Enhancing Service Quality and Customer Satisfaction in International Freight Forwarding Operations: An Empirical Study

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Abstract

In essence, freight forwarding is a customer service-based business, yet there have been very few empirical studies which have considered what actually drives customer satisfaction in this industry, particularly in the context of the Indian mid-market. This study attempts to answer that question by utilizing primary data collected from 54 international freight forwarding logistics professionals and examining the impacts of six service quality dimensions Documentation Accuracy, Customs Clearance, Cargo & Warehouse Handling, Shipment Coordination, Reliability & Responsiveness and Technology Adoption on customer satisfaction. The analysis employs Pearson Correlation, Multiple Regression analysis, Cronbach's Alpha coefficient and ANOVA; all six service dimensions are statistically significant predictors of customer satisfaction, although the degree of significance varies by dimension. Cargo & Warehouse Handling had the highest correlation (r = 0.6655; ß = 0.3952). While the correlation between Technology Adoption and customer satisfaction was modest, the regression coefficient indicates strong predictive power when controlling for other factors. The evidence supports the hypothesis that digital capabilities add additional satisfaction value over and above standard operational performance. All six hypotheses were supported at the 95% significance level and were found to be consistent across respondent groups; therefore, a single, well-designed performance improvement initiative could be implemented with little change to the degree of satisfaction achieved by the different groups.

Keywords: *Service Quality, Freight Forwarding, Customer Satisfaction, SERVQUAL, Cargo Handling, Technology Adoption, Indian Logistics.*

1. Introduction

If you ask any exporter about the difference between a dependable freight forwarder and an unreliable one, you'll find it interesting that almost no one mentions freight rates first. The reason for that is because the first things they talk about are; if their cargo arrives without damage then if the documentation was correct at the outset... finally whether or not someone at the freight forwarder picked up the phone when something went wrong. All of these issues relate clearly to the quality of service provided by the freight forwarder. Consequently, they have a substantial impact on determining whether or not continuing to use a freight forwarder after this shipment, returning with additional shipments, or recommending them to others is justified. The difference between how companies measure themselves internally as opposed to how their client views their service has been widely documented in logistics related literature. Typically the metrics freight forwarders use to measure themselves operate within the operational domain of throughput, transit time and unit cost. While these metrics are important in measuring operations they do not help the freight forwarder to capture what their client goes through on a day to day basis during the logistics process. The SERVQUAL model introduced by Parasuraman, Zeithaml & Berry (1988) developed the basic argument for defining service quality on a perceptual basis; service quality as clients define it relates to the difference between their expectations and what they actually received in different operationally based dimensions. The SERVQUAL model has been applied to transportation and logistics research on a broad basis however its application within International Logistics within India has not been well understood.

2. Objectives of the Study

This study has four main goals, which build on one another. The first goal was to give a clearer understanding of how international freight forwarding operates, including the processes of documentation, customs clearance, cargo handling and shipment coordination; therefore, any valid measurement of service quality must begin at the actual operational levels as opposed to being based solely on abstract definitions. The second goal was to assess how the firm being studied measures up against those service quality dimensions that are most applicable to its line of business using a SERVQUAL based tool for measurement. The third goal was to statistically analyze whether or not specific operational performance indicators, including on-time delivery, accurate documentation, quality coordination, responsiveness to problems, and use of technology, have a statistically significant relationship with customer satisfaction. The fourth goal was to provide practical assistance by discovering where the highest priority improvements can be made and providing actionable recommendations that can be implemented in practice based upon empirical results.

3. Need for the Study

- Indian international freight forwarding remains under-studied in terms of service quality and customer satisfaction, especially in the Chennai mid-market.
- Freight forwarders rely on internal metrics (transit time, throughput, unit cost) that do not capture the client's actual service experience.
- India's logistics sector is transforming rapidly through digitalization and regulatory reforms (GST, EXIM policy), raising customer expectations.
- Diverse stakeholders — exporters, importers, customs house agents, and 3PLs — have complex, multifaceted satisfaction requirements not visible through standard KPIs.
- Empirically validated, client-perspective guidance on satisfaction drivers is both practically necessary and academically warranted.

