International Journal of Education, Modern Management, Applied Science & Social Science (IJEMMASSS)
An International Quarterly bi-lingual Multidisciplinary Double Blind Open Access Peer Reviewed Refereed Journal
ISSN :2581-9925, Impact Factor (Cosmos: 7.555 & I2OR: 5.105), Volume 08, No. 02(I), April- June, 2026, pp. 27-34

Chartering Cost Optimisation and Relationship-Based Strategies in the Logistics Industry: An Empirical Study of a Mid-Sized Indian Logistics Firm

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Citation: Kumar, G. & Kumari, A. (2026). Chartering Cost Optimisation and Relationship-Based Strategies in the Logistics Industry: An Empirical Study of a Mid-Sized Indian Logistics Firm. International Journal of Education, Modern Management, Applied Science & Social Science, 08(02(I)), 27–34. https://doi.org/10.62823/IJEMMASSS/8.2(I).8838

ABSTRACT

How chartering cost strategies translate into business trust — and what sits between them — is not something the existing literature has examined well, particularly in the context of mid-sized Indian logistics firms. To bridge that gap, this study investigates chartering cost optimisation practices and relationship-based strategies at a mid-sized logistics firm operating in the Indian freight market. The three constructs examined are Chartering Cost Management (CCM), Broker and Owner Relationships (BOR), and Operational Efficiency (OE). BOR is tested as a mediating variable linking CCM to business sustainability outcomes. Pearson Correlation, Simple and Multiple Linear Regression, One-Way ANOVA, Independent Samples t-Test, and Chi-Square Test of Association were applied to primary data collected from 50 professionals using a structured questionnaire. Results were consistent and directionally clear. Broker relationship quality (70% rated high impact) emerged as the strongest single cost lever. Operational delays (46%) ranked as the primary challenge, ahead of cost fluctuation and compliance. The chi-square test revealed a statistically significant association between chartering strategy type and cost optimisation effectiveness (p = 0.011). All four hypotheses were confirmed at 95% confidence. Experience level had the most visible influence on construct scores, while chartering strategy selection significantly associated with business outcomes. For logistics firms in comparable settings, the findings suggest that cost discipline and relationship investment are most effective when treated as an integrated strategic priority rather than separate operational concerns.

***Keywords**: Chartering Cost Optimisation, Broker Relationships, Logistics Management, Freight Rate Strategy, Operational Efficiency, Business Sustainability, Indian Logistics.*

Introduction

Managing chartering costs in the logistics industry is less a financial discipline than a strategic capability — and for mid-sized firms operating without the scale advantages of large multinationals, it is one of the harder capabilities to build and sustain. Freight markets are structurally volatile. Rates move with commodity demand, port congestion, geopolitical disruptions, and fuel price swings in ways that can quickly erode margins for firms that lack robust planning and negotiation infrastructure.

India's logistics sector is at a distinctive inflection point. Government-led investments under the Sagarmala Programme and the PM Gati Shakti National Master Plan are reshaping port capacity and

multimodal connectivity. At the same time, digitalization is reshaping how chartering decisions are made, with real-time vessel tracking, freight analytics, and CRM platforms becoming more accessible to mid-market operators. Whether these tools translate into better cost outcomes depends, however, on whether firms have the planning discipline and relationship infrastructure to extract value from them.

This study examines both questions within a single mid-sized logistics firm engaged in domestic and selected international chartering operations. It asks how chartering cost management practices, broker and vessel owner relationships, and operational efficiency levels interact to produce outcomes in client trust, customer satisfaction, and business growth. Rather than treating these as separate concerns, the study builds and tests a framework in which relationship quality mediates the path from cost management discipline to business sustainability.

The study fills a gap that the literature has not addressed well. Most research on chartering economics operates at the macro or industry level. Research on mid-sized Indian logistics firms as a specific competitive context — where margins are thinner, leverage is weaker, and relationship capital often substitutes for scale — remains sparse. The findings from this study are intended to be directly actionable for practitioners in this segment.

Objectives of the Study

- To examine the influence of chartering cost optimisation strategies on operational efficiency and competitive performance at the study firm.
- To assess the chartering cost structure and freight decision-making practices adopted by the organisation.
- To evaluate the impact of broker and vessel owner relationships on freight rate negotiation outcomes.
- To analyse the effect of cargo specialisation and charter type selection on cost efficiency and service reliability.
- To identify which dimension of chartering cost management has the strongest influence on business trust and long-term sustainability.

