

# **STUDY ON CUSTOMER PERCEPTION ON SERVICES PROVIDED BY ZIPLINE GLOBAL LOGISTICS PRIVATE LIMITED, CHENNAI**

Submitted in partial fulfilment of the requirement for the reward of

**MASTER OF BUSINESS ADMINISTRATION**

By

**THAMEEM.D**

**42410135**



**MASTER 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 - 600119

**September 2023**



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## **BONAFIDE CERTIFICATE**

This is to certify that this Project Report is the Bonafide work of **Thameem.D (42410135)** who has done the Project work entitled **A Study On Customer Perception On Services Provided By Zipline Global Logistics Private Limited, Chennai** under my supervision from September - **October 2023**

**Internal Guide**

**External Guide**

**Dean, School of Business Administration**

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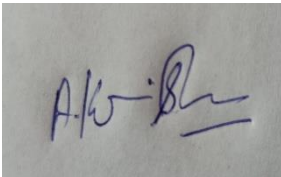
Submitted for Viva voice Examination held on \_\_\_\_\_.

**DECLARATION**

I **THAMEEM.D(42410135)**. Hereby declare that the Project Report entitled  
**“A STUDY ON CUSTOMER PERCEPTION ON SERVICES  
PROVIDED BY ZIPLINE GLOBAL LOGISTICS PRIVATE  
LIMITED** done by me under the guidance of **Dr.J.Rani**, School of Business  
Administration is submitted in partial fulfilment of the requirements for the  
award of **MASTER OF BUSINESS ADMINISTRATION** degree.

**DATE:**

**PLACE:**

A handwritten signature in blue ink, appearing to read 'A.K. B.', with a horizontal line underneath.

**THAMEEM.D**

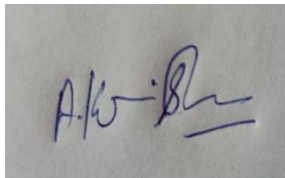
**ACKNOWLEDGEMENT**

I am pleased to acknowledge my sincere thanks to Board of Management of **SATHYABAMA** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my sincere thanks to **Dr. BHUVANESWARI G.**, Dean, School of Business Administration and **Dr. PALANI A.**, Head of Department, School of Business Administration for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Project Guide **Dr.J.Rani, Assistant Professor of the Department, School of Management** for his valuable guidance, suggestions and constant encouragement paved way for the successful completion of my project work.

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## **ABSTRACT**

Logistics has come to be recognized as a distinct function with the rise of mass production systems. Production and distribution were earlier viewed as a sequential chain of extremely specialized activities. The role of logistics is to ensure availability of all the required materials before every step in this chain. Obviously inventory of raw materials, semi-finished and finished goods is a must across this chain to ensure its smooth functioning.

This project is done with only Zeniline Global Logistics Private Limited . This project survey has taken for only customer of Zeniline Global Logistics Private Limited . This project is does not applicable for any other Logistics services. It is important to underscore the word perception. ZPerception is “is the act of discerning realizing and becoming aware of through the senses”. The customer perception is what counts and not what we think it is.

The primary objective is to study the perception of customers towards the services provided by Zeniline Global Logistics Private Limited. Other objectives are to know the export market, transportation, customer freight station, customer house agent operation and liner services, know the procedures of documents in export and import and to know the function and responsibility of various department in Zeniline Global Logistics Private Limited

Convenience sampling method has used in the research work. Multiple choice questions have been chosen to collect the responses from 140 customers. The data collected has been analyzed through various statistical tools like Karl Pearson’s Correlation, and One-way Anova test. Numerous new findings has been derived from this research has helped to provide few suggestions to improve the customer perception on services provided by Zeniline Global Logistics Private Limited.

## CHAPTER-1

### INTRODUCTION

#### 1.1 INTRODUCTION

In modern days of Shipping Industries, they are basically following two services to satisfy the needs of customer such as Horizontal service, Vertical Service.

The activities of participants within any given vertical services are typically similar. In that they aim at solving the same or similar problems. These services are typically **competitive**, due to the overlapping focuses of the products and services that are provided to the customers.

The single defining characteristic of the participants in a vertical service is competition within a well-defined segment.

A **vertical services** (often referred to simply as a "**vertical**") is a group of similar businesses and customers that engage in trade based on specific and specialized needs. Often, participants in a vertical service are very limited to a subset of a larger industry (a niche market). An example of this sort of market is the market for point-of-sale terminals, which are often designed specifically for similar customers and are not available for purchase to the general public. Vertical marketing can be witnessed at trade shows. The opposite of vertical marketing is horizontal marketing.

#### VERTICAL AND HORIZONTAL SERVICE

Logistics services support the movement of materials and products from inputs through production to consumers, as well as associated waste disposal and reverse flows. They include activities undertaken in-house by the users of the services (e.g. storage or inventory control at a manufacturer's plant) and the operations of external service providers.

The concept of reverse logistics has been applied in promoting costumer service and resources recycling. Concerning quality control, the defective components

and finished products will be returned to their producers through reverse logistics systems. Nowadays, reverse logistics has been developed rapidly for increasing industries' competitiveness, promoting customer service level, and recycling the reusable material. Meanwhile, the demand of reverse logistics brings out a new market for the third-party logistics industries.

The flow in vertical direction is the reverse logistics, whose direction is counter to the ordinary logistics.

### **Clearing**

When goods are loaded on board and the document issued in respect to these goods then it is cleared.

### **Clearance Terminal**

Terminal where Customs facilities for the clearance of goods are available.

### **Problems**

- Problems on issue of providing documents at the time of clearance.
- Dependent on package shipment method.
- Depend on package origin, package contents,
- Depending on the paperwork accompanying the shipment
- Policies differ from country to country and from port to port.

### **Solutions**

These problems are to be analyzed and suggestions are given based on data collected from primary data (QUESTIONNAIRE) and secondary data.

**Horizontal service** participants often attempt to meet enough of the different needs of vertical markets to gain a presence in the vertical market. Their similar products/services tend to be less of a fit but also less expensive than specialized, vertical participant solutions.

### **HORIZONTAL SERVICE COMPARED WITH VERTICAL SERVICE**

A vertical market is a market which meets the needs of a particular industry: for example, a piece of equipment used only by semiconductor manufacturers. It is also known as a niche market.

A horizontal market is a market which meets a given need of a wide variety of industries, rather than a specific one: for example, word processing software or machine-to-machine technologies. On occasion a horizontal market can be highly specialized at the same time, for instance consider the market for converting mainframe databases developed with the tools of a particular company. The market for such a database conversion service might involve many vertical markets (aerospace, manufacturing, banking, etc.) but nevertheless be labeled "niche" if the database technology is technically obsolete and no longer mainstream.

## **1.2 INDUSTRY PROFILE**

The scope and influence of logistics has evolved in the late 1940s. In the 1950s, and 60s, military was the only organization which used logistics. The scope of logistics has been extended beyond the army, as it has been recognized as one of the important tools for developing competitiveness. Competitive advantage means the company has the ability to differentiate itself, in the customer's eyes, and also is operating at a lower cost and greater profit.

Logistics facilitates in getting products and services as and when they are needed and desired to the customer. It also helps in economic transactions, serving as a major enabler of growth of trade and commerce in an economy.

Logistics has come to be recognized as a distinct function with the rise of mass production systems. Production and distribution were earlier viewed as a sequential chain of extremely specialized activities. The role of logistics is to ensure availability of all the required materials before every step in this chain. Obviously inventory of raw materials, semi-finished and finished goods is a must across this chain to ensure its smooth functioning.

The concept of logistics has its base upon the systems approach. There is a single chain, with flow of materials starting from the supplier, then to the plant and finally to the end customer, and also these activities are done sequentially in order to achieve customer satisfaction at low cost. For this to be successful there has to be co-ordination in the activities of the department.

With reference to an organization, an organization gets a concrete shape due to its structure. In the earlier times, the suppliers in distribution activities were spread across the entire structure, thus resulting in an overlapping of activities and finally in unaccountable authority and responsibility. In today's process driven organization, where the focus has shifted from functions to process, logistics has become an essential part of the process.

### **Definitions of logistics:**

**The American Council of Logistics Management** defines logistics as “the process of planning, implementing and controlling the efficient, cost effective flow and storage of raw materials, in-process inventory, finished goods and related information from point of origin to point of consumption for the purpose of conforming to customers' requirements”.

**Philip Kotler** defines logistics as “planning, implementing, and controlling the physical flows of materials and finished goods from point of origin to point of use to meet the customer's need at a profit”.

### **Objectives of logistics:**

Logistics has the following objectives:

**Reduction of inventory:** Inventory is one of the key factors, which can affect the profit of an enterprise to a great extent. In the traditional system, firms had to carry lot of inventory for satisfying the customer and to ensure excellent customer service. But, when funds are blocked in inventory, they cannot be used for other productive purposes. These costs will drain the enterprise's profit.

Logistics helps in maintaining inventory at the lowest level, and thus achieving the customer goal. This is done through small, but frequent supplies.

**Economy of freight:** Freight is a major source of cost in logistics. This can be reduced by following measures like selecting the proper mode of transport, consolidation of freight, route planning, long distance shipments etc.

**Reliability and consistency in delivery performance:** Material required by the customer must be delivered on time, not ahead of the schedule or behind the schedule. Proper planning of the transportation modes, with availability of inventory will ensure this.

**Minimum damage to products:** Sometimes products may be damaged due to improper packing, frequent handling of consignment, and other reasons. This damage adds to the logistics cost. The use of proper logistical packaging, mechanized material handling equipment, etc will reduce this damage.

**Quicker and faster response:** A firm must have the capability to extend service to the customer in the shortest time frame. By utilizing the latest technologies in processing information and communication will improve the decision making, and thus enable the enterprise to be flexible enough so that the firm can fulfill customer requirements, in the shortest possible time frame.

**The various functions of logistics are as follows:**

**1.Order Processing:** Processing the orders received from the customers is an activity, which is very important by itself and also consumes a lot of time and paperwork. It involves steps like checking the order for any deviations in the agreed or negotiated terms, price, payment and delivery terms, checking if the materials is available in stock, producing and scheduling the material for shortages, and also giving acknowledgement to the owner, by indicating any deviations.

**2.Inventory Planning and management:** Planning the inventory can help an organization in maintaining an optimal level of inventory which will also help in satisfying the customer. Activities like inventory forecasting, engineering the order

quantity, optimization the level of service, proper deployment of inventory etc. are involved in this.

**3. Warehousing:** This serves as the place where the finished goods are stored before they are sold to the customers finally. This is a major cost center and improper warehouse management will create a host of problems.

1. **Transportation:** Helps in physical movement of the goods to the customers place. This is done through various modes like rail, road, air, sea etc.
2. **Packaging:** A critical element in the physical distribution of the product, which also influences the efficiency of the logistical system.

**Logistics delivers value to the customer through three main phases:**

**Inbound logistics:** These are the operations, which precede manufacturing. These include the movement of raw materials, and components for processing from suppliers.

**Process logistics:** These are the operations, which are directly related to processing. These include activities like storage and movement of raw materials, components within the manufacturing premises.

**Outbound logistics:** These are the operations, which follow the production process. These include activities like warehousing, transportation, and inventory management of finished goods.

**Logistics Solution:**

Generally, the in-house logistics departments in manufacturing organizations take care of all aspects of logistics. But this is not an area of core competency of manufacturing or trading organizations. Today, a lot of successful business corporations across the world are outsourcing logistics to the third party logistics providers, who are having the necessary infrastructure and expertise to do the job in a better manner. Complete logistics solutions to manufacturers and traders is provided by the third party logistics providers, and they help in integrating various logistics operations, thus ensuring speedy and uniform movement of materials across the supply chain.

Logistics is nowadays widely used in virtually every area. The success of a logistics service providing company depends on how they conceptualize and implement the logistics solution, and also tune to the requirements of the customer.

### **Future of Logistics**

Nowadays corporations look only for sustainable competitive advantage, not only for growth, but also to survive. There is so much killing competition that corporations are compelled to review their business process while they deliver the products and services to customers, who are looking for more and more value for the money that they are spending. The focus of competition has shifted from the product to the supply chain.

Today, logistics management is based on the system concept and cost approach. Transportation, warehousing, handling of material, inventory management and order processing are the major logistics activities, which impact the customer cost and operation. Integrated logistics helps in taking the cost out of the supply chain and also enhance the customer service level.

When looking at the macro level, a growth of a country's economy depends on the availability of excellent logistics infrastructure. The speed of the movement of goods depends to a great extent on the various modes of transportation like rail, road, air, and sea.

Logistics has a bright future, especially in India, but certain pressing issues like abolition of octroi levy, rationalization of customs formalities, improvement in road and rail infrastructure, creation of modern warehouse facilities etc, have to be taken care of. The geographical position of India also is well positioned to emerge as an excellent hub for a variety of products.

### **1.3 COMPANY PROFILE**

Zeniline Global Logistics Private Limited planned on venturing into the world of logistics with an aim to spread the knowledge in ways that would benefit all our customers. The reigns of the company lie in the strong hands of a team of professionals, who possess over 15 years' worth of experience in the shipping and logistics sector. With a collective goal in mind of providing superlative freight forwarding and logistics solutions, we wish to improve and expand our service solutions in order to gain an edge over our competitors. The primary objective of our highly motivated and experienced team of individuals is to establish our organization as a service-oriented one, where customer satisfaction is the key.

Our core strength lies in our talented team of professionals, whose commitment and precision with regard to work, along with keeping systems and processes in place allows us to offer customised solutions that cater to each customer differently. Our highly skilled and efficient network of agents and partners around the globe enable us to stay in sync with the ever-growing demands of trade and commerce.

## **VISION**

Become a globally renowned logistics company, which comprises of a strong network of agents and a loyal customer base.

## **MISSION**

- We aim to provide our customers with excellent value-added services and fulfill all our commitments.
- We intend to set a benchmark with respect to quality, integrity, consistency when it comes to our business.
- We strive to build a strong and loyal relationship with our agents and customers through honesty, dependability and meeting our deliverables on time, every time.
- We wish to inspire our employees, nurture them to be successful leaders as well as encourage and reward innovation and reinforce flexibility at work.

## **AIR FREIGHT**

If you're on the lookout for a prompt, efficient and safe delivery of your shipment, then Zeniline Global Logistics Private Limited air freight provides you with all this

and more! We are veterans in the field of air freight operations and handle regular as well as charter shipments with great aplomb. With regards to air cargo, we swiftly deliver sea-air, air-sea cargo shipments to all important global destinations. Apart from paying special attention to urgent and time sensitive cargo shipments, we also customize our services as per individual requirements, within a stipulated budget.

**Our Air Freight solutions include:-**

- Freight booking for Inbound and Outbound cargoes to and from locations all across the globe.
- Cross country freight booking from each and every airport
- Shipments under all Incoterms viz. DDP, DDU, EX. Works, etc. to worldwide destinations
- Buyer Consolidations and POP Program for major buyers and buying houses in Europe and USA
- Shipments for Exhibitions and Trade Fairs
- Air Chartering and Project Handlings
- Sea-Air activities via. Dubai airport, especially for cargoes into Africa, CIS destinations and Afghanistan
- Allied services of Packing, Strapping, Labelling, Warehousing, Transportation, Customs Broking, etc. as per customers' requirements
- Cargo Insurance, Consulate Legalisations, Chamber of Commerce endorsements, etc.
- Cross Trade bookings

**SEA FREIGHT**

We also offer a 'sea' of superior sea freight solutions as we believe that it is one of our core competencies. The services that we provide extend from various global origins to global destinations. Our diversified network and excellent tracking capabilities coupled with pre-bookings, demand-driven dispatches and competitive pricing makes us a force to be reckoned in the logistics business.

The safe delivery of cargoes across destinations is our prime focus and our team of experienced professionals and agents ensure the safe passage of your cargoes.

**Our Sea Freight solutions include:-**

- Inbound and Outbound freight booking to and from all worldwide destinations/ports
- Cross country freight booking to and from all ports across the world
- Shipments under all Incoterms viz. DDP, DDU, Ex. Works, etc. to destinations across the world and on a door-to-door delivery basis
- Buyer consolidations and POP Program for major buyers and buying houses in Europe and USA.
- Shipments for Exhibitions and Trade Fairs
- Vessel Chartering
- Handling of Projects, Special Equipment and Break-bulk Cargoes
- Allied services of Packing, Strapping, Labelling, Warehousing, Transportation, Customs Broking, etc. as per customers' requirements
- Cargo Insurance, Consulate Legalisations, Chamber of Commerce endorsements, etc.