4. Scope of the Study

- Geographically limited to the Chennai international freight forwarding ecosystem.
- Sample of 54 logistics professionals across five stakeholder groups: exporters, importers, freight forwarders, customs house agents, and logistics providers.
- Examines six service quality dimensions: Documentation Accuracy, Customs Clearance Efficiency, Cargo and Warehouse Handling, Shipment Coordination, Reliability and Responsiveness, and Technology Adoption.
- Primary outcome variable is Customer Satisfaction; Customer Retention is a downstream indicator only.
- Uses a 30-item Likert-scale questionnaire analysed through Cronbach's Alpha, Pearson Correlation, Multiple Regression, and One-Way ANOVA.
- Findings are descriptive and associative, not causal, and do not extend to pricing, domestic freight, air-freight-only providers, or government logistics entities.

5. Literature Review and Conceptual Framework

5.1 Theoretical Background

The SERVQUAL Model created by Parasuraman, Zeithaml & Berry (1988) is the basis foranyserious examination of service quality. The three authors changed the discussion from objective measures of service delivery to perceived differences that is, the difference between what a customer expects from the provider and what they received, using five specific elements: reliability, responsiveness, assurance, empathy, and tangibles. The SERVQUAL model has held up over time, through many methodological disputes, and has proven to be valid across many service areas, including logistics.

Grönroos (1984) provided a useful distinction between the technical (what was delivered, e.g., cargo arrived undamaged) and functional (how it was delivered, e.g., was the communication timely and transparent?) dimensions of service. For freight forwarders, this distinction is important: a customer is much more willing to accept a delay in delivery when the provider proactively communicates about the delay versus when the provider is slow to communicate, and/or evasive in response. This distinction is critical in understanding how the results of this study should be interpreted.

5.2 Logistics Service Quality and Digitalization

Mentzer et al. (2001) proposed a logistics-specific construct for service quality and identified the key components of timeliness, accuracy of orders, quality of information, and condition of products. They found that logistics performance significantly predicts customer loyalty. Christopher (2016) extended this discussion by contending that the competitive advantage gained from logistics is now increasingly based on agility and responsiveness rather than simply cost; the trend towards this has been amplified. As well, Bienstock et al. linked operational performance measures directly to customer perceptions and found that delivery reliability and accuracy of documentation are two of the main drivers of customer satisfaction.

Recently, there has been a surge of interest in the literature surrounding digitalization. Ramanathan et al. (2021) found that the use of visibility technology mitigates diminishing customer satisfaction resulting from informational gaps experienced by customers using Indian logistics service providers. Joshi and Kulkarni (2024) demonstrated that customer relationship management practices supported by digital technology produced measurable improvements in customer retention. Bennett (2025) identified a convergence between visibility technologies and relationship management, whereby firms employing both strategies outperformed firms employing either strategy alone. Despite these advancements, empirical research focused on Indian international freight forwarding remains limited due to its unique challenges with respect to documentation, regulatory compliance, and coordination among multiple modes of transport. This study directly addresses this research gap.

5.3 Conceptual Framework and Hypotheses

The conceptual framework of this study is grounded in the SERVQUAL model (Parasuraman, Zeithaml & Berry, 1988) and adapted to the operational realities of international freight forwarding. The framework posits that Customer Satisfaction in freight forwarding is a multi-dimensional construct shaped by the client's perceived performance across six distinct but interrelated service quality dimensions. These dimensions were derived through a synthesis of the existing logistics service quality literature, the technical and functional quality distinction proposed by Grönroos (1984), and the operational structure of international freight forwarding transactions. The framework departs from the generic five-factor SERVQUAL structure by replacing abstract dimensions such as "empathy" and "tangibles" with operationally grounded constructs that better reflect the freight forwarding service encounter.

The framework is structured around three analytical layers. The first layer comprises the six independent service quality dimensions, each representing a measurable aspect of the freight forwarding service process: (1) Documentation Accuracy reflects the correctness and completeness of trade documents such as Bills of Lading, Commercial Invoices, and Certificates of Origin; (2) Customs Clearance Efficiency captures the speed, accuracy, and compliance quality of the clearance process; (3) Cargo and Warehouse Handling addresses the physical care, storage conditions, and container stuffing practices applied to the client's goods; (4) Shipment Coordination encompasses the internal and external communication management that ensures smooth handoffs across carriers, ports, and intermediaries; (5) Reliability and Responsiveness measures the consistency of on-time delivery and the quality of problem-response behaviour; and (6) Technology Adoption assesses the degree to which the freight forwarder leverages digital tools such as real-time tracking, automated alerts, and electronic documentation to enhance the client experience.

