



AN ANALYTICAL STUDY ON KEY CHALLENGES AND INFLUENCING FACTORS IN OCEAN AND AIRFREIGHT TRANSPORTATION

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Abstract

Logistics and supply chain management encompass the planning, execution, and control of the seamless movement and storage of goods, services, and related information from the point of origin to the point of consumption, aiming to fulfill customer needs efficiently. Ocean and air freight services are vital components of global logistics, enabling international trade by transporting goods across countries and continents. This study explores the major challenges and influencing factors affecting freight operations, with a specific focus on enhancing operational efficiency and service reliability. Key elements investigated include transportation methods, documentation processes, regulatory requirements, adoption of modern technologies, and sustainable logistics practices. Furthermore, the research addresses current industry trends and evaluates the dynamic challenges shaping the future of both ocean and air cargo transportation. With the growing pace of globalization, the demand for streamlined and dependable logistics solutions has surged. This study focuses on identifying and analyzing these factors in the context of Freyer International Logistics Pvt. Ltd., Bangalore.

Keywords: *Supply Chain Management, Freight Forwarding, Air and Ocean Shipments, Logistics Challenges, Global Trade, Documentation, Regulatory compliance, Sustainability, Technology Integration.*

Introduction

Global trade has witnessed rapid growth over the past few decades, with ocean and air shipments playing a crucial role in the movement of goods across international borders. These two primary modes of transport are fundamental components of the logistics and supply chain network, enabling timely and efficient delivery of products to diverse markets. Ocean freight is commonly used for large-volume and cost-sensitive cargo, while air freight is preferred for time-critical and high-value goods. Despite their importance, both ocean and air shipments face a range of challenges such as rising fuel costs, regulatory complexities, capacity constraints, and technological disruptions. At the same time, factors like digitalization, environmental concerns, infrastructure development, and customer expectations continue to influence their operations. This study aims to explore the key challenges and driving factors affecting ocean and air shipments, with a specific focus on how logistics companies navigate these issues to ensure smooth and efficient transport. By identifying these dynamics, the research seeks to contribute practical insights into enhancing the overall performance of global supply chains.

1.1 Evolution of Ocean and Air Shipments:

The transportation of goods through ocean and air routes has undergone a significant transformation over time. Maritime shipping, with its ancient roots, began with basic wooden ships used for regional trade. As time progressed, innovations such as steam engines and later diesel-powered vessels drastically improved shipping capabilities, leading to the global expansion of sea trade. The breakthrough moment came with the introduction of containerization, which streamlined cargo handling and greatly reduced



transportation costs and transit times. Similarly, air cargo has evolved from a niche method of sending mail to a major force in modern logistics. Following the development of commercial aviation, air freight gained popularity for its unmatched speed. Over the decades, aircraft have become more specialized and capable of carrying heavier and more diverse types of cargo across vast distances. In recent years, both shipping methods have embraced digital tools and automation, enhancing the efficiency and reliability of global supply chains. Environmental concerns have also sparked a shift toward greener technologies, with the industry focusing on reducing emissions and adopting sustainable practices. This evolution reflects a continuous adaptation to global economic demands, customer expectations, and technological advancements shaping ocean and air shipments into essential pillars of international commerce.

Objective of the Study

This project mainly focuses on understanding the real-time problems faced in ocean and air transport. These issues could be delays, rules from customs or high transport costs. The goal is to figure out what causes these challenges and how they affect the delivery of goods. The study also tries to find simple and useful ways to improve the process, so companies can save time, reduce costs, and send goods without much trouble.

Scope of the Study

This study takes a closer look at both sea and air transport systems. It checks how these two methods work, what problems they face, and what can be done to solve them. Topics like fuel prices, paperwork, customs rules, use of new technology, and delivery speed are all covered. By focusing on these areas, the project helps transport companies and others understand how to make their shipping work better in the future.

2. Review of Literature: Strategic human resource management In this dynamic environment, aligning HR strategies with business goals has become essential for workforce efficiency and organizational competitiveness. A prominent challenge in this space is recruiting and retaining skilled personnel due to the sector's growing reliance on specialized knowledge and advanced operational systems. The shift to digital operations in global shipping has introduced new performance drivers. A recent exploratory study identified key success factors that enable companies to thrive in the digital era—these include innovation, strategic leadership, risk management capabilities, and technological adaptability. These elements were found to directly influence financial, operational, and marketing performance, especially when integrated effectively into a company's strategic planning. Sustainability is another pressing concern in modern shipping. As regulatory pressures increase and environmental awareness grows, shipping companies must adopt eco-friendly practices. Researchers emphasize the need for balance—implementing sustainable solutions without compromising economic performance. Technological innovations, such as cleaner propulsion systems and emission monitoring tools, are central to reducing the environmental impact of maritime activities.

