TRADELENS
Global Trade Industry Blockchain Platform

STREAMLINING GLOBAL 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.

TradeLens is fundamentally improving the most frustrating parts of container logistics – document handling, consignment visibility and shipment workflows within and across the supply chain.

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

GLOBAL TRADE INCREASE OF 15%

If barriers within the international supply chain were reduced

WTO estimates suggest that improvements in data and document-handling could unlock more than

$4 TRILLION OF GLOBAL ECONOMIC GROWTH

GLOBAL TRADE TODAY 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.
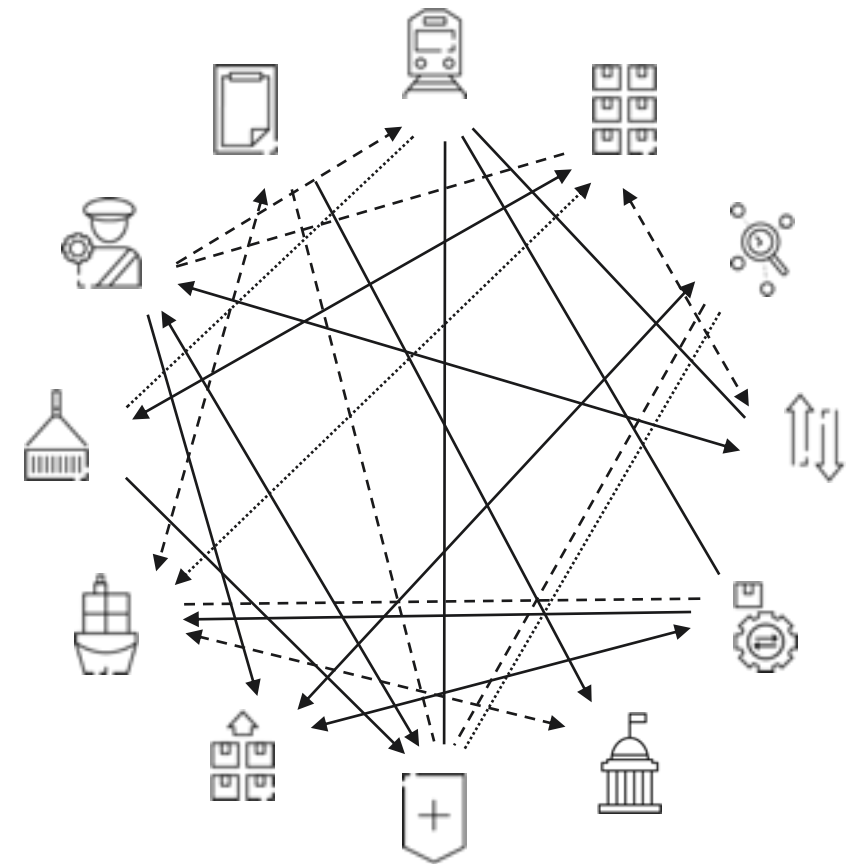
OUR MISSION

