Achieving Traceability in International Supply Chains

UN/CEFACT Supply Chain Cross-Industry Track & Trace project

Traceability Discussion (T+L, SCMP, AGRI)
Host: UNECE Trade - Wednesday, 28. April 2021

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in Hanane Becha | LinkedIn

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Transparency in Supply Chain

Innovation & **Standards** are needed to increase the **efficiency, resiliency and sustainability** of logistics!

Smart containers

- Physical reliable data for end-to-end visibility

- UN/CEFACT Smart container project achievements

Cross industry Multimodal Track & Trace

- Track & Trace beyond a single mode of transport

- UN/CEFACT Supply Chain Cross-Industry Track & Trace project

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The Maritime Ecosystem Needs Innovation to Avoid "Paving the Cow"

BY MIKAEL LIND ET AL. 12-09-2020 03:20:00

by Mikael Lind, RISE (Research institutes of Sweden), Hanane Becha, UN/CEFACT, André Simha, MSC (Mediterranean Shipping Company SA), Steen Erik Larsen, A.P. Moller – Maersk, Eyal Ben-Amram, ZIM, and David Marchand, Traxens

*Avoid Paving the Cow → Business process should not be automated as it is BUT should be **rethought** first to enhance its effectiveness and efficiency!!*

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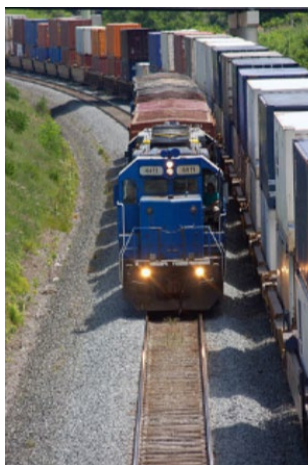
> **Transition from the standards adopted by individual transport modes to multimodal efforts standards organizations**

> **Information is searchable, available, and interpreted the right way**

WORLD LOGISTIC

By Hanane Becha, Todd Frazier, Michael Schröder and Jaco Voorspuij   23/12/2020

This article is a follow-up to two earlier pieces, produced largely by the same authors, outlining the development of semantic and technical interoperability in digitising global multimodal supply chains.

**Transparency
Multimodality
Interoperability
Collaboration
Standards**

Hanane BECHA

SMART MARITIME NETWORK   NEWS   SMN MEMBERS   EVENTS   ABOUT

Cooperation on intermodal standards vital for supply chain efficiency

Story by: Hanane Becha, Todd Frazier, Rudy Hemeleers, Steen Erik Larsen, Bertrand Minary, Henk Mulder, André Simha and Jaco Voorspuij
October 7, 2020 | Features

End-to-end supply chains typically involve several modes of transport and a wide range of stakeholders. The original Seller, as well as the final Buyer of the product have little visibility of the location and condition of the product during transportation.
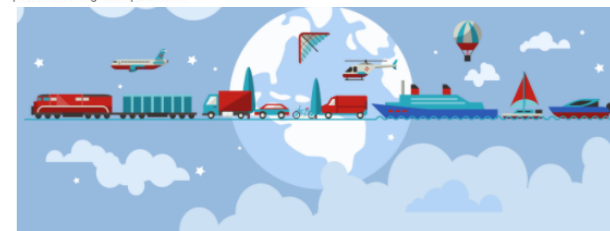
Intermodal Supply Chain Facilitation through Adoption and Implementation of International Communications Standards

Published on October 7, 2020   Edit article   View stats

Hanane Becha
Senior Innovation and Standards Advisor - Smart Container Evangelist - UN/CEFACT Transport & Logistics Vice Chair - UN/CEFACT Cross Industry Supp...   17 articles

