A COMMON DIGITAL INFRASTRUCTURE STANDARD FOR SUPPLY CHAIN RESILIENCE IN CONTAINER PORTS

Creating cargo traceability for multi-modal supply chain operations

The Supply Chain Resilience Taskforce



What data do cargo owners need?

In a world of increasing disruptions and complexity, cargo owners want basic questions answered by their supply chain partners.

1. **Did my containerised cargo arrive at the port?**
2. **Is the original transhipment plan still on schedule?**
3. **Is the gate-out for inland transportation confirmed?**

Answering these questions requires basic data from ports but – for complex and longstanding reasons – **it has never been simple to supply.**

THE SOLUTION

A global language for logistics events at ports (e.g. estimated time of arrival, discharge of container at the terminal, planned gate out by rail,)

A digital infrastructure allowing secure and timely access to reliable data at ports

Who is behind the Supply Chain Resilience Taskforce?

The taskforce consists of representatives from terminals (**TIC 4.0**), shipping lines (**DCSA**), forwarders (**FIATA**), PCS operators (**IPCSA**) and ports (**IAPH**), supported by **UN/CEFACT** experts.

What does it aim to achieve?

THE OBJECTIVE

To improve supply chain resilience by better visibility of containerised cargo in ports

THE DELIVERABLE

Orchestrating structured data and secure access to data at port terminals

THE IMPACT

Reduced supply chain disruptions effects for cargo owners at warehouses, production facilities and shops.

What problem does the taskforce solve?

- Disruptions in international supply chains are causing congestion in many ports
- Cargo owners have always struggled to access data on their containerised shipments, especially on the shore-ship-shore leg of the journey
- Cargo owner access to operational planning data in ports is reliant on cross-sector collaboration

39
critical logistics events

Port authorities, international shipping lines, terminals, forwarders and port community systems operators have now joined forces to deal with this problem.

After several years of work and negotiation, a common language for exchanging data on 39 critical logistics events has been harmonised under UN / CEFACT supervision, led by IAPH in collaboration with DCSA, FIATA, TIC 4.0 and IPCSA.

That uniform common language is now ready for use.

Note: results are also incorporated in standards of ASTM and ISO (ISO/TC 8/SC 11/WG 2 "Maritime operational data model« ISO 25155

What is UN/CEFACT?

UN/CEFACT stands for the United Nations Centre for Trade Facilitation and Electronic Business

What does it do?

It has developed or maintained essential data instruments including:

1. **UN/EDIFACT –** widely used for electronic data interchange
2. **UN/LOCODE –** the location coding system used for ports and other trade locations
3. **CORE COMPONENT LIBRARY (CCL) –** for standardized trade data (every retail product is classified here)

UN/CEFACT works with the IMO by connecting their standards as part of the FAL/eFAL compendium of data for Maritime Single Windows and Port Community Systems.

A joint international industry effort leads to a global standard

This was the first time that all the essential parties in the supply chain had sat down together to solve a cross-sectoral data challenge.

They faced significant hurdles:

- Coping with the insufficient digital maturity of some stakeholders.
- Managing the fact that cargo owners have no contractual relationship with terminals.
- Difficulties to identify companies requesting data, globally.
- Overcoming the logical unwillingness of many parties to share valuable, confidential data.

Two solution pillars

SOLUTION PILLAR 1

Harmonised event data definitions

UN/CEFACT formalised the joint language for the most important logistics event in ports. Code list No 24 provides 39 harmonized event definitions

SOLUTION PILLAR 2

Identification & authorization to access digital infrastructure

Digital capability for ports to facilitate identification and authorization
Flexible and adaptable to different technologies

Solution pillar 1 – harmonized event definitions

In July 2026, UN/CEFACT endorsed the taskforce's work by publishing:

39 logistics events: key time stamps for the gate in-gate out process of a port container terminal

39 logistics events

For industry it is important to note, the set is almost completely in line with the DCSA Track & Trace, used by the Ocean Carrier services

Key examples from the official UN/CEFACT code list 24.6.1

TRADE AND TRANSPORT STATUS & EVENT CODES Revision 6
(UNECE CEFACT Trade Facilitation Recommendation No. 24)



CI+
CODE

392

Name:

Arrival of Full Equipment by Vessel

Description:

Arrival of full equipment by vessel at the port terminal.

