmental standards, and the dedicated support of the allied industries.

The leather industry is an employment intensive sector, providing job to about 4.42 million people, mostly from the weaker sections of the society. Women employment is predominant in leather products sector with about 30% share. India is the second largest exporter of leather garments, third largest exporter of Saddlery & Harness and 4th largest exporter of Leather Goods in the world.

Footwear Industry

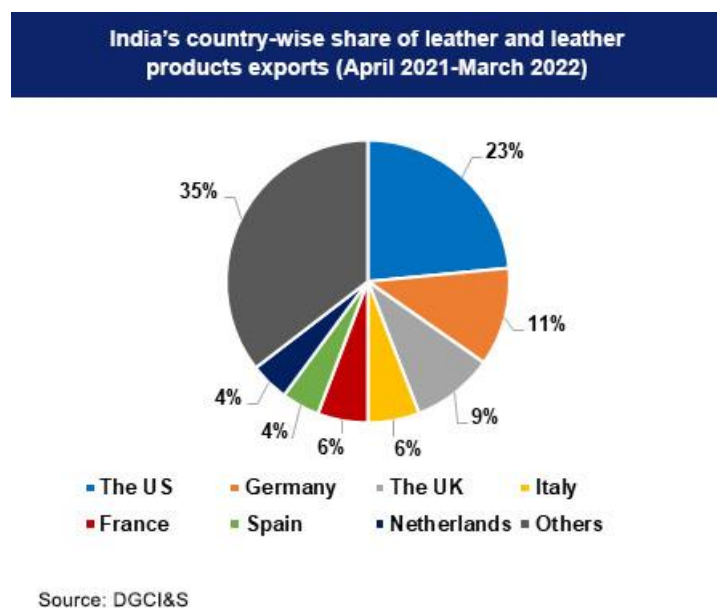
Tanning Sector – Annual availability of leathers in India is about 3 billion sq.ft. India accounts for 13% of world leather production of leathers. Indian leather trends/colors are continuously being selected at the MODEUROPE Congress. Footwear Sector – India is Second largest footwear producer after China, with Annual Production of 2.58 billion pairs (2018). India is also the second largest consumer of footwear after China, with a consumption of 2.60 billion pairs. Footwear (leather and non-leather) export accounts for about 45.62% share in Indian leather and footwear industry's export (2020-21).



Export destinations

India exports leather to more than 50 countries. USA, Germany, the UK, Italy, France, Spain, Netherlands, China, Belgium, UAE, Australia, Poland, Hong Kong, Denmark, Canada, Vietnam and Portugal are among the top importers of leather and leather products from India. The top 15 countries account for about 79.57% of the total exports. USA is the largest importer of leather and leather products from India and accounted for 25.19% of the country's total leather exports during April-August 2022. Germany and the UK accounted for 10.86% and 9.71% of the exports during the same period.

During April-August 2022, the total export of leather products to USA was valued at US\$ 598.8 million, an increase of 51.35% YoY. During the same period, Germany and the UK imported leather and leather products worth US\$ 258.12 million and US\$ 230.75 million from India, respectively. Italy, France and Netherlands together accounted for 49.32% of total leather exports from India, with their import values at US\$ 161.53 million, US\$ 115.57 million and US\$ 101.62 million.



Government initiatives

Indian Footwear and Leather Development Programme (IFLDP). The IFLDP scheme was launched to develop the infrastructure, increase production, facilitate investments and generate employment in the leather industry of India. Under this scheme, Rs. 1,700 crore

(US\$ 220 million) has been allocated till 2026. Following are the six sub-schemes under IFLDP.

Sustainable Technology and Environmental Protection (STEP) - The STEP initiative is aimed at sustainable and environment-friendly industrial and tanning activities which are particularly linked to environmental concerns. Considering these issues, zero liquid and wastewater discharge is made mandatory in some states. Assistance for the upgradation of Common Effluent Treatment Plants (CETPs) and vision document preparation is provided under the scheme.

Integrated Development of Leather Sector (IDLS) - The main objective of this scheme is to encourage entrepreneurs to diversify and set up new units leading to better productivity.

Establishment of Institutional Facilities - The scheme aims to provide infrastructure upgradation of campuses of Footwear Design and Development Institute (FDDI).

Mega Leather Footwear and Accessories Cluster Development (MLFACD) - The scheme is launched to assist entrepreneurs by providing modern infrastructure, technology, training and skill development and human resource development inputs.

Brand Promotion of Indian Brands in Leather – The scheme aims to provide Indian footwear and leather manufacturers international branding support to provide better product visibility.

Footwear Sector and Development of Design Studios – This scheme will provide design support, technical assistance and opportunities for employment and business.



1.3 COMPANY PROFILE:

We “Amity Exports” are acknowledged organization, are a Partnership based firm, engaged as manufacturer and exporter of Ladies Bag, File Folder, Jewellery Case, Ladies Wallet, Laptop Bag, Office Bag and many more. It was established in the year 2007 at Chennai, Tamil Nadu. These products are known for their most excellent quality and remarkable finishing at the reasonable price in the stimulate time period. We are exporting our 70% products to USA, UK, France, Denmark and Canada.

Basic information

Nature of Business	Exporter and Manufacturer
Additional Business	Exporter
Total Number of Employees	101 to 600 People
Year of establishment	2007
Legal status of firm	Partnership firm
Import export code	04080*****
GST No	33AARFA0256F1ZQ

Our key strength

- Experienced team of professionals
- Client-centric approach
- Competitive cost structure
- Opportune delivery

Our Infrastructure

Our firm is positioned with an advanced and modern infrastructural base, backed with all facilities that are mandatory to take out amazing business operations. Further, our infrastructure is installed with most modern machines and equipment's, with the help of which we meet our production targets and make confident to make opportune delivery of products. We regularly improve our machinery to increase their level of presentation and production aptitude. Besides, our infrastructure consists of several departments like production, quality control, research and development and many others.

Amity Exports in Mugalivakkam, Chennai

Amity Exports in Mugalivakkam, Chennai is known to satisfactorily cater to the demands of its customer base. It stands located at No 1/16, Mugalivakkam Main Road, Mugalivakkam-600125. It has earned stamps like Jd Verified substantiating the credentials of the business. The business strives to make for a positive experience through its offerings.

Customer centricity is at the core of Amity Exports in Mugalivakkam, Chennai and it is this belief that has led the business to build long-term relationships. Ensuring a positive customer experience, making available goods and/or services that are of top-notch quality is given prime importance. It is one of the players in Laptop Bags, Messenger Bags, Travel Bags, Shoulder Bag, Passport Holder to name a few.

India's leading B2B market place, Jd Mart ensures engaging in business activities is a seamless process for small and medium enterprises as well as large businesses. In a wake to enable these businesses to reach their audience, this portal lets them showcase their offerings in terms of the products and/or services through a digital catalogue. This business has a wide range of product offerings and the product/catalogue list includes Bag for Office Purpose, Unisex Travel Bags, Laptop Bag, Leather Bag for Office, Leather Messenger Bag etc.



Amity Exports creating an undisputed space for small and medium enterprises (SMEs) online, Justdial is India's leading online B2B market place, seamlessly connecting buyers to dealers and suppliers. Simplifying the entire process of business, Justdial presents SMEs, large enterprises as well as individuals an unparalleled platform to showcase their products and services. In today's digital day and age, Justdial enables businesses with B2B marketing, B2B lead generation, promoting and selling B2B products and services and thereby reaching larger audiences. Among the most crucial B2B marketing strategies today is to go digital and that's exactly what the company does. Be it for manufacturers, dealers, suppliers, vendors, wholesalers, etc. the processes are convenient and beneficial for one and all in the B2B market space.

Benefits for dealers and suppliers

- Amplify business visibility
- Improve the reach of your business
- Enhance your brand value
- Generate brand credibility

Product profile



LADIES BAG



FILE FOLDER



TRAVEL BAG



WASH KIT BAG



LAPTOP BAG



SCHOOL BAG



BACKBAG



FRONT POCKET PORTFOLIO

1.4 STATEMENT OF THE PROBLEM:

Management handling has great problems for many years to most firms in Logistics project. This paper work is based on improving current Materials handling through identifying common factors for building Logistics. Having the accurate materials and time is an essential aspect for the accomplishment of logistics project main difficulties in delaying improper materials and equipment management. In this study factors affecting effective Materials handling and inventory management were listed in accordance with the most affecting factors.

1.5 OBJECTIVES OF THE STUDY:

This project is designed mainly to identify and evaluate the material handling.

1.5.1 Primary objective:

1. The study on material handling analysis in amity exports

1.5.2 Secondary objective:

1. To study material handling system that can help to reduce cost and delays on site
2. A study using the factors that can lead to production shortages
3. To understand the company source for materials from suppliers.
4. To know the materials are properly purchased, stored and used in this firm
5. To understand the problems of material handling analysis in this firm
6. To study the reason for delay service in this firm.

1.6 NEED FOR THE STUDY:

- Efficient material handling can help reduce delays, errors, and bottlenecks in the production process, improving overall efficiency and reducing costs.
- Material handling involves the movement of heavy and bulky items, and accidents can be a serious risk. Studying material handling practices, companies can identify potential hazards and take steps to minimize the risk of injury.

- Efficient material handling can help minimize delays and downtime in the production process, leading to increased productivity and faster turnaround times.
- Proper material handling techniques can help ensure that materials are handled with care, minimizing the risk of damage or defects that could impact production quality.
- Effective material handling can help companies make the most of their resources, reducing waste and minimizing costs.
- Improved productivity and quality control can help companies meet customer demand and maintain a positive reputation in the market.

1.7 SCOPE & SIGNIFICANCE OF THE STUDY:

Efficient management of materials can result in substantial savings in project costs. If materials are purchased too early, capital may be held up and interest charges incurred on the excess inventory of materials. Materials may deteriorate during storage or get stolen unless special care is taken. Delays and extras expenses may be incurred if materials required for particular activities are unavailable. Ensuring a timely flow of materials is an important concern of Materials handling. For effectively managing and controlling materials, the performance of Materials handling should be measured. A performance measure calculates the effective working of a function in this firm.

CHAPTER 2 – REVIEW OF LITERATURE

2.1. REVIEW OF LITERATURE:

NannLwinPhu et.al., (2022): In this study, Logistics Materials handling can be viewed as three categories which are measures for effective Materials handling in building sites, factors that increase waste in building sites and problems related with Materials handling. The data are analyzed by the use of inferential statistics; including Relative Importance Index (RII) and the perceptions of project engineers, site engineers and contractors are tested to determine whether there is a significant degree of agreement among respondents. Based on the findings of agreement analysis, it is found that the perceptions of three respondents (project engineers, site engineers and contractors) are identical in all three cases; measures for effective Materials handling, factors increasing waste in building Logistics projects and problems related with Materials handling.