By Hanane Becha, Todd Frazier, Rudy Hemeleers, Steen Erik Larsen, Bertrand Minary, Henk Mulder, André Simha, and Jaco Voorspuij.
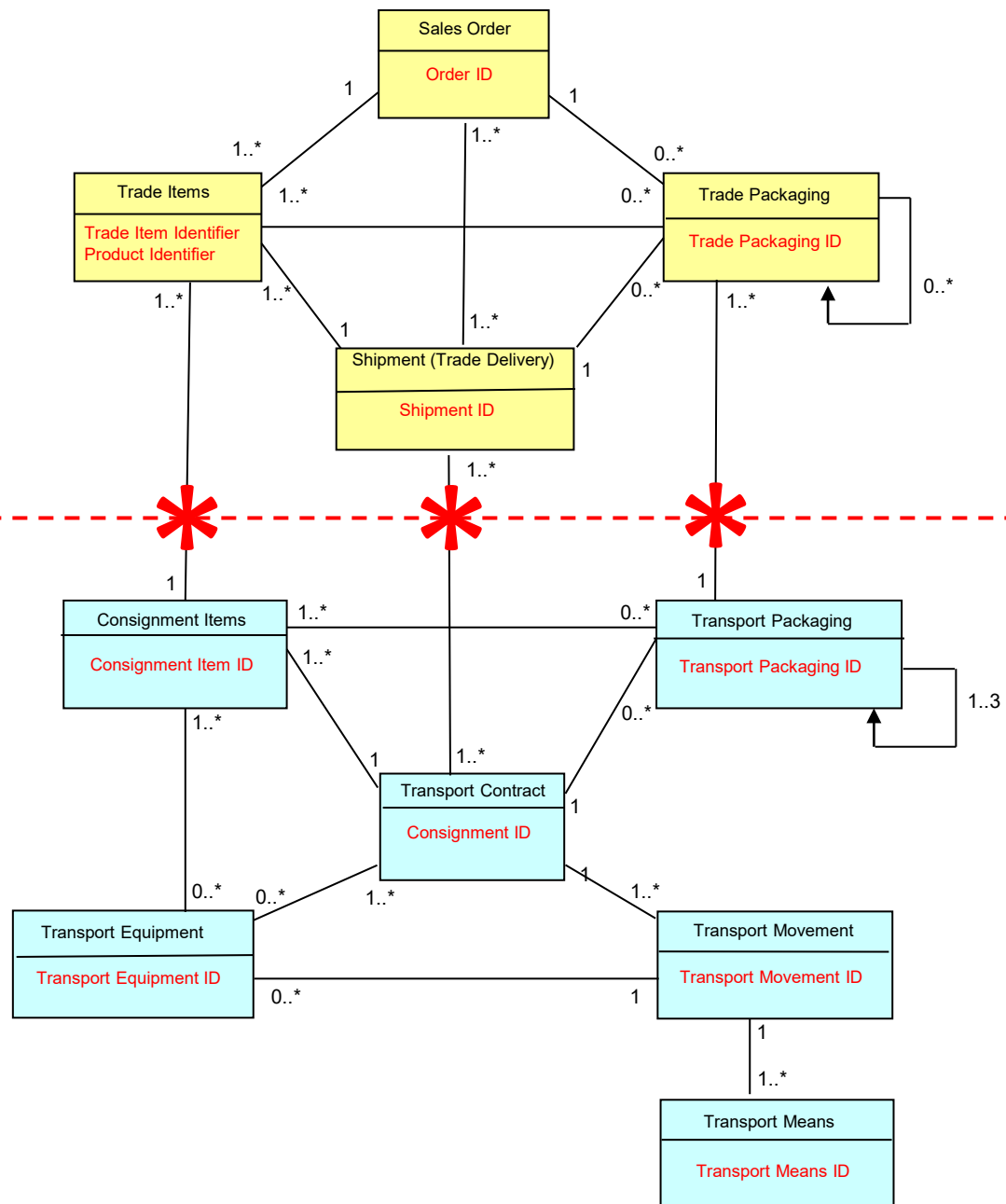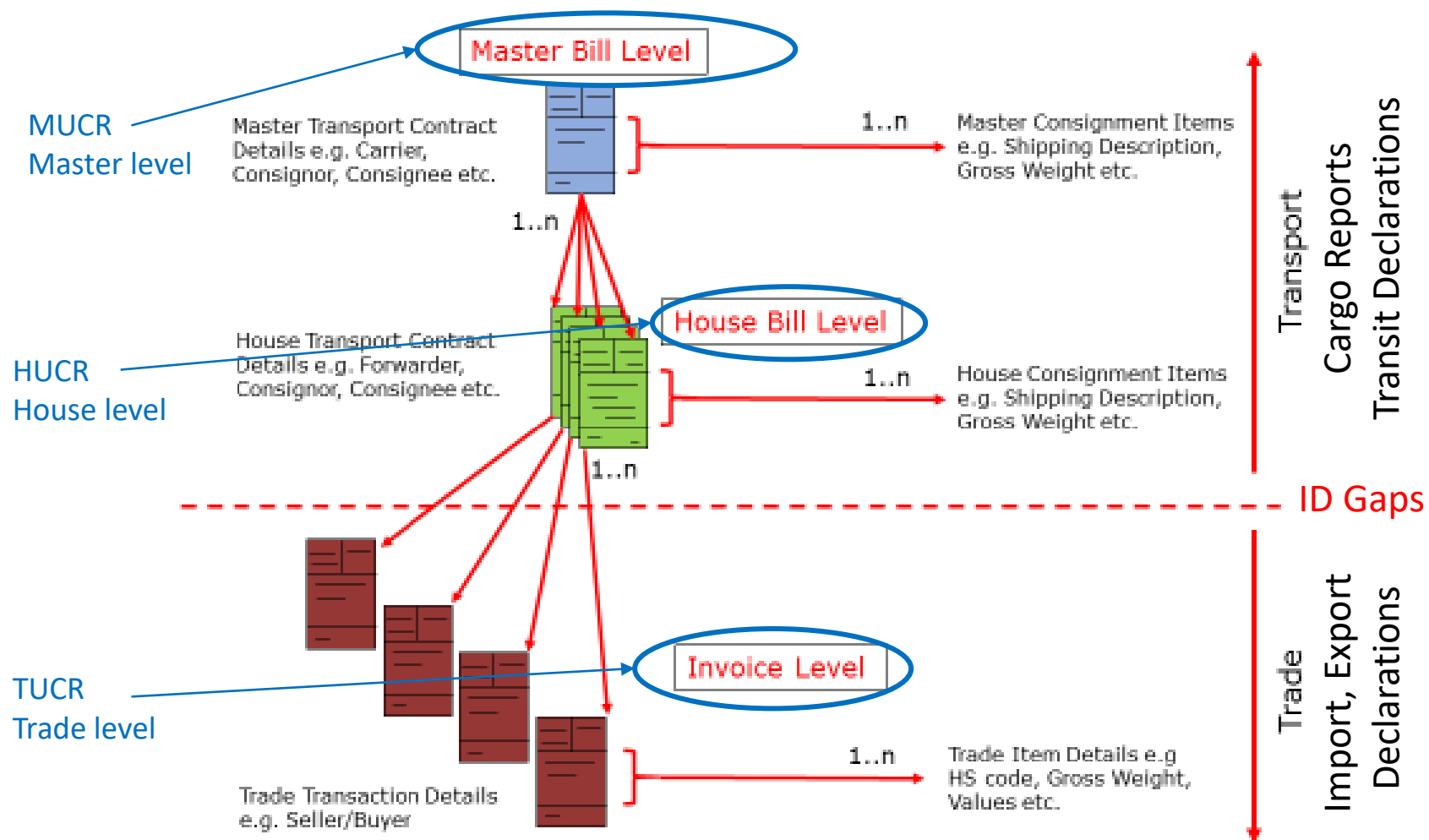
Problem statement