**MULTI-MODAL TRANSPORTATION**

Our multi-modal transportation assimilates our expertise and great networking to make sure that your cargo deliveries happen on-time and in the most cost-effective way possible. With our team of dedicated professionals, who work seamlessly to provide you with the best transportation mode and route, we guarantee that your cargo reaches its desired location on time, every time.

**Features of our Multimodal Service include:-**

- o Thorough knowledge of the procedures and documentation requirements in different countries and for different routes and modes
- o Consult with our clients regarding the fastest and the most economical routes

considering the nature and weight of the cargo

- o Solutions for Containerised Cargo on Special Equipment and Projects Cargoes
- o Regular tracking and status reports given to our customers regarding the status of their cargoes

With our chain of networks, offices and agents, we provide services catering to niche markets in coordination with partners and network agents using various methods of transportation viz. Air, Sea, Rail and Road to:-

- CIS, Russia and Central Asian destinations via. Ports of Riga, Klaipeda, Novorossiysk, Poti, Mersin, Bandar Abbas, Qingdao or Vladivostok
- Ukraine and Moldova via. Odessa and Illychvesk
- Mongolia via. Xingang
- Iraq via. Umm Qasr, Jordan, Mersin
- Afghanistan via. Karachi and Bandar Abbas
- East African destinations via. Mombasa, Dar es Salaam, Beira and Durban
- Eastern European destination in Czech Republic, Slovakia, Slovenia, Croatia, Hungary, Bosnia and Herzegovina via. various routing in Europe and East Mediterranean

**PROJECT CARGO** We are experts when it comes to handling over dimensional consignments, which require planning and shipping of cargoes from one destination to the other. Since these over-sized cargoes include huge machineries, plants and other equipment, we devise a strategy that includes planning, deciding the suitable ports, routes, trade and traffic forecasts, etc. Our network of cargo specialists make sure that your consignment is transported from one point to the other in the set time-frame and is budget-friendly.

**Our Project Cargo solutions include:-**

- Freight booking for special cargoes, over dimensional consignments in open tops and flat racks/flat beds
- Freight booking via. Break- bulk cargoes
- Transportation of heavy lifts and over-sized shipments from customer

warehouses to the port and vice versa

- Customs broking for special cargoes, heavy lifts and break- bulk cargoes
- Stuffing, lashing and choking of cargoes as per requirement of the port, shipping liner and the customer
- Door to door deliveries from shipper's warehouse to consignee's warehouse at destination through our network of offices

## **SOC CONTAINERS & NVOCC**

We are well-equipped to handle Shipper's Own Containers (SOCs), as we have managed to form a healthy rapport with liners as well as leasing companies from whom we purchase well- maintained cargo worthy containers, which make it convenient for our customers to ship the cargo where terms are SOC movements. Our cordial relation with liners allows us to buy good freight for shipment of these SOCs from around the world.

We, at Zeniline Global Logistics Private Limited , use our own fleet of containers for cargo movement in the form of a Non Vessel Operating Container Carriers or NVOCCs. These services offered by us are mainly targetted to and fro our niche market sectors in CIS and East Africa.

## **WAREHOUSING & DISTRIBUTION**

We've recently ventured into the world of Warehousing and Distribution for the convenience of our customers and in order to offer services all under one roof. Apart from providing warehousing of normal warehouses as well as Customs Bonded Warehouses, we also undertake temperature-controlled warehousing for our Customs dealing in Wine and Liquors, which require temperature control. Zeniline Global Logistics Private Limited extends these services to various overseas locations with the help and assistance from our partners.

## **OBJECTIVES OF THE STUDY**

## **PRIMARY OBJECTIVE**

To study the perception of customers towards the services provided by Zeniline Global Logistics Private Limited

## **SECONDARY OBJECTIVES**

- ❖ To know the function and responsibility of various department in Zeniline Global Logistics Private Limited
- ❖ To know the procedures of documents in export and import
- ❖ To know the effectiveness of customer relationship management.
- ❖ To know the export market, transportation, customer freight station, customer house agent operation and liner services.
- ❖ To know the service provided by value added services.
- ❖ To know the professionalism and response level.

## **CHAPTER 2**

### **REVIEW OF LITERATURE**

#### **1.Sven Winkelhaus &Eric H. Grosse-( 2019) Logistics 4.0: a systematic review towards a new logistics system.**

This study addresses challenges in manufacturing through the development of a Logistics 4.0 framework, filling a gap in logistics concepts. It defines Logistics 4.0 and conducts a systematic review of 114 articles to create a comprehensive framework covering external triggers, technological innovations, human interactions, and logistics tasks. The study categorizes existing solutions supporting Logistics 4.0, including IoT, cyber-physical systems, Big Data, cloud computing, and more. Managerial implications highlight strategic insights, while the study also identifies open research issues for further exploration. This framework aids researchers in unifying solutions and guides managers in addressing current and future logistics challenges.

## **2.Risk analysis in logistics systems: A research agenda during and after the COVID-19 pandemic ITsan-Ming Choi-2021**

Risk has long been an important aspect of logistics. This is especially prominent right now when the whole world is affected by COVID-19. Transportation Research Part E (TRE), as a well-established journal in logistics and transportation, has also featured many important studies related to “risk”. In this editorial article, we examine risk analysis research in logistics systems with special relevance to COVID-19. We first discuss the topics of risk analysis in logistics by reviewing some prior publications in TRE. We also introduce the related TRE special issues, including published ones and an on-going one. We then propose a research agenda, which hopefully can help inspire more innovative risk analysis research to overcome challenges in logistics during and after the COVID-19 pandemic.

## **3.Systematic literature review on city logistics: overview, classification and analysis Parisa Dolati Neghabadi,Karine Evrard Samuel &Marie-Laure Espinouse- 2018**

City logistics is one of the significant branches of supply chain management, dealing with the logistics and transportation activities in urban areas. This research area has recently appropriated an exponential growth of publications. This paper presents a bibliometric analysis along with a systematic literature review to organise the results of surveying more than 370 papers and research works published since 2010. We identify the top contributing research topics. The most common keywords used in the city logistics literature are referred to in order to propose six research categories identifying the main innovative research perspectives.

## **4.Adapting warehouse operations and design to omni-channel logistics: A literature review and research agenda**

**Joakim Hans Kembro, Andreas Norrman, Ebba Eriksson-2018**

The review revealed a lack of focus on warehouse operations and design in multi- and omni-channels. Instead, most articles published in scientific journals discuss changes in consumer demand and implications for the network level, concerning aspects such as the organization and management of material and information flows, inventory management, resources, actors and relationships. Ten themes in omni-channel logistics were identified and grouped into two categories: the value proposition and channel management; and the physical distribution network design. The themes and related aspects have implications for warehousing, and by combining these with general warehousing knowledge, the authors derive a comprehensive and structured agenda is derived to guide future research on omni-channel warehousing.

## **5. Blockchain in transport and logistics – paradigms and transitions**

**Lenny Koh,Alexandre Dolgui &Joseph Sarkis-2020**

The transdisciplinarity of this issue is evident; multiple disciplines and a variety of stakeholders need to cooperate for taking full advantage of blockchain and related technology. Multiple methodologies for investigation are needed. Empirical research as well as new theoretical grounding, concepts, models and methods are likely necessary. Demonstration of blockchain adoption in related supply chain, manufacturing and service sectors for transport and logistics such as automotive, aviation, shipping, rail network, taxi-hailing service, forwarding, delivery service, travel require elaboration and synthesis.

## **6. An exploratory study of Internet of Things (IoT) adoption intention in logistics and supply chain management: A mixed research approach**

**Mengru Tu -2018**

The results of the qualitative study identify uncertainties and issues regarding firms' intention to accept or reject IoT technology in logistics and supply chain management, including the benefit and cost aspects of adopting IoT, uncertainties about the trustworthiness of IoT technology, and the external motivating force to embrace IoT. The resulting quantitative model shows that perceived benefits,

perceived costs, and external pressure are significant determinants of IoT adoption intention, while technology trust is not. However, technology trust does indirectly influence IoT adoption intention through perceived benefits

**7. Gamification of production and logistics operations: Status quo and future directions** Author links open overlay panel Harald Warmelink a, Jonna Koivisto b, Igor Mayer a, Mikko Vesa e, -2020

This article presents a review of the current body of academic literature concerning gamification of production and logistics to understand the status quo and provide suggestions for future research. The findings indicate that the execution and control of production and logistic processes has been addressed most often in the current body of literature, which mostly consists of design research. Objectives and goals, points, achievements, multimedial feedback, metaphorical or fictional representations, and levels and progress are currently the most often employed affordances within this field. Research has focused in the given context on examining or considering motivation, enjoyment and flow, as the main psychological outcomes of gamification, while individual performance and efficiency are the most commonly examined or suggested behavioral and organizational impacts. Future studies should employ more rigorous designs within new subdomains of production and logistics and should firmly ground research designs and discussions in management theory and critical studies.

**8. Consumer-driven e-commerce: A literature review, design framework, and research agenda on last-mile logistics models**

**Stanley Frederick W.T. Lim, Xin Jin, Jagjit Singh Srai - 2018**

: The purpose of this paper is to re-examine the extant research on last-mile logistics (LML) models and consider LML's diverse roots in city logistics, home delivery and business-to-consumer distribution, and more recent developments within the e-commerce digital supply chain context. The review offers a structured approach to what is currently a disparate and fractured field in logistics. The literature analysis conceptualises the relationship between a broad set of

contingency variables and operational characteristics of LML configuration (push-centric, pull-centric, and hybrid system) via a set of structural variables, which are captured in the form of a design framework. The authors propose four future research areas reflecting likely digital supply chain evolutions.

## **9.Human factors in production and logistics systems of the future**

**Author links open overlay panelFabio Sgarbossa a, Eric H. Grosse b e, W. Patrick Neumann c, Daria Battini d, Christoph H. Glock e-2020**

The way humans work in production and logistics systems is changing. The evolution of technologies, Industry 4.0 applications, and societal changes, such as ageing workforces, are transforming operations processes. This transformation is still a “black-box” for many companies, and there are calls for new management approaches that can help to successfully overcome the future challenges in production and logistics. While Industry 4.0 emerges, companies have started to use advanced control tools enabled by real-time monitoring systems that allow the development of more accurate planning models that enable proactive managerial decision-making. Although we observe an increasing trend in automating human work in almost every industry, human workers are still playing a central role in many production and logistics systems. Many of these planning models developed for managerial decision support, however, do not consider human factors and their impact on system or employee performance, leading to inaccurate planning results and decisions, underperforming systems, and increased health hazards for employees.

## **10. Framework of Last Mile Logistics Research: A Systematic Review of the Literature by John Olsson \*,Daniel Hellström andHenrik Pålsson-2019**

Coincident with the rapid growth of omni-channel retailing, growing urbanization, changing consumer behavior, and increasing focus on sustainability, academic interest in the area of last mile logistics has significantly increased. The growth in academic publications has been tremendous, with three out of four articles appearing within the past five years. The influx of research spans multiple

disciplines and various methodologies, underlining the complexity and fragmentation of last mile logistics research, which leads to a lack of unity in the understanding of the concept. We provide a systematic review and classification of the literature to provide a more coherent view of last mile logistics research. The review covers 155 peer-reviewed journal publications focusing on last mile logistics. Findings demonstrate that the literature embraces a diversity of aspects and facets that are classified into five themes: emerging trends and technologies, operational optimization, supply chain structures, performance measurement, and policy. Further, we propose a framework of last mile logistics literature that comprises five components and their interrelationships, namely, last mile logistics, last mile distribution, last mile fulfillment, last mile transport, and last mile delivery. The results provide a foundation for further development of this research area by proposing avenues for future research.

### **11.Blockchain for and in Logistics: What to Adopt and Where to Start by Mario Dobrovnik 1,David M. Herold 2,\*,Elmar Fürst 1 andSebastian Kummer 1-2018**

Despite the claim that blockchain will revolutionise business and redefine logistics, existing research so far is limited concerning frameworks that categorise blockchain application potentials and their implications. In particular, academic literature in transport and logistics to date has not sufficiently distinguished between blockchain adoption ('what to adopt') and the identification of the right business opportunity ('where to start'). In response, this paper (1) uses Rogers' (2003) 'attributes of innovation framework' to identify potential blockchain applications and (2) presents a framework explicating four transformation phases to subsequently categorise the identified areas of application according to their effects on organisational structures and processes. Using academic and practitioner literature, we classify possible applications for adoption and provide a framework to identify blockchain opportunities in the logistics industry, thereby helping managers to systematically assess where to

start building organisational capabilities in order to successfully adopt and deploy blockchain-based technology.

**12. Synchromodal logistics: An overview of critical success factors, enabling technologies, and open research issues Riccardo Giusti a, Daniele Manerba a b, Giorgio Bruno a, Roberto Tadei a-2019**

As supply chain management is becoming demand driven, logistics service providers need to use real-time information efficiently and integrate new technologies into their business. Synchromodal logistics has emerged recently to improve flexibility in supply chains, cooperation among stakeholders, and utilization of resources. We survey the existing scientific literature and real-life developments on synchromodality. We focus on the critical success factors of synchromodality and six categories of enabling technologies. We identify open research issues and propose the introduction of a new stakeholder, which takes on the role of orchestrator to coordinate and provide services through a technology-based platform.

**13.Age-related immune response heterogeneity to SARS-CoV-2 vaccine BNT162b2 Dami A. Collier, Isabella A. T. M. Ferreira, Prasanti Kotagiri, Rawlings P. Datir, Eleanor Y. Lim, Emma Touizer-2021**

Although two-dose mRNA vaccination provides excellent protection against SARS-CoV-2, there is little information about vaccine efficacy against variants of concern (VOC) in individuals above eighty years of age<sup>1</sup>. Here we analysed immune responses following vaccination with the BNT162b2 mRNA vaccine<sup>2</sup> in elderly participants and younger healthcare workers. Serum neutralization and levels of binding IgG or IgA after the first vaccine dose were lower in older individuals, with a marked drop in participants over eighty years old. Sera from participants above eighty showed lower neutralization potency against the B.1.1.7 (Alpha), B.1.351 (Beta) and P.1. (Gamma) VOC than against the wild-type virus and were more likely to lack any neutralization against VOC following the first dose. However, following the second dose, neutralization against VOC

was detectable regardless of age. The frequency of SARS-CoV-2 spike-specific memory B cells was higher in elderly responders (whose serum showed neutralization activity) than in non-responders after the first dose.

**14. Aligning retail reverse logistics practice with circular economy values: an exploratory framework Michael Bernon, Benny Tjahjono ORCID Icon & Eva Faja Ripanti-2018**

concerning Circular Economy (CE), there is little, in terms of frameworks in the literature, which focuses on embedding CE values in consumer Retail Reverse Logistics (RRL) operations. The aim of this paper is to present a conceptual framework that supports the adoption of CE values within RRL operations. The framework is designed to assist both practitioners and academics in better understanding the key management aspects involved. The methodology adopts a mixed methods approach combining a desk-based research with rich empirical data from interviews with senior management practitioners and academics in the fields of CE and RRL. From this research, it was found that embedding CE values within RRL necessitates the adoption of a multi-faceted approach. The adoption of the framework will have an impact on practitioners by assisting them in moving towards a more restorative and less impactful approach to their RRL practices. The work is considered innovative and novel as this is the first time the empirical results that suggest a multi-dimensional approach embedding CE values in RRL operations are presented.

**15. Omni-channel retailing research – state of the art and intellectual foundation**

**Erdem Galipoglu, Herbert Kotzab, Christoph Teller, Isik Özge Yumurtaci Hüseyinoglu, Jens Pöppelbuß - 2018**

The purpose of this paper is twofold: to identify, evaluate and structure the research that focusses on omni-channel retailing from the perspective of logistics and supply chain management; and to reveal the intellectual foundation of omni-channel retailing research. The paper applies a multi-method approach by

conducting a content-analysis-based literature review of 70 academic papers. Based on the reference lists of these papers, the authors performed a citation and co-citation analysis based on the 34 most frequently cited papers. This analysis included multidimensional scaling, a cluster analysis and factor analysis. The study reveals the limited consideration of logistics and supply chain management literature in the foundation of the omni-channel retailing research. Further, the authors see a dominance of empirical research as compared to conceptual and analytical research. Overall, there is a focus on the Western retail context in this research field. The intellectual foundation is embedded in the marketing discipline and can be characterised as lacking a robust theoretical foundation.

