

Electronic Transferable Records in Practice

Seven cross-border use cases



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Contents

Preface.....	4
1. Overview	5
2. Real-world use cases	6
A. Electronic Bills of Lading - Documents of Title.....	6
CASE 1: Bridging legal asymmetry: The world’s 1st ETR transaction using TradeTrust	7
CASE 2: Cross-continental digital D/P trade linking Africa, Singapore and China.....	8
CASE 3: Live digital trade financing across MLETR-aligned jurisdictions: The Singapore-Abu Dhabi pilot.....	9
CASE 4: Cross-platform eBL interoperability in trade finance: A Thailand–China transaction.	10
B. Electronic Bills of Exchange & Promissory Notes - Negotiable Instruments	11
CASE 5: Digital Bills of Exchange in the secondary market: The Mercore–Lloyds case.....	11
CASE 6: Digital possession in practice: The application of electronic promissory notes.....	12
C. Electronic Warehouse Receipts - Right to Goods / Pledge Instruments	13
CASE 7: Digital pledge financing in practice: Integrating eBL, eDO and eWR.....	13
3. Comparative analysis and outlook of ETR ecosystems.....	15
4. Insights for policymakers and businesses.....	17

Preface

The use of Electronic Transferable Records (ETRs) in trade is poised to move from concept to commercial reality. The obvious driver is that more economies are aligning to the UNCITRAL Model Law on Electronic Transferable Records (MLETR)¹: economies accounting for **62.5%** of global exports are either aligned to or have committed to do so with visible signs of their progress. Growing awareness around the use of electronic bills of lading (eBL) is also helping, with the share of eBLs amidst the total pool rising to roughly **12%** as of December 2025.

Yet questions remain about how and why ETRs could play a catalytic role in digitalising trade, particularly for countries just starting their journeys. ETRs cover only seven of 36 key trade documents, the most notable of which are electronic bills of lading, electronic bills of exchange and promissory notes, and electronic warehouse receipts. These documents sit at the critical junctures of the supply chain, covering the shipment, receipt and financing processes. No supply chain can operate without them, and thus, these records also contain the core data of a given supply chain. A supply chain that can successfully implement ETRs will find it much easier to drive digitalisation of the other parts of the chain.

For Association of Southeast Asian Nations (ASEAN), building the capability to use ETRs effectively is a core stepping stone to mastering the digital transformation of trade. And the prize is clear: **10.75%** export growth, worth roughly **\$85 billion**, with estimated reduction of **4.76%** of total trade costs.² As ASEAN progresses towards full MLETR adoption under the Digital Economy Framework Agreement, it is also worth highlighting that meaningful adoption of ETRs can occur even where legal frameworks are not yet fully harmonised, through interoperability, trusted trade corridors and government cooperation. In other words, the opportunity is now.

On behalf of the entire ASEAN-UK Economic Integration Programme Open Trade Pillar (EIP) team, we remain grateful to the UK Government for supporting this programme which seeks to boost open trade and innovation in the ASEAN region and for its major trading partners. As legal recognition, interoperability and trade finance applications continue to evolve, ETRs have the potential to make trade more efficient, accessible and inclusive for businesses of all sizes. These cases represent not an end point, but another step towards a more connected and trusted digital trade ecosystem.

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¹ Further information is available on: [*UNCITRAL Model Law on Electronic Transferable Records \(2017\)*](#).

² Duval, Y., Utoktham, C., & UN ESCAP. (2025). [*Impact of Trade Digitalization on Trade, Wages and Producer Prices: Global, Regional and National Estimates*](#).

1. Overview

Electronic Transferable Records (ETRs) are digital equivalents of paper-based transferable documents that can be possessed, transferred and enforced digitally while maintaining the same legal functions as their paper counterparts. Jurisdictions aligned with UNCITRAL's Model Law on Electronic Transferable Records (MLETR) create the legal foundation for the use of ETRs in cross-border trade and trade finance.

