

**A COMPHREHENSIVE ANALYSIS OF LOGISTICS PROCESSES AND CHALLENGES INVOLVED IN
THE PROCESS IN “GREENWICH MERIDIAN LOGISTICS PVT LTD”**

Submitted in partial fulfilment of the requirement for the award of

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
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**INSTITUTE OF SCIENCE AND TECHNOLOGY
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CATEGORY - 1 UNIVERSITY BY UGC**

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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the Bonafide work of DHIVAKARAN.P 4241425 who carried out the Project Training “**A COMPREHENSIVE ANALYSIS OF LOGISTICS PROCESSES AND CHALLENGES INVOLVED IN THE PROCESS IN “GREENWICH MERIDIAN LOGISTICS PVT LTD”** under my supervision from September 2023 to October 2023.

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DECLARATION

I ARVINDHA SWAMI D.R (42410486) hereby declare that the ProjectReport entitled **“A COMPHREHENSIVE ANALYSIS OF LOGISTICS PROCESSES AND CHALLENGES INVOLVED IN THE PROCESS IN “GREENWICH MERIDIAN LOGISTICS PVT LTD”** done by me under the guidance of MRS. K. KAAVYA is submitted in partial fulfilment of the requirements for the award of Master of Business Administration degree.

DATE:

PLACE:

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INTRODUCTION

INTRODUCTION:

The operational intricacies of "GREENWICH MERIDIAN LOGISTICS INDIA PVT LTD," is meticulously explored in this study, from primary stages to customer delivery and challenges such as transportation, documentation, communication, production delays, and port congestion, encountered at each steps with optimal solutions. The real time information used in this study will provide an insight on distinctions between academic theories and practical approaches. The key elements which are considered as domain of logistics namely, demand forecasting, inventory control, procurement, and efficient customer service is discussed. In addition to that, the crucial role of qualified professionals in import and export businesses is also highlighted.

OBJECTIVE OF THE STUDY:

This study represents the process involved in “GREENWICH MERIDIAN LOGISTICS INDIA PVT LTD”. From the initial stage of the process, to the end of reaching the customer, problems in transportation, documentation, communication, production delay and port congestion are deeply discussed. The problems faced by the company in every process are explained and made solutions for the problems. This study helps to evolve the contemplation about the details and the difficulties which come along the process. The real time information is used in this paper , which also explains the difference in theories that is opted in academics.

SCOPE OF STUDY:

“GREENWICH MERIDIAN LOGISTICS INDIA PVT LTD”, a broad scope that includes sub-suppliers, suppliers, internal operations, trade customers, retail customers and end users. It spans all movement and storage of raw materials, work-in-process inventory and finished goods, from point-of-origin to point-of-consumption. To carry out import and export business various companies and industries require professionals qualified in their respective fields. The main scope of logistics is demand forecasting, distribution communication, inventory Control, material handling, order processing, part & service support, plant and warehouse side selection, procurement, packaging, salvage & scrap disposal, traffic & transportation, warehousing & storage, time & place utility, efficient movement to customer, return goods handling and customers service.

LIMITATIONS OF STUDY:

- This study was limited in Greenwich Meridian Logistics India Pvt Ltd.
- Time was limited to one month.
- There are many problems in the industry, but we are limited to transportation, documentation, communication, production delay and customs clearance.
- Limits for financial transactions and other invoice details.
- Sample size was reduced to 30, due to the duration of the project.

INDUSTRY PROFILE

INDUSTRY PROFILE:

The logistics industry in India is highly fragmented with many unorganized players. While there is a need for the highly fragmented Indian logistics market to get more organized, there is also a need to reduce logistics cost to 10 per cent by 2022 from about 14 per cent now. Only 10-15 per cent of the \$215-billion Indian logistics market is owned by organized players.

Blue Dart operates in the express logistics industry which, caters to multiple sectors as well as individual customers by providing time definite services. Express delivery services are used for various products such as securitized documents, electronic products, automotive components, temperature-controlled shipments, trade samples, lifesaving drugs, mobile phones, etc.

The Indian logistics industry has been gaining traction in the last few years and plays a very important role in facilitating trade and thereby propelling the growth of the Indian economy.

Several factors such as - improving infrastructure nationwide, opportunities in emerging markets and channel alliances, urbanization, faster adoption of newer technologies and digitalization, increased consumer preference for the reduced delivery time, and deployment of innovative techniques for a fast delivery of products are all playing the role of a catalyst in fuelling the growth of the logistics industry in India.

The logistics industry in India, considered to be the lifeline of the country, holds unprecedented importance as it connects various markets, suppliers and customers dotted across the country, and has now been firmly embedded as an integral part of the national GDP value chain.

The deeper penetration into Bharat (Tier II, III & IV towns), economy enhancing initiatives, GST implementation and other initiatives such as Make in India, Digital India and soon to be released National Logistics Policy, all hold a promise for an efficient and integrated logistics industry in the days ahead.

Despite the enhancement in the logistics performance index from the 54th Rank in 2016 to th 35th rank in 2018, India has substantial potential for improvement. The Indian logistics sector provides livelihood to more than 22 million people and improving the sector will facilitate 10 % decrease in indirect logistics cost leading to the growth of 5 to 8% in exports.

The growth in logistics sector is expected to be driven by increasing penetration of products into more cities and towns, as well as the growth of economic activity and manufacturing moving to these towns. In addition, the demand for value-added services from consumers provides opportunities for the industry players to elevate themselves from an operational role to a more strategic one.

The logistics industry is highly fragmented and consists of over 1,000 active players which include large scale domestic players, leading entities of global players, the express arm of the government postal service and emerging start-ups specializing in e-commerce deliveries. Infrastructure readiness and technology are expected to be the key drivers of growth for the Indian logistics industry.

However, significant economic fallout due to the novel coronavirus will result in slowing down the growth across the country's highly fragmented and unorganized logistics landscape.

SOME OF THE CHALLENGES FACED BY THE LOGISTICS INDUSTRY:

Different rules and regulations at different stages are enforced by national, regional, and local authorities.

Lack of integration in transport networks, poor warehousing and distribution facilities and information technology were the major challenges for businesses dealing in the logistics industry.

The logistics sector needs skilled manpower and there is a lack of training institutions that are causing various issues among the employees and the logistics managers.

Poor management and storage facilities are the reason for a major loss, damage and deterioration of the material, especially in the perishables sector. Good refrigerated storage and containers and maintenance is needed.

Building the infrastructure, manage the requirements of the various sectoral supply chain, changing industrial policies to ease efficient production and transportation of goods and deploying effective managerial practices and technology to enhance competitiveness are the major issues.

Despite various challenges and its peculiarities, the logistics industry in India is transforming by developing innovative business models, outsourcing their supply chain operations to 3PL services providers and by removing the structural and policy-based stringencies.

COMPANY PROFILE

COMPANY PROFILE:

Greenwich Meridian Logistics (India) Pvt. Ltd founded in 2002, is a global logistics service provider that combines, experienced, dedicated, customized solutions. Greenwich Meridian Logistics (India) Pvt. Ltd was incorporated on 15th May 2002 with the Indian Registrar of Companies. A young dynamic team of qualified and experienced professionals led by directors with experience of over a decade in the shipping industry. This is a fitting summary of the company's philosophy: Based on more than decade-long experience team of specialists set up integrated solutions. Today the owner-managed medium-sized company is a team of over 300 members in 14 offices, are there for its customers worldwide. Our own network is further strengthened by our global offices in key locations & selected agents all over the world. We are where the industry and the trade need us.

From the Mumbai headquarters our interdependent team spread the company's values:

A sustainable orientation towards the needs of the customers, an international presence, a strong quality awareness, and high demands on the own work and on the work of the carefully selected service providers. In our comprehensive logistics solutions from one source this is demonstrated, among other things, by the high process transparency, made possible by uniform IT frameworks. GML is active in sea and air freight, as well as project logistics. With our worldwide logistics solutions, we are a reliable partner of leading companies in the machinery and plant engineering industry, automotive industry, chemical industry and associated sectors, consumer goods, and pharmaceuticals.

VISION:

As an independent and innovative company, we are recognized as a global provider of customized logistic solutions.

MISSION:

We are there for our customers, worldwide and at any time. We are committed to meeting the requirements of our customers. With our economic, ecological, and socially sustainable as well as reliable, and high-quality solutions we fulfil this obligation. Personal trust in our team members and a respectful treatment of one another in a motivating work atmosphere are the basic requirements for our economic and sustainable progress - worldwide.

INFRASTRUCTURE:

GML as Organization

- State of Art office infrastructure with 21st century office automation systems
- Creation of office design with green building concept such as
- Energy Conservation / Eco Friendly Building material
- Entertainment & Relaxation zone for management & staff members
- Hygienic Cafeteria

- Located near International Airport
- Periodic training programs conducted by professionals.

SERVICES:

We offer total logistics solutions for cargo right from picking up the shipments from warehouse bringing the same in the port, arranging for customs clearance and shipping the same to the destination, custom clearing the same in destination and delivering the same to the consignees doors and vice versa. Sea consolidations - out bound / in bound from all major ports worldwide. We specialize in sea transportation, offering a regular weekly LCL / FCL Services by Sea. example: MBPT, JNPT, NSICT, Mulund CFS, CWC Drona Giri, GDL. We have our own designated reserved area in all the above locations ensuring smooth carting space for any quantum of shipments.

- Refrigerated cargo: We specialize in handling of temperature-controlled cargo.
- Value added services: We have experienced professionals placed on our value.
- Added service desk specializing in DDU (DOOR DELIVERY UNPAID) / DDP (DOOR DELIVERY PREPAID) shipments, buyer's consolidations, garments on hanger consolidations. SEA - Air services for time sensitive cargo
- LCL Consolidation (Less than container load): We have services to more than 800 destinations for LCL Shipments across the globe with premium service and quick transit.
- Hazardous Cargo: We have trained profession's teams for handling of hazardous shipments.
- Warehousing: Bonded / General: We offer custom bonded & general warehousing for long stay shipments in India & major destinations of world
- Full Container Load: We have excellent contract with all major carriers for all the destinations specialized Africa Continent, Central South America, and Europe-MED. Having dedicated professional teams to handle all the FCL Business with main liners.
- Project, O.D.C. (OVER DIMENTION CARGO)/ RO, Break Bulk: We specialize to handle Project / O.D.C. cargo all the world. We have special team to handle Break Bulk / Ro-Ro shipments.
- Distributions: Currently we offer distribution services in countries like India - UAE - Singapore - UK - Canada - Europe - USA - Australia - New Zealand on customized basis / expert professionals are on the job at all the above locations, enabling smooth handling of over dimensional cargo & project shipments.

INLAND TRANSPORTATION:

- Russia - via Kolkata, - via St. Peter's Burg
- Ukraine - via Odessa
- CIS Destinations, via Bander Abbas
- East Africa - via Dar-ES-Salaam, - via Mombasa
- South Africa - via Durban
- West Africa - via Team, - via Loma, - via Lagos, - via Abidjan

SPECIAL EQUIPMENTS:

Engineering Goods, Pharmaceuticals, Transformers, Perfumery products, Steel Pipes, Giant Fans etc. - the economic goods shipped worldwide are as different as the needs of people and companies around our globe. They all require transport containers, that are perfectly adapted to the product properties while at the same time still allowing a standardized, cost-effective loading. GML provides worldwide the suitable equipment for the special needs of the shipper. We provide a wide range of special equipment services, at our disposal.

FLAT RACK:

They are of an open and thus inviting nature. Flat racks are containers with two front walls but without side walls and roof. They are an interesting solution for every transport good exceeding the standard size of the containers. GML provides these special container services for industrial customers, who must transport goods with an oversize width, height and/or weight - e.g., machines and plants. Flat racks are a cost-efficient and product-specific option within international supply chains. Also, because the loading and unloading of the open racks can be done easier and therefore quicker than in the case of standard container.

FLEXI TANKS:

Flexi tanks are plastic container for standard 20-foot container. They can be used for many industrial products outside of the dangerous goods classes - e.g., certain liquid chemicals but also victuals like drinks or edible oils.

HIGH CUBE CONTAINER:

When goods are huge but not necessarily heavy: High Cube Container are perfectly suitable specifically for the transport of general cargo which is light and at the same time very voluminous. Or also for goods with an oversize height of up to 2.70 meters. They are one foot (some 30 centimetres) higher than standard container and allow an accordingly easy loading through the 2.59-meter-high doors. GML can provide shipper from industry and trade with these space-saving wonders. As they provide more storage space on the same area, High Cube Container can lead to significant cost benefits for certain groups of goods.

OPEN TOP CONTAINER:

Open Top Container have no fixed roof but instead a detachable tarpaulin and they are specifically designed for cargo with a height exceeding the height of a standard container like machine tools or energy plants. Depending on its proportions the transported product can be loaded and unloaded either from above or - in case of a door header swivel led out - from the door side. Loading and unloading is done via a crane, otherwise the handling of Open Top Container is just like that of normal closed versions. The transported product is secured towards the top with a tarpaulin and protected from the container walls. Open Top Container thus constitute a cost-conscious alternative for machines and facilities with an oversize height. They don't have to be dismantled - or at least to a considerably less degree. This saves time and costs and minimizes transportation and assembly risks.

