Blockchain and Emerging Technologies for Trade Facilitation At Airports

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The National Academies of
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INSIGHT EVENT

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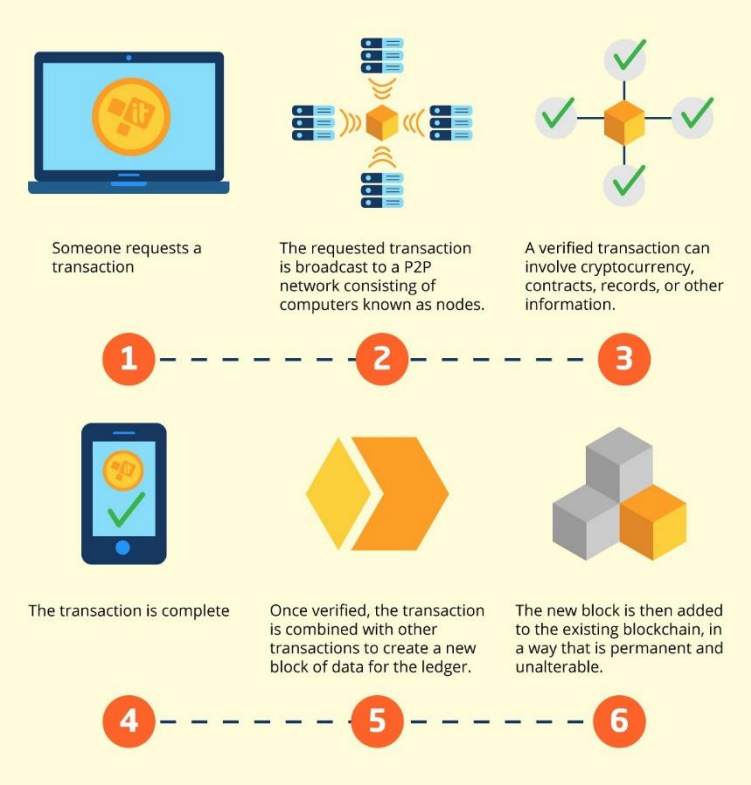
- Over 20 years of experience in supply chain, consulting and technology industries
- Domain Coordinator for Cross Border Management at UN
- On the panel of experts for trade facilitation at UNCEFACT (United Nations Centre for Trade Facilitation and Electronic Business)
- On the Board of Directors of "The International Air Cargo Association (TIACA)" headquartered in Miami
- Recipient of the "CILT International Young Achiever Award"
- Chaired Asia Pacific region on the executive committee on International Port Community Systems Association (IPCSA) headquartered in the United Kingdom
- Empaneled with several governments globally on conceptualizing trade facilitation initiatives to usher in "Ease of Doing Business" using digital technology.