In practice, ETRs have been most widely adopted across three categories of transferable documents and instruments:

- **Electronic Bills of Lading (eBLs)**
- **Electronic Bills of Exchange and Promissory Notes (eBoEs/ePNs)**
- **Electronic Warehouse Receipts (eWRs)**

These three document types represent the principal stages of a trade transaction. eBLs govern the movement and transfer of ownership of goods during shipment, eBoEs and ePNs facilitate payment and financing arrangements, while eWRs enable stored goods to be used as collateral for financing. Examining these three categories therefore provides a comprehensive view of how ETRs are being applied across logistics, finance, and commodity ecosystems.

Dimension	eBL	eBoE/ePN	eWR
Core Function	Document of Title	Negotiable Instrument	Collateral Instrument
Underlying Asset	Goods in Transit	Payment Obligation	Stored Commodities
Primary Ecosystem	Shipping & Logistics	Banking & Financial Markets	Warehousing & Commodity Markets
Key Stakeholders	Carriers, Shippers, Ports, Banks	Banks, Exporters, Importers, Investors	Warehouses, Commodity Traders, Banks
Structural Dependency	Legal & Platform Interoperability	Banking Network Coordination	Physical Asset Control



2.

Real-world
use cases

A. Electronic Bills of Lading – Documents of Title

CASE 1:

Bridging legal asymmetry: The world's 1st ETR transaction using TradeTrust

In this case, **ExxonMobil Asia Pacific** acted as the shipper, while **Bunkerchain** provided the TradeTrust-enabled platform and **VLK** served as the vessel owner. The eBL was issued digitally and used throughout the transaction for title transfer and document handling. Digital identities were verified through a “Digital Passport for Ships”³, ensuring the authenticity of signatures. The eBL was then surrendered using TradeTrust’s reference implementation, which allowed the document to move across systems without requiring direct system integration.

This case is notable because it *demonstrates the use of an electronic transferable record in a cross-border context where jurisdictions are at different stages of legal adoption*.⁴ Despite this variation, the transaction was successfully executed *on the basis of a statutory framework aligned with MLETR*. More broadly, it highlights how interoperability - supported by common standards and statutory legal foundations - can enable digital trade documents to function across borders even in the absence of fully harmonised frameworks.

Further details on this case are available [\[here\]](#)

For further exploration: Another TradeTrust framework case involves *a fully paperless, interoperable eBL-backed Letter of Credit transaction* between **Maptrasco** in Singapore and **Jindal Stainless** in India, involving **DBS Bank**, **ICICI Bank** and **Maersk**. This shows how ETRs can be used to *support end-to-end digitalised trade finance*. Learn more [\[here\]](#).

³ A digital passport for ships is a comprehensive electronic record that contains verified information about a vessel's identity, characteristics, ownership, regulatory compliance, and operational history, facilitating transparency and efficiency in maritime transport.

⁴ At the time of the transaction (March 2023), Singapore had already enacted MLETR-aligned legislation recognising electronic transferable records under its Electronic Transactions Act, whereas Thailand had not yet introduced such provisions and remained at an early stage of MLETR alignment without legal recognition of ETRs.

CASE 2:

Cross-continental digital D/P trade linking Africa, Singapore and China

A cross-border bulk commodity trade was conducted between South Africa, Singapore, and China, representing the first Africa–Singapore–China digital trade documents project. The shipment involved anode copper transported from Durban Port in South Africa to Ningbo Port in China, with Singapore-based shipping line **Pacific International Lines** issuing an eBL. The transaction was enabled by **AEOTradeChain** and **SGTraDex** - both TradeTrust-enabled platforms - allowing digital trade documents to be seamlessly issued, exchanged, and title transferred. Banks in multiple jurisdictions participated in a Documents against Payment (D/P) structure, with **DBS Bank** and **OCBC Bank** acting as remitting banks and **Bank of China** serving as the collecting bank.