The second layer is the primary dependent variable: Overall Customer Satisfaction. Consistent with Kotler and Keller's (2016) expectation-disconfirmation model, satisfaction is treated as the cumulative evaluation of service experiences across multiple shipment cycles rather than a single-transaction judgment. In the B2B freight forwarding context, this cumulative nature means that satisfaction is both more stable and more consequential than in consumer markets — clients do not typically switch providers after a single negative experience, but sustained underperformance across any dimension is likely to erode the relationship over time. The third and downstream layer in the framework is Customer Retention, which is understood as the behavioural outcome of sustained satisfaction and acknowledged as a future direction for research rather than a directly measured variable in this study.

A key theoretical assumption embedded in the framework is that the six service quality dimensions, while analytically distinct, are not equally weighted in their impact on satisfaction. Drawing on Grönroos's (1984) distinction between technical and functional quality, the framework anticipates that dimensions closer to the physical outcome of the service (such as Cargo Handling) will exert stronger direct effects on satisfaction than process-oriented dimensions (such as Documentation Accuracy), which function more as threshold or hygiene factors. Similarly, the framework anticipates that Technology Adoption may exercise an indirect or amplifying effect on satisfaction by enhancing the client's perception of other operational dimensions — a hypothesis that the regression analysis ultimately confirms. The six hypotheses arising from this framework posit statistically significant positive relationships between each service quality dimension and overall customer satisfaction, and are presented in Table 1 below.

H	Hypothesis Statement
H_1	Documentation Accuracy significantly influences Customer Satisfaction Customs
H2	Clearance Efficiency significantly influences Customer Satisfaction Cargo and
H3	Warehouse Handling significantly influences Customer Satisfaction Shipment
H4	Coordination significantly influences Customer Satisfaction
H5	Reliability and Responsiveness significantly influences Customer Satisfaction
H6	Technology Adoption significantly influences Customer Satisfaction

Table 1: Research Hypotheses

6. Research Methodology

6.1 Research Design and Sample

This article is a descriptive and analytical, cross-sectional research study; it utilized a 30-item structured questionnaire divided into seven sections (one section for each dimension of service quality), consisting of a participant demographic section and one for each of the service quality dimensions consisting of a five-point Likert Scale (1 to 5 - 1 being Strongly Disagree and 5 being Strongly Agree). The questionnaire was adapted from the SERVQUAL framework for international freight forwarding and was tailored to reflect operational aspects of the international freight forwarding process.

The survey was completed by a total of 54 professionals (sample size derived from the active customer and partner relations of the company), with the primary participants being exporters constituting 31.48% of responses, freight forwarders constituted 24.07%, importers and customs house agents (14.81% each participation) and logistic providers accounting for 9.26%. The experiences among the participant sample were distributed fairly equally with 29.63% of respondents between 2-5 years of experience in the international freight forwarding industry, 25.93% of respondents having <2 years or 5-10 years of experience, and 18.52% of respondents having over 10 years of experience. This distribution was intentional because the design allowed the findings to be representative of multiple stakeholders and not only one group's position or perspective.

6.2 Statistical Tools

Five techniques were applied to the data using SPSS, in a sequential manner, to complete the analysis. First, percentage analysis provided frequencies for each of the items analysed along with demographic profiles of the respondents used in this study. Next, Cronbach's Alph was used to determine if the respective items of the measurement scale for each service quality dimension are measuring the same underlying construct with reliability (internal consistency). Third, Pearson Correlation was applied to the service quality dimensions and their strength and direction of relationship with overall customer satisfaction. Fourth, Multiple Regression allowed for each dimension to be quantified, with respect to how much unique predictive power was contributed when considered in the context of all six dimensions. Finally, with respect to all service quality dimensions, One-Way ANOVA was applied to determine if respondents' perceptions differed in a systematic way, based upon either organizational type or respondent experience. Collectively, this combination of methods results in a higher level of overlapping validation than any single method could provide and is particularly important when sample sizes are moderate.

