

A STUDY OF SUPPLY CHAIN AND CUSTOMER SATISFACTION ON HILLS MINERALS

Submitted in partial fulfillment of the requirements for the award of

MASTER OF BUSINESS ADMINISTRATION

By

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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**

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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **HARIHARAN K (42410156)** who has done the Project work entitled **A STUDY OF SUPPLY CHAIN AND CUSTOMER SATISFACTION ON HILLS MINERALS** under my supervision from September 2023 to November 2023.

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DECLARATION

I **HARIHARAN. K (42410156)** Hereby declare that the Project Report entitled as “**A STUDY OF SUPPLY CHAIN AND CUSTOMER SATISFACTION ON HILLS MINERALS**” done by me under the guidance of **Dr. YAMUNA.** MBA, MSCS., PhD., Department of Management Studies is submitted in partial fulfillment of the requirements for the award of Master of business administration.

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I would like to express my sincere and deep sense of gratitude to my Project Guide **DR. YAMUNA Department of Management Studies** for his valuable guidance, suggestions and constant encouragement paved way for the successful completion of my project work.

I wish to express my thanks to all Teaching and Non-teaching staff members of the School of Management Studies who were helpful in many ways for the completion of the project.

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Internship Certificate

This is to certify that **Mr. k.Hariharan(42410156)** student of MBA form SATIYABAMA INSTITUTE OF SCIENCE&TECNOLOGY CHENNAI. He has successfully completed his "Internship Program" in "HILLS MINERRALS" as a part of his academic curriculum - Internship during the periods 2 months.

During this period, he was found to be very sincere and total involvement in the work assigned to him.

We wish him best in his career and success in future endeavors

Thanking you,

For HILLSMINERRAIS


Proprietor.

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ABSTRACT

This project endeavors to optimize the supply chain operations of a packaged drinking water company with a primary emphasis on enhancing efficiency, reducing costs, and elevating customer satisfaction. The packaged water industry, characterized by exacting quality standards and a discerning consumer base, demands a meticulously structured and streamlined supply chain.

The study commences with a comprehensive analysis of the prevailing supply chain process, encompassing stages from raw material procurement to final product distribution. Key performance indicators, inventory, on-time delivery, production costs, and customer satisfaction metrics, are identified to comprehensively assess the effectiveness of the supply chain.

Demand forecasting techniques are adeptly employed to precisely anticipate consumer needs, enabling informed production planning and inventory management. Supplier relationships are rigorously evaluated for opportunities to optimize terms, lead times, and costs, all with a view to ensuring timely and reliable supply

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CHAPTER – 1

INTRODUCTION

1.1 INTRODUCTION

The packaged drinking water industry plays a crucial role in ensuring access to clean and safe drinking water for communities around the world. With an increasing focus on quality and efficiency, optimizing the supply chain in this industry has become paramount. This project embarks on a comprehensive exploration of supply chain optimization within a packaged drinking water company, aiming to enhance operational efficiency, reduce costs, and ultimately elevate customer satisfaction.

In an era characterized by heightened consumer expectations and exacting regulatory standards, an efficiently managed supply chain is indispensable. It serves as the lifeblood of any organization.

1.2 COMPANY PROFILE.

1.2.1 Location: Cuddalore, Tamil Nadu, India

1.2.2 About Company:

Hills Minerals is the packaged drinking water industry, serving the discerning needs of consumers in Cuddalore and its surrounding regions. Established in 1998, the company has earned a reputation for providing premium quality drinking water that meets stringent regulatory standards.

1.2.3 Mission Statement:

At Hills Minerals, they dedicated to ensuring that every drop of water they deliver to customers is pure, safe, and of the highest quality. Strive for excellence in every aspect of the operations, from sourcing the finest raw materials to the seamless delivery of our products.

1.2.4 Quality Assurance:

Hills Minerals adheres to rigorous quality control measures throughout the supply chain. their state-of-the-art facilities are equipped with advanced filtration and purification technologies to guarantee the purity of water. They are committed to exceeding industry standards and regulatory requirements.

1.2.5 Customer Focus:

Customer satisfaction is at the core of the business philosophy. Understand the importance of reliability and consistency in the packaged drinking water industry. As a result, company invest in technology and processes that enhance the customer experience, from order placement to doorstep delivery.

1.2.6 Supply Chain Overview:

The supply chain is meticulously designed to ensure the timely and efficient production, packaging, and distribution of packaged drinking water. The company prioritize transparency, efficiency, and sustainability in all operations.

1.2.7 Products and Services:

Packaged Drinking Water

1.2.8 Raw Material Sourcing:

Raw material sourcing involves the identification, selection, and procurement of essential components used in the production of packaged drinking water. For Hills Minerals, this primarily revolves around sourcing high-quality water, which serves as the foundational ingredient. This water is typically extracted from natural sources, such as springs or borewells, and subsequently undergoes a thorough purification process to meet stringent quality standards.

Additionally, raw material sourcing encompasses the acquisition of packaging materials, including bottles, caps, labels, and packaging materials. These components must meet specific criteria for safety, durability, and compliance with industry regulations.

1.2.9 Production Process Efficiency:

In the context of Hills Minerals, "Production Process Efficiency" refers to the systematic approach of optimizing the manufacturing process for packaged drinking water to ensure maximum output with minimum resources and waste. This crucial aspect of the supply chain aims to enhance productivity, reduce costs, and maintain the highest quality standards.

1.2.10 with Automation and Technology Integration:

In the context of Hills Minerals, "Production Process Efficiency" is fortified by the strategic integration of automation into the manufacturing process for packaged drinking water. This forward-thinking approach is instrumental in achieving optimal output while minimizing resource utilization and waste.

1.2.11 Inventory Management:

In the context of Hills Minerals, "Inventory Management" refers to the strategic process of overseeing the procurement, storage, and distribution of packaged drinking water to ensure that optimal inventory levels are maintained. This practice is essential for meeting customer demand efficiently while minimizing excess stock and associated carrying costs.

1.2.12 Demand Forecasting and Replenishment:

Hills Minerals employs advanced demand forecasting techniques to anticipate customer needs accurately. By analyzing historical sales data, market trends, and seasonal variations, the company can make informed decisions about the

quantity of packaged water to produce and maintain in inventory. This proactive approach enables Hills Minerals to replenish stock in a timely manner, preventing stockouts and ensuring product availability.

1.2.13 Safety Stock and Lead Time Considerations:

To account for unexpected fluctuations in demand or potential delays in the supply chain, Hills Minerals implements a safety stock strategy. This involves maintaining a buffer of inventory beyond what is projected to be immediately required. Additionally, lead time considerations are factored in to ensure that inventory levels are adjusted to accommodate the time it takes to restock.

1.2.14 Batch and Lot Tracking:

Given the critical importance of quality in the packaged drinking water industry, Hills Minerals employs batch and lot tracking systems. Each batch of packaged water is assigned a unique identifier, allowing for precise traceability. This enables rapid response in the event of a product recall or quality issue.

1.3 STATEMENT OF THE PROBLEM:

The primary objective of this research study is to comprehensively investigate and analyze the interrelated challenges faced by a packaged drinking water company located in Cuddalore, Tamil Nadu, with a focus on inventory management, poor route networks, and on-time delivery. The study aims to achieve the goals

1.4 OBJECTIVES OF THE STUDY:

- TO ANALYSIS OF INVENTORY MANAGEMENT
- TO IDENTIFY TRANSPORTATION
- TO ANALYSIS THE TECHNOLOGY INTEGRATION.
- TO IDENTIFY CUSTOMER SATISFACTION.

1.5 NEED FOR THE STUDY:

The need to enhance operational efficiency is paramount. Addressing challenges in inventory management, optimizing route networks, and ensuring on-time deliveries are crucial components for streamlining day-to-day operations.

The company's commitment to meeting customer expectations is a key driver. By investigating and improving on-time delivery and inventory management, the study aims to enhance customer satisfaction, contributing to customer loyalty and positive brand perception.