REEFER CONTAINER:

When freshness is needed: For industry and trade temperature-controlled transports, especially transcontinental ones, are an indispensable element of their logistic chains. Food, confectionery, drinks, but also pharmaceuticals require specific means of transportation: product-specific and cost-efficient. GML covers a wide range of services on different refrigerated containers that protect perishables at arctic temperatures or up to warm 20 degrees Celsius - even when outside the temperatures are just the opposite.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

1. Gunasekaran, A. and Ngai, E.W.T. (2003) discussed the successful management of a small logistics company. The company is interesting in that it has been designated as the “king” of Hong Kong's 3PL (in-bound) logistics companies. The company has been successful in its overall business performance and in satisfying customers. This company's strategic alliances with both clients and customers have helped to improve the utilization of its resources, such as warehouse space and transportation fleets. Also, the company is in the process of expanding its operations across greater China, with the objective of becoming a full-pledged 3PL company. The analysis of this case focuses on the critical success factors that have allowed a small company started only in 1996 to become so successful in its operations. Also, a framework has been provided for the company to develop its logistics operations as a full-pledged 3PL company.
2. Sheikh Ariful Alam discussed the location of logistics hubs is one of the most crucial success factors for potential economic growth in logistics sector. Since the logistics hub has direct and indirect impacts on different stakeholders including investors, policy makers, infrastructure providers, hub operators, hub users and the community itself, it needs to be considered carefully. Therefore, logistics hubs should be in such a way that it can provide a better accessibility to three different modes of transportation- road, rail, and waterways. The aim of this study is to evaluate the potential locations for logistics hubs and to find out the criteria that affect for the selection of location for logistics hubs. A comprehensive literature study reveals the factors that are affecting the selection of location for logistics hubs and the methods to evaluate those locations considering the criteria. Location selection or evaluation is a typical multi-criteria decision making (MCDM) problem in which performance criteria plays a vital role for the final decision making. Both qualitative and quantitative MCDM methods are applied in this study, where the Analytic Hierarchy Process (AHP) is qualitative, and the gravity method is quantitative method. Analytic Hierarchy Process (AHP) is a structured approach to reach the final decision which is one of the best methods of all MCDM problems, used in recent literature to evaluate the location selection problems. A case study is done for the logistics company, Brinova Fastigheter AB in Sweden. This study is followed by AHP method, which is considered with selected factors, i.e., highway accessibility, intermodal capacity, port capacity and land availability. Moreover, this study is conducted by evaluating the four major potential locations in Sweden i.e., Stockholm, Göteborg, Helsingborg and Karlshamn for selecting as a logistics hub. Besides, the location for selecting logistics hubs is evaluated by the gravity method, which is a quantitative method to determine the level of accessibility for the selected locations, considering the flow of goods both inbound and outbound and the transport cost between the locations. The result from the AHP method recommend that Göteborg is the best potential location to establish logistic hub whereas the Gravity model represents that Stockholm has the highest level of accessibility for logistics activity. Therefore, the study suggested that both Göteborg and Stockholm are the best potential locations considering in present situation.

3. Verdonck, L., Caris, A. N., Ramaekers, K., & Janssens, G. K. (2013) discussed the survive under the ever increasing competitive and global pressures to operate more efficiently, transportation companies are obliged to adopt a collaborative focus. Various types of cooperative supply chain relationships have been discussed in both professional and academic literature over the last decades. However, research on horizontal cooperation in logistics remains scarce and scattered across various research domains. Companies operating at the same level of the supply chain and performing comparable logistics functions may cooperate horizontally to increase their productivity, improve their service level, and enhance their market position. In this paper, the focus is on the operational planning of horizontal cooperations between road transportation carriers. Following a scientific literature review, a distinction may be made between two operational approaches to horizontal logistics collaboration: order sharing and capacity sharing. For both research streams, a detailed overview of solution techniques proposed in literature is presented. Moreover, some interesting opportunities for future research are identified.
4. Gunasekaran, A., Ngai, E. W., & Cheng, T. E. (2007) says the third-party logistics (3PL), a relatively new industry, has gained momentum since the emergence of global market and the Internet, in particular electronic commerce (e-commerce). Global competitive-ness places more pressure on companies to improve their delivery performance of products and services to customers. To improve the quality of delivery service, companies have outsourced their logistics services, including packing, warehousing (inventory management) and shipping of goods to customers. Communication plays an important role in integrating the activities along the logistics value chain. Information technologies such as electronic data interchange (EDI), the Internet, World Wide Web (WWW) and e-commerce have contributed greatly to improving communication with partners in the logistics chain. Real-time information systems such as web-based logistics information systems help to improve 3PL services. In this paper, a case study of e-logistics is used to illustrate the implications of information technology, in particular the Internet, WWW and EDI, on the performance of the logistics value chain. A framework based on the literature survey and case study is proposed to help companies develop an e-logistics system to improve their competitiveness.
5. Yu, Y., Wang, X., Zhong, R. Y., & Huang, G. Q. (2016) found e-commerce is booming with the development of new business model and will be continuously boosted in the several decades. With large number of enterprises carrying out E-commerce, logistics driven under the background has been largely influenced. This paper presents the state-of-the-art E-commerce logistics in supply chain management from a view of practice perspective. Worldwide implementations and corresponding models together with supporting techniques are reviewed in this paper. Typical E-commerce logistics companies from North America, Europe, and Asia Pacific are comprehensively reviewed to get the lessons and insights from these practices. Opportunities and future perspectives are summarized from the practical implementations so that interested companies like E-commerce and logistics companies can get some guidance when they are contemplating the business.
6. Sum, C. C., Teo, C. B., & Ng, K. K. (2001) says that in today's highly competitive environment, many companies are going global to acquire market share and take

advantage of higher production and sourcing efficiencies. A key determinant of business performance is the role of the logistics function in ensuring the smooth flow of materials, products and information throughout the company's supply chains. To compete effectively, companies must recognize the strategic importance of the logistics function. The strategic management of logistics and supply chain practices of companies in Singapore is examined. A framework is proposed to classify companies according to the extent that logistics is used as a competitive weapon. The practices and characteristics of the various strategic groups are then examined and analysed. The best practices of companies with strategic logistics are also identified. The use of information technology (IT) and the factors that will shape the logistics industry in the future are also explored. Being one of the first major studies on the Singapore logistics industry, generates new insights and information for logistics managers and businessmen interested in the Singapore logistics landscape.

7. Fabbe-Costes, N., & Colin, J. (2018) analysis grids proposed in this chapter show the complexity and seem to be good tools for the formulation of strategies supported by or founded on logistics that can develop on several levels. Logistics, defined as the technology of control of the physical flow of materials and goods and related information that a firm sends, transfers, and receives, appears as an organizational approach that can conserve and improve the flexibility and reactivity of the firm vis-à-vis its environment. The process-oriented perspective of logistics management that cuts across the traditional vertical functions of the organization has been a powerful stimulator for change. The classic approach to formulating a logistics strategy consists in beginning with the firm's overall strategy and then defining the logistics strategy that will enable the firm to reach its objectives. Logistics is thus conceived as a functional support system and a tool for global strategy; logistics strategy should appear as a subset of the overall strategy.
8. Cooper, J. C. (1993) says businesses continue to globalize, attention has increasingly turned to logistics. Examines global logistics in depth, beginning with a brief overview, to provide a working context. Discusses the development of global logistics strategy, taking a bottom-up approach. Assesses the effects of product-market characteristics on strategy formulation and evaluates logistics strategy at business unit or company level. Considers the implications of global logistics strategies, detailing the critical success factors which apply and highlighting the need for organizational change.
9. Genchev, S. E. (2009) made series of visits to a Fortune 500 wholesale distribution company of technology products revealed a changing perspective regarding building and implementing reverse logistics programs. Five major initiatives define the reverse logistics program design process at this company: (1) Gain senior management support and turn reverse logistics into a company-wide initiative; (2) Involve your customers in the reverse logistics design process; (3) Give distinct recognition to the employees involved in handling returns within the firm; (4) Implement carefully developed written rules and procedures that reflect both internal and external concerns; and (5) Assign strict responsibility for the execution of the reverse logistics program. The study follows these five major considerations in more detail. The interviews and observations at this firm provide guidelines for managerial decisions relating to reverse logistics.
10. Razzaque, M. A., & Sheng, C. C. (1998) made a recent time have witnessed a heightened global interest in outsourcing of logistics functions. This is indicated by the volume of writings on the subject in various scholarly journals, trade publications and

popular magazines. However, efforts to organize them in an integrated body of knowledge appear to be very limited. Keeping this in view, this paper tries to develop a comprehensive literature on outsourcing based on more than 100 published articles, papers, and books on the subject.

11. Guiliang, Z. H. O. U., & Lina, M. A. O. (2009, April). Intelligent Management Information System is an important approach to improve the work efficiency and degree of satisfaction of the container freight station. And the module of intelligent allocating storage space is the core of the Intelligent Management Information System. The paper has described the importance and process of the module designing for intelligent allocating storage space in container freight station, which includes the flow of the module design, integrated system of simulation & optimization which is based on the combination of genetic algorithm optimization and Arena simulation, Decision Support System, etc. Finally, it has concluded input-output mode of the module and then prospected the positive significance caused by the module design to the improvement of the intelligent technology on container port.
12. Espino, M. S. U., & Evangelista, M. N. S. (2018, July) says warehousing operations are an integral part of a company business strategy. Efficient warehousing can ensure that a company ships and receives vital stock in time for replenishment on store shelves or in manufacturing facilities. The study assessed the current practices the current practices of a Container Freight Station in terms of stripping, releasing of cargo and stuffing. Furthermore, the study evaluated the warehousing practices in terms of reliability, security, and flexibility. The respondents of the study are the personnel of a Container Freight Station and their clients. The findings revealed that in terms of flexibility the company is not capable to adapt to a change over a short period of time. It was recommended that dispatching of products on time and assigning trucks on time should be their top priority and implement a concrete stuffing strategies and policy. It is one way to ensure company's optimal flexibility to outsource or consolidate with another provider.
13. Maina, J. W. (2013) discussed Container Freight Stations came into being as a strategic response by KP A to sort out the issues of congestion inside the port. A lot has changed since they first started operating, it therefore becomes necessary to analyse the business models adopted by The CFS's. Are they sustainable in the long run? This research was aimed therefore at answering the questions, what business models are applied by CFS operators? What are their expectations regarding the development of their businesses? The objectives of this study were to establish the business models adopted by Container Freight Stations and to determine the factors that influence the business model adopted by Container Freight Stations. The literature reviewed indicated that a good business model focuses on who the customer is, the value a company offers to the customer that enables the customer to pay and hence allow the organization make profits. Some of the studies done in this area indicate that business models are key to enhancing a company's performance and can also give it competitive advantage over other companies. In this study, the researcher used descriptive research design, and the population was all the CFS's in Kenya. Closed ended questionnaires were used to collect the data and descriptive statistics were used to analyse the data. The findings of the research indicated that a- majority of the CFS's handled a variety of commodities and most of the CFS customers were those that the CFS had approached for business,

and they thus did not depend much on KPA rebates as a source of revenue. This showed that most of the CFS's had changed their way of doing business in the changing environment. The majority also indicated that they had diversified their sources of revenue. The researcher recommended that investors should be wary about coming in into the market unless they have a unique value proposition different from what all the other players in the industry are offering. There should also be very clear guidelines on what exactly CFS's are meant to do. The fact that they came in as a response to problems of congestion, they may not be sustainable in the long run if for example new developments like the new standard gauge railway line is completed.