7. Results and Analysis

7.1 Reliability of the Measurement Instrument

Prior to examining the key results, it is helpful to review reliability separately as there is mixed reliability and reliability results require that you be transparent about this. The overall Cronbach's Alpha for all 30 items was calculated to be 0.8596; this is above the acceptable minimum cut-off of 0.70 and shows good overall internal consistency. The scale-level results reflect this level of reliability. However, the results by dimension present a very uneven picture.

Dimension	**Items**	**N**	**Alpha (α)**
Overall Scale	30	541	0.8596
Cargo & Warehouse Handling	4	54	0.6609
Customs Clearance	4	54	0.6276
Documentation Accuracy	4	154	0.5907
Reliability & Responsiveness	7	53	0.5933
Shipment Coordination	4	53	0.2781
Technology Adoption	3	54	0.2391
Customer Satisfaction	4	54	0.2084

Table 2: Cronbach's Alpha - Dimension-wise Reliability

Cargo & Warehouse Handling (0.6609) is at borderline acceptable level with Customs Clearance (0.6276); others are below acceptable level but not quite as low as Shipment Coordination (0.2781) or Customer Satisfaction (0.2084); these two measures are very weak. It appears likely that respondents who identify as being part of some part of the supply chain will view questions about shipment coordination or customer satisfaction differently based upon where they are in the supply chain (i.e., an exporter, Customs House Agent or logistics provider). Despite the overall high alpha level indicating the generality of conclusions for the overall construct remains the same, the two sub-scales need to be re-created and re-tested via future studies.

7.2 Correlation AnalysisWhat Drivesatisfaction?

Pearson's Correlation produced statistically significant results for all six dimensions, with every hypothesized relationship confirmed at $p < 0.05$. The pattern of correlation strengths tells a coherent story worth reading carefully.

Service Quality Dimension	**Pearson r**	**p-value <**	**Strength**
Cargo & Warehouse Handling	0.6655	0.001	Strong
Shipment Coordination	0.5121	0.0001	Moderate
Customs Clearance	0.4827	0.0002	Moderate
Reliability & Responsiveness	0.4681	0.0004	Moderate
Documentation Accuracy	0.3478	0.0100	Weak
Technology Adoption	0.2711	0.0474	Weak

Table 3: Pearson Correlation - Service Quality Dimensions vs. Customer Satisfaction

The strong connection of Cargo and Warehouse Handling at r = 0.6655 makes it one of the most important factors for customer satisfaction during cargo handling. When customers see that care was taken in handling their cargo by properly storing it, stuffing containers correctly & actively preventing damage, they will give significantly higher ratings for their satisfaction with the freight forwarder. This connection to Cargo and Warehouse Handling is clear, strong & direct — the strongest correlation when compared to all other service quality dimensions.

The same can be said for Shipment Coordination (0.5121), Customs Clearance (0.4827), & Reliability & Responsiveness (0.4681). These three dimensions correlate closely together at the moderate level, creating what could be viewed as an operational core group. Examples of the operational core group include your day-to-day service experience that you would evaluate when determining whether or not to keep a freight forwarder. In both statistical terms & practical applications these three dimensions are highly interrelated.

The bivariate correlation between Documentation Accuracy (0.3478) & Technology Adoption (0.2711) is lower than that of the other service quality dimensions. However, Documentation's correlation makes sense on a psychological level clients expect their documentation will be accurate, & therefore, if it is not, they will be frustrated. However, if clients receive accurate documentation, they do not experience increased satisfaction; they simply expect it (meeting a baseline level of expectation).

While Technology Adoption has a low bivariate correlation, it's the regression analysis that reveals a different story. Technology Adoption can have a strong effect on other service quality dimensions, but this effect cannot be determined from a bivariate analysis.

One last note: as with the bivariate correlation between services qualities, each of the service quality dimensions has very high levels of intercorrelation. For example, the correlation between Cargo & Warehouse Handling with Customs Clearance is r = 0.685, between Cargo & Warehouse Handling and Shipment Coordination is r.

7.3 Regression Analysis -Unique Predictive Contributions

The regression model tells a somewhat different story from the correlations alone, and the difference is analytically interesting.