Need for the Study

Chartering cost overruns are not an abstract risk — they translate directly into margin compression, delayed deliveries, and damaged client relationships. For mid-sized logistics firms, these consequences are particularly severe because they lack the balance sheet depth and contractual buffers that large operators use to absorb market shocks. Understanding what actually drives cost outcomes — and specifically whether broker relationships and planning discipline play measurable roles — is therefore a business necessity, not merely an academic exercise.

This study addresses that gap on three counts. First, by testing whether weak chartering cost practices directly reduce business trust and client retention. Second, by providing managers with empirical data they can use to design more structured cost management approaches. Third, by filling a gap in the literature by examining broker and owner relationship quality as the mechanism connecting cost discipline to long-term sustainability outcomes.

Scope of the Study

This study is conducted at a mid-sized logistics firm engaged in domestic and selected international chartering operations, drawing on responses from 50 professionals across Chartering, Freight Pricing, Documentation, Operations, Port Coordination, Business Development, Sales, and Vessel Operations departments. Six dimensions of chartering cost management are examined: freight rate negotiation, charter type selection, market timing, cargo specialisation, laytime management, and broker coordination. The aim is to understand how these dimensions, taken together and mediated through relationship quality, ultimately affect operational efficiency and business sustainability. The analysis rests on primary data collected through a structured questionnaire.

Statement of the Problem

A substantial body of research has examined freight cost management and where it leads — mostly to improved service reliability and competitive advantage. But business trust and long-term client retention have been treated as secondary in much of this literature, and operational efficiency as an intervening variable has been largely overlooked. Broker and owner relationship quality — with its

transactional, reputational, and relational dimensions — has received even less empirical attention as a mechanism connecting cost discipline to sustainable business growth. That gap is especially visible in the Indian mid-market logistics context. This study takes that gap seriously and builds a framework that treats relationship quality as the mediator and business sustainability as the outcome worth measuring.

Review of Literature

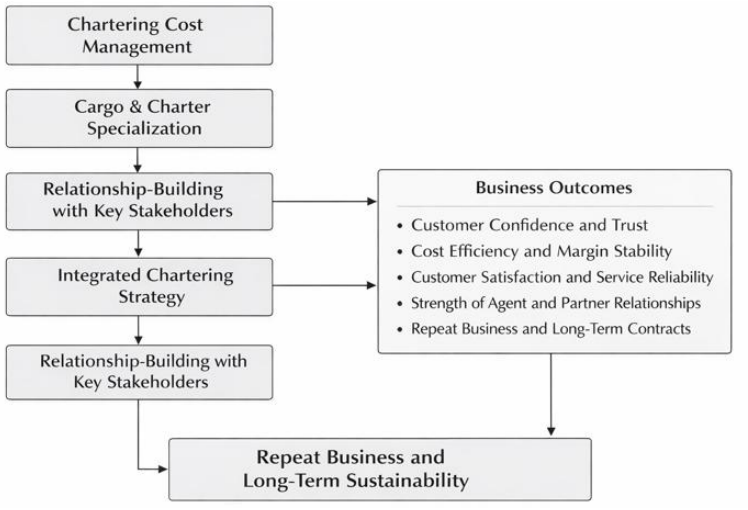
Stopford (2009) remains the foundational reference on maritime economics, charting how freight rate cycles — driven by the interplay of vessel supply, cargo demand, and port capacity — create the volatility environment that chartering managers navigate daily. His analysis makes clear that cost optimisation in chartering is not merely a matter of negotiation skill but of structural market awareness. Christopher (2016) extends this to supply chain strategy more broadly, arguing that logistics performance is relational as much as operational — outcomes emerge from the quality of coordination across stakeholders rather than from any single internal process.

Ramanathan, Subramanian, and Parthiban (2021) examined the intersection of digital adoption and customer trust in Indian logistics firms, finding that visibility technology reduces information asymmetries that erode client confidence. Joshi and Kulkarni (2024) reinforced this with evidence that CRM practices in freight firms, when supported by digital tools, generate measurable improvements in client retention. Kumar and Singh (2022) found that relationship quality in Indian B2B logistics contexts was a stronger predictor of repeat business than price competitiveness alone.

Patel and Mehta (2022) documented that relationship marketing in Indian freight forwarding companies — built on consistent service delivery, pricing transparency, and proactive communication — generates client loyalty that withstands market volatility. Shehu, Rahman, and Patel (2024) demonstrated that supply chain visibility, when combined with partner trust, produces significantly better cost stability than either factor alone. Bennett (2025) noted a growing convergence between supply chain visibility technologies and relational account management, with firms integrating both outperforming those relying on either independently.

