



A Study on Impact of Incoterms on Freight Cost and End-To-End Documentation

Samuel Fredrick Ebenezer S

Samuel email : samuelfredrick2004@gmail.com

(LSCM)

Department of management studies, school of management studies, VISTAS

DR.A.NARMADHA, Assistant professor

Department of management studies , school of management studies, VISTAS

Abstract

International trade rests on a quiet but consequential piece of legal shorthand: the Incoterm. A three-letter code decides who pays for freight, who insures the cargo, who clears customs at either end, and who absorbs the cost when something goes wrong along the way. For a freight forwarder sitting between exporter and importer, that code is not background detail — it is the operating instruction for every shipment that crosses the desk. This article examines how Incoterm selection shapes freight cost predictability and documentation efficiency at 5 Way Logistics Solutions India Pvt. Ltd., a Chennai-based non-asset-based logistics provider, drawing on a structured survey of 60 employees across documentation, operations, customs clearance, sales and management functions, supplemented by a review of the branch's recent shipment mix. The analysis finds that origin- and freight-inclusive terms — FOB and CIF — dominate the company's portfolio, together accounting for over half of all shipments, while delivered terms such as DAP and DDP, though a smaller share of volume, are consistently associated with longer documentation turnaround, greater cost unpredictability, and higher perceived operational burden. Nearly two-thirds of respondents report recurring freight cost disputes traceable to Incoterm misinterpretation, and the Bill of Lading/Airway Bill and Certificate of Origin emerge as the documents most prone to delay or error. At the same time, a strong majority of staff believe that a clearly agreed Incoterm meaningfully improves cost predictability and reduces disputes, suggesting that the problem lies less in the Incoterms framework itself than in how consistently it is communicated and operationalised internally. The article concludes with a set of practical,

low-cost interventions — an Incoterm-to-documentation checklist, pre-booking confirmation of terms, targeted training for newer and sales-facing staff, and a dedicated workflow for delivered-term shipments — that could measurably improve both cost predictability and turnaround time without requiring a change to the company's service model.

1. Introduction

Every international shipment carries two parallel stories a physical one, of cargo moving from factory to port to buyer, and a documentary in one, of invoice, packing lists, bills of lading and customs papers that must keep peace with it. Incoterms are the hinge between the two. Published by the International Chamber of Commerce and most recently revised as Incoterms 2020 the eleven standard trade terms from EXW at one extreme to DDP at the other fix the exact point at which the sellers responsibility for cost risk and documentation end and the buyers begins.

How to Cite this Article:

S, S. F. E. (2026). A Study on Impact of Incoterms on Freight Cost and End-To-End Documentation. International Journal of Creative and Open Research in Engineering and Management, 2(10), 1-9.
<https://doi.org/10.55041/ijcope.v2i10.142>

License:

This article is published under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and the source are credited.

© The Author(s). Published by International Journal of Creative and Open Research in Engineering and Management.



<https://doi.org/10.55041/ijcope.v2i10.142>



For a freight forwarder such as 5 Way Logistics Solutions India Pvt. Ltd a non-asset-based provider headquartered in Chennai offering customs clearance in air and sea freight, warehousing and trade advisory, this is not an abstract legal nicety. The Incoterm a clients contract specifies determines who the company invoices, which documents must be prepared at each stage, and how much control it has over the pace of clearance. Where the Incoterm is not clean translated into the forwarders freight quotation and documentation checklist, the familiar result is under-recovered charges, delayed shipments and customs-penalty exposure.

This article reports a field study at the companys Manndi Branch, built on a structured survey of 60 employees directly involved in freight costing, documentation and client servicing. Its aim is to move the link between Incoterm choice and operational outcomes from something intuitively understood by experienced staff into something the company can see, measure and act on. The study was guided by four objectives: to gauge staff awareness and usage patterns of different Incoterms; to analyse how Incoterm choice affects freight cost predictability and cost allocation between buyer and seller to identify which trade documents are most frequently delayed or erroneous under different terms and to evaluate the efficiency of the current documentation workflow.

2. Review of Literature

The literature on Incoterms converges on one theme the rules define cost and risk with reasonable clarity, but ambiguity in how they are applied not any flaw in the rules themselves is what generates disputes. Foundational work has mapped the field and shown how the choice of term shift responsibility in ways that directly shape freight decision making. Comment reviewing the 2020 revision note that the framework still leaves recurring ambiguities around documentation timelines and notice obligations, particularly where a terms interaction with instruments such as letters of credit is poorly understood by the parties who using it.