Carlos H. Caldas et.al., (2022): Materials handling is a critical component of the Logistics industry. As such, organizations need to understand the effects of proper Materials handling techniques on the effectiveness of project execution. It describes a study in which the purpose was to identify Materials handling techniques that reflect current and emerging practices in the capital projects industry. Over the years, Materials handling has become a critical component of successful project execution. It has earned strategic value, and organizations have become conscious of the many benefits that effective Materials handling practices can drive, including reduced costs, higher productivity, warranted quality, increased reliability, and added value. This extensive data collection effort allowed the identification of modern and effective Materials handling practices, as well as emerging trends and concerns for the industry. The study clearly showed a dramatic increase in the maturity, formality, and systematization of the approach to Materials handling by Logistics organizations.

T. Phani Madhavi et.al., (2021): In this study is to understand about all the problems occurring in the company because of improper application of Materials handling. Material is the main component in Logistics project. Therefore, if the Materials handling is not

properly managed it will create a project cost variance. Project cost can be controlled by taking corrective actions towards the cost variance. Therefore a methodology is used to diagnose and evaluate the procurement process involved in Materials handling and launch a continuous improvement was developed and applied. The experimental analysis consists of theories and practical consideration of the concepts. Therefore, the present work was classified as Analysis of site and management, Analysis on Inventory controlling, Analysis on purchasing procedures, Analysis on Procurement and Tracking, Analysis on costs.

P.Lenin et.al.,(2021): This paper aims to fill a void created by the absence of proper Materials handling on Logistics sites. The materials on a project can represent anything from 50% to 60% of the cost of the work, so minimizing procurement costs improves opportunities for reducing the overall project costs. Poor Materials handling can result in increased costs during Logistics. The objective of the study is to identify the variables influencing material procurement and inventory which affects the logistics time and causes cost overruns. The questionnaire was developed to identify the significance impact level of the factors that causes cost overruns in building Logistics projects from the specialist and experts in the logistics industry. Based on the analysis, identifying variables influencing Logistics time and cost overruns shows that, design issues, client issues, contract or issues, site issues, labour and equipment issues, store issues, external issues, market condition issues are responsible for cost overrun of building Logistics projects are described.

Jacklyne Bosibori Otundo et.al., (2020): Materials handling remains a significant challenge for county governments in relation to timely provision of high quality service to the public; forums have been organized across counties with the intention to foster an exchange of ideas around various issues including specialty products, new technologies, and reducing supplier risk from supply chain inadequacies and management of inventories. The purpose of this study was to evaluate the effects of inventory management practices on the operational performance of counties with particular interest of operations in, Kenya.

Pauline JerutoKeitany et.al., (2020): Materials handling is a tool to optimize performance in meeting customer service requirements at the same time adding to profitability by minimizing costs and making the best use of available resources. The basic objective is to ensure that the right item is bought and made available to the manufacturing operations at the right time, at the right place and at the lowest possible cost. The study established that there was a positive and significant relationship between inventory control system and lead time on organizational performance. This implies that through inventory control systems and lead time in Materials handling, an organization can achieve the benefits of effective use of labour, providing system flexibility, increasing productivity, decreasing lead times, reduction in wastes, reduction in production costs, increased product quality are achieved.

Hemishkumar Patel et.al., (2019): Logistics materials usually constitute a major portion 50-60% of the total cost in a building Logistics project. Materials handling is made problematic by materials shortages, delays in supply, price fluctuations, damage and wastage, and lack of storage space. To manage a productive and cost efficient site efficient Materials handling is very essential. Inventory management system involves procurement, storage, identification, retrieval, transport and Logistics methods. A questionnaire based survey was used to judge the attitude of Contractors, Project Engineers, Store In charge and Site Supervisors towards factors affecting Materials handling of Logistics firms in the Gujarat region.

P.Ezhilmathi et.al., (2019): In this study Materials handling plays a vital role in the Logistics field. Whether it is a small firm or large firm the Materials handling should be done. The effective Materials handling plan enhances an institutional master plan by filling in the gaps and generating an environmentally liable and resourceful outcome. Materials handling can deal with planning and building design for the movement of materials, the acquisition of spare parts and replacements, quality control in purchasing and ordering parts, and the standards involved in ordering, shipping, and ware housing the required materials.

Said et.al. (2018): explained that Material procurement and storage on Logistics sites need to be properly planned and executed to avoid the negative impacts of material shortage or excessive material inventory on-site. States that the effective implementation of LCM in Logistics projects relies strongly on a visual communication and collaboration information platform) as information sharing is the key to implementing LCM an effective information platform is needed to gather project information

Fan (2018): States that scheduling delay is a common worldwide phenomenon in Logistics projects Its found that scheduling delays occurred in 70%, 40% and 50% of government contracted Logistics projects in the United Kingdom, India and United Arab Emirates (UAE) respectively. It has commented the research focused on engineering projects, typically complex and large in size since they are through likely to offer more comprehensive coverage and evidence of project management practices that can be transferred to smaller projects.

Heon (2017): has stated Logistics scheduling techniques often generate schedules that cause undesirable fluctuations in resource utilization levels and unintended peak resource demands that exceed availability limits. On the other hand, resource allocation or resource constrained scheduling models are designed to resolve resource conflicts by rescheduling project activities while minimizing the extension in project duration.

Orabi, et. al (2017): states that the main purpose of this model is to allocate limited logistics resources to competing recovery projects in order to generate a recovery schedule for the damaged civil infrastructure system. states that Worldwide, cost and time overruns on highway projects are critical issues that adversely affect project delivery and public relations, and disrupts highway programs to overlapping activities is management of the information transfer between activities.

Ibbs (2016): expressed that project delays caused damages to direct and indirect cost. Most of the previous research is based on Logistics projects in developed countries. In recent years, the Indian Logistics industry has witnessed the arrival of impending projects

related to infrastructure development, airport expansion, metro rail, and power sector states that field overhead damages require proper estimation, even though it is less complicated than home, office overhead charges.

Mohammed Al-Khaliletal., (2015): A measurement of the effectiveness of the Materials handling process is needed in order to analyse problems, suggest solutions, and assess the impact of modifications to the process. Such measurement is also required for any benchmarking effort. Research was conducted to apply a set of key effectiveness measures on on-going industrial projects. In this study there are two objectives, the first was to measure the effectiveness of Materials handling processes in Logistics projects. And the other is a secondary objective to establish benchmarks for Materials handling processes from the results of the projects under study. The data were collected after obtaining approval of owners and contractors and with the cooperation of project managers.

CHAPTER 3 – RESEARCH METHODOLOGY

3.1. METHODOLOGY:

Research methodology is mainly needed for the purpose of framing the research process and the designs and tools that are to be used for the project purpose. Research methodology helps to find the impact of material handling and process.

3.2. SAMPLING TECHNIQUE:

Convenience sampling method

A convenience sample is one of the main types of non-probability sampling methods. A convenience sample is made up of people who are easy to reach.

3.3. SOURCES OF DATA:

Data collection is the term used to describe a process of preparing and collecting data.

1. Primary data:

Primary data was collected through questionnaire. A questionnaire distributed to 130 people.

2. Secondary data:

Secondary data has been collected from websites and online journals, company records, published reports & review of literature from published articles.

3.4. STRUCTURE OF QUESTIONNAIRE:

Questionnaire was divided into two sections. First part was designed to know the general information about respondents and second part contains some questions to know about material handling and process.

3.5. SAMPLE SIZE:

Number of the sampling size selected from population is called the size of the sample. Sample of 130 response were obtained from the population.

3.6. PERIOD OF STUDY:

The study was conducted from the month of February 2023 to the month of April 2023 which was a period of 3 months.

3.7. LOCATION & TARGETED PEOPLE OF STUDY:

The location where the study was conducted in Mugalivakkam and the targeted people of study is workers or people related to Amity exports.

3.8. HYPOTHESIS:

- There is no significant relationship between the age of the respondents and satisfied with the interior design and electrical work in this firm.
- There is no significant relationship between the Income per month and facility of security features in this firm.

3.9. TOOLS FOR ANALYSIS:

- Percentage analysis
- Chi-square analysis
- Correlation analysis

3.9.1. Percentage analysis

Research questions are always answered with a descriptive statistic: generally, either percentage or mean. Percentage is appropriate when it is important to know how many of the participants gave a particular answer. Generally, percentage is reported when the responses have discrete categories.

$$\text{Percentage of respondents} = \frac{\text{No. of respondents}}{\text{Total No. of respondents}} \times 100$$

3.9.2. Chi-Square analysis

A chi-squared test (symbolically represented as χ^2) is basically a data analysis on the basis of observations of a random set of variables. Usually, it is a comparison of two statistical data sets. This test was introduced by Karl Pearson in 1900 for categorical data analysis and distribution. So, it was mentioned as Pearson's chi-squared test.

The chi-square test is used to estimate how likely the observations that are made would be, by considering the assumption of the null hypothesis as true. A hypothesis is a consideration that a given condition or statement might be true, which we can test afterwards. Chi-squared tests are usually created from a sum of squared falsities or errors over the sample variance.

Formula

The chi-squared test is done to check if there is any difference between the observed value and expected value. The formula for chi-square can be written as;

$$\chi^2 = \sum (O_i - E_i)^2 / E_i$$

where O_i is the observed value and E_i is the expected value.

3.9.3. Correlation analysis

Correlation Analysis is statistical method that is used to discover if there is a relationship between two variables/datasets, and how strong that relationship may be.

Correlation Coefficients

There are usually three different ways of ranking statistical correlation according to Spearman, Kendall, and Pearson. Each coefficient will represent the end result as 'r'. Kendall's Rank and Pearson's Coefficient are the two most widely used analytical formulae depending on the types of data researchers have to hand:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}$$

Here,

r = correlation coefficient

n = Number of values or elements

$\sum x$ = Sum of 1st values list

$\sum y$ = Sum of 2nd values list

$\sum xy$ = Sum of the product of 1st and 2nd values

$\sum x^2$ = Sum of squares of 1st values

$\sum y^2$ = Sum of squares of 2nd values

CHAPTER 4 – DATA ANALYSIS AND INTERPRETATION

4.1. PERCENTAGE ANALYSIS

Table 4.1.1: Gender of the respondents

S.NO	GENDER	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Male	91	70.0
2	Female	39	30.0
	Total	130	100.0

Sources: Primary Data

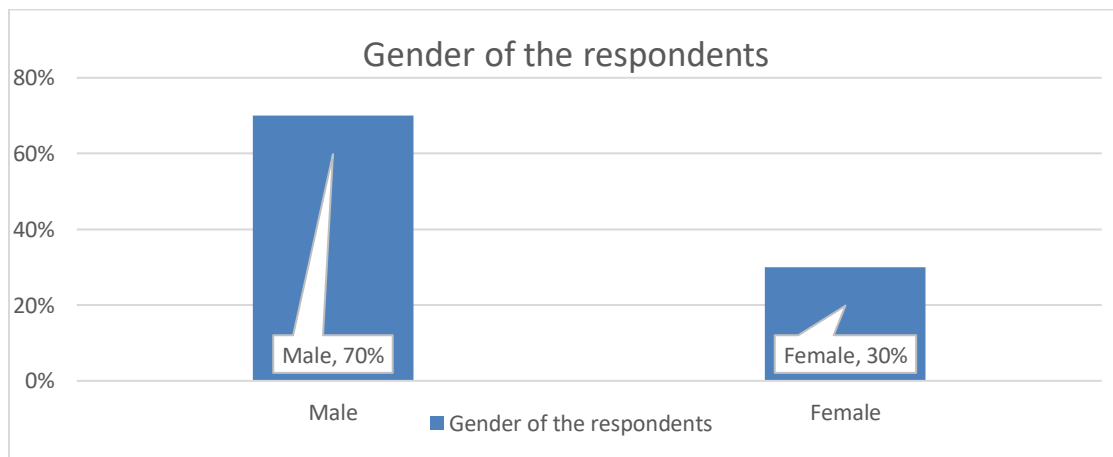


Chart 4.1.1: Gender of the respondents

Interpretation

From the above table it is interpreted that the number of male respondents is 70% and female respondent is 30%.