## **16. Trends in transportation and logistics**

### **Author links open overlay panelM. Grazia Speranza-2018**

Problems in transportation and logistics 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 in 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.

## **17. Impact of COVID-19 on logistics systems and disruptions in food supply chain**

### **Sube SinghORCID Icon,Ramesh KumarORCID Icon,Rohit PanchalORCID Icon &Manoj Kumar Tiwari-2020**

An outbreak of deadly COVID-19 virus has not only taken the lives of people but also severely crippled the economy. Due to strict lockdown, the manufacturing and logistics activities have been suspended, and it has affected the demand and supply of various products as a result of restrictions imposed on shopkeepers

and retailers. Impacts of COVID-19 are observed ubiquitously in every type of units from different sectors. In this study, a simulation model of the public distribution system (PDS) network is developed with three different scenarios to demonstrate disruptions in the food supply chain. Difficulties have been increased in matching supply and demand in a vast network of PDS because of changing scenarios with the growth of infected cases and recovery. This paper also highlights the importance of a resilient supply chain during a pandemic. Our proposed simulation model can help in developing a resilient and responsive food supply chain to match the varying demand, and then further assist in providing decision-making support for rerouting the vehicles as per travel restrictions in areas. Paper has been summarised with significant highlights and including future research scope for developing a more robust food supply chain network.

#### **18.A review of reverse logistics and closed loop supply chain management studies published in IJPR: a bibliometric and content analysis**

**Nima Kazemi****,Nikunja Mohan Modak &Kannan Govindan-2018**

Reverse Logistics and Closed Loop Supply Chain Management (RL&CLSCM) are universally recognised as two environmentally friendly practices that could help in greening conventional supply chains. The popularity of these fields of research has led to the evolution of a vast number of publications in the literature. Various journals have so far contributed to the advancement of the field, with the International Journal of Production of Research (IJPR) being one of the most prominent contributed journals. To celebrate the 55th volume anniversary of IJPR, this review study aims to investigate the studies in the area of RL&CLSCM published in IJPR. The paper presents a thorough bibliometric and content analysis of 94 studies that were published in IJPR from 2000 until July 2017. The studies initially underwent a rigorous bibliometric and mapping analysis that helped to identify their characteristics. Subsequently, the contents of the sample papers were evaluated thoroughly. The content analysis led to classification of the papers into two main categories and sub-categories, and

then to rigorous identification of the papers' attributes. The bibliometric and content analysis disclosed several research gaps that remain to be addressed in IJPR.

**19.The mean-variance approach for global supply chain risk analysis with air logistics in the blockchain technology era -Ming Choi a, Xin Wen b, Xuting Sun c, Sai-Ho Chung b-2019**

Supply chain operations have entered the digital era with the emergence of blockchain technology. In this paper, we discuss how the mean–variance (MV) approach can be applied to explore global supply chain operations risk with air logistics in the blockchain technology era. To be specific, we examine the related literature from four areas, namely air-logistics operations, demand management, supply management, and supply-demand coordination. We propose how the blockchain technology can be applied to facilitate the implementation of mean-variance risk analysis for global supply chain operations. We then highlight several promising areas for further studies. A future research agenda is developed.

**20. Industry 4.0 in Logistics and Supply Chain Management: A Systematic Maryam Abdirad & Krishna Krishnan-2020**

[9:28 pm, 11/01/2024] Thamee: "Industry 4.0" is a concept that focuses on automation of system and process, digitalization, and data exchange in industries. Its goal is to achieve a smart factory to reduce lead time to respond to the customers' demand or to unforeseen events and improve productivity in the system. Using this concept can lead to improvements in manufacturing, supply chain (SC), and logistics. The adoption of Industry 4.0 in supply chain management (SCM) is a new and critical subject with a need for more research. A few studies have started reviewing the existing works on Industry 4.0; however, they do not focus on its role in SCM. This paper presents a systematic review and synthesis of the current literature on Industry 4.0 in SCM that brings out some interesting findings, which will be helpful for the academic and industry,

especially top managers. This work identifies three categories from the content of the papers as exploratory vs. confirmatory, qualitative vs. quantitative, management level vs. process/technology level. Additionally, based on the Topic Modeling (TM) technique, three different clusters of Supply Chain, Logistics and Manufacturing topics were extracted. Current shortcomings, challenges, and future research directions are discussed in the conclusion.

## **21. Post-purchase shipping and customer service experiences in online shopping and their impact on customer satisfaction: An empirical study with comparison**

**Yingxia Cao, Haya Ajjan, Paul Hong -2018**

purpose of this paper is to understand the role of post-purchase logistic services on customer satisfaction and future purchase decision, to reveal any differences across China and Taiwan, to fill in a gap in the literature focused on post-purchase logistic activities related to shipping, return, and tracking, to provide managerial guidance in logistics for e-commerce, and to develop insights on logistic services for future research. The structural equation analysis of the study found that post-purchase shipping and tracking have an impact on customer satisfaction in both China and Taiwan. It also found that customer service is the most significant factor among the examined antecedents for online shoppers in China. While, return service is more important for shoppers in Taiwan. Finally, customer satisfaction played a stronger positive role for online shoppers in Taiwan as compared to their counterparts in China. This research extended the current literature about post-purchase logistic services in an online shopping environment with a literature-based research model and good empirical data support. However, one limitation of the study is that the data collected represents a cross-sectional sample; future research should examine longitudinal sample to study customers' purchase intentions over time.

**22.Crowdsourcing Last Mile Delivery: Strategic Implications and Future Research Directions Vincent E. Castillo, John E. Bell, William J. Rose, Alexandre M. Rodrigues-2018**

The rise of e-commerce over the past 20 years has created an increased need for responsive omnichannel distribution to meet the last mile challenge. Some companies are experimenting with the use of the sharing economy business model to augment distribution strategies. The use of so-called “Crowdsourced Logistics” (CSL) is becoming more prevalent in practice, but the role in logistics strategy of this new phenomenon has not been thoroughly investigated and understood. Using a contingency theory lens, this research contributes a nascent understanding of how CSL performs in terms of logistics effectiveness by simulating same-day delivery services from a distribution center to 1,000 customer locations throughout New York City under dynamic market conditions and by comparing the results to those of a traditional dedicated fleet of delivery drivers. The findings are analyzed to suggest how firms may find strategic benefit using CSL. An agenda for future research is provided to explore these strategic implications and to deepen knowledge about the CSL phenomenon.

**23.A parcel locker network as a solution to the logistics last mile problem Yael Deutsch &Boaz Golany-2018**

We consider the problem of designing a parcel locker network as a solution to the Logistics Last Mile Problem: Choosing the optimal number, locations, and sizes of parcel lockers facilities. The objective is to maximize the total profit, consisting of the revenue from customers who use the service, minus the facilities’ fixed and operational setup costs, the discounts in the delivery costs for customers who need to travel in order to collect their parcels, and the loss of potential customers who are not willing to travel for service. The problem is expressed as a 0–1 integer linear program. We show that it is equivalent to the well-known Uncapacitated Facility Location Problem. We then solve the modified problem, and apply it to an industrial-sized network. Mr. Alex Walker is the Chairman of the Board and Chief Financial Officer of Dream Payments Corp. in

Toronto, Canada. He served as the Chief Executive Officer of Cube Route Inc. since 2004–2007. Cube Route Inc. provides on-demand logistics service to manage delivery and field service fleets

### **23. COVID-19 pandemic related supply chain studies: A systematic review Chowdhury a, Sanjoy Kumar Paul b, Shahriar Kaisar a, Md. Abdul Moktadir -2021**

The global spread of the novel coronavirus, also known as the COVID-19 pandemic, has had a devastating impact on supply chains. Since the pandemic started, scholars have been researching and publishing their studies on the various supply-chain-related issues raised by COVID-19. However, while the number of articles on this subject has been steadily increasing, due to the absence of any systematic literature reviews, it remains unclear what aspects of this disruption have already been studied and what aspects still need to be investigated. The present study systematically reviews existing research on the COVID-19 pandemic in supply chain disciplines. Through a rigorous and systematic search, we identify 74 relevant articles published on or before 28 September 2020. The synthesis of the findings reveals that four broad themes recur in the published work: namely, impacts of the COVID-19 pandemic, resilience strategies for managing impacts and recovery, the role of technology in implementing resilience strategies, and supply chain sustainability in the light of the pandemic. Alongside the synthesis of the findings, this study describes the methodologies, context, and theories used in each piece of research. Our analysis reveals that there is a lack of empirically designed and theoretically grounded studies in this area; hence, the generalizability of the findings, thus far, is limited. Moreover, the analysis reveals that most studies have focused on supply chains for high-demand essential goods and healthcare products, while low-demand items and SMEs have been largely ignored. We also review the literature on prior epidemic outbreaks and other disruptions in supply chain disciplines. By considering the findings of these articles alongside research on the COVID-19 pandemic, this study offers research questions and directions for

further investigation. These directions can guide scholars in designing and conducting impactful research in the field.

#### **24.Humanitarian supply chain management: a thematic literature review and future directions of research-2018**

The field of supply chain management has been extensively studied, while its role in disaster relief operations has received limited contributions. Recent dedicated special issues on Humanitarian Operations and Supply Chain Management (HOSCM) and a dedicated Journal focusing on humanitarian logistics and supply chain management clearly indicate the growing popularity of the HOSCM literature. The purpose of our current study is to undertake an extensive review of extant literature published in operations and supply chain management journals as well as popular interdisciplinary journals. A review of 362 papers published between 2011 and 2017 provides a thematic outline of the study. The study pivots around nine key themes, which have gained prominent attention from HOSCM scholars, and draws a roadmap from reviewing earlier review papers to performance evaluation of HOSCM related studies. Some of the key themes include humanitarian logistics, theory focused research, case studies, mathematical models, humanitarian supply chain properties and resources needed for efficient and effective management of humanitarian operations. Finally, our study offers several research directions which may take the existing debates to a next level.

#### **25.Consumer decision-making in omnichannel retailing: Literature review and future research agenda**

**Ruchi Mishra, Rajesh Kumar Singh, Bernadett Koles-2020**

The emergence of omnichannel retailing has revolutionized the way traditional e-commerce business operates, subsequently bringing fundamental changes to consumer expectations and decision-making processes. Despite the unquestionable relevance of this area of inquiry, the focal literature concerning omnichannel retailing remains sporadic and fragmented. With this in mind, the

purpose of the current paper is to provide a comprehensive and concise state of the art literature review on omnichannel retailing. More specifically, we engage and draw upon the cognitive-affective-conative model to understand consumer behaviour within the omnichannel retailing context. The current study is built based on a review of total 131 research papers that were identified following a comprehensive search of the Web of Science database, capturing the time period between January 2011 and April 2020. This set of work was reviewed thoroughly to explore the aims, methodology and key contributions. In addition to engaging a systematic assessment and rigorous evaluation of the studies, we also extend literature by studying the relationship between omnichannel retailing and consumer decision making, with specific attention to consumer motivation, attitude and behaviour towards omnichannel retailing. Previous studies suggest consumer behaviour in omnichannel retailing to be a promising yet underexplored area with several potential avenues for future research. Among these, particularly lucrative directions include theory-driven research, comparative cross-cultural studies and qualitative approaches that capture rich first-hand accounts of consumer decision-making encounters. The current paper is timely and advantageous because it offers a holistic picture of omnichannel retailing research and provides literature-driven evidence about a range of relevant consumer behavioural dimensions. It also integrates consumer responses using the cognitive-affective-conative model to advance our understanding of consumer decision-making in the omnichannel customer journey. Recommendations for future research are provided using the Theory, Methodology and Context (TMC) framework. We conclude the paper by discussing implications for academics and practitioners.

## **26.Integration, supply chain resilience, and service performance in third-party logistics providers**

**Chiung-Lin Liu, Ming-Yu Lee -2018**

Supply chain resilience (SCR) is essential to the success of firms. However, very few studies have focused on the relationships between different types of

integration, SCR and service performance from the perspective of third-party logistics providers (3PLs). The purpose of this paper is to develop and assesses a conceptual model for these relationships. The responses of respondents demonstrated that, of the three types of integration (internal integration, customer integration and logistics collaborator integration) used by 3PLs, internal integration had the greatest effect on SCR. Customer integration was found to have three fully mediating effects on the relationships between internal integration and service performance, between logistics collaborator integration and SCR, and between logistics collaborator integration and service performance.

## **27. Big Data Analytics and IoT in logistics: a case study**

**John Hopkins, Paul Hawking -2018**

Advances in technology enable companies to collect and analyse data, which were previously not accessible, to either enhance existing business processes or create new ones. The purpose of this paper is to document the role and impact of Big Data Analytics (BDA), and the Internet of Things (IoT), in supporting a large logistics firm's strategy to improve driver safety, lower operating costs, and reduce the environmental impact of their vehicles. Truck telematics were utilised in order to better understand, and improve, driving behaviours. Remote control centres monitor live sensor data from the company's fleet of vehicles, capturing the likes of speed, location, braking, and engine data, to inform future training programs. A combination of truck telematics and geo-information are being used to enable proactive alerts to be sent to drivers regarding possible upcoming hazards. Camera-based technologies have been adopted to improve driver safety, and fatigue management, capturing evidence of important driving events and storing data directly to the cloud, and BDA is also being used to improve truck routing, recommend optimal fuel purchasing times/locations, and to forecast predictive and proactive maintenance schedules.

## **28: Evaluating the application of the statistical index method in flood susceptibility mapping and its comparison with frequency ratio and logistic regression methods**

**Mahyat Shafapour Tehrany**<sup>ORCID Icon</sup>,**Lalit Kumar**<sup>ORCID Icon</sup>,**Mustafa Neamah Jebur** &**Farzin Shabani**<sup>ORCID Icon</sup>-2018

Statistical methods are the most popular techniques to model and map flood-prone areas. Although a wide range of statistical methods have been used, application of the statistical index (Wi) method has not been examined in flood susceptibility mapping. The aim of this research was to assess the efficiency of the Wi method and compare its outcomes with the results of frequency ratio (FR) and logistic regression (LR) methods. Thirteen factors, namely, altitude, slope, aspect, curvature, geology, soil, landuse/cover (LULC), topographic wetness index (TWI), stream power index (SPI), terrain roughness index (TRI), sediment transport index (STI), and distance from rivers and roads, were utilized. A flood inventory was constructed from data captured from the destructive flood that occurred in Brisbane, Australia, in 2011. Model performances were compared using the area under the curve (AUC), Kappa index and five other statistical evaluation tools. The AUC prediction rates acquired for LR, Wi and FR were 79.45%, 78.18%, and 67.33%, respectively. A more realistic representation of the flood-prone area distribution was produced by the Wi method compared to those of the other two techniques. Our research shows that the Wi method can be used as an efficient approach to perform flood susceptibility analysis.

## **29.A Review of the Logistic Regression Model with Emphasis on Medical Research****Ernest Yeboah Boateng, Daniel A. Abaye-2019**

This study explored and reviewed the logistic regression (LR) model, a multivariable method for modeling the relationship between multiple independent variables and a categorical dependent variable, with emphasis on medical research. Thirty seven research articles published between 2000 and 2018 which employed logistic regression as the main statistical tool as well as six text books on logistic regression were reviewed. Logistic regression concepts such as odds,

odds ratio, logit transformation, logistic curve, assumption, selecting dependent and independent variables, model fitting, reporting and interpreting were presented. Upon perusing the literature, considerable deficiencies were found in both the use and reporting of LR. For many studies, the ratio of the number of outcome events to predictor variables (events per variable) was sufficiently small to call into question the accuracy of the regression model. Also, most studies did not report on validation analysis, regression diagnostics or goodness-of-fit measures; measures which authenticate the robustness of the LR model. Here, we demonstrate a good example of the application of the LR model using data obtained on a cohort of pregnant women and the factors that influence their decision to opt for caesarean delivery or vaginal birth. It is recommended that researchers should be more rigorous and pay greater attention to guidelines concerning the use and reporting of LR models.