1.6 SCOPE OF THE STUDY:

Employee engagement will help to reduce the attrition and increase productivity and profit.

Identification of opportunities for improvement in efficiency and cost-effectiveness.

Proposal of solutions to enhance overall delivery punctuality and customer satisfaction.

CHAPTER – 2

REVIEW OF LITERATURE

2.1 REVIEW OF LITERATURE:

Zlatan Mujkic, Ardian Qorri (2018)

Sustainability of supply chains (SCs) and supply chain optimization is a topic of increasing interest in academia and industry. Although several authors have studied various aspects optimization and sustainability of SC, there is still a gap in understanding sustainable development of SCs. The aim of this study is to bridge this gap and to better understand interdependencies between economic, environmental and social dimensions of sustainability.

George Baryannis, Sahar Validi (2018)

Supply chain risk management (SCRM) encompasses a wide variety of strategies aiming to identify, assess, mitigate and monitor unexpected events or conditions which might have an impact, mostly adverse, on any part of a supply chain. SCRM strategies often depend on rapid and adaptive decision-making based on potentially large, multidimensional data sources. These characteristics make SCRM a suitable application area for artificial intelligence (AI) techniques. The aim of this paper is to provide a comprehensive review of supply chain literature that addresses problems relevant to SCRM using approaches that fall within the AI spectrum. To that end, an investigation is conducted on the various definitions and classifications of supply chain risk and related notions such as uncertainty. Then, a mapping study is performed to categorise existing literature according to the AI methodology used, ranging from mathematical programming to Machine Learning and Big Data Analytics, and the specific SCRM task they address (identification, assessment or response). Finally, a comprehensive

analysis of each category is provided to identify missing aspects and unexplored areas and propose directions for future research at the confluence of SCRM and AI.

Mujkic et al., (2018)

Effective SCM leads to the sustainability of the supply chain and supply chain optimization. Sustainability is a critical aspect of the supply chain and in turn, to the overall business. Effective supply chains are imperative for on- time high-quality delivery. An establishment's interest in profitable sustainability is driven by profit maximization. The enterprises have considered profitable pointers affiliated to cost reduction and profit growth as their long- term decision- making objectives.

Md Maruf Hossan Chowdhury , Renu Agarwal (2018)

In todays' dynamically changing environment and competitive landscape, organisations are adopting sustainable practices for attaining long-term economic viability. However, there is a misalignment between sustainable practices and organisations' strategies and capabilities, especially when sustainability requirements of the stakeholders changes over time. Grounded in dynamic capability view (DCV), this paper addresses the changes in supply chain sustainability requirements of stakeholders in the context of sourcing products from apparel manufacturers in a low cost country Bangladesh. To this end, this study develops a decision support (DS) framework for supply chain sustainability (SCS) that identifies and prioritises optimal strategies for SCS in a dynamic environment

Akram Chibani, Xavier Delorme (2018)

In the conditions of an increased worldwide competition, supply chains are struggling to respond to an increasingly volatile and complex environment. With

technological advances, current practices to build efficient supply chains have changed. Companies are seeking to use internet in order to cope with the flexible and dynamic nature of logistics networks. The purpose of this article is to address the flexible dynamic e-procurement context under asynchronous and repetitive variations over time.

Zlatan Mujkic, Ardian Qorri (2018)

The aim of this study is to bridge this gap and to better understand interdependencies between economic, environmental and social dimensions of sustainability. To fulfill the research objective, this study examines 50 peer-reviewed articles published literature in the field of sustainable SCs and SC optimization. Selected papers used mathematical modeling techniques (optimization) as research methodology combined with one or more dimensions of sustainability. Findings of this work indicate that there are several SC optimization models addressing all three dimensions of sustainability simultaneously, and social dimension of sustainability is the least studied aspect. Furthermore, an application taxonomy of mathematical modeling approaches used in sustainable SCs is provided. Future research should shift the focus from models dealing primarily with economic and environmental dimensions towards more balanced models that include all three sustainability aspects. This paper enhances understanding how was sustainability principles are incorporated into mathematical models for SC optimization, and provides SC optimization models with pertinent sustainability indicators.

Lavanya Meherishi, Sushmita A. Narayana (2019)

This paper presents a systematic literature review of studies done over the last 18 years with the objective to generate a greater understanding of the work done in the field of sustainable packaging in supply chain management(SPSCM). Our findings indicate SPSCM trends are aligned to circular economy concepts but

have not adequately considered the interaction of the product with its packaging system. Research efforts in SPSCM are restricted to environmental and economic dimensions and are mostly concentrated in developed economies. The review identifies three main supply chain structures studied in SPSCM literature of which there has been an increased focus on fragmented portions and dyads of the supply chain with respect to packaging. The research contributes by identifying and mapping the collated literature to organizational theories that support and drive SPSCM. In particular, the institutional theory, stakeholder theory and ecological modernization theory are investigated from a SPSCM perspective. Further, the three organizational theories are used to develop a framework for circular economy to highlight future avenues for research and practice in SPSCM for a circular economy.

Tang and Veelenturf (2019)

Concentrated on the logistics issues in the I4.0 period and linked cumulative manufacturing, advanced robotics, artificial intelligence, independent vehicles, blockchain, drones, Internet-of- Things (IoT) as major technologies to execute I4.0. Some operations of operations exploration, industrial engineering, and control methodologies to OM problems in the I4.0 environment have been shown for shop bottom control.

Mitali Sarkar, Byung Do Chung (2019)

For a complex product production, any flexible manufacturing system with a work-in-process inventory is recommended for a supply chain management (SCM) system. Building a flexible manufacturing system increases the total cost of the supply chain; for this reason, a discrete investment is important. For flexible production systems, production rate within a finite specific interval of production rate as work-in-process inventory is calculated. The aim of the supply chain is to reduce the total cost when demand during the lead time is a random

variable with a normal distribution. A crashing cost is utilised to reduce the duration of lead time within the supply chain system. A model is proposed to obtain the optimal flexible production rate with the reduced total cost of the supply chain.

Dara G. Schniederjans , Carla Curado (2019)

The rapid digitisation of industry, or industry 4.0, is trending in supply chain management. While the amount of data made available through digitisation has enabled supply chain benefits, there still exist challenges regarding the rapid digitisation of the field. Therein lies opportunities for scholars to leverage the growing amount of data through knowledge management to cultivate valuable information for organisations. The purpose of this paper is to understand future inquiries for scholars to broaden their perspectives and leveraging knowledge management to enhance the supply chain digitisation research paradigm.

Tsan-Ming Choi , Xin Wen , Xuting Sun (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. 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.

Tobias Rebs, Marcus Brandenburg (2019)

Globalized economic systems involve complex supply chains (SCs) where environmental and social impacts are to be managed in alignment with diverse stakeholder expectations and to mitigate sustainability-related risks. Quantitative modeling approaches for sustainable supply chain management (SSCM) have gained increasing attention. Compared to analytical models and mathematical programming, simulation methods in SSCM are underrepresented, although system dynamics (SD) modeling is suitable to simulate and examine complex and dynamic systems and to support long-term, strategic decision-making.

Fragapane et al..., (2020)

smart- contract design by blockchain and supply chain adaptability offer perception on the setup of I4.0 through the development from flexible and reconfigurable manufacturing systems and lean manufacturing towards production surroundings build by a composition of IoT, big data, electric vehicles, 3D printing, cloud computing, artificial intelligence, and cyber-physical systems.

