The Journey to Paperless Trade Industry Initiatives for Interoperability

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*Thai Bankers’ Association*

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*Director of Product Development*  
*vCargo Cloud*
Introduction and Overview

Henry Roxas
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R3
Trade - Adapting to Present and Future Challenges

Loh Sin Yong
Director, Trade
Trade & Connectivity Cluster
Sectoral Transformation Group
Infocomm Media Development Authority
AGENDA

• Introduction to the Infocomm Media Development Authority
• COVID19 underscores importance of Trade Digitalisation
• Singapore’s Trade Digitalisation Efforts
  • TradeTrust
**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
COVID-19 HAS CHANGED BUSINESSES GLOBALLY

Lockdowns and supply-chain breakdowns have introduced new challenges for all countries’ businesses

Can we be sure of who we are trading with if we cannot meet them?

Can we still send invoices overseas and make payment?

Can we continue selling products and make deliveries to overseas clients?

What about physical trade documentation for bank loans and trade financing?
WHOLE-OF-GOVERNMENT (WOG) EFFORT
Capturing Different Needs

With the global digitalization of businesses and products, trade, and the economy at large, is evolving.

- New technologies transforming trade & supply chains
- Data flows underpin the digital economy
- Increased pervasiveness of eCommerce

Synchronised Rules

- WTO JSI plays important role in developing international rules to deal new developments and challenges in trade from digitalisation
- Push to facilitate cross border paperless trade
- Areas for JSI to consider: connecting National Single Windows, harmonizing data standards for trade documents, recognizing electronic trade documentation e.g. Bills of lading
What is working in Singapore?
SINGAPORE’S NETWORKED TRADE PLATFORM

- Singapore pioneered the submission of electronic trade documentation to Customs with **TradeNet** our national single window launched in 1989

- **National Trade Platform** launched in 2018 and is shifting from a traditional national single window for regulatory transactions, to a one-stop interface, allowing traders to interact with business partners, stakeholders and regulators on trade related transactions

- This helps companies raise productivity, boost competitiveness, and uncover new opportunities

- **A key challenge remains – how to enable cross border transaction and submission of trade documents?**
What is next?
Inefficient Processes

Trade Digitalisation
TradeTrust provides an easy way to convert hardcopy trade documents into digitally-signed assets that are compliant to MLETR requirements

Fragmented Systems

Trusted Interoperability
TradeTrust is designed to support the following:

1. Working in harmony with the paper-based process by facilitating the seamless transition from paper to digital and vice versa along different parties of the value chain to cater to different degree of digital readiness

2. Working in harmony with different blockchain technologies like Hyperledger, Quorum and R3 Corda by connecting them to a common public blockchain

WHAT IS TRADETRUST?

TradeTrust is a digital utility that comprises a set of globally-accepted standards and frameworks that connects governments and businesses to a public blockchain to enable trusted interoperability and exchanges of electronic trade documents across digital platforms.

4 Key Components of TradeTrust

1. Legal Harmonisation
   Provide legal validity for electronic negotiable documents through compliance to MLETR

2. Standards Development
   Develop international standards that TradeTrust complies to

3. Accreditation Structure
   Certify technical solutions meet the requirements of the law

4. Software Components
   A set of open-source software code that can easily integrate backend solutions to the TradeTrust network
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)

THE TRADETRUST FRAMEWORK

A set of Governance & Legal Frameworks, Protocol Standards, and Infrastructure to facilitate exchange of trusted digital documents

Business-led

- Digital Ecosystems Co-Development
- Enterprise Adoption & Digitalisation

Govt-led

TradeTrust Framework (Standards, Semantics, Legal)
- To legally recognise cross-border digital documents (e.g. eBL, eCO, eInvoice, etc) through bilateral G2G recognition
- 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.
- To be published as open source for ease of industry adoption and for further enhancements by the open source community
- To contribute as reference implementation to standards bodies to support standards development and accelerate TradeTrust usage

Domain Specific Standards Development

Cross-domain Interoperable Framework

Technical Infrastructure

Finance  Insurance  Logistics  ...

Commercial Applications/Platforms/Ecosystems

National Single Window (NTP)
TRADETRUST TECHNOLOGY STACK

**Application Layer**
Commercial implementations of TradeTrust.

**Services Layer**
TradeTrust services that support the commercial applications and connection to other technologies.

**Blockchain Layer**
Network participation requirement.

**Legal Harmonisation & Standards Development**
To legally recognise cross-border digital trade documents and document exchange through standards.
An illustrative example of a potential inter-operability scenario

Blockchain-based Trade Platform

1. Issues invoice
2. Receives invoice
3. Generates digitally-signed asset and registers invoice hash
4. Sends digitally-signed asset via conventional method (e.g. email attachment, uploads into permit declaration etc.)