14. Ha, O., Choi, B. L., Kim, Y., Kim, B., & Lee, K. D. (2015) did the study aimed to develop indicators and to establish a procedure that could be used in adjusting functions of a freight station based on many different characteristics of railway logistics. Even though previous studies had drawn optimal models using mathematical algorithms, there was a difficulty in applying those models. Those studies were limited in that they did not consider many different characteristics of railway logistics but were based only on the volume of freight transportation. This study established indicators and procedures by considering characteristics of railway logistics to increase the effectiveness in adjusting functions of the freight station and then analysed changes in the freight transportation volume and efficiency according to function adjustment of the freight station. As a result, it was shown that the operating cost had decreased more than two-fold compared to the transport income via function adjustment of the freight station.
15. Pienaar, W. J. (2016) did the article outlines how the size, location and scope of activities of freight rail terminals influence urban form and land use. The nature of freight rail stations is outlined, and the classes of trains that make use of these facilities are described. According to size, railway freight stations can be divided into four groups: (1) railway halts; (2) small-sized goods stations; (3) medium-sized goods stations; and (4) large-sized goods stations. The factors that determine the location of stations are discussed. Rail freight stations can be divided functionally into four broad classes: (1) break-bulk rail terminals; (2) bulk rail terminals; (3) roll-on/roll-off rail terminals; and (4) intermodal terminals. The functions of the four rail terminal classes are described. The paper discusses how rail freight terminals can influence urban form and land use. Finally, the conclusions of the study are presented.
16. Kirubakaran, J. (2012) says, India's maritime trade comprises of export-import trade in various bulk commodities like crude oil and other petroleum products, iron ore and coal, besides general-purpose cargo. The economic liberation gives way for an upheaval of handling value-added goods through containers and transporting cargo to several Indian ports. This container transportation has redefined these services also it has emerged as very sophisticated logistic services. Freight forwarding agents specialize in the arranging of shipping and insurance, and many of them today arrange land, sea and air transportation for goods. They take a good deal of work off the exporters' shoulders. They follow all the formalities of documentation for customs clearance. They also look after the warehousing and carting of cargoes before shipment of export consignments and after discharge of import cargoes, by the sea carriers.
17. Putro, P. A. W., Purwaningsih, E. K., Sensuse, D. I., & Suryono, R. R. (2022) discussed about the strengthening of the Supply Chain is one solution to problems in rice farming agriculture. Although Supply Chain Management (SCM) for rice farming has been

made, different parties are involved in each implementation. This difference occurs as a solution for a problem with SCM implementation. This study aims to identify problems in rice farming SCM and related theories to solve them. By implementing the Kitchenham Systematic Literature Review (SLR) approach from ACM, IEEE, and SCOPUS database, this research creates a table of problems with its solution and finds an SCM model for rice farming based on Supply Chain Operations Reference (SCOR) theory.

18. Schmid, V., Doerner, K. F., & Laporte, G. (2013) says the purpose of this paper is to provide basic models for highly relevant extensions of the classical vehicle routing problem in the context of supply chain management. The classical vehicle routing problem is extended in various ways. We will especially focus on extensions with respect to lotsizing, scheduling, packing, batching, inventory and intermodality. The proposed models allow for a more efficient use of resources, while explicitly considering interdependencies among the subproblems. The contribution of this survey is twofold: (i) it provides an overview of recent and suitable literature for the interested scholar and (ii) it presents six integrative models for the above-mentioned extensions.
19. Msimangira, K., & Venkatraman, S. (2014) explains that over the last decade, supply chain management (SCM) has been studied extensively, and its importance to practitioners and academics has received a high level of recognition. However, despite major investments in SCM and supply chain integration (SCI), recent surveys indicate that businesses are struggling to achieve competitive advantage due to SCI silos. This urges us to investigate the emerging concept of SCM integration (SCMI) that is aimed to integrate various traditional supply chains (SC) across intra and inter-organisational processes in practice. While there is enormous information on SCM, little is known about the supply chain management integration (SCMI) problems and possible solutions that could be identified through open discussions and brainstorming among management executives of various organisations. This paper presents the results of an exploratory study of SCMI practices via an on-line forum conducted with supply chain personnel in New Zealand. This study identified the organisations' SCM integration problems and possible solutions. The analysis reveals the major problems that are critical to be addressed and the recommended solutions, including: SCMI requires a holistic approach; two-way communication; written service level agreements; relationship management; use of new technologies and integrated software systems; strategic alliances and trust; integrated processes; effective partnership; and predictive cost/benefit analysis of SCM. The insights on the critical problems and solutions provide valuable information on business risks and uncertainty as well as recommendations to effectively employ SCM analytics for sustainability in the global market environment. We developed a SCM analytics framework for SCM integration.
20. The Beer Game is one of the most popular simulations used to introduce students to the challenges of managing supply chains. While the basic simulation serves as a useful introduction to the problems, it does not take the next step of helping students or managers plan to surmount those problems and manage an efficient supply chain. This paper suggests a strategy for taking that next step, helping students move toward solutions of supply chain problems. The strategy builds supply chain teaching modules or an executive development program around modified Beer Game simulations. This paper also provides the tools for accomplishing both an introductory and a more advanced simulation. These simulation-based programs have proved

highly effective and popular in undergraduate, graduate and executive development programs.

21. Sparling, D. (2002) made a paper reviewing inventory models with multiple supply options and discusses their contribution to supply chain management. After discussing strategic aspects of supplier competition and the role of operational flexibility in global sourcing, inventory models which use several suppliers to avoid or reduce the effects of shortage situations are outlined. Further, related inventory problems from the fields of reverse logistics and multi-echelon systems are presented. Finally, issues for future research and a synthesis of available supply chain management and multiple supplier inventory models are discussed.
22. Walter, M., Holmström, J., & Yrjölä, H. (2004, September) examines suppliers of spare parts suffer from high inventory and distribution costs in many industries. Original Equipment Manufacturers (OEMs) have attempted to reduce these supply chain costs by cutting production lead-times, batch constraints and delivery lead-times. The emphasis in supply chain management has been towards increased inventory turnover. Today, rapid manufacturing technologies – the ability to produce parts on demand without the need for tooling and setup – has the potential to become the basis for new solutions in supply chain management. This paper presents new supply chain solutions made possible by both the centralised and decentralised applications of rapid manufacturing. A decision-support model is outlined to help supply chain managers better capture emergent business opportunities arising from rapid manufacturing technology. The logistical problems of the spare parts business in the aircraft industry are used as an example due to the high technical and logistical requirements involved. The applications and benefits of rapid manufacturing technologies in the supply chain for aircraft spare parts are presented.
23. Sitek, P., & Wikarek, J. (2015) made a paper describes the hybrid framework for the modelling and optimisation of decision problems in sustainable supply chain management. The constraint-based environments used so far to model and solve the decision-making problems have turned out to be ineffective in cases where several interbond variables are added up in multiple constraints. The hybrid approach proposed here combines the strengths of mathematical programming and constraint programming. This approach allows a significant reduction in the search time necessary to find the optimal solution and facilitates solving larger problems. Two software packages, LINGO, and ECLiPSe were employed to solve optimisation problems. The hybrid method appears to be not only as good as either of its components used independently, but in most cases, it is much more effective. Its advantages are illustrated with simplified models of cost optimisation, for which optimal solutions are found ten times faster. The application of the proposed framework has contributed to more than 20 fivefold reductions in the size of the combinatorial problem.
24. McCarter, M. W., Fawcett, S. E., & Maignan, G. M. (2005) says some scholars have been so blunt as to claim that information technology is the answer to all the problems facing supply chain managers. We posit that, although information technology integration is necessary for a supply chain to succeed, people are also crucial. We further propose that managers must take into consideration organizational culture and the education and training of employees to facilitate supply chain collaboration and success. We interviewed 51 senior-level supply chain managers across five channel

positions. Findings support our position that management of people is crucial to supply chain integration, and that integration is improved through an accommodating organizational culture and training and educational programs. Also from our findings, we supply a prescription for building the supply chain cross-functional manager.

25. 25. Croson, R., & Donohue, K. (2002) describe one area in which experimental economics methods have been used to study operations problems is supply-chain management. We survey results from a series of human experiments based on the popular beer distribution game and find cognitive limitations on the part of managers, in particular an underweighting of the supply line. We suggest mechanisms that may alleviate this bias, including sharing inventory and point-of-sale data, and reducing ordering and shipping delays. Our research provides managerial lessons and identifies supply-chain issues that need further experimental study.
26. Dias, L. S., & Ierapetritou, M. G. (2017) says optimal decision-making in a process industry is fundamental to guarantee optimality of operations and increase profits and performance of a company. Decision-making occurs at different levels, from process control to supply chain management. Traditionally, these decisions have been considered individually, with little or no interaction between each other. However, an integrated decision-making framework can guarantee solutions closer to optimality. Such integration usually results in complex and large-scale problems that are difficult to solve. We provide an overview of integrated decision-making strategies and review recent advances in the area, highlighting promising works as well as the main challenges that have yet to be overcome.
27. Lichocik, G., & Sadowski, A. (2013) believes efficiency of supply chains is not only a task for which a logistics department is responsible as it is a strategic decision taken by the management as regards the method of future company's operation. Correctly planned and fulfilled logistics tasks may result in improving performance of a company as well as the whole supply chain. Fundamental improvements in supply chain efficiency may be ensured by analysing theoretical models on the strategic level and implementing a selected concept.
28. The study aims to identify the current trends, gaps, and research opportunities in research pertaining to the disruptive field of artificial intelligence (AI) applications in supply chain management (SCM). Since SCM represents managerial innovation due to its new way of integrated system thinking, SCM has emerged as one of the most fruitful business disciplines for AI applications. The study utilises bibliometric review in tracing the evolution of AI research in SCM and further synthesises decades of past AI research efforts to develop viable solutions for various supply chain problems and then proposes promising future research themes that would enrich supply chain decision-aid tools. The study identified five main research clusters through scholarly network and content analysis. The identified themes were: (a) supply chain network design (SCND), (b) supplier selection, (c) inventory planning, (d) demand planning, and (e) green supply chain management. As the role of AI in SCM continues to grow, there is a growing need for exploiting AI to add value to supply chain process. The study proposes a research framework which will help academicians and practitioners in identifying current research patterns of AI in SCM.
29. Yan, H., Yu, Z., & Cheng, T. E. (2003) made this paper proposes a strategic production–distribution model for supply chain design with consideration of bills of materials

(BOM). Logical constraints are used to represent BOM and the associated relationships among the main entities of a supply chain such as suppliers, producers, and distribution centers. We show how these relationships are formulated as logical constraints in a mixed integer programming (MIP) model, thus capturing the role of BOM in the selection of suppliers in the strategic design of a supply chain. A test problem is presented to illustrate the effectiveness of the formulation and solution strategy. The results and their managerial implications are discussed. Supply chain design is to provide an optimal platform for efficient and effective supply chain management. The problem is often an important and strategic operations management problem in supply chain management. This paper shows how the mixed integer programming modelling techniques can be applied to supply chain design problem, where some complicated relations, such as bills of materials, are involved. We discuss how to solve such a complicated model efficiently.

30. Naude, M. J., & Badenhorst-Weiss, J. A. (2011) did for any business to compete successfully in the modern, globalised business environment, it needs to mobilise its suppliers and customers to co-operate to reduce unnecessary costs and inefficiencies between them and to ensure the best value for the final customer. The focus is on management of the supply chain (or a system) and maximum value for the final customer of the supply chain, instead of on management for the maximum benefit of one of the parties in the supply chain. If the supply chain is seen as a system of organisations with one aim (value for the final customer), it is logical that a problem in one part of the supply chain must affect the workings and efficiency of the system or supply chain. This article reports on an exploratory empirical study to illustrate the effect of problems at one party in the supply chain on the whole supply chain. The study was done at automotive component manufacturers. To determine how problems at one place permeate through the whole supply chain, correlation testing was done between supply-side, internal operations, and distribution or customer-side problems. The study found that problems experienced at one place in the supply chain had a negative impact throughout the supply chain. Automotive supply chains should therefore be managed more as a system, taking into consideration the effect of decision making and actions at one part of the supply chain on other parts of the supply chain. There should be a supply chain wide co-operative effort to find solutions to inefficiencies at all places in the supply chain.
31. Tyan, J. C., Wang, F. K., & Du, T. (2003) speaks about the trends of e-commerce and globalization occurring in the economy, an effective global supply chain (GSC) management has become a business necessity for a multinational corporation seeking to secure market share. Although there has been much discussion on how a company gains competitive advantages through GSC management, the physical distribution of order fulfilment is less discussed in the literature. Global third-party logistics (3PL) has developed into an alternative for the needs of global distribution. In this paper, the authors present a new application of collaboration in GSC execution, namely collaborative transportation management (CTM), which can be used to reduce delivery time and improve delivery reliability. A case study is illustrated: The application of CTM by a 3PL provider in a notebook computer GSC. The implementation results show that the delivery cycle time and the total cost are simultaneously reduced.