Environmental economics further highlights the role of shipping in pollution and resource consumption. Studies have shown that fluctuating oil prices and foreign exchange rates significantly impact maritime operations. As a result, the need for sustainable frameworks and adaptive logistics strategies has become increasingly important to ensure both ecological responsibility and financial stability in shipping. Big data analytics has also emerged as a transformative force within the logistics domain. With vessels and supply chains generating massive volumes of data, analytics tools are now being used to uncover trends, predict equipment failures, and improve route planning. These



capabilities enable real-time decision-making and optimize overall vessel performance, while also aiding compliance with regulatory standards.

Additionally, quality management practices in shipping have received growing attention. Industry-specific research has identified factors such as leadership involvement, performance measurement, employee empowerment, and customer satisfaction as essential for quality outcomes. When implemented effectively, the sepractices result in improved service delivery and stronger customer relationships. Collectively, the literature suggests that to navigate the complex challenges of the logistics and shipping industries—ranging from talent shortages and environmental regulations to digital disruption and global market pressures—companies must adopt integrated strategies that blend technology, sustainability, and people-centered management.

Research Methodology

2.1 Introduction

It describes the styles used to collect and dissect data for understanding the challenges and crucial factors that affect ocean and air payload operations at Fryer International Logistics Pvt. Ltd. The end is to insure that the study is methodical, dependable, and grounded on real gests of workers involved in logistics.

2.2 Research Design

The study follows a descriptive exploration design. This type of exploration is used when the thing is to observe and describe situations as they live. In this case, it helps to identify issues in ocean and air shipments by gathering factual feedback from workers. No changes or trials are done only observation and analysis of current conditions.-

2.3 Slice system

The slice system used is convenience slice. This means opting actors who are fluently available and willing to respond. It's a practical system for collecting information's applied, especially when working within a company. Although it may not represent the entire population, it helps in gathering useful data within a short time.

2.4 Sample Size and Population

The company has further than 300 workers. Out of this, 210 workers we renamed as the sample for this exploration. These individualities were chosen because they're involved in logistics operations and can give applicable perceptivity into the payload challenges faced by the company.

2.5 Data Collection

The exploration is grounded on two main sources of data Primary Data Collected through a structured questionnaire filled out by workers. The questionnaire concentrated on the irgests and opinions related to ocean and air freight issues. Secondary Data Gathered from books, papers, company reports, logistics journals, and online sources to support the findings and give background information.

2.6 Tools for Analysis

To make sense of the data collected, analysis was done using SPSS software. This tool helped in organizing the responses and relating patterns or connections in the data. Ways like chance analysis, chi-square tests, and correlation studies were used to understand how different factors are related to each other. Bar maps and tables were also used to display the results in a clear and accessible way.



2.7 Study Focus

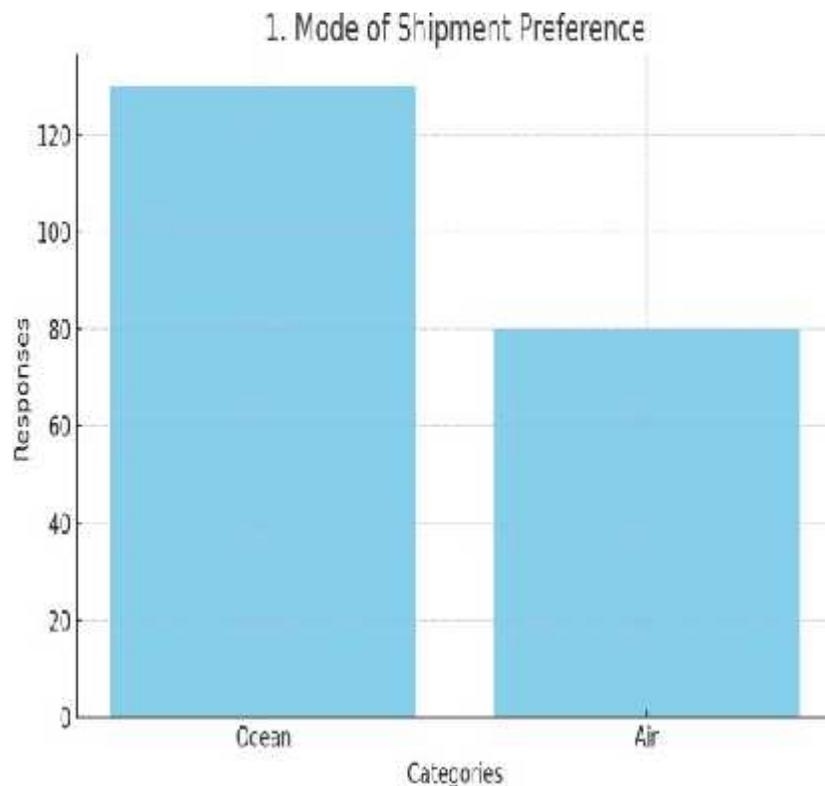
This exploration substantially looks into the challenges in ocean and air shipping similar as detentions, communication gaps, and attestation problems. By relating these issues, the study aims to help the company find better ways to manage logistics and ameliorate performance. Summary exploration Type Descriptive Testing Method Convenience Sampling Sample Size 210 workers Data Sources Questionnaire (Primary), Books & Websites(Secondary) Analysis Tool SPSS Software styles Used Chance, Chi-square, Correlation Affair Maps and Tables for easy understanding