Inference

Majority (70%) of the respondents are Male.

Table 4.1.2: Age of the respondents

S.NO	AGE	NO. OF RESPONDENTS	PERCENTAGE (%)
1	21-30 years	39	30.0
2	31-40 years	56	43.1
3	41-50 years	23	17.7
4	Above 50 years	12	9.2
	Total	130	100.0

Sources: Primary data

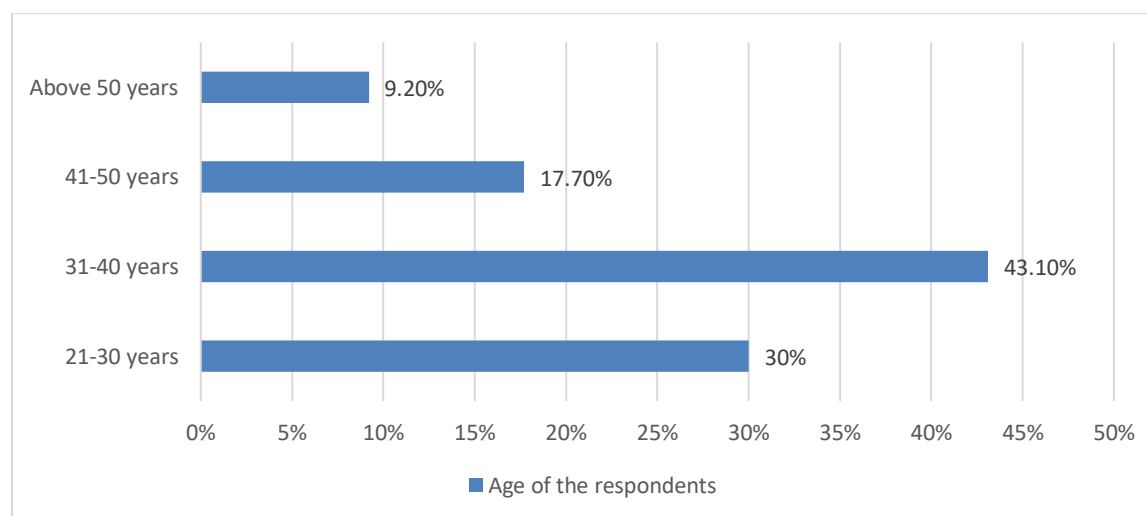


Chart 4.1.2: Age of the respondents

Interpretation

From the above table it is interpreted that the number of respondents between the age of 21-30 are 30%, between the age of 31-40 are 43.10%, between the age of 41-50 are 17.70%, Above the age of 50 are 9.20%.

Inference

Majority (43.10%) of the respondents are age between 31 to 40 years.

Table 4.1.3: Educational qualification of the respondents

S.NO	EDUCATIONAL QUALIFICATION	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Illiterate	70	53.8
2	HSC	7	5.4
3	Diploma	11	8.5
4	Graduate	42	32.3
	Total	130	100.0

Sources: Primary data

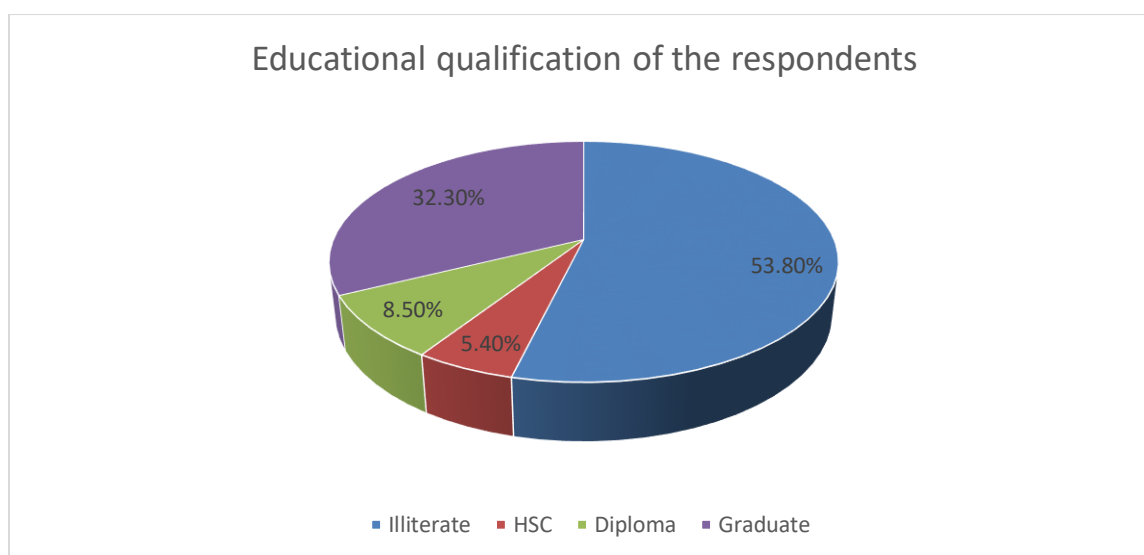


Chart 4.1.3: Educational qualification of the respondents

Interpretation

From the above table it is interpreted that the 53.80% of the respondents are illiterate, 5.40% are HSC, 8.50% are Diploma and 32.30% are graduate.

Inference

Majority (53.80%) of the respondents are qualified in illiterate.

Table 4.1.4: Income per month

S.NO	INCOME PER MONTH	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Below Rs. 5,000	28	21.5
2	Rs. 5,000 – Rs 10,000	44	33.8
3	Rs. 10,000 – Rs. 15,000	43	33.1
4	Above Rs. 15,000	15	11.5
	Total	130	100.0

Sources: Primary data

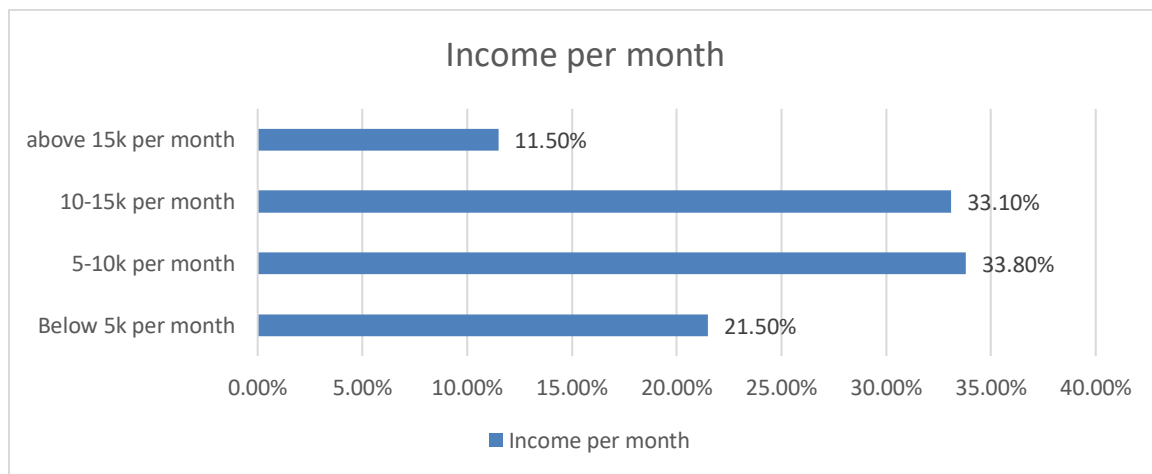


Chart 4.1.4: Income per month

Interpretation

From the above table it is interpreted that the 21.50% of the respondents earn below 5k per month, 33.80% earn between 5-10k per month, 33.10% earn between 10-15k per month and 11.50% earn above 15k per month.

Inference

Majority (33.80%) of the respondents income are 5-10k per month.

Table 4.1.5: Experience in years

S.NO	EXPERIENCE IN YEARS	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Below 5 years	68	52.3
2	5 -10 years	47	36.2
3	10 -15 years	10	7.7
4	Above 15 years	5	3.8
	Total	130	100.0

Sources: Primary data

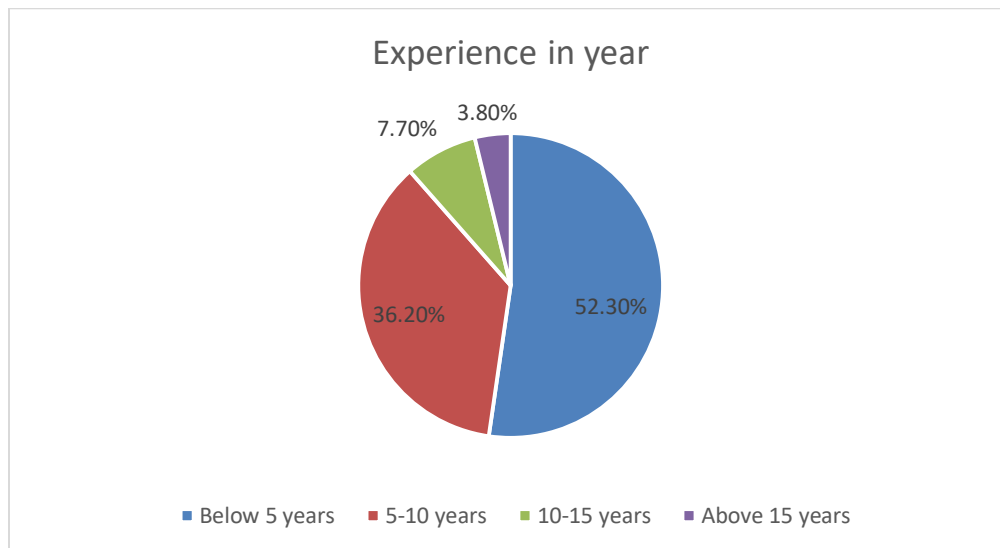


Chart 4.1.5: Experience in years

Interpretation

From the above table it is interpreted that the 52.30% of the respondents are below 5 years experience, 36.20% of the respondents 5-10 years experience, 7.70% of the respondents 10-15 years experience and 3.80% of the respondents above 15 years experience.

Inference

Majority (52.30%) of the respondents experience are below 5 years.