Currently, there are **gaps in the communication of commonly recognized identifiers** used in the business-to-business (B2B) trade world to identify the shipments and the equally commonly recognized identifiers used in the B2B transport world to identify the consignments with which these shipments are moved. This also exists in the business-toconsumer (B2C) trade and B2C transport world. These worlds have been tracking and tracing separately for years and the supporting methods and technologies used have been gradually improving. However, there are no proven globally standardized approaches able to link between the trade and transport domains in all situations.

ID Gaps

Trade
B2B Data
World

Transport
B2B Data
World

ID Gaps

Sales Order
Order ID

Trade Items
Trade Item Identifier
Product Identifier

Trade Packaging
Trade Packaging ID

Shipment (Trade Delivery)
Shipment ID

Consignment Items
Consignment Item ID

Transport Packaging
Transport Packaging ID

Transport Contract
Consignment ID

Transport Equipment
Transport Equipment ID

Transport Movement
Transport Movement ID

Transport Means
Transport Means ID

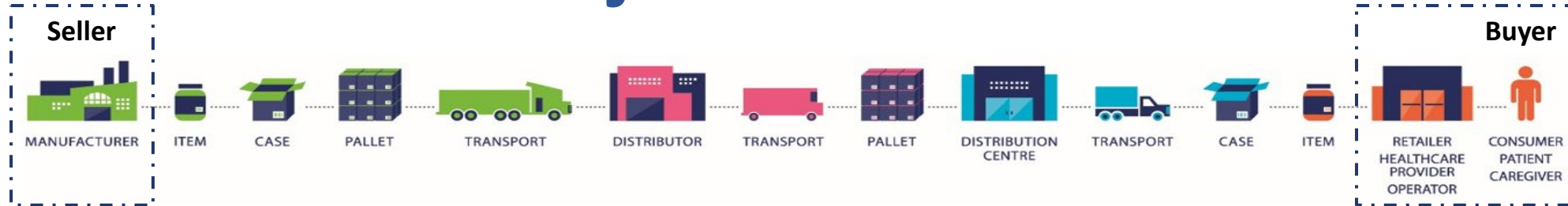UN / CEFACT

ID Gaps

Customs View of trade and transport links (EU UCC)

UN/CEFACT Cross Industry Supply Chain Track & Trace Project

The mission of this project: Where is the product at any time?

- Enable tracking and tracing of products (or assets) and information sharing in *standard* electronic format.

- Define *use cases* to explain the data that will be generated and captured concerning products or other traded items (e.g., lots).

- Track and trace any *traded and identified items* including transport equipment or assets (e.g., box, pallet, container, etc. … Even empty!).

- Logistic services: transport the traded goods between the *seller* and the *buyer*.

Track & Trace Project
Current Status and Deliverables

- Information gathering phase: Green Paper compiling concepts, scenarios, and use cases for all primary modes of transport - has been completed (82 pages)

Formal DELIVERABLES of the project:

- White Paper: "*Integrated Track and Trace for Multi-Modal Transportation*" presented to the 27th UN/CEFACT Plenary in April 2021

- Business Requirements Specification (BRS) detailing the Business Processes of Cross Industry Track and Trace

- Message structures (as class diagrams) for the business transactions and XML Schemas

The current White Paper status: Approved pending final publication

high-level overview as the foundation for developing the business requirements specifications (BRS) document for the project. The BRS will then serve as the guide for the creation of the data models and further standards necessary for supporting digitized track and trace for any single or multimodal transportation scenario. This paper attempts to bridge gaps that exist in the identification schemes used to identify consignment movements and commercial systems.

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Economic Commission for Europe

Executive Committee

Centre for Trade Facilitation and Electronic Business

Twenty-seventh session
Geneva, 19-20 April 2021
Item 6 (d) of the provisional agenda
**Recommendations and standards:
Implementation support material**

White Paper on Integrated Track and Trace for Multimodal Transportation

Submitted by the Bureau

Summary

This white paper provides a high-level overview as the foundation for developing the business requirements specifications (BRS) document for the project. The BRS will then serve as the guide for the creation of the data models and further standards necessary for supporting digitized track and trace for any single or multimodal transportation scenario. This paper attempts to bridge gaps that exist in the identification schemes used to identify consignment movements and commercial systems.

Document ECE/TRADE/C/CEFACT/2021/INF.4 is submitted to the twenty-seventh session by the Bureau for noting.

OUTLINE

Contents

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Tracking & Trace Methods

- Traditional tracking methods – manual and automated
- Automated Identification and Data Collection (AIDC) methods
  - Radio Frequency Identification Technology (RFID-based tracking)
  - Optical Character Recognition Technology (OCR-based tracking)
- Global Positioning System using Internet of Things (IoT) telematics devices (GPS-based tracking)

Note. The environmental parameters captured by smart containers are not part of the T&T project

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What is a Smart Container ?

- A smart container is "**_transport equipment outfitted_** _with an IoT"_ device.