2.8 Limitations of the Study

This study faced several limitations. Methodologically, collecting accurate data from logistics stakeholders was challenging, and the sample size may not fully represent the broader shipping industry. The study was geographically limited to a specific region and focused on particular shipment types, which may affect the generalizability of the results. Time constraints also meant that only a specific timeframe was considered. Additionally, the complex nature of the shipping industry made it difficult to capture all in flouncing factors and causal relationships. Practical issues, such as limited access to proprietary data and restricted research resources, further constrained the study.

3.Data Analysis and Interpretation

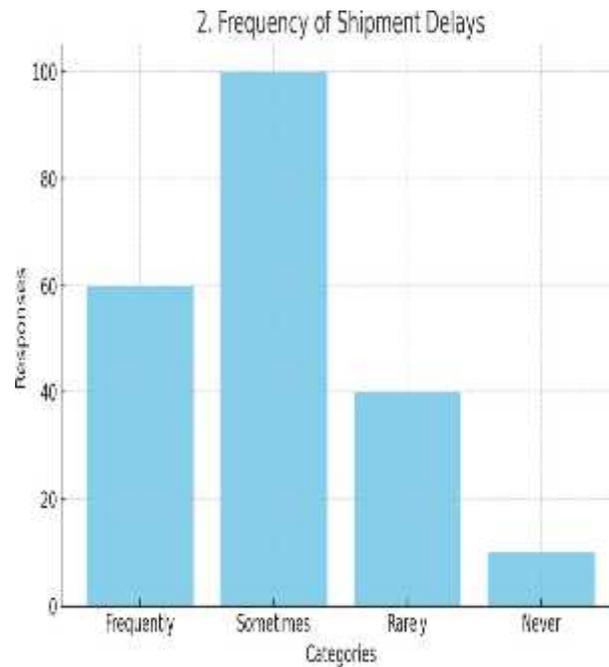
Table1 Chart



Interpretation: This chart illustrates the distribution and trends related to the research topic, providing insights into key factors influencing ocean and air shipments.

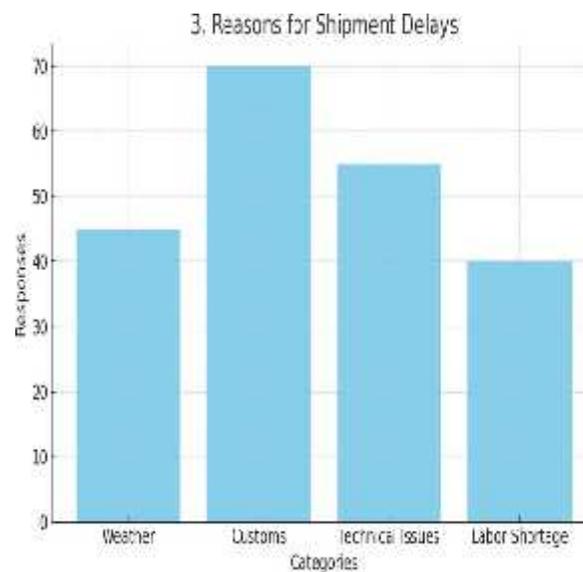


Table 2 Chart



Interpretation: This chart illustrates the distribution and trends related to the research topic, providing insights into key factors influencing ocean and air shipments.