This case is notable for its *tripartite structure, connecting three jurisdictions within a single transaction flow*. Unlike bilateral pilots, the inclusion of a third jurisdiction extends the scope of digital trade interoperability beyond traditional corridors, demonstrating that digital trade documents can operate across multiple regions within one coordinated process. Another key feature lies in its legal underpinning. This project is enabled through an intergovernmental Memorandum of Understanding (MoU)⁵. It illustrates *how intergovernmental cooperation frameworks can serve as a practical alternative to facilitate cross-border digital trade in the absence of harmonised legal regimes*, enabling early-stage collaboration while broader legal alignment continues to evolve.

Further details on this case are available [\[here\]](#)

⁵ The Memorandum of Understanding (MoU) on International Information Industry and Digital Trade Harbour Cooperation was signed by the Office of the Leading Group for the Work of the China (Beijing) Pilot Free Trade Zone and the Integrated National Demonstration Zone for Opening up the Services Sector (referred to as the "Beijing Two-Zone Office") and Singapore's Infocomm Media Development Authority (IMDA) on December 2023.

CASE 3:

Live digital trade financing across MLETR-aligned jurisdictions: The Singapore-Abu Dhabi pilot

A cross-border digital trade financing pilot was conducted between Singapore and Abu Dhabi Global Market (ADGM), representing the first transaction of its kind between jurisdictions that have both adopted MLETR. The pilot involved **Singapore's Infocomm Media Development Authority (IMDA)**, the **Monetary Authority of Singapore (MAS)** and the **Financial Services Regulatory Authority (FSRA) of ADGM**, together with commercial banks including **DBS Bank, Emirates NBD and Standard Chartered**. Using the TradeTrust framework, electronic records were transferred, validated, and reviewed digitally between participants across jurisdictions.

This case is notable because it demonstrates a cross-border digital trade transaction *between jurisdictions that have both adopted and operationalised MLETR*. This alignment offers greater legal certainty and reduces reliance on case-by-case structuring. As a result, transactions do not need to be renegotiated individually, *lowering legal and operational costs while enabling more efficient replication of similar transactions*. A harmonised statutory framework also allows market actors to rely on the legal system itself rather than the mere trust⁶, thereby *supports broader scalability*.

Further details on this case are available [\[here\]](#)

⁶ "Mere trust" here refers to situations where parties rely on mutual confidence or closed-network arrangements in the absence of a harmonised legal framework recognising ETRs; such reliance limits scalability, as transactions depend on pre-existing relationships rather than universally enforceable legal certainty.

CASE 4:

Cross-platform eBL interoperability in trade finance: A Thailand–China transaction

In this case, **New Golden Sea Shipping** issued an eBL to Lenzing Thailand via the **IQAX** platform. The document was then transferred to financing through **ICE CargoDocs**, presented to **China Zheshang Bank** for financing, and ultimately surrendered by the importer via **IQAX**. Throughout the process, **GSBN's** blockchain-based control registry ensured that only one valid original eBL existed and that transfers across platforms were securely tracked.

By allowing eBL to move between different solution providers, the transaction enabled each participant to continue using its preferred system without requiring alignment on a single platform. At a broader level, *the case demonstrates how interoperable solutions can support the transition from isolated digital systems to more interconnected trade ecosystems*, enabling digital documents to function as transferable instruments across a wider network.

Further details on this case are available [\[here\]](#)



B. Electronic Bills of Exchange & Promissory Notes – Negotiable Instruments

CASE 5:

Digital Bills of Exchange in the secondary market: The Mercore–Lloyds case

A set of trade finance transactions involving the shipment of goods from Central America to the UK was structured using an eBoE. The exporter issued the digital instrument, which was accepted by the importer, a client of **Lloyds Bank**. Upon acceptance, non-bank trade finance provider **Mercore** funded the transaction by purchasing or financing against the eBoE, while **Lloyds** participated through a secondary market arrangement under a Master Participation Agreement.