Non-Blockchain Bank Platform

5. Verifies digitally-signed asset
6. Releases payment

National Single Window

7. Verifies digitally-signed asset

*This figure does not reflect actual business flows but serves to illustrate how Platforms can inter-operate
JAN 2020 MOI TO FURTHER DIGITALISATION IN TRADE
GLOBAL CALL TO ACTION

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

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

2) Incorporate TradeTrust code into your Applications

If you’re from:
Tech Companies
Platform Providers

Source code and documentation available to download at https://docs.tradetrust.io

For more info, contact us at: tradetrust@imda.gov.sg
Regional Digital Trade Transformation

Kobsak Duangdee
Secretary General
Thai Bankers’ Association
Background

• As several steps in the processes in international trade are currently done manually and they are not connecting end-to-end with each other. The processes involve several steps of manually use/key-in and re-use/re-key information and data, and paper transmission.

• The purpose of this exercise is to improve efficiency both in term of cost and time in handling trade transactions through digitalization of the process and to have the whole processes connect end-to-end through digital.
International Trade Trend

- Current Status of Digital Trade Platforms
- There are several Digital Trade Platforms both initiate by the government and by private sector
- List of some Digital Trade Related Platforms

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<thead>
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<th>NTP of Singapore</th>
<th>GeTs of Singapore</th>
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<tr>
<td>E-Trade Connect of Hong Kong</td>
<td>TradeWaltz of Japan</td>
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<td>U Trade Jhub of Korea</td>
<td>Trade Lens</td>
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<td>We. Trade</td>
<td>Marco Polo</td>
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<td>Bolero</td>
<td>Bay Area Platform</td>
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<td>Voltron</td>
<td>National Digital Trade Platform (NDTP) of Thailand</td>
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Advantages of National Digital Trade Platform (NDTP)

| **Faster** | Automatic process helps reduce time of information input and information exchange |
| **Cost Reduction** | Elimination of document handling and many duplicate rekeys helps save redundant costs |
| **Online Process** | No paper, No messenger. All steps can be done on computer or mobile device. |
| **Efficiency** | Process documents without redundant procedures, which are time consuming and prone to human errors |
| **Transparency** | Standardized document. Once recorded, transactions cannot be changed or altered; hence creating trust and transparency |
| **Shared Infrastructure** | One time system development which can be used among stakeholders and in conjunction with other value-added services in future |
National Digital Trade Platform (NDTP) : Purpose & Counterparty

**PURPOSE**

- To simplify business process and eliminate unnecessary activities relating to import and export business transaction
- To shorten turnaround time on import and export activities
- To prevent fraudulent and double financing transaction
- To increase financing accessibility for SMEs

**COUNTERPARTY**

- Bank
- Liner
- Freight Forwarder
- Insurance Company
- Corporates – Exporter & Importer
- Custom Broker
- Other exporter/importer stakeholders
Regional Digital Trade Transformation

Digital Processes have been used in various parts of trade and trade facilitation including supply chains and international trade transactions. However, the ecosystem with end-to-end process is still not digitalized.

National level

Building up the ecosystem that support the Regional Digital Trade Connectivity

Regional level

Typically International Trade involves up to:
- 25 parties with at least
- 30 – 40 trade documents generated and
- 60 – 70% of information manually re-entered at least once

1. Reduce transaction costs and improve efficiency, speed, and reliability of international trade and supply chain. Thus, enhance intra-regional trade transactions.
2. Reduce potential fraud and double financings. Increase “TRUST” through digital transactions.
3. Supporting data analytic through “Big Data”.
4. Increase potential trade finance and SME Access to Finance
5. Improve Ease of Doing Business Rating
6. In-line with APFF Workstream on “Digitalization of Trade and Supply Chain Finance” and “Next Generation Initiatives for MSME Finance”

Private and Public Sectors Interconnect Architecture

Each economy should move toward digitalized trade transactions on an end-to-end process.

Regional Connectivity

Harmonized rules and regulations, standardized practices and documents
- Regional Guideline
- ASEAN open trade data network
- ASEAN digital trade governance framework
- ASEAN Single Window (ASW)

Every economy should promote digital trade connectivity
Regional Digital Trade Transformation

Regional Digital Trade Connectivity (RDTC)
- Guidelines on platform interoperability,
- Recommended harmonize rules, standards, and regulations
- Knowledge sharing and capacity building

Regional Connectivity

Domestic

National Digital Trade Platform (NDTP)
- End-to-End Process of Trade Related Transactions
- Interoperability

ASEAN-BAC
Reginal Digital Trade Connect

APEC-BAC

EABC

Others
Pilot release will focus on key stakeholders with limited use cases.
<table>
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<tr>
<th>Regional Business Corporation</th>
<th>Project</th>
<th>Details</th>
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</table>
| ASEAN-BAC                     | Digital Trade Connect | • Include in the business recommendations of ASEAN-BAC to ASEAN Economic Ministers and ASEAN Leader  
• Regional Guidelines on Standard rules and regulations  
• Platform Interoperability  
• Gapping Analysis of each ASEAN Countries  
• Engage Consultants (IMC&MURC) |
| APEC-BAC                      | Digital Trade Lab    | • One of the Workstreams of Asia Pacific Financial Forum (APFF) of ABAC  
• Include in the FEWG’s recommendation to APEC Finance Ministers  
• Include in the Announcement of APEC Finance Minister |
|                              | Digital Supply Chain Finance | • One of the Workstreams of Asia Pacific Financial Forum (APFF) of ABAC |
| Others                        |                      |                                                                         |
Towards Paperless Cross-Border Trade with Blockchain

Viboon Chaojirapant
Director, Product Development, vCargo Cloud Pte. Ltd.
1. IATA e-AWB Implementation Playbook, Sep 2018

Documents are “Paper Bridges” Linking Trade Processes.