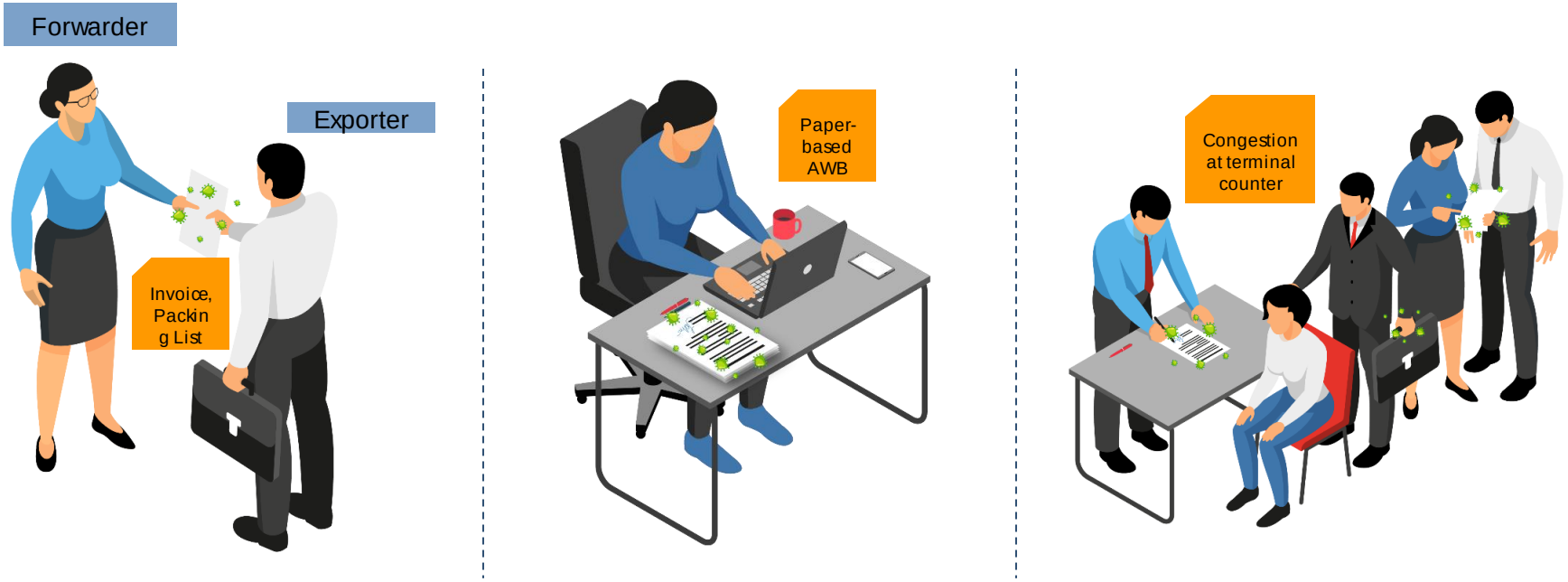
Understanding Blockchain



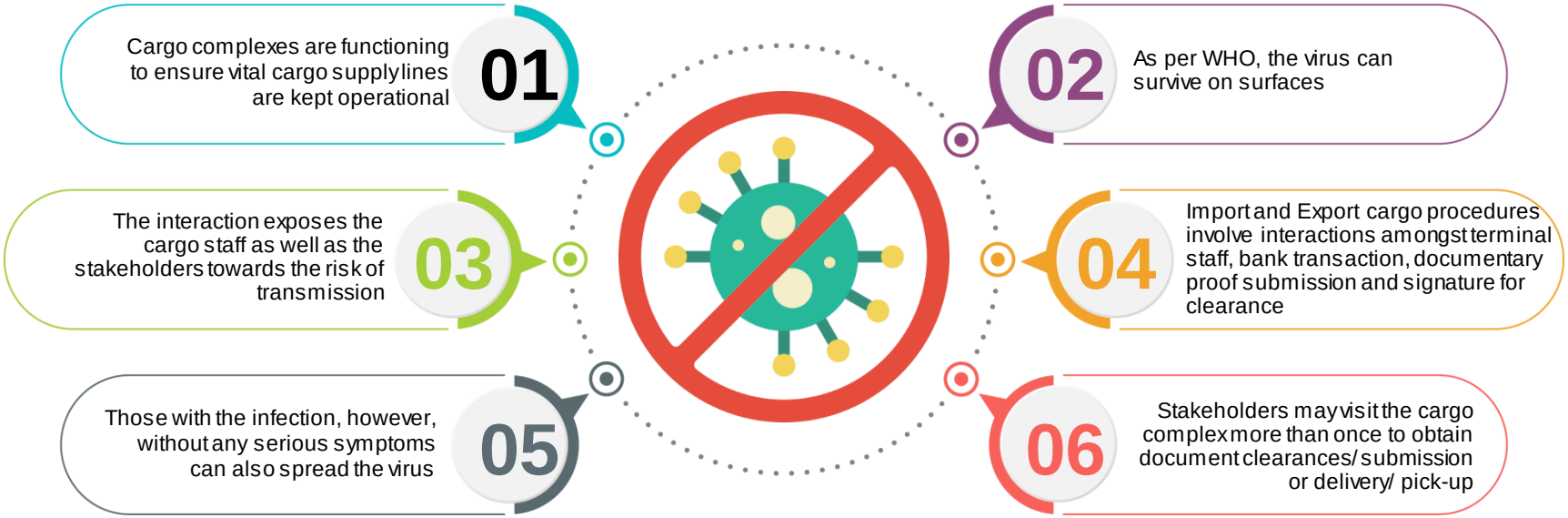
Blockchain is a tamper-proof, decentralized and distributed digital record of transactions that creates trust and highly resilient.