32. Speranza, M. G. (2018) discussed problems in transportation and logistics that had to be tackled long before computers and Operational Research (OR) became available to support decision making. After the first optimization models were developed OR has substantially contributed to making transportation systems efficient and companies with complex transportation and logistics problems competitive. Over the years, technology has evolved and the same has done OR. In this paper, the history of problems and OR contributions in transportation and logistics will be shortly reviewed together with the evolution of technology. Then, the future trends in this area will be discussed together with potential OR contributions.
33. Tseng, Y. Y., Yue, W. L., & Taylor, M. A. (2005, October) described the operation of transportation that determines the efficiency of moving products. The progress in techniques and management principles improves the moving load, delivery speed, service quality, operation costs, the usage of facilities and energy saving. Transportation takes a crucial part in the manipulation of logistic. Reviewing the current condition, a strong system needs a clear frame of logistics, and a proper transport implements and techniques to link the producing procedures. The objective of the paper is to define the role of transportation in logistics for the reference of further improvement. The research was undertaken to assist logistics managers, researchers, and transportation planners to define and comprehend the basic views of logistics and its various applications and the relationships between logistics and transportation.
34. Grabara, J., Kolcun, M., & Kot, S. (2014) says that information can be a "good" or "phenomena" without which, the proper functioning of the company, would not be possible. In the era of today's solutions for the acquisition and transmission of information, information systems play an increasingly important role in the enterprise's processes realization. This paper presents the role of the information system, it plays in the implementation of transport processes in the enterprise.
35. Allen, W. B. (1997) discussed third of a century ago, management guru Peter Drucker called logistics the last great unexplored continent of business. This is no longer true. While transportation is the largest component of logistics, ordering costs, carrying costs, warehousing costs, and administrative costs are nontrivial. Corporations and academics now have departments to handle the logistics functions. Transportation has been subsumed, in many cases, by these broader departments. Managing the supply chain—from raw material assembly, to work in progress, to the physical distribution of the final product or service—is the essence of business logistics. The field has its quantitative side, with many models that minimize costs and maximize profits. A growing area is the qualitative side, which emphasizes management awareness of the logistics chain.
36. Kumar, G. S., & Shirisha, P. (2014). Explains transportation is on wheels mostly. The wheel is everywhere on all our cars, trains, planes, machines, wagons, and most factory and farm equipment. What could we move without wheels? But as important as the wheel is as an invention, we don't know who exactly made the first wheel. But this invention led to the movement of goods from one place to another to transform into some usable product or any in the logistics chain. The application of management techniques and principles improves the moving, delivery, service, operation costs and the usage of facilities. Transportation takes a key part in the operation of logistic. Reviewing the present condition, a strong system needs an unambiguous outline of

logistics, and a proper transport implements and techniques to bond the producing procedures.

37. Van Heeswijk, W., Mes, M., & Schutten, M. (2019). This chapter introduces transportation management. In Sect. 21.1 we describe the basic elements of transportation network design, comprising the selection of modes, transportation units, loading units, and the timing of transportation. A brief introduction to intermodal transportation is used to illustrate the relevance of transportation management in modern logistics. With Sect. 21.2 we move to the advanced topic of orchestrating transportation via intermodal networks by introducing the concept of synchro modal transportation. Furthermore, it highlights several issues specific to contemporary long-haul transportation and last-mile transportation. Section 21.3 presents various state-of-the-art research trends related to the management of transportation in integrated networks. We discuss applications of multi-criteria analysis, multi-agent simulation, and conclude with research directions for the construction of the Physical Internet.
38. Choi, T. M., Chiu, C. H., & Chan, H. K. (2016) says nowadays, with the globalization of business operations, logistics systems are threatened by all kinds of uncertainties and disruptions. Almost every month, serious accidents in transportation and natural disasters all around the world are reported in the media. As a result, an effective and efficient risk management scheme is of a topmost priority in the mind of all professionals in logistics management. This paper concisely explores risk management of logistics systems in several critical areas, namely disruption risk management, operational risk control, disaster and emergency management, and logistics service risk analysis. The papers featured in the special issue are also introduced and examined. This paper ends with a proposal of various future research directions for advancing risk management of logistics systems.
39. Successful companies practice supply chain management and logistics management to reduce costs, increase their competitiveness and enhance operational efficiency. The logistics in modern business conditions coordinates and integrates the movement of materials and products from physical, organizational and information aspect. This research aims to analyze the impact of company's logistics management including transportation, warehousing, packaging, inventory and information management to the efficiency and effectiveness. Reducing cost of each logistics activity influences the total amount of costs and enhances company's performance. This paper determines and defines the logistics activities that are of key importance to the company's success. The empirical research is conducted on a sample of eighty examinees from eighty different companies in the Republic of Macedonia. The general hypothesis is fully validated and proven by the survey results. Adequate inventory, storage, warehousing, transport and information management are key targets for logistics managers in order to reduce the overall costs of the company. Findings include the confirmation of the necessity of logistics managers to optimally manage all logistics activities in order to gain increased business efficiency, customer satisfaction and competitiveness.
40. Lee, H., & Yang, H. M. (2003) This paper looks at strategies that may enable the incremental development of a 'Winged City' around Incheon International Airport (IIA), Korea. This would involve the creation of a super hub for transportation, logistics, and international business. It identifies the potentiality of IIA as a logistics hub in Northeast Asia and develops options to improve its competitiveness. The airport is believed to have strong potential to grow into a key logistics hub in Northeast Asia.

Success, however, depends on whether the airport is capable of rapidly attracting a critical mass of global logistics service providers.

41. Katsikeas, C. S., & Dalgic, T. (1995) As opposed to the plethora of export-related studies, limited empirical work has been conducted on firms' import behavior in the field of international business. The focus of this study is an investigation of problems confronting UK importing distributor firms in their trading activities with U.S. exporting manufacturers. An attempt is made specifically to explore the existence of possible underlying import problem dimensions and examine potential differences in perceptions of importing problems based upon level of import development. The study identifies several significant differences in perceived import problems between different groups of firms in terms of their level of import development. The implications of the findings for importers, exporters, and public export policy markers are highlighted, and future research directions discussed alongside the limitations of the study.
42. Witten, I. H., Bainbridge, D., Paynter, G., & Boddie, S. (2002, September). Flexible digital library systems need to be able to accept, or "import," documents and metadata in a variety of forms, and associate metadata with the appropriate documents. This paper analyzes the requirements of the import process for general digital libraries. The requirements include (a) format conversion for source documents, (b) the ability to incorporate existing conversion utilities, (c) provision for metadata to be specified in the document files themselves and/or in separate metadata files, (d) format conversion for metadata files, (e) provision for metadata to be computed from the document content, and (f) flexible ways of associating metadata with documents or sets of documents. We argue that these requirements are so open-ended that they are best met by an extensible architecture that facilitates the addition of new document formats and metadata facilities to existing digital library systems. An implementation of this architecture is briefly described.
43. Several international documents have been published in recent years with the objective of providing guidance to industry, biocontrol practitioners and competent national regulatory authorities on the regulatory framework for the import and release of invertebrate biological control agents (IBCs). As the scope and the level of detail given in these documents were diverse in many respects, it has been difficult for all stakeholders to apply such guidelines, and to integrate them in a harmonized way into national regulatory documents. At the request of several stakeholders, the International Organization for Biological Control of Noxious Animals and Plants/West Palaearctic Regional Section (IOBC/WPRS) organized an initiative with the objective of merging all relevant international documents into one document, to provide more specific guidance, and to harmonize the regulation of IBCs in European countries and in other countries of the IOBC/WPRS. This document consists of five sections which together form comprehensive guidelines specifying the information required for regulating import and release of IBCs.
44. The article traces the opportunities for reducing the dwell time taken during clearing of export and import (EXIM) goods at Kolkata sea and air ports. As observed in the Government of India reports, the dwell time in Indian airports is considerably higher than that of global benchmarks. Drawing from the literature, we figured out that reduction in dwell time can reduce opportunity cost and lead to increased productivity

and higher efficiency of the ports and air terminals. In the first phase of the study, using the Ishikawa Fishbone diagram, we have analyzed the reasons behind the higher dwelling time in Kolkata air and sea ports. In the second phase, following the value stream mapping process indicated by Barber and Tietje (2008), the current state map of the EXIM clearing process has been mapped and possible future state maps have been proposed for reduction in dwell time.

45. Due to the nature of the transactions involved in imports and the security threats associated with it, most nations have put agencies and machineries in place for regulating and monitoring the flow of trade. The objectives of these agencies include but not restricted to monitoring of trade transactions; revenue generation, facilitation of trade, policy and decision making, etc. Risk management is a major segment of the clearance process at the port and is consistently advocated by the world customs organization (WCO) and the world trade organization (WTO) respectively. In Nigeria, the Nigeria Customs Service (NCS) performs this function with the aid of Automated System for Customs Data (ASYCUDA) first implemented in 2006 during the modernization project of the Federal Government of Nigeria and now modernized as the Nigeria Customs Information System (NICIS). This study reviews the present imports clearance process to identify areas that may be remedied through process re-engineering using analytics. It adopts a hybrid methodology comprising descriptive methods, object-based and knowledge-based modeling with the aim of establishing a reliable model that could be integrated to advance the existing imports process and clearance process. The proposed model uses the k-means algorithm to discover pertinent patterns and trends with respect to areas that need enhancement thus helping the relevant authorities in achieving a competent and effective clearance process driven by knowledge-based process re-engineering.
46. The objective of this journal writing is to see the gap between SPPB (Surat Persetujuan Pengeluaran Barang or Import Customs Approval) preparation planning, SPPB respond, and container delivery to importer's premises that take place at OKATRANS (the brand of PT Olak Kemang), and what are the proposed action plans to increase customer satisfaction in term of right time container delivery, minimizing logistics cost, and improving dwelling time. The research method used here is combining quantitative and qualitative description method.
47. Despite widespread research on the export behavior of firms, no integrative review of the empirical work in relation to export development models exists in the extant literature. This article reviews the main models on the subject, identifies their structural characteristics, evaluates the methodologies used for their validation, and analyzes the key conceptual issues emerging from their assessment. While valuable inroads into the mechanics and constituent parts of the export development process have been made, this avenue of empirical inquiry has attracted criticism on structural, methodological and conceptual grounds. Future research in the field should harness the eclectic contribution afforded by existing theory and, at the same time, enhance its status with contributions from marketing, business and other disciplines.
48. This paper examines the performance of Export Processing Zones in the Dominican Republic. It shows that in specializing in unskilled labor-intensive export processing in the context of competitive devaluations between Central American countries, the Dominican Republic has experienced immiserizing employment growth. In these

circumstances the export of labor-intensive manufactures is akin to that of primary commodities. Exporting countries which rely on unskilled labor and which fail to make the transition to higher value-added production exports are thus likely to experience declining terms of trade. The conclusions of this case study are considered to have wider relevance to World Bank and International Monetary Fund inspired structural adjustment programs in the Region.

49. From the policy and management perspective, this study aims to investigate the port management tools that port/public authorities have at their disposal and then to analyse to what extent the tools are used to enforce or encourage green port development at functional activities of port operations and development. We conduct an exploratory and comparative review based on two axes: on the one hand, the range of tools available to port authorities (pricing, monitoring and measuring, market access control and environmental standard regulation) and on the other hand, the functional activities in ports (shipping traffic, cargo handling and storage operations, intermodal connection, industrial activities, and port expansion). The situations in the leading ports in Asia and Europe, namely Singapore, Shanghai, Antwerp and Rotterdam are studied and compared, whereby the policies' effectiveness is discussed accordingly. Findings show that the ports are particularly mature in exercising environmental standard regulations which reveals that the enforcement approach is more prevalent. The most focused functional activity is shipping traffic which reflects that the ports are driven by the International Maritime Organisation. The respective port authorities in Antwerp and Rotterdam have a higher level of influence on devising green port policy in comparison to the two Asian ports.
50. The 1998 project ECOPORT, "Towards A Sustainable Transport Network", developed by the Valencia Port Authority (VPA), established the bases for implementing an Environmental Management System (EMS) in industrial harbours. The use of data and information shall always be required to develop an efficient EMS. The objective of the present research (INDAPORT) study is to propose a system of sustainable environmental management indicators to be used by any port authorities. All activities performed within a port area are analysed for any potential environmental impacts and risks. An environmental analysis of port activities has been carried out with the objective of designing the indicators system. Twenty-one corresponding activities have been identified for large industrial ports. Subsequently, the same methodology developed to date will be later applied to other Spanish and European ports. The study has been developed by using an original system and a methodology, which simultaneously use stage diagrams and systemic models (material and energy flow charts). Multi-criteria analysis techniques were used to evaluate potential impacts (identification of factors and evaluation of impacts).

RESEARCH METHODOLOGY

RESEARCH METHODOLOGY:

Research comprises of defining and redefining problems, formulating hypothesis or suggested solutions, collecting, organizing, and evaluating data, making deductions, and reaching conclusion and at last carefully resting the conclusion to determine whether they fit for formulating hypothesis”.

- Clifford Woody

SOURCES OF DATA:

- Primary data- The researcher used questionnaire to collect the information.
- Secondary data - The researcher used secondary data such as books, newspapers, websites, journals, and magazines to collect the data.

RESEARCH DESIGN:

A research design is a framework or blueprint for conducting the marketing research project. It details the procedures necessary for obtaining the information needed to structure or solve marketing research problems.

SAMPLE DESIGN:

Sampling design is imperative in every scientific study. Hence in this study simple random sampling methods have been used to collect data.

- Sample Size: 20 sample size.
- Sample Area: Chennai
- Statistical tool used: Percentage analysis.

STEPS INVOLVED IN EXPORT:

- Sales (approaching clients for shipment).
- Negotiating the rates.
- Conformation of sailing schedule.
- Conformation of booking.
- Handing over the cargo and shipping bill at cfs.
- Stuffing the cargo in the container.
- Container moving towards port.
- Vessel loading conformation.
- Issuing bill of lading (bl) to shipper.
- Sending pre-alert documents & cargo manifest to pod (place of destination) agent.

