

TRADELENS

Pusan November 2019

TRADELENS

AN OPEN AND NEUTRAL BLOCKCHAIN-POWERED PLATFORM THAT IS DIGITIZING THE GLOBAL SUPPLY CHAIN AND TRANSFORMING TRADE

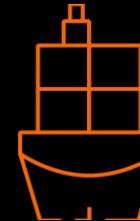
- + TradeLens is ushering in a new era in global supply chains—one where all parties can collaborate, share data, and realize the benefits of digitization.
- + Data is published directly from the source so the right people can securely manage their supply chain in near real-time.
- + TradeLens breaks down longstanding data and processing silos that exist among trading partners and simplifies the flow of documentation that accompanies every shipment.
- + Currently, the platform handles 13 million events and more than 100,000 documents every week and growing.
- + The platform is being driven by a broad collaboration of industry players under the leadership of IBM and Maersk

GLOBAL TRADE IN NUMBERS



\$16+ TRILLION IN GOODS

ARE SHIPPED ACROSS INTERNATIONAL BORDERS EACH YEAR



80% OF THE GOODS

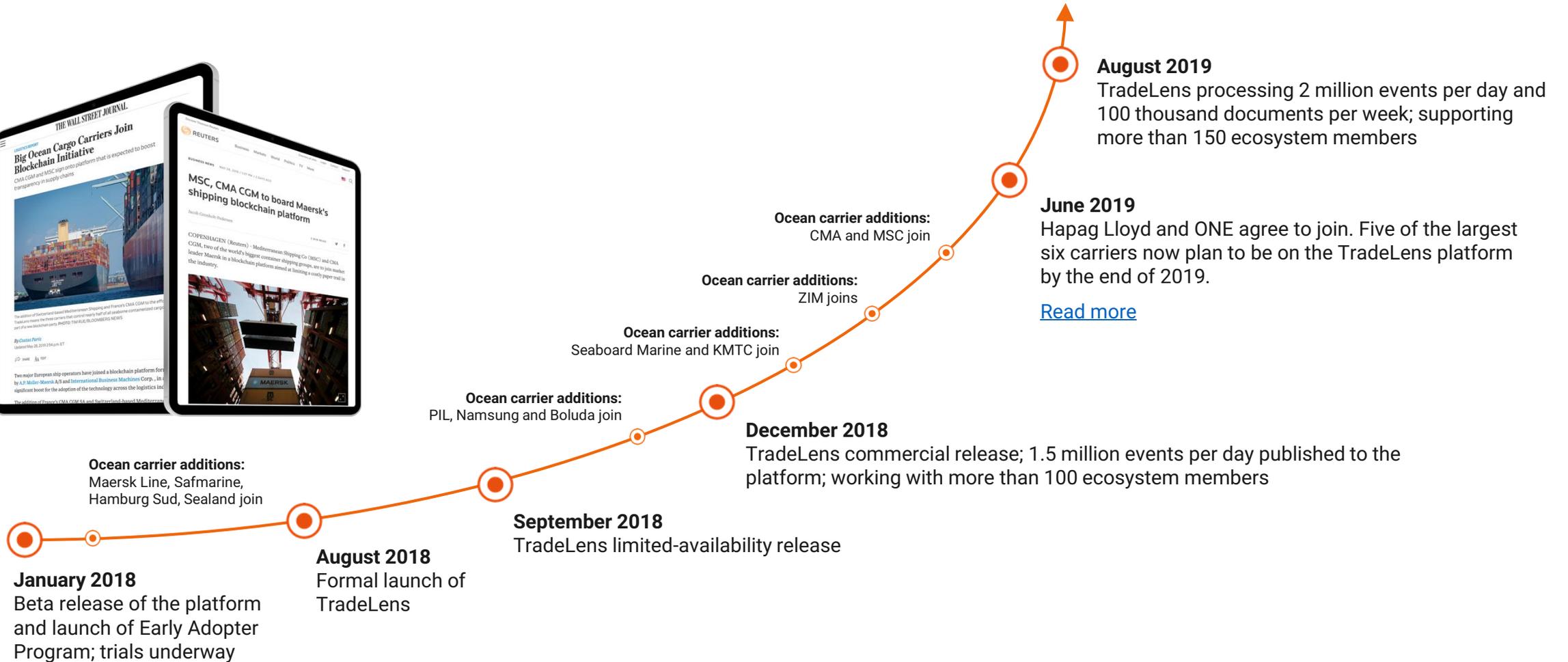
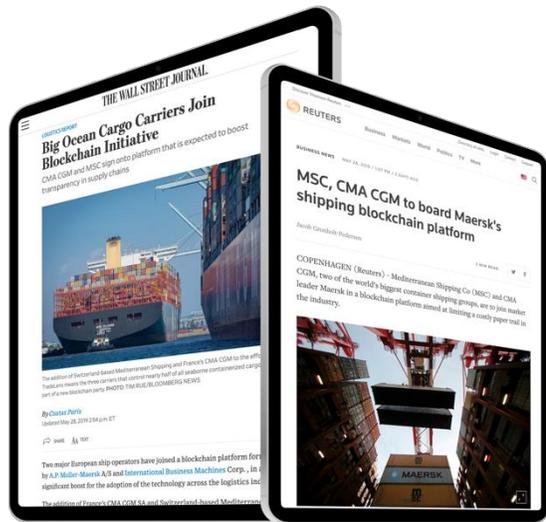
CONSUMERS USE DAILY ARE CARRIED BY THE OCEAN SHIPPING INDUSTRY



