

# Emerging technologies and trade facilitation

Blockchain – Not yet ready or lost opportunity?

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# Customs authorities are faced with conflicting goals of **Facilitation** and **Control** in the midst of an increasingly challenging environment



Increasingly heavy workload and service expectations

Increasingly complex network of government and private sector partners

## Increasingly sophisticated and global threats

### Yemen mail bomb 'could have detonated over eastern US'

10 November 2010 | US & Canada

Share

Tests on a failed parcel bomb sent on a US-bound cargo flight last month show it could have been designed to detonate over the eastern US, say UK police.

The bomb was found in a printer cartridge on a plane in a UK airport, after being posted from Yemen.

A second printer bomb, also sent from Yemen, was intercepted in Dubai.



The bomb was hidden inside a printer ink cartridge.

WORLD



**NARCO-DRONES: The Cartels' Newest, Tech Savvy Smuggling SOP Spooks Security Experts**



# Big Data creates an even greater challenge

**>750M container movements** (TEU) p.a. to support global trade

**The Zettabyte Era**  
180 Zettabytes by 2025  
(current ~60 Zettabytes)

**>2 Billion** users of mobile, social media, and streaming

Customs Agencies must master three strategies to thrive...

1. Customer oriented processes



*Facilitation*  
*Control*  
*Efficiency*



2. Intelligence led risk-based supervision



3. Co-ordinated digital clearance processes

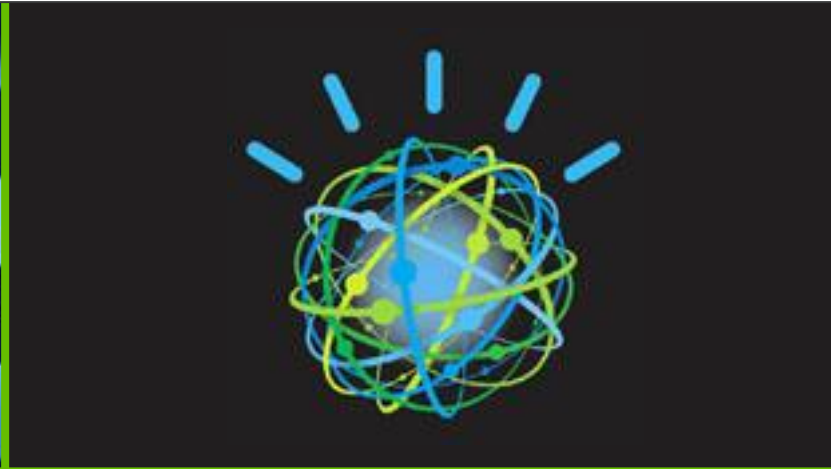


# Emerging technologies can supercharge these strategies



## Blockchain

Trusted, distributed ledger  
Shared business processes  
Trade and Finance Networks  
Mutual recognition



## Big Data and AI

Understand | Reason | Learn  
Cognitive Object Detection Assistant  
Rulings Assistant



## Crypto advances

Connected sensors  
ZKPs and FHE  
Customs Transit monitoring  
Secure trade lanes



# BLOCKCHAIN: WELL SUITED FOR SUPPLY CHAINS

Blockchain addresses the underlying challenges inherent in collaborating across a distributed, fragmented supply chain ecosystem



## SHARED LEDGER

**Append-only distributed system of record shared across business network**

A network of industry participants maintains a distributed, permissioned ledger with copies of document filings, relevant supply chain events, authority approval status, and full audit history; every change results in a new, immutable block



## SMART CONTRACT

**Shared business logic governing what transactions may be written to the ledger**

Cross-organizational business processes, such as cargo title transfer, are pre-programmed and built into Blockchain and distributed to and executed on the network, preventing any member from changing the business logic



## PRIVACY

**Ensuring appropriate visibility; transactions are secure, authenticated and verifiable**

Cryptography enables permissioned access so only the parties participating in a specific shipment can submit, edit or approve related data



## TRUST

**Transactions are endorsed by relevant participants**

Information such as documentation filings and authority approvals can only be changed if endorsed by the parties taking part in the shipment; full audit history maintained on the Blockchain



# A private sector overview of trade blockchain initiatives

- Trade Logistics
  - Tradelens, Bill of Lading, Global Shipping Business Network, Open Trade Blockchain
- Payments
  - Ripple, SWIFT, Stellar (Worldwire)
- Trade Finance
  - R3 Voltron, we.trade, eTradeConnect
- Food supply chains and agricultural commodities
  - ADM-Bunge-Cargill-Dreyfuss-Cofco for commodity markets, Food Trust with Walmart and others



# News from 2 months ago!

Blockchain for Banking · News · Supply chain

## Citi pilots blockchain bill of lading for trade finance

7 hours ago · by Ledger Insights



Yesterday the blockchain trade platform **TradeLens** announced that Citi piloted a paperless trade transaction for client Syngenta Bangladesh. Agrochemicals were imported to Bangladesh from India with an electronic **bill of lading** (eBL) used to support the Letter of Credit for trade finance.