Amir Mohammad Fathollahi-Fard, Abbas Ahmadi (2020)

Today, an increase in the drought and water shortage all around the world is a challengeable threat for different governments and international committees. Water supply chain aims to manage the water consumption and to control the water shortage. Contrary to most of previous studies focused on the forward directions of the water supply chain, this paper also considers the reverse logistics known as a Closed-Loop Supply Chain (CLSC). Hence, an integrated Water Supply and Wastewater Collection System (WSWCS) under uncertainty is proposed. Furthermore, regarding the trend of sustainable development, the environmental dimensions and social benefits of the integrated WSWCS are contributed. To meet the standards of the sustainable development in developing countries

Jens Van Engeland, Jeroen Beliën (2020)

This review takes an integrated point of view on reverse logistics and waste management and aims at a better integration. More specifically, it gives a concise but complete overview of the efforts already performed in the area of strategic network design in waste reverse supply chains by means of combinatorial optimization models. Its purpose is to guide interested readers and researchers directly to publications of their interest, and let them identify courses other than the well-worn paths. Among others, we explicitly refer to (1) the importance of environmental, social and performance indicators in multi-objective models, (2) the potential of incorporating the different waste reverse supply chain stakeholders into the network design model

Andreas Wieland (2020)

Most of the theories that have dominated supply chain management (SCM) take a reductionist and static view on the supply chain and its management, promoting a global hunt for cheap labor and resources. As a result, supply chains tend to be operated without much concern for their broader contextual environment. This perspective overlooks that supply chains have become both vulnerable and harmful systems. Recent and ongoing crises have emphasized that the structures and processes of supply chains are fluid and interwoven with political-economic and planetary phenomena. Building on panarchy theory, this article reinterprets the supply chain as a social–ecological system and leaves behind a modernist view of SCM, replacing it with a more contemporary vision of dancing the supply chain. A panarchy is a structure of adaptive cycles that are linked across different levels on scales of time, space, and meaning. It represents the world's complexities more effectively than reductionist and static theories ever could, providing the basis for transformative SCM.

Jianxin Xu (2021)

this paper deals with Supply chain risk management (SCRM). In this paper, three steps has been expressed, the first part, framework for risks analyzing in supply chains, and second, on building resilient supply chains, and some advices on how to build up resilient supply chains, has been expressed. In the third part, we provided Ericsson as a case to support our views. So, managing supply chain disruptions revolves around two goals: first, to thoroughly understand the potential of identified risks; and second, to increase the capacity of the supply chain — within reasonable limits— to sustain and absorb disruption without serious impact, a reality that creates greater demands on companies to keep supply chains flexible and integrate disruption risk management into every facet of supply chain operations.

Petri Helo, Yuqiuge Hao (2020)

With the development and evolution of information technology, competition has become more and more intensive on a global scale. Many companies have forecast that the future of operation and supply chain management (SCM) may change dramatically, from planning, scheduling, optimisation, to transportation, with the presence of artificial intelligence (AI). People will be more and more interested in machine learning, AI, and other intelligent technologies, in terms of SCM. Within this context, this particular research study provides an overview of the concept of AI and SCM. It then focuses on timely and critical analysis of AI-driven supply chain research and applications. In this exploratory research, the emerging AI-based business models of different case companies are analysed. Their relevant AI solutions and related values to companies are also evaluated. As a result, this research identifies several areas of value creation for the application of AI in the supply chain. It also proposes an approach to designing business models for AI supply chain applications.

Fatemeh Delfani, Hamed Samanipour (2020)

Due to the emergency role of pharmaceutical supply chains, there has been rapid development of optimisation techniques as one of efficient tools to improve pharmaceutical supply chain network design. To improve the pharmaceutical supply chain network, this study proposes a novel location-allocation-inventory model as a multi-objective, multi-echelon, multi-product, multi-period and multi-modal transportation system for pharmaceutical supply chain network design under uncertainty. The proposed model aims to optimise multiple objectives, including minimising the total costs and the delivery time while maximising the transportation system reliability simultaneously. To control the impacts of uncertain parameters including the ordering, delivery, purchase, and transportation costs and the capacity of vehicles, warehouses and of distribution centres, a robust fuzzy optimisation approach is developed.

Dmitry Ivanov & Alexandre Dolgui (2020)

We theorize a notion of a digital supply chain (SC) twin – a computerized model that represents network states for any given moment in real time. We explore the conditions surrounding the design and implementation of the digital twins when managing disruption risks in SCs. The combination of model-based and data-driven approaches allows uncovering the interrelations of risk data, disruption modeling, and performance assessment. The SC shocks and adaptations amid the COVID-19 pandemic along with post-pandemic recoveries provide indisputable evidences for the urgent needs of digital twins for mapping supply networks and ensuring visibility.

Maureen S. Golan, Laura H. Jernegan (2020)

The increasingly global context in which businesses operate supports innovation, but also increases uncertainty around supply chain disruptions. The COVID-19 pandemic clearly shows the lack of resilience in supply chains and the impact that disruptions may have on a global network scale as individual supply chain

connections and nodes fail. This cascading failure underscores the need for the network analysis and advanced resilience analytics we find lacking in the existing supply chain literature. This paper reviews supply chain resilience literature that focuses on resilience modeling and quantification and connects the supply chain to other networks, including transportation and command and control.

Nasim Zandi Atashbar, Nacima Labadie (2020)

A growing number of researchers are attracted by the domain of bioenergies, due to the problems induced by greenhouse gas emissions and increasing energy demand. One possible way of producing biofuels in a renewable way is to use biomass, however the economic viability of a biorefinery system depends critically on the cost of its supplies. As biomass is not very expensive, logistics is responsible of an important fraction of this cost. Models and methods to optimise biomass supply chains are surveyed in this article, after introducing some technical terms and describing the main activities in these chains. This review aims to give a comprehensive overview of the research in this field with a focus on optimisation modelling issues and solution approaches. Recent advances in the current research and possible new directions are sketched.

Reza Toorajipour , Maria Fischl (2021)

This paper seeks to identify the contributions of artificial intelligence (AI) to supply chain management (SCM) through a systematic review of the existing literature. To address the current scientific gap of AI in SCM, this study aimed to determine the current and potential AI techniques that can enhance both the study and practice of SCM. Gaps in the literature that need to be addressed through scientific research were also identified.

Jianxin Xu (2021)

this paper deals with Supply chain risk management (SCRM). In this paper, three steps has been expressed, the first part, framework for risks analyzing in supply chains, and second, on building resilient supply chains, and some advices on how to build up resilient supply chains, has been expressed. In the third part, we provided Ericsson as a case to support our views. So, managing supply chain disruptions revolves around two goals: first, to thoroughly understand the potential of identified risks; and second, to increase the capacity of the supply chain — within reasonable limits— to sustain and absorb disruption without serious impact, a reality that creates greater demands on companies to keep supply chains flexible and integrate disruption risk management into every facet of supply chain operations.

Hendrik Birkel (2021)

this study elaborates a holistic perspective on the potentials of Industry 4.0 for supply chain management with respect to the triple bottom line. Second, the interrelations between the dimensions of the triple bottom line are analyzed concerning potential conflicts and enabling technologies. Research gaps and implications for managerial practice are highlighted, such as the role of small and medium-sized enterprises within Industry 4.0, developing economies, multi-tier supply chain management, information sharing across the supply chain, and the interplay of ecological and social dimensions with economic benefits, reflected in new forms of business models, which must still be better understood.

Chandra Ade Irawan, Negar Akbari (2021)

This paper proposes a combined model for port selection and supply chain optimisation for the installation phase of an offshore wind farm. Two strategic models are proposed where the first model, based on Analytical Hierarchy Process (AHP), aims to select the most suitable installation port. The second

model is developed using Integer Linear Programming (ILP) in order to determine the optimal transportation schedule of the components from suppliers to the chosen installation port. The proposed models are evaluated for the West Gabbard (UK) offshore wind farm located in southern part of the North Sea. According to the computational results, the AHP model chooses port of Oostende, Belgium as the most suitable installation port for this offshore wind farm whereas the proposed supply chain model shows that the total transportation cost makes up 9% of total supply chain cost.