A second strand deals with cost allocation and control. Buyers under seller controlled delivered terms CPT, CIP, DAP, DPU and DDP often lack control over destination customs clearance and last mile delivery, exposing them to demurrage, detention and storage charges they cannot prevent, even though the delivered price looks more predictable at quotation. Terms placing minimal obligation on the seller, such as EXW and FCA, shift more transport arrangement and cost risk onto the buyer, who in exchange can shop for its own freight rates. Comparative studies of exporter and importer behaviour confirmed the two sides weight cost and risk and documentation factors differently when selecting a term in which helps explain why FOB remains the default for many exporters while importers gravitate toward terms placing delivery risk on the seller.

A third strand concerns digitisation. Recent industry and policy analyses describe steady progress toward electronic bills of lading, digital certificates of origin and paperless customs filing, with legal recognition of edocuments advancing in including the UK and India. OECD research estimates that even modest improvements in automating border documentation could meaningfully expand global goods exports evidence that documentation efficiency has trade level, not just internal, consequences. Together, this literature frames the present studys question not whether Incoterms matter, but how cleanly a forwarders internal processes translate an agreed term into predictable cost and smooth documentation.

3. Research Methodology

The study adopted a descriptive research design, since the aim was to describe the existing pattern of Incoterm usage and its perceived operational impact rather than establishing causal relationships. Primary data came from a structured 18question questionnaire covering respondent profile, Incoterm usage and perceived impact, and workflow evaluation, combining multiple choice and five point Likert scale items and pre tested with five respondents before full administration.

A convenience sample of 60 employees at the Manndi Branch, Chennai, was drawn from documentation, freight operations, customs clearance, sales client -servicing and management functions the full set of roles with direct exposure to Incoterm related costing and documentation activity. Data collection combined a printed and Google Forms questionnaire with short structured interviews with senior documentation and operations staff, supplemented by company process notes, recent shipment records reviewed with permission, and published literature. Responses were analysed by simple percentage, with each result accompanied by a brief interpretation.



As with any single site, convenience sampled study, findings should be read as characteristic of this branch and internship period rather than generalised industry wide, and as self reported perception rather than independently audited cost or delay in the data.

4. Data Analysis and Results

4.1 Respondent profile

Of the 60 respondents, the largest functional groups were Freight Operations (26.7%) and Documentation Executives (23.3%) together half the sample, and the two roles most exposed to Incoterm driven variation. Customs Clearance made up 20.0%, Sales Client Servicing 18.3%, and Management 11.7%. On experience, roughly 73% had at least two years in freight forwarding (36.7% two-to-five years, 23.3% five-to-ten, 13.3% above ten), while the remaining 26.7% with under two years add a useful newer-employee perspective relevant to the training gap discussed below.

Function	Respondents	Share
Freight / Operations	16	26.7%
Documentation Executive	14	23.3%
Customs Clearance	12	20.0%
Sales & Client Servicing	11	18.3%
Management	7	11.7%

4.2 Which Incoterms actually move through the branch

FOB and CIF dominate the shipment mix, cited as most frequently encountered by 28.3% and 23.3% of respondents respectively over half the terms the branch handles. EXW followed at 16.7%, DAP at 13.3%, DDP at 10.0% and FCA at 8.3%. Recent branch shipment records corroborate this: FOB (28%, predominantly export), CIF (23%, predominantly import), EXW (17%, domestic/export), DAP (13%, export) and DDP (10%, export ecommerce/B2B).

Incoterm	Share of Shipments	Predominant Direction
FOB	28%	Export
CIF	23%	Import
EXW	17%	Domestic / Export
DAP	13%	Export
DDP	10%	Export (e-commerce / B2B)

This split by client type is not incidental: domestic clients most often prefer EXW, reflecting simpler local delivery arrangements, while export clients strongly favour FOB and CIF — the freight inclusive terms overseas buyers typically need to arrange onward carriage or receive a landed price. DDP preference stays low in both segments, largely confined to ecommerce or high value export shipments where the buyer wants full delivered duty paid certainty.

4.3 Awareness, and where the gap sits

Three quarters of respondents (75.0%) described themselves as fully (35.0%) or moderately (40.0%) aware of the Incoterms 2020 rules a sound baseline. The remaining quarter, slightly aware (18.3%) or not aware (6.7%), is concentrated among newer joiners and sales facing staff who confirm terms with clients but are not always the ones who later operationalise them. This matters because it sits at the point where an Incoterm first enters the system ambiguity introduced at booking tends to surface later as a costing dispute or a missing document.