Table 4.1.6: Various work provided by the material handling analysis

S.NO	VARIOUS WORK	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Civil work	46	35.4
2	Interior work	52	40.0
3	MEP work	21	16.2
4	PEB Works	11	8.5
	Total	130	100.0

Sources: Primary data

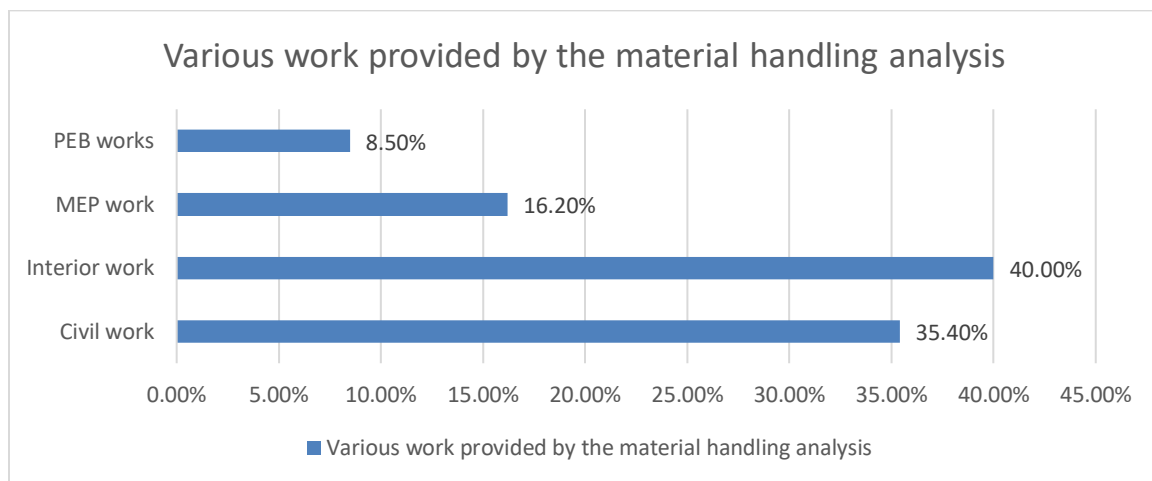


Chart 4.1.6: Various work provided by the material handling analysis

Interpretation

From the above table it is interpreted that the 35.40% of the respondents are using civil work, 40.0% of the respondents are using interior work, 16.20% of the respondents are using MEP work, and 8.50% of the respondents are using PEB works.

Inference

Majority (40.0%) of the respondents are using Interior work.

Table 4.1.7: Source for materials from suppliers

S.NO	SOURCE	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Negotiating	77	59.2
2	Invitation to tender	36	27.7
3	Any other	17	13.1
	Total	130	100.0

Sources: Primary data

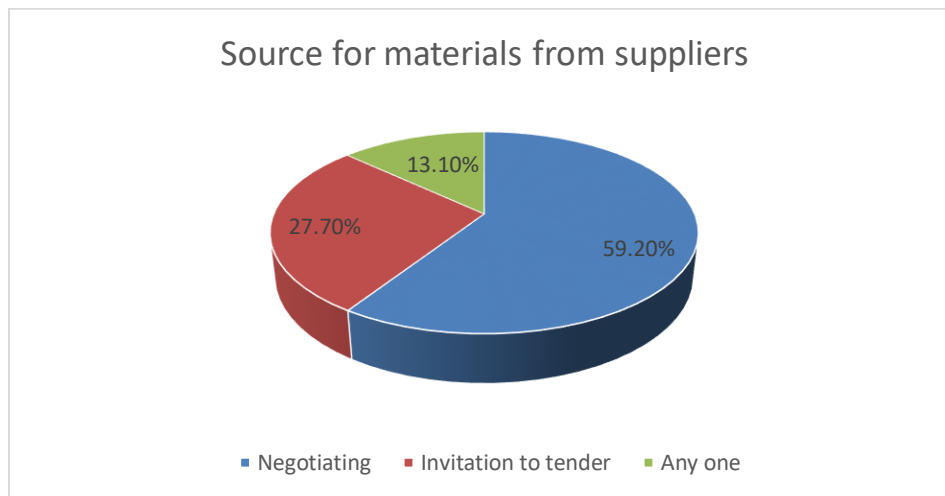


Chart 4.1.7: Source for materials from suppliers

Interpretation

From the above table it is interpreted that the 59.20% of the respondents are negotiating materials from suppliers, 27.70% of the respondents are invitation to tender materials from suppliers, 13.1% of the respondents are any other materials from suppliers.

Inference

Majority (59.20%) of the respondents are negotiating materials from suppliers.

Table 4.1.8: Satisfied with the interior design and electrical work in this firm

S.NO	INTERIOR DESIGN	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Yes	116	89.2
2	No	14	10.8
	Total	130	100.0

Sources: Primary data

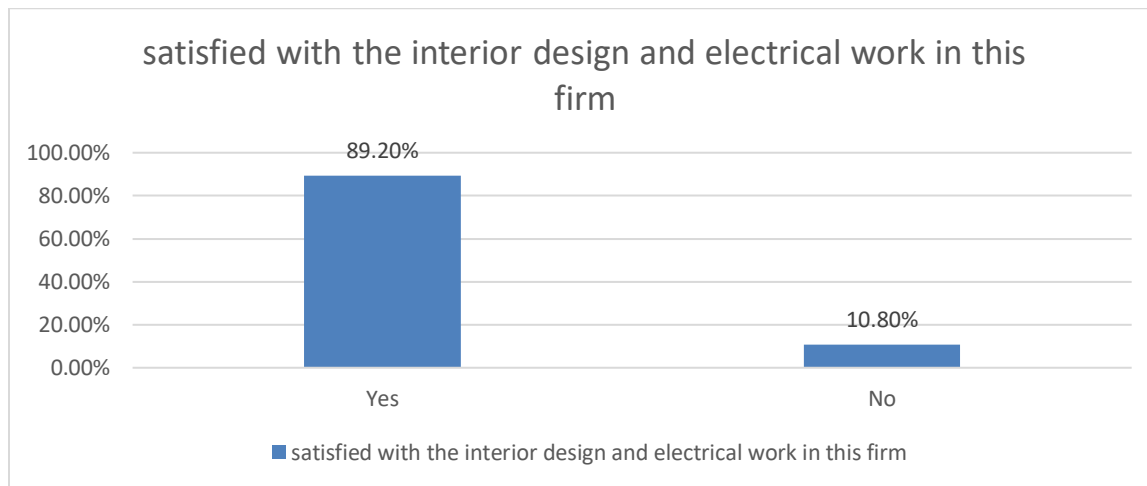


Chart 4.1.8: Satisfied with the interior design and electrical work in this firm

Interpretation

From the above table it is interpreted that the 89.2% of the respondents are satisfied with the interior design and electrical work in this firm, 10.8% of the respondents are not satisfied with the interior design and electrical work in this firm

Inference

Majority (89.20%) of the respondents are satisfied with the interior design and electrical work in this firm.

Table 4.1.9: Method of material handling analysis handling system do you adopt

S.NO	METHOD OF MATERIALS HANDLING	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Mechanical	54	41.5
2	Manual	60	46.2
3	Both	16	12.3
	Total	130	100.0

Sources: Primary data

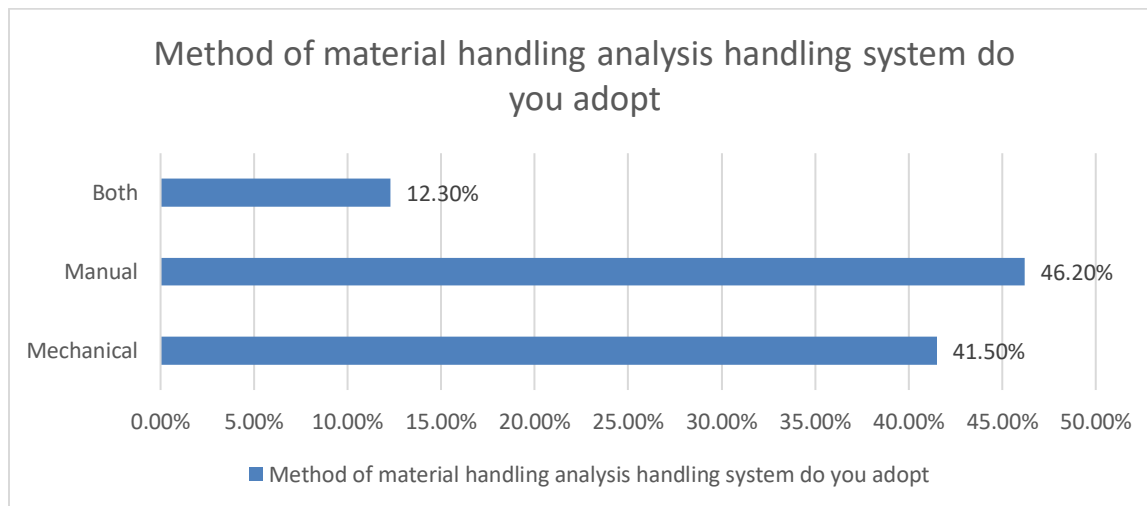


Chart 4.1.9: Method of material handling analysis handling system do you adopt

Interpretation

From the above table it is interpreted that the 41.50% of the respondents are mechanical method adopt material handling system, 46.20% of the respondents are manual method adopt material handling system and 12.30% of the respondents are both method adopt material handling system.

Inference

Majority (46.20%%) of the respondents are manual method adopt material handling system.

Table 4.1.10: Satisfied with the interior design and electrical work in this firm

S.NO	SATISFIED	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Highly satisfied	52	40.0
2	Satisfied	35	26.9
3	Neutral	16	12.3
4	Dissatisfied	17	13.1
5	Highly Dissatisfied	10	7.7
	Total	130	100.0

Sources: Primary data

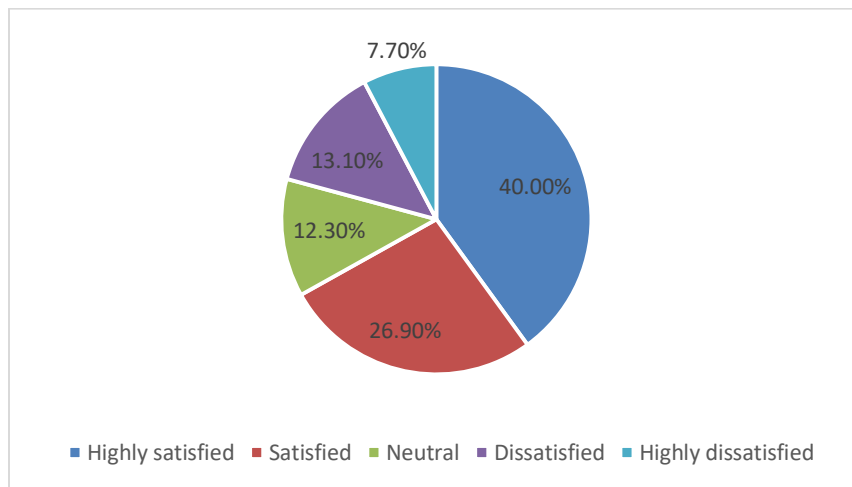


Chart 4.1.10: Satisfied with the interior design and electrical work in this firm

Interpretation

From the above table it is interpreted that the 40.0% of the respondents are highly satisfied in interior design and electrical work, 26.9% of the respondents are satisfied in interior design and electrical work, 12.3% of the respondents are Neutral in interior design and electrical work, 13.1% of the respondents are dissatisfied in interior design and electrical work, and 7.7% of the respondents are highly dissatisfied in in interior design and electrical work.