Shizhen Bai, Hongbin Sun (2021)

this paper proposes a distribution network structure design that accords with economies of scale and establishes an enterprise supply chain optimization model based on the fuzzy clustering algorithm. Using this optimization method to optimize the inventory of enterprise logistics supply chain, the operation is fast, the result is correct and reasonable, and it can provide good decision support for the distribution network of logistics enterprises. *rough information technology and modern management technology, we should efffectively control and coordinate the logistics, information flflow, and capital flflow in the production and operation process and organically integrate the internal supply chain with the external supply chain for management, so as to achieve the goal of global optimization.

Garikai Mlambo, Dr. Vusumuzi Sibanda (2021)

the purpose of this study was to analyze the impact of supply chain management (SCM) on the competitiveness of the telecommunications industry in Zimbabwe. The objectives of the study were to figure out the extent to which SCM contributes to organizational competitive advantage in the telecommunications industry in Zimbabwe, to determine the level of bargaining power when making local and off shore purchases, the extent of risk exposure due to global

transactions and finally, to ascertain the strategies used on supplier ratings. Interviews and questionnaires were used as the main instruments for data collection.

Martijn Koot, Martijn R.K. Mes (2021)

This paper provides an objective overview of state-of-the-art IoT developments in today's supply chain and logistics research. The main aim is to find examples of academic literature that explain how organizations can incorporate real-time data of physically operating objects into their decision making. A systematic literature review is conducted to gain insight into the IoT's analytical capabilities, resulting into a list of 79 cross-disciplinary publications. Most researchers integrate the newly developed measuring devices with more traditional ICT infrastructures to either visualize the current way of operating, or to better predict the system's future state. The resulting health/condition monitoring systems seem to benefit production environments in terms of dependability and quality, while logistics operations are becoming more flexible and faster due to the stronger emphasis on prescriptive analytics (e.g., association and clustering).

Zhang Yu, Muhammad Waqas (2022)

To attain ecological sustainability and transition to sustainable supply chain management (SSCM), effective technological innovation (TI) and solid waste management (SWM), as likely impending resources, are essential components. From 2000 through 2021, a detailed map of SSCMs in the context of TI and systematic history will be created, highlighting the most significant research themes and trends, primary features, development, and possibly relevant areas for future study. Due to utilizing bibliometric analysis, text mining, and content analytics methodologies, the following concerns were addressed

Vinay Surendra Yadav, A.R. Singh (2022)

The present agriculture food supply chain (AFSC) faces numerous challenges about the growing demand for food items and consumer preference regarding food safety. In addition to growing concerns about sustainability, stringent government regulation, food security, and traceability issues force the managers, industries, and practitioners working in AFSC to adopt new tools, techniques, and methodology to model current food supply chain issues and correspondingly design the food logistics network.

Benjamin Rolf ,Ilya Jackson (2022)

Decision-making in supply chains is challenged by high complexity, a combination of continuous and discrete processes, integrated and interdependent operations, dynamics, and adaptability. The rapidly increasing data availability, computing power and intelligent algorithms unveil new potentials in adaptive data-driven decision-making. Reinforcement Learning, a class of machine learning algorithms, is one of the data-driven methods. This semi-systematic literature review explores the current state of the art of reinforcement learning in supply chain management (SCM) and proposes a classification framework. The framework classifies academic papers based on supply chain drivers, algorithms, data sources, and industrial sectors.

Bhuvan Unhelkar, Sudhanshu Joshi (2022)

Supply Chain processes are continuously marred by myriad factors including varying demands, changing routes, major disruptions, and compliance issues. Therefore, supply chains require monitoring and ongoing optimization. Data science uses real-time data to provide analytical insights, leading to automation and improved decision making. RFID is an ideal technology to source big data, particularly in supply chains, because RFID tags are consumed across supply chain process, which includes scanning raw materials, completing products, transporting goods, and storing products, with accuracy and speed. This study

carries out a systematic literature review of research articles published during the timeline (2000-2021) that discuss the role of RFID technology in developing decision support systems that optimize supply chains in light of Industry 4.0. Furthermore, the study offers recommendations on operational efficiency of supply chains while reducing the costs of implementing the RFID technology. The core contribution of this paper is its analysis and evaluation of various RFID implementation methods in supply chains with the aim of saving time effectively and achieving cost efficiencies.

Tiep Nguyen, Quang Huy Duong (2022)

Physical Internet (PI) is an open global logistics system of which components are hyperconnected for increased efficiency and sustainability. Digital twin (DT), referring to the virtual representation of a physical object, is well-perceived as a key driver in the development of PI-based Supply Chain Management (SCM). Due to the capabilities of real-time monitoring and evaluation of large-scale complex systems, significant research efforts have been made to exploit values of PI/DT in SCM. Despite this, the current literature remained largely unstructured and scattered due to a lack of systematic literature reviews to synergise research findings, analyse the evolution of research fronts and extract emerging trends in the field.

Yimo Yan, Andy H.F. Chow (2022)

With advances in technologies, data science techniques, and computing equipment, there has been rapidly increasing interest in the applications of reinforcement learning (RL) to address the challenges resulting from the evolving business and organisational operations in logistics and supply chain management (SCM). This paper aims to provide a comprehensive review of the development and applications of RL techniques in the field of logistics and SCM. We first provide an introduction to RL methodologies, followed by a classification

of previous research studies by application. The state-of-the-art research is reviewed and the current challenges are discussed. It is found that Q-learning (QL) is the most popular RL approach adopted by these studies and the research on RL for urban logistics is growing in recent years due to the prevalence of E-commerce and last mile delivery. Finally, some potential directions are presented for future research.

Heider Al Mashalah, Elkafi Hassini (2022)

One of the profound impacts of digitalization on supply chains is manifested through e-commerce. The latter has significantly grown during the last two decades, with further amplifications during the COVID-19 pandemic. This has created operational and policy making challenges for firms when deciding about how best to manage the resulting growth in e-commerce. While the impact of e-commerce on supply chains has been widely recognized in the literature, there was no effort to systematically review the literature, conceptualize some of the challenges and propose future research directions. This paper fills this gap by reviewing 153 publications from 1999 to 2019. We classify the reviewed literature based on which supply chain drivers were investigated, as well as, the employed research methodology. In addition, we conduct network and content analysis to uncover the main research themes and potential research directions namely, developing analytical centred; modelling based ecosystem for environment; leveraging data mining to enhance sustainability; balance between growth and sustainability; consumer demand and uncertainty; coordination in e-commerce logistics; last mile alternatives and cost management of innovative technique implementations. Furthermore, based on our literature review, we propose a conceptual framework where we interlink supply chain stages with a firm's business strategy, digital transformation strategy and performance.

Mohammad Abul Kashem, Mohammad Shamsuddoha (2022)

In response to significant disruption, supply chain optimization became sensitive to increasing consumer expectations, unexpected demand fluctuation, and inventory costs. Proactive movement, understanding, and empowerment have fostered the beneficial results of supply chain optimization, cooperation, and operational resilience. These pioneering activities are critical to achieving a paradigm shift in the supply chain, even agility in response to changing demand. However, sophisticated analytics such as artificial intelligence (AI) and blockchain are supposed to overcome these challenges to make smarter decisions on a daily basis. Due to these facts, this study aimed to model AI's and blockchain's role in supply chain optimization by conducting a systematic literature review based on the idealized framework of Rejeb et al. (2022) and the SALSA mechanism. In addition, this paradigm-shifting approach will provide fairer views and options for managing forecasting, planning, monitoring, and reporting across the entire supply chain. The emphasis remains on real-time accuracy, easy access, and optimization of operational indicators such as sales, visibility, and end-to-end supply chain operations at all times and from any location. It will be an eye-opening experience to enable stakeholders and partners to communicate information collaboratively, consistently, and efficiently.