### **30. Blockchain applications in supply chains, transport and logistics:**

**Mehrdokht Pournader, Yangyan Shi, Stefan Seuring ORCID Icon & S.C. Lenny Koh-2019**

This paper presents current academic and industrial frontiers on blockchain application in supply chain, logistics and transport management. We conduct a systematic review of the literature and find four main clusters in the co-citation analysis, namely Technology, Trust, Trade, and Traceability/Transparency. For each cluster, and based on the pool of articles included in it, we apply an inductive method of reasoning and discuss the emerging themes and applications of blockchains for supply chains, logistics and transport. We conclude by discussing the main themes for future research on blockchain technology and its application in industry and services.

### **31. Horizontal collaborative transport: survey of solutions and practical implementation issues**

**Shenle Pan ORCID Icon, Damien Trentesaux ORCID Icon, Eric Ballot ORCID Icon & George Q. Huang ORCID Icon-2019**

Horizontal collaboration has been considered as effective practice for sustainable logistics and freight transport and it has gained increased attention in recent years. This paper aims to provide a survey of the development of horizontal collaborative transport (HCT) over the past ten years, to identify research trends and gaps, then to propose some research opportunities. The paper also aims to provide guidelines to logistics companies who wish to embark on HCT, to help them choose which HCT solution to implement. To provide a comprehensive and structured review, the paper follows the methodology for Systematic Literature Review proposed in the literature. A total of 120 scientific papers published between 2007 and 2017 were reviewed. A survey framework based on two axes – HCT solutions and implementation issues – is developed to analyse and position the papers. The results show that, regarding HCT solutions, carrier alliance and flow controller collaboration were the most frequently studied. But recent innovative solutions such as pooling and physical internet are also gaining increased attention. Regarding implementation issues, the focus of the literature has been on the development of decision-making models, including transport planning, lane exchange, and gain sharing. Conversely, managerial and technological issues have received less attention.

### **32. Environmental, social and economic growth indicators spur logistics performance: From the perspective of South Asian Association for Regional Cooperation countries**

**Abdul Rehman Khan a, Chen Jian a, Yu Zhang b, Hêriş Golpîra c, Anil Kumar d, Arshian Sharif -2019**

This article examines the association between green logistics operations, social, environmental and economic indicators of SAARC (South Asian Association for Regional Cooperation) countries. The research used GMM (Generalized Method of Moments) and FGLS (Feasible Generalized Least Squares) two methods to tackle the problems of heterogeneity, serial correlation and heteroskedasticity. The findings show that fossil fuel consumption is at the heart of logistics operations; the more fossil fuel and non-green energy resources that are used,

the more negative effects on society and environmental sustainability result from this. A lower quality of transport-related infrastructure and logistics services is negatively correlated with fossil fuel usage, carbon emissions, health expenditure, greenhouse gas emissions and political instability of SAARC countries. Conversely, efficient customs procedures and greater information sharing among supply chain partners increase trade opportunities and also improve environmental sustainability in terms of minimum carbon emissions due to the shorter waiting and queue times involved. Further, the application of green energy resources and green practices can mitigate negative effects on social and environmental sustainability due to better logistics operations while improving financial performance in terms of higher GDP per capita, trade openness and greater export opportunities around the globe. As there is very limited research using green practices relationship with macro-level indicators in current literature, this research will assist both practitioners and policymakers to understand the roles of green supply chain and green logistics in enhancing environmental sustainability, social improvement and economic growth for a better future.

### **33. Assessment of the effects of training data selection on the landslide susceptibility mapping: a comparison between support vector machine (SVM), logistic regression (LR) and artificial neural networks (ANN)**

**Bahareh Kalantar, Biswajeet Pradhan ORCID Icon, Seyed Amir Naghibi, Alireza Motevalli & Shattri Mansor-2018**

Landslide is a natural hazard that results in many economic damages and human losses every year. Numerous researchers have studied landslide susceptibility mapping (LSM), each attempting to improve the accuracy of the final outputs. However, few studies have been published on the training data selection effects on the LSM. Thus, this study assesses the training landslides random selection effects on support vector machine (SVM) accuracy, logistic regression (LR) and artificial neural networks (ANN) models for LSM in a catchment at the Dodangeh watershed, Mazandaran province, Iran. A 160 landslide locations inventory was collected by Geological Survey of Iran for this investigation. Different methods

were implemented to define the landslide locations, such as inventory reports, satellite images and field survey. Moreover, 14 landslide conditioning factors were considered in the analysis of landslide susceptibility. These factors include curvature, plan curvature, profile curvature, altitude, slope angle, slope aspect, distance to faults, distance to stream, topographic wetness index, stream power index, terrain roughness index, sediment transport index, lithology and land use. The results show that the random landslide training data selection affected the parameter estimations of the SVM, LR and ANN algorithms.

#### **34. Digital Supply Chain: Literature review and a proposed framework for future research Büyüközkan, Fethullah Göçer-2018**

Suppliers, partners, companies and dealers in supply chains do use, generate and share information with others. These associations lead to a multitude of challenges and opportunities within the supply chains. A Digital Supply Chain (DSC) is a smart, value-driven, efficient process to generate new forms of revenue and business value for organizations and to leverage new approaches with novel technological and analytical methods DSC is not about whether goods and services are digital or physical, it is about the way how supply chain processes are managed with a wide variety of innovative technologies, e.g. unmanned aerial vehicles, cloud computing, and internet of things, among others. Recent literature highlights the importance of DSC and many industrial researchers discuss its applications. This article reviews the state-of-the-art of existing DSC literature in detail from both academic and industrial points of view. It identifies key limitations and prospects in DSC, summarizes prior research and identifies knowledge gaps by providing advantages, weaknesses and limitations of individual methods The article also aims at providing a development framework as a roadmap for future research and practice.

#### **35.Green supply chain management in food retailing: survey-based evidence in Croatia Kristina Petljak, Katrin Zulauf, Ivana Štulec, Stefan Seuring, Ralf Wagner-2018**

Green supply chain management (GSCM) research is so far dominated by studies focusing on manufacturing companies, while research on retailers is missing. The purpose of this study is to assess the interaction between green in-store activities (environment-related infrastructure and retail in-store processes), GSCM and environmental and economic performance outcomes. The results reveal a positive relation between green in-store activities and GSCM in food retailing regarding environmental and economic performance. The relevance of these relationships accrues from the positive association between GSCM and food retailers' environmental performance, which in turn drives economic performance. It is noteworthy that green supply chain practices drive environmental and then also economic performance

### **36. A literature review of blockchain technology applications in supply chains: A comprehensive analysis of themes, methodologies and industries**

**K. Lim a b, Yan Li a, Chao Wang c, Ming-Lang Tseng -2021**

In the past few years, blockchain, the underlying technology of Bitcoin, has received considerable attention from academia and industry. It is widely accepted that blockchain technology causes disruptive changes in supply chain operations that can overcome supply chain difficulties encountered in realizing information sharing, maintaining traceability in the entire process and improving operational efficiency. However, the application of blockchain technology in the supply chain field is still in its infancy, which limits an understanding of its potential. This article uses descriptive and content analysis to review publications related to blockchain-based supply chains between 2017 and 2020 inclusive. To fully explore research on blockchain-based supply chains, four well-designed questions are proposed and addressed, namely, the value of blockchain in supply chains, the attraction of scholars to particular supply chain themes, the development of research methodologies and illustration types in adopting blockchain in supply chains, and the types of industries involved in blockchain-based supply chains. The results reveal that there is growing interest in applying

blockchain technology to supply chain operations. A detailed analysis of findings is provided to identify the future opportunities of blockchain-based supply chains, including prospects for tertiary industries and concerted efforts that are necessary to explore sustainability themes. This article provides valuable information to help scholars and practitioners better determine the relevant research topics to accelerate the development of blockchain-based supply chains.

### **37. Automation and artificial intelligence in business logistics systems: human reactions and collaboration requirements**

**Matthias Klumpp ORCID Icon-2018**

Increasing application areas and depths of autonomous systems in logistics provide a new level of challenge for the analysis and design of human–machine interaction concepts. Due to scarce high-skilled personnel in several regions and the objectives of efficiency and sustainability improvement, logistics operators have to pursue technological progress like automation with all means. In order to distinguish between more or less performing human–artificial collaboration systems in logistics ex ante for investment decision purposes, a multi-dimensional conceptual framework is developed. A comprehensive case study regarding automated truck driving in logistics is provided in order to test the concept concerning practical implications. Results include the notion of four distinctive and increasing resistance levels before finally an efficient ‘trusted’ collaboration between human operators and artificial intelligence systems can be achieved. This is important for the design of many automated systems in logistics, among others for driving and piloting professions regarding autonomous driving supervision.

### **38. Reverse logistics and closed-loop supply chain of Waste Electrical and Electronic Equipment (WEEE)/E-waste: A comprehensive literature review**

**Md Tasbirul Islam, Nazmul Huda-2018**

Reverse logistics (RL) and the closed-loop supply chain (CLSC) are integral parts of the holistic waste management process. One of the important end-of-life (EOL) products considered in the RL/CLSC is Waste Electrical and Electronic Equipment (WEEE)/E-waste. Numerous research papers were published in the RL and CLSC disciplines focusing WEEE separately. However, there is no single review article found on the product-specific issues. To bridge this gap, a total of 157 papers published between 1999 and May 2017 were selected, categorized, analyzed using content analysis method. The method involves four steps: material collection, descriptive analysis, category selection and material evaluation. For the systematic literature review, the steps were followed and four main types of research in the field of RL and CLSC of E-waste, namely designing and planning of reverse distribution, decision making and performance evaluation, conceptual framework, and qualitative studies were identified and reviewed. Research gaps in literature were diagnosed to suggest future research opportunities. The review first of its kind that may provide a useful reference for academicians, researchers and industry practitioners for a better understanding of WEEE focused RL/CLSC activities and research.

### **39. Understanding the determinants of big data analytics (BDA) adoption in logistics and supply chain management: An empirical investigation**

**Yuanyuan Lai, Huifen Sun, Jifan Ren -2018**

: Based on previous literature on big data analytics (BDA) and supply chain (SC) management, the purpose of this paper is to address the factors determining firms' intention to adopt BDA in their daily operations. Specifically, this study classifies potential factors into four categories: technological, organizational, environmental factors, and SC characteristics. The empirical results revealed that perceived benefits and top management support can significantly influence the adoption intention. And environmental factors, such as competitors' adoption, government policy, and SC connectivity, can significantly moderate the direct relationships between driving factors and the adoption intention. Given the fact that big data (BD) usage in logistics and SC management is still in the start-up

stage, the interpretations toward BDA might vary from different perspectives, thus causing some ambiguity in understanding the meaning and potential BD has. In addition, we collected data through questionnaires completed by IT managers, whose viewpoint may not fully represent that of an organization.

#### **40. Logistic Regression**

**Abhik Das -2021**

[10:16 pm, 11/01/2024] Thamee: Logistic regression is a statistical analysis method that constructs a statistical model to describe the relationship between a binary or dichotomous (yes/no type) outcome (dependent or response variable) and a set of independent predictor or explanatory variables. Regression modeling is a popular and useful approach in statistics that is used to explore and describe the relationship between an outcome or dependent/response variable and a set of independent predictors. Logistic regression is concerned with the special situation in regression modeling, where the outcome is of a binary or dichotomous (yes/no) nature (Hosmer and Lemeshow 2000). Such outcomes are fairly common in quality of life (QOL) research. For example, the P-FiQ Study on US adults with hemophilia used patient-reported outcome (PRO) instruments to assess quality of life (QoL) and other...

#### **41 Role of artificial intelligence in operations environment: a review and bibliometric analysis Pavitra Dhamija, Surajit Bag - 2020**

“Technological intelligence” is the capacity to appreciate and adapt technological advancements, and “artificial intelligence” is the key to achieve persuasive operational transformations in majority of contemporary organizational set-ups. Implicitly, artificial intelligence (the philosophies of machines to think, behave and perform either same or similar to humans) has knocked the doors of business organizations as an imperative activity. Artificial intelligence, as a discipline, initiated by scientist John McCarthy and formally publicized at Dartmouth Conference in 1956, now occupies a central stage for many organizations. Implementation of artificial intelligence provides competitive edge to an

organization with a definite augmentation in its social and corporate status. Mere application of a concept will not furnish real output until and unless its performance is reviewed systematically. Technological changes are dynamic and advancing at a rapid rate. Subsequently, it becomes highly crucial to understand that where have the people reached with respect to artificial intelligence research. The present article aims to review significant work by eminent researchers towards artificial intelligence in the form of top contributing universities, authors, keywords, funding sources, journals and citation statistics.

#### **42: Research trends and agenda on the Belt and Road (B&R) initiative with a focus on maritime transport**

**Paul Tae-Woo Lee ORCID Icon, Zhi-Hua Hu ORCID Icon, Sang-Jeong Lee ORCID Icon, Kyoung-Suk Choi ORCID Icon & Sung-Ho Shin ORCID Icon-2018**

[Full Article](#) [Figures & data](#) [References](#) [Citations](#) [Metrics](#) [Reprints & Permissions](#) [Read this article](#)

#### **ABSTRACT**

The 'Silk Road Economic Belt and the 21st-Century Maritime Silk Road' (collectively known as Belt and Road, B&R) has been initiated by the Chinese government in 2013. The B&R is increasingly becoming a focal point for socio-economic-political interests because of its likely impact on land and sea transport and maritime logistics. The aims of this study were threefold: first, to provide an overview on the B&R, focusing on its key structural elements, such as transport corridors, city clusters, dry ports, infrastructure, zoning, and area development; second, to identify the expected impacts of the B&R on trade and implications on structural changes in transportation systems, port networks, and international logistics. Finally, to discuss major research trends and setting up of research agenda which will contribute to enriching the existing literature and shaping the global trade operations and drive economic growth in the context of the B&R.

**43. Optimization for drone and drone-truck combined operations: A review of the state of the art and future directions** [Author links open overlay panel](#)  
**Sung Hoon Chung a, Bhawesh Sah b, Jinkun Lee-2020**

This paper surveys the state-of-the-art optimization approaches in the civil application of drone operations (DO) and drone-truck combined operations (DTCO) including construction/infrastructure, agriculture, transportation/logistics, security/disaster management, entertainment/media, etc. In particular, this paper reviews ongoing research on various optimization issues related to DO and DTCO including mathematical models, solution methods, synchronization between a drone and a truck, and barriers in implementing DO and DTCO. First, the paper introduces DO and DTCO and their applications, and explores some previous works including survey papers. In addition, this paper surveys the state of the art of DO and DTCO studies and discusses the research gaps in the literature. Furthermore, the detailed review of DTCO models and solution methods are reviewed. Finally, future research directions are discussed.

**44 big data analytics capabilities in supply chain management: Unravelling the issues, challenges and implications for practice** [panel](#)  
**Deepak Arunachalam, Niraj Kumar, John Paul Kawalek-2018**

The concurrence of events such as growth in adoption of supply chain technologies, data inundation and a shift in management focus from heuristics to data-driven decision making have collectively led to the rise of big data era. As a valuable asset for decision-making, Big Data Analytics (BDA) can play a pivotal role in transforming and improving the functions of supply chain. In this changing business environment, business leaders prefer to take decisions bearing in mind the data-driven insights rather than relying on their intuitions (Davenport, 2006). Due to the perceived benefits of BDA, organisations are highly motivated to develop their technical and organisational capabilities to extract value from data. Yet, practitioners face extreme difficulties in understanding the required capabilities to transform data into value. The core aspects of generating value depend on organisation's ability to capture, store and analyse a large volume of

complex data generated in real or near real-time with the support of advanced analytics (Yesudas et al., 2014). Although the phenomenon of 'Big Data' is considered as the latest sensation worldwide, it has not essentially emerged impulsively. Last decade has seen a tremendous increase in adoption of a variety of Information and Communication Technologies (ICT) for Supply Chain Management (SCM), (e.g. RFID, Enterprise Resource Planning (ERP) to Internet of Things (IoT)). This has triggered huge data generation in the supply chain. Our continuous efforts to create more sophisticated technology to collect data at different stages of supply chain have resulted in the new era of big data.