- Any Transport Equipment could become Smart asset

- _Takes measurements and communicates with the outside world_

  where is my container ? Conditions of my goods?

- No single player of the logistic chain has a granular door-to-door overview

- Evidence of the physical trip execution

- Delineation of the responsibilities of the different players

- Good candidate for _Data pipelines_

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Smart Container Data Flow
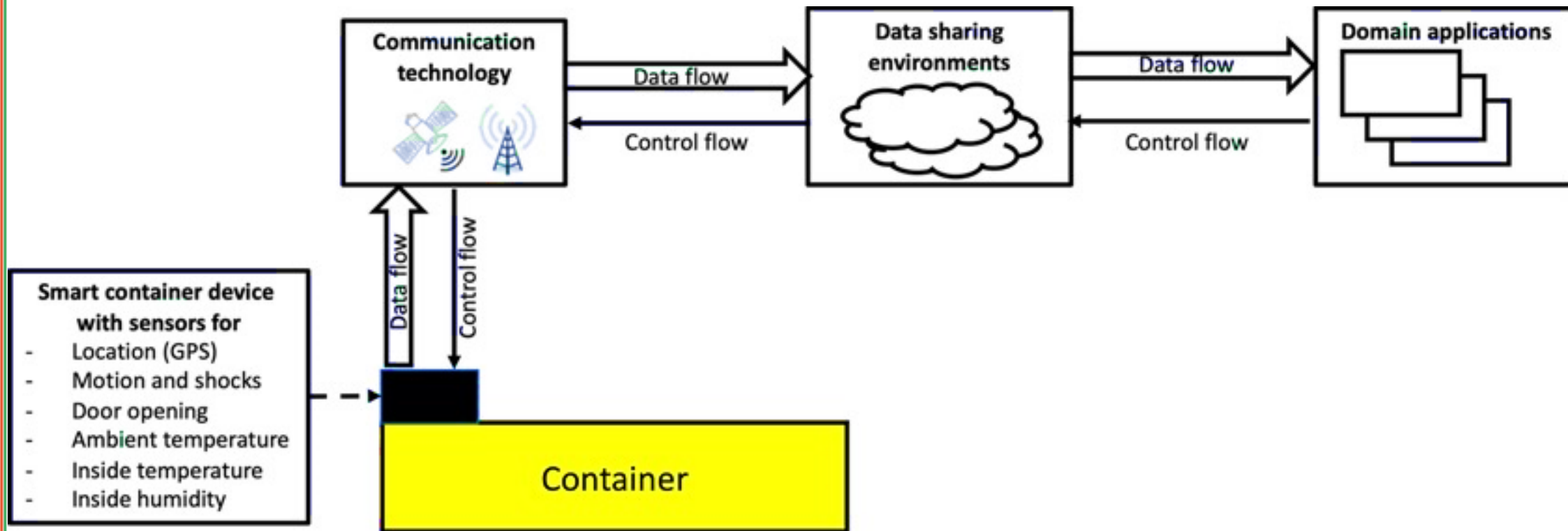
The power of Smart Containers

Going beyond business as usual

➢ Regular events versus significant alerts..

