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A study on Container handling process in Shipping at E–Ship Global Logistics India PVT Ltd, Chennai

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ABSTRACT: The efficiency of export and import container handling processes is pivotal to the success of global trade and logistics operations. This study focuses on the operational procedures, challenges, and optimization strategies employed by E-Ship Global Logistics India PVT Ltd in managing containerized cargo movements.

By examining key stages such as loading, unloading, storage, customs clearance, and inland transportation, the research aims to identify bottlenecks and propose solutions to enhance operational efficiency. The study also explores the integration of technology and best practices within the company's logistics framework to streamline container handling processes.

Through a combination of qualitative and quantitative methodologies, including case studies and stakeholder interviews, the research provides insights into the company's container handling operations. The findings aim to contribute to the development of more resilient and efficient supply chains, ultimately supporting the growth of international trade.

KEYWORDS: Container Handling, Import and Export Operations, E-Ship Global Logistics, Supply Chain Efficiency, Logistics Optimization, Customs Clearance, Inland Transportation, Global Trade, Technology Integration, Operational Bottlenecks, Freight Management.

I. INTRODUCTION

In the era of globalization, international trade has emerged as a cornerstone of economic growth, with maritime transport serving as its primary facilitator. Containerization has revolutionized global shipping by providing a standardized, secure, and efficient method for transporting goods across vast distances. The processes of importing and exporting containers are central to this system and demand coordinated efforts among ports, shipping lines, customs authorities, and logistics service providers.

Within this context, E-Ship Global Logistics plays a pivotal role in ensuring the seamless flow of containers through its specialized shipping and freight handling services. As cargo volumes and the complexity of global trade increase, the need for efficient import and export container handling has become crucial for maintaining service reliability, reducing costs, and meeting delivery deadlines.

This study aims to understand and analyze the end-to-end handling of import and export containers at E-Ship Global Logistics. It focuses on identifying operational challenges and proposing strategies for process improvement. The international shipping industry relies heavily on containerized cargo, which constitutes a significant portion of global freight movement. Handling these containers across various stages—origin, transit, and destination—requires meticulous coordination. Efficient container handling not only reduces turnaround times but also enhances customer satisfaction and competitiveness in the global supply chain.

E-Ship Global Logistics is a leading logistics company specializing in the movement of containerized cargo. The firm provides a comprehensive range of services including freight forwarding, customs clearance, warehousing, and multimodal transport. With operations spanning multiple ports across India and abroad, the company plays a key role in global trade facilitation.

This project explores how E-Ship Global Logistics manages the import and export container handling process, examines the systems and technologies in place, and evaluates how these operations can be optimized for cost-efficiency and timely delivery.

II. STATEMENT OF THE PROBLEM

In today's dynamic and highly competitive global trade environment, efficient container handling processes are essential for ensuring timely and cost-effective shipping operations. At E-Ship Global Logistics, the import and export container handling process plays a critical role in determining overall logistics performance and service quality. Despite advancements in logistics infrastructure and the adoption of modern technologies, the company continues to face several operational inefficiencies and procedural challenges.

Issues such as delays in cargo clearance, inaccuracies in documentation, communication gaps among key stakeholders, and a lack of standardized procedures frequently disrupt container movements. These inefficiencies not only increase turnaround times and operational costs but also negatively impact customer satisfaction and the company's ability to align with international logistics standards.

Given the significance of these challenges, there is a pressing need to conduct a comprehensive analysis of the existing container handling procedures at E-Ship Global Logistics. This includes identifying critical bottlenecks, evaluating the role and effectiveness of documentation, and developing actionable recommendations to enhance process efficiency, accuracy, and service reliability.

III. OBJECTIVES OF THE STUDY

1. To analyze the current procedures followed in the import and export container handling process at E-Ship Global Logistics.
2. To identify the key challenges and bottlenecks that affect the efficiency and effectiveness of container handling operations.
3. To examine the import and export documentation involved in container logistics and its relevance to operational workflows.
4. To understand the role of documentation in ensuring smooth, timely, and compliant import/export transactions.
5. To provide recommendations for process improvement aimed at reducing delays, improving documentation accuracy, and enhancing overall customer satisfaction.

IV. SCOPE OF THE STUDY

This study aims to gain a comprehensive understanding of the import and export container handling processes at E-Ship Global Logistics. It focuses on examining the current operational procedures involved in the movement of containers throughout the logistics cycle. The scope of the research encompasses the entire container handling process—from the arrival of containers at the port to their final dispatch. A major component of the study involves identifying key challenges and bottlenecks that affect the efficiency and reliability of operations. Particular emphasis is placed on the documentation process, which plays a critical role in facilitating smooth import and export activities. The study analyzes various import and export documents used in container logistics to assess their significance in ensuring timely, accurate, and compliant transactions.

