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A Study on Inventory Management and Export Field at Aarththi Exports Pvt. Ltd.

Siju S^{1*}, Mr. Mohamed Saif²

¹MBA Student, School of Arts, Humanities and Management Jeppiaar University, 600119

²Assistant Professor, School of Arts, Humanities & Management Jeppiaar University, 600119

*Corresponding author

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Abstract

This article presents a comprehensive study on inventory management practices and the export field at Aarththi Exports Pvt. Ltd., a logistics and freight-forwarding company headquartered in Chennai, Tamil Nadu. The study investigates the customs clearance process, freight forwarding operations, documentation efficiency, and staff competency using a survey of 50 respondents. Descriptive statistical tools - percentage analysis, weighted average, Pearson correlation, and chi-square tests were applied to analyse primary data. Key findings reveal that customs clearance delays remain a significant challenge, documentation preparedness is relatively strong, and freight charge transparency is appreciated by respondents. The study recommends digitising documentation workflows, enhancing staff training, and strengthening carrier partnerships to optimise logistics performance.

Keywords: Inventory Management, Freight Forwarding, Customs Clearance, Export Documentation, Logistics, Aarththi Exports, Chennai.

1. Introduction

Logistics management has undergone a paradigm shift since its military origins in the 1940s. Today, it constitutes a critical driver of competitive advantage for firms engaged in international trade. The American Council of Logistics Management defines logistics as the process of planning, implementing, and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements.

Aarththi Exports Pvt. Ltd. is a dynamic logistics solutions provider based in Chennai, Tamil Nadu, specialising in freight forwarding, customs clearance, packaging, and multimodal transportation. Established with the vision of

becoming a globally renowned logistics company, the firm serves a wide range of clients across industries, including live-animal exports, FCL/LCL container services, and digital freight-booking platforms. The present study was motivated by recurring challenges in documentation, customs processing, and supply-chain coordination observed during a summer internship conducted in March 2026. The research aims to identify the factors affecting customs clearance and freight forwarding, analyse documentation processes, quantify cost-benefit opportunities, and propose actionable improvements.

1.1 Scope of the Study

The scope encompasses the services of clearing and forwarding agents and exporters operating in Chennai city. The study intends to analyse factors affecting freight forwarding and customs clearance, with the ultimate goal of facilitating the smooth movement of import-export goods and expanding business globally.

1.2 Statement of the Problem

Forwarding agents in Chennai face persistent problems in documentation, transport, and customs clearance that directly affect export performance and supply-chain efficiency. These problems fall into four categories: finance, logistics, government policy, and customs-related issues. The study was conducted to understand these problems and identify solutions.

2. Review of Literature

A summary of relevant literature selected for the evaluation is presented in Table 1.

Table 1: Summary of Selected Literature

Author(s) & Year	Key Contribution
Sahoo, Bhowmick & Tiwari (2023)	Optimised air-freight costs considering capacity, carbon emissions & perishability.
Davis (2012)	Logistics customer service as a stable source of competitive advantage.
Dhanabakyam & Parimala (2015)	Freight forwarders must extend global networks to meet tomorrow's challenges.
Sebastian (2016)	India's logistics industry lacks planning; professionals must broaden skill sets.
Berrada & Aida (2017)	Infrastructure identified as the primary bottleneck in West-African freight forwarding.
Girma, Essete (2020)	Improper shipment delivery reduces CC agent performance; digitisation recommended.

Priya & Valliammal (2019)	Freight consolidators face multi-tier problems; smooth business flow is the primary goal.
Ojadi (2021)	Professionalism and collaboration standards must improve for sector growth.

3. Objectives of the Study

Primary Objective:

To streamline and optimise Aarththi Exports Pvt. Ltd.'s customs clearance and freight forwarding process to reduce delays, lower costs, ensure regulatory compliance, and enhance customer satisfaction.

Secondary Objectives:

- (i) Identify factors affecting customs clearance and freight forwarding.
- (ii) Analyse issues faced by freight forwarders from carriers and customers.
- (iii) Study the export-import documentation process.
- (iv) Conduct a cost-benefit analysis to identify efficiency and cost-reduction opportunities.
- (v) Suggest solutions to reduce issues faced by freight forwarders.

4. Research Methodology

4.1 Research Design

A descriptive research design was adopted. Descriptive research is suitable for describing the situation or case under study, gathering data, and presenting collected findings. The study is theory-based and draws on primary questionnaire data supplemented by secondary sources including academic journals and company records.

4.2 Sampling

A convenience (non-probability) sampling technique was employed. The sample area is Aarththi Exports Pvt. Ltd., Chennai, with a sample size of 50 respondents drawn from employees across operational departments.

4.3 Data Collection

Primary data were collected via a structured Likert-scale questionnaire covering six dimensions: personal profile, customs clearance factors, freight forwarding performance, documentation process, cost-benefit analysis, and improvement suggestions. Secondary data were obtained from published journals, company records, and logistics industry reports.