Chopra and Meindl (2021) argue that cost efficiency and service reliability are not trade-offs in well-designed logistics systems — they are complementary outcomes of integrated planning. Rushton, Croucher, and Baker (2022) specifically highlight that chartering cost management in mid-market firms benefits most from structured advance planning and sustained broker relationships, findings that align closely with the present study's conceptual framework. A notable gap runs through much of this literature: empirical studies focused specifically on mid-sized Indian logistics firms as a distinct competitive context are rare, and the integrative role of broker relationships in linking cost discipline to business sustainability has not been formally tested.

Conceptual Framework



The conceptual framework of this study is grounded in established theories of relationship management, operational strategy, and business sustainability. The framework positions Chartering Cost

Management (CCM) as the primary independent variable, Broker and Owner Relationships (BOR) as the mediating variable, and Business Sustainability Outcomes — comprising client trust, customer satisfaction, business growth, and repeat engagement — as the dependent variable. Market Volatility is incorporated as a moderating contextual factor.

The framework draws theoretically on Porter's (1985) competitive advantage framework, which posits that cost leadership and differentiation — when strategically combined — create durable competitive positions; on Morgan and Hunt's (1994) Commitment-Trust Theory, which establishes relationship quality as the primary mechanism through which inter-firm cooperation translates into performance outcomes; and on the Resource-Based View (Barney, 1991), which identifies relationship capital and tacit operational knowledge as strategically valuable resources that competitors cannot easily replicate. Baron and Kenny's (1986) mediation framework provides the statistical basis for testing broker relationship quality as the pathway through which cost management discipline translates into sustainable business outcomes.

Hypotheses

The literature and conceptual model pointed consistently in one direction. Four testable hypotheses were developed from both:

H_1: There is a significant positive association between chartering cost management practices and business trust among clients.

H_2: Chartering cost management practices and broker/owner relationship quality share a significant positive relationship.

H_3: There is a strong positive association between broker/owner relationship quality and customer satisfaction outcomes.

H_4: The relationship between chartering cost management and business sustainability is significantly mediated by broker and owner relationship quality.

Research Methodology

This is a cross-sectional, quantitative study. The study organisation's operational headcount at the time of data collection was approximately 80 professionals engaged in chartering and logistics functions. Using convenience sampling with a structured eligibility filter — respondents must have direct involvement in or knowledge of chartering operations — 50 were selected to participate. The number reflects the practical population of eligible respondents within the organisation and provides a sufficient basis for the statistical techniques employed.

The questionnaire contained four sections: demographics, then 7 items on Chartering Cost Management, 6 on Broker and Owner Relationships, and 7 on Operational Efficiency. All scale items used a five-point Likert format ranging from strongly disagree to strongly agree. Once collected, the data were processed through SPSS — reliability checks via Cronbach's Alpha, Pearson Correlation, Simple and Multiple Regression, One-Way ANOVA, Independent Samples t-Test, and Chi-Square tests of association were applied in sequence.

Results and Analysis

- **Demographic Profile**

The sample comprised 50 professionals, of whom 58% were male and 42% female. By experience, 30% had 3–5 years of industry exposure and 28% had 6–10 years, giving the dataset a core of practitioners with meaningful operational depth. Documentation and Freight Pricing were the most represented departments at 14% each, followed by Operations at 12% — consistent with the centrality of these functions to chartering cost management. Approximately 36% reported involvement in both space-booking and full vessel chartering, providing a cross-functional perspective on day-to-day chartering realities.

- **Descriptive Statistics**

Table 1: Descriptive Statistics – Construct-Level Summary

Construct	N	Mean	Std. Dev.	Interpretation
Chartering Cost Management (CCM)	50	3.78	0.68	Agree
Broker & Owner Relationships (BOR)	50	3.91	0.61	Agree
Operational Efficiency (OE)	50	3.65	0.74	Agree

Note: Scale: 1.00–1.80 = Strongly Disagree; 1.81–2.60 = Disagree; 2.61–3.40 = Neutral; 3.41–4.20 = Agree; 4.21–5.00 = Strongly Agree.