Using the eBL is estimated to have reduced the transaction by ten days, as well as paperwork costs, postage and charges for storing the container at the port (demurrage).

TradeLens was used to share and validate all the documents, including the eBL, invoice, packing list and certificate of origin. Digitally validating documents also reduces the risk of fraudulent bills of lading.

That's something that the World Trade Organization (WTO) and the International Chamber of Commerce (ICC) have addressed with the **Digital Standards Initiative** (DSI). And for bills of lading, the Digital Container Shipping Association (**DCSA**), backed by several major container shipping firms, has developed the eBL standard recommended by the DSI.



# News from last week!



TradeLens was founded on a bold vision for global supply chain digitization as an open and neutral industry platform. This vision centered on the ability to enable true information sharing and collaboration across a highly fragmented industry globally.

Unfortunately, such a level of cooperation and support has not been possible to achieve at this point in time and A.P. Moller - Maersk (Maersk) and IBM have announced the discontinuation of the TradeLens platform.

We would like to express our sincere thanks for those that interacted with TradeLens since 2018. We are honored to have been part of your digitization journey.

TRADELENS

Products

Solutions

Network

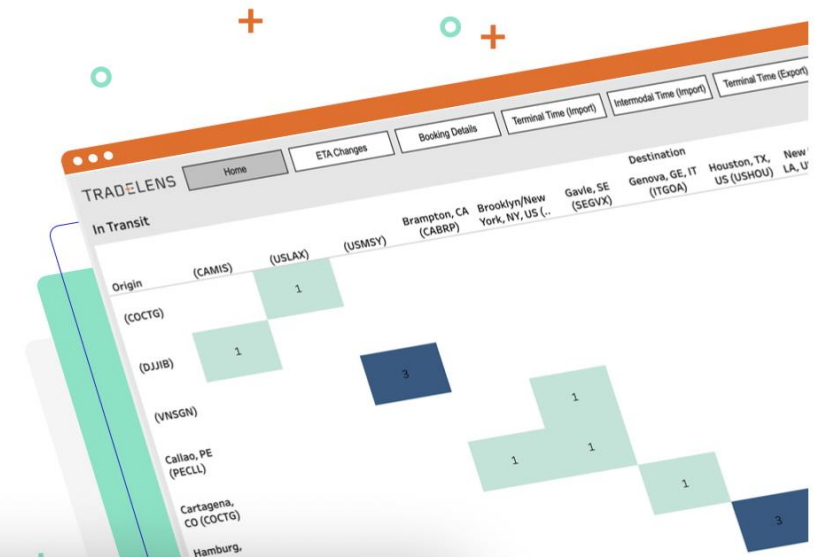
Technology

Resources

Login

## Supply chains are challenged. It's time for new ideas

The world is in disruption. Backlogs, delays and other impacts of Covid and macroeconomics are here. Now

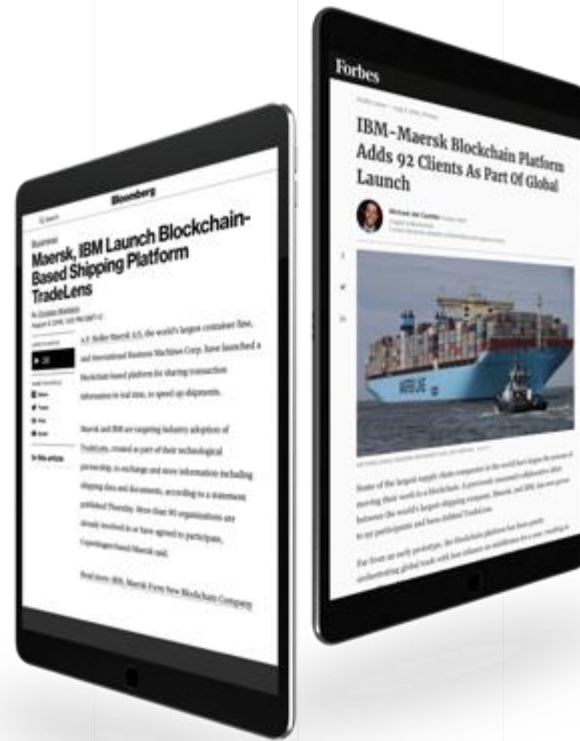




# TRADELENS

An open and neutral blockchain-based platform that is digitizing the global supply chain and transforming trade

- The platform empowers faster and more efficient, transparent and secure global trade
- TradeLens is built for the industry and offers benefits to trade participants from across the supply chain ecosystem
- IBM and Maersk are developing the platform under a joint collaboration, with significant input from and participation by the industry
- An Advisory Board is being formed to help shape the platform and drive standards
- TradeLens is live in production today, processing millions of transactions per day



## OUR JOURNEY

### September 2016

Maersk and IBM agree to invest in a blockchain prototype to assess feasibility and value