Krishnakumar. S; J. Refonaa; S.L. Jany Shabu (2023)

This study provides a comprehensive overview of the current research trends in medistock inventory management systems. The review highlights the importance of inventory management in healthcare facilities and discusses various techniques proposed to optimize inventory control, including the use of radiofrequency identification technology, artificial neural networks, and just-in-time inventory management systems. This research study also examines the challenges associated with medistock inventory management systems and potential solutions to these challenges. The findings suggest that implementing effective medistock inventory management systems is crucial for healthcare

facilities to optimize inventory control, reduce costs, and enhance patient care. However, a comprehensive understanding of the healthcare facility's unique needs and challenges is required to implement an effective inventory management system.

Hamed Jahani, Richa Jain & Dmitry Ivanov (2023)

Data science and big data analytics (DS &BDA) methodologies and tools are used extensively in supply chains and logistics (SC &L). However, the existing insights are scattered over different literature sources and there is a lack of a structured and unbiased review methodology to systematise DS &BDA application areas in the SC &L comprehensively covering efficiency, resilience and sustainability paradigms. In this study, we first propose an unique systematic review methodology for the field of DS &BDA in SC &L. Second, we use the methodology proposed for a systematic literature review on DS &BDA techniques in the SC &L fields aiming at classifying the existing DS &BDA models/techniques employed, structuring their practical application areas, identifying the research gaps and potential future research directions. We analyse 364 publications which use a variety of DS &BDA-driven modelling methods for SC &L processes across different decision-making levels. Our analysis is triangulated across efficiency, resilience, and sustainability perspectives. The developed review methodology and proposed novel classifications and categorisations can be used by researchers and practitioners alike for a structured analysis and applications of DS &BDA in SC &L.

Maria Meneses, Daniel Santos (2023)

The blood supply chain planning process is of the utmost importance, given the number of activities that must be carefully thought out in advance to guarantee demand fulfillment. This network has been significantly studied in the literature, and some supply chain decisions have been addressed through mathematical modeling approaches. Yet, several research challenges still exist in developing

comprehensive decision-making tools that could inform optimized solutions. The goal of this work is to review the literature from an optimization perspective and provide a conceptual framework for planning the blood supply chain management through mathematical programming modeling. This is achieved by decomposing the planning problems according to the planning level and identifying the key linkages to consider in an integrated solution approach. The strategic and tactical planning decision-making levels are then described in detail. In addition, an innovative OR-Modeling Framework to address the planning of the blood supply chain is provided. This framework serves as a guide for developing optimization based decision-making models and as a basis for any research in the area.

Sina Abbasi, Hassan Ahmadi Choukolaei (2023)

This paper reviews the literature on green supply chain network design (GSCND) from 2010 to 2023 and analyzes the effect of related carbon regulations on GSCND. We focus on methodologies and models that expressly account for carbon releases. We show three policies that have influenced the design of SCNs on carbon emissions: carbon cap, cap-and-trade, and carbon tax.

Tadeusz Sawik (2023)

This paper presents a novel quantitative approach and stochastic quadratic optimisation model to maintain supply chain viability under the ripple effect. Instead of viability kernel commonly used in the viability theory, this paper establishes the boundaries on acceptable production states for which the production can be continued under the ripple effect, with no severe losses. For a given implementable portfolio of controls, the boundaries on acceptable production trajectories associated with the two conflicting objectives, cost and customer service level are determined. The decision maker selects a viable production trajectory in-between the two boundary trajectories: the cost-optimal

and the service-optimal. The selection depends on the decision maker preference, represented by a chosen weight factor in the optimised quadratic objective function that minimises weighted deviations from the cost-optimal and from the service-optimal production schedules under the ripple effect. The findings indicate that for the extreme values of the weight factor, the viable production trajectory is inclined toward the corresponding boundary trajectory and remains in-between the two boundaries, when both objectives are equally important. Keeping production trajectory in-between the two boundaries makes the supply chain more resilient to disruption risks, while the supply chain resilience diminishes as the production trajectory approaches a boundary trajectory. Then a more severe disruption may push the production outside the viability region and cause greater losses.

CHAPTER - 3

RESEARCH METHODOLOGY

3.1 METHODOLOGY:

This research methodology is designed to provide a thorough and holistic investigation into the challenges faced by the packaged drinking water company in Cuddalore, offering actionable recommendations for operational enhancement and customer satisfaction. Adjustments can be made based on specific nuances or additional requirements for the study.

3.2 RESEARCH DESIGN:

Descriptive Research Design

Objective:

Descriptive research is a study designed to depict the participants in an accurate way. More simply, To provide a detailed and systematic description of inventory management, route networks, and on-time delivery processes in the packaged drinking water company in Cuddalore.

Methods:

- Administer surveys to collect quantitative data on inventory levels, order processing times, and customer satisfaction.
- Conduct on-site observations to document current practices and challenges.
- Utilize statistical analysis to identify patterns and relationships within the collected data.

Advantages:

1. Structured approach to data collection and analysis.
2. Detailed insights into the current state of supply chain processes.

3.3 SAMPLING TECHNIQUE:

Convenience sampling method

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

3.4 SOURCES OF DATA:

In this research, internal and external source of data are used. Collecting data from company records and document, these are all internal data and other data are external data.

In data collection, there are 2 types

1.Primary Data

It is a source of collecting data by first-hand information through observation, direct communication or personal interviews of respondent's customers. In this, questionnaire is used for conducting personal interviews and for collecting the data.

2. Secondary Data

It is collected from standard books, internal sources, magazines and newspapers and also collecting data from external and internal sources from the company annual reports, company additional profile and company internal website.

3.5 STRUCTURE OF QUESTIONNAIRE:

Questionnaire was divided into two sections. First part was designed to know the general information about customers and the second part contained the **respondent's opinions about customer's satisfaction.**

- Basic Introduction
- Personal Details
- Research related Questions
- Perception Questions
- Likert Scaling Questions

3.6 SAMPLE SIZE:

The sample size for this research project is 110.

3.7 SAMPLE DESIGN:

It is a particular definite plan formulation before collecting the data from population. The research should select a particular sample. In sampling, there are 2 types probability sampling and non-probability sampling. In this research, only nonprobability sampling is used.

➤ Sampling

- ☐ Sampling design : Non-probability sampling
- ☐ Sampling technique : convenience sampling
- ☐ Sample unit : Customer's
- ☐ Sample size : 110 respondents

3.8 PERIOD OF STUDY

The period of the study is to determine that research process is carried out for 3 months.

3.9 HYPOTHESIS:

Hypothesis 1:

Null Hypothesis (H0): There is no significant impact of efficient inventory management practices on the overall operational costs of the Hills Minerrals.

Alternative Hypothesis (H1): There is significant impact of efficient inventory management practices on the overall operational costs of the Hills Minerrals.

Hypothesis 2:

Null Hypothesis (H0): An improved route network has no significant correlation with faster and more reliable deliveries for the Hills Minerrals.

Alternative Hypothesis (H1): An improved route network is significantly correlated with faster and more reliable deliveries for the Hills Minerrals

3.10 ANALYTICAL TOOLS:

1. Percentage analysis

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

2. Bar graphs

It is a chart or graph that presents categorical data with rectangular bars with heights or lengths proportional to the values that they represent. The bars can be plotted vertically or horizontally. A vertical bar chart is sometimes called a column chart.

A bar graph shows comparisons among discrete categories. One axis of the chart shows the specific categories being compared, and the other axis

represents a measured value. Some bar graphs present bars clustered in groups of more than one, showing the values of more than one measured variable.

3. Pie charts

A pie chart is a circular statistical graphic, which is divided into slices to illustrate numerical proportion. In a pie chart, the arc length of each slice is proportional to the quantity it represents. While it is named for its resemblance to a pie which has been sliced, there are variations on the way it can be presented.

ANALYTICAL TOOLS (SPSS)

Tool for testing the Hypothesis (SPSS)

➤ Correlation

Correlation:

Correlation is a statistical measure that describes the extent to which two variables change in relation to each other. In other words, it quantifies the degree to which a change in one variable is associated with a change in another variable. Correlation does not imply causation; it only indicates a relationship or association between variables.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 PERCENTAGE ANALYSIS:

Table 4.1.1 Age of the respondents

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	18 - 25	68	61.8%
2	25 - 35	24	21.8%
4	45 and above	06	5.5%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents 18 - 25 age of respondents is 61.8%, between 25-35 age of respondents are 21.8%, between 35-45 age of respondents is 10.9%, 40 & above age of respondents are 5.5%.