STEPS INVOLVED IN IMPORT:

- Sale (approaching clients for shipment).
- Negotiating the rates.
- Receiving pre-alert document & cargo manifest.
- Creating a draft invoice for confirming the rates.
- Creating MBL (Master bill of lading).
- Raising the payment invoice to initiate the payment.
- Collecting all the BL and operation team will be reaching the port.

- Once the clearance is done the cargo will be shifted to CFS.
- From the CFS cargo will be distributed according to the destination.

PROBLEMS INVOLVED IN IMPORT / EXPORT:

TRANSPORT:

- Driver shortage.
- Cost effective.
- Environmental conditions.

DOCUMENTATION:

- BL amendment.
- Not sending the pre-alert documents on time to the pod agent.
- Manifest errors.
- EGM (export general manifest) errors.

COMMUNICATION:

- Miss communication with agents
- Miss communication with clients
- Not updating the cargo status

PRODUCTION DELAY:

- Shipper not providing cargo on time for stuffing.
- Availability of the required cargo.
- Not enough to fill the minimum amount of CBM in the container.

PORT CONGESTION:

- Traffic in the port.
- Not maintaining the schedule of the cargo.
- Tracking of the shipment may differ.

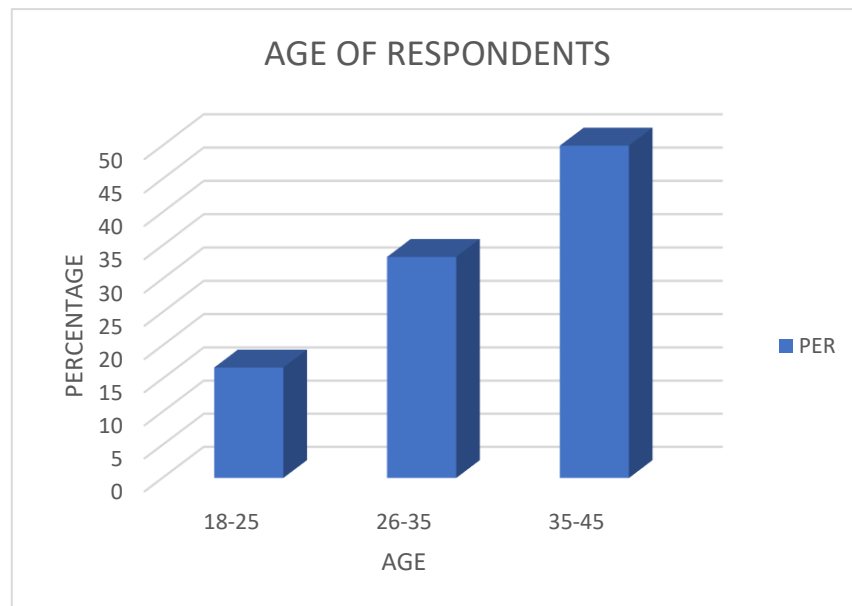
DATA ANALYSIS AND INTERPRETATION

AGE:

A period of human life, measured by years from birth, usually marked by a certain stage or degree of mental or physical development and involving legal responsibility and capacity. The length of time during which a being or thing has existed.

TABLE NO.1.01

AGE	18-25	26-35	35-45
PERCENTAGE	16.7	33.3	50
NO.OF.RESPONDENTS	5	10	15

**INTERPRETATION:**

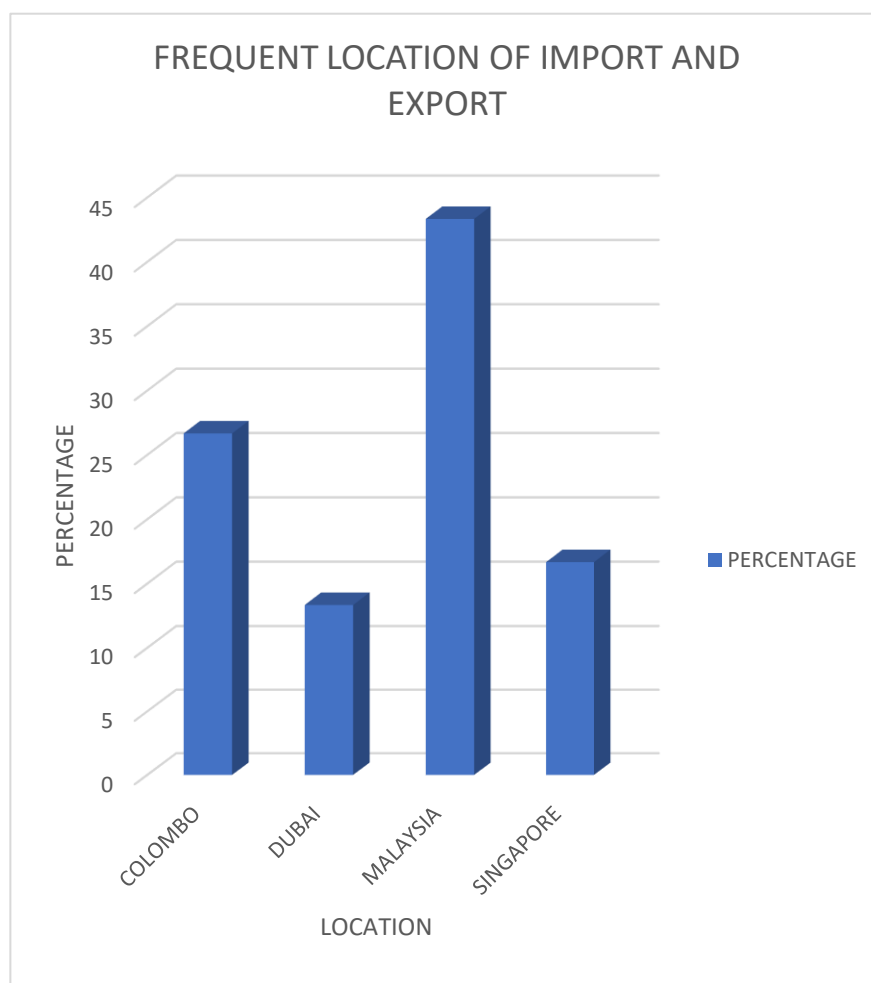
From the above table, it is inferred that majority of the respondents are from age group ranging from 35 to 45 years with percentage of 50%. Age group varying between 26 and 35 exhibits 33.3% and 16.7% from age group from 18 to 25 years old.

LOCATION FREQUENCY :

The frequent locations or countries engage in importing and exporting measured by the volume and value of trade transactions.

TABLE NO: 1.12

LOCATION	COLOMBO	DUBAI	MALAYSIA	SINGAPORE
PERCENTAGE	26.7	13.3	43.3	16.7
NO.OF. RESPONDENTS	8	4	13	5



INTERPRETATION :

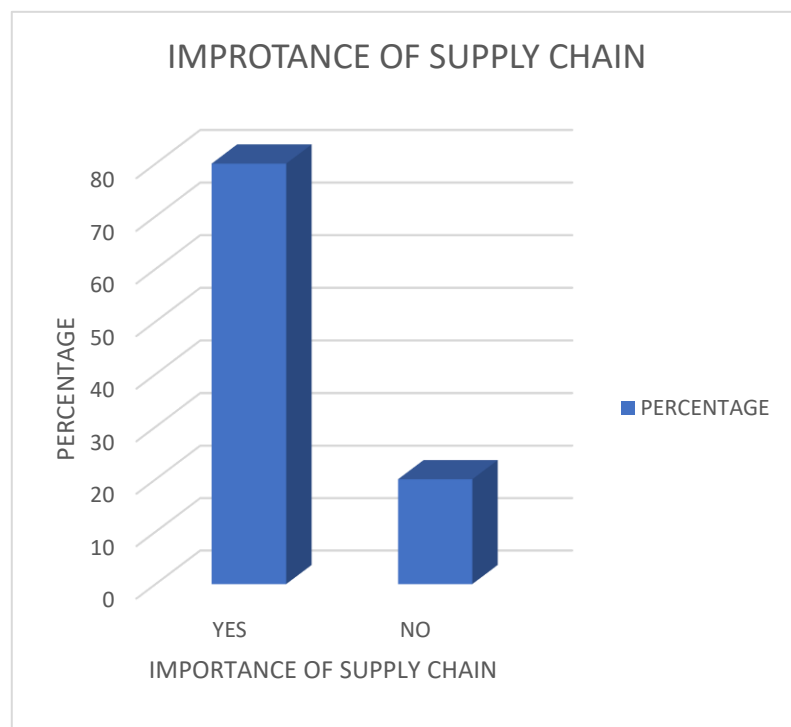
From the above table, it shows that Colombo has 26.6% of frequent export and import, Dubai has 13%, Malaysia displays majority of trading with 43.3% and Singapore with 16.7%.

SUPPLY CHAIN:

A supply chain is a network of interconnected entities, organizations, and activities involved in the production, distribution, and delivery of goods and services to consumers. It encompasses all the processes and steps from the initial production of raw materials to the final consumption of the end product.

TABLE NO:1.10

SUPPLY CHAIN	YES	NO
PERCENTAGE	80	20
NO.OF.RESPONDENTS	24	6



INTERPRETATION:

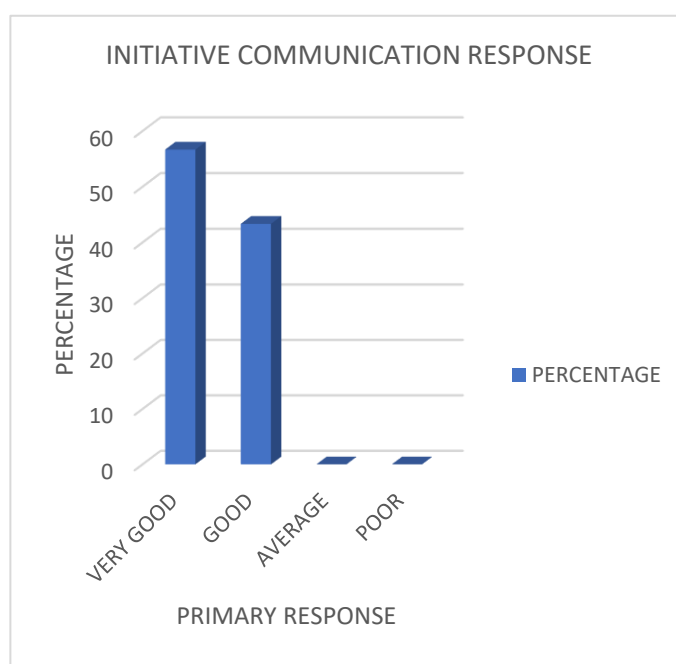
From the above table improvement of the company, owing to importance of supply chain with correspondence to respondent results shows that 80% responded positively and 20% did not agree with the information.

RESPONSE FOR INITIATIVE COMMUNICATION:

Clients/agents acknowledgement of information, and addressing any specific points raised as a response to initial communication. They might also share their thoughts, concerns, or additional information relevant to the communication. It's important for their response to be clear, courteous, and, if applicable, indicate the next steps or actions they plan to take. Open and transparent communication helps foster a positive and productive relationship between all parties involved.

TABLE NO:1.11

RESPONSE	VERY GOOD	GOOD	AVERAGE	POOR
PERCENTAGE	56.7	43.3	0	0
NO.OF.RESPONDENTS	17	13	0	0



INTERPRETATION:

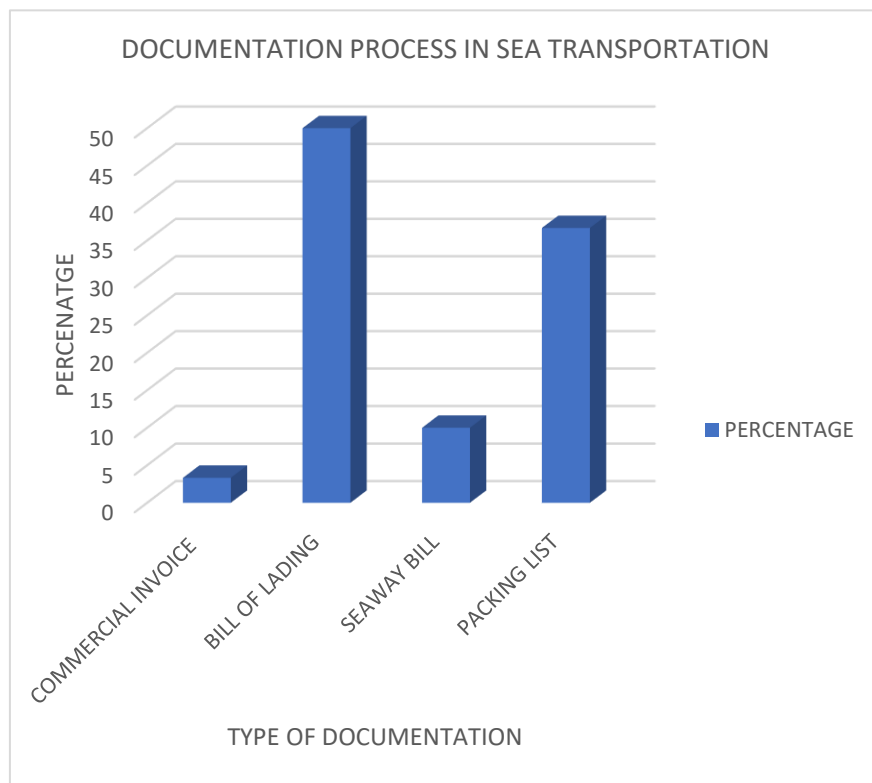
From the above table, response to initial communication was very good with 56.6%, good response with 43.3% and no results for average and poor response from clients or agents

DOCUMENTATION PROCESS:

The documentation process involves creating, managing, and maintaining records or documents related to various aspects of a project, process, or transaction. This typically includes capturing information, organizing it systematically, and ensuring its accuracy and accessibility. Documentation serves purposes such as providing instructions, recording decisions, maintaining a historical record, and facilitating communication within and outside an organization.