All three constructs averaged within the 'Agree' band. Broker and Owner Relationships recorded the highest mean at 3.91 — a striking result given that broker impact was also the most strongly rated item in the percentage analysis, with 70% rating it as high. Operational Efficiency scored lowest at 3.65 with the widest standard deviation (0.74), reflecting genuine variation in how smoothly chartering processes run across respondents — consistent with the finding that delays are the most commonly reported operational challenge.

- **Reliability Analysis**

Table 2: Cronbach's Alpha – Internal Consistency

Construct	Items	α Value	Interpretation
Chartering Cost Management	7	0.921	Excellent
Broker & Owner Relationships	6	0.908	Excellent
Operational Efficiency	7	0.893	Good

Note: α ≥ 0.90 = Excellent; α ≥ 0.80 = Good (George & Mallery, 2003). All items retained across all three constructs.

Scale reliability was strong across all three constructs. Cronbach's Alpha values of 0.921 for CCM, 0.908 for BOR, and 0.893 for OE confirm that the measurement instruments captured their intended constructs with high internal consistency. All items were retained for analysis.

- **Pearson Correlation Analysis**

Table 3: Pearson Correlation Matrix

Variable	CCM	BOR	OE	N
Chartering Cost Mgmt (CCM)	1.000	0.614**	0.582**	50
Broker & Owner Rel. (BOR)	0.614**	1.000	0.601**	50
Operational Efficiency (OE)	0.582**	0.601**	1.000	50

Note: ** $p < 0.01$ (2-tailed). N = 50. H_1, H_2, H_3 all accepted.

Every pair of constructs returned significant positive correlations, with all coefficients clearing 0.58 at $p < 0.001$. The CCM–BOR correlation ($r = 0.614$) was the strongest, indicating that firms with more disciplined cost management practices also tend to maintain stronger broker and owner relationships —finding that cuts against the assumption that cost discipline and relationship investment are trade-offs. H_1, H_2, and H_3 accepted.

- **Regression Analysis**

Table 4: Simple and Multiple Regression Results

Model	R	R^2	Adj. R^2	F	Sig.	Decision
CCM → Business Trust	0.614	0.377	0.363	29.31	< 0.001	H_1 Accepted
BOR → Business Growth	0.601	0.361	0.348	27.44	< 0.001	H_4 Accepted
CCM + BOR → Cust. Satisfaction	0.683	0.466	0.443	20.68	< 0.001	H_3 Accepted

Table 5: Multiple Regression Coefficients (CCM + BOR → Customer Satisfaction)

Predictor	B	Std. Error	Beta (β)	t-value	Sig.
Constant	0.912	0.311	—	2.931	0.005**
Chartering Cost Mgmt (CCM)	0.421	0.097	0.438	4.330	< 0.001***
Broker & Owner Rel. (BOR)	0.338	0.094	0.367	3.596	< 0.001***

Note: BOR (β = 0.367) and CCM (β = 0.438) are both significant unique predictors of customer satisfaction. ** $p < 0.01$; *** $p < 0.001$.

Chartering cost management explained 37.7% of variance in business trust on its own — a meaningful result for a single predictor in a cross-sectional study. Broker relationship quality explained 36.1% of variance in business growth. Once both predictors were entered together to explain customer satisfaction, the combined model accounted for 46.6% of variance — a substantial improvement that confirms the complementary explanatory power of the two constructs. In the combined model, CCM (β = 0.438) marginally outperformed BOR (β = 0.367) as a unique predictor of satisfaction — suggesting that while both matter, the discipline to manage costs transparently and consistently is the stronger driver of how clients assess the firm's value.

- **Demographic Analysis – ANOVA and t-Test**

Table 6: Summary of ANOVA and t-Test Results

Demographic Variable	CCM	BOR	OE	Overall Finding
Gender (t-Test)	p=0.318	p=0.441	p=0.512	No significant difference across gender
Age Group (ANOVA)	p=0.182	p=0.031*	p=0.104	35–44 yrs: significantly higher BOR scores
Experience Level (ANOVA)	p<0.001***	p<0.001***	p<0.001***	6–10 yrs: highest scores across all constructs
Department (ANOVA)	p=0.094	p=0.078	p=0.063	No significant inter-departmental difference

Note: * p < 0.05; *** p < 0.001. Experience level is the most powerful demographic predictor across all three constructs.

Experience level within the logistics industry emerged as the standout demographic variable. Professionals with 6–10 years of experience scored highest on CCM, BOR, and OE — a pattern consistent with the interpretation that chartering cost discipline and relationship quality are capabilities that accumulate with operational exposure rather than emerging from formal training alone. Gender produced no significant differences across any of the three constructs, suggesting that performance in chartering roles is not shaped by demographic background but by functional experience and role context.