BY REDUCING BARRIERS WITHIN THE INTERNATIONAL SUPPLY CHAIN,

GLOBAL TRADE COULD INCREASE BY NEARLY 15%

OUR JOURNEY



GLOBAL TRADE IS HIGHLY INEFFICIENT AND BURDENED BY PAPER-BASED PROCESSES

+ Data trapped in organizational silos

Information is held in paper and various digital formats across dozens of service providers along the supply chain, requiring complex, cumbersome, and costly peer-to-peer messaging. The result is inconsistent information across organizational boundaries, latency in obtaining shipment visibility, and blind spots that hinder the efficient flow of goods.

+ Manual, time-consuming, paper-based processes

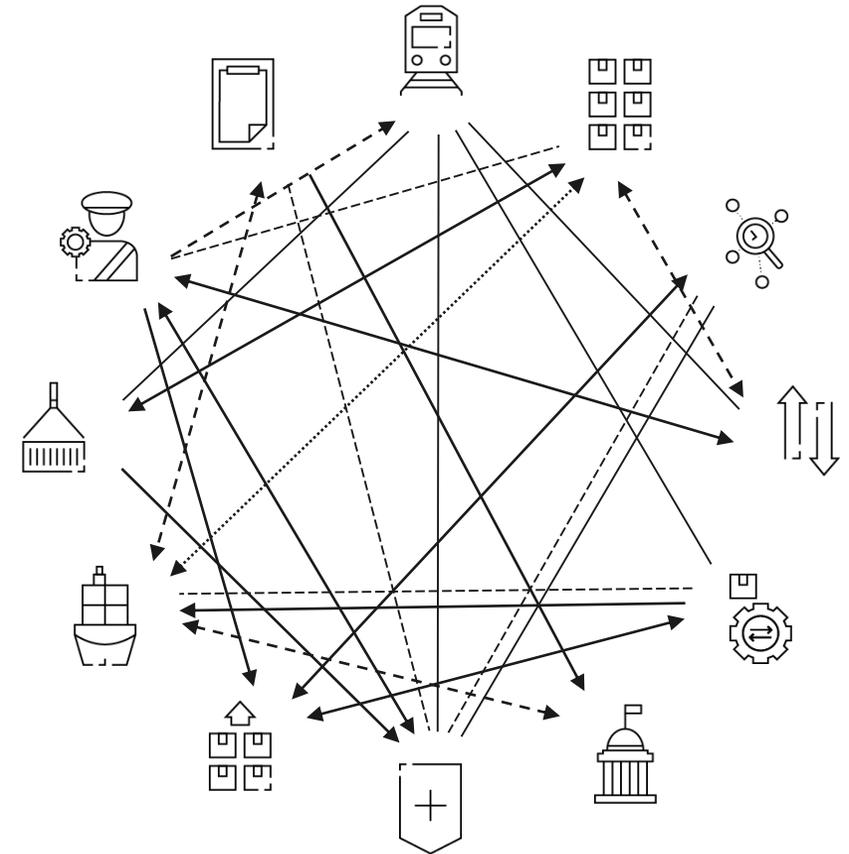
The collection and processing of up-to-date data, as well as inefficient trade document exchange, requires manual checks and frequent follow-ups and results in errors, delays and high compliance costs. Late filings are common due to missing information.