Key examples from the official UN/CEFACT code list 24.6.1

TRADE AND TRANSPORT STATUS & EVENT CODES Revision 6
(UNECE CEFACT Trade Facilitation Recommendation No. 24)



CI+
CODE

393

Name:

Discharge of Laden Equipment from Vessel at Port Terminal

Description:

Discharge of Laden Equipment from Vessel at Port terminal.

Key examples from the official UN/CEFACT code list 24.6.1



TRADE AND TRANSPORT STATUS & EVENT CODES Revision 6
(UNECE CEFACT Trade Facilitation Recommendation No. 24)

CI+
CODE

395

Name:

Available for Pickup by Rail at Port Terminal

Description:

The full (laden) equipment is ready for collection by rail at the port terminal.

Key examples from the official UN/CEFACT code list 24.6.1



TRADE AND TRANSPORT STATUS & EVENT CODES Revision 6
(UNECE CEFACT Trade Facilitation Recommendation No. 24)

CI+
CODE

397

Name:

Gate-Out of Full Equipment by Truck, Rail, or Barge

Description:

The goods/consignment/equipment has been collected and physically exited the terminal gate.

Key examples from the official UN/CEFACT code list 24.6.1



TRADE AND TRANSPORT STATUS & EVENT CODES Revision 6
(UNECE CEFACT Trade Facilitation Recommendation No. 24)

CI+
CODE

412

Name:

Consignment Release Message Issued

Description:

Consignment release message issued; authorization has been electronically sent to permit the release of the goods to the consignee or nominated party.