➢ Predictive services

The Power of Parameters in Smart Container Solutions

Delivering data that matters, from periodic events to context-based alerts
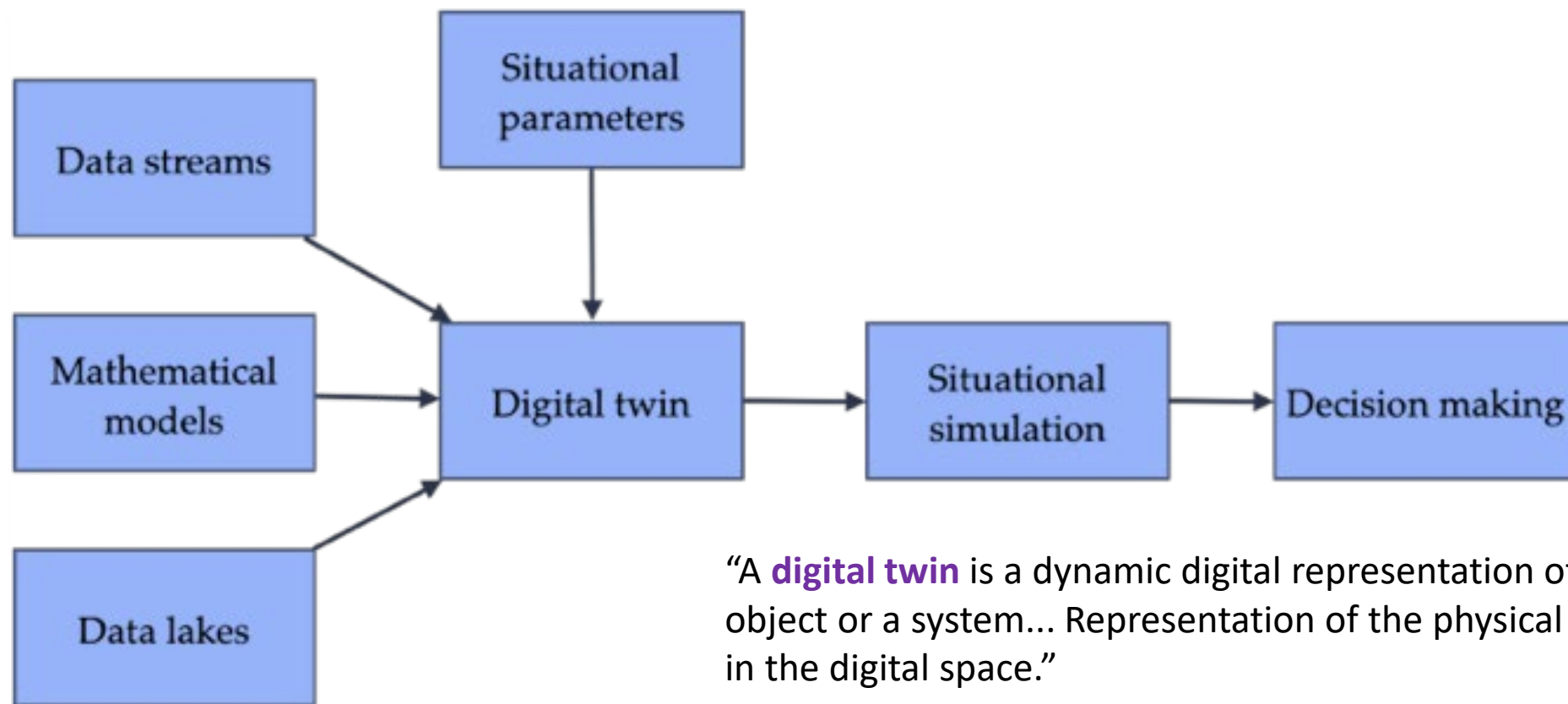
file photo
BY HANANE BECHA 04-28-2020 09:14:09