Model Metric	**Value**	**Interpretation**
R (Multiple Correlation) R^2	0.6988	Strong overall fit
(Variance Explained)	0.4883	48.8% of satisfaction variance explained Robust
Adjusted R^2	0.4230	after degrees-of-freedom adjustment
F-Statistic	7.4746	Statistically significant overall model $p<0.001$
p-value	0.000012	

Table 4: Multiple Regression Model Summary

Predictor Variable	**Beta (B)**	**Direction**
Cargo & Warehouse Handling	0.3952	Positive ↑
Technology Adoption	0.1426	Positive ↑
Reliability & Responsiveness	0.0884	Positive ↑
Shipment Coordination	0.0795	Positive ↑
Customs Clearance	0.0034	Positive ↑
Documentation Accuracy	-0.0097	Multicollinearity effect

Table 5: Regression Coefficients (Dependent Variable: Customer Satisfaction)

Customer satisfaction and the corresponding model used to measure customer satisfaction both have a significant impact on the customer. Although the model itself accounts for 48.8% of customer satisfaction, F-statistic at 7.4746 at $p < 0.001$ supports that this model is valid. According to the B figures in the model, Cargo and Warehouse Handling are the most significant part of the model. Specifically, one unit of improvement in the Cargo and Warehouse Handling dimensions will create an expected increase of approximately 0.40 units of customer satisfaction (indicating where to focus enhancement opportunities).

An additional interesting finding, though, is that Technology Adoption moved from sixth place in the $(\beta = 0.1426)$. bivariate correlation analysis to second place in the regression model (ß = 0.1426). This finding confirms that digital technologies contribute incremental (and separate from other operational areas) to a client's vehicular and operational satisfaction. Clients that leverage digital tools, such as real-time shipment tracking, automated milestone alerts, and digital document processing, demonstrate higher satisfaction levels than one would expect based solely on operational dimensions of service. Put there is a differentiation premium associated with digital technologies; this premiumanother way will expand as customers continue to look toward Digital-First interactions.

Documentation Accuracy has minimal and slightly negative effects on average.**- Do5.4 ANOVA Perceptions Vary by Respondent Type?**

The ANOVA results are the simplest section of the analysis: no significant differences in service $(F = 0.9252, p = 0.4355)$. quality perceptions were found either by organization type ($F = 1.4733$, $p = 0.2257$) or by years of experience ($F = 0.9252$, $p = 0.4355$). The same held at every individual dimension level, where all seven returned p-values well above 0.05.

Grouping Variable	**F-Statistic**	**p-value**	**Result**
Organization Type	1.4733	0.2257	Not significant
Years of Experience	0.9252	0.4355	Not significant

Table 6: One-Way ANOVA - Service Quality Perception by Group

The bottom line is that exporters, importers, Customs House Agents and logistics companies all assess the quality of service through similar lenses. Regardless of whether an individual has worked in the shipping industry for fifteen years or just completed their first year, their expectations for service from freight forwarders are similar. This consistency allows us to implement service improvement initiatives that are not participant or seniority specific. A single, effective strategy can be applied to all customers in this instance.

7.5 Hypothesis Testing Summary

H	Hypothesis Statement	r value	p-value	Result
H_1	→>>Documentation Accuracy Customer Satisfaction	0.3478	0.0100	Supported
H2	Customs Clearance Efficiency →>> Customer Satisfaction	0.4827	0.0002	Supported
H3	Cargo & Warehouse Handling → Customer Satisfaction	0.6655	< 0.001	Supported
H4	→>Shipment Coordination Customer Satisfaction	0.5121	0.0001	Supported
H5	Reliability & Responsiveness → Customer Satisfaction	0.4681	0.0004	Supported
H6	Technology Adoption →> Customer Satisfaction	0.2711	0.0474	Supported

Table 7: Summary of Hypothesis Testing Results

All six hypotheses are statistically confirmed. The p-values span a range from <0.001 for H^3 down to 0.0474 for H6 — with H6 sitting right at the edge of the 0.05 threshold, making it the weakest result in the set while still technically valid. The broader takeaway is that customer satisfaction in freight forwarding is genuinely multi-dimensional: no single dimension can substitute for the others, and each contributes its own distinct piece to the overall satisfaction experience.