Solution pillar 1 – harmonized event definitions

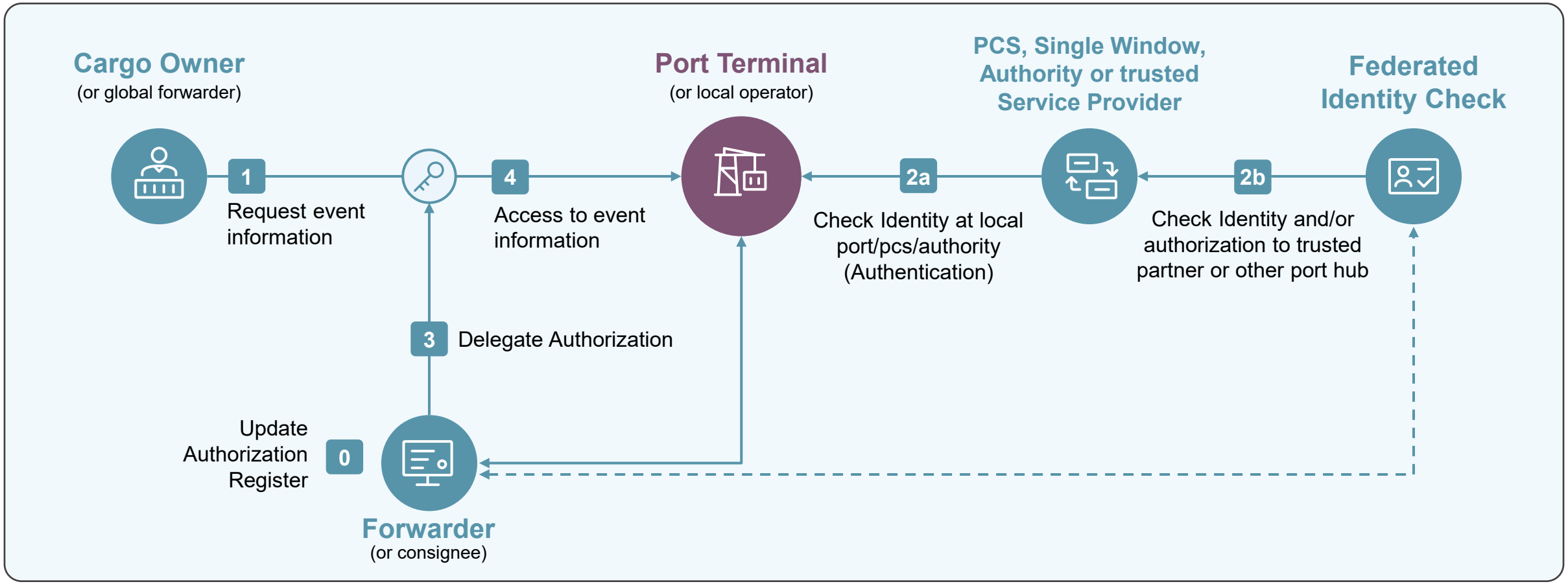
UN/CEFACT Name	UN/CEFACT Description
Ready for Truck Drop-Off at Port Terminal	The port terminal is operational and ready to accept the delivery of full (laden) transport equipment arriving by road (truck).
Ready for Rail Drop-Off at Port Terminal	The port terminal is operational and ready to accept the delivery of full (laden)transport equipment arriving by rail.
Ready for Barge Drop-Off at Port Terminal	The port terminal is operational and ready to accept the delivery of full (laden) transport equipment arriving by barge.
Port Arrival via Truck	The full transport equipment has arrived at the port terminal by truck
Port Arrival via Rail	The full transport equipment has arrived at the port terminal by rail.
Port Arrival via Barge	The full transport equipment has arrived at the port terminal by barge.
Gate-In of Full Equipment by Truck	Gate-in of full equipment by truck at the port terminal occurs when the arriving container is registered and accepted into the terminal system.
Gate-In of Full Equipment by Rail	Gate-in of full equipment by rail at the port terminal occurs when the arriving container is registered and accepted into the terminal system.
Gate-In of Full Equipment by Barge	Gate-in of full equipment by barge at the port terminal occurs when the arriving container is registered and accepted into the terminal system.
Discharge of Full Equipment from Truck, Rail or Barge	Discharge of full equipment from truck, rail, or barge at the port terminal.
Full Equipment is available for loading on vessel	The full equipment is available to pick up for loading onto the vessel
Full Equipment loaded onto Vessel	Load of full equipment onto vessel at the port terminal occurs when the container is securely placed on board and registered in the terminal system.
Departure of Full Equipment by Vessel	Departure of full equipment by vessel at the port terminal.
Arrival of Full Equipment by Vessel	Arrival of full equipment by vessel at the port terminal.

UN/CEFACT Name	UN/CEFACT Description
Discharge of Laden Equipment from Vessel at Port terminal Discharge from vessel	Discharge of Laden Equipment from Vessel at Port terminal
Inspection required by authority	An inspection of the goods/equipment is required by an authority.
Cleared, by customs	The goods/consignment/equipment/means of transport has been cleared by customs.
Dangerous Goods Declaration Received for Full Equipment	Dangerous Goods Declaration received for full equipment.
Collection/pick-up, awaited	The goods/consignment/equipment is awaiting collection/pick-up.
Appointment for pick up at terminal is made	An appointment for pick up of the laden equipment has been made (truck/train/barge) at the port terminal
Gate-Out of Full Equipment by Truck	The goods/consignment/equipment has been collected and physically exited the terminal gate by truck.
Gate-Out of Full Equipment by Rail	The goods/consignment/equipment has been collected and physically exited the terminal gate by rail.
Gate-Out of Full Equipment by Barge	The goods/consignment/equipment has been collected and physically exited the terminal gate by barge.
Departure by Truck/Rail/Barge at Port terminal	The goods/consignment/equipment has been collected/picked-up and left the Port terminal by Truck, Train or Barge
Cleared by agriculture, food or fisheries authorities	The goods/consignment/equipment/means of transport has been cleared by authorities for agriculture, food or fisheries
Certificate of Analysis Received	Certificate of Analysis (CoA) received; the goods/consignment have been certified by the issuing laboratory or manufacturer, confirming compliance with required chemical, physical, or microbiological specifications.
Certificate of Origin Received	Certificate of Origin received; the goods/consignment have been officially documented to verify their country of manufacture or production, as issued by the authorized body.