From trade finance, to customs and certification processes, transportation and logistics, insurance, distribution, intellectual property (IP) and government procurement, possible applications of Blockchain in international trade are plenty.

Why do we need a war on paper in COVID-19 era?



Airport Terminals are COVID-19 Hotspots



$$\text{Rate of virus spread} \propto \frac{1}{\text{Rate of digitalization}}$$

An example: Blockchain has the potential to smooth transactional issues in trade

"Issues" in logistics

- Lack of visibility into supply chain
- Long processing times
- Data discontinuities and antiquated IT
- Regulations / certification requirements
- Proliferation of players and handoffs
- Extensive manual inputs
- Significant paper-based processes

Blockchain potential

Reduces time

- Container from Shanghai to Long Beach: ~30+ days
- True travel time on sea/road: ~15 days
- Remaining time spent on back office and paperwork

Removes cost

- 20% of banks' trade finance costs on compliance
- 20% of FF SG&A spent on data inputs and paperwork
- 10% incompliant filing of incoming trade to US
- Carriers pay 3-7% of revenues to detention penalties

Reduces risk

- Persistent against tampering, fraud and cyber crime
- Trade based money laundering, over / under-invoicing
- Illicit trade at $600B level worldwide

Enables new business models

- IoT integration into supply chain
- Simultaneous tracing of goods, money and information
- Unlocks value x-industries; Mfg., Retail, Finance, Insurance, Gov't..

Blockchain Use Cases for Air Cargo

1 Certifications

- e-Certificate of Origin
- e-Phyto Certificates
- Test certificates

2 Elimination of paper

- e-DO
- e-Customs
- Digital Corridors
- e-BL

3 Tracking

- Traceability in reverse logistics
- Supply Chain Tracking

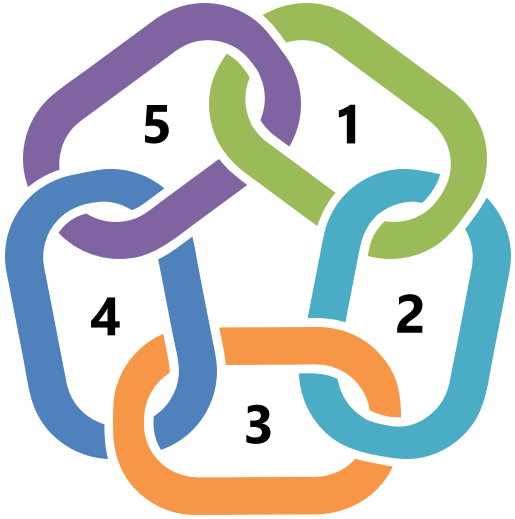
4 Finance

- Bill discounting
- Settlements

Adopting Blockchain in business – some examples

USA's Customs and Border Protection (CBP),to launch a blockchain-based shipment tracking system to enhance the verification process of certificates of origin from the partners of the North American Free Trade Agreement and the Central America Free Trade Agreement, as well as reduce the time-consuming procedure of the resubmission of shipping data.

DP World Australia and DB Schenker have created a consortium to utilize blockchain architecture address the issue of counterfeits on a global scale while protecting global supply chains. The ultimate aim of this initiative is to help companies to restore consumer trust in supply chains.3



Maersk and IBM through a blockchain joint venture to manage and track container shipping through a trade digitization platform built on open standards and designed for use throughout the global shipping system.

Lynx International, a subsidiary of Alibaba has successfully integrated blockchain technology into the company's cross-border logistics business. This blockchain-based system keeps track of all relevant information regarding an imported shipment, including details about production, transport method, customs, inspection and third party verification.

Port of Rotterdam has launched it blockchain lab known as 'BlockLab.' Energy transition, cargo flow, and port logistic stock financing are few areas the lab hopes to improve on through the use of this transformative new technology.

e-Certificate of Origin

The application of Blockchain technology to generate e-Certificate of Origin

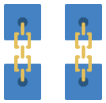
- ✓ Blockchain establishes a digital 'passport' for a every physical product in a supply chain system
- ✓ It proves authenticity (e.g., is this product what it claims to be?)
- ✓ It proves origin (e.g., where does this product come from?),
- ✓ Creates an auditable record of the journey behind all physical products
- ✓ Particularly apt for transferring asset ownership

Today more than 2000 chambers around the world issue 15 million certificates of origin.