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.
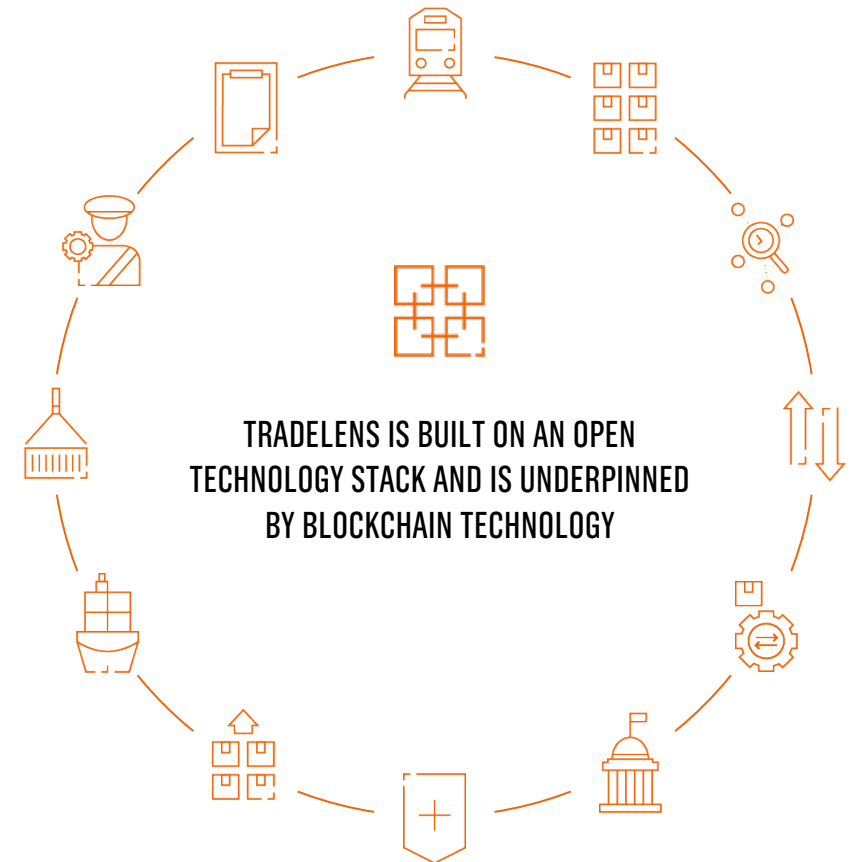
+ Drive true information sharing
Provide for the seamless, secure sharing of near real-time, actionable supply chain information across all parties to a trade - encompassing shipping milestones, cargo details, trade documents, the structured data embedded in trade documents, customs filings, sensor readings, and more.
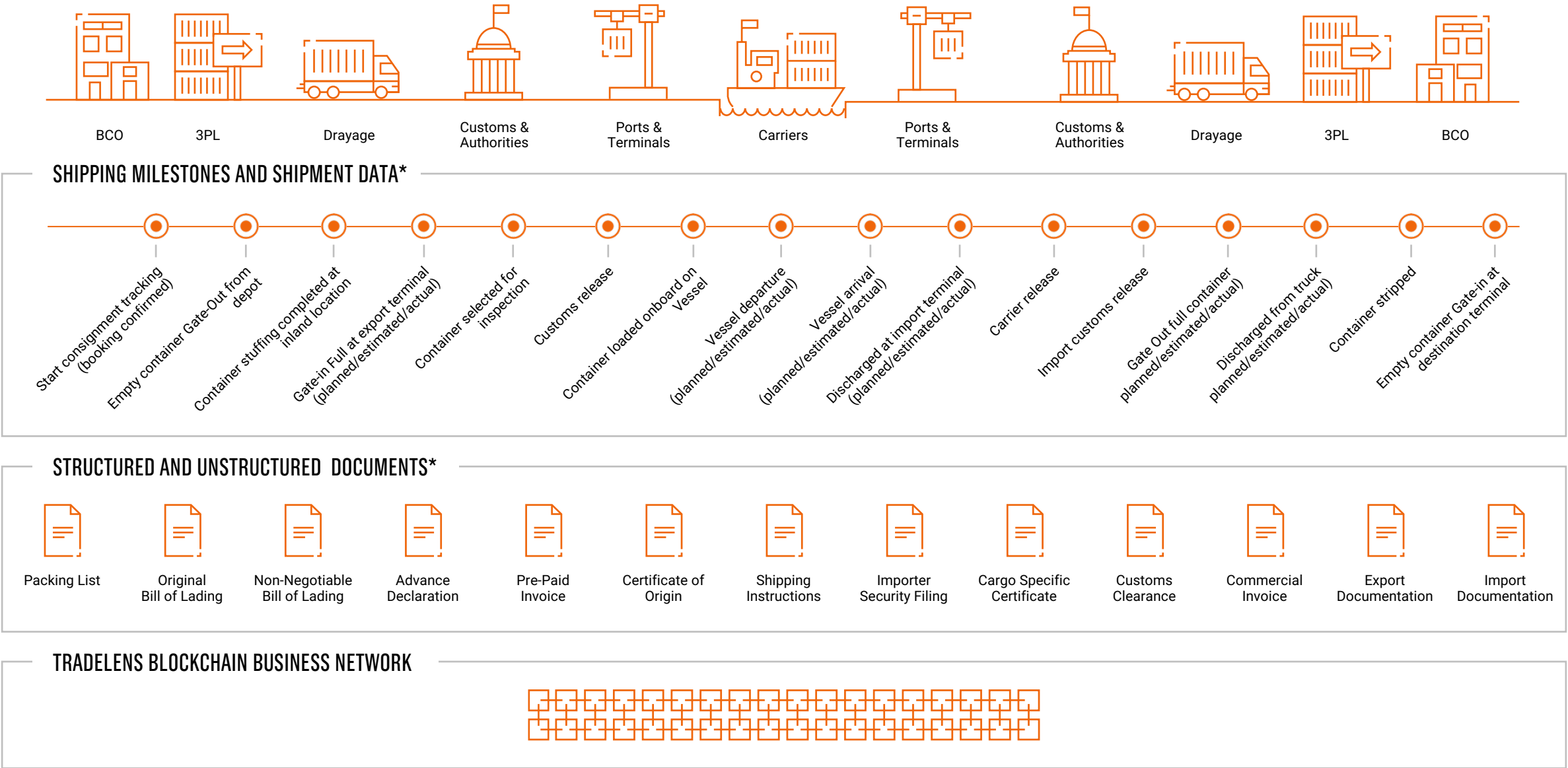
+ Foster collaboration and trust
Enable the digitization and automation of the cross-organization business processes integral to global trade, including import and export clearance, with blockchain ensuring secure, auditable, and non-repudiable transactions.