UN/CEFACT Name	UN/CEFACT Description
Health Certificate Received	Health certificate received; the goods/consignment have been certified by the competent authority as meeting health and safety standards required for transport or trade.
Phytosanitary Certificate Received	Phytosanitary certificate received; the goods/consignment have been officially certified as free from regulated pests and compliant with plant health requirements for international movement.
Veterinary Certificate Received	Veterinary certificate received; the animal products or live animals in the consignment have been examined and approved by veterinary authorities for health and sanitary compliance.
Booking, completed	Goods/consignments/equipment or means of transport has been booked for subsequent movements
Shipping Instruction Received	Shipping instruction received; the transport and documentation details for the consignment have been submitted by the shipper or forwarder for processing.
Shipping Instruction Approved	Shipping instruction approved; the submitted transport and documentation details have been reviewed and validated for use.
Shipping Instruction Rejected	Shipping instruction rejected; the submitted information did not meet validation criteria and has been returned for correction or resubmission.
Shipping Instruction Pending Approval	Shipping instruction pending approval; the submitted transport details are under review and awaiting validation by the relevant party.
Transport Document Issued	Transport document issued; the official transport document (e.g., bill of lading or waybill) has been generated and made available by the carrier or freight forwarder.
Arrival Notice Issued	Arrival notice issued; the consignee or nominated party has been notified that the goods/consignment are due to arrive or have arrived at the destination location.
Transport Document Surrendered	Transport document surrendered; the original transport document has been returned to the carrier or authorized agent, fulfilling the condition for release of the goods.
Consignment Release Message Issued	Consignment release message issued; authorization has been electronically sent to permit the release of the goods to the consignee or nominated party.

Solution pillar 2: digital infrastructure for authorized access

Federated access to data – based on principles for identification, authorization and delegation of trust



Solution pillar 2: digital infrastructure for authorized access

The four principles for federated access to data, based on identification, authorization and delegation of trust

1

Event-driven coordination

A common language is used to provide time-sensitive updates to global operating parties.

2

Identification by local governance

Parties seeking data access are identified and authorised by trusted parties on the basis of devolved governance.

3

Zero trust for authorization

Trust is never automatic but based on rules, context and control.