A digitally created Certificate of Origin through an electronic Blockchain lodgement is permanently validated.

Established authenticity

Security & Privacy

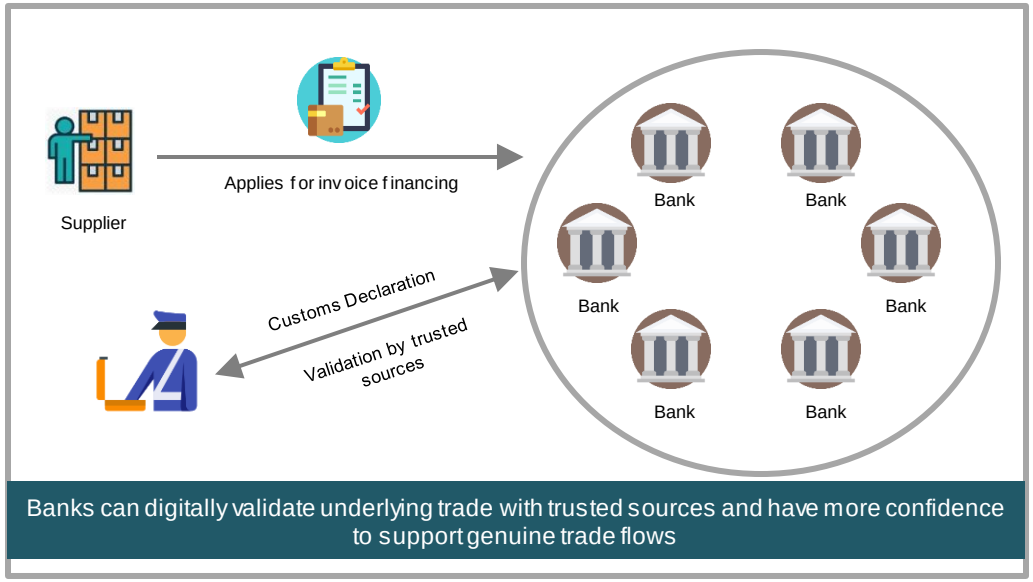


Proven Origin

Tamper proof

Singapore Customs Bill Discounting

- "A distributed database that maintains a continuously growing list of digital records or transactions"
- The Singapore Customs was dealing with Banks' inability to detect fraudulent multiple document (invoice) financing Prototype proved that Blockchain protocol can establish a trusted network to mitigate duplicate invoice financing



Blockchain enabled to achieve:

- ✓ Blockchain protocol between banks
- ✓ Digitized invoice hash and its processing stage within a bank as a trusted record in the Blockchain (no confidential data shared)
- ✓ Auto detection of duplicate invoice hash in Blockchain
- ✓ Possible integration with third party verifiers to further validate the invoice against actual flow of physical goods i.e. IOT


Accuracy of data


Integrity


Timeliness of operations


Transparency

Despite the potential, there are several barriers to more widespread adoption of Blockchain

Commercial

- Competing platforms
  - IBM / Hyperledger
  - Microsoft / Ethereum
- Fast-evolving technology, risk of obsolescence
- Lack of agreed upon standards
- Balance of interest of supply chain participants; i.e., how to get enemies and frenemies to work with each other?