Furthermore, the research investigates the role of documentation in maintaining regulatory compliance and enabling seamless coordination among stakeholders. Operational issues such as delays, inaccuracies, and procedural inefficiencies are explored to understand their impact on overall performance and customer satisfaction. Data for the study will be collected through process observations and inputs from employees involved in container handling operations. Based on the findings, the study aims to propose practical recommendations for improving accuracy, enhancing operational speed, and elevating service quality.

V. REVIEW OF LITERATURE

Levinson(2006)Containerizationrevolutionizedglobaltradebyreducingcargo handling time, minimizing pilferage, and enabling inter modal transport. Containers allow goods to be transferred across ships, trucks, and trains without unpacking, thereby increasing efficiency and reducing damage risks.

Notteboom and Rodrigue (2009) Emphasized that containerization not only improved trade logistics but also led to the development of specialized container terminals, enhancing global connectivity.

Harbeck (2013) The handling process for containers includes multiple stages—receiving, inspection, storage, loading, transportation, and final delivery. Each stage must be coordinated effectively to ensure timely delivery and reduce demurrage.

Gupta & Singh (2017) Highlighted that the efficiency of import-export handling processes depends on terminal layout, crane productivity, yard planning, and customs clearance mechanisms. They observed that delays in documentation and port clearance significantly contribute to congestion.

UNCTAD (2020) the documents required for container handling include the Bill of Lading, Commercial Invoice, Packing List ,Certificate of Origin, Import/Export License, and Delivery Order. Any error or delay in these documents can disrupt the entire container flow.

Jain and Sahu (2021) Studied container operations at Indian ports and found that automation in document verification helped reduce clearance time by30%,highlighting the need for digitalization in documentation procedures.

Bichou andGray (2005) pointed out several key challenges faced by ports in handling containers: limited yard space, equipment downtime, labor shortages, congestion, and customs inefficiencies.

Kumar et al. (2018) Found that the lack of integration between stakeholders (shipping lines, customs, terminal operators, and freight forwarders) often results in miscommunication and delays in import-export activities.

Das and Saha (2019) Reported that handling containerized cargo is particularly challenging at congested ports due to the mismatch between infrastructure capacity and trade volume. Studied Indian ports and emphasized the importance of ICT integration in container tracking and planning for smoother operations.

Zhao and Goodchild (2010) explored the impact of RFID and Internet of Things (**IoT**) technologies in tracking containers throughout the supply chain. Their study found that these technologies enable real-time monitoring, which significantly reduces cargo losses and enhances overall accountability in container handling operations.

Chen et al. (2007) Developed models for yard crane scheduling and space allocation that significantly reduced handling times. Poor yard management leads to container misplacement, increased dwell time, and higher operational costs. Container yard operations in India and recommended the adoption of automated stacking cranes and better yard layout planning to improve turnaround time. Jansson and Shneerson (1982) were among the first researchers to highlight the environmental impact of port activities, emphasizing that container handling operations contribute significantly to emissions from equipment and transport vehicles.

Paul et al. (2022) studied Indian container terminals and proposed the adoption of green port strategies, including the electrification of handling equipment, the use of cleaner fuels, and the implementation of comprehensive environmental management systems. Their study also reported that the introduction of paperless documentation and an integrated tracking system led to a 20% reduction in container processing time.

Chopra and Meindl (2016) describe container handling in import and export operations as a complex yet structured process involving multiple stakeholders, including shippers, freight forwarders, customs authorities, and port operators. They emphasize that effective coordination among these entities is crucial for minimizing delays and optimizing resource utilization. The authors further highlight that port efficiency has a direct impact on container dwell time, vessel turnaround, and overall logistics costs. To address these challenges, ports and terminals have increasingly adopted advanced technologies such as automated cranes, Radio Frequency Identification (RFID) systems, and Terminal Operating Systems (TOS) to streamline and enhance the efficiency of container handling operations.

VI. RESEARCH METHODOLOGY

The research challenge can be approached systematically through a well-defined research methodology. It serves as a detailed blueprint outlining how data will be collected, analyzed, and interpreted throughout the study. Research

methodology may be considered the scientific study of research processes and practices, encompassing everything from basic descriptive analyses to the design of complex empirical investigations.