4

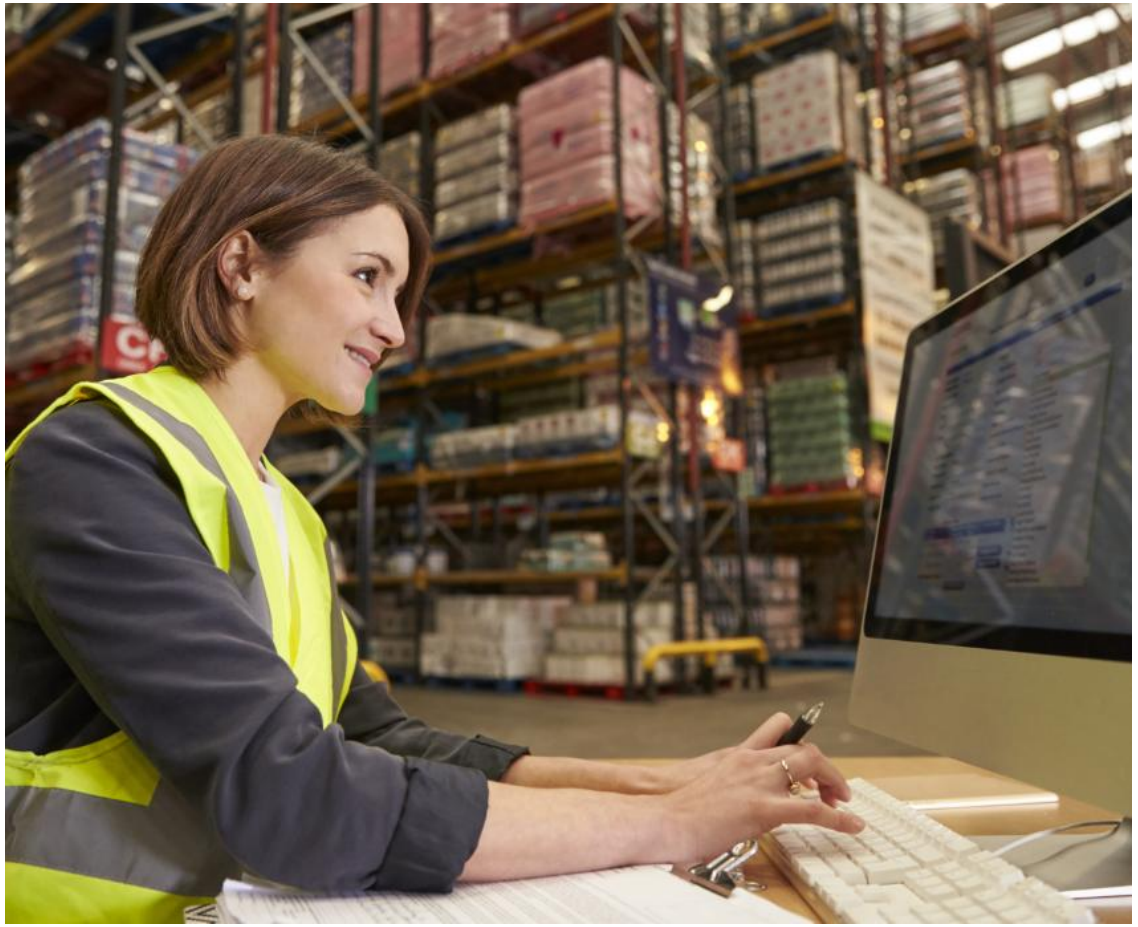
Sign up standard for access to data at the source

Data sovereignty is achieved by maintaining data at source.

What does a better, more connected and resilient containerised cargo supply chain look like?