### March 2017

Initial pilot assessing impact on shipments of avocados from Mombasa to Rotterdam confirmed viability and value of blockchain platform; Maersk and IBM agree to pursue

### January 2018

Beta release of the platform and launch of Early Adopter program; trials underway

### August 2018

Formal launch of the TradeLens platform  
92 participants signed on

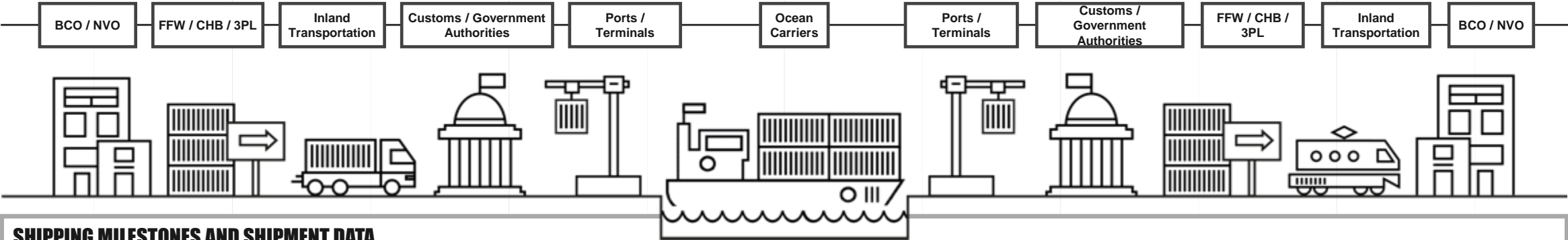
### September 2018

TradeLens Limited Availability Release

### December 2018

TradeLens General Availability Release  
1.5 million events per day published to the platform



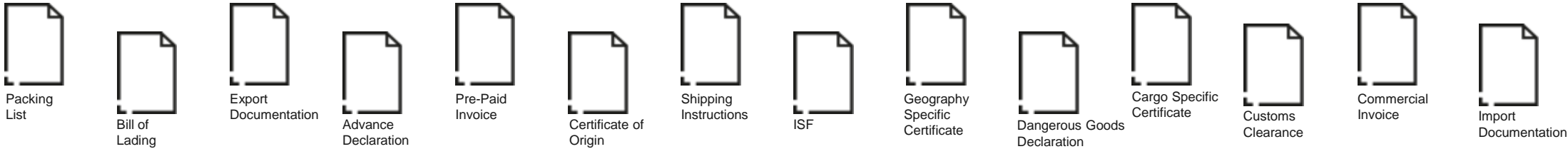


SHIPPING MILESTONES AND SHIPMENT DATA



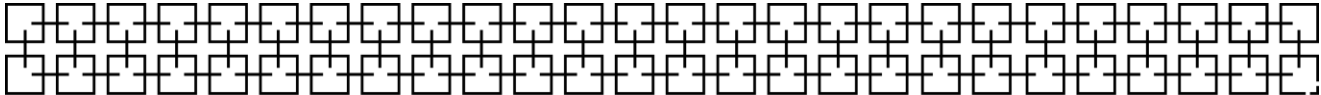
Not exhaustive list of milestones managed by platform

STRUCTURED AND UNSTRUCTURED DOCUMENTS



Not exhaustive list of documents managed by platform

TRADELENS BLOCKCHAIN BUSINESS NETWORK





# STANDARDS INVOLVEMENT

Business networks function better when members can communicate using a common language. Some types of supply chain communications use well-developed and widely adopted standards, and communities have formed in recent years to address other areas where gaps exist.

## Standards / Master Data

- **Location Data**
  - UNECE – LOCODE Cities/Ports
  - SMDG – Terminals
- **Transport Data**
  - IMO – Vessel/Voyage ID's
  - NMFTA – SCAC Carrier Codes
- **Time**
  - ISO – ISO8601
- **Identity**
  - WCO Trader Identification Number (emerging)
- **Business Objects**
  - UNCEFACT SCRDM

## Communities/Organizations

- **Openshipping.org**
- **Digital Container Shipping Association (pending regulatory approval)**
- **UN, WCO**
- **GS1**
- **ISO/TC 307**



# ECOSYSTEM FEEDBACK

## From Early Programs and Two Releases

- **Clear definition of information sharing rules in participation agreements is critical to success**
  - It's not enough to define rules and permissions in the technology stack: this information needs to be clearly articulated for other business stakeholders
- **Agreements clearly state:**
  - Information to be published
  - TradeLens' rights to information published
  - Information available for consumption
  - Participant's rights to information consumed
- **Information sharing must be limited to entities with a legitimate need-to-know**
- **Preferences must be customizable at scale**





# Summary

- Significant technological advances are being made in the area of digitalization of trade and making it sustainable
- Many of these are in step with regulatory and legal changes that have started to happen
- The technical and regulatory, legal, and technical communities must work collaboratively to digitalize trade and make it sustainable
- The Framework agreement facilitates such coming together of UN member states and the commercial ecosystem