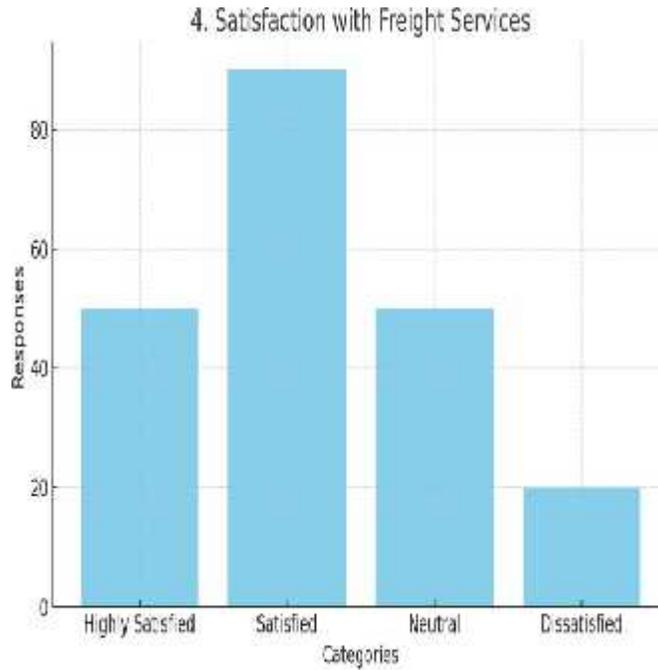
Table3Chart



Interpretation: This chart illustrates the distribution and trends related to the research topic, providing insights into key factors influencing ocean and air shipments.

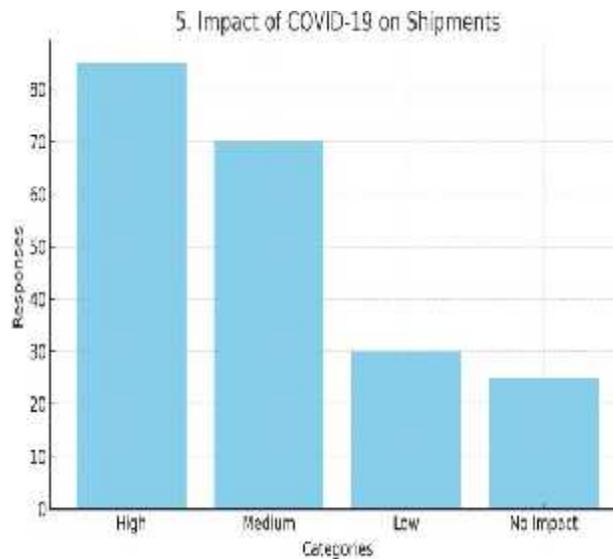


Table 4 Chart



Interpretation: This chart illustrates the distribution and trends related to the research topic, providing insights into key factors influencing ocean and air shipments.

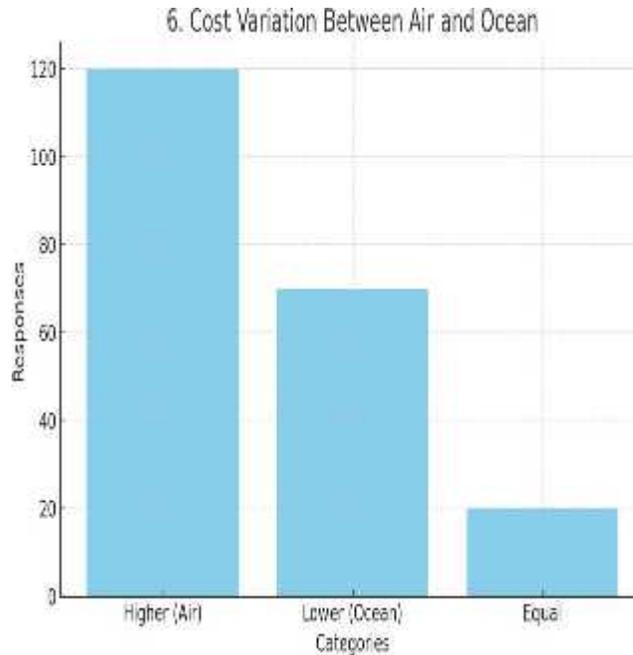
Table 5 Chart





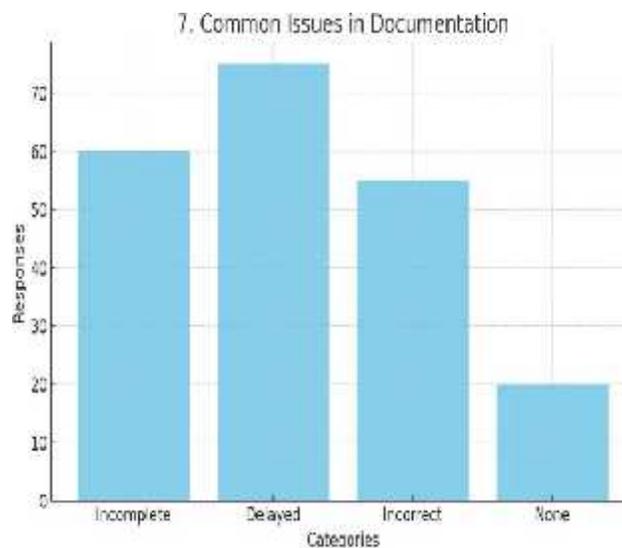
Interpretation: This chart illustrates the distribution and trends related to the research topic, providing insights into key factors influencing ocean and air shipments.