#### **45. Blockchain Technology Implementation in Logistics**

**by Edvard Tijan 1,\*ORCID,Saša Aksentijević 2,Katarina Ivanić 1 andMladen Jardas 1ORCID-2019**

supply chain is tied to the complex processes of creation and distribution of goods. Depending on the product, the supply chain can include many phases, multiple geographic locations, several accounts and payments, several individuals, entities, and means of transport. Therefore, procurement of supplies can be extended over several months. Because of the complexity and the lack of transparency of traditional supply chains, it is of great interest for the stakeholders involved in the logistics process to introduce and develop blockchain technology to enhance the logistics processes in the supply chain, making them more sustainable [1]. Blockchain technology is most often mentioned and used in crypto currencies, but the extent of possible applications is significantly larger. Blockchain is a distributed book (ledger) with many potential applications. It can be used for any data exchange, whether it is contracts, tracking of shipments and financial exchanges (payments). Each action is captured in the block and the data is distributed over many nodes (computers), making the system transparent. Every block connects to the one before and after, which makes the system safer. Blockchain can increase the efficiency and transparency of the supply chain and positively affect all logistic processes, from storage to delivery and payment. In addition to increased

transparency and security achieved through blockchain, it is possible to speed up the physical flow of goods [2]. Tracking goods through blockchain can improve the decision-making process with end result being a more satisfying service for the end user. Blockchain technology possesses the potential for creation of new logistics services, as well as new business models. As a relatively new technology, blockchain is designed to achieve decentralization, real-time peer-to-peer operation, anonymity, transparency, irreversibility and integrity in a widely applicable manner. However, there are still vulnerabilities and challenges related to this technology that should not be neglected [3]. One of the limitations that stand out is its performance. The verification of every transaction requires the acknowledgement of every node in the network, which will take substantially more time than the centralized system

**46.Evaluating barriers for reverse logistics implementation under a multiple stakeholders' perspective analysis using grey decision making approach**  
**Bouzon a b, Kannan Govindan a, Carlos M. Taboada Rodriguez-2018**

In the past few decades, an interest in reverse logistics has attracted the attention of industries and also has become a subject of interest for researchers. However, while reverse logistics is becoming a mandatory element of the supply chain in developed countries particularly due to legislation issues, the subject is still in a state of infancy in emerging economies such as Brazil. In these connections, impediments to reverse logistics implementation must be considered and analyzed, as well as the many different perspectives from the key stakeholders for their development. The objective of this research is to evaluate the interrelationship among reverse logistics barriers from the perspectives of the most important stakeholders in the Brazilian context. For this purpose, a Multi-Criteria Decision Making tool named grey-based Decision Making Trial and Evaluation Laboratory (grey-DEMATEL) was used to extract a multiple company-customer-government association perspective. Three respondents – one expert from each stakeholder – have been consulted to obtain the pair-wise comparison of barriers. Thus, both the net effect and the

importance level of each impediment are provided by means of a Euclidean distance analysis, as well as the similarities and differences among stakeholders' opinions

#### **47: Literature review: The vaccine supply chain**

**Lotty Evertje Duijzer a, Willem van Jaarsveld b, Rommert Dekker a-2018**

Vaccination is one of the most effective ways to prevent and/or control the outbreak of infectious diseases. This medical intervention also brings about many logistical questions. In the past years, the Operations Research/Operations Management community has shown a growing interest in the logistical aspects of vaccination. However, publications on vaccine logistics often focus on one specific logistical aspect. A broader framework is needed so that open research questions can be identified more easily and contributions are not overlooked.

In this literature review, we combine the priorities of the World Health Organization for creating a flexible and robust vaccine supply chain with an Operations Research/Operations Management supply chain perspective. We propose a classification for the literature on vaccine logistics to structure this relatively new field, and identify promising research directions. We classify the literature into the following four components: (1) product, (2) production, (3) allocation, and (4) distribution. Within the supply chain classification, we analyze the decision problems for existing outbreaks versus sudden outbreaks and developing countries versus developed countries. We identify unique characteristics of the vaccine supply chain: high uncertainty in both supply and demand; misalignment of objectives and decentralized decision making between supplier, public health organization and end customer; complex political decisions concerning allocation and the crucial importance of deciding and acting in time.

**48. Site logistics planning and control for engineer-to-order prefabricated building systems using BIM 4D modeling IRafaela Bortolini a 1, Carlos Torres Formoso a, Daniela D. Viana b- 2019**

There has been a growing demand for engineer-to-order (ETO) prefabricated building systems, in which a unique product must fulfill the requirements of specific clients. Although industrialized building systems can potentially simplify the production process, there is usually a high level of complexity in ETO production systems, such as uncertainty in client demands, short lead-time, overlapping between project stages, and resources that are shared among different projects. In this context, logistics management plays a key role in terms of achieving project goals related to cost, time and safety. This research work proposes the combined use of principles from the Lean Production Philosophy and Building Information Modeling (BIM), as a mechanism to cope with the complexity involved in those types of projects. Although these can be regarded as two separate approaches for improving the performance of production systems in the construction industry, there are evidences that there is much synergy between them. This paper reports the development of a logistics planning and control model for site assembly of ETO prefabricated building systems using BIM 4D modeling. The main theoretical contribution of this research work is the understanding of the synergies between Lean principles and BIM functionalities that are applicable to site logistics management,

#### **49.Blockchain Technology Implementation in Logistics**

**by Edvard Tijan 1,\*ORCID,Saša Aksentijević 2,Katarina Ivanić 1 andMladen Jardas -2019**

The supply chain is tied to the complex processes of creation and distribution of goods. Depending on the product, the supply chain can include many phases, multiple geographic locations, several accounts and payments, several individuals, entities, and means of transport. Therefore, procurement of supplies can be extended over several months. Because of the complexity and the lack of transparency of traditional supply chains, it is of great interest for the stakeholders involved in the logistics process to introduce and develop blockchain technology to enhance the logistics processes in the supply chain, making them more sustainable [1]. Blockchain technology is most often

mentioned and used in crypto currencies, but the extent of possible applications is significantly larger. Blockchain is a distributed book (ledger) with many potential applications. It can be used for any data exchange, whether it is contracts, tracking of shipments and financial exchanges (payments). Each action is captured in the block and the data is distributed over many nodes (computers), making the system transparent. Every block connects to the one before and after, which makes the system safer. Blockchain can increase the efficiency and transparency of the supply chain and positively affect all logistic processes, from storage to delivery and payment. In addition to increased transparency and security achieved through blockchain, it is possible to speed up the physical flow of goods [2]. Tracking goods through blockchain can improve the decision-making process with end result being a more satisfying service for the end user. Blockchain technology possesses the potential for creation of new logistics services, as well as new business models. As a relatively new technology, blockchain is designed to achieve decentralization, real-time peer-to-peer operation, anonymity, transparency, irreversibility and integrity in a widely applicable manner. However, there are still vulnerabilities and challenges related to this technology that should not be neglected [3]. One of the limitations that stand out is its performance. The verification of every transaction requires the acknowledgement of every node in the network, which will take substantially more time than the centralized system.

## **50.Evaluating barriers for reverse logistics implementation under a multiple stakeholders' perspective analysis using grey decision making approach**

**Pa.nelMarina Bouzon a b, Kannan Govindan a, Carlos M. Taboada Rodriguez**

In the past few decades, an interest in reverse logistics has attracted the attention of industries and also has become a subject of interest for researchers. However, while reverse logistics is becoming a mandatory element of the supply chain in developed countries particularly due to legislation issues, the subject is still in a state of infancy in emerging economies such as Brazil. In these

connections, impediments to reverse logistics implementation must be considered and analyzed, as well as the many different perspectives from the key stakeholders for their development. The objective of this research is to evaluate the interrelationship among reverse logistics barriers from the perspectives of the most important stakeholders in the Brazilian context. For this purpose, a Multi-Criteria Decision Making tool named grey-based Decision Making Trial and Evaluation Laboratory (grey-DEMATEL) was used to extract a multiple company-customer-government association perspective. Three respondents – one expert from each stakeholder – have been consulted to obtain the pair-wise comparison of barriers. Thus, both the net effect and the importance level of each impediment are provided by means of a Euclidean distance analysis, as well as the similarities and differences among stakeholders' opinions. The uniqueness of this paper relies on the fact that no previous work was found in the domain of multiple stakeholders' perspective for reverse logistics barriers. This research uncovers that most of the key barriers from the reverse logistics multiple perspectives framework are from the organizational point of view. This stakeholder holds

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **RESEARCH METHODOLOGY**

##### **1. Research design**

The study used in descriptive research the purpose of the study is to organization various department its process. An attempt to establish what level of understanding has of the customer requirements.

##### **2. Sources of data**

###### **(a) Primary data**

Primary data were collected by havity. Interviews and interaction with the customer of Zeniline Global Logistics Private Limited Chennai secondary data.

###### **(b) Secondary data**

Secondary data were collected from books, Newspaper, websites and company documents etc.,

##### **3. Sampling Method**

The researcher has been adopted to select simple random sampling method

##### **4. sample size**

The researcher has selected 40 clients of Zeniline Global Logistics Private Limited in Chennai.

## 6. Tools used for Analysis

### Simple percentage analysis:

Simple percentage analysis refers to a ratio. With the help of absolute figures it will be difficult to interpretate any meaning from the collected data, but when percentages are found out then it becomes easy to find the relative difference between two are more attributes.

$$\text{percentage} = \frac{\text{no.of respondents}}{\text{Total number of respondents}} \times 100$$

### Weighted Average :

The from weighted average usually report to a weighted arithmetic mean but weighted verses of other means can also be calculated such as the weighted Geometric mean weighted harmonic mean.

$$\text{Weighted Average} = \frac{\sum Wx}{\sum x}$$

(W) Weight

(X) No. of respondents

### 7.Period of study :

The study period from

## CHAPTER 4

## **SCOPE AND LIMITATION OF THE STUDY**

### **SCOPE AND LIMITATIONS OF THE STUDY**

#### **Scope**

The study has been under taken to identify the customer perception towards service rendered by Zeniline Global Logistics Private Limited .The main aim of the research of to identify the competitive area of Zeniline Global Logistics Private Limited services to different customer and area of Chennai.

#### **Customer perception**

It is important to underscore the word perception. Perception is “is the act of discerning realizing and becoming aware of through the senses”. The customer perception is what counts and not what we think it is.

#### **Limitations of the study.**

This project is done with only Zeniline Global Logistics Private Limited . This project survey has taken for only customer of Zeniline Global Logistics Private Limited . This project is does not applicable for any other Logistics services.

## **CHAPTER 5**

### **ANALYSIS AND INTREPRETATION**

#### **5.1 VOLUME OF GOODS**

The following table 3.1 reveals the respondents on the volume of goods handled through Zeniline Global Logistics Private Limited .

**TABLE 5.1**

|  | <b>No.of.respondents</b> | <b>Percentage</b> |
|--|--------------------------|-------------------|
|  |                          |                   |

| <b>Volume of goods</b> |     | <b>%</b> |
|------------------------|-----|----------|
| 50-100                 | 70  | 50       |
| 100-250                | 42  | 30       |
| 250-500                | 14  | 10       |
| 500 above              | 14  | 10       |
| TOTAL                  | 140 | 100      |

**Source: Primary data**

**Interpretation:**

The table 3.1 shows that 30% of the respondents have 100-250 volume of goods handled through Logistics services. And 10% of the respondents have 250-500 volume of goods handled through logistical services. Finally 10% of the respondents have 500 above volume of goods handled through logistic services.

**Inference:**

Most 50% of the respondents have been 50-100 volume of goods handled through Zeniline Global Logistics Private Limited services.

## **5.2 EXPORT MARKET**

The following table 5.2 explains the details of the respondents on export market.

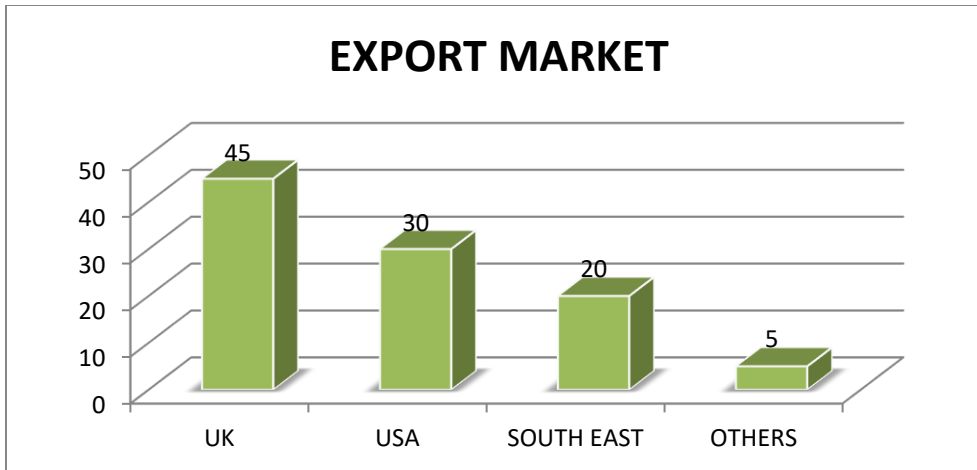
**TABLE 5.2**

| <b>Region</b> | <b>No.of.respondents</b> | <b>Percentage</b> |
|---------------|--------------------------|-------------------|
| UK            | 63                       | 45                |
| USA           | 42                       | 30                |
| SOUTH EAST    | 28                       | 20                |
| OTHERS        | 7                        | 5                 |
| TOTAL         | 140                      | 100               |

**Source: Primary data**

**Interpretation:**

The table 5.2 shows that 30% of the respondents has been export market of USA through Logistics services and 20% of the respondents has been export market of south east through logistical services. And 5% of the respondents has been export market of other country through logistic services.



**Inference:** Most 45% of the respondents has been export market of UK through Zeniline Global Logistics Private Limited services.

### 5.3 EXPORTATION OF GOODS

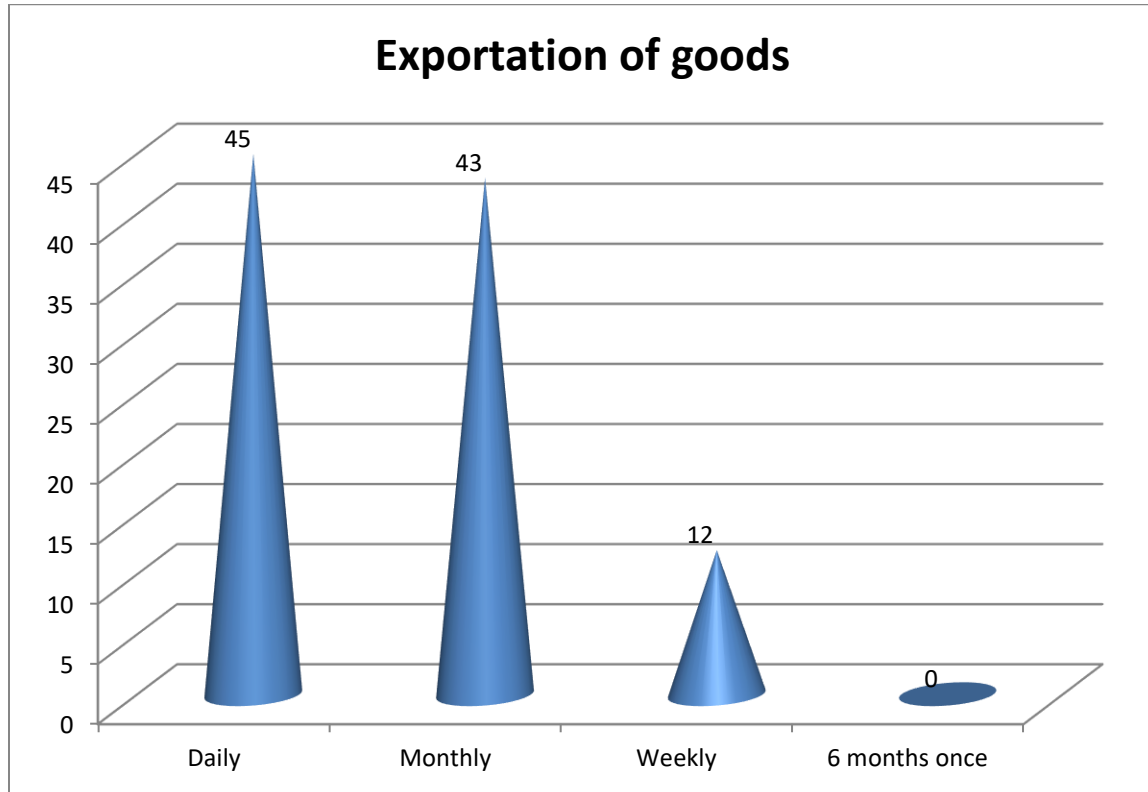
The following table 5.3 explain the details of the respondents on exportation of good services of Zeniline Global Logistics Private Limited

**TABLE 5.3**

| Exportation of goods | No.of.respondents | Percentage |
|----------------------|-------------------|------------|
|                      |                   | %          |
| Daily                | 63                | 45         |
| Monthly              | 60                | 43         |
| Weekly               | 17                | 12         |
| 6 months once        | -                 | -          |
| TOTAL                | 140               | 100        |

**Source :Primary data**

**Intrepredation:** The table 5.3 shows that 43% of the respondents have been exportation of goods as mothly and 12% of the respondents have been exportation of goods as weekly basis.