Inference

Majority (61.8%) of the respondents are aged between 18 to 25 years.

Age Group
110 responses

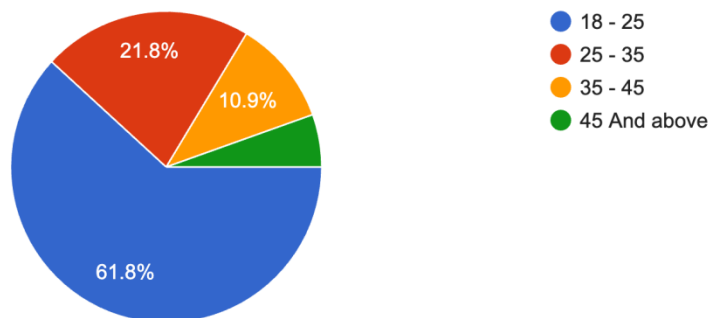


Table 4.1.2 Gender of the respondents:

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Male	68	61.8%
2	Female	42	38.2%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of male respondents is 61.8% and female respondents is 38.2%.

Inference

Majority (61.8%) of the respondents are Male.

Gender

110 responses

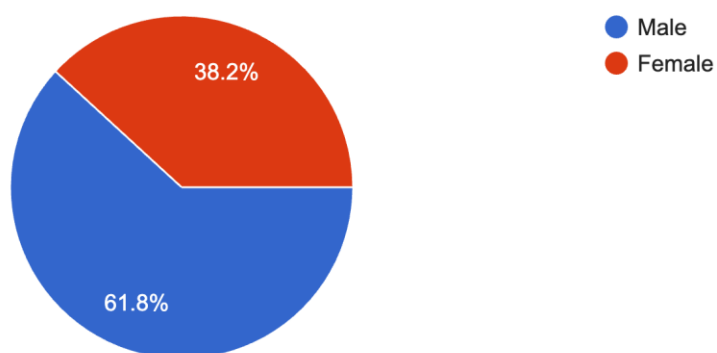


Table 4.1.3 Marital status of the respondents:

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Married	40	36.4%
2	Unmarried	70	63.6%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents were 36.4% in married, 63.6% in Unmarried

Inference

Majority (63.6%) of the respondents are unmarried.

Marital Status

110 responses

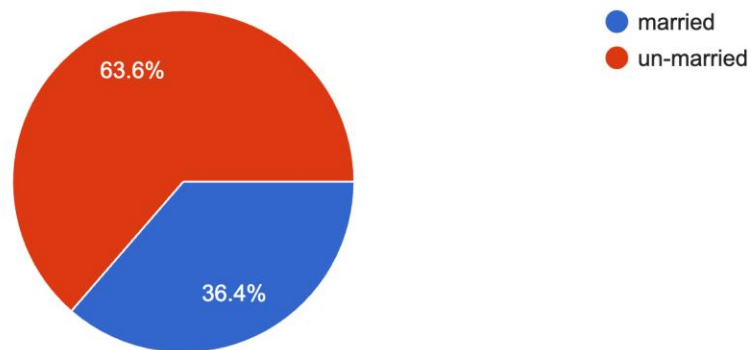


Table 4.1.4 Loction of the respondents:

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Urban	71	64.5%
2	Rural	39	35.5%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents were 64.5% in Urban, 35.5% in Rural.

Inference

Majority (64.5%) of the respondents are Urban.

Loction
110 responses

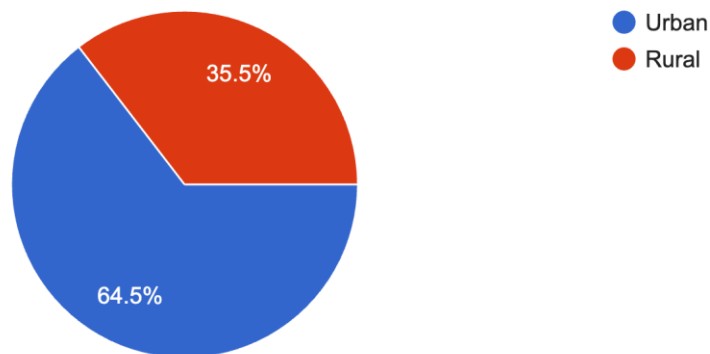


Table 4.1.5 How would you rate the ease of placing an order for mineral water products?

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Very ease	47	42.7%
2	Ease	34	30.9%
3	Neutral	26	23.6%
4	Difficult	03	2.7%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents who felt the placing order for mineral water Very ease is 42.7%, Ease to place the order is 30.9%, Neutral is 23.6%, Difficult is 2.7%.

Inference

Majority (42.7%) of the respondents is Very easy to place order.

How would you rate the ease of placing an order for mineral water products?

110 responses

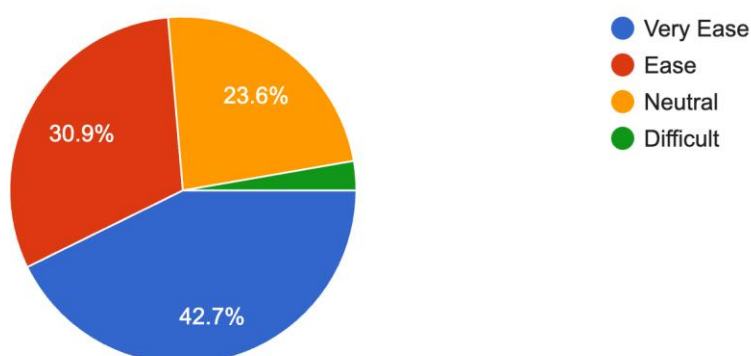


Table 4.1.6 How to place your order?

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Phone call	66	60%
2	Whatsapp	38	34.5%
3	message	04	3.6%
4	E-mail	02	1.8%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents 60% of them use phone call for ordering, 34.5% of them using whatsapp, 3.6% use Message, 1.8% using E-mail.

Inference

Majority (60%) of the respondents is using phone call to place order.

How to place your order?

110 responses

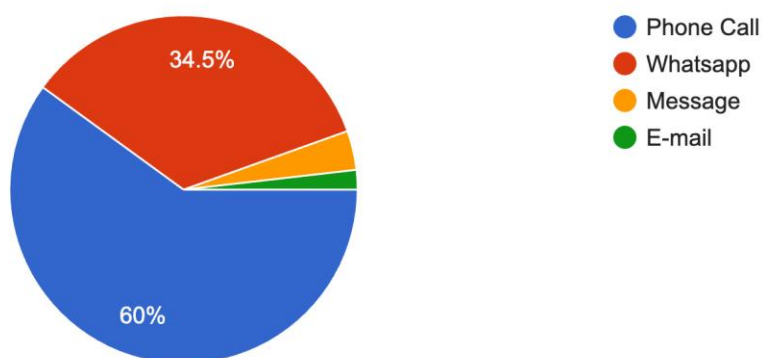


Table 4.1.7 Do you feel that products offer good value for money?

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Yes	83	75.5%
2	No	27	24.5%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents 75.5% of them feel the product is good value for money, 24.5% of them Not satisfy the product value for money.

Inference

Majority (75.5%) of the respondents is feel's the product is good value for money.

