



CASE STUDY

2025

steel-a-thon
Prove your Metal
Season XII 2025

Case Title

Electronic Bill of lading
implementation in Global
trade : drivers challenges
and impact

A. Background

Origin of Sea trade : Global maritime trade finds its origins as early as 1200 BCE in the earliest Phoenicians civilizations, which recognized waterways as efficient conduits for commerce, culture, and political influence. Phoenicians established networks across the Mediterranean sea for trade of commodities such as timber, glass, and dyes. Maritime trade grew across the Globe with Egyptian establishing trade along the Nile and Red Sea, Greek and Roman established sea trade, connecting Europe, North Africa. It grew further establishing long-distance maritime networks through Indian Ocean linking India, Arabia, Africa, and China. These maritime circuits transported goods as well as technology and culture.

Maritime trade records Journey : Growing maritime commerce necessitated documentation and record-keeping. In early trade port registers, ship manifests, and merchant account records served as rudimentary method for documentation, standardize transactions and ensure accountability. Initially goods were acknowledged verbally or with simple records but dispute over ownership made written proof essential. In 13th Century , Italy began using the bill of lading as standard document for receipt of goods, contract of carriage and document of Title. Over the time, it involved into a legally binding instrument forming the backbone of modern shipping documentation.

Bill of lading emerged into three principal forms :

- i. Straight Bill of lading – non-negotiable and consigns goods directly to named partner ,
- ii. To order of bill of lading (Used by Tata Steel India)- allows transfer of ownership through endorsement and
- iii. Bearer bill of lading – enables transfer of right simply by physical delivery.

Challenges using traditional Paper BL : For centuries , Bill of lading existed as a paper document, however traditional paper BL has following Limitation :

- i. Time Delays : physical transfer of Paper BL across geographies slows down cargo release.
- ii. Cost : Printing, Courier, handling expenses, administrative cost.
- iii. Risk of loss, Damage and fraud.
- iv. Tracking and visibility.
- v. Sustainability : paper usage.

Transition to electronic BL : The transition to electronic bill of lading (e-B/L) was driven to make global trade faster , secure, less costly and thus represents the latest stage in the centuries-long evolution of this crucial trade document. International trade bodies

like International Chamber of Commerce (ICC) and organizations like BIMCO, Bolero, ESSDocs pioneered electronic platforms that could replicate the three core functions of the traditional bill of lading: serving as a receipt, a contract of carriage, and a document of title. Legal recognition followed gradually, through frameworks like the UNCITRAL Model Law on Electronic Commerce (1996) and the Rotterdam Rules (2008), which established that digital documents could hold the same evidentiary and contractual weight as paper counterparts.

B. Tata Steel's Journey in adopting Electronic Bill of Lading

Tata Steel is one of early movers in adopting electronic bills of lading (eB/L) as part of its digital trade journey.

April-2021 : Tata Steel approached Indian customs to seek approval of electronic BL of lading (eBL). The proposal was acknowledged by customs, marking a crucial step towards digitizing trade documentation.

Nov-2021 : Tata Steel executed first blockchain enabled paperless export transaction with Bangladesh. This transaction facilitated by standard charter bank Singapore utilized Contour blockchain platform transmitting Letter of credit and electronic document.

Jan-2023 : Tata Steel executed first ESSDocs based eBL for export transaction to Turkey.

Aug-2023 : Tata Steel executed first ESSDocs based eBL for import transaction from Australia.

Aug-2024 : Tata Steel negotiating bank used copy of eBL as negotiating document for LC.