+ 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

TRADELENS IS BUILT ON AN OPEN TECHNOLOGY STACK AND IS UNDERPINNED BY BLOCKCHAIN TECHNOLOGY

BCO · 3PL · Drayage · Customs & Authorities · Ports & Terminals · Carriers · Ports & Terminals · Customs & Authorities · Drayage · 3PL · BCO

SHIPPING MILESTONES AND SHIPMENT DATA*

Start consignment tracking (booking confirmed) · Empty container Gate-Out from depot · Container stuffing completed at inland location · Gate-in Full at export terminal (planned/estimated/actual) · Container selected for inspection · Customs release · Container loaded onboard on Vessel · Vessel departure (planned/estimated/actual) · Vessel arrival (planned/estimated/actual) · Discharged at import terminal (planned/estimated/actual) · Carrier release · Import customs release · Gate Out full container planned/estimated/actual) · Discharged from truck planned/estimated/actual) · Container stripped · Empty container Gate-in at destination terminal

STRUCTURED AND UNSTRUCTURED DOCUMENTS*

Packing List · Original Bill of Lading · Non-Negotiable Bill of Lading · Advance Declaration · Pre-Paid Invoice · Certificate of Origin · Shipping Instructions · Importer Security Filing · Cargo Specific Certificate · Customs Clearance · Commercial Invoice · Export Documentation · Import Documentation

TRADELENS BLOCKCHAIN BUSINESS NETWORK

* Note: representative sample only of the data on the platform

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.
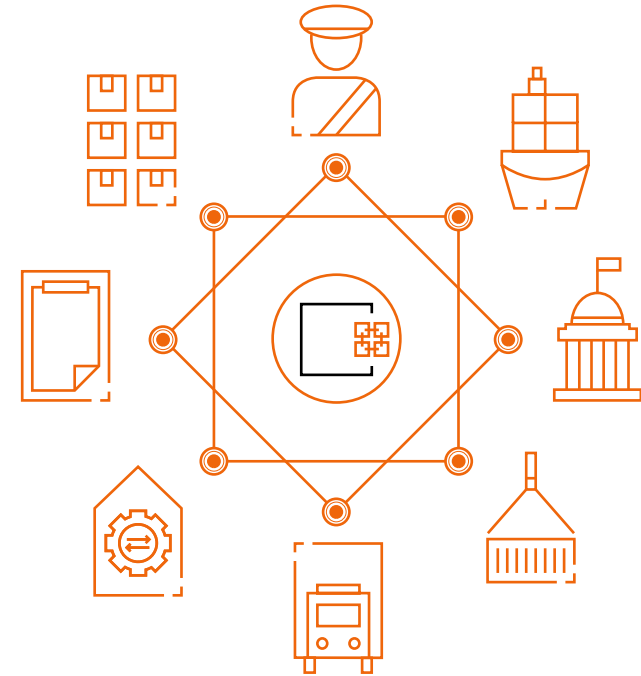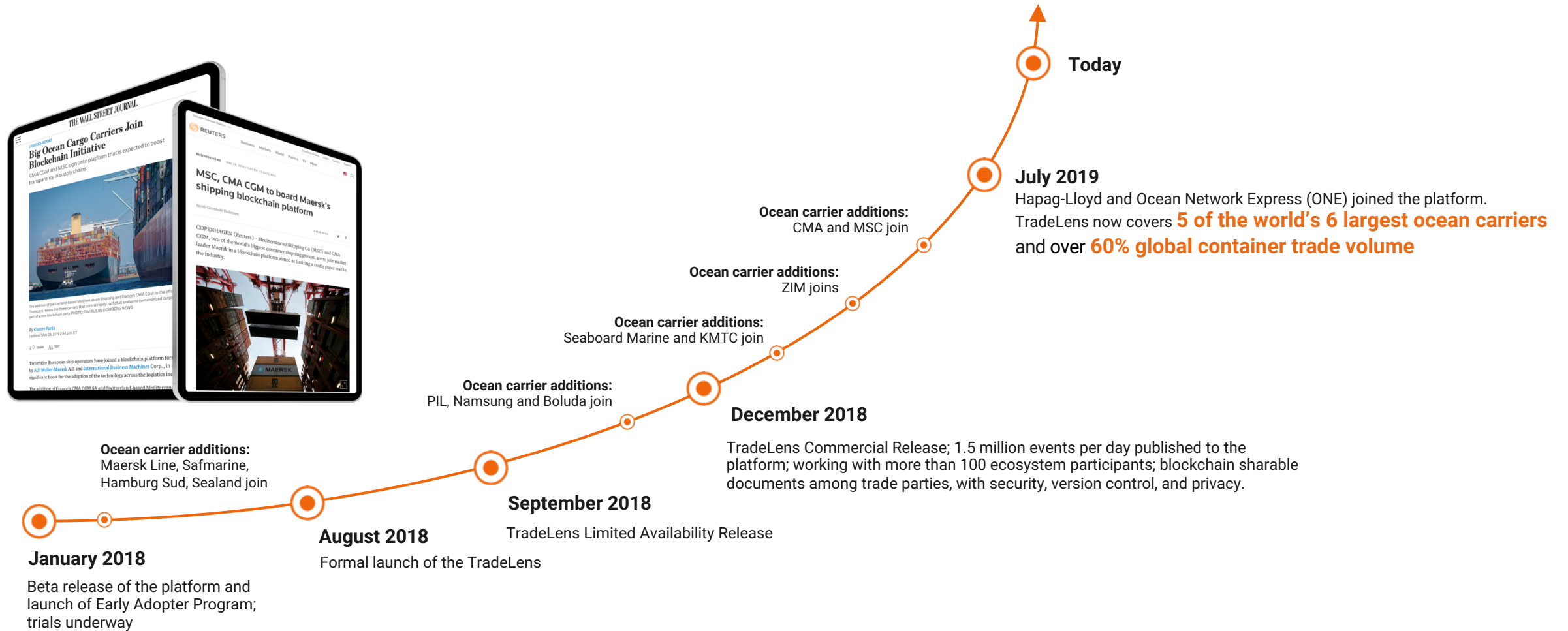
How the TradeLens blockchain connects the ecosystem:

+ **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.

THE TRADELENS ECOSYSTEM

OUR JOURNEY

Today

July 2019
Hapag-Lloyd and Ocean Network Express (ONE) joined the platform.
TradeLens now covers **5 of the world's 6 largest ocean carriers** and over **60% global container trade volume**

Ocean carrier additions:
CMA and MSC join

Ocean carrier additions:
ZIM joins

Ocean carrier additions:
Seaboard Marine and KMTC join

Ocean carrier additions:
PIL, Namsung and Boluda join

December 2018
TradeLens Commercial Release; 1.5 million events per day published to the platform; working with more than 100 ecosystem participants; blockchain sharable documents among trade parties, with security, version control, and privacy.

Ocean carrier additions:
Maersk Line, Safmarine, Hamburg Sud, Sealand join

September 2018
TradeLens Limited Availability Release

August 2018
Formal launch of the TradeLens

January 2018
Beta release of the platform and launch of Early Adopter Program; trials underway

ECOSYSTEM DATA

Foundational data

The data and documents to track and manage shipments end-to-end

+ More than half of global container shipping volume committed

+ Vast number of trade lanes covered

+ **20+ Million containers per year today**

Ocean Carriers (Network Members)   Ocean Carriers* (others)   Forwarders/ NVOs   Clients/ BCOs
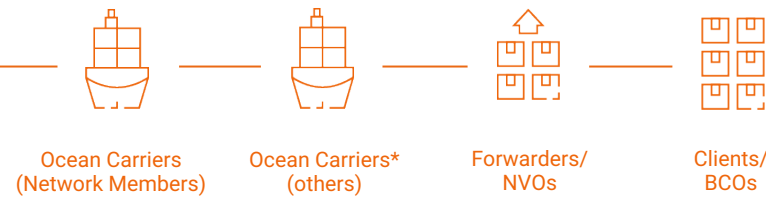
Enrichment data

Supplements foundational data, in near real-time and direct from the source

+ Rapidly growing network

+ Extensive port/terminal coverage

Intermodal   Terminals   Authorities

TRADELENS

700M Events
per year

5.5M Documents
per year

These figures are estimated to double with the recent addition of major ocean carriers to the ecosystem

* Ocean carriers who are not Network Members can provide data as requested by their customers

OCEAN CARRIERS

The ocean leg is at the heart of a container shipment journey, and as such carriers are the linchpin of the end-to-end information model by providing the booking that links all parts of the journey.

Given the central role that carriers play today in safeguarding and distributing key information and documents across parties to a shipment, they are in a unique position to govern the blockchain network that will transform the industry's information-sharing model.

TradeLens is currently in partnership with 17 global ocean carriers*.

DATA ON 60% OF GLOBAL CONTAINER SHIPPING VOLUME

ESTIMATE BY Q1 2020

* CMA CGM, MSC, Hapag-Lloyd and ONE have agreed to join TradeLens; final on-boarding pending. Speak with your TradeLens representative for a report on current onboarding status.