Inference

Majority (40.0%) of the respondents are highly satisfied in interior design and electrical work.

Table 4.1.11: Service using material handling analysis in the firm

S.NO	SERVICE	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Sustainable foundations	36	27.7
2	Creative thinkers	50	38.5
3	Client for life	29	22.3
4	People build success	15	11.5
	Total	130	100.0

Sources: Primary data

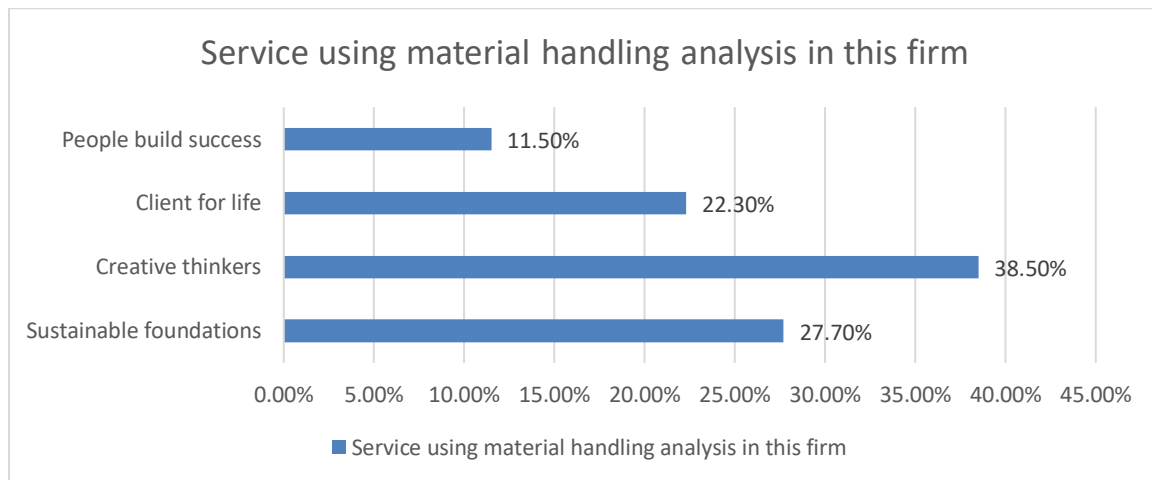


Chart 4.1.11 Service using material handling analysis in this firm

Interpretation

From the above table it is interpreted that the 27.7% of the respondents are using Sustainable foundations, 38.5% of the respondents are using Creative thinkers, 22.3% of the respondents are using Client for life, and remaining 11.5% of the respondents are using People build success.

Inference

Majority (38.5%) of the respondents are using Creative thinkers.

Table 4.1.12 System can help to reduce cost and delays on site

S.NO	REDUCE COST	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Strongly agree	41	31.5
2	Agree	25	19.2
3	Neutral	44	33.8
4	Disagree	10	7.7
5	Strongly Disagree	10	7.7
	Total	130	100.0

Sources: Primary data

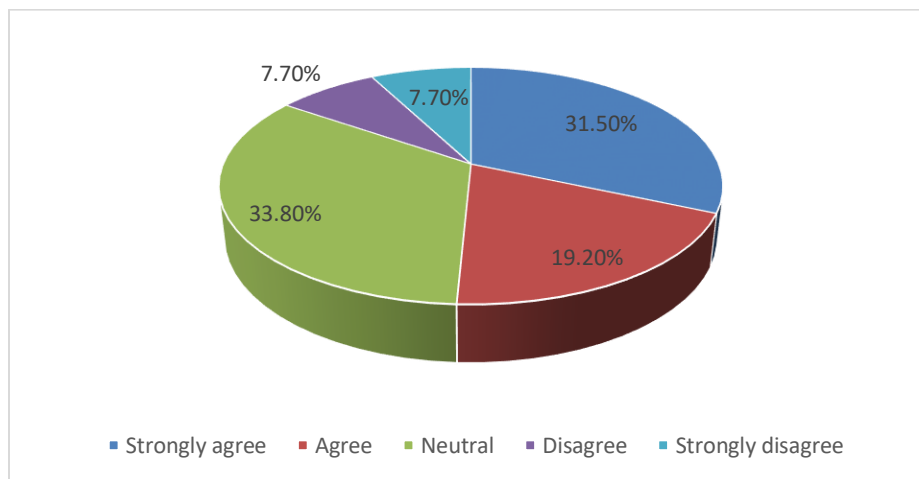


Chart 4.1.12: System can helps to reduce cost and delays on site

Interpretation

From the above table it is interpreted that the 31.5% of the respondents are Strongly agree with helps to reduce the cost, 19.2% of the respondents are agree with helps to reduce the cost, 33.8% of the respondents are Neutral with helps to reduce the cost, and 7.7% of the respondents are both disagree and strongly disagree with helps to reduce the cost.

Inference

Majority (33.8%) of the respondents are Neutral with helps to reduce the cost.

Table 4.1.13: Advantages of material handling analysis in this firm

S.NO	ADVANTAGES	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Good quality material	75	57.7
2	Moral standard	20	15.4
3	Better coordination	15	11.5
4	Better performance	20	15.4
	Total	130	100.0

Sources: Primary data

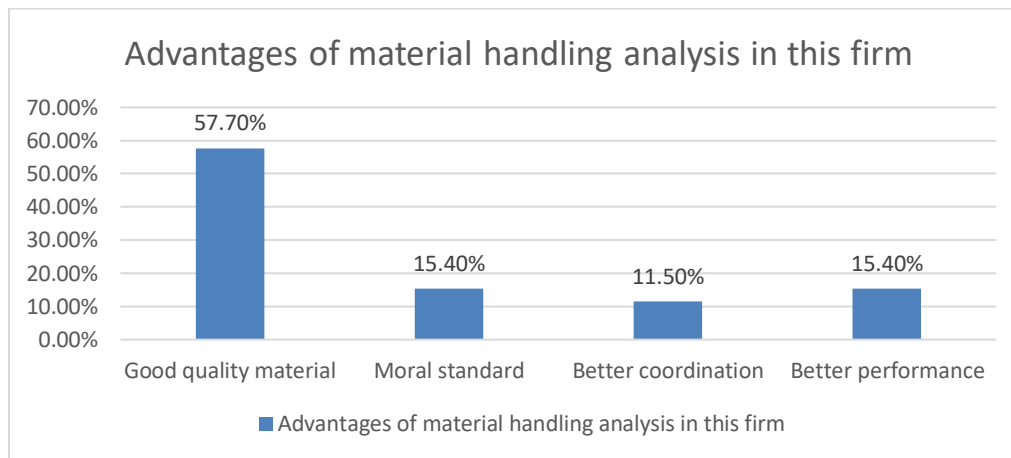


Chart 4.1.13: Advantages of material handling analysis in this firm

Interpretation

From the above table it is interpreted that the 57.7% of the respondents are Good quality material, 15.4% of the respondents are Moral standard, 11.5% of the respondents are Better coordination, and 15.4% of the respondents are Better performance.

Inference

Majority (57.70%) of the respondents are Good quality material.

Table 4.1.14: Practice sourcing in this management

S.NO	PRACTICE	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Single Sourcing	58	44.6
2	Multiple Sourcing	36	27.7
3	Partnership Sourcing	36	27.7
	Total	130	100.0

Sources: Primary data

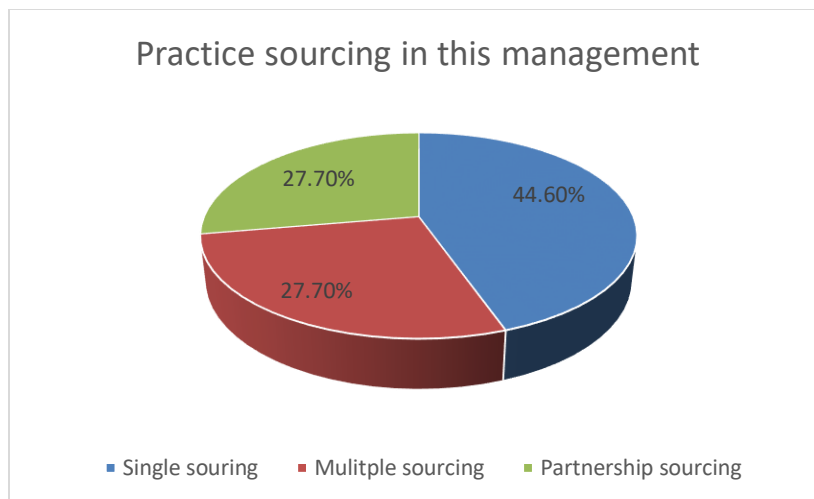


Chart 4.1.14: Practice sourcing in this management

Interpretation

From the above table it is interpreted that the 44.6% of the respondents are single sources of practice, and 27.7% of the respondents are multiple and partnership sources of practice.

Inference

Majority (44.6%) of the respondents are single sources of practice.

Table 4.1.15: Reasons for delay service in your firm

S.NO	REASONS FOR DELAY SERVICE IN YOUR FIRM	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Delivery delay	30	23.1
2	Ordering delay	36	27.7
3	Problem finding materials	39	30.0
4	Credit/Finance	25	19.2
	Total	130	100.0

Sources: Primary data

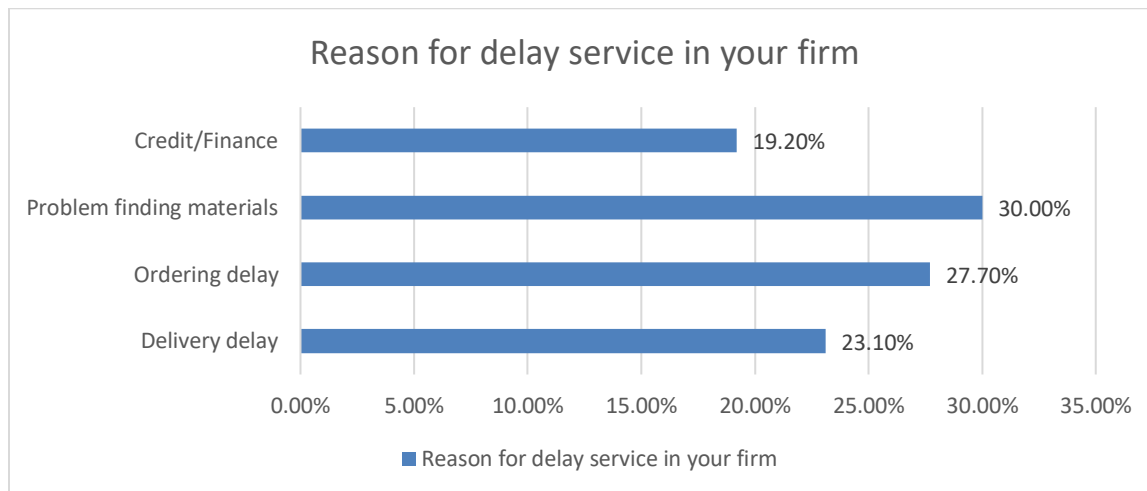


Chart 4.1.15: Reasons for delay service in your firm

Interpretation

From the above table it is interpreted that the 23.1% of the respondents are said delivery delay service in your firm, 27.7% of the respondents are said ordering delay service in your firm, 30.0% of the respondents are said problem finding materials delay service in your firm and 19.2% of the respondents are said credit/finance service in your firm.