Table 6 Chart



Interpretation: This chart illustrates the distribution and trends related to the research topic, providing insights into key factors influencing ocean and air shipments.

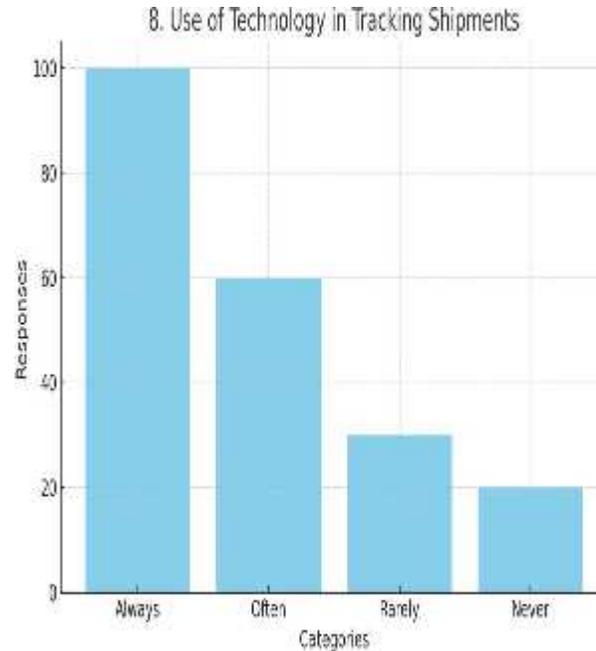
Table 7 Chart





Interpretation: This chart illustrates the distribution and trends related to the research topic, providing insights into key factors influencing ocean and air shipments.

Table 8 Chart



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Suggestions

1. Make use of advanced logistics software to design optimized shipping routes by factoring in variables such as traffic conditions, weather forecasts, and delivery time frames. This helps in saving time and fuel costs.
2. Choose the most suitable shipping method depending on the type of goods, delivery urgency, and cost- effectiveness. For instance, air freight is ideal for fast, time- sensitive deliveries, while ocean freight is better suited for larger shipments that are less urgent.
3. Streamline operations by automating routine processes like shipment scheduling, paperwork, and inventory tracking. Automation reduces manual errors and enhances operational efficiency.
4. Keep a buffer stock of essential or high-demand items to handle unexpected shipment delays or sudden increases in demand, ensuring uninterrupted service.
5. Select logistics partners carefully by reviewing their cost, reliability, and service quality. Building long-term partnerships with trusted carriers can lead to better pricing and improved service consistency.
6. Monitor the performance of carriers using clear metrics such as on-time delivery rates, damage reports, and customer satisfaction scores to maintain high service standards.
7. Stay informed about changes in international trade rules, customs regulations, taxes, and import/export policies to prevent potential shipping delays or compliance issues.



4. Conclusion

1. Shipping plays a vital role in the logistics sector, acting as the driving force behind the smooth transfer of goods across international markets. In order to stay ahead in today's competitive environment, organizations must adopt a well-planned shipping strategy that blends technology with operational efficiency and a strong focus on customer expectations.
2. Making smart choices about shipping routes and selecting the right transportation method are key to minimizing expenses and improving delivery speed. Integrating tools like automation and real-time shipment tracking helps streamline processes and reduce human error.
3. Cost control is another crucial factor. Businesses can benefit significantly by partnering with reliable carriers, combining shipments when practical, and routinely analyzing freight expenses. These efforts not only lower transportation costs but also contribute to better service consistency.
4. Understanding and following global shipping regulations is essential to avoid operational setbacks or financial penalties. Keeping up with customs requirements and digitizing documentation ensures compliance and smoother movement of goods.
5. At the same time, sustainability is becoming a major consideration in shipping practices. Environmentally responsible logistics—such as reducing emissions, offsetting carbon output, and using eco-friendly shipping options—align with modern expectations for greener supply chains.
6. In summary, both air and sea freight are key pillars of global logistics. By using the strengths of each mode wisely and constantly improving shipping operations, companies can achieve better performance, lower costs, and meet the evolving needs of their customers effectively.

5. References

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