3PL AND INTERMODAL

Third-party logistics providers (3PLs) and Freight Forwarders are central to the global movement of goods. As a solution designed for the entire supply chain industry, TradeLens is focused on maximizing the value of these participants by:

+ Improving collaboration with their customers by leveraging global standards and nuanced data control

+ Tangibly bringing together the commercial, documentary and operational elements of supply chain management

Intermodal operators handling their customers' cargo want more visibility up and down the supply chain so they can act fast and lower the cost of every shipment.

TradeLens provides trustworthy data that helps them to predict and optimize equipment utilization, speed up pick-ups and drop-offs and reduce queueing times.

* This list of 3PLs and intermodal operators is not exhaustive. Speak with your TradeLens representative for a complete list, along with current onboarding status.

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GOVERNMENT AUTHORITIES

Authorities and agents in charge of the import and export of goods want powerful new tools to help them simply and clearly identify risks and efficiently process huge volumes of trade that cross their borders.

TradeLens is working with authorities from 11 countries to deliver better information sharing, less manual paperwork, and easier connections to national single window platforms.

Abu Dhabi Customs	Azerbaijan Customs	Australia Home Affairs	Bahrain Customs	Canada Customs	Dutch Customs	Ghana/GCNET
Indonesia Customs	Peru Customs	Russia Customs	Saudi Arabia Customs	Singapore Customs	Thailand Customs	

* This list of authorities is not exhaustive. Speak with your TradeLens representative for a complete list, along with current onboarding status.

THE TRADELENS PORT AND TERMINAL NETWORK

+ Coverage across 6 continents

+ 80 ports and terminals directly integrated with TradeLens, with over 65 more in process

+ Data from up to 600 ports and terminals captured by existing TradeLens members

● Ports and terminals directly integrated with TradeLens

● Ports and terminals contributing data via carriers to TradeLens
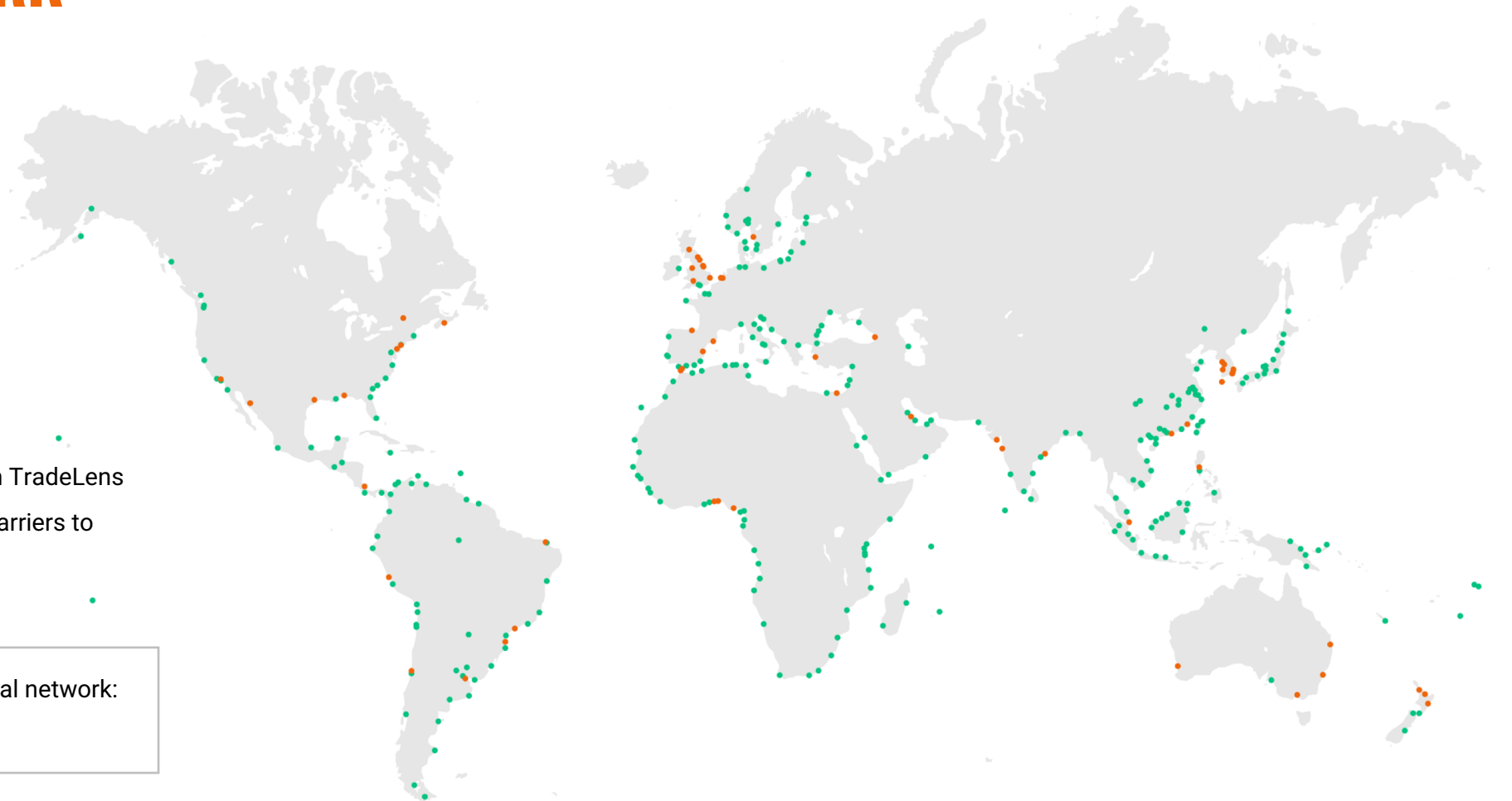
Interactive map of TradeLens port and terminal network:

https://www.tradelens.com/ecosystem/

THE TRADELENS PLATFORM

TRADELENS

21 November, 2019

TRADELENS

TradeLens Core
SHIPMENT MANAGER UI

TradeLens can be accessed via the web without integration. Users can engage with essential platform features including the search and track functions and document access through a secure SSO web app.

Consignments can be identified by booking, equipment, bill of lading and client reference numbers.

View shipping events, documents and transportation plan.

Events are sourced directly from carriers, ports, terminals and other parties to the shipment.

A single, secure, simplified view across all shipments in the supply chain

120 plus standardized events published from the source.

Near real-time events directly from the source are instantly visible to all parties to a consignment.

TradeLens Core

MILESTONES

Data that are precise and accessible to all parties help shipments move faster. TradeLens provides a near real-time publish and subscribe mechanism for exchanging milestone data between the entities that are involved in the shipment.

Importers and exporters who use TradeLens can easily determine the status of their shipments through access to more than 120 shipment event types, communicated directly from the source, including document updates and planned, estimated and actual transport milestones.

Planned

+ Planned stuffing start
+ Planned stuffing completed
+ Planned loaded on truck
+ Planned gate out
+ Planned gate in
+ Planned discharge from truck
+ More...

Estimated

+ Estimated rail arrival
+ Estimated discharge from rail
+ Estimated loaded on barge
+ Estimated barge departure
+ Estimated barge arrival
+ Estimated discharge from barge
+ More...

Actual

+ Actual loaded on vessel
+ Actual vessel departure
+ Actual vessel arrival
+ Actual discharge from vessel
+ Actual stripping start
+ Actual container stripped
+ More...
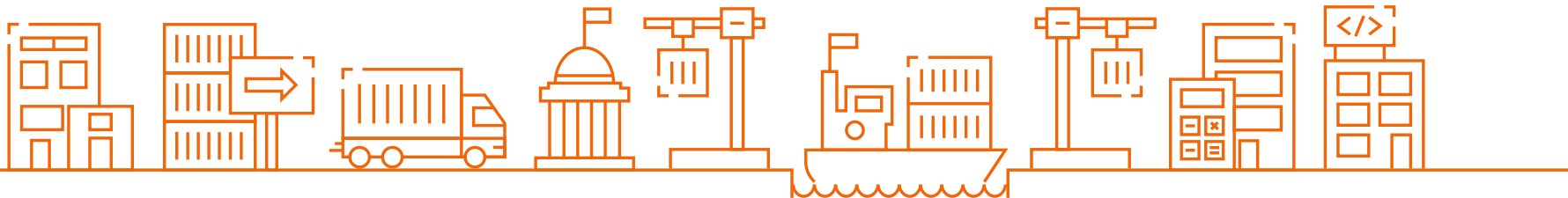
TradeLens Core

DOCUMENT SHARING

TradeLens provides a framework for sharing documents among trade parties, with security, version control, and privacy. Authorized users with the required permissions can upload, download, view and edit documents. The TradeLens document store allows documents to be securely stored and viewed by various parties to a shipment.

Digitized document benefits

+ Trade documents are associated with containers, and consignments in a distributed and shared repository, eliminating endless file, folder and email searching for information.

+ TradeLens supports the use of structured documents. The information they contain can be easily analyzed and interpreted, allowing for greater automation and accuracy.

+ Each time a document is edited or uploaded to the TradeLens platform, a new version of the document is created and added to the document store, eliminating multiple copies and the inconsistency of identifying the latest versions.

+ TradeLens uses the Hyperledger Fabric permissioned blockchain to guarantee the immutability and traceability of trade documents.

+ Participants assigned to the consignment have default access rights based on a unified permissions model

+ Network participants assigned to a consignment can immediately access shared documents and data, never having to wait for a document to be sent.