**Inference:** Most 45% of the respondents have been exportation goods as daily.

#### 5.4 CUSTOMER OPINION ON PRICING

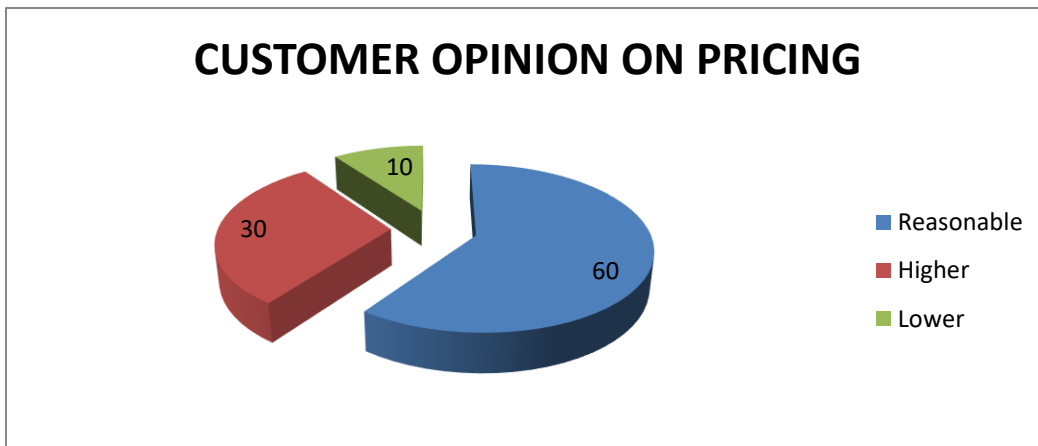
The following table 5.4 explain details of the respondents on opinion on pricing

**TABLE 5.4**

| Service pricing | No.of.respondents | Percentage |
|-----------------|-------------------|------------|
|                 |                   | %          |

|            |    |    |
|------------|----|----|
| Reasonable | 84 | 60 |
| Higher     | 42 | 30 |
| Lower      | 14 | 10 |

**Interpretations:** The table 5.4 shows that 30 % of the respondents opinion on pricing is higher. and 10% of the respondents opinion on pricing is lower.



**Inference:** Most 60% of the respondents opinion on pricing is reasonable.

## 5.5 FACTORS INFLUENCES FOR Zeniline Global Logistics Private Limited

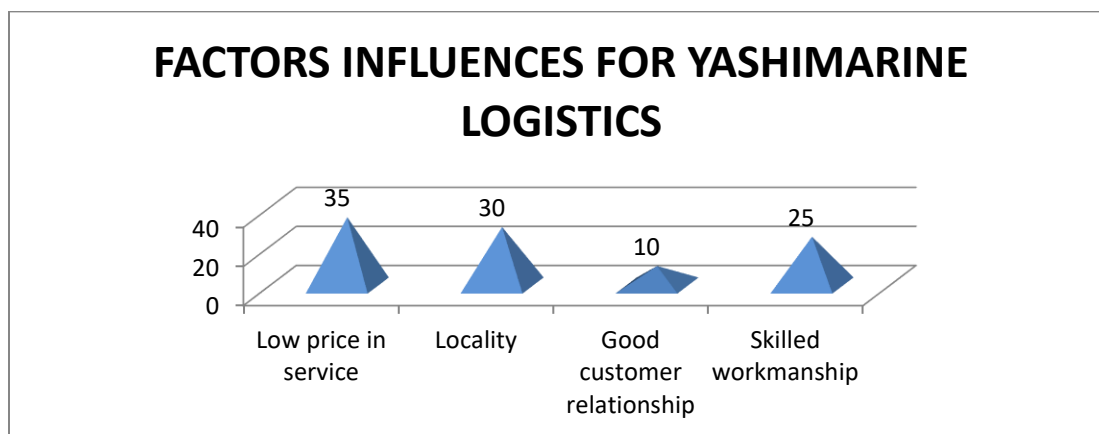
The following table3.4 explains the details of the respondents for selection of Zeniline Global Logistics Private Limited services.

**TABLE 5.5**

| <b>Factors</b>       | <b>No.of.respondents</b> | <b>Percentage<br/>%</b> |
|----------------------|--------------------------|-------------------------|
| Low price in service | 49                       | 35                      |
| Locality             | 42                       | 30                      |

|                            |     |     |
|----------------------------|-----|-----|
| Good customer relationship | 14  | 10  |
| Skilled workmanship        | 35  | 25  |
| TOTAL                      | 140 | 100 |

**Interpretation:** The table 5.5 shows that 30% of the respondents are selection for locality. and 10% of the respondents are the selection for good customer relationship .and finally 25% of the respondents are selection for skilled workmanship.



**Inference:** Majority 35% of the respondents are selection for low price in service.

## 5.6 EXPERIENCES WITH Zeniline Global Logistics Private Limited SERVICE

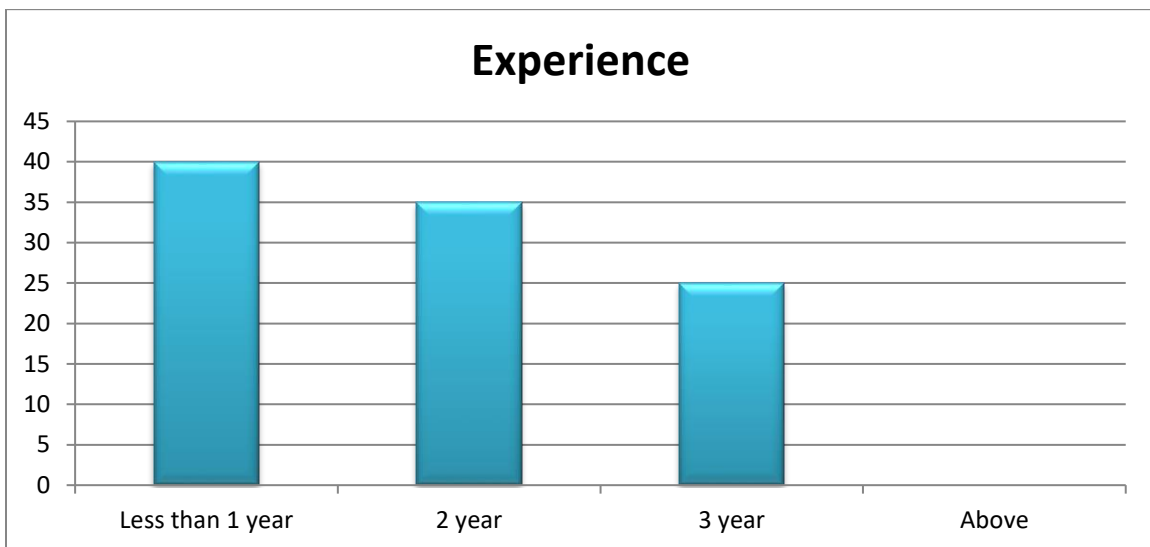
The following table 3.5 reveals the explain the period of dealing with Zeniline Global Logistics Private Limited services.

**TABLE5.6**

| Experience       | No.of.respondents | Percentage<br>% |
|------------------|-------------------|-----------------|
| Less than 1 year | 56                | 40              |

|        |     |     |
|--------|-----|-----|
| 2 year | 49  | 35  |
| 3 year | 35  | 25  |
| Above  | -   | -   |
| TOTAL  | 140 | 100 |

**Interpretation:** The table 3.5 shows that 35% of the respondents are experience with 2 years. and 25% of the respondents are experience with 3 year.



**Inference:** The less than 1 year 40% of the respondents are experience with Zeniline Global Logistics Private Limited service.

## 5.7 SATISFACTION ON TRANSPORTATION SERVICE

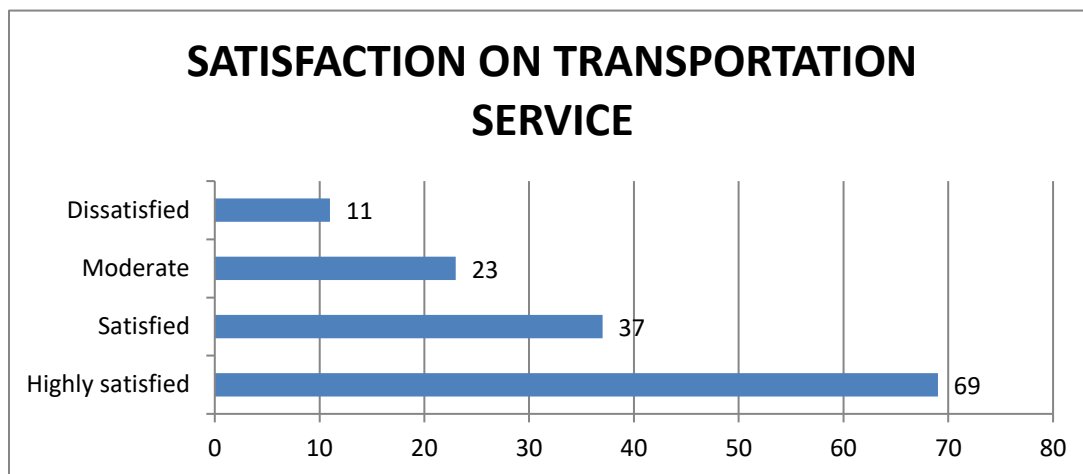
The following table 5.7 explains the detail of the respondents on transportation services.

**TABLE 5.7**

|                         | No.of.respondents | Weight | Wx |
|-------------------------|-------------------|--------|----|
| Transportation services | (x)               | (W)    |    |

|                  |              |               |    |
|------------------|--------------|---------------|----|
| Highly satisfied | 69           | 1             | 69 |
| Satisfied        | 37           | 2             | 74 |
| Moderate         | 23           | 3             | 69 |
| Dissatisfied     | 11           | 4             | 44 |
|                  | $\sum x=140$ | $\sum Wx=256$ |    |

**INFERENCE:** The average value of 1.8% show that majority of the respondents are satisfied with transportation service.



#### 5.8 SATISFACTION ON CUSTOMER FRIEGHT STATION OPERATION:

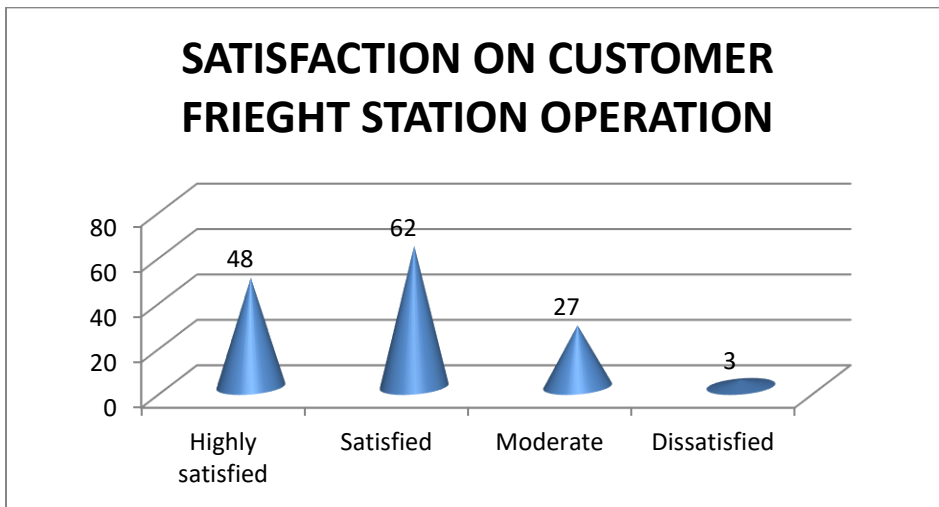
The following table 5.8 Satisfaction of the respondents on customer freight station of Zeniline Global Logistics Private Limited .

**TABLE 5.8**

| Customer freight station | No.of.respondents<br>(x) | Weight<br>(W) | Wx |
|--------------------------|--------------------------|---------------|----|
| Highly satisfied         | 48                       | 2             | 96 |

|              |                |   |                 |
|--------------|----------------|---|-----------------|
| Satisfied    | 62             | 1 | 62              |
| Moderate     | 27             | 3 | 81              |
| Dissatisfied | 3              | 4 | 12              |
|              | $\sum x = 140$ |   | $\sum Wx = 251$ |

**INFERENCE:** The average value of 1.8% shows that most of the respondents are satisfied with customer freight station services provided by Zeniline Global Logistics Private Limited



#### 5.9 SATISFACTION ON CUSTOMS HOUSE AGENT OPERATION:

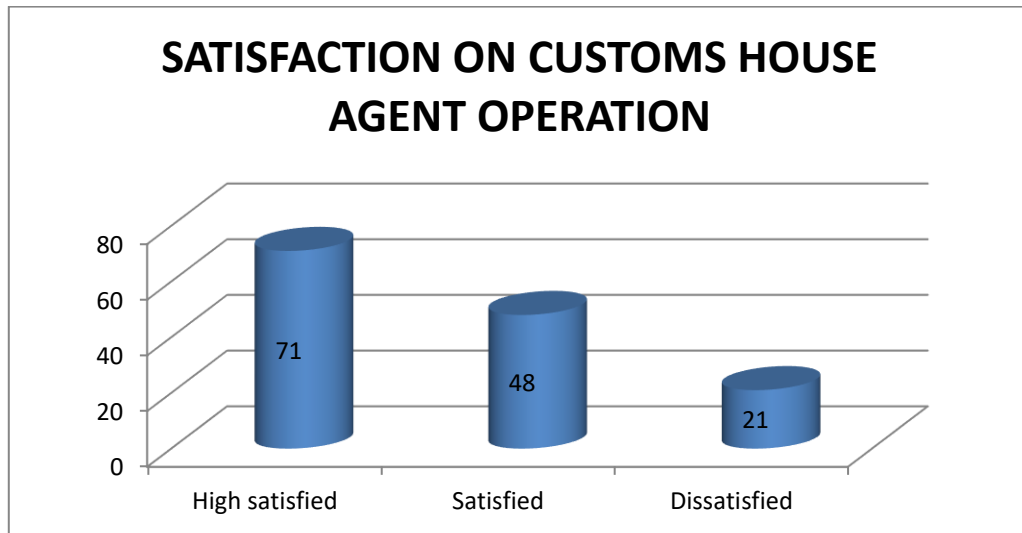
The following table 5.9 Shows the respondents on satisfaction on customs house agent operation.

**TABLE 5.9**

| Customs house agent | No.of.respondents<br>(x) | Weight<br>(W) | Wx |
|---------------------|--------------------------|---------------|----|
| High satisfied      | 71                       | 1             | 71 |
| Satisfied           | 48                       | 2             | 96 |

|              |              |               |    |
|--------------|--------------|---------------|----|
| Dissatisfied | 21           | 3             | 63 |
|              | $\sum x=140$ | $\sum Wx=230$ |    |

**INFERENCE:** The average value of **1.6%** shows that most of the respondents are satisfied with customs house agent operation.



#### 5.10 SATISFACTION ON LINER SERVICES:

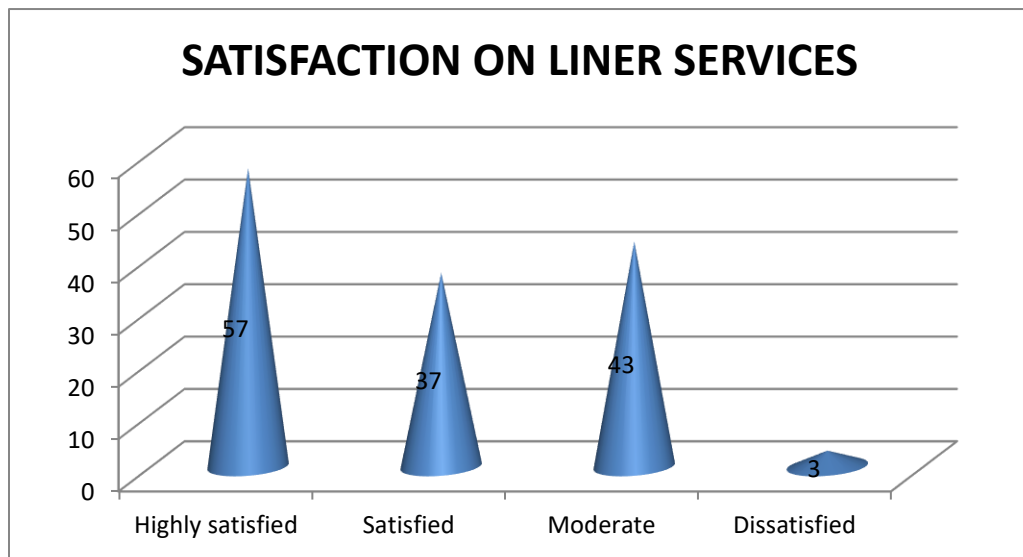
The following table 5.10 shows that respondents on satisfaction on liner services.