TABLE NO.1.13

PROCESS	COMMERCIAL INVOICE	BILL OF LADING	SEAWAY BILL	PACKING LIST
PERCENTAGE	3.3	50	10	36.7
NO.OF.RESPONDENTS	1	15	3	11



INTERPRETATION:

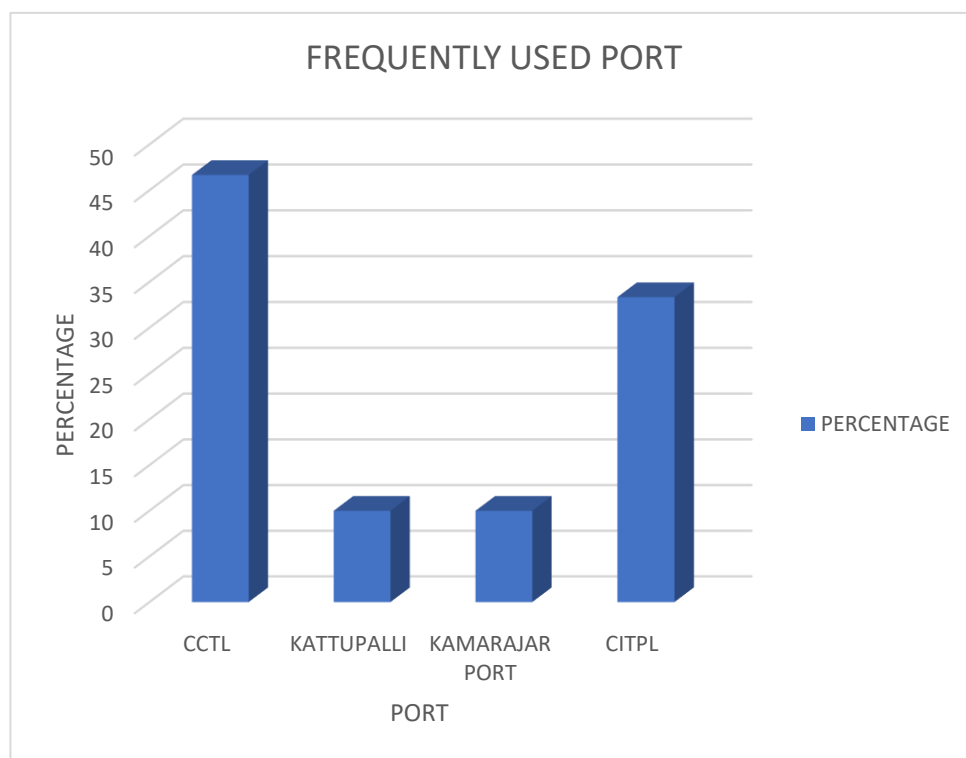
Form the table, documentation process used to export or import in sea transportation with commercial invoice is 3.3%, bill of lading with 50%, seaway bill with 10%, packing list with 36.7%. therefore, majority of documentation is done with bill of lading.

PORT:

Ports play a crucial role in international trade, serving as locations where goods are loaded and unloaded between ships and other modes of transportation.

TABLE NO:1.17

PORT	CCTL	KATTUPALLI	KAMARAJAR PORT	CITPL
PERCENTAGE	46.7	10	10	33.3
NO.OF.RESPONDENTS	14	3	3	10

**INTERPRETATION:**

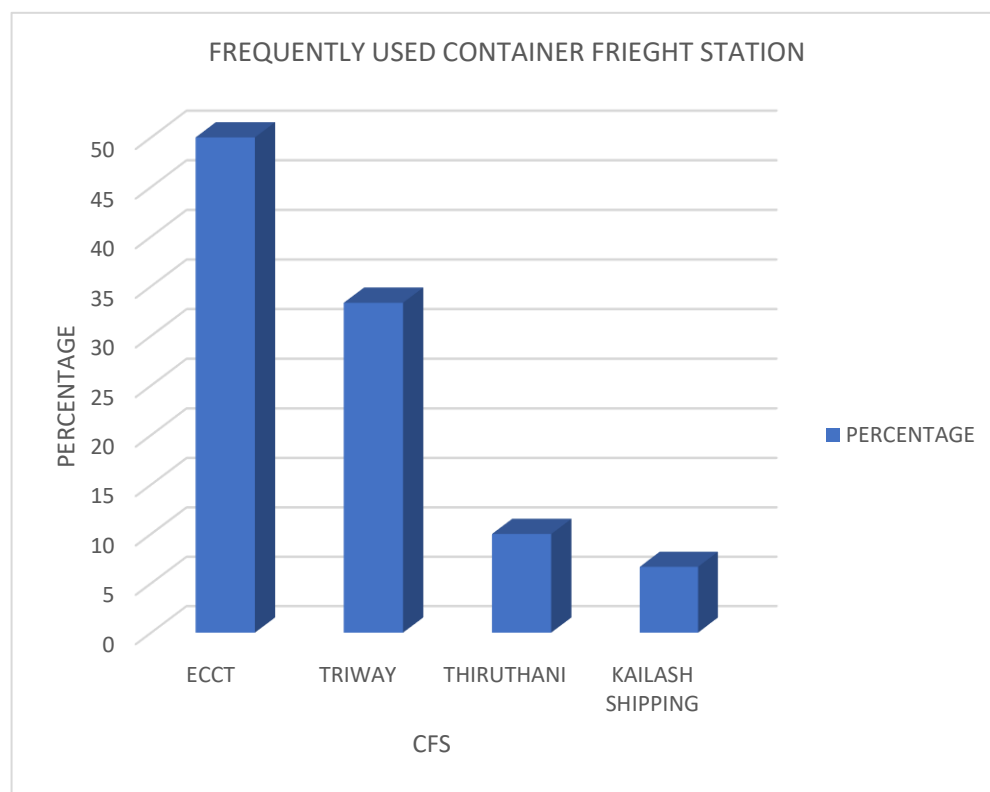
From the above table, the frequently used ports are CCTL, Kattupalli, Kamarajar port, CITPL shows CCTL with highest percentage of 46.7% for frequently used ports, followed by CITPL with 33.3%, Kattupalli and Kamarajar port shows similar results with percentage of 10%.

CONTAINER FREIGHT STATION:

A Container Freight Station (CFS) is a facility used in the shipping and logistics industry for consolidating or deconsolidating freight in shipping containers and acts as an intermediate facility where cargo is grouped together (consolidated) or separated (deconsolidated) before being loaded into or after being unloaded from shipping containers with providing services for the handling, storage, and examination of cargo. This includes packing, unpacking, sorting, and sometimes customs examination.

TABLE 1.16

CFS	ECCT	TRIWAY	THIRUTHANI	KAILAISH SHIPPING
PERCENTAGE	50	33.3	10	6.7
NO.OF.RESPONDENTS	15	10	3	2



INTERPRETATION:

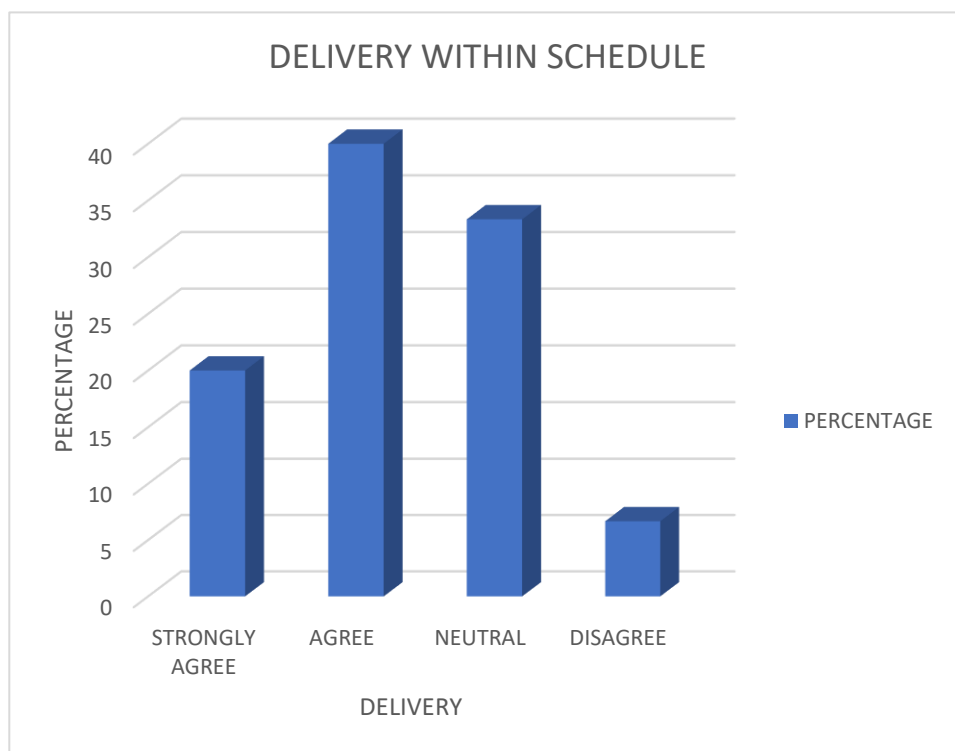
From the above table, frequently used Container Freight Stations with highest percentage of about 50% is ECCT. Followed by Triway with percentage 33. 3% and Thiruthani of about 10%. The least used Container Freight Station is Kailash shipping with 6.7%.

DELIVERY WITH ACCURACY AND WITHIN SCHEDULED TIME:

For effective delivery, plan the transportation and logistics process meticulously, considering the distance, mode of transport, and any potential delays with realistic scheduling by setting Plan the transportation and logistics process meticulously, considering the distance, mode of transport, and any potential delays.

TABLE NO: 1.15

DELIVERY	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE
PERCENTAGE	20	40	33.3	6.7
NO.OF.RESPONDENTS	6	12	10	2



INTERPRETATION:

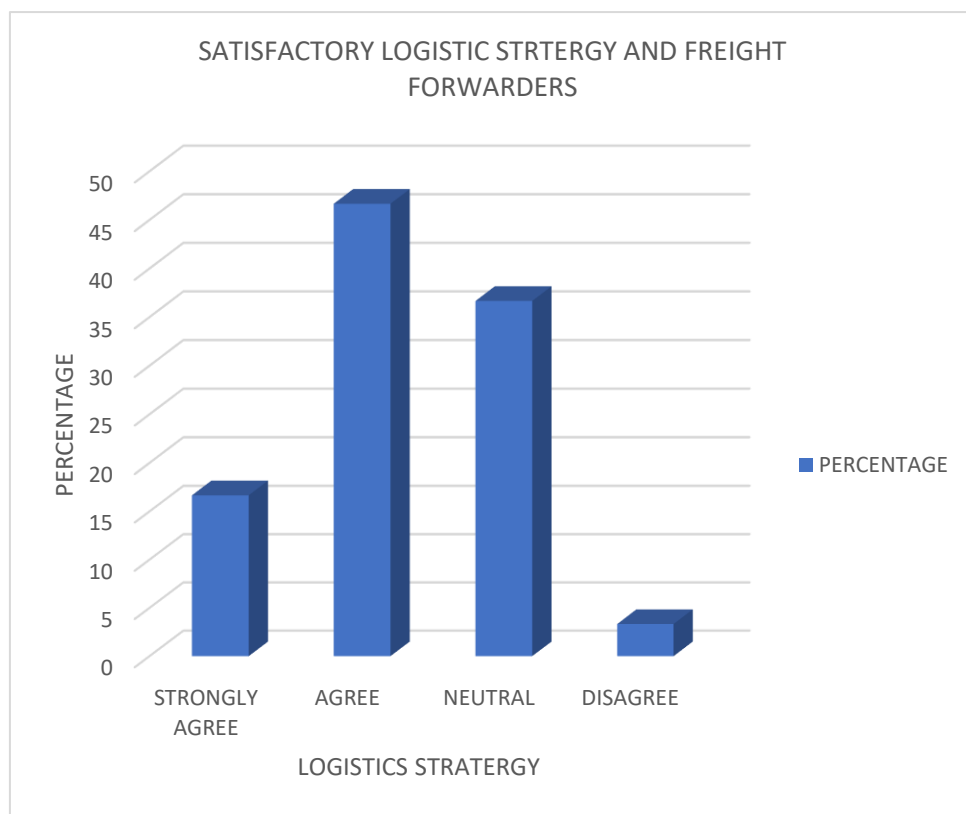
From the above table, most of the respondents agreed that prompt delivery is done within scheduled time with 40% and 33.3% of respondents addressed with neutral response. 6.7% respondents disagreed and 20% strongly agreed with the information.