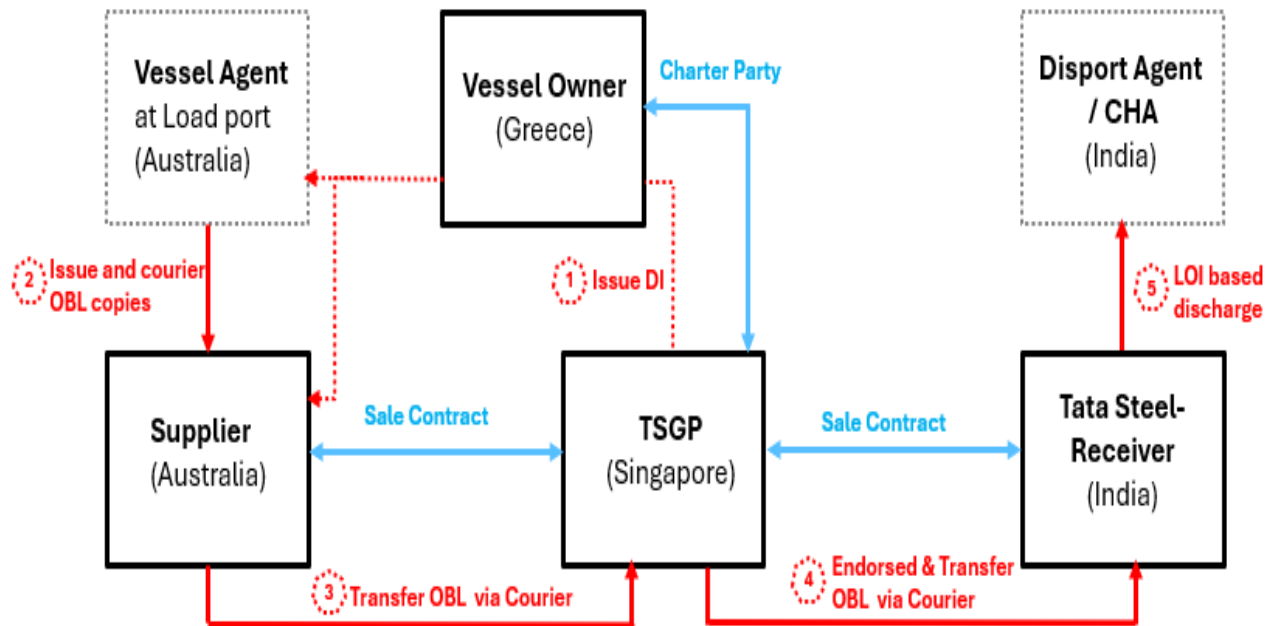
June-2025 : Onboarding of first ever Indian bank (ICICI bank) on electronic platform (ESSDocs)

July 2025 : Tata Steel executed its first fully paperless import shipment of coal from Australia to India under a Letter of Credit, with complete bank integration involving ICICI Bank and Standard Chartered Bank. This milestone demonstrated that eBL could seamlessly support not just exports but also imports setting up a gateway for adoption of electronic BL by industry and banks.

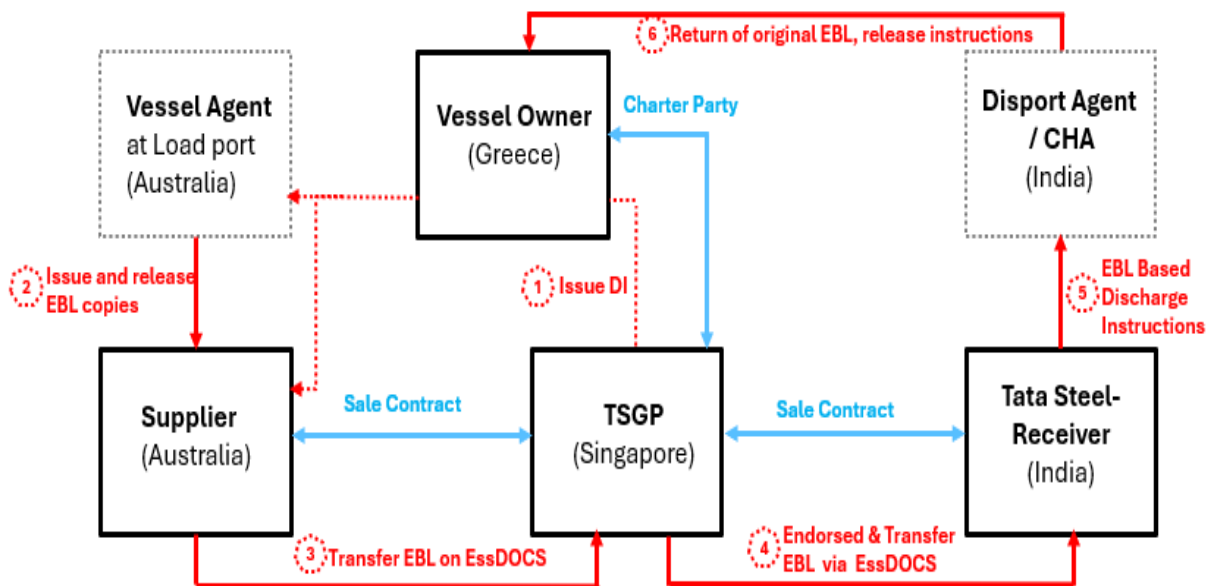
Payment mechanism : In global trade , multiple payment mechanism (Advance Payment, Open account, documentary collection, Bank Guarantee, Telegraphic Transfer, letter of credit etc.) are used to facilitate transaction between importers and exporters. Letter of credit (L/C) is most widely as it guarantees payment , reduce financial risk, provide financing opportunity for exporters.