Do you feel that products offer good value for money?
110 responses

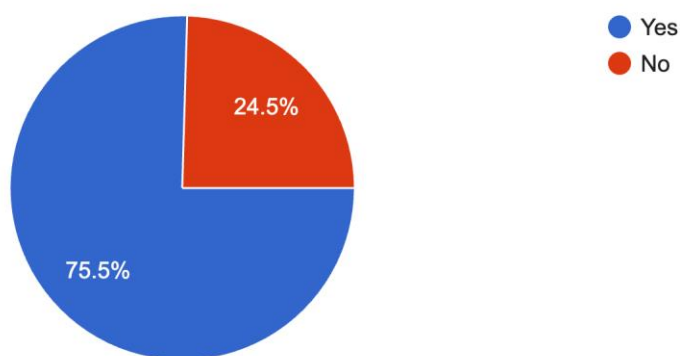


Table 4.1.8 How often do you purchase mineral water products?

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Daily	43	39.1%
2	weekly	50	45.5%
3	Monthly	04	3.6%
4	Rarely	13	11.8%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents 39.1% of them purchase mineral water daily, 45.5% of them purchase weekly, 3.6% purchase monthly and 11.8% is rarely.

Inference

Majority (45.5%) of the respondents is purchase mineral water weekly.

How often do you purchase mineral water products?

110 responses

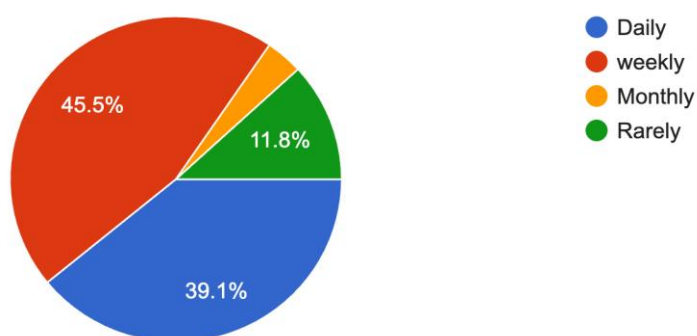


Table 4.1.9 What is the quantity (in liters) of drinking water ordered per order?

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	5 Liters	16	14.5%
2	10 Liters	13	11.8%
3	25 Liters	52	47.3%
4	25+ Liters	29	26.4%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents 14.5% of them purchase 5 Liters of mineral water, 11.8% of them purchase 10 Liters, 47.3% purchase 25 Liters and 26.4% purchase 25+ Liters.

Inference

Majority (47.3%) of the respondents is purchase 25 Liters of mineral water.

What is the quantity (in liters) of drinking water ordered per order?

110 responses

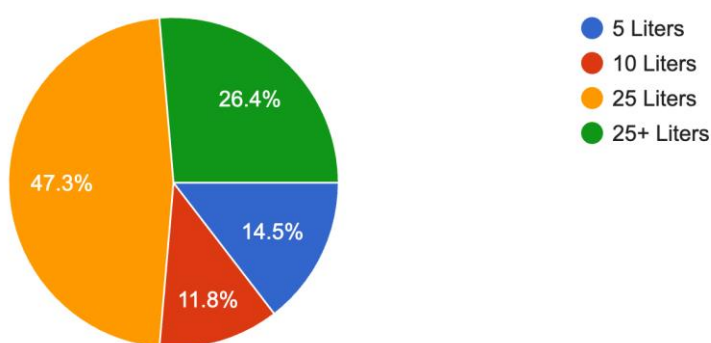


Table 4.1.10 Were there any difficulties in the ordering process?

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Yes	40	36.4%
2	No	70	63.6%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents 36.4% of them have difficulties in ordering process, 63.6% of them not have difficulties in ordering process.

Inference

Majority (63.6%) of the respondents is Not having difficulties in the product ordering process.

Were there any difficulties in the ordering process?

110 responses

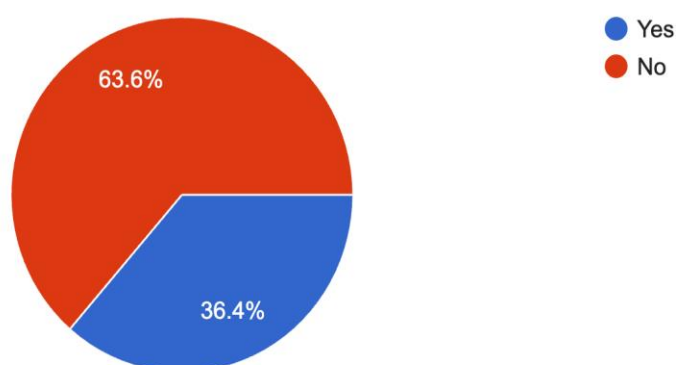


Table 4.1.11 Transportation services ensures the safety and security of the shipped product.

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Very Satisfied	38	34.5%
2	Satisfied	52	47.3%
3	Netural	19	17.3%
4	Not Satisfied	01	0.9%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents 34.5% of them Highly Satisfied from the Transportation service ensure the saft and security of the shipped product, 47.3% of them Just Satisfied, 17.3% is Netural and 0.9% Not Satisfied.

Inference

Majority (47.3%) of the respondents is Satisfied about Transportation service and safety of the prodect.

Transportation services ensures the safety and security of the shipped product.
110 responses

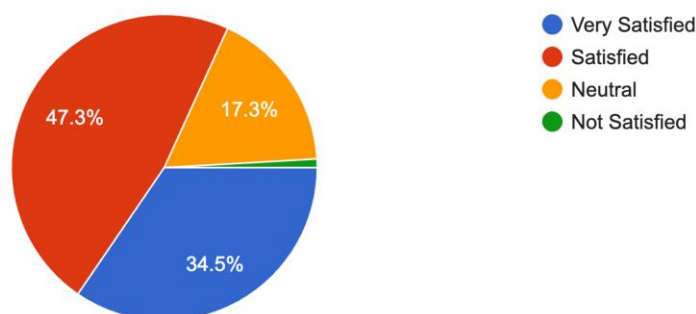


Table 4.1.12 On a scale of 1 to 5.

How would you rate your overall satisfaction with customer service regarding product availability and delivery?

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	1 Not Satisfied	14	12.7%
2	2	07	6.4%
3	3	39	35.5%
4	4	24	21.8%
5	5 Highly Satisfied	26	23.6%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents 12.7% of them choose Scale 1 (Not Satisfied) Not Satisfied the overall satisfaction with customer service regarding product availability and delivery, 6.4% of the respondents choose Scale 2, 35.5% is choose Scale 3(Neutral), 21.8% of respondent choose Scale 4 and 23.6% choose Scale 5(Highly Satisfied).

Inference

Majority (35.5%) of the respondents choose Scale 3(Neutral).

On a scale of 1 to 5. How would you rate your overall satisfaction with our customer service regarding product availability and delivery?
110 responses

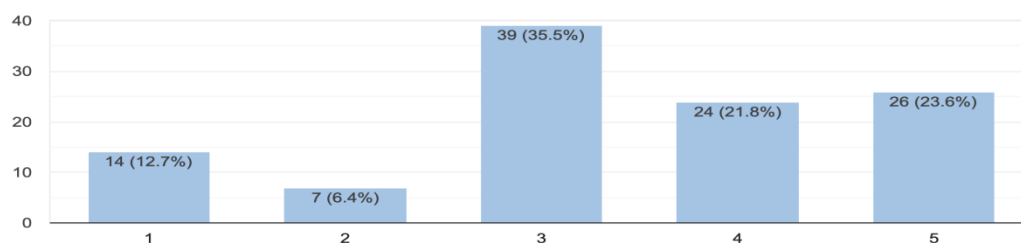


Table 4.1.13 Did your order arrive within the estimated delivery time frame?

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Yes	86	78.2%
2	No	24	21.8%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents 78.2% of the respondents receive the order within the estimated delivery time, 21.8% of the respondent not receive the order within the estimated delivery time.

Inference

Majority (78.2%) of the respondents is receive the order within the estimated time frame.

Did your order arrive within the estimated delivery time frame?