Inference

Majority (30.0%) of the respondents are said problem finding materials reason for delay service in your firm.

Table 4.1.16: Facility of security features in this firm

S.NO	FACILITY	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Perimeter security	25	19.2
2	Guard services	45	34.6
3	Controlled entry points	33	25.4
4	Special monitoring features	27	20.8
	Total	130	100.0

Sources: Primary data

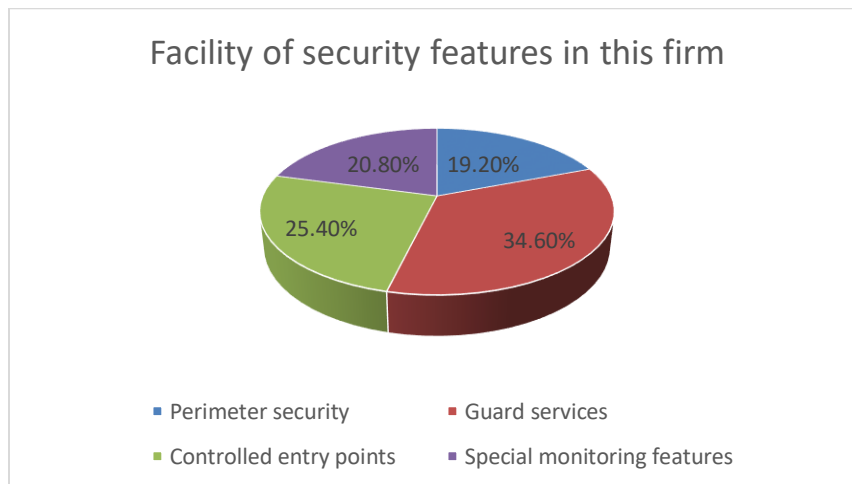


Chart 4.1.16: Facility of security features in this firm

Interpretation

From the above table it is interpreted that the 19.2% of the respondents are perimeter security facility, 34.6% of the respondents are guard service facility, 25.4% of the respondents are controlled entry points facility, and 20.8% of the respondents are special monitoring features facility.

Inference

Majority (34.60%) of the respondents are guard service facility.

Table 4.1.17: Satisfied with the exiting method of storing the materials

S.NO	EXITING METHOD	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Highly satisfied	68	52.3
2	Satisfied	42	32.3
3	Dissatisfied	16	12.3
4	Highly Dissatisfied	4	3.1
	Total	130	100.0

Sources: Primary data

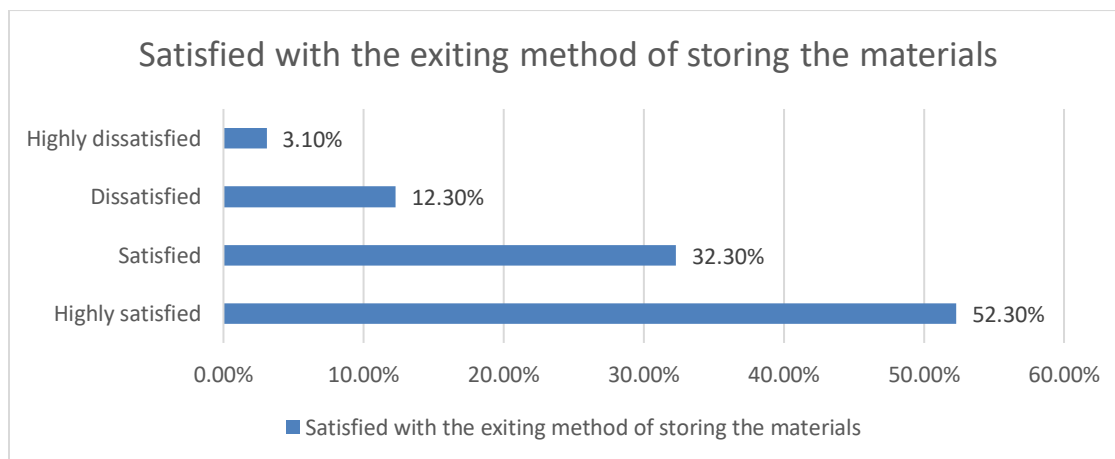


Chart 4.1.17: Satisfied with the exiting method of storing the materials

Interpretation

From the above table it is interpreted that the 52.3% of the respondents are highly satisfied in exiting method of storing the materials, 32.3% of the respondents are satisfied in exiting method of storing the materials, 12.3% of the respondents are dissatisfied in exiting method of storing the materials and 3.1% of the respondents are highly dissatisfied in exiting method of storing the materials.

Inference

Majority (52.30%) of the respondents are highly satisfied in exiting method of storing the materials.

Table 4.1.18: Challenge of handling materials and supplier relationship

S.NO	CHALLENGE	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Courtesy	43	33.1
2	Disclosure	42	32.3
3	Impartiality	30	23.1
4	Mutual understanding	15	11.5
	Total	130	100.0

Sources: Primary data

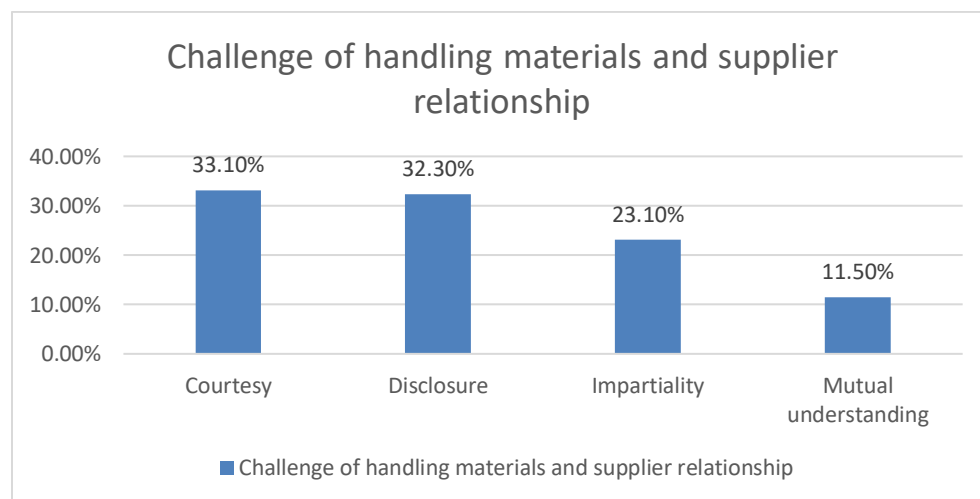


Chart 4.1.18: Challenge of handling materials and supplier relationship

Interpretation

From the above table it is interpreted that the 33.10% of the respondents are handling with Courtesy, 32.3% of the respondents are handling with Disclosure, 23.10% of the respondents are handling with Impartiality, and 11.50% of the respondents are handling with Mutual understanding.

Inference

Majority (33.10%) of the respondents are handling with Courtesy.

Table 4.1.19: material maintenance in store division

S.NO	MATERIAL MAINTENANCE IN STORE DIVISION	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Highly satisfied	52	40.0
2	Satisfied	35	26.9
3	Dissatisfied	37	28.5
4	Highly Dissatisfied	6	4.6
	Total	130	100.0

Sources: Primary data

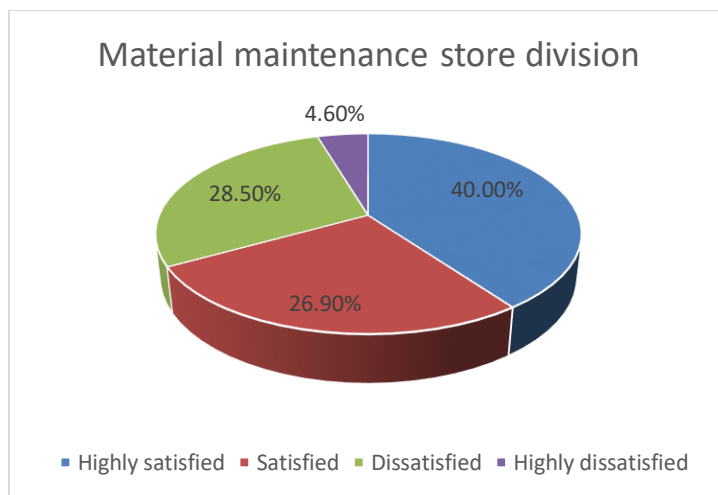


Chart 4.1.19: material maintenance in store division

Interpretation

From the above table it is interpreted that the 40.0% of the respondents are highly satisfied in material maintenance in store division, 26.9% of the respondents are satisfied in material maintenance in store division, 28.5% of the respondents are dissatisfied in material maintenance in store division and remaining 4.6% of the respondents are highly dissatisfied in material maintenance in store division.

Inference

Majority (40.0%) of the respondents are highly satisfied in material maintenance in store division.

Table 4.1.20: Material handling analysis plan to the site and oversees its implementation

S.NO	MANAGEMENT PLAN	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Excellent	39	30.0
2	Good	60	46.2
3	Bad	21	16.2
4	Poor	10	7.7
	Total	130	100.0

Sources: Primary data



Chart 4.1.20: Material handling analysis plan to the site and oversees its implementation

Interpretation

From the above table it is interpreted that the 30.0% of the respondents are Excellent plan to the site, 46.2% of the respondents are Good plan to the site, 16.2% of the respondents are Bad plan to the site, and remaining 7.7% of the respondents are Poor plan to the site.

Inference

Majority (46.20%) of the respondents are good plan to the site.

Table 4.1.21: Problems of material handling analysis on site in this firm

S.NO	PROBLEMS	NO. OF RESPONDENTS	PERCENTAGE (%)
1	Measurement and specification	42	32.3
2	purchasing process	46	35.4
3	Financial process	27	20.8
4	Removing wastage	15	11.5
	Total	130	100.0

Sources: Primary data



Chart 4.1.21: Problems of material handling analysis on site in this firm

Interpretation

From the above table it is interpreted that the 32.3% of the respondents are problems of Measurement and specification, 35.4% of the respondents are problems of purchasing process, 20.8% of the respondents are problems of Financial process, and remaining 11.5% of the respondents are problems of Removing wastage.