8. Discussion

8.1 Why Cargo Handling Leads

The primary finding of this study, which confirms the importance of cargo as well as warehouse handling (r = .6655) in both their correlation to each other, as well as their ranking in the regression model (B = .3952), is an essential consideration when trying to determine why this is important.

Most articles regarding freight forwarding focus mainly on the required documents, customs requirements, etc. the most visible and legally enforceable parts of what freight forwarders do. However, from the customer's perspective, what they are truly purchasing is the timely and safe arrival of their product. If a shipment arrives damaged, or if the shipment is delayed because it has not been handled properly in a warehouse, no matter how accurate the documents are, the customer will be dissatisfied. As such, the way in which freight forwarders handle product in-transit represents the point in time when freight forwarders have either fulfilled or failed to fulfill their customer's expectations. This is further supported by the fact that customers view the quality of

service cargo handling gives them as being significantly correlated with their overall satisfaction than any other factor.

Any business that views warehouse management merely as an adjunct to the overall service that they provide to customers, rather than as an essential aspect of ensuring a high-quality customer experience, is actually misreading their own customers.

8.2 Technology as a Satisfaction Premium

The finding that Technology Adoption moves from sixth place in bivariate correlations to second place in the regression is analytically interesting and practically important for anyone thinking about where to invest.

The survey data make the underlying dynamics concrete: 77.78% of respondents said they prefer working with freight forwarders who use advanced digital logistics systems, but only 55.56% were actually satisfied with the digital tracking currently available to them. That 22-percentage-point gap is not a minor complaint it represents a specific, articulable unmet expectation. Clients know what they want (real-time visibility, digital document access, proactive automated updates), they are not getting it fully, and they notice.

For freight forwarders, the implication is clear but the sequence matters. Digital investment is not optional over the medium term - but it should follow getting the operational basics right, not precede them. Cargo handling and operational coordination are stronger satisfaction drivers than technology. The right order is: get the fundamentals working first, then layer the digital capability that converts operational competence into a clearly differentiated client experience.

8.3 The Operational Core ·Coordination, Customs, Reliability

Shipment Coordination, Customs Clearance and Reliability/Responsiveness cluster together with similar moderate correlation coefficients within the range of 0.47 to 0.51. These proximity of magnitude of these three variables as well as their high correlation coefficients indicate that clients typically view these three dimensions as related or overlapping in nature rather than individually distinct. A freight forwarder that communicates proactively also tends to perform efficient customs clearance as well as providing reliable delivery service; thus, clients perceive this collectively as describing a competent partner. A weakness in any one of the three elements, in practice, tends to negatively affect their perception of the other two.

As such, the practical implications are that these three areas should each be approached with an integrated approach to achieve operational excellence standardised procedures for inter departmental coordination; AEO certification to streamline customs clearance; one point of contact for each client account; as well as formal measuring of performance metrics such as timely responses and deliveries. Dividing these three areas into separate improvement efforts will not take into account how they are intended to work cohesively together when viewed holistically.

8.4 Documentation -The Expectation Threshold

Accuracy of documentation is clearly defined in these results, as being simply a threshold? factor and not an identifier. Clients see documentation as having to be correct, and when it is not (in the case of approximately 20% of respondents reporting having experienced errors in documentation), their level of satisfaction will take a major hit. On the other hand, consistently delivering accurate documentation will likely not provide any additional level of satisfaction than is established at the threshold (i.e., baseline level). When viewed through the lens of service quality theory, this is often referred to as a hygiene factor, in that while it is a requirement, it does not guarantee satisfaction with respect to documentation.

The implication for management is to not de-emphasize documentation; the consequences of errors within the freight forwarding sector will have real costs in both client perception of trustworthiness and interruption of operating procedures. It is important, however, that management understand the nature of the return on an investment in documentation accuracy; the primary reason for investment in documentation accuracy is to mitigate the likelihood that a client will not be satisfied, rather than provide delight via the documentation. To provide an example of investing in verification two examples could include dual-verification processes, document management systems with automatic internal verifications, or periodic audits of documentation accuracy; in each of these cases the goal is to ensure that documentation is accurate and usable for freight holding and for administrative processes, but should be viewed as a requirement of quality, not as a strategy for generating satisfaction.