This case is notable in demonstrating how digital negotiable instruments can underpin the development of *a more functional secondary market for trade finance*. By replacing paper-based bills of exchange with legally equivalent digital forms, eBoEs enable clearer and more efficient transfer of rights between parties, reducing frictions associated with endorsement, possession, and verification. This in turn facilitates the distribution of trade finance assets beyond originating institutions, supporting greater liquidity and risk sharing. In this sense, the use of eBoEs points to a broader shift: digital trade instruments not only streamline primary transactions but also enable the scaling and deepening of secondary market activity.

Further details on this case are available [\[here\]](#)

CASE 6:

Digital possession in practice: The application of electronic promissory notes

A digital trade transaction was conducted using an electronic promissory note (ePN) under the UK's updated legal framework for electronic trade documents. The transaction involved **Lloyds Bank** and its corporate client, supported by **Enigio's trace:original solution**. The exporter created a digital promissory note, which was issued in the **trace:original** system. The document was transferred digitally between parties, with the importer accepting the bill and the bank using it within the financing process. Throughout the transaction lifecycle, the ePN functioned as an "original" document, allowing it to be possessed, transferred, and verified without requiring any physical document exchange.

This case is notable because the system in this case allows digital documents to be issued and circulated with minimal dependency on a shared infrastructure. While the use of the technology still involves acceptance of platform terms, the legal validity of the document is no longer dependent on a contractual framework between all participants. Instead, *the statutory environment provides the basis for recognition, with the technology enabling the practical implementation of "possession" and transfer*. This lowers barriers to participation and contrasts with earlier platform-based models, suggesting a more flexible pathway for scaling digital trade.

Further details on this case are available [\[here\]](#)

C. Electronic Warehouse Receipts – Rights to Goods / Pledge Instruments

CASE 7:

Digital pledge financing in practice: Integrating eBL, eDO and eWR

This is a bulk commodity trade transaction in Shanghai's Lingang Special Area using an integrated set of digital trade documents, including an eBL, electronic delivery order (eDO), and eWR. The cargo documentation was first generated and managed digitally on **GSBN's blockchain-enabled platform**, before being transferred into the warehouse receipt system operated by the **Shanghai Futures Exchange (SHFE OTC)**. After registration and customs approval, the electronic warehouse receipt was used to support a pledge financing transaction, enabling a loan of RMB 2 million from the **Bank of Jiangsu**. The entire process—from document issuance to financing—was conducted digitally across interconnected systems.

This case is *notable because it demonstrates the application of electronic trade documents within a pledge financing structure, where digital documents are used as collateral to secure lending*. By integrating multiple trade documents into a single digital workflow, the transaction enabled a seamless transition from logistics documentation to financing execution, *reducing operational costs by approximately 30%*. This represents a shift from using digital documents merely for document exchange to using them as bankable assets within financing arrangements.

Further details on this case are available [\[here\]](#)



3.

Comparative
analysis and
outlook of
ETR
ecosystems

3. Comparative analysis and outlook of ETR ecosystems

3.1 From contractual rulebooks to statutory recognition

Many live ETR implementations continue to operate through contractual rulebooks and platform-governed frameworks, reflecting the historical absence of harmonised statutory recognition across jurisdictions.⁷ As illustrated by **Case 4**, digital title transfers can be executed securely across multiple participants where parties agree to a common set of platform rules. While this approach has enabled practical deployment and early adoption, **Cases 1, 3, 5 and 6** demonstrate the advantages of statutory recognition under frameworks such as MLETR, Singapore's Electronic Transactions Act (ETA)⁸ and the UK's Electronic Trade Documents Act 2023 (ETDA)⁹. In these cases, the legal validity of digital transferable records derives directly from legislation rather than platform membership, providing a more scalable foundation for long-term cross-border deployment.