4.4 Statistical Tools

Table 2: Statistical Tools Applied

Statistical Tool	Purpose	Application in Study
Percentage Analysis	Frequency distribution	Demographic & Likert data
Weighted Average	Degree-of-agreement scoring	Freight charges; customs communication
Pearson Correlation	Bivariate relationship	Documentation vs. customs communication
Chi-Square Test	Association between variables	Customs brokers & efficiency; training & metrics

4.5 Respondent Profile

Table 3: Respondent Demographic Profile (n = 50)

Characteristic	Category	n	%
Age	21-30 years	16	32%
	31-40 years	14	28%
	41-50 years	10	20%
	Above 50 years	10	20%
Gender	Male	35	70%
	Female	15	30%
Education	Undergraduate	16	32%
	Postgraduate	14	28%
	Diploma	14	28%
	12th Standard	6	12%
Experience	1-5 Years	21	42%
	6-10 Years	9	18%
	11-15 Years	11	22%

	15+ Years	9	18%
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5. Data Analysis and Interpretation

5.1 Customs Clearance Perception

The descriptive analysis indicates mixed perceptions regarding the efficiency of customs activities. Strikingly, 30% of respondents strongly disagree that the customs clearance process is fast and reliable, compared with only 20% who strongly agree. This points to a dominant negative perception, which is corroborated by external literature (Girma, 2020), attributing bottlenecks to manual interventions and structural overheads.

5.2 Documentation Ease

A combined 56% of respondents agree or strongly agree that customs documentation is easy to prepare, suggesting that the firm has built reasonable internal competency in document execution. However, 28% disagree or strongly disagree, highlighting room for process standardisation.

5.3 Customs Delays

A substantial 56% of respondents (34% disagree + 22% strongly disagree) report that customs delays are not minimal, reinforcing the acute need for workflow re-engineering. Only 34% believe delays are negligible or well-controlled.

5.4 Freight Forwarding Performance

Delivery time expectations are broadly met, with 48% answering positively. However, 24% maintain a neutral stance and 28% disagree, pointing to inconsistent service reliability across certain shipping lanes.

5.5 Freight Charge Transparency

Freight charge transparency enjoys the highest positive response among all freight forwarding variables: 50% agree or strongly agree. This is supported by the weighted average analysis (WA = 3.06), indicating a moderate-to-positive consensus and reflecting the company's commitment to clear pricing.

5.6 Automation & Technology

The largest segment (30%) remains neutral on automation's effectiveness, while 36% express disagreement. Only 34% agree that automation has reduced manual errors, indicating that system adoption is still nascent.

5.7 Summary of Survey Responses

Table 4: Survey Response Summary (n = 50)

Question / Statement	SA%	A%	N%	D%	SD%	Dominant View
Customs clearance is fast & reliable	20	22	20	8	30	SD
Documentation is easy to prepare & submit	28	28	16	18	10	SA/A
Team is informed about customs regulations	18	22	32	18	10	Neutral
Minimal delays due to customs issues	22	12	10	34	22	Disagree
Communication with customs is timely	32	14	22	12	20	SA
Freight services meet delivery expectations	30	18	24	10	18	SA
Freight forwarders provide accurate tracking	18	24	20	22	16	Agree
Shipments arrive undamaged	18	24	20	20	18	Agree
Freight forwarders are responsive	24	20	16	24	16	SA/D
Freight charges are transparent	34	16	12	16	22	SA
Real-time tracking & documentation support	30	16	24	20	10	SA
Automation reduced manual errors	10	24	30	16	20	Neutral
Performance metrics are reviewed regularly	24	14	18	24	20	SA/D
Company seeks feedback to improve processes	28	24	16	28	4	SA/D
Staff adequately trained for challenges	24	18	14	14	30	SD

6. Statistical Test Results

6.1 Weighted Average Analysis

Table 5: Weighted Average Results

Variable	Weighted Average	Interpretation
Freight charges clearly communicated & free of hidden costs	3.06	Moderate agreement — charges are reasonably transparent.
Communication with customs authorities is effective & timely	3.26	Slightly above neutral — communication quality is acceptable but improvable.

6.2 Pearson Correlation

A Pearson correlation was computed between: (i) 'Proper documentation helps in complying with international trade regulations' and (ii) 'Effective communication with customs officials is essential for smooth export-import documentation'.

Table 6: Pearson Correlation Output

Statistic	Value
Pearson correlation coefficient (r)	0.945
Significance (2-tailed p)	0.000
Sample Size (N)	50
Decision	Reject H_0 — highly significant positive relationship

The correlation coefficient of $r = 0.945$ ($p < 0.001$) indicates a very strong positive relationship. Proper documentation and effective customs communication are highly interdependent; improving workflow compliance is directly tied to regulatory communication success.