DOCUMENTS SUPPORTED ON THE PLATFORM

+ Sea Waybill*
+ Commercial Invoice *
+ Packing List *
+ Booking Request
+ Booking Confirmation
+ Shipping Instructions
+ Export Declaration
+ Bill of Lading
+ Pro-Forma Invoice
+ Arrival Notice
+ Import Declaration
+ Health Certificate
+ Phytosanitary Certificate
+ Veterinary Certificate
+ Fumigation Certificate
+ Inspection Certificate
+ Certificate of Analysis
+ Certificate of Origin
+ Dangerous Goods Declaration

* Structured support

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DATA SHARING

TradeLens permissions are determined through a combination of the organization's role and the data type. The TradeLens platform then permits access to data according to the permission matrix.

The full Data Sharing Specification is available here

Events	Transport Service Buyer	Consignor	Consignee	Origin 3PL Agent	Destination 3PL Agent	Export Customs Broker	Import Customs Broker	Request Party	Notify Party	Transport Service Provider	Origin Marine Terminal	
Planned stuffing start	○	◉	○	◉	○	○	○	○	○	○	◉	
Planned stuffing completed	○	◉	○	◉	○	○	○	○	○	○	◉	
Actual loaded on truck	○	○	○	◉	◉	○	○	○	○	◉	○	
Estimated gate out	○	○	○	◉	◉	○	○	○	○	◉	◉	
Actual gate in	○	○	○	◉	◉	○	○	○	○	◉	◉	
· · ·												
Documents												
Booking Confirmation	○	○	○	○	○	○	○	○	◌	◉	◌	
Shipping Instructions	○	◉	○	○	○	○	○	◉	◌	○	◌	
Bill of Lading	○	○	○	○	○	○	○	○	◌	◉	◌	
Sea Waybill	○	○	○	○	○	○	○	○	◌	◉	◌	
House Bill of Lading	○	○	○	◉	○	○	○	○	◌	◉	◌	
· · ·												

◉ Participant has an obligation to provide (publish) the data, where relevant/applicable   ○ Participant has read access (can subscribe) to the data   ◌ Participant has no access to the data

THANK YOU

TRADELENS

PORTS AND TERMINALS

◉ **Live**: The Network Member is connected to the Platform and providing data

◎ **In Process**: The Network Member engaged and/or integration is in process

	Terminal Location	Operator
◉	Aarhus, Denmark	APM Terminals
◉	Algeciras, Spain	Port of Algeciras
◉	Algeciras, Spain	APM Terminals
◎	Antofagasta, Chile	SAAM
◎	An Ping, Taiwan	MPB
◎	Antwerp, Belgium	CCT Alpherium
◉	Apapa, Nigeria	APM Terminals
◉	Auckland, New Zealand	PortConnect
◉	Avonmouth, UK	MCP
◉	Aqaba, Jordan	APM Terminals
◎	Arica, Chile	Arica Terminal
◉	Bahrain	APM Terminals
◎	Barcelona, Spain	Port of Barcelona
◉	Bayonne, NJ, USA	GCT
◉	Bilbao, Spain	Port of Bilbao
◎	Bremerhaven, Germany	NTB
◉	Brisbane, Australia	Patrick Terminals
◉	Buenaventura, Columbia	APM Terminals
◉	Buenos Aires, Argentina	APM Terminals
◉	Callao, Peru	APM Terminals
◉	Cartagena, Columbia	APM Terminals
◉	Cotonou, Benin	APM Terminals
◎	Copenhagen, Denmark	CPH Malmo Port
◎	Deltaport, Canada	GCT
◎	Dahej, India	Adani Ports
◎	Dharmaj, India	Adani Ports

	Terminal Location	Operator
◎	Elizabeth, NJ, USA	APM Terminals
◉	Elizabeth, South Africa	Port Elizabeth
◎	Ennore, India	Adani Ports
◉	Felixstowe, UK	MCP
◉	Fremantle, Australia	Patrick Terminals
◎	GCT Vanterm, Canada	GCT Vanterm
◎	Global Ports, UK	Global Ports
◉	Gothenburg, Sweden	APM Terminals
◉	Grangemouth, UK	MCP
◉	Purto Quetzal, Guatemala	APM Terminals
◉	Gunsan, South Korea	KL-NET
◉	Hakata, Japan	MLC
◉	Halifax, Canada	Halterm Canada
◎	Hazira, India	Adani Ports
◎	Helsinki, Finland	Port of Helsinki
◉	Hibiki, Japan	MLC
◉	Hong Kong	Modern Terminals
◉	Houston, TX USA	Port of Houston
◉	Hualien, Taiwan	MPB
◉	Hull, UK	MCP
◉	Immingham, UK	MCP
◉	Itajai, Brazil	APM Terminals
◉	Incheon, South Korea	KL-NET
◎	Iquique, Chile	SAAM
◉	Izmir, Turkey	APM Terminals
◎	Kaohsiung, Taiwan	MPB