3.2 Bridging legal fragmentation through transitional mechanisms

A common challenge for cross-border ETR adoption is the lack of harmonised legal frameworks across jurisdictions. However, **Cases 1 and 2** demonstrate that adoption does not need to wait until full legal alignment is achieved. **Case 1** shows how an MLETR-aligned framework at the point of issuance can support transactions involving jurisdictions at different stages of legal development. **Case 2** highlights an alternative pathway, where Government-to-Government (G2G) cooperation and trusted trade corridor arrangements facilitate cross-border ETR flows while formal statutory codes undergo lengthy parliamentary processes. These approaches demonstrate how policy innovation can bridge legal fragmentation and accelerate adoption, while legal harmonisation remains the most robust foundation for long-term scale.

3.3 Interoperability as the next scaling challenge

The selected eBL cases suggest that the industry's focus is increasingly shifting from document digitisation to interoperability. While the ability to issue and transfer ETRs has largely been established, enabling records to move seamlessly across platforms, institutions and jurisdictions remains a key challenge.¹⁰ **Cases 1, 2 and 3** highlight the importance of interoperability across legal frameworks, financial institutions and trade networks. **Case 4** further demonstrates how interoperability can facilitate the transfer of eBLs between different solution providers without requiring participants to adopt a single platform. As ETR

⁷ FIT Alliance. (2024). [Complete Guide to Electronic Bill of Lading – Legal Reform](#).

⁸ Further information is available on [The Electronic Transactions Act 2010](#).

⁹ Further information is available on [Electronic Trade Documents Act 2023](#).

¹⁰ FIT Alliance. (n.d.). [The Complete Guide to eBL: EBL Declaration](#).

adoption expands, interoperability is likely to become a critical determinant of scale, enabling digital records to operate across broader trade ecosystems rather than within isolated systems.

3.4 Different ETRs face different risk structures

eBLs, eBoEs/ePNs and eWRs face distinct adoption constraints. For eBLs, the primary challenge lies in cross-border legal recognition and interoperability across jurisdictions. For eBoEs and ePNs, adoption depends on the establishment of legally recognised digital possession and transferability within financial systems. By contrast, eWRs remain closely tied to the integrity and control of underlying physical assets, requiring robust custody and verification mechanisms alongside legal recognition. These differences suggest that there is no single pathway to ETR adoption, with each document type facing a distinct combination of legal, financial and operational challenges.

3.5 From document digitalisation to financing infrastructure

While most current ETR use cases focus on eBLs that streamline logistics and document exchange, **Cases 5, 6 and 7** demonstrate a broader evolution in the role of ETRs. Beyond replacing paper documents, electronic bills of exchange, promissory notes and warehouse receipts are increasingly being used to support trade finance, secondary market participation and collateralised lending. This suggests that ETRs are increasingly evolving from document management tools into financial infrastructure capable of mobilising trade-related assets, obligations and collateral.

Looking ahead, future ETR adoption is likely to depend on three closely related developments: broader statutory recognition, greater interoperability across platforms and jurisdictions, and deeper integration with trade finance. The cases reviewed in this report suggest that progress is increasingly being driven not by the digitisation of individual documents, but by the ability to connect legal frameworks, technology platforms and financing mechanisms. As these developments mature, ETRs are likely to play an expanding role in supporting the movement, financing and collateralisation of trade assets.



4.

Insights for
policymakers
& businesses

4. Insights for policymakers and businesses

1

Statutory recognition should be prioritised to provide a reliable legal basis for ETR adoption

2

Transitional mechanisms are helpful for early ETR cross-border adoption while legal reform is underway

3

Interoperability should be promoted so ETRs can move across platforms, institutions and jurisdictions

4

Legal and operational strategies need to be tailored to the risk profile of each ETR type



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The [Digital Standards Initiative](#) (DSI) aims to accelerate the development of a globally harmonised, digitised trade environment, as a key enabler of dynamic, sustainable, inclusive growth. We engage the public sector to progress regulatory and institutional reform, and mobilise the private sector on adoption, implementation and capacity building.

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