4.4 Cost perception: FOB the comfort zone, DDP the outlier

Asked which Incoterm is most cost-effective for exporters, 36.7% named FOB and 26.7% CIF, with EXW, FCA and CPT trailing. FOB limits the exporters obligation to loading on board while the buyer controls and prices main carriage, capping cost exposure at a well defined point; CIF is viewed almost as favourably where exporters want to retain freight control and offer a landed price, but is seen as carrying more exposure since the seller pays freight and minimum insurance over a longer leg.

The mirror image appears with delivered terms: 73.3% agree or strongly agree that DDP shipments carry higher cost specifically because of the sellers added customs clearance and duty payment responsibility at destination obligations inherently harder to price from the origin side, since duty rates and local charges at an unfamiliar port sit outside the forwarder's direct control.

4.5 Documentation complexity and turnaround

Asked directly which Incoterm causes the greatest documentation complexity, 38.3% pointed to DDP and 25.0% to DAP together well over half the sample naming delivered terms, against 16.7% for CIF, 11.7% for FOB and 8.3% for EXW. This tracks how the terms are structured: unlike FOB or CIF, where documentary obligations largely end once goods are loaded, delivered terms require the forwarder to manage destination customs clearance and, for DDP, duty payment an entire second documentation cycle in a jurisdiction the origin-side team may know less well.

Incoterm	Respondents citing highest complexity	Share
DDP	23	38.3%
DAP	15	25.0%
CIF	10	16.7%
FOB	7	11.7%
EXW	5	8.3%

This shows up in turnaround: while 60% of shipments are documented within two days (15.0% under a day, 45.0% in one to two), a combined 40.0% take three days or more, with 11.7% over four a slower tail respondents attribute largely to delivered term shipments awaiting destination side documents. Asked which specific documents are most frequently delayed or erroneous, respondents pointed most to the Bill of Lading/Airway Bill (26.7%) and Certificate of Origin (18.3%), followed by Letter of Credit discrepancies (16.7%), Commercial Invoices (15.0%), Customs Declarations (13.3%) and Packing Lists (10.0%) reflecting dependence on carriers and chambers of commerce, and echo the trade finance literature on LC document mismatches as a leading cause of payment delay.

4.6 Cost predictability, disputes, and workflow ratings

Nearly two-thirds (63.3%) report freight cost disputes linked to Incoterm misinterpretation at least occasionally, yet 73.3% agree a clearly agreed Incoterm improves cost predictability and 70.0% agree clarity reduces disputes. Read together, these point to a process gap rather than a flaw in the terms themselves: disputes trace to cases where the term was not pinned down clearly enough, early enough. This is reinforced by two further findings — 80% believe changing the Incoterm alters cost allocation between buyer and seller significantly or slightly, and 71.7% perceive a positive correlation between Incoterm complexity and the company's own operational cost. Staff already understand the mechanism; what seems missing is a consistently applied process for locking the term down before costs are quoted.

Despite these friction points, the workflow is not seen as broken: 65% rate it good or excellent (26.7% average, 8.3% poor), and 73.3% are satisfied or highly satisfied with the Incoterm selection process overall (20.0% neutral, 6.7% dissatisfied) — a sound process with a specific, addressable weak point rather than a systemic failure. Asked what would most improve the workflow (multiple selections allowed), respondents ranked digitisation/EDI systems (40.0%) and staff training on Incoterms (31.7%) highest, followed by standardised checklists (25.0%), better client communication



at booking (20.0%) and a dedicated compliance desk (16.7%) staff themselves favouring technology and training over structural reorganisation.

5. Discussion

Three threads run through this data. First, the shipment portfolio is weighted toward the Incoterms easiest to operationalise: FOB and CIF are well understood, place clear boundaries on the forwarder's documentary role, and generate the least perceived complexity. Second, delivered terms DAP and especially DDP are a small share of volume but a disproportionately large share of operational strain, consistently flagged as the source of the longest turnaround, highest perceived cost, and greatest documentation complexity, mirroring wider literature on seller-controlled delivered terms exposing the managing party to costs outside its direct control.