**TABLE 5.10**

|                  | No.of.respondents<br>(x) | Weight<br>(W) | Wx |
|------------------|--------------------------|---------------|----|
| Liner services   |                          |               |    |
| Highly satisfied | 57                       | 1             | 57 |

|              |              |                |     |
|--------------|--------------|----------------|-----|
| Satisfied    | 37           | 3              | 111 |
| Moderate     | 43           | 2              | 86  |
| Dissatisfied | 3            | 4              | 12  |
|              | $\sum x=140$ | $\sum Wx= 266$ |     |

**INFERENCE:**The average value of **1.9 %** shows that most of the respondents are moderately satisfied with the liner services



#### 5.11 FRIEGHT RATE IS COMPETITIVE:

The following table 5.11 reveals the opinion of the respondents on competitive freight rate offered by Zeniline Global Logistics Private Limited .

**TABLE 5.11**

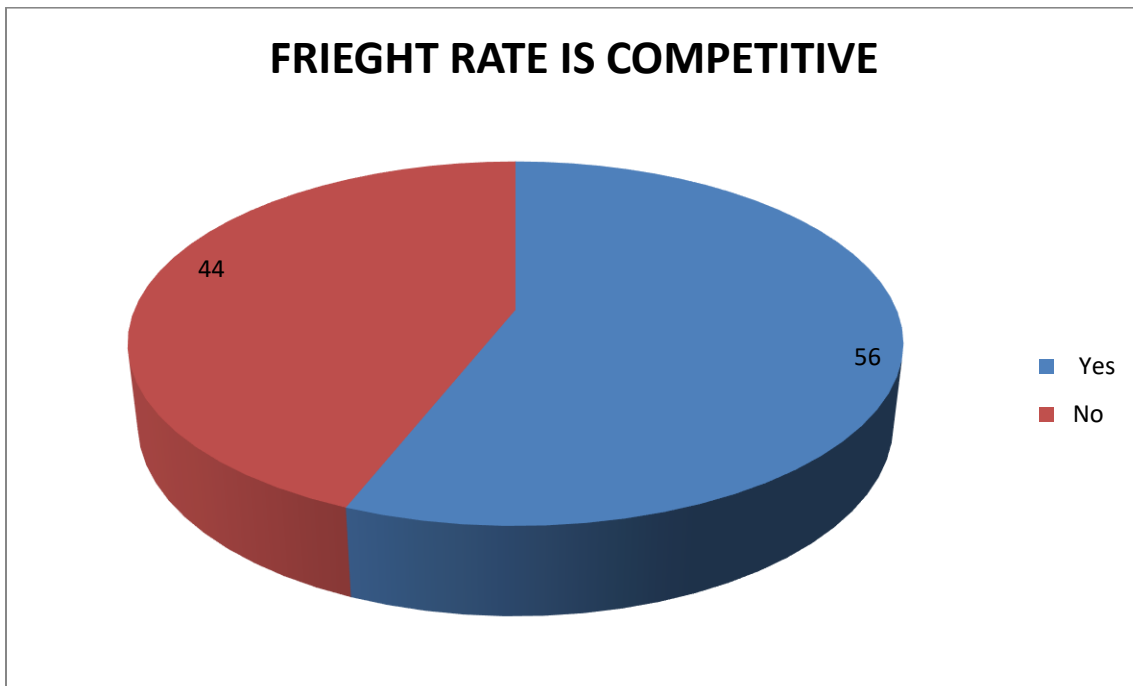
| Particula<br>r | No.of.responden<br>ts | Percentag<br>e<br>% |
|----------------|-----------------------|---------------------|
|----------------|-----------------------|---------------------|

|       |     |     |
|-------|-----|-----|
| Yes   | 78  | 56  |
| No    | 62  | 44  |
| TOTAL | 140 | 100 |

**Source : Primary data**

**Interpretation:**

The table 5.11 shows that 56% of the respondents revealed that the freight rate is competitive with other players.



**Inference :** Most 56% of the respondents agreed that the freight rate is competitive

## **5.12 SATISFACTION ON INFORMATION TECHNOLOGY ADOPTED:**

The following table 3.11 explain the details of the respondents on opinion on information technology has been used for the operation of Zeniline Global Logistics Private Limited .

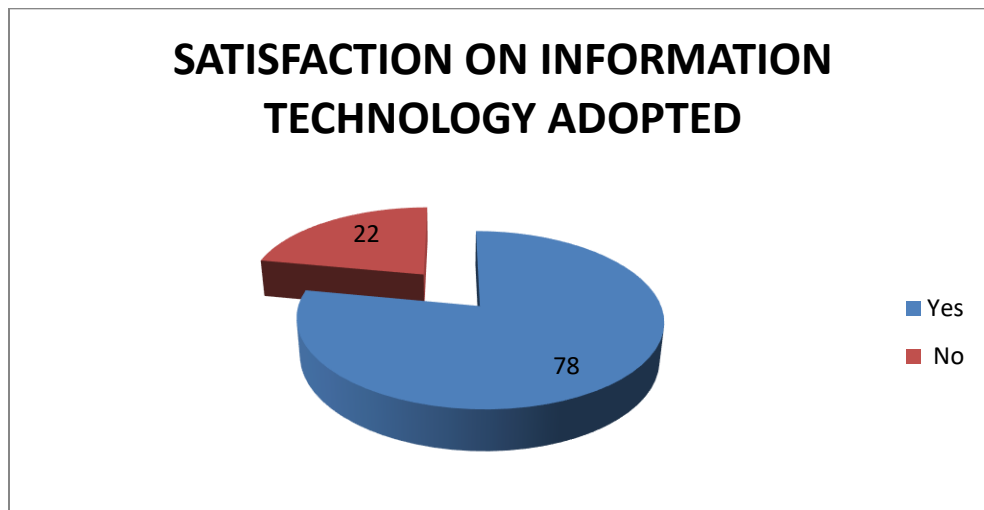
**TABLE 5.12**

| Particular | No.of.respondents | Percentage<br>% |
|------------|-------------------|-----------------|
| Yes        | 109               | 78              |
| No         | 31                | 22              |
| Total      | 140               | 100             |

**Source :Primary data**

**Interpretation:**

The table 5.12 shows that 22% of the respondents reveal that information technology in the operation are bad.



**Inference** Most 78% of the respondents reveal that information technology adopted in the operations is good.

**5.13 SATISFACTION VALUE ADDED SERVICES.**

The following table 3.12 reveals of the respondents satisfaction on value added services.

**TABLE 5.13**

| Value added services | No.of.respondents<br>(x)       | Weight<br>(W)                   | Wx |
|----------------------|--------------------------------|---------------------------------|----|
| Highly satisfied     | 81                             | 1                               | 81 |
| Satisfied            | 38                             | 2                               | 76 |
| Dissatisfied         | 21                             | 3                               | 63 |
|                      | <b><math>\sum x=140</math></b> | <b><math>\sum Wx=220</math></b> |    |

**Source :Primary data**

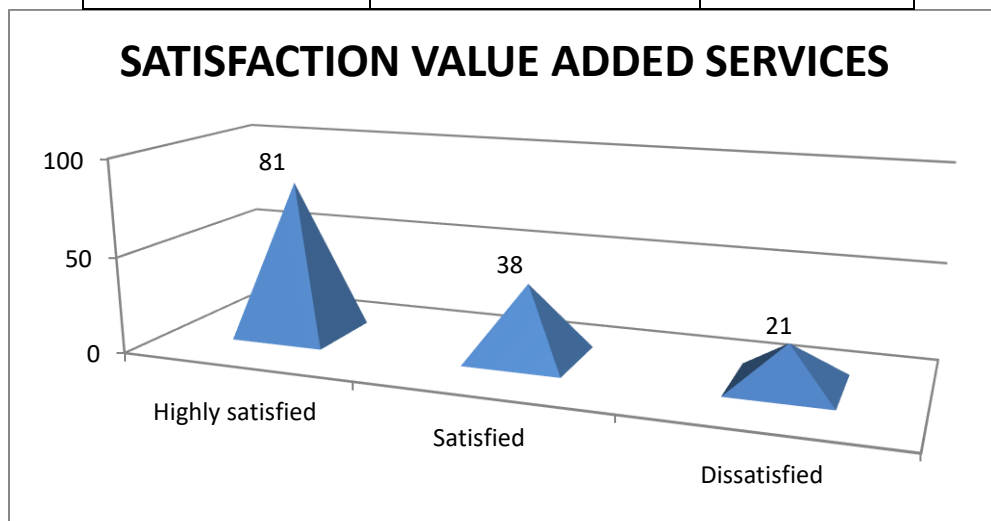
Weighted average method =  $\frac{\sum Wx}{\sum x}$

$\sum x$

=  $220 / 140$

= 1.5

| Particular       | No.of.respondents<br>(x) | Percentage |
|------------------|--------------------------|------------|
| Very consistency | 118                      | 84         |
| Inconsistency    | 22                       | 16         |
|                  | 140                      | 100        |



**INFERENCE** The average value of **1.5%** shows that most of the respondents are satisfied with value added services

#### 5.14 OPINION ON DELIVERED OF CARGO TO THE DESTINATION:

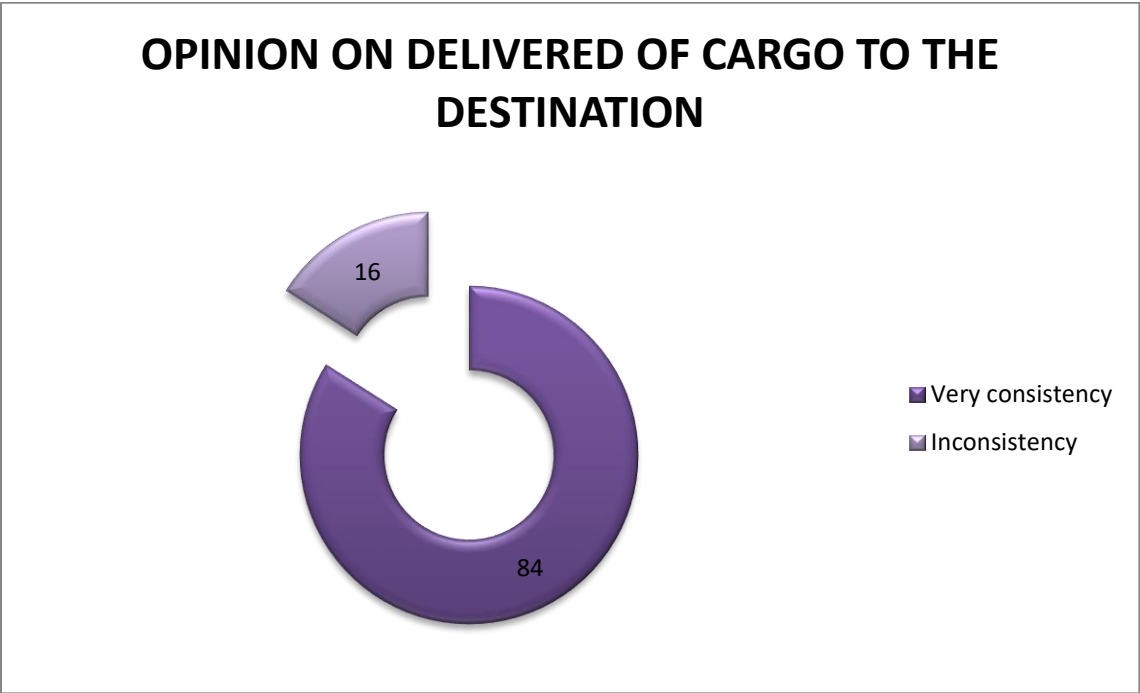
The following table 3.14 reveals the respondents perception on delivered of cargo to the satisfaction

TABLE 5.14

Source: Primary data

Interpretation:

The above table 5.14 shows that 45% of the respondents revealed that the delivering of the cargo to the destination is inconsistency.



**Inference:** The most 55%of the respondents revealed that the delivering of the cargo to the destinations very consistency.

**5.15 PERCEPTION ON PROFESSSIONALISM AND RESPONSE LEVEL:**

The following table 3.16 reveals the explain the details of perception on respondents of professionalism and response level

TABLE 5.15

| Particular | No.of.respondent<br>s<br>(x) | Weight<br>(W) | Wx |
|------------|------------------------------|---------------|----|
| Excellent  | 46                           | 2             | 92 |
| Good       | 61                           | 1             | 61 |
| Satisfied  | 33                           | 3             | 99 |
| Poor       | -                            | -             | -  |
|            | $\sum x=140$                 | $\sum Wx=252$ |    |

**Source :Primary data**

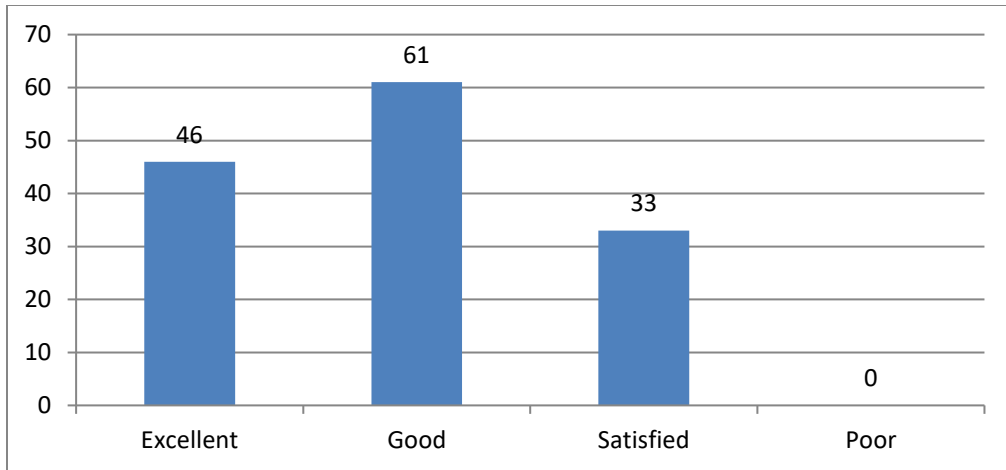
Weighted average method =  $\frac{\sum Wx}{\sum x}$

$\sum x$

= 252 /140

**Inference:** = 1.8

The average value of 1.8% of the respondents feel excellent with professionalism and response level of the compan



#### 5.16 OPINION ON FEEDBACK:

The following table 5.16 explain the details of the respondents opinion on feedback.