+ Clearance takes too long and is often subject to fraud

Risk assessments by customs authorities lack sufficient and trusted information resulting in high inspection rates, added prevention measures against fraud and forgery, and delayed customs clearance.

+ High costs and poor customer service

These challenges have significant downstream repercussions. The inability to forecast and plan effectively, address supply chain disruptions in near real-time, and share trusted information across the supply chain leads to excessive safety stock inventory, high administrative costs, operational challenges, and ultimately poor customer service.



OUR MISSION

DIGITIZE THE GLOBAL SUPPLY CHAIN

+ Connect the ecosystem

Bring together all parties in the supply chain - including shippers, freight forwarders, intermodal operators, ports and terminals, ocean carriers, customs and other government authorities, and others - onto a blockchain-based platform with a secure permission and identity framework.

+ Drive true information sharing

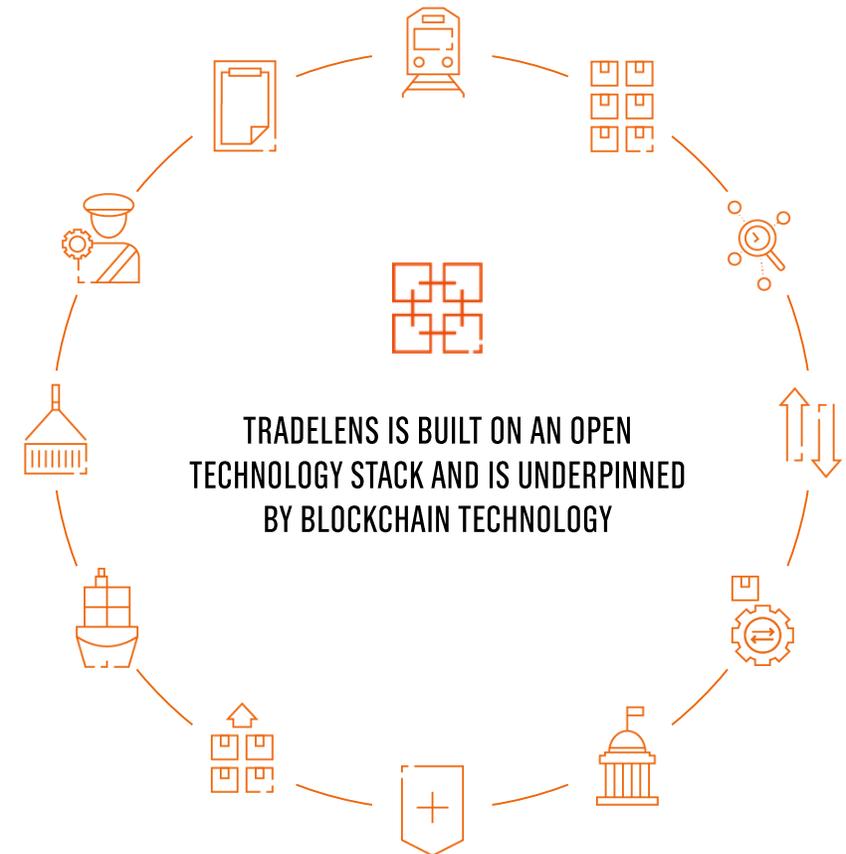
Provide for the seamless, secure sharing of near real-time, actionable supply chain information across all parties to a trade - encompassing shipping milestones, cargo details, trade documents, the structured data embedded in trade documents, customs filings, sensor readings, and more.

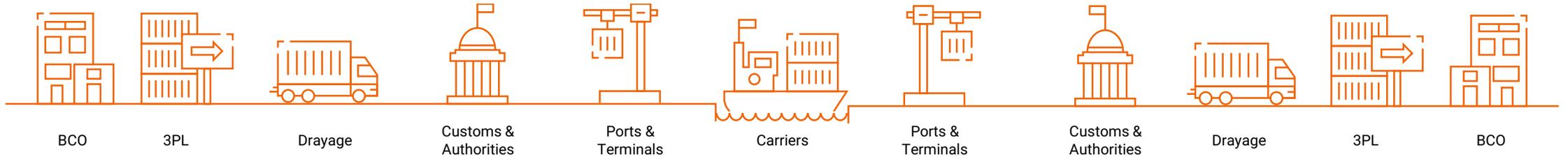
+ Foster collaboration and trust

Enable the digitization and automation of the cross-organization business processes integral to global trade, including import and export clearance, with blockchain ensuring secure, auditable, and non-repudiable transactions.