LOGISTIC STRATEGY :

A well-implemented logistics strategy, complemented by effective freight forwarders, can contribute to a seamless and efficient supply chain with crucial components such as, strategic partnerships, optimized transport, risk management, customs compliance, effective warehousing and communication.

TABLE NO:1.14

LOGISTIC STRATEGY	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE
PERCENTAGE	16.7	46.7	36.7	3.3
NO.OF.RESPONDENTS	5	14	11	1



INTERPRETATION;

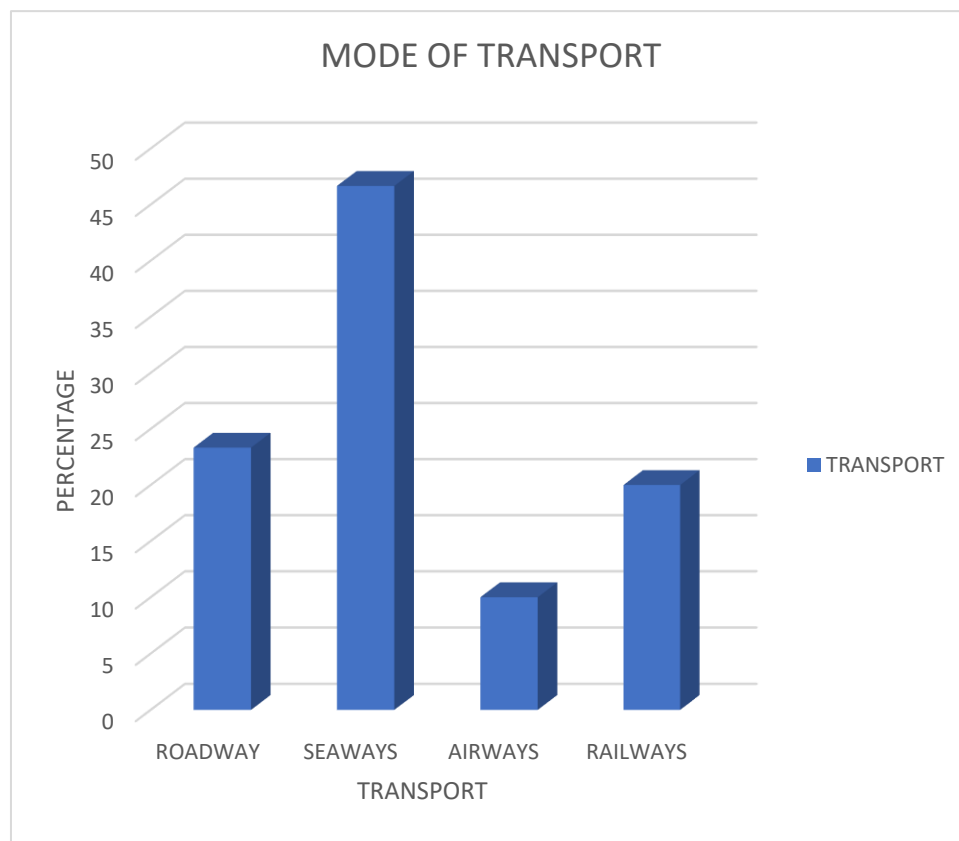
From the above table, most of the respondents agreed that logistics strategy along with freight forwarders was satisfactory. Followed by neutral response from 36.7% of respondents and 5% strongly agreed and 1% disagreed with the information.

MODE OF TRANSPORT:

Combination of transportation modes to optimize efficiency and meet the diverse needs of their clients. The choice of modes depends on factors like distance, type of cargo, cost considerations, and time constraints. Some of modes of transport are roadway, seaway, airway, and railways.

TABLE NO:1.05

TRANSPORT	ROADWAYS	SEAWAYS	AIRWAYS	RAILWAYS
PERCENTAGE	23.3	46.7	10	20
NO.OF.RESPONDENTS	7	14	3	6



INTERPRETATION:

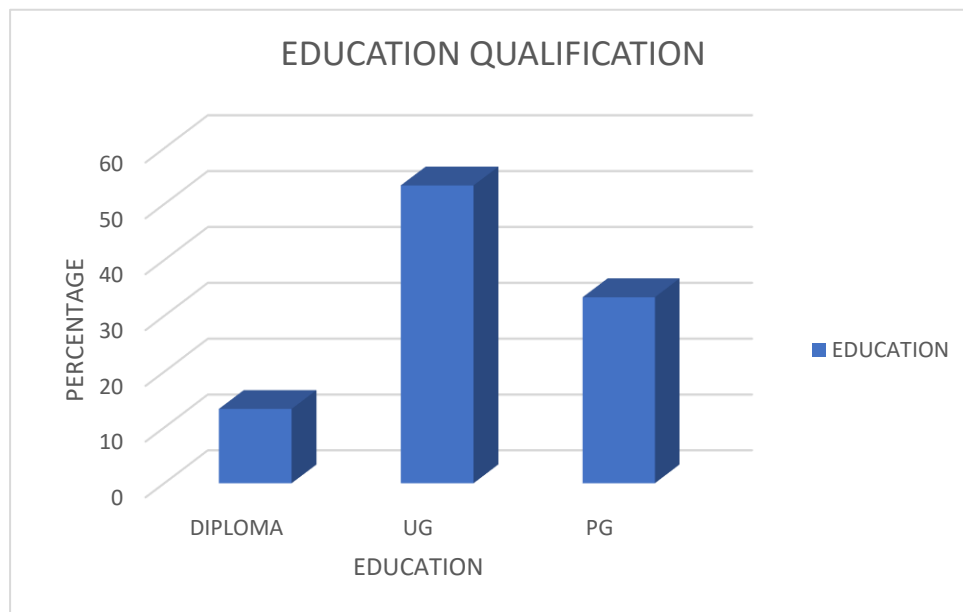
From the table, the results show that major mode of transport is seaways with percentage of 46.7% and roadways with 23.3%. The least used mode of transport was railways with 20% and airways with 10%.

EDUCATION QUALIFICATION:

A title or attribution in education, through examination or by certification, academic degree, high school, diploma, list of admission tests to college and Universities, teaching qualification and professional certification.

TABLE NO : 1.04

EDUCATION	DIPLOMA	UNDERGRADUATE	POSTGRADUATE
PERCENTAGE	13.3	53.3	33.3
NO.OF.RESPONDENTS	4	16	10



INTERPRETATION:

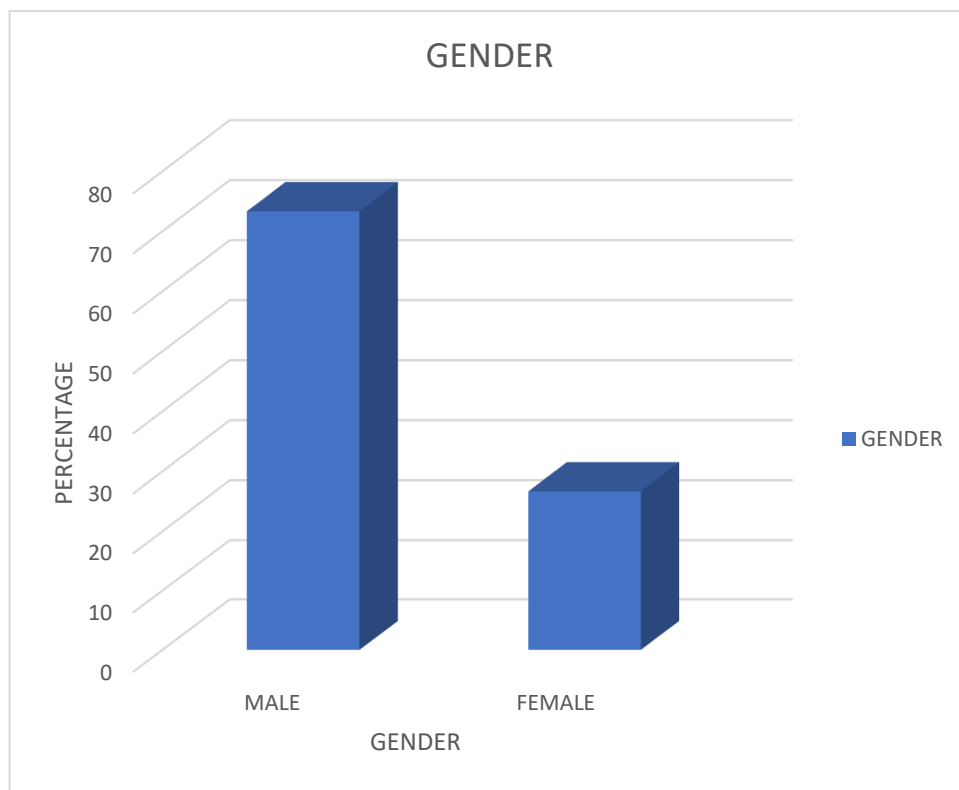
From the above table, it shows that major educational qualification of about 53.3% of the respondents have completed undergraduate degree, 33.3% of the respondents have completed postgraduate degree and 13.3% of the respondents have completed diploma.

GENDER:

Gender is the range of physical, biological, mental and behavioural characteristics to and differentiating between, masculinity and femininity.

TABLE NO: 1.03

GENDER	MALE	FEMALE
PERCENTAGE	73.3	26.7
NO.OF.RESPONDENTS	22	8

**INTERPRETATION:**

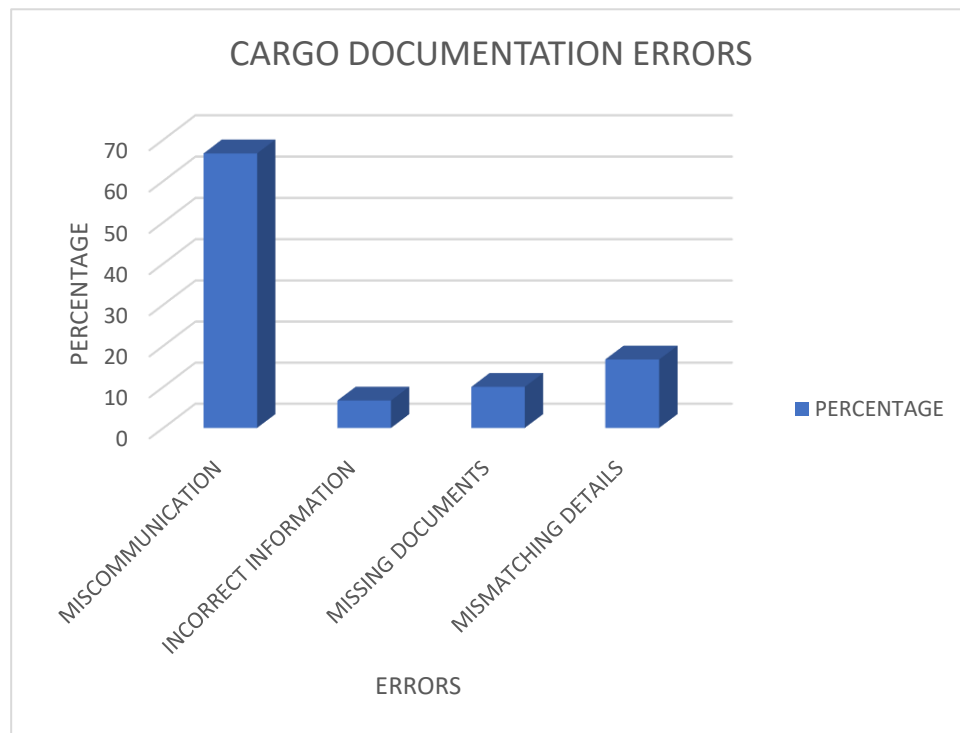
From the above table, it is observed that majority of the respondents are male with 73.3% and 26.7% respondents are female

CARGO DOCUMENTATION ERRORS:

Errors in cargo documentation can lead to delays, fines, and disruptions in the supply chain by providing inaccurate details about the cargo, such as weight, quantity, or description, can result in compliance issues and delays, missing documentations, miscommunication.