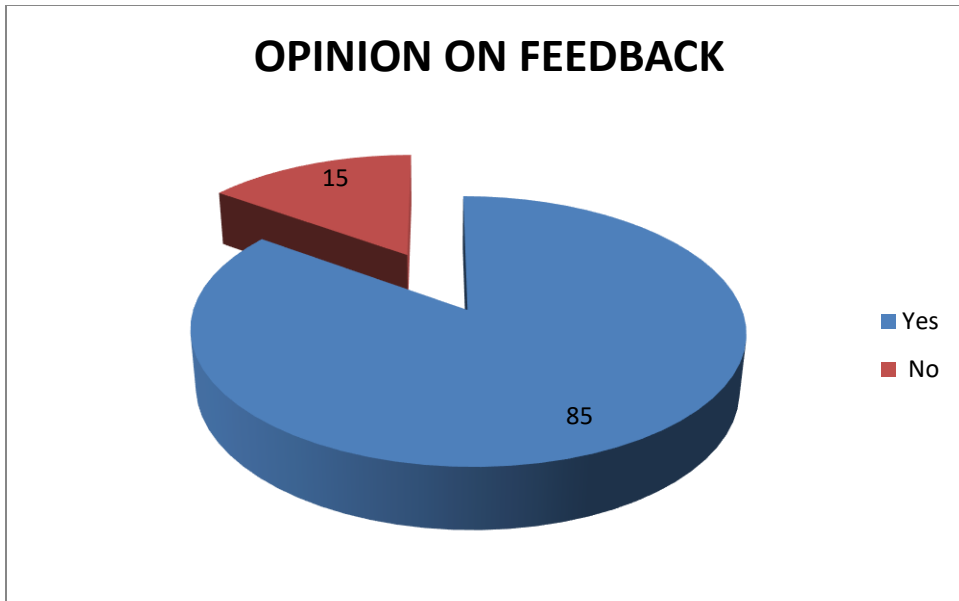
**TABLE 5.16**

| Particular | No.of.respondents | Percentage<br>% |
|------------|-------------------|-----------------|
| Yes        | 119               | 85              |
| No         | 21                | 15              |
| TOTAL      | 140               | 100             |

**Source: Primary data**

#### **Interpretation:**

The above table 5.16 shows that 15% of the respondents are not satisfaction of the feedbac



#### **Inference:**

The most of 85% of the respondents are highly satisfaction by the feedback provided by the Zeniline Global Logistics Private Limited .

#### **SATISTICAL TOOLS AND ANALYSIS**

##### **ONE-WAY ANOVA CLASSIFICATION**

##### **Null hypothesis (Ho):**

There is a significance difference between the factors influences for Yashi marine logistics and freight rate is competitive.

##### **Alternate hypothesis (H1):**

There is no significance difference between the factors influences for Yashi marine logistics and freight rate is competitive.

## Descriptives

FREIGHTRATEISCOMPETITIVE

|                            | N   | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean |             | Minimum | Maximum |
|----------------------------|-----|------|----------------|------------|----------------------------------|-------------|---------|---------|
|                            |     |      |                |            | Lower Bound                      | Upper Bound |         |         |
| Low price in service       | 49  | 1.00 | .000           | .000       | 1.00                             | 1.00        | 1       | 1       |
| Locality                   | 42  | 1.31 | .468           | .072       | 1.16                             | 1.46        | 1       | 2       |
| Good customer relationship | 14  | 2.00 | .000           | .000       | 2.00                             | 2.00        | 2       | 2       |
| Skilled workmanship        | 35  | 2.00 | .000           | .000       | 2.00                             | 2.00        | 2       | 2       |
| Total                      | 140 | 1.44 | .499           | .042       | 1.36                             | 1.53        | 1       | 2       |

## Test of Homogeneity of Variances

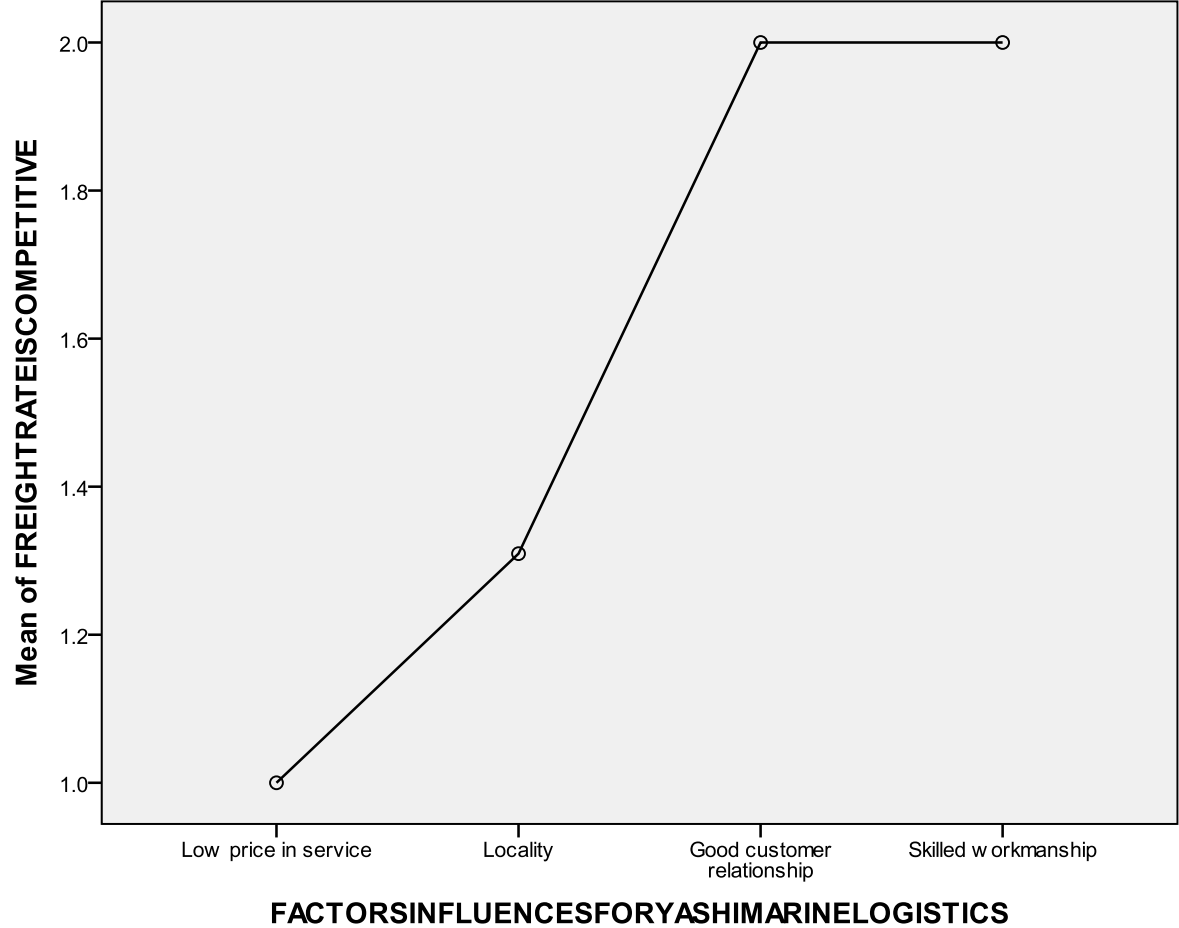
FREIGHTRATEISCOMPETITIVE

| Levene Statistic | df1 | df2 | Sig.  |
|------------------|-----|-----|-------|
| 186.929          | 3   | 136 | .0510 |

**ANOVA**

FREIGHTRATEISCOMPETITIVE

|                | Sum of Squares | df  | Mean Square | F       | Sig. |
|----------------|----------------|-----|-------------|---------|------|
| Between Groups | 25.567         | 3   | 8.522       | 129.122 | .010 |
| Within Groups  | 8.976          | 136 | .066        |         |      |
| Total          | 34.543         | 139 |             |         |      |



**Tabulated value = 3.3690**

**Calculated value= 129.122**

$$F = F_{cal} > F_{tab} \quad F = 129.122 > 3.3690$$

Hence, the Alternate hypothesis [H1] is accepted.

**INFERENCE:** The calculated value of F is greater than the tabulated value. Hence, we reject the null hypothesis and conclude that there is a significance difference between the factors influences for Yashi marine logistics and freight rate is competitive.

### **ANALYSIS USING KARL PEARSON'S CORRELATION**

Correlation analysis is the statistical tool used to measure the degree to which two variables are linearly related to each other. Correlation measures the degree of association between two variables.

**Null hypothesis (H0):** There is positive relationship between the satisfaction on customer freight station operation and satisfaction on customs house agent operation

**Alternate hypothesis (H1):** There is negative relationship between the satisfaction on customer freight station operation and satisfaction on customs house agent operation

## Correlations

|                                                           | SATISFAC<br>TIONONCU<br>STOMERF<br>REIGHTST<br>ATIONOPE<br>RATION | SATISFAC<br>TIONONCU<br>STOMSHO<br>USEAGEN<br>TOPERATI<br>ON |
|-----------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------|
| SATISFACTIONONC<br>USTOMERFREIGHT<br>STATIONOPERATIO<br>N | Pearson<br>Correlation<br>Sig. (2-tailed)<br>N                    | 1<br>.838**<br>.000<br>140                                   |
| SATISFACTIONONC<br>USTOMSHOUSEAG<br>ENTOPERATION          | Pearson<br>Correlation<br>Sig. (2-tailed)<br>N                    | .838**<br>1<br>.000<br>140                                   |

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

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2} \sqrt{N\sum Y^2 - (\sum Y)^2}}$$

$$r = .838$$

**INFERENCE:** Since  $r$  is positive, there is positive relationship between the satisfaction on customer freight station operation and satisfaction on customs house agent operation

## WEIGHTED AVERAGE METHOD

### WEIGHTED AVERAGE METHOD:

The weighted moving average is obtained on dividing the weighted moving total by the sum of the weight.

$$= \sum w_i x_i / \sum x_i$$

A weight average with appropriate weight is generally used when the moving average are strongly affected by extreme value.

#### **SATISFACTION VALUE ADDED SERVICES**

| <b>AVENUES</b>   | <b>F</b> | <b>W</b> | <b>WF</b> |
|------------------|----------|----------|-----------|
| Highly satisfied | 81       | 1        | 81        |
| Satisfied        | 38       | 2        | 76        |
| Dissatisfied     | 21       | 3        | 63        |
| Total            | 140      |          | 220       |

Weighted average= $\sum wf / \sum f$

$$=220/140$$

$$=1.5$$

**INFERENCE** The average value of **1.5%** shows that most of the respondents are satisfied with value added services

#### **CHAPTER 6**

##### **FINDINGS OF THE STUDY**

##### **FINDINGS OF THE STUDY**

- Most 50% of the respondents have been 50-100 volume of goods handled through Zeniline Global Logistics Private Limited services.
- Most 45% of the respondents have been export market of UK through Zeniline Global Logistics Private Limited services.
- Most 45% of the respondents have been exportation goods as daily
- Most 60% of the respondents opinion on pricing is reasonable
- Most Majority 35% of the respondents are selection for low price in service
- The less than 1 year 40% of the respondents are experience with Zeniline Global Logistics Private Limited service.
- The average value of 3.4% show that majority of the respondents are satisfied with transportation service.
- The average value of 3.05% shows that most of the respondents are highly satisfied with customer freight station services provided by Zeniline Global Logistics Private Limited.
- The average value of 2.45% shows that most of the respondents are satisfied with customs house agent operation.
- The average value of 2.9 shows that most of the respondents are satisfied with the liner services
- Most 65% of the respondents agreed that the freight rate is competitive
- Most 78% of the respondents reveal that information technology adopted in the operations is good
- The average value of 2.3% shows that most of the respondents are satisfied with value added services

- The most 55% of the respondents revealed that the delivering of the cargo to the destinations very consistency.
- The average value of 1.97% of the respondents are satisfied with professionalism and response level
- The average value of 1.97% of the respondents are satisfied with professionalism and response level
- The most of 85% of the respondents are highly satisfaction by the feedback provided by the Zeniline Global Logistics Private Limited

## **CHAPTER 7**

### **SUGGESTIONS AND RECOMMENDATIONS**

#### **SUGGESTIONS & RECOMMENDATIONS**

- The Logistics company should ask the customer to send the invoices before planning
- The Logistics company should arrange the training for using advanced technology
- Before filling shipping bill the Logistics company should verify all the details related goods.
- The Logistics company should choose the right customer freight station which is providing all godown facilities.
- The container should be reached the port as soon as possible based on that the planning should in advance.
- In the problem of vessel delay they have to rearrange the planning to send the goods to another vessel.

- The logistic company should ask the customer to send the goods as earlier as possible.
- The Logistics company should ask the customer to arrange the vehicles in good condition

## **CONCLUSION**

### **CONCLUSION**

A detailed analysis about the Zeniline Global Logistics Private Limited services to customer requirements and satisfaction needs. They survey include various customer perception service provided by Zeniline Global Logistics Private Limited company in Chennai

All the important aspects observed from the study and the valuable suggestions. The analysis of the study. It will helpful for the company in understanding the awareness and Satisfaction among customer needs.

## **ANNEXURES**

### **A STUDY ON CUSTOMER PERCEPTION ON SERVICES PROVIDED BY**

#### **Zeniline Global Logistics Private Limited PVT LTD, CHENNAI**

1. Company Name:-
2. Address:-
3. Volume of goods handled through Zeniline Global Logistics Private Limited  

|                                           |                                            |
|-------------------------------------------|--------------------------------------------|
| <input type="checkbox"/> 50 to 100 teu's  | <input type="checkbox"/> 100 to 250 teu's  |
| <input type="checkbox"/> 250 to 500 teu's | <input type="checkbox"/> 500 and above teu |
4. Most of the service through Zeniline Global Logistics Private Limited to which region  

|                                     |                                 |
|-------------------------------------|---------------------------------|
| <input type="checkbox"/> U.K.       | <input type="checkbox"/> U.S.A. |
| <input type="checkbox"/> South East | <input type="checkbox"/> Others |

5. Exportation of goods through Zeniline Global Logistics Private Limited

☐ Daily

☐ Weekly

☐ Monthly

☐ 6 Months once

6. Whether the Zeniline Global Logistics Private Limited provide competitive price to the customer

☐ Reasonable

☐ higher

☐ Lower

7. Which factor make you to select the Zeniline Global Logistics Private Limited.

☐ Low price in service

☐ Locality

☐ Good customer relationship

☐ Skilled

workmanship

8. How long you are dealing with Zeniline Global Logistics Private Limited .

☐ Less than one year

☐ 2 year

☐ 3 year

☐ above

9. Rate the transportation service in moving cargo one place to another place through Zeniline Global Logistics Private Limited.

☐ highly satisfied

☐ Satisfied

☐ Moderate

☐ Dissatisfied

10. Rate the service provided by the Zeniline Global Logistics Private Limited in clearing Cargo from CFS

- |                                           |                                       |
|-------------------------------------------|---------------------------------------|
| <input type="checkbox"/> highly satisfied | <input type="checkbox"/> Satisfied    |
| <input type="checkbox"/> Moderate         | <input type="checkbox"/> Dissatisfied |

11. Rate the service provided by the customs House Agent operation than by Zeniline Global Logistics Private Limited

- |                                           |                                    |
|-------------------------------------------|------------------------------------|
| <input type="checkbox"/> Highly satisfied | <input type="checkbox"/> satisfied |
| <input type="checkbox"/> Dissatisfied     |                                    |

12 Whether the Information provided by Zeniline Global Logistics Private Limited regarding liner service is satisfied.

- |                                           |                                       |
|-------------------------------------------|---------------------------------------|
| <input type="checkbox"/> highly satisfied | <input type="checkbox"/> Satisfied    |
| <input type="checkbox"/> Moderate         | <input type="checkbox"/> Dissatisfied |

13 Is Zeniline Global Logistics Private Limited providing competitive freight rate.

- |                              |                             |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

14. Whether information technology service provided by Zeniline Global Logistics Private Limited is effective.

- |                              |                             |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

15. The satisfaction on valued added service provided by Zeniline Global Logistics Private Limited .

- |                          |                          |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
|--------------------------|--------------------------|

- |                          |                  |                          |              |
|--------------------------|------------------|--------------------------|--------------|
| <input type="checkbox"/> | highly satisfied | <input type="checkbox"/> | Satisfied    |
| <input type="checkbox"/> | Moderate         | <input type="checkbox"/> | Dissatisfied |

16. Rate the consistency of delivering cargo to the destination

- |                          |                  |                          |               |
|--------------------------|------------------|--------------------------|---------------|
| <input type="checkbox"/> | Very consistency | <input type="checkbox"/> | Inconsistency |
|--------------------------|------------------|--------------------------|---------------|

17. Rate the services of professionalism and response level of Zeniline Global Logistics Private Limited .

- |                          |              |                          |      |
|--------------------------|--------------|--------------------------|------|
| <input type="checkbox"/> | Excellent    | <input type="checkbox"/> | good |
| <input type="checkbox"/> | Satisfaction | <input type="checkbox"/> | poor |

18. Whether the Zeniline Global Logistics Private Limited accept your feedback.

- |                          |     |                          |    |
|--------------------------|-----|--------------------------|----|
| <input type="checkbox"/> | Yes | <input type="checkbox"/> | No |
|--------------------------|-----|--------------------------|----|

19. Do you have any comments or suggestions.

a)

b)

c)

d)