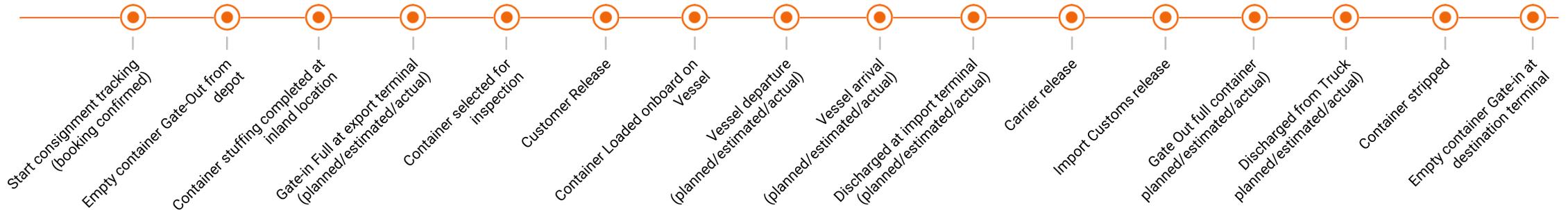
+ Spur innovation

Lay the foundation for ongoing improvement and innovation through an open, publicly -available API, the use of standards and promotion of interoperability, and the launch of an Application Marketplace that parties can use to build and deploy TradeLens-powered applications for themselves, their partners, and their customers





SHIPPING MILESTONES AND SHIPMENT DATA*



STRUCTURED AND UNSTRUCTURED DOCUMENTS*



TRADELENS BLOCKCHAIN BUSINESS NETWORK



STANDARDS AND INTEROPERABILITY

TradeLens is a neutral platform that is available to participants of any party to a shipment, anywhere in the world. The platform provides a way for all major logistics and permissioned participants to immediately contribute to and extract value from the TradeLens network.

TradeLens is committed to the promotion and adoption of standards and interoperability of platforms.

+ Information standardization

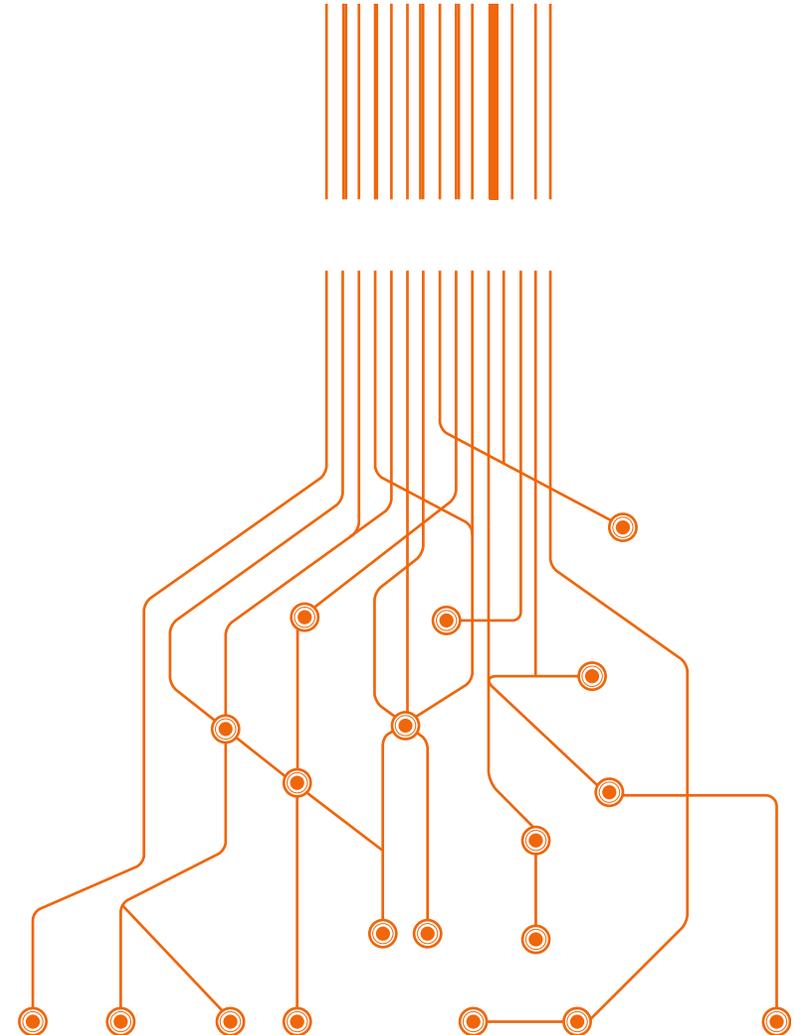
TradeLens will work closely with the advisory board, ecosystem members and standards bodies to help the industry develop and adopt standard codes and data models. The TradeLens data model and access control scheme aligns with UN/CEFACT.