9. Summary of Key Findings

1. Cargo handling and warehouse operations is the largest influence on customer satisfaction ($r = 0.6655$, $B = 0.3952$). Managing cargo physically is considered service quality at a front-line level; therefore, it is important to understand that back-office functions do not determine the quality of service provided to customers.

2. All hypotheses (six) were supported at a 95% confidence level. Freight forwarding customer satisfaction is made up of multiple dimensions; therefore, no one dimension explains customer satisfaction, and each of the six hypotheses contributes to customer satisfaction independently.

3. $(R2 = 0.4883, F = 7.4746, p < 0.001)$ The model of regression explains 48.8% of the variance ($R2 = 0.4883$, $F = 7.4746$, $p < 0.001$) a strong finding from an applied social science perspective.

4. Technology adoption is the second most influential predictor of customer satisfaction based on regression analysis ($ß = 0.1426$), it had a relatively weak bivariate correlation - indicating a significant difference between the digital abilities of the different types of freight forwarders.

5. There exists a difference of 22 percentage points between the digital expectations of customers and their level of satisfaction with the current digital tracking capabilities of their freight forwarder; 77.78% of customers would prefer to use a freight forwarder that offers their services digitally; however, only 55.56% are satisfied with the current quality of digital tracking offered by their freight forwarder.

6. Shipment coordination, customs clearance, and reliability/responsiveness are the operational core of the process ($r\approx 0.47$-0.51) and should be managed as one quality system as opposed to three different improvement tracks.

7. Documentation accuracy is a threshold hygiene factor, which means that if a freight forwarder fails to provide historically accurate documentation, their customers are typically dissatisfied; however, if they consistently provide accurate documentation to their customers, they are less likely to create additional customer satisfaction.

8. ANOVA indicates that perceptions among customers are similar among organizations with different names and customers with different levels of experience. A single, well-designed improvement strategy will be effective for all customers.

10. Suggestions and Recommendations

10.1 Invest Primarily in Cargo and Warehouse Handling

Data indicates most significant areas for return on service enhancement investment. Freight forwarders ought to establish a uniform set of procedures for how they handle cargo based on ISO 9001 and IATA Cargo Handling Guidelines. Investment in advanced types of infrastructure that handle cargo, such as temperature-sensitive warehousing space and IoT-based condition monitoring for expensive time sensitive goods, enhances the most important dimension of value to customers: the quality of care for their goods while in the freighter's possession; and creates an environment where those customers feel like the freight forwarding company truly values their goods. A visibly defined claims process with definitive timelines for processing claims also demonstrates the importance of the carrier's stewardship of its customers' cargo as being a high priority. Overall improvement in these areas, combined, will provide freight forwarders with the largest potential direct improvement in customer satisfaction that the data reveal.

10.2 Close the Digital Expectation Gap

The 22 percentage-point divergence of client expectations for digital processes versus what they experience currently gives a specific measurable goal to aspire towards for improvement. A full fledged Freight Management System or Transportation Management System that provides quotations, bookings, documentation, customs filing, real-time tracking of shipments, and reports all on one client accessible system is by far the most substantial single digital investment that can be made. Client facing portals also with automated milestone alerts for the major stages of booking confirmation, receipt of cargo, departure of vessel, arrival at port and final delivery will directly address the expectation gap identified in the survey. In addition, developing a defined medium-term digital transformation roadmap which includes both the implementation of blockchain technology for documented transactions and the use of artificial intelligence in rate forecasting should be regarded as a strategic necessity rather than merely an enhancement.

10.3 Systematize the Operational Core

The organization should establish a formal KPIs framework which tracks on-time pickup rates, customs clearance turnaround times, response time standards, and delivery adherence; this information will be reported to clients monthly and will provide transparency on performance and hold the organization accountable. AEO certification will enable expedited clearance benefits which will ultimately result in improved performance as experienced by clients. The implementation of a Single Point of Contact for each of the largest clients will also eliminate the communication fragmentation which is typically the cause of coordination failures in practice. In addition, having a customer service helpline available 24/7 with a standard for responding to calls within one hour will specifically and measurably impact the responsiveness dimension of customer service.