	Terminal Location	Operator
◎	Kattupalli, India	Adani Ports
◎	Keelung, Taiwan	MPB
◎	Kobe, Japan	MLC
◉	Kwangyang, South Korea	KL-NET
◉	Laem Chabang, Thailand	APM Terminals
◉	Lazaro, Mexico	APM Terminals
◎	Leningrad, Russia	Ust-Luga Terminal
◎	Liilia, Estonia	Port of Tallinn
◉	Liverpool, UK	MCP
◎	Livorno, Italy	Port of Livorno
◉	Los Angeles, CA, USA	APM Terminals
◉	Luanda, Angola	APM Terminals
◉	Maasvlakte II, Netherlands	APM Terminals
◎	Manila, Philippines	ICTSI
◎	Marport, Turkey	Marport
◉	Melbourne, Australia	Patrick Terminals
◉	Moji, Japan	MLC
◉	Monrovia, Liberia	APM Terminals
◉	Montecon, Uraguay	Montecon
◉	Montreal, Canada	MGTP
◉	Mobile, AL USA	APM Terminals
◉	Moin, Costa Rica	APM Terminals
◎	Moss, Norway	Greencarrier Moss
◉	Mumbai, India	APM Terminals
◎	Mundra, India	Adani Ports
◎	Murmugao, India	Adani Ports

	Terminal Location	Operator
◉	Nagoya, Japan	MLC
◉	Napier, NZ	Napier Port Authority
◉	Newcastle, UK	MCP
◎	New York, NY, USA	GCT
◎	Norfolk International Terminal	Port of Virginia
◉	Nouadhibou, Mauritania	APM Terminals
◉	Nouakchott, Mauritania	APM Terminals
◉	Onne, Nigeria	APM Terminals
◉	Osaka, Japan	MLC
◎	Panama	SSA Marine
◎	Para, Brazil	Port of Vila do Conde
◉	Philadelphia, PA USA	Packer Terminals
◉	Pipavav, India	APM Terminals
◉	Pecem, Brazil	APM Terminals
◉	Pyeongtaek, South Korea	KL-NET
◉	Poti, Georgia	APM Terminals
◉	Pohang, South Korea	KL-NET
◎	Paraiba, Brazil	Porto de Cabedelo
◎	Portsmouth, Virginia	VIT
◎	Portsmouth, Virginia	Port of Virginia
◎	Port-Saint-Louis-du-Rhône, France	Seayard
◉	Pusan, South Korea	KL-NET
◎	Red Sea Gateway	RGST
◎	Richmond Marine Terminal	Port of Virginia
◎	Terminal Rosario Argentina	TPR

PORTS AND TERMINALS

◉ **Live**: The Network Member is connected to the Platform and providing data

◎ **In Process**: The Network Member engaged and/or integration is in process

	Terminal Location	Operator		Terminal Location	Operator
◉	Rotterdam, Netherlands	APM Terminals	◎	Virginia Inland Port	Port of Virginia
◉	Said, Egypt	APM Terminals	◉	Virginia International Gateway	Port of Virginia
◎	Saint Petersburg, Russia	Petrolesport Skt	◎	Visakhapatnam, India	JM Baxi
◎	Saint Petersburg, Russia	FCT	◎	Vizag, India	Adani Ports
◉	Salalah, Oman	APM Terminals	◎	Vizhinjam, India	Adani Ports
◎	Santa Fe, Argentina	TPR	◉	Yokohama, Japan	MLC
◎	Santo Antonio, Chile	SAAM	◎	Zarate, Argentina	Zarate- Argentina
◎	Santos, Brazil	APM Terminals			
◉	San Pedro, Ivory Coast	APM Terminals			
◉	San Vincente, Chile	SAAM			
◎	SteveCo Terminal	SteveCo			
◉	Sydney, Australia	Patrick Terminals			
◉	Singapore, Singapore	PSA			
◎	Suao, Taiwan	MPB			
◎	Taichung, Taiwan	MPB			
◎	Taipei, Taiwan	MPB			
◉	Tangier, Morocco	APM Terminals			
◉	Tauranga, NZ	PortConnect			
◉	Teesport, UK	MCP			
◉	Tokyo, Japan	MLC			
◎	Tuna, India	Adani Ports			
◉	Ulsan, South Korea	KL-NET			
◉	Valparaiso, Chile	TSP			
◉	Valencia, Spain	Port of Valencia			
◉	Vado, Italy	APM Terminals			
◎	Vancouver, Canada	GCT			