Cargo owners and forwarders…

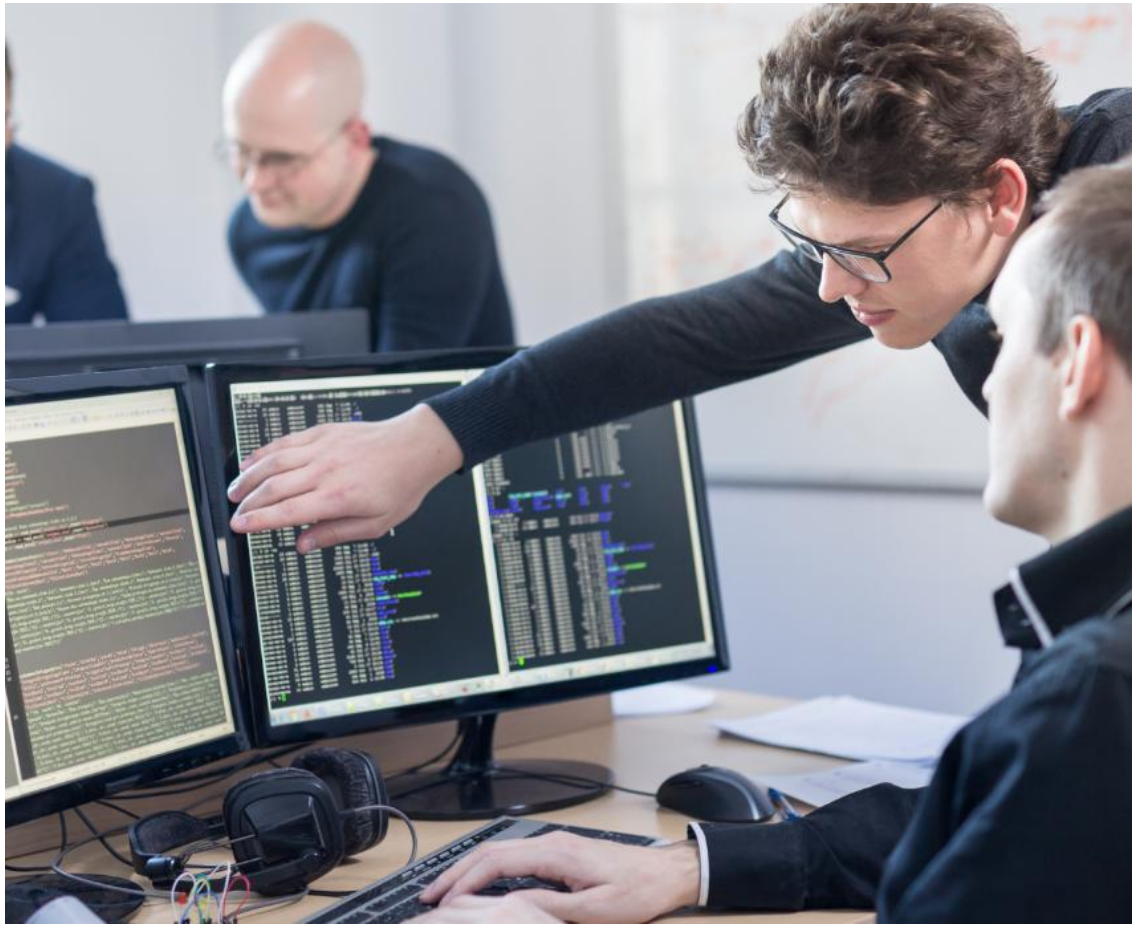
...get visibility into their container logistics, potentially improved ETA/ETD of their cargo at the port hub and ability to proactively manage exceptions



What does a better, more connected and resilient containerised cargo supply chain look like?

Global shipping lines…

…can improve customer service by offering accurate, real-time visibility of cargo data to their customers



What does a better, more connected and resilient containerised cargo supply chain look like?

Terminals…

...can achieve improved terminal yard efficiency via event-based planning and the receipt of better, useable data from shipping lines, cargo owners and inland operators in return



What does a better, more connected and resilient containerised cargo supply chain look like?

Port authorities…

...offer improved service to its customers by facilitating data exchange as a trusted neutral entity and optimise the utilization of their port infrastructure



What does a better, more connected and resilient containerised cargo supply chain look like?

PCS operators…

...benefit from opportunities for more business due to an increased amount of customers exchanging data facilitated by the PCS as a trusted neutral entity



What does a better, more connected and resilient containerised cargo supply chain look like?

Insurers…

...receive authorised access to high-quality data on the arrival and handover of the goods at the port hub



Summary

This cornerstone standard is ready for use by all parties involved. 39 UN/CEFACT standardized and numbered events in the port journey for authorized cargo owners and port users.

This includes:

From arrival at a (inland) port hub up to departure with the subsequent ship or modality, all key logistic events are made available.

Access to data based on identification and authorization will ensure secure and true data collaboration – for cargo visibility and traceability.

Basic digital infrastructure principles enable the right authorised parties access to high quality, single-truth data at the source.

Thank You!

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Thank You!