110 responses

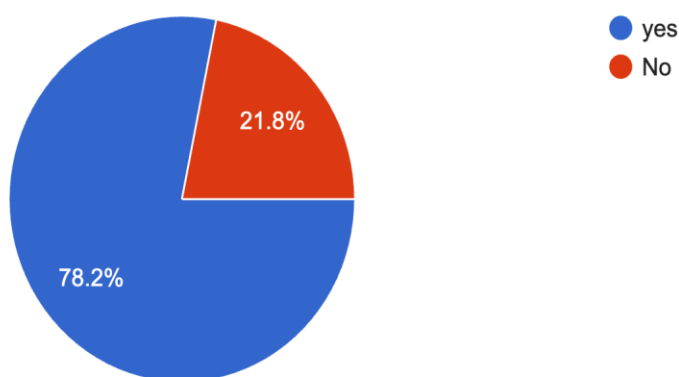


Table 4.1.14 Which mode of transportation was used for your delivery?

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Delivery Truck	44	40%
2	Van or Small vehicle	63	57.3%
3	Courier Service	03	2.7%
TOTAL		110	100%

Source: Primary Data

Interpretation

From the above table it is interpreted that the number of respondents 40% mode of transportation is Delivery Truck, 57.3% mode of transport is Van or Small vehicle and 2.7% is Courier Service.

Inference

Majority (57.3%) of the transportation mode is Van or Small vehicle.

Which mode of transportation was used for your delivery?

110 responses

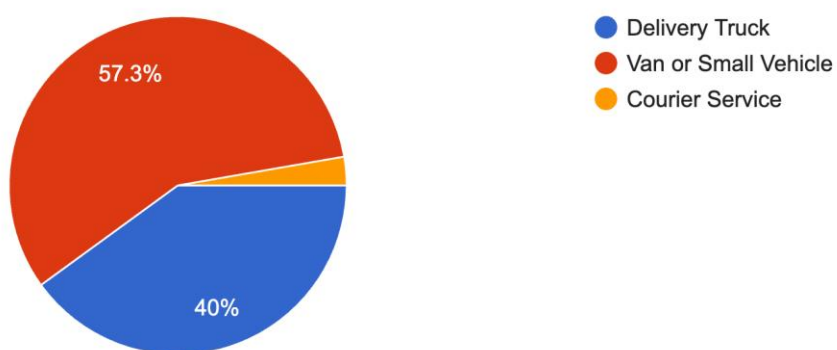


Table 1.4.15 How satisfied are you with the packaging of Hills minerals water products?

S.NO	PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
1	Satisfied	57	51.8%
2	Neutral	51	46.4%
3	Dissatisfied	02	1.8%
TOTAL		110	100%

Source: Primary Data

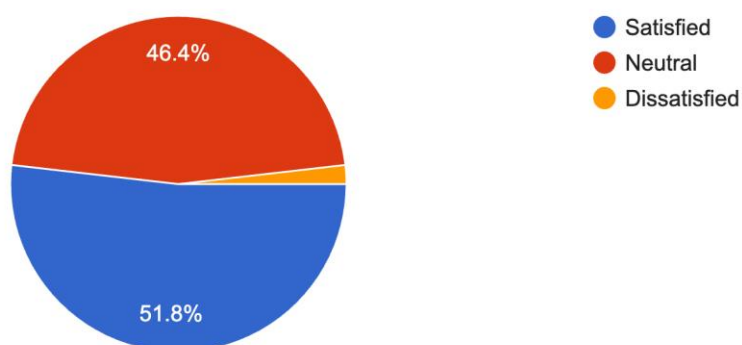
Interpretation

From the above table it is interpreted that the number of respondents 51.8% of the respondents satisfied with the packaging of hills minerals products, 46.4% of the respondents are Neutral and 1.8% is Dissatisfied.

Inference

Majority (51.8%) of the respondents satisfied with the packaging of hills minerals water products.

How satisfied are you with the packaging of our mineral water products?
110 responses



CORRELATION:

Hypothesis 1:

Alternative Hypothesis (H1):

		VAR0001	VAR0002
VAR0001	Pearson Correlation	1	.482
	Sig. (2-tailed)		.000
	N	110	110
VAR0001	Pearson Correlation	.482	1
	Sig. (2-tailed)	.000	
	N	110	110

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

Alternative Hypothesis (H1):

		VAR0001	VAR0002
VAR0001	Pearson Correlation	1	.214
	Sig. (2-tailed)		.021
	N	110	110
VAR0001	Pearson Correlation	.214	1
	Sig. (2-tailed)	.021	
	N	110	110

Correlation is significant at the 0.05 level (2-tailed).

CHAPTER 5

FINDINGS, SUGGESTIONS AND CONCLUSION.

5.1 FINDINGS:

1. Majority (61.8%) of the respondents are aged between 18 to 25 years.
2. Majority (61.8%) of the respondents are Male.
3. Majority (63.6%) of the respondents are unmarried.
4. Majority (64.5%) of the respondents are Urban.
5. Majority (42.7%) of the respondents is Very easy to place order.
6. Majority (60%) of the respondents is using phone call to place order.
7. Majority (75.5%) of the respondents is feel's the prodect is good value for money.
8. Majority (45.5%) of the respondents is purchase mineral water weekly.
9. Majority (47.3%) of the respondents is purchase 25 Liters of mineral water.
10. Majority (63.6%) of the respondents is Not having difficulties in the prodect ordering process.
11. Majority (47.3%) of the respondents is Satisfied about Transportation service and safety of the prodect.
12. Majority (35.5%) of the respondents choose Scale 3(Neutral)
13. Majority (78.2%) of the respondents is recive the order within the estimated time frame.
14. Majority (57.3%) of the transportation mode is Van or Small vehicle.

15. Majority (51.8%) of the respondents satisfied with the packaging of hills minerals water products.

5.2 SUGGESTIONS AND RECOMMENDATIONS:

1. The company should take necessary steps to stimulate customers in repurchasing on a frequent basis.
2. The company should focus more on other activities such as delivering on time and safety.
3. The company should try to be competitive than other companies and try to establish a strong position in the mark.

5.3 OPTIMIZING TECHNIQUES - DISTRIBUTION

For packaged drinking water business Transportation has been their main consideration. Businesses have to build a strong supply chain and must possess significant expertise to face every changing challenge. To excel here business needs to have flexible, efficient and convenient logistics and delivery programs. Efficiently delivering these tasks is a major success factor in the consumer goods sector.

Such businesses should continue to consistently strive to reduce distribution cost, and should take new initiatives to lower such costs.

5.4 FOCUS ON THE FOLLOWING KEY AREAS:-

● Minimizing distance to consumers:

Due to large volumes of the product in packaged drinking water industry, transportation cost is the primary consideration for all. Operation such as bottling should be located close in the vicinity of the water sources. Factory location

should be such that they can efficiently delivery the products to consumers while reducing distance to customers.

- **Using different mediums for transportation**

- **Invest more in technologies :**

Delivering products from the factory to the customers involves large amount of transportation costs. To provide bottled water to homes large fleet of trucks are used. Such trucks should be replaced by hybrid trucks which uses both gasoline and electric engines which would significantly reduce transportation cost. Pilot projects have been started in America to use this option.

Automation in Production:

Automation in production refers to the use of advanced technologies and systems to carry out manufacturing processes with minimal human intervention. In the context of a mineral water production company, automation encompasses a range of technologies that streamline the production process from water treatment to packaging

- **Working closely with suppliers:**

Maintaining good relations with suppliers is very crucial for any business to succeed and to have a competitive edge over its competitors. Nestle lays great stress on environmental criteria while selecting suppliers. Nestle new fleet of trucks have tremendously reduce fuel consumption and emissions

CONCLUSION.

CONCLUSION AND SUMMARY:

The company Hills Minerrals is one of the most famous and best mineral water suppliers in Cuddalore. In order to fulfill all the visible issues , the organization needs to build some strategies. The brand should build on its most used features. It must ensure that Authenticity of the reviews should be maintained. Regarding the above examination and the discoveries in this way, the organization should take steps into online ordering facility. Hence, the responses helped the research to meet all requirements regarding data analysis, findings, suggestions, and limitations as