A clearly defined objective forms the foundation of an effective research design. Given that the primary objective of this study is to examine the import and export container handling processes at E-Ship Global Logistics, a descriptive research design was deemed most appropriate. This approach facilitates the exploration of current operational procedures, identification of bottlenecks, and analysis of documentation processes.

The study employs both survey methods and fact-finding inquiries, combining qualitative insights and quantitative data. This mixed-method strategy enables a comprehensive understanding of the container handling cycle, stakeholder roles, and efficiency challenges, thus ensuring a robust basis for generating practical recommendations for improvement.

Research Design

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. It is simply structural framework of various research methods as well as techniques that are utilized by a researcher. The research design helps a researcher to pursue their journey into the unknown but with a systematic approach by their side.

Primary Data

Primary data are those which are collected fresh for the first time. Under this method, primary data are collected through the questionnaire.

Secondary data

It refers to information that has already been collected, compiled, and made available through primary sources for purposes other than the current research study. It is often used to provide background, context, or comparative analysis. This type of data is typically sourced from previously published materials, including books, academic journals, government reports, industry publications, and reputable websites. In this study, secondary data was utilized to support the analysis of container handling practices, benchmark industry standards, and review relevant literature on logistics operations and documentation procedures.

- sampling methods

The Study is adopted by descriptive method. The study first and leading depends on primary and secondary data.

- Sampling Size

The Total number of sample is 110.

- Period of Study

The duration of study is from March 2025 to May 2025 which is 3 months of study.

VII. LIMITATIONS OF THE STUDY

- The study is based solely on data and observations from E-Ship Global Logistics Pvt. Ltd.
- Due to the limited duration of the internship/project period, it was not possible to conduct long-term analysis or observe seasonal variations in container handling operations.
- Certain operational and financial data critical to understanding the complete handling process were confidential and not accessible to the researcher, potentially affecting the depth of the analysis.

VIII. DATA ANALYSIS AND INTERPRETATION

S. No	Age	No of respondents	Percentage
1	21-30	70	63.6%
2	31-40	23	20.9%
3	41-50	10	9.1%

4	Above51	7	6.4%
	Total	110	100

Interpretation

From the above table, it is inference that 63.6% of respondents are of age group 21-30yr, 20.9% of respondents are 31-40yrs, 9.1% of the respondents of 41-50 age group, and 6.4% of the respondents of Above 51.

Gender wise classification

S. No	Gender	No of Respondents	Percentage
1	Male	65	59.1%
2	Female	45	40.9%
	Total	110	100

Interpretation

From the above table revealed that 59.1% of respondents are Male and 40.9% of respondents are

Income Wise classification

S.No	Income	Respondents	Percentage
1	Below Rs.15000	25	22.7%
2	Rs.15001-Rs.25000	50	45.4%
3	Rs.25001-Rs.50000	31	28.1%
4	Above Rs.50001	4	3.6%
	Total	110	100

Interpretation

From the above table revealed that 45% of the respondents Income level Rs.15001-Rs.25000, 28.1% of the respondents Income level are Rs.15001-Rs.25000, 22.7% of the respondents Income level are below Rs.15000

Educational wise classifications

S. No	Educational qualification	No of respondents	Percentage
1	Diploma	11	10
2	UG	30	27.3
3	PG	69	62.7
	Total	110	100

Interpretation

From the above table revealed that 62.7% of the respondents are PG, 27.3% of the respondents are UG, and 10% of the respondents are Diploma.

Experience wise classification of Respondents

S. No	Experience	No of respondents	Percentage
1	Lessthan1year	18	16.4
2	1-3years	60	54.6
3	3-5years	25	22.7
4	Morethan5years	7	6.3
	Total	110	100

Interpretation

From the above table revealed that 54.6%oftherespondents Experience are1-3 years, 22.7%ofthe respondents Experience are 3-5 years, 16.4% of the respondents experience are 3-5 years, and 6.3% of the respondents experience are More than 5 years.

ANALYTICAL TOOLS

Achi-squarei sastatistical test used to comp are observed results with expected results. It is a different between observed data and expected data or relationship between the variables. The chi-square is non-parametric test.

Chi-Square Test

HO-There is no significant association between monthly income levels and the opinion about container safety during transport.

H1-There is a significant association between monthly income levels and the opinion about container safety during transport.