Third, and most actionable: the gap between how much staff believe Incoterms matter for cost predictability (73.3% agree clarity improves it) and how often misinterpretation-driven disputes still occur (63.3% at least occasionally) points to a process gap rather than a flaw in the rules. The point at which an Incoterm is agreed with a client typically Sales/Client Servicing is not always tightly coupled to the point at which it is operationalised into a costing and documentation checklist, and the 25% awareness gap among newer and sales-facing staff sits exactly at that seam. This also explains why the Bill of Lading/Airway Bill and Certificate of Origin, which depend on external carriers and chambers of commerce, surface as the most error-prone documents: a delay introduced at booking compounds by the time it reaches these externally dependent, downstream steps.

6. Summary of Key Findings

FOB (28.3%) and CIF (23.3%) are the most frequently used Incoterms, together over half of all shipments, while DAP and DDP form a smaller but operationally disproportionate share.

75% of respondents are fully or moderately aware of Incoterms 2020, but a 25% gap persists, concentrated among newer joiners and sales-facing staff.

DDP (38.3%) and DAP (25.0%) are perceived as causing the highest documentation complexity, driven by destination customs clearance and duty-payment obligations.

63.3% experience freight cost disputes linked to Incoterm misinterpretation at least occasionally, even though 73.3% agree clarity improves cost predictability and 70.0% agree it reduces disputes.

The Bill of Lading/Airway Bill (26.7%) and Certificate of Origin (18.3%) are the documents most frequently delayed or erroneous, reflecting dependence on external parties.

40% of shipments take three or more days to complete documentation, disproportionately tied to delivered-term shipments.

65% rate the documentation workflow good or excellent, and 73.3% are satisfied with the Incoterm selection process overall a sound baseline with a specific, addressable weak point.

Digitisation/EDI systems (40.0%) and staff training (31.7%) are the improvement measures staff rank highest.

7. Recommendations

Standardise an Incoterm-to-documentation checklist mapping each term the company handles to the exact documents, approvals and cost components required, particularly for DAP and DDP shipments.

Confirm the Incoterm in writing before freight is quoted a mandatory pre-booking step led by Sales/Client Servicing that would close off the most common entry point for the disputes reported by 63.3% of respondents.



Target training where the gap actually sits refresher sessions for sales facing staff and those with under two years experience, rather than spreading resources evenly across an already well informed workforce.

Expand digitisation, starting with the slowest documents electronic bill of lading and digital certificate of origin capability to target the 40% of shipments taking three or more days.

Give DAP/DDP shipments a dedicated owner or checklist lead to pre-empt destination customs and duty-related delays rather than absorbing them as they arise.

8. Conclusion

This study confirms that Incoterms are not a contractual formality but a direct driver of operational outcomes at the freight forwarder handling a shipment. The choice between an origin based term such as EXW or FOB and a delivered term such as DAP or DDP materially changes documentation volume and complexity, freight cost predictability, and cost allocation between buyer and seller. At 5 Way Logistics Solutions' Manndi Branch, staff show a generally sound understanding of these dynamics, and the majority view of the current workflow is positive. The addressable gaps that remain around DDP/DAP shipments, the 25% of staff less familiar with the 2020 rules, and two consistently error prone documents point to incremental rather than structural interventions tighter confirmation of terms before quotation, targeted training, and continued digitisation.

More broadly, this study reinforces a point the literature makes but that is easy to lose sight of operationally: the link between a contract Incoterm and a forwarder's costing and documentation practice is often assumed automatic, but is not self-executing — it requires active management at the point where the term first enters the system.

References

- International Chamber of Commerce. Incoterms 2020 ICC Rules for the Use of Domestic and International Trade Terms.
- Branch, A. E. Elements of Shipping. | Ram, P. R. Export-Import Management: Text and Cases. | Kothari, C. R. Research Methodology: Methods and Techniques.
- Vogt, J. & Davis, R. (2020). The State of Incoterm Research. | Stapleton, D. et al. (2014). Refining Shippers' Dyadic Responsibilities.
- Hajdukiewicz, A. & Pera, B. (2020/2021). Incoterms in International Contracts. | Căruntu, C. & Lăpăduși, M. (2021). Incoterms 2020 and Missed Opportunities for the Next Version.
- Unal, E. & Metin, I. (2021). Do Factors Affecting Incoterms Selection Differ for Exporters and Importers? LogForum. | Islam, S. et al. (2024). Optimising International Trade: Incoterms Selection by Exporters and Importers. Emerald.
- OECD (2025). Trade Policy Paper No. 297: The Digitalisation of Trade Documents and Processes.
- Directorate General of Foreign Trade (DGFT), Government of India — <https://dgft.gov.in/> | Indian Customs — ICEGATE Portal — <https://www.icegate.gov.in/>