Trade Digitalisation - TradeTrust

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INFOCOMM MEDIA DEVELOPMENT AUTHORITY
Roles of IMDA

**DIGITAL CHAMPION**
- Drive digitalisation across industries
- Supporting a digitally enabled workforce

**INDUSTRY DEVELOPER**
- Develop the digital tech and media industries as an engine of growth for Singapore
- Foster a data ecosystem for the digital economy

**ENABLER**
- Master-planner for connectivity, digital infrastructure & standards
- Prepare tech & media manpower, and segments of society to be digitally-ready

**REGULATOR & PROTECTOR**
- Ensure resilient telecom & broadcast networks
- Govern market conduct and protect consumer interest through infocomm, media, postal and data protection regulation
Difficulties with Paper in Cross-Border Trade

Current State

- Info exchanges
  - Authority
  - Consignee
  - Exporter
  - Authority
  - Forwarder
  - Authority
  - Terminal
  - Authority
  - Carrier

Inefficient

- Manual handling
- Vulnerable to fraud

Fragmented Systems

- Costly connections
- No interoperability

Cost of documentation

- 20%*

Cost of shipping

- This inefficiency is costly

*Maersk and IBM’s Paper Trail Research in 2014

Just 1 shipment involves

- Many parties across different sectors
- Many exchanges of information
- Many silo systems
End-Result: TradeTrust Functions

1) Authenticity
(any tampering would be evident)

2) Source
(genuine creators of documents like Carriers, Govt authorities)

3) Legally-valid Performance Obligation Transfer

Normal Documents

Transferable Documents (e.g. Bills of Lading)
The TradeTrust Framework

TradeTrust is NOT a platform. It SUPPORTS Platforms and Systems to achieve the 3 functionalities ACROSS Platforms and Systems. The technical methods are implemented in open-source software that has been contributed to the community.

- **Business-led**
  - Digital Ecosystems Co-Development
  - Enterprise Adoption & Digitalisation

- **Govt-led**
  - Cross-border Recognition

**TradeTrust Framework**

(Standards, Semantics, Legal)
- To legally recognise cross-border digital documents (e.g. eBL, eCO, eInvoice, eSPS Certs, eBills of Exchange)
- To enable system interoperability of trusted digital documents exchange through standards

**TradeTrust Digital Infrastructure**
- Blockchain gateway that allows business apps to consume blockchain services through standardized APIs, achieving decoupling that eases the burden on them of enhancement and maintenance while blockchain technologies evolve.
- Published as open source for ease of industry adoption and for further enhancements by the open source community
- To be contributed as reference implementation to standards bodies to support standards development and accelerate TradeTrust usage

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- Finance
- Insurance
- Logistics
- ...
TradeTrust Design Principles

Public and Permissionless
No central governance authority

Data Off-Chain
Preserves data confidentiality

Payload Agnostic
No data format or standard restriction

Open-Source
Full transparency for faster adoption

MLETR-Compliant
Meet the requirements of the law (for electronic negotiable documents)

TradeTrust Framework is Accessible to All

Application Layer
- Basic UI
- Sample implementations via PoCs
- Finance
- Insurance
- Logistics
- Platforms
- Ecosystems

Commercial Applications/Platforms/Ecosystems

Blockchain Layer
- Payload Agnostic Documents
- Document Verification
- MLETR Compliant Title Transfer
- Distributed file store
- Seamless Exchange Paperless
- Identity Resolver (Verifiable Claim)
- Smart Contracts
- Connectors
- API

TradeTrust

Payload Agnostic Documents
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Blockchain Layer
- Ethereum
- Hyperledger
- R3
- Corda
- Quorum
- Sidechain

UNCITRAL Model Law
MLETR, MLEC, MLES
Singapore ETA

Standards Development

SG:D
InfoComm Media Development Authority
Dealing with Transferable Documents (BL as example)

**Paper Transferable Instrument**

![Bill of Lading](image)