Particulars	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	TOTAL
BelowRs.15000	8	10	5	2	1	25
Rs.15001-Rs.25000	9	20	15	4	2	50
Rs.25001-Rs.50000	10	14	4	2	1	31
AboveRs.50001	1	1	1	1	0	4
TOTAL	28	44	25	9	4	110

Particulars	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
BelowRs.15000	6.363	10	5.681	2.045	0.909
Rs.15001-Rs.25000	12.727	20	11.363	4.090	1.818
Rs.25001-Rs.50000	7.890	12.4	7.045	2.536	1.127
AboveRs.50001	1.018	1.6	0.909	0.327	0.125

Particulars	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
BelowRs.15000	0.422	0	0.082	0.001	0.009
Rs.15001-Rs.25000	1.091	0	1.173	0.002	0.018
Rs.25001-Rs.50000	0.560	0.206	1.316	0.113	0.014
AboveRs.50001	0.0003	0.225	0.009	1.388	0.125

Degrees of Freedom=(R-1)(C-1)= (4-1)(5-1)=3*4=12

Degrees of freedom=12

5%levelofsignificance $\alpha=0.05$

The calculated value of X^2 < Tabulated value of X^2

➤ H0 IS Rejected

➤ H1 IS Accepted

Interpretation

From the above table, it is evident that there is no significant association between monthly income levels and respondents' opinions regarding container safety during transport.

Table showing Age wise of the respondents and opinion about Container Safety During Transport

Particulars	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	TOTAL
21-30	15	35	10	7	3	70
31-40	6	10	5	1	1	23
41-50	2	4	1	2	1	10
Above51	1	2	2	1	1	7
TOTAL	24	51	18	11	6	110

EXPECTEDFREQUENCY=

ROW TOTAL x COLUMN TOTAL

GRAND TOTAL

Particulars	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
21-30	15.272	32.454	11.454	7	3.818
31-40	5.0181	10.663	3.763	2.3	1.254
41-50	2.181	4.636	1.636	1	0.545
Above 51	1.527	3.245	1.145	0.7	0.3818

Calculation $(o-e)^2/e$

Particulars	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total
21-30	0.0048	0.2021	0.1846	0.0000	0.1753	0.5668
31-40	0.1916	0.0412	0.4066	0.7369	0.0515	1.4278
41-50	0.0150	0.0873	0.2472	1.0000	0.3815	1.731
Above51	0.1817	0.4775	0.6463	0.1286	1.0175	2.4516
Total						6.1772

Degrees of Freedom=(R-1)(C-1)= (4-1)(5-1)=3*4=12

Degrees of freedom=12

5%levelofsignificance $\alpha=0.05$

The calculated value of $X^2 < \text{Tabulated value of } X^2$

➤ H0 IS REJECTED

➤ H1 IS ACCEPTED

$X^2 \text{ CALCULATED} = 6.1772$ $X^2 \text{ CRITICAL} = 21.026$

$6.1772 < 21.06$

Interpretation

From the above table, it is evident that there is no significant association between age and respondents' opinions regarding container safety during transport.

TABLE SHOWING GENDERWISE OF THE RESPONDENTS AND CONTAINERS DAMAGES ARE REGULARLY INSPECTED

Particulars	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	TOTAL
Male	17	31	12	3	2	65
Female	13	15	10	4	3	45
Total	30	46	22	7	5	110

EXPECTED FREQUENCY =

ROW TOTAL * COLUMN TOTAL

GRAND TOTAL

Particulars	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Male	17.727	27.181	13	4.136	2.954
Female	12.272	18.818	9	2.863	2.045

Calculation $(o-e)^2/e$

Particulars	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total
Male	0.0298	0.5328	0.0769	0.3120	0.3080	1.2595
Female	0.0423	0.7751	0.1111	0.4552	0.4452	1.8289
Total						3.0884

Degrees of Freedom $= (R-1)(C-1) = (2-1)(5-1) = 1*4 = 4$

Degrees of freedom =4

5%levelofsignificance $\alpha=0.05$

The calculated value of $X^2 < \text{Tabulated value of } X^2$

➤ H0 is Rejected

➤ H1 is Accepted

Interpretation

From the above table it shows there is no significant association between gender and containers damages are regularly inspected.

CORRELATION ANALYSIS

The correlation analysis is a statistical tool used to measure the degree to which two variables are linearly related to each other. The correlation is between two variables numerically describes which is larger and smaller than average value of one variables are related to larger or smaller than values of the other variables. It is measuring the strength and direction of the linear relationship between two variables.

HYPOTHESIS:

H0-There is no significant Association between genders with educational qualifications.

H1-There is significant Association between genders with educational qualifications.