According to the World Economic Forum, the costs of processing trade documents can be as much as a fifth of the shipping cost.

IATA reported that an air cargo shipment can generate up to 30 paper documents. In each year, more than 7,800 tons of paper documents are processed, the equivalent of 80 Boeing 747 freighters filled with paper.¹
Fraud in trade finance is a constant threat. As much as 80 per cent of global flows of merchandise - worth about US$9 trillion - is financed by some form of credit, guarantee or insurance, according to a global survey by the International Chamber of Commerce. ¹

Manual data entry, sometimes across multiple documents, leads to error in data, and eventually inaccurate trade statistics.

Multiple parties submit paper documents to multiple agencies for processing leads to inefficiency and high cost for traders.

Digitization is necessary.
Digitization of Trade Documents

**Data From Source** – Data are exchanged between the source of data and its recipients electronically, enabling automation in some of the process (such as verification) and reduce manual data entry work.

**Fraud Prevention** – Supporting documents such as Bill of Lading, Customs Permits, Certificate of Origin are transmitted directly from reliable source, such as Traders, Shipping Lines, Customs, Chambers, etc. Hence, providing trusted data to recipients.

**Improved Trade Compliance, Visibility & Data Analytics** – Increase in transparency of information flow. Governments obtain better data for trade statistics. All stakeholders in the ecosystem have access to the necessary information in order to make decisions to benefit the entire ecosystem.

**Efficiency and Cost Reduction** – Reduce manual paperwork and manual handling of documents.
We need to extend the trust across the border!
G2G: The ASEAN Single Window

Note: ASEAN Single Window is not based on blockchain
1. Exporter applies CO with MOC
2. MOC sends eCO to Cambodia NSW
3. Cambodia NSW sends eCO to Singapore NSW via the ASW Gateway
4. Exporter sends cargo to Singapore
5. Cargo arrives in Singapore and clears Customs
6. Singapore updates utilization of CO including quantity
7. Singapore NSW sends eCO utilization to Cambodia NSW via the ASW Gateway
8. Customs and MOC get update on CO utilization

G2G: The ASEAN Single Window
G2G: The ASEAN Single Window

1. Establishing Trust and Prevent Fraud – In the ASW, trust is established by the government. The government agencies at each country provide the “guarantee” that the digital document (and data) received is authentic and verified.

2. A Step Towards Paperless Clearance – With the electronic exchange of ATIGA Form D, there is no need for paper CO to be submitted for Customs clearance.

3. Real Time Update – With ASW, once the ATIGA Form D is issued in the exporting country, it will be transmitted to the importing country within minutes. Utilization of the CO is reported almost immediately as well, which was not possible previously.
Adding new documents to be exchanged through the ASW is a slow process.

Using Blockchain

Distributed Shared Ledger

A blockchain is a distributed database that is used to maintain a continuously growing list of records, called blocks. Each block contains a timestamp and a link to a previous block. A blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for validating new blocks.

Inherently Resistant to Modification of Data

By design, blockchains are inherently resistant to modification of the data. Once recorded, the data in any given block cannot be altered retroactively without the alteration of all subsequent blocks and a collusion of the network majority.

We believe that the characteristics of blockchain is perfectly suited to help solve the problem of cross-border paperless exchange of trade documents. And equally important, it can be implemented fast.

VCC is working with Federation of Thai Industries and R3 to implement a cross-border CO exchange proof-of-concept.
Cross-border CO Exchange with Blockchain

VCC implemented the Trade Facilitation Corda Node and an eCO CorApp for the POC

New stakeholders = new Node | New document = new CorApp
Envisioned Scenario

1. Exporter applies CO with DFT

2. DFT sends eCO to Thailand NSW

3. Thai NSW sends eCO to Singapore NSW via ASW Gateway

4. Singapore Customs

Exporter in Thailand

Other stakeholders and Customs receives eCO

Federation of Thai Industries

Another Exporter applies (non-preferential) CO with FTI

Thai Customs

FTI transmits eCO to NTP

Addition of a new Node with Manifest CorApp

Singapore International Chamber of Commerce

Singapore Customs

Singapore Shipping Lines

Thailand

Thailand Department of Foreign Trade

Thai Customs

Singapore Custom

National Single Window

Singapore National Single Window

NTP

VCC

Cross-Border Service
What we’ve learned

1. **Blockchain is well suited for cross-border trade** – The nature of blockchain enables trust to be established between parties, which will facilitate the adoption of electronic exchange of trade documents.

2. **Establishing document standards is important** – Blockchain is an enablement technology only. What’s important is that standards for the trade documents must be established and agreed upon prior to any exchange.

3. **Need a legal environment for paperless trade** – The legality of paperless trade facilitation has to be established by the government as a prerequisite for electronic documents to flourish.