**Electronic Transferable Record**

1) **TITLE ownership**

2) **BL Data**
Transferable Documents’ Interoperability

**Blockchain-based Procurement Platform**

**Non-Blockchain based Bank Portal**

**Public Blockchain (TradeTrust network)**

**Non-Blockchain based Doc System**

**Blockchain-based Platform for Buyers & Sellers**

**Non-Blockchain-based Platform for Banks**

**Govt Authority 5**

**Bank 6**

**Bank 3**

**Bank 4**

**Seller 1**

**Trader 2**

**Transaction info on chain**

**Transport of electronic documents containing BL data (e.g. platform, email, portal)**

**Reading and updating of Title Ownership**

**Reading and verification of Title Ownership**

**TradeTrust Open Source software**

**Public Blockchain Nodes**

*This figure does not reflect actual business flows but serves to illustrate how Platforms can inter-operate*
Normal Documents' Interoperability

1. Apply CO
2. Generates digitally signed asset and registers CO hash to Public Ledger
3. Issue CO
4. Sends digitally-signed CO and other trade documents via conventional methods (e.g., as email attachment, file transfer)
5. Verifies digitally-signed asset
6. Declare import permit and submit digitally signed CO and other trade documents
7. Verifies digitally-signed asset

Exporter
Cert of Origin Issuer
Trader
Importer
Customs

ERP System
Documentation system
Marketplace Platform
National Single Window
**EBL TRIAL WITH PORT OF ROTTERDAM**

**Trial Scope:**
- Electronic Bill of Lading (eBL)
- Cross-platform interoperability of title transfer and surrender of eBL

**Use Case Description:**
- Use of eBL to shadow a live shipment in collaboration with Olam from Vietnam to Rotterdam via transshipment in Singapore
- Trial of Singapore-based #dltledgers’ blockchain platform and the Netherlands-based NaviPorta platform to perform the title transfer transaction and thereafter surrender of the eBL issued by ONE
- The title transfer and surrender capability on both platforms were enabled by TradeTrust digital utility

**Participants:**
- Issuer/Carrier: Ocean Network Express (ONE)
- Commercial user: Olam
- Platforms: #dltledgers (SG), NaviPorta (Netherlands)

**Outcomes:**
- Time savings from 5-10 days to under 24 hours
CROSS-BORDER COLLABORATION WITH AUSTRALIA

- **Australia-Singapore Digital Economy Agreement**
  - Australia Border Force, Singapore Customs and Infocomm Media Development Authority of Singapore

- **Proof of Concepts:**
  - Test Policy: Acceptance of digitally verifiable documents
  - Test Technology: Interoperability between SG TradeTrust and AU Intergovernmental Ledger

- **Trial Scope**
  - Certificates of Origin

- **Participants**
  - **Issuers:** Australian Chamber of Commerce and Industry and Australian Industry Group
  - **Commercial users:** Rio Tinto, ANZ Bank, DBS Bank and Standard Chartered Bank
  - **Regulatory Authority:** Singapore Customs

- **Outcomes**
  - Feedback were highly positive
  - Participants acknowledged value add to their business
  - Secured acceptance from regulatory authority (Singapore Customs) and commercial users
Global Partnerships

**SWIFT and Singapore’s IMDA Join Forces to Drive Global Trade Digitalisation**

**Australia and Singapore to trial blockchain for cross-border trade**

The trial will test digital verification platforms across both the ABF-developed Intergovernmental Ledger and IMDA’s TradeTrust for electronic trade documents.

**Singapore digital trade documentation framework to combine with global Swift network**

**FINANCIAL TIMES**

Singap. covers its way to digital future for trade

Longer term, Singapore is working on a project called TradeTrust that aims to develop an “interoperability framework” for the exchange of digital trade documentation that would simplify and speed up procedures.
Call To Action

1) Join us to co-create TradeTrust Proofs of Value

If you’re from:
- Shipping lines
- Shippers/Consignees
- Logistics Service Providers
- Financial Institutions providing Trade Financing Service
- Govt Authorities involved in cross-border matters

2) Incorporate TradeTrust code into your Applications

If you’re from:
- Tech Companies
- Platform Providers

Useful URLs:
- Reference Implementation Website: https://tradetrust.io/
- Docs: https://docs.tradetrust.io/
- Source code: https://github.com/TradeTrust

For more info, contact us at: tradetrust@imda.gov.sg
THANK YOU