Inference

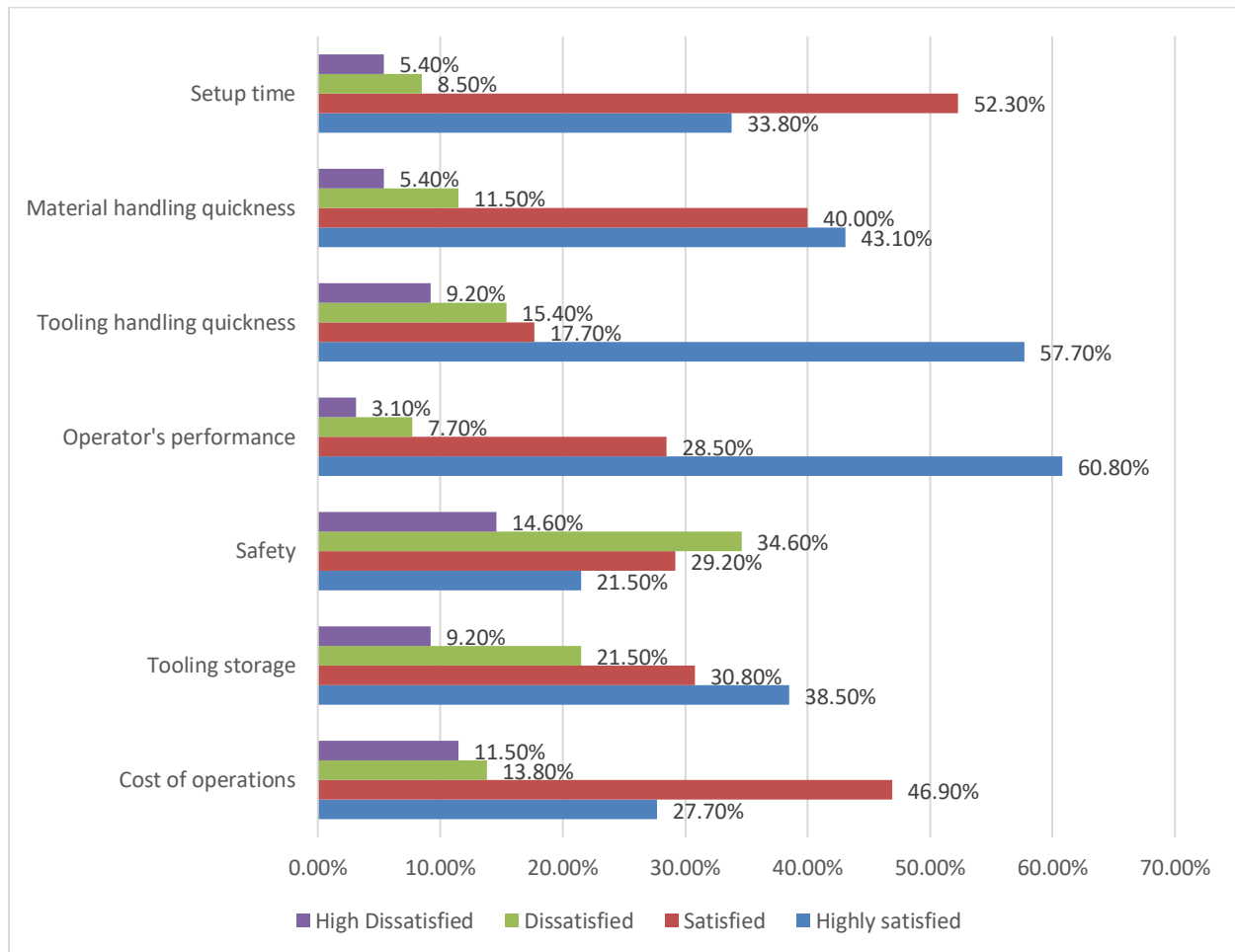
Majority (35.04%) of the respondents are problems of purchasing process.

Table 4.1.22: Evaluate material handling system at the company after the established changes

Changes/Satisfaction level	Highly satisfied		satisfied		Dissatisfied		Highly Dissatisfied	
	RES	PER	RES	PER	RES	PER	RES	PER
Cost of operations	36	27.7%	61	46.9%	18	13.8%	15	11.5%
Tooling storage	50	38.5%	40	30.8%	28	21.5%	12	9.2%
Safety	28	21.5%	38	29.2%	45	34.6%	19	14.6%
Operators' performance	79	60.8%	37	28.5%	10	7.7%	4	3.1%
Tooling handling Quickness	75	57.7%	23	17.7%	20	15.4%	12	9.2%
Material handling quickness	56	43.1%	52	40.0%	15	11.5%	7	5.4%
Setup time	44	33.8%	68	52.3%	11	8.5%	7	5.4%

Sources: Primary data

Chart 4.1.22: Evaluate material handling system at the company after the established changes



Interpretation

From the above table it is interpreted that the 46.9% of the respondents are satisfied in cost of operations, 38.5% of the respondents are highly satisfied in tooling storage, 34.6% of the respondents are dissatisfied in safety, 60.8% of the respondents are highly satisfied in operator's performance, 57.7% of the respondents are highly satisfied in tooling handling quickness, 43.1% of the respondents are highly satisfied in material handling quickness and 52.3% of the respondents are satisfied in setup time.

Inference

Majority (60.80%) of the respondents are highly satisfied in operator's performance in established changes.

4.2: CHI-SQUARE ANALYSIS

RELATIONSHIP BETWEEN AGE OF THE RESPONDENTS AND SATISFIED WITH INTERIOR DESIGN AND ELECTRICAL WORK IN THIS FIRM

NULL HYPOTHESIS (H0):

There is no significance relationship between Age of the respondents and satisfied with the interior design and electrical work in this firm.

ALTERNATIVE HYPOTHESIS (H1):

There is a significance relationship between Age of the respondents and satisfied with the interior design and electrical work in this firm.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * satisfied with the interior design and electrical work in this firm	130	100.0%	0	.0%	130	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.110E2 ^a	3	.000
Likelihood Ratio	75.242	3	.000
Linear-by-Linear Association	59.591	1	.000
N of Valid Cases	130		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.29.

RESULT

Hence the value is less than 0.05, we accept null hypothesis and reject alternate hypothesis. So, there is no significant difference between Age of the respondents and satisfied with the interior design and electrical work in this firm.

4.3: CORRELATION ANALYSIS

RELATIONSHIP BETWEEN INCOME PER MONTH AND FACILITY OF SECURITY FEATURES IN THIS FIRM

Correlations

		Income per month	facility of security features in this firm
Income per month	Pearson Correlation	1	.945**
	Sig. (2-tailed)		.000
	N	130	130
facility of security features in this firm	Pearson Correlation	.945**	1
	Sig. (2-tailed)	.000	
	N	130	130

Correlation is significant at the 0.01 level (2-tailed).

RESULT:

The above table indicates that out of 130 respondents, co-efficient of correlation between the income per month and facility of security features in this firm is 0.945. It is below 1, So there is positive relationship between the income per month and facility of security features in this firm.

CHAPTER 5 – FINDINGS, SUGGESTIONS AND CONCLUSION

5.1. FINDINGS

- Majority (70%) of the respondents are Male.
- Majority (43.10%) of the respondents are age between 31 to 40 years.
- Majority (53.80%) of the respondents are qualified in illiterate.
- Majority (33.80%) of the respondents income are 5-10k per month.
- Majority (52.30%) of the respondents experience are below 5 years.
- Majority (40.0%) of the respondents are using Interior work.
- Majority (59.20%) of the respondents are negotiating materials from suppliers.
- Majority (89.20%) of the respondents are satisfied with the interior design and electrical work in this firm.
- Majority (46.20%%) of the respondents are manual method adopt material handling system.
- Majority (40.0%) of the respondents are highly satisfied in interior design and electrical work.
- Majority (38.5%) of the respondents are using Creative thinkers.
- Majority (33.8%) of the respondents are Neutral with helps to reduce the cost.
- Majority (57.70%) of the respondents are Good quality material.
- Majority (44.6%) of the respondents are single sources of practice.
- Majority (30.0%) of the respondents are said problem finding materials reason for delay service in your firm.
- Majority (34.60%) of the respondents are guard service facility.

- Majority (52.30%) of the respondents are highly satisfied in exiting method of storing the materials.
- Majority (33.10%) of the respondents are handling with Courtesy.
- Majority (40.0%) of the respondents are highly satisfied in material maintenance in store division.
- Majority (46.20%) of the respondents are good plan to the site.
- Majority (35.04%) of the respondents are problems of purchasing process.
- Majority (60.80%) of the respondents are highly satisfied in operator's performance in established changes.

5.2 SUGGESTIONS & RECOMMENDATIONS

- Understanding of the problems that occur at the work site due to, inventory, purchasing and on how materials are being handled at the work site were taken into consideration.
- The original site layout was redesigned, then the proper management was bought in and a whole new concept was derived.
- Analysis was done on purchasing and new concept of purchase requisition slip and tender quotation were introduced.
- Large companies are adopting various software's to reduce their cost and time. The small level companies are also recommended to using the inventory techniques to reduce their time and errors.

5.3 LIMITATIONS OF STUDY

- Lack of secondary information was the major problem that faced. The annual report was the only secondary source of information, which is not sufficient to provide the reader with a vivid idea.
- Due to limited knowledge in this field, all the aspects of this study could not be covered.
- Every organization has their own secrecy that is not revealed to others while collecting data, they did not disclose much information for the sake of maintaining confidentiality of the organization.

5.4. CONCLUSION

The Effective material handling analysis helps to avoid project failure on various fields of construction industries, delays of works on site and reduce any extra cost for a project across the globe based on the various journals collected. The definitions of material handling analysis and its importance in construction projects were also discussed in detail. This paper had identified and discussed various factors affecting effective material handling analysis. It was found that the industries employing proper material handling analysis have increased their overall efficiency by 35%. Hence the research suggests that it is essential to employ a centralized material handling analysis team for the success of the project.

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ANNEXURE - I
QUESTIONNAIRE

A STUDY ON MATERIAL HANDLING ANALYSIS IN AMITY EXPORTS

1. Name: _____
2. Gender:
 - Male
 - Female
3. Age:
 - 21-30
 - 31-40
 - 41-50
 - Above 50
4. Educational qualification
 - HSC
 - Diploma
 - Graduate
 - Illiterate
5. Income per month
 - Below 5k per month
 - 5-10k per month
 - 10-15k per month
 - Above 15k
6. Experience in years
 - Below 5 years
 - 5-10 years
 - 10-15 years
 - Above 15

7. How does the company source for materials from suppliers?
- Negotiating
 - Invitation to tender
 - Any other
8. Do you satisfied with the interior design and electrical work in this firm?
- Yes
 - No
9. What method of material handling analysis and handling system do you adopt?
- Mechanical
 - Manual
 - Both
10. How does satisfied with the interior design and electrical work in this firm
- Highly satisfied
 - Satisfied
 - Neutral
 - Dissatisfied
 - Highly satisfied
11. What are the various work provided by the material handling analysis in this firm
- Civil work
 - Interior work
 - MEP work
 - PEB work
12. What is the service using material handling analysis in this firm?
- Sustainable foundations
 - Creative thinking
 - Client for life
 - People build success

13. Are you agree with material handling analysis is that the system can helps to reduce cost and delays on site

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

14. What is the Advantages of Material handling analysis in this firm?

- Good quality material
- Moral standard
- Better coordination
- Better Performance

15. Which of the following do you practice sourcing in this management?

- Single sourcing
- Multiple sourcing
- Partnership sourcing

16. which reasons for delay service in your firm?

- Delivery delay
- Ordering delay
- Problem finding materials
- Credit/Finance

17. what are the facilities of security features in this firm?