Below diagram depicts flow of document in each case :

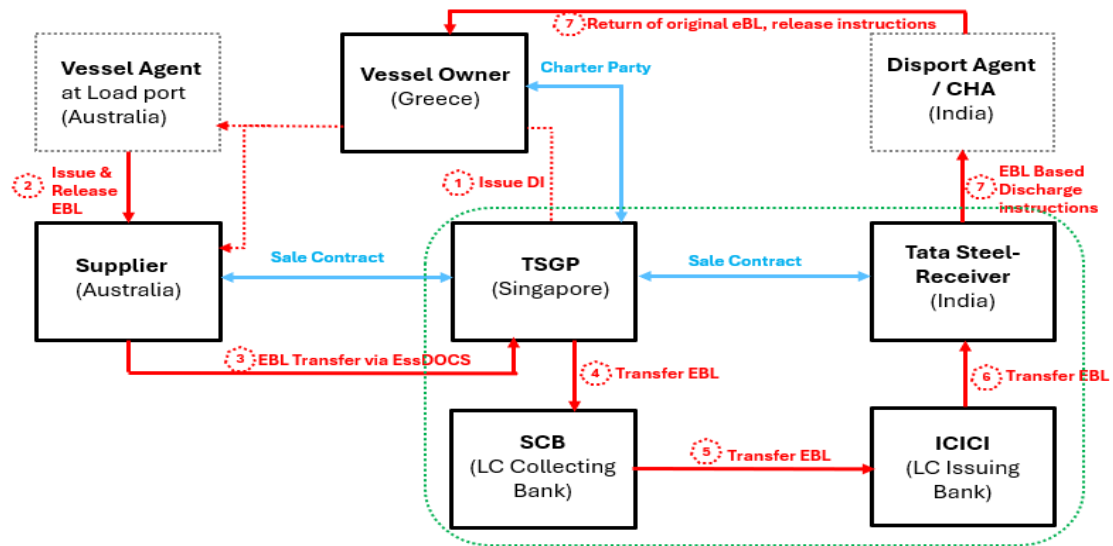
1. Paper Bill of Lading



2. Electronic Bill of Lading without bank



3. Electronic Bill of Lading with bank



C. Current Challenges for adopting Electronic Bill of Lading

Electronic Bill of Lading is currently facing challenges :

1. Interoperability issues of Platform : Different eBL platform use propriety format and system.
2. Legal Recognition and standardization by all countries and jurisdictions.
3. Stakeholder adoption – Shippers, carriers and consignee are resistant to move from familiar paper process.
4. Skewed cost – Cost is being born by few in process.
5. Technical limitations and awareness by banks, importers, exporters and traders.

D. Problem Statement :

Tata steel aims to increase coverage of electronic BL to 100% of its shipment but currently restricted to ~45% of shipment due to limitation adoption by exporters and traders, awareness on security. Despite clearing all hurdles in India (customs, Banks) , it still faces challenges which are global in nature.

E. Deliverables

Based on above, evaluate how regulatory compliance and cybersecurity concerns can be addressed in international eBL transactions.

Prepare a strategy document for faster and increased adoption of eBL by Maritime industry participants.