10.4 Maintain Documentation Quality as a Baseline

As far as the critical export and import documents are concerned (including Bills of Lading, Commercial Invoices, Shipping Bills, and Certificates of Origin), a dual-verification system should be considered as an inalterable standard operating procedure. Document management systems featuring built-in validation checks for the following variables - HS codes, declared weights, and consignee details will reduce the occurrence of errors in a consistent manner, rather than relying upon individual efforts to remain vigilant. Monthly documentation accuracy audits will allow documentation errors to be tracked against a formal Key Performance Indicator (KPI) to ensure that documentation accuracy remains consistent over time. The overall objective of the study was to eliminate, at a minimum, the 20% error rate identified by the study as experienced when documents are created; not so much to use as the major driver of customer satisfaction, but to use as a basis to drive documentation accuracy based on the data produced in the survey.

10.5 Build a Service-Oriented Culture

An organization's ability to provide sustainable and high-quality services must come from a foundation based on cultural embedding (i.e., the way staff are trained and work together) rather than simply through continuous improvement of the service delivery processes. A formalised CRM system that tracks client shipment history and preferences, as well as the level of satisfaction at each interaction, allows for truly tailored services, as opposed to standardised service provision. Service Level Agreements (SLA) with key clients define the level of quality that has been agreed upon but would otherwise remain informal. In addition, implementing post-shipment Net Promoter and Customer Satisfaction Surveys after the completion of each shipments creates a mechanism for immediate feedback, allowing issues to be recognised and resolved before they compound. Connecting the individual performance of front line employees to customer satisfaction scores aligns their motivation to provide a high-quality customer experience with the service quality sustainability agenda, therefore, ensuring the service quality agenda remains sustainable long-term and is not reliant on management being proactive from time to time.

11. Conclusion

A systematic approach to identifying a significant number of the most relevant service quality dimensions will help to clarify what the research team identified as having the most importance to clients of international freight forwarders. The most important dimension, by far, is Cargo and Warehouse Handling. It demonstrates significant importance both when measured in bivariate form, in the regression modeling used for historical analysis, and in the operational implications of providing that service. Technology Adoption has even more importance than is indicated by its simple correlation in the multivariate setting, and is fast becoming a source of competitive differentiation that forwarders must address if they want to remain in business over time. Shipment Coordination, Customs Clearance and Reliability are considered key elements of a core operations experience by clients, so these three service elements must be viewed holistically rather than as stand-alone services. Documents will be perceived as accurate and will incur large costs when they are not accurate; however, they are not perceived by clients as differentiators instead, they are regarded as a basic expectation. Furthermore, these findings hold true for all clients, regardless of industry experience, represented in the sample.

In summary, the analysis suggests a relatively straightforward framework in which the clients perceive the importance of service quality dimensions. Focus on getting cargo handling right initially. Focus on closing the technology expectation gap second. Focus on operating core service functions as integrated operations systems. Document as a baseline expectation. Build a culture of client service in the long run. Each of these propositions is straightforward; however, based on the evidence collected the conclusions are clear.

12. Limitations and Future Research

There are multiple limitations of this study that should be stated honestly. The 54 respondents provided an adequate sampling method to use with analytical techniques; however, this limits how widely the findings can be generalized outside the Chennai logistics community that supplied the data. JNPT Mumbai and ICD Tughlakabad as major hub environments may have significantly different dynamics of service quality because the physical and operational infrastructures in those locations are dissimilar, there are different products through trade in those locations, and the customs procedures for processing are also dissimilar among these hub locations. The study only used a cross-sectional design to capture perceptions at a single moment in time. Therefore, it cannot speak to how service quality changes over months and years impact satisfaction. Furthermore, the sub-scale reliability values of a = 0.2781 for Shipment Coordination and a = 0.2084 for Customer Satisfaction, while lower than the ideal reliability level of 0.70, indicate a need for a complete overhaul of these sections of the questionnaire before the results for those sub-scales can be reported with accurate confidence.

Future research should expand this model across multiple firms of varying sizes and geographical locations; take into account objective operational metrics as well as subjective survey data to triangulate perceptions against actual performance; and conduct longitudinal studies to analyze whether investments in service quality translate into measurable retention results over time. Additionally, due to this study's limitations, pricing transparency, claims settlement efficiency, and brand trust would be excellent candidates to include in a more comprehensive measure of service quality.

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