- Perimeter security
- Guard services
- Controlled entry points
- Special monitoring features

18. Are you satisfied with the exiting method of storing the materials adopted in this industry?

- Highly satisfied
- Satisfied

- Dissatisfied
- Highly dissatisfied

19. What are the challenge of handling materials and supplier relationship in this firm?

- Disclosure
- Courtesy
- Impartiality
- Mutual understanding

20. How do you think about material maintenance in store division?

- Highly satisfied
- Satisfied
- Dissatisfied
- Highly dissatisfied

21. How does material handling analysis plan to the site and oversees its implementation in this firm?

- Excellent
- Good
- Bad
- Poor

22. What are the problems of material handling analysis at the company after the established changes?

- Measurement and specification
- Purchasing process
- Financial process
- Removing wastage

23. How do you evaluate material handling analysis at the company after the established Changes?

Changes/Satisfaction level	Highly satisfied	satisfied	Dissatisfied	Highly Dissatisfied
Cost of operations				
Tooling storage				

Safety				
Operators' performance				
Tooling handling Quickness				
Material handling quickness				
Setup time				

24. If any suggestion.....

ANNEXURE – II
RESEARCH ARTICLE
A STUDY ON MATERIAL HANDLING ANALYSIS IN AMITY EXPORTS

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I. ABSTRACT

Material handling is an essential aspect of supply chain management and involves the movement, storage, and control of materials and products throughout the manufacturing, warehousing, distribution, and transportation process. Various technologies and equipment are used in material handling, including conveyors, cranes, forklifts, automated storage and retrieval system. In the context of a leather bag production company, efficient material can help reduce costs, increase productivity, and improve quality. Proper handling of leather, hardware, and other raw materials can prevent damage and ensure high-quality finished products. Proper material handling techniques can improve workplace safety and reduce worker compensation costs. By studying and implementing efficient material handling practices, leather bag production companies can improve their operations, increase customer satisfaction, and gain a competitive advantage in the market.

KEYWORDS: Movement, Storage, reduce costs, increase productivity, control of materials and products.

II. INTRODUCTION

Material handling, often called material movement, is the short-range movement of materials from manufacturing all the way to distribution. The goods may go through a system of transportation, then storage, and then distribution. Material handling happens in the shipping and delivery stages throughout the supply chain, packaging and moving goods in pallets and other units. Material handling is much more than the handling of inventory. It's the movement, protection, storage and control of materials and products throughout their lifespan of manufacturing, warehousing, distribution, consumption, and disposal. Because inbound inventory's material handling processes are just important as out bound's processes. It uses a wide range of manual, semi-automated, and automated equipment.

A. INDUSTRY PROFILE-

The Leather industry, Leather Products, and Footwear Industry of India hold a prominent place in the Indian economy. This industry is among the top ten foreign exchange earners for the nation and is renowned for its constancy in producing significant export revenues. The Leather industry in India accounts for around 13% of the world's leather production of hides/skins and handles a robust annual production of about 3 bn sq. ft. of leather. India is the second-largest exporter of leather garments, third-largest exporter of Saddlery &

Harnesses, and 4th largest exporter of Leather Goods in the world. The export of footwear, leather and leather products from India was to the tune of US \$ 3.68 billion during 2020-21.

B. COMPANY PROFILE-

We “Amity exports” are acknowledged organization, are a partnership based firm, engaged as manufacturer and exporter of Ladies Bag, File Folder, Jewellery Case, Ladies Wallet, Laptop Bag, Office Bag and many more. It was established in the year 2007 at Chennai, Tamil Nadu. These products are known for their most excellent quality and remarkable finishing at the reasonable price in the stimulate time period. We are exporting our 70% products to USA, UK, France, Denmark and Canada.

Amity Exports creating an undisputed space for small and medium enterprises (SMEs) online, Justdial is India’s leading online B2B market place, seamlessly connecting buyers to dealers and suppliers. Simplifying the entire process of business, Justdial presents SMEs, large enterprises as well as individuals an unparalleled platform to showcase their products and services. In today’s digital day and age, Justdial enables businesses with B2B marketing, B2B lead generation, promoting and selling B2B products and services and thereby reaching larger audiences. Among the most crucial B2B marketing strategies today is to go digital and that’s exactly what the company does. Be it for manufacturers, dealers, suppliers, vendors, wholesalers, etc. the processes are convenient and beneficial for one and all in the B2B market space.

III. REVIEW OF LITERATURE

NannLwinPhu et.al., (2022): In this study, Logistics Materials handling can be viewed as three categories which are measures for effective Materials handling in building sites, factors that increase waste in building sites and problems related with Materials handling. The data are analyzed by the use of inferential statistics; including Relative Importance Index (RII) and the perceptions of project engineers, site engineers and contractors are tested to determine whether there is a significant degree of agreement among respondents. Based on the findings of agreement analysis, it is found that the perceptions of three respondents (project engineers, site engineers and contractors) are identical in all three cases; measures for effective Materials handling, factors increasing waste in building Logistics projects and problems related with Materials handling.

T. Phani Madhavi et.al., (2021): In this study is to understand about all the problems occurring in the company because of improper application of Materials handling. Material is the main component in Logistics project. Therefore, if the Materials handling is not properly managed it will create a project cost variance. Project cost can be controlled by taking corrective actions towards the cost variance. Therefore a methodology is used to diagnose and evaluate the procurement process involved in Materials handling and launch a continuous improvement was developed and applied. The experimental analysis consists of theories and practical consideration of the concepts. Therefore, the present work was classified as Analysis of site and management, Analysis on Inventory controlling, Analysis on purchasing procedures, Analysis on Procurement and Tracking, Analysis on costs.

P.Lenin et.al.,(2021): This paper aims to fill a void created by the absence of proper Materials handling on Logistics sites. The materials on a project can represent anything from 50% to 60% of the cost of the work, so minimizing procurement costs improves opportunities for reducing the overall project costs. Poor Materials handling can result in increased costs during Logistics. The objective of the study is to identify the variables influencing material procurement and inventory which affects the logistics time and causes cost overruns.

Jacklyne Bosibori Otundo et.al., (2020): Materials handling remains a significant challenge for county governments in relation to timely provision of high quality service to the public; forums have been organized

across counties with the intention to foster an exchange of ideas around various issues including specialty products, new technologies, and reducing supplier risk from supply chain inadequacies and management of inventories. The purpose of this study was to evaluate the effects of inventory management practices on the operational performance of counties with particular interest of operations in, Kenya.

Pauline JerutoKeitany et.al., (2020): Materials handling is a tool to optimize performance in meeting customer service requirements at the same time adding to profitability by minimizing costs and making the best use of available resources. The basic objective is to ensure that the right item is bought and made available to the manufacturing operations at the right time, at the right place and at the lowest possible cost. The study established that there was a positive and significant relationship between inventory control system and lead time on organizational performance. This implies that through inventory control systems and lead time in Materials handling, an organization can achieve the benefits of effective use of labour, providing system flexibility, increasing productivity, decreasing lead times, reduction in wastes, reduction in production costs, increased product quality are achieved.

IV. OBJECTIVES OF THE STUDY

A. PRIMARY OBJECTIVES

The study on material handling analysis in amity exports.

B. SECONDARY OBJECTIVES

1. To study material handling system that can help to reduce cost and delays on site
2. A study using the factors that can lead to production shortages.
3. To understand the company source for materials from suppliers.
4. To know the materials are properly purchased, stored and used in this firm.
5. To understand the problems of material handling analysis in this firm.
6. To study the reason for delay service in this firm.

V. METHODOLOGY

A. SAMPLING DESIGN:

Convenience sampling is adopted to collect data from the respondent. A Convenience sampling method is one of the main types of non-probability sampling methods. A convenience sample is made up of people who are easy to reach. The approach, where only a few units of population under study are considered for analysis is called sampling method. There are two main categories under which various sampling method can be put.

The two categories are

1. Probability sampling
2. Non-probability sampling

The sampling method adopted for the study is convenience sampling under non-probability sampling.

B. SOURCE OF DATA:

1. Primary Data - A questionnaire distributed to 130 respondents.
2. Secondary Data - Websites and online journals, Published reports & Review of literature from published articles.

C. STATISTICAL TOOLS:

1. PERCENTAGE ANALYSIS-

Percentage is appropriate when it is important to know how many of the participants gave a particular answer. Percentages are used in making comparison between two or more series of data. Percentages are used to describe relationships, it is expressed as, Percentage = (no of employees/total no of employees) *100.

2. CHI-SQUARE ANALYSIS-

A chi-squared test, also referred to as chi-square test or χ^2 test, is any statistical hypothesis test in which the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true, or any in which this is asymptotically true, meaning that the sampling distribution (if the null hypothesis is true) can be made to approximate a chi-squared distribution as closely as desired by making the sample size large enough

3. CORRELATION ANALYSIS-

Correlation Analysis is statistical method that is used to discover if there is a relationship between two variables/datasets, and how strong that relationship may be.

CORRELATION COEFFICIENTS: There are usually three different ways of ranking statistical correlation according to Spearman, Kendall, and Pearson. Each coefficient will represent the end result as 'r'. Kendall's Rank and Pearson's Coefficient are the two most widely used analytical formulae depending on the types of data researchers have to hand.

D. AREA OF RESEARCH:

1. SAMPLE SIZE-

The data was collected from 130 respondents.

2. PERIOD OF STUDY-

The study was conducted from the month of February 2023 to the month of April 2023 which was a period of 3 months.

3. LOCATION & TARGETED PEOPLE-

The location where the study was conducted in Mugalivakkam and the targeted people of study is workers or people related to Amity exports.

E. HYPOTHESIS QUESTIONS:

CHI-SQUARE TEST-

- H0: There is no significant relationship between Age of the respondents and satisfied with the interior design and electrical work in this firm.
- H1: There is significant relationship between Age of the respondents and satisfied with the interior design and electrical work in this firm.

F. LIMITATIONS:

1. Lack of secondary information was the major problem that faced. The annual report was the only secondary source of information, which is not sufficient to provide the reader with a vivid idea.
2. Due to limited knowledge in this field, all the aspects of this study could not be covered.
3. Every organization has their own secrecy that is not revealed to others while collecting data, they did not disclose much information for the sake of maintaining confidentiality of the organization.

VI. DATA ANALYSIS

A. PERCENTAGE ANALYSIS-

Table shows the evaluate material handling system at the company after the established changes

Changes/Satisfaction level	Highly satisfied		satisfied		Dissatisfied		Highly Dissatisfied	
	RES	PER	RES	PER	RES	PER	RES	PER
Cost of operations	36	27.7%	61	46.9%	18	13.8%	15	11.5%
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Setup time	44	33.8%	68	52.3%	11	8.5%	7	5.4%

INTERPRETATION:

- 46.9% of the respondents are satisfied in cost of operations in established changes.
- 38.5% of the respondents are highly satisfied in tooling storage in established changes.
- 60.8% of the respondents are highly satisfied in operator's performance in established changes.
- 57.7% of the respondents are highly satisfied in tooling handling quickness in established changes.
- 43.1% of the respondents are highly satisfied in material handling quickness in established changes.
- 52.3% of the respondents are satisfied in setup time in established changes.

INFERENCE:

- Majority (60.80%) of the respondents are highly satisfied in operator's performance in established changes.

B. CHI-SQUARE ANALYSIS-

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- Majority (70%) of the respondents are Male.
- Majority (43.10%) of the respondents are age between 31 to 40 years.
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