Legal

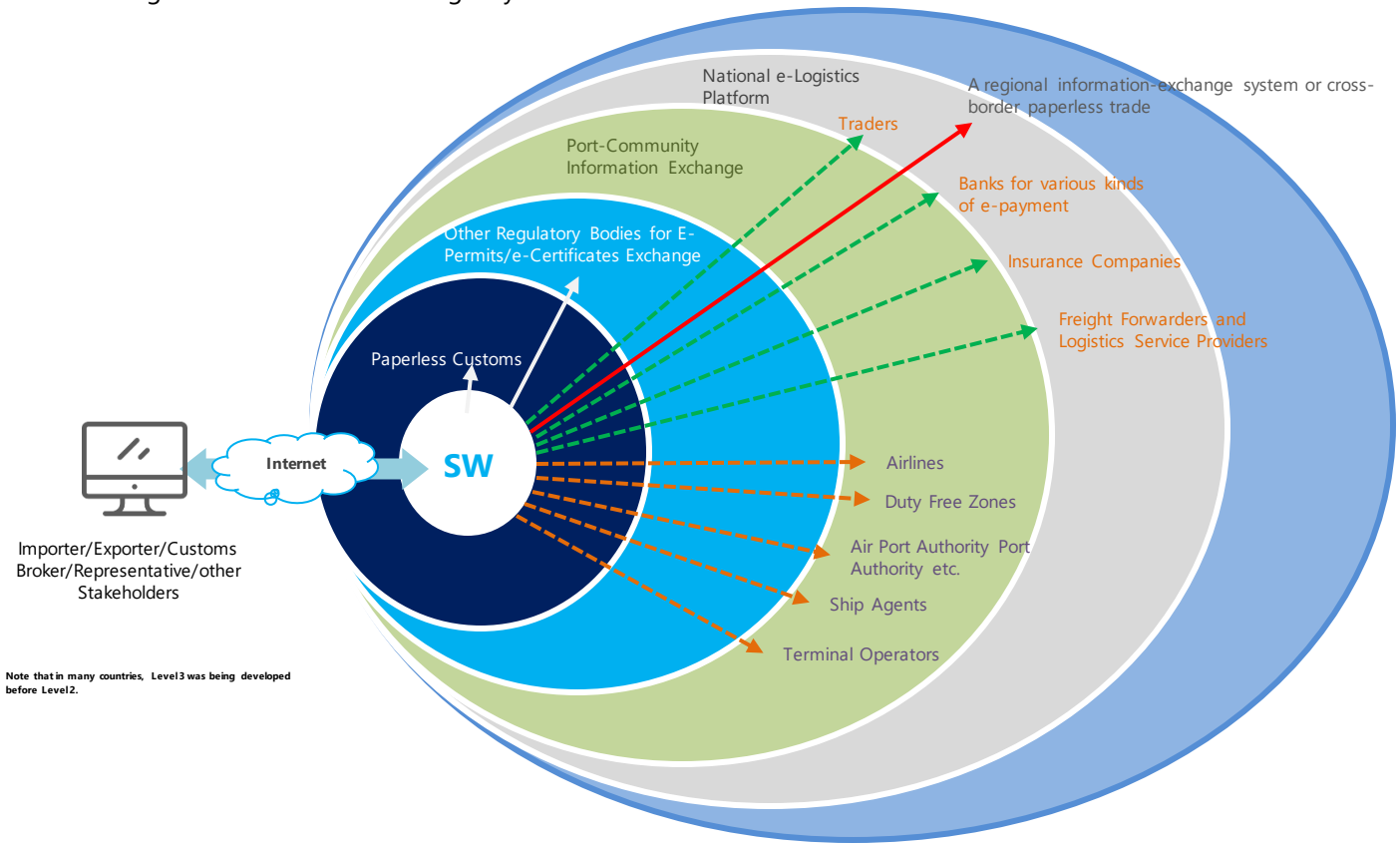
- Societal skepticism regarding previous uses of blockchain / bitcoin
- Hostile regulatory postures in some countries
- Lack of regulatory framework for smart contract enforcement

Technical

- Performance / speed of consensus mechanisms
- Maintenance of privacy
- Multi-party signatures (in progress)
- Interoperability of different blockchains (pegged sidechains as one possible solution)

Trade Facilitation and Single Window Technology

- **Level 1 :** Paperless Customs + e-Payment for Customs Duty + e-Customs Duty + e-Container Loading List + and electronic risk-based inspection
- **Level 2 :** Connecting Other Government Back-end IT systems, and e-Permit Exchange with Paperless Customs System
- **Level 3 :** e-Documents Exchange among Stakeholders within the (air, sea) port community
- **Level 4 :** An Integrated national logistics platform with also traders and logistics-service providers information exchange
- **Level 5 :** A regional information-exchange system



Note that in many countries, Level3 was being developed before Level2.

Trade Facilitation Revolution

"If you can't fly then run, if you can't run then walk, if you can't walk then crawl, but whatever you do you have to keep moving forward."

Martin Luther King Jr.