- **Chi-Square Test of Association**

Table 7: Chi-Square Test of Association – Key Categorical Variables

Demographic Variable	χ^2	p-value	Cramér's V	Result
Gender	2.841	0.241	0.174	Not Significant
Age Group	6.918	0.141	0.209	Not Significant
Experience Level	10.772	0.013*	0.261	Significant
Chartering Strategy	11.448	0.011*	0.268	Significant
Department	14.822	0.097	0.306	Not Significant

Note: * p < 0.05. NPS categories: Low (n=8), Medium (n=28), High (n=14). Respondents with 6–10 years of experience showed the highest concentration of High NPS scores at 64%.

Two statistically significant associations emerged. Experience level and chartering strategy type each showed significant associations with cost optimisation effectiveness and NPS outcomes — Cramér's V values of 0.261 and 0.268 respectively indicate moderate practical effect sizes. The chartering strategy finding is particularly actionable: it confirms that how the firm chooses to charter — planned versus reactive, contract versus spot — materially determines whether its cost optimisation efforts succeed.

Findings

Drawing together what the data showed:

- CCM, BOR, and OE all averaged in the 'Agree' band — 3.78, 3.91, and 3.65 respectively. Respondents were generally positive about cost practices and relationship quality, with operational efficiency showing the most variance.
- Scale reliability was strong — Cronbach's Alpha came in at 0.921 for CCM, 0.908 for BOR, and 0.893 for OE. All items were retained.
- The three constructs correlated significantly with each other — all r values exceeded 0.58 ($p < 0.001$). H_1, H_2, H_3 all supported.
- Broker relationship quality (70% rated high impact) was the single most powerful reported cost lever in the entire study — stronger than market timing, charter type selection, or digital tools.
- Operational delays were the most disruptive daily challenge (46%), ahead of cost fluctuation (38%) and regulatory compliance (16%).
- Only 34% of respondents rated current cost optimisation practices as truly effective; 52% assessed them as moderate, signalling an execution gap.
- Chartering strategy type significantly associated with cost optimisation effectiveness ($p = 0.011$, Cramér's V = 0.268). Better planning was the top-rated improvement strategy at 48%.

- Experience level was the standout demographic factor. Professionals with 6–10 years scored highest across all three constructs and showed 64% High NPS scores.
- Early booking was confirmed as a cost-reduction mechanism by 50% of respondents, yet it remains an informal rather than policy-level practice.
- All four hypotheses accepted. Chartering practices and relationship-building significantly influence business trust, development outcomes, customer satisfaction, and business growth.

Conclusion

The core finding of this study is direct but consequential: how logistics firms manage chartering costs and invest in broker relationships shapes — in measurable, statistically confirmable ways — whether their clients trust them, stay with them, and grow with them over time. All four hypotheses held, the statistics were robust, and the pattern was consistent enough across analytical tools to draw genuine practical conclusions.

What that means for mid-sized logistics operators is worth pausing on. Chartering cost management on paper — the policies, the rate comparison frameworks, the advance booking guidelines — is not the same thing as cost management that practitioners actually embed in daily workflows. The gap between stated intent and operational reality is evident throughout this dataset: 70% of respondents know that broker relationships drive cost outcomes, yet relationship investment remains largely informal. 50% know that early booking reduces costs, yet it is not standard policy. The tools for data-driven decision-making exist, but only 30% use analytics regularly.

The demographic finding that 6–10 year professionals outperform their peers on all three constructs is not simply a seniority effect. It reflects the accumulation of a specific kind of operational intelligence — knowing which brokers to call when capacity tightens, when to lock in contract charters rather than riding spot markets, how to negotiate laycan windows that protect against port delays. This intelligence does not transfer through job descriptions. It transfers through deliberate mentorship, structured knowledge-sharing, and the organisational practices that keep experienced professionals engaged.

A few things stand out as worth acting on. Chartering strategy needs to be deliberately chosen and documented, not defaulted to under time pressure. Broker relationships need to be treated as strategic assets, not transactional contacts. Cost transparency with clients' needs to become a standard, not a situational choice. Early booking needs to become policy. And data analytics, already available, needs to be built into decision workflows rather than used ad hoc. Get these things right and the trust and growth follow. Get them wrong and no amount of operational scale will compensate.

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