+ Interface standards

TradeLens is committed to openness, with all functionality surfaced via non-proprietary, publicly available APIs that are designed specifically for ease of integration.

+ Blockchain interoperability

The TradeLens platform has full intentions to follow blockchain-based standards evolving in the industry, inclusive of cross-ledger namespace and transfers or information between ledgers.

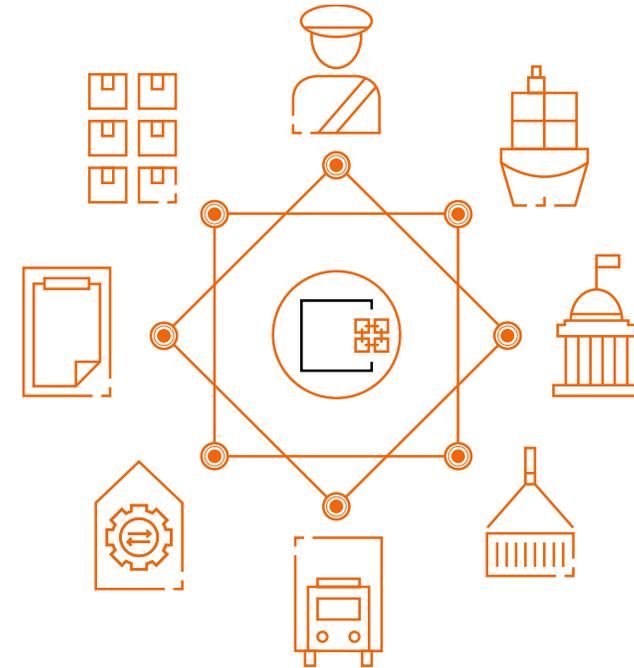


BLOCKCHAIN

The TradeLens blockchain is a shared, immutable ledger that records transactions and tracks tangible and intangible assets. Virtually anything of value can be tracked and traded on a blockchain network, reducing risk and cutting costs for all involved.

While the power of TradeLens comes from its members, blockchain enables secure distribution and storage of vital information at the heart of the platform.

TradeLens uses the IBM Blockchain Platform which is based on Hyperledger Fabric, an open-source permissioned blockchain where the peer members ("Trust Anchors") are known to the network based on cryptographic identities.



How the TradeLens blockchain connects the ecosystem:

- + **Tamper-proof recording and non-repudiation** for all data submitted to the solution.
- + **Verifiability** of data against the recorded proof of submission on the blockchain.
- + **Recoverability** of the solution from the data recorded on the blockchain.
- + **Provenance and Auditability.** All transactions are signed and dated on the ledger.
- + **Privacy** of data to ensure that it is only shared with relevant organizations.

SECURITY

TradeLens leverages the comprehensive security capabilities embedded in numerous mission-critical platforms that IBM manages for many of its Fortune 500 clients

Secure Development, Deployment and Operations

- + **Secure development** processes followed; includes source code review for security flaws, industry standard encryption algorithms, vulnerability management, and penetration testing.
- + **Invite only** system with authentication and authorization of all users and access.
- + **Granular permissions** to documents according to participant Role on consignment

Compliance to IT Security Standards

- + TradeLens has been accredited with the **ISO27001 IT security certification** as of August 2019.

Built on Enterprise IBM Blockchain Platform and IBM Cloud

- + Provides **protection against ransomware** since there is no capability to access system root, and back ups are not accessible via TradeLens interface.
- + **Permissioned ledger** with immutability, access control and data segregation by channel
- + **Encryption** in firmware, keys protected by hardware
- + PII and other **sensitive data is not stored** on chain (only hashes)
- + Leverages fully managed **IBM Kubernetes** Service for run-time components.

THANK YOU