TABLE NO: 1.08

ERROR	MISCOMMUNICATI ON	INCORREC T DETAILS	MISSING DOCUMENT S	MISMTCHIN G DETAILS
PERCENTAGE	66.7	6.7	10	16.7
NO.OF.RESPONDEN TS	20	2	3	5



INTERPRETATION:

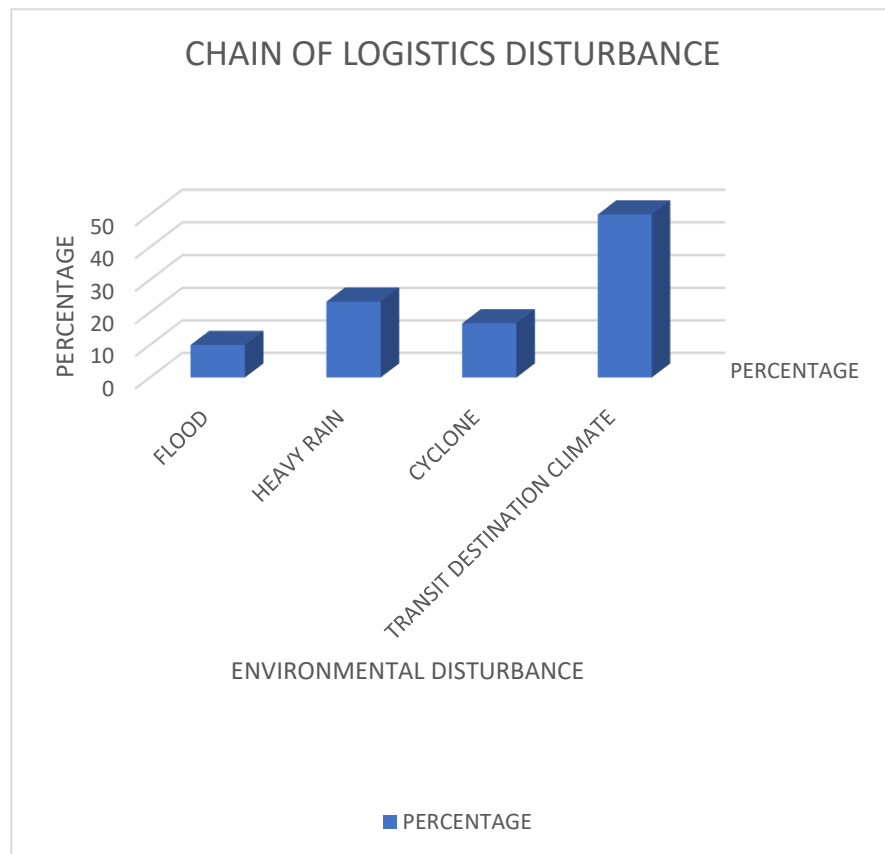
From the above table, the major error during cargo documentation is miscommunication with percentage of 66.7% . Followed by mismatching details with 16.7% and almost similar results exhibited by incorrect details and missing documents with 6.7% and 10% respectively.

CHAIN OF LOGISTICS DISTURBANCE:

A chain of logistics disturbance refers to a series of disruptions or challenges that occur within the logistics and supply chain processes, potentially leading to a cascade of negative effects, categorized under environmental causes such as flood, heavy rain, cyclone, transit destination climate.

TABLE NO: 1.07

DISTURBANCE	FLOOD	HEAVY RAIN	CYCLONE	TRANSIT DESTINATION CLIMATE
PERCENTAGE	10	23.3	16.7	50
NO.OF.RESPONDENTS	3	7	5	15



INTERPRETATION:

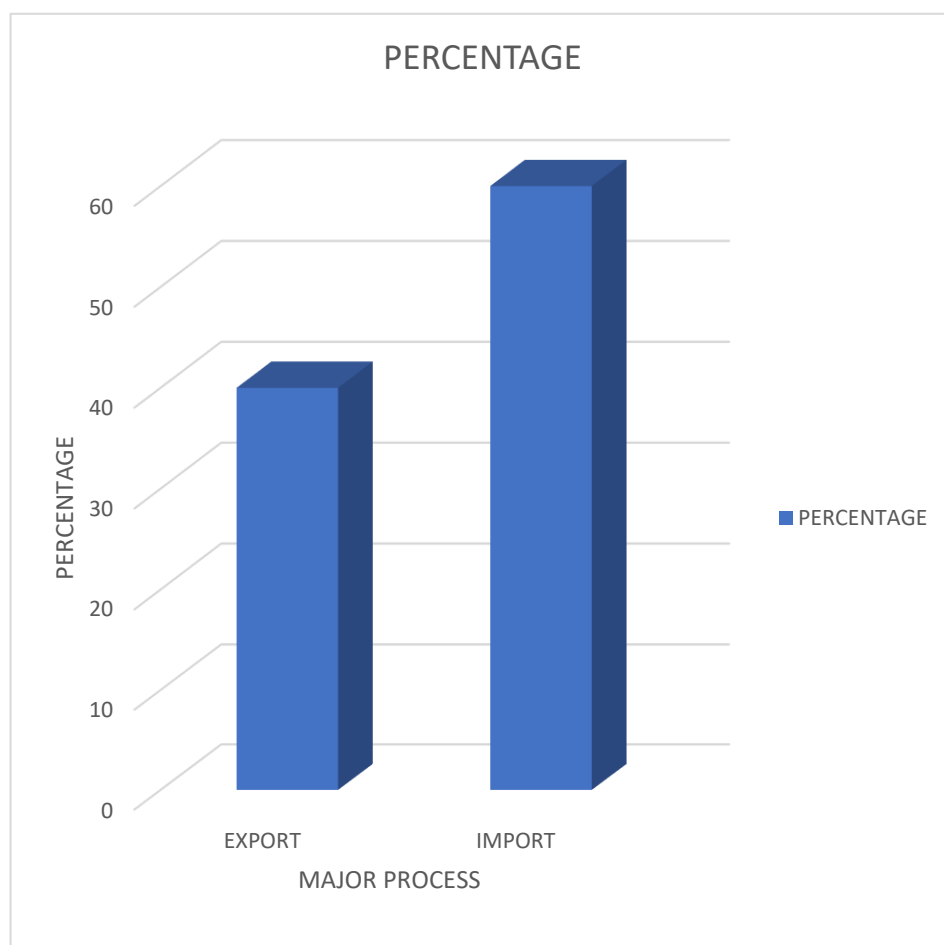
From the above table, the major concern as environmental disturbance is transit destination climate with percentage of 50%, followed by heavy rain with 23.3% and cyclone with 16.7%. The least cause is flood with 10%.

MAJOR BALANCE OF TRADING PROCESS:

Import and export are fundamental components of international trade, involving the exchange of goods and services between countries.

TABLE NO: 1.09

PROCESS	EXPORT	IMPORT
PERCENTAGE	40	60
NO.OF.RESPONDENTS	12	18



INTERPRETATION:

From the above table it is observed that the major process occurred in this logistic company is import with percentage of 60% followed by export with 40%.

FINDINGS, SUGGESTIONS, CONCLUSION

FINDINGS :

- 50% OF THE RESPONDENTS ARE UNDER THE AGE OF 35-45.
- 73% OF THE RESPONDENTS ARE MALE.
- 53% OF THE RESPONDENTS HAVE COMPLETED UG DEGREE.
- 47% OF THE RESPONDENTS SAYS SEA TRANSPORT.
- 43% OF THE RESPONDENTS SAYS MALAYSIA HAS THE MORE NO OF SHIPPING.
- 50% OF THE RESPONDENTS SAYS TRANIST DESTINATION CLIMATE MAKE MORE IMPACT IN LOGISTICS.
- 67% OF THE RESPONDENTS SAYS MISCOMMUNICATION PLAY A MAJOR ROLE IN DOCUMENTATION.
- 60% OF THE RESPONDENTS SAYS IMPORT IS MORE HAPPEN IN THE COMPANY.
- 80% OF THE RESPONDENTS SAYS SUPPLY CHAIN SHOULD BE IMPROVED IN THE COMPANY
- 57% OF THE RESPONDENTS AGRRED CLIENTS/CUSTOMERS/AGENTS WILL RESPOND ACCORDING TO THE INITIATIVE FOR COMMUNICATION.
- 100% OF THE RESPONDENSTS SAYS DOCUMENT DRAFTING WILL BE HAPPENED DURING THE DOCUMENTATION PROCESS.
- 50% OF THE RESPONDENTS SAYS BILL OF LADING IS USED IN SEA TRANSPORTATION.
- 47% OF THE RESPONDENTS AGREES OVERALL LOGISTICS STRATEGY FOLLOWED BY THE FREIGHT FORWARDERS WERE SATISFYING.
- 40% OF THE RESPONDENTS AGREES ORDERS ARE DELIVERED PROMPTLY AND ACCURATELY ACCORDING TO THE PLANNED SCHEDULE?
- 50% OF THE RESPONDENTS SAYS THAT ECCT IS FREQUENTLY USED CFS
- 47% OF THE RESPONDENTS SAYS CCTL IS THE FREQUENTLY USED PORT

SUGGESTIONS:

- Making a proper rotational shift for the drivers to maintain the frequency of the distribution.
- Roadways are the most cost-efficient way of transporting the cargo for inter cities. To make it even efficient planning a single truck and make use for two or more cargo. So that the cost will be reduced.
- For preventing the BL amendment documentation team can cross check the document twice and then enter the data. In other way they can prepare a draft BL to cross check the details with the customer/agent.
- Pre-alert document is main document through which we can expect the shipment arrival day. By collecting the document during the starting process is appreciable one.
- Proper communication is must. Without a proper communication loop we can't follow the shipment and the regular updates will not be received properly.
- In production we should be very conscious about the cargo so that we can make use of the cargo at the right time and make profit.
- Port congestion issue is un curable one. Managing the ship and cargo in large amount of number is very though. Even though its though to manage we can setup a schedule for each and every shipment by following that schedule we can save time as well as there will be no congestion in the port. And the supply chain will be more effective.

CONCLUSION:

Logistics is the one important function in business today. No manufacturing or project execution can succeed without logistics support. Logistics is marketing, important in India because of the country's size, geography, population variety, natural and man-made calamities etc. The transport facilities are inadequate in India and roads are bad. India lacks a well-developed road network and waterways are still unexploited.

Due to competition, globalization and information availability, logistics has gained extra importance, first: the days are gone when a manufacturer had a better raw material supplier than competitors. Then, the operations in a manufacturing process are well known to all. The processes are standard. Also, technology is available to all. The only area where one can score over competitors is logistics. If logistics cost is reduced, there is a gain. Logistics is a critical factor for effective marketing too: for, if a company cannot reach the right thing at the right place etc., then, regardless of the marketing efforts, the business comes down.

Logistics is one of the areas of the supply chain i.e., growing at a tremendous pace as the Internet and E-Commerce is drastically changing the range, delivery time and the speed of information as well as ordering and payment process. Due to the big boon of information technology, greatly influencing and enhancing the effectiveness of logistics, the time is not far when logistics services would prove to be one of the major contributors to the National Income. The industrial policies in India have prompted manufacturers to build plants in remote, backward areas due to inexpensive land and tax benefits. This poses some serious logistical problems. Apart from a poor road and transportation network, the existing communications system in India leaves a lot to be desired by any international standard.

With increased geographical distribution of incomes in India, the consumer markets are extending beyond the five metros of Mumbai, Delhi, Bangalore, Chennai, and Hyderabad. However, rather than being pre-emptive, the companies are only following with new distribution outlets. As such, the increased competition across industry verticals is forcing firms to focus on product distribution, and logistics is gaining further momentum with this.

QUESTINARIE:

1. Name:
2. Age:
 - A) 18-25
 - B) 26-35
 - C) 35-45
 - D) above 45 years
3. Gender:
 - A) Male
 - B) Female
4. Education qualification:
 - A) Diploma
 - B) UG
 - C) PG
 - D) Other
5. Mode of transportation often used in Greenwich meridian logistics (India) pvt.
 - A) Roadways
 - B) Seaways
 - C) Airways
 - D) Railways
6. What are the locations frequently your company export and import cargo?
 - A) Colombo
 - B) Dubai
 - C) Malaysia
 - D) Singapore
7. What are the environmental causes that frequently disturb the chain of logistics?
 - A) Flood
 - B) Heavy rain
 - C) Cyclone
 - D) Transit destination climate
8. Why most of the time error occurs while documenting the cargo?
 - A) Incorrect information
 - B) Missing documents
 - C) Mismatching details
 - D) Miscommunication
9. Which process is more frequently happened in your company
 - A) Import
 - B) Export
10. Is supply chain management is important to improve your company?
 - A) Yes
 - B) No
11. How clients/customers/agents will response your initiative for communication?
 - A) Very good

- B) Good
 - C) Average
 - D) Poor
12. Do you use documentary draft for shipping?
- A) Yes
 - B) No
13. Which of the following documentation process is used to export/import in sea transportation?
- A) Commercial invoice
 - B) Bill of lading
 - C) Seaway bill
 - D) Packing list
14. The overall logistics strategy followed by the freight forwarders were satisfying
- A) Strongly agree.
 - B) Agree
 - C) Neutral
 - D) Disagree
15. Orders are delivered promptly and accurately according to planned schedule?
- A) Strongly agree.
 - B) Agree
 - C) Neutral
 - D) Disagree
16. Frequently used CFS (container freight station)?
- A) ECCT
 - B) Triway
 - C) Thirurani
 - D) Kailash shipping
17. Frequently used port
- A) CCTL (DP world)
 - B) Kattupalli
 - C) Kamarajar port
 - D) CITPL

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