6.3 Chi-Square Tests

Table 7: Chi-Square Test Results

Test Variables Tested	Value	df	p-value	Decision
Real-time logistics tracking & team knowledge of customs regulations	18.747	8	0.016	Reject H_0
Staff training adequacy & regular review of performance metrics	33.214	16	0.007	Reject H_0

Both chi-square tests are significant at $p < 0.05$. The first test confirms that real-time logistics tracking systems and customs regulation awareness are interdependent. The second test reveals that staff training adequacy is significantly associated with the systematic review of performance metrics, establishing a strong training-accountability feedback loop.

7. Findings

Table 8: Key Findings Summary

#	Finding Details
F1	30% of respondents strongly disagree that customs clearance is consistently fast and reliable.
F2	56% agree that required documentation is easy to prepare, indicating reasonable internal document-management competence.
F3	56% (D + SD) report experiencing frequent delays due to customs issues, highlighting a systemic operational bottleneck.
F4	48% agree that freight forwarding services meet delivery time expectations.
F5	50% agree that freight charges are transparently communicated ($WA = 3.06$).
F6	Only 34% agree that automation has reduced manual errors; 30% remain neutral.
F7	30% strongly disagree that staff are adequately trained to handle specialized customs and freight challenges.
F8	A strong correlation ($r = 0.945, p < 0.001$) exists between documentation quality and customs communication efficiency.
F9	Significant association is confirmed between real-time logistics tracking and customs regulation awareness ($\chi^2 = 18.747, p = 0.016$).

F10	Significant association exists between staff training adequacy and performance metrics review ($\chi^2 = 33.214, p = 0.007$).
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8. Recommendations

Table 9: Recommendations for Aarththi Exports Pvt. Ltd.

Area	Recommendation
Documentation	Adopt a centralised digital documentation platform to eliminate manual discrepancies in invoices, packing lists, and bills of lading.
Customs Process	Implement a dedicated pre-clearance checklist and EDI integration with customs portals to drastically reduce manual queries and turnaround times.
Staff Training	Conduct quarterly customs regulation workshops and freight-handling simulations to resolve the 30% strong-disagreement gap on staff preparedness.
Technology Integration	Invest in a comprehensive Logistics Management System (LMS) featuring automated alert functions to bridge the digital adoption gap.
Carrier Partnerships	Develop formal Service Level Agreements (SLAs) with primary carriers to secure predictable transit capacity and ensure structural transparency.
Performance Monitoring	Establish structured KPIs tracking customs clearance velocity, documentation accuracy, and exception rates; conduct evaluations quarterly.
Feedback Optimization	Institutionalise post-shipment client feedback to continuously measure and improve customer logistics service quality.

9. Conclusion

This study examined inventory management practices and the export field operations at Aarththi Exports Pvt. Ltd. through a comprehensive statistical analysis of 50 internal stakeholders. The empirical results demonstrate that while the firm displays clear competitive strength in baseline documentation preparation and pricing transparency, notable operational barriers persist regarding customs clearance speed, digital automation infrastructure, and structured staff training frameworks.

The statistical validations prove that robust documentation standards are strictly coupled with effective customs communication workflows, and that logistics information systems directly co-evolve with regulatory mastery. By enacting the proposed modernizations—primarily centered around digital EDI transformation, continuous employee capacity workshops, and standardized SLA carrier architectures—

Aarththi Exports Pvt. Ltd. can effectively mitigate logistics bottlenecks, secure elevated customer loyalty, and cement a highly scalable competitive position in the global trade ecosystem.

Declaration of Conflicting Interests

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References

- [1] American Council of Logistics Management. (2000). Logistics Management: Definition and Scope. Oak Brook, IL.
- [2] Davis, B. R. (2012). Logistics service driven loyalty: An exploratory study. *Journal of Supply Chain Management*.
- [3] Dhanabakyam, M., & Parimala, K. (2015). Role of freight forwarders and customs house agents in logistics. *International Research Journal*.
- [4] Girma, E. (2020). Challenges and factors affecting performance of custom clearance agents. *Logistics Research Quarterly*.
- [5] Huber, S., Klauenberg, J., & Thaller, C. (2015). Consideration of transport logistics hubs in freight transport demand models. *European Transport Research Review*, 7, 1–14.
- [6] Kotler, P. (2003). *Marketing Management* (11th ed.). Pearson Education.
- [7] Ojadi, F. (2021). Barriers to the development of freight forwarding in Nigeria. *International Journal of Management Studies and Social Science Research*, 3(5), 122–141.
- [8] Priya, S. M., & Valliammal, M. (2019). A study on problems faced by freight forwarders at Freight Consolidators Pvt. Ltd. *Journal of Contemporary Research in Management*, 14(3-2), 29–35.
- [9] Sahoo, R., Bhowmick, B., & Tiwari, M. K. (2023). Developing a model to optimise the cost of consolidated air freight. *International Journal of Logistics Research and Applications*, 26(8), 1035–1059.
- [10] Sebastian, R. (2016). A study on problems of logistics industry. *Asian Journal of Management Research*, 7(1).
- [11] Yang, C. C. (2012). Assessing the moderating effect of innovation capability on logistics service capability and firm performance for ocean freight forwarders. *International Journal of Logistics Research and Applications*, 15(1), 53–69.