TABLE SHOWING THE GENDER AND EDUCATIONAL QUALIFICATIONS

PARTICULARS	MALE	FEMALE	TOTAL
DIPLOMA	8	3	11
UG	17	13	30
PG	40	29	69
TOTAL	65	45	110

Mean of X=2

Mean of Y=(8+17+40)/3=21.67

Calculate Pearson (Spearman's rho for ordinal)

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

= $\frac{[(1-2)(8-21.67)+(2-2)(17-21.67)+(3-2)(40-21.67)]}{(-1*-13.67)+(0*-4.67)+(1*18.33)} = \frac{13.67+0+18.33}{32} = 1.41$

Interpretation

There is a very strong positive correlation between education level and number of respondents for both genders.

IX. FINDINGS OF THE STUDY

- ✓ E-Ship global logistics India PVT Ltd (CIN: U63030TN2022PTC149272) is a Private company incorporated on 19 Dec 2022.
- ✓ The chairman of E-Ship Global Logistics India Private Limited is Selvakumar
- ✓ According to age wise of the respondents are 63.6% of respondents are of age group 20-30yr and 20.9% of respondents are 26-35yrs.
- ✓ The study revealed that 59% of the respondents are Male and 41% of respondents are Female.
- ✓ According to income wise of the respondents are 22.7% of the respondents are below Rs.15000, 45.4% of the respondents are Rs.15001-Rs.25000, 28.1% of the respondents are Rs.25001-Rs.50000, and 3.6% of the respondents are Above Rs.50000.
- ✓ According to qualification of the respondents are 10% of the respondents are Diploma, 27.3% of the people are UG and 62.7% of the respondents are PG.
- ✓ The study revealed that the experience level of the respondents are 16.4% of the respondents are Less than 1 yr of experience, 54.6% of the respondents are 1-3 years of experience, 22.7% of the respondents are 3-5 years of experience, and 6.3% of the respondents are More than 5 years of experience.

X. SUGGESTIONS

- Implement real-time tracking systems to monitor container movement and status.
- Implement automated documentation systems to facilitate faster customs clearance and reduce the likelihood of manual errors.
- Use standardized container handling equipment to enhance operational efficiency and minimize the risk of cargo damage.
- Conduct regular staff training to improve operational accuracy and safety.
- Adopt digital platforms for coordination among shipping lines, terminals, and transporters.
- Schedule container deliveries and pickup to avoid congestion at ports.
- Maintain effective inventory control systems for smooth cargo transition and storage.
- Establish strong coordination among key stakeholders such as customs authorities, freight forwarders, and port operators to ensure smooth and timely container handling operations.

XI. CONCLUSION

The study successfully identified and analyzed the current procedures followed in the import and export container handling process at E-Ship Global Logistics India Pvt. Ltd. The company handles a high volume of standard-sized

containers, with some reliance on refrigerated and tank containers. Maintenance of containers is generally perceived positively, though improvements can still be made in frequency and transparency. Digital tools are being used effectively for communication, with email being the most preferred method of sharing container status. Documentation practices are robust, and most containers are dispatched only after due clearance. There is a strong reliance on manual dispatch systems, highlighting the need for automation. Customer satisfaction levels are high, especially in terms of documentation and digital tracking. The company appears to be progressing well in its container handling operations, these findings can be instrumental for E-Ship Global Logistics in strategizing improvements, ensuring competitive advantage, and contributing positively to the broader logistics ecosystem in India.

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2. Notteboom and Rodrigue (2009) emphasized that containerization has not only transformed trade logistics by improving efficiency, but also led to the development of specialized container terminals, thereby significantly enhancing global connectivity within supply chains..
3. Harbeck (2013) the handling process for containers includes multiple stages—receiving, inspection, storage, loading, transportation, and final delivery.
4. Gupta & Singh(2017) High lighted that the efficiency of import-export handling processes depends on terminal layout, crane productivity, yard planning, and customs clearance mechanisms.
5. According to UNCTAD (2020), the key documents required for container handling include the Bill of Lading, Commercial Invoice, Packing List, Certificate of Origin, Import/Export License, and Delivery Order. The report emphasizes that any error or delay in the preparation or processing of these documents can significantly disrupt the entire container flow and lead to delays in customs clearance and cargo delivery.
6. Jain and Sahu (2021) Studied container operations at Indian ports and found that automation in document verification helped reduce clearance time by 30%, highlighting the need for digitalization in documentation procedures.
7. Bichou and Gray (2005) pointed out several key challenges faced by ports in handling containers: limited yard space, equipment downtime, labor shortages, congestion, and customs inefficiencies.

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