Smart containers hold promise for revolutionizing supply chains. As leading carriers adopt smart container solutions, they gain valuable data that can be shared with shippers and other supply chain stakeholders. But generating and
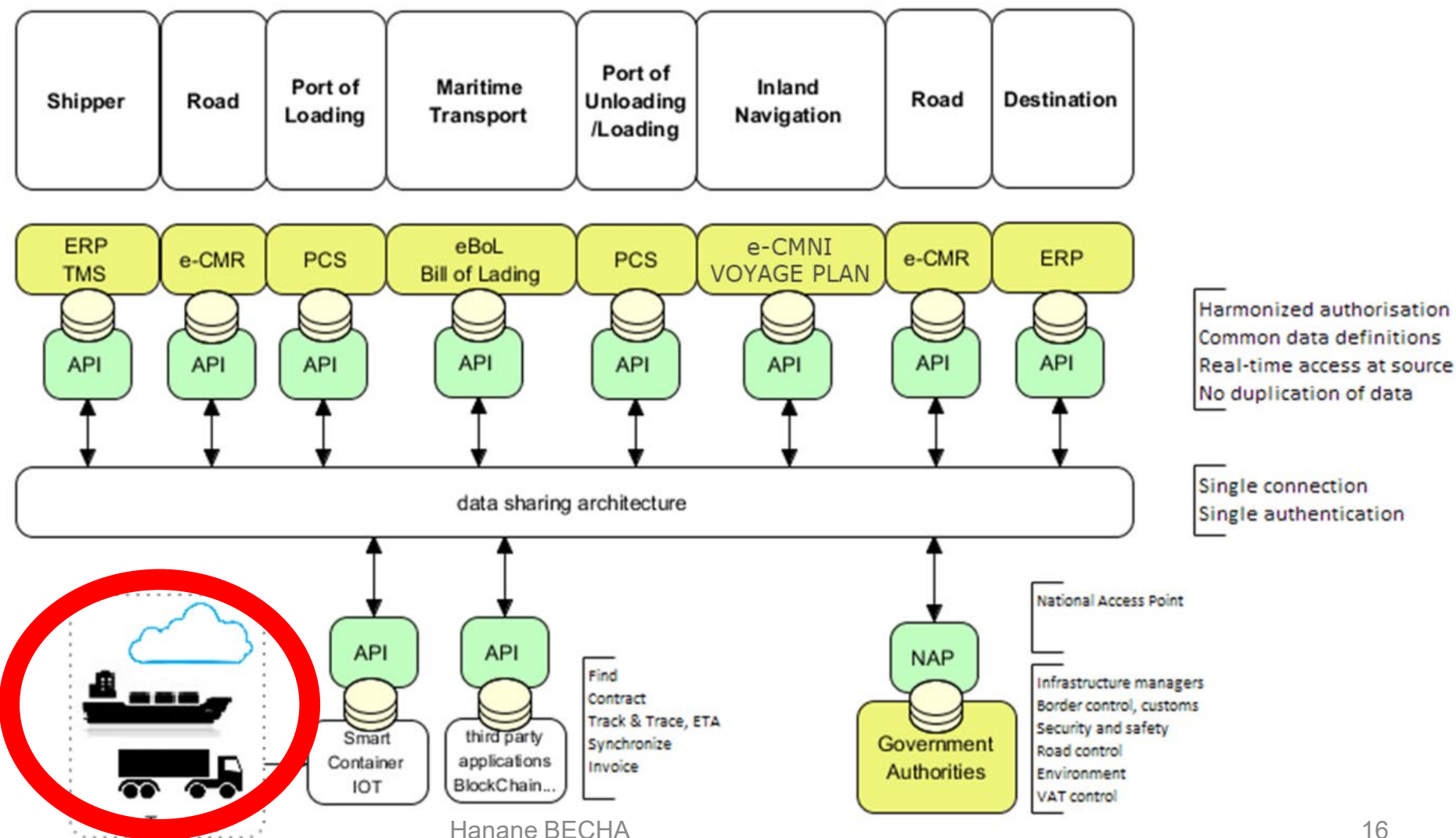
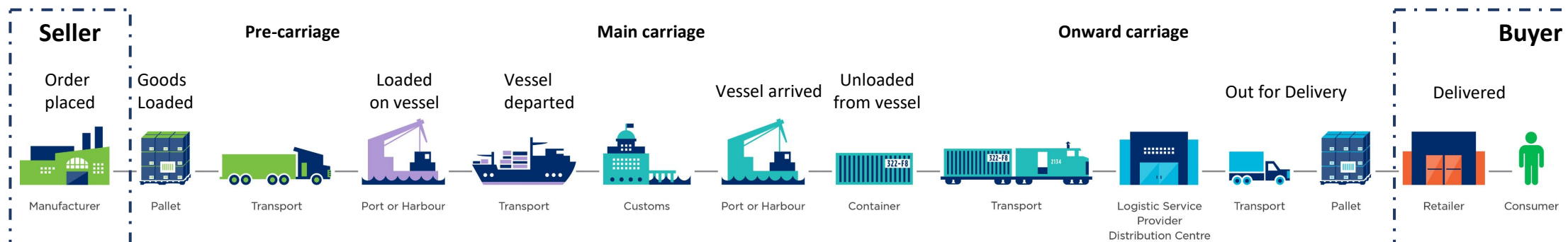# Digital Twin for well-informed decision making

"A **digital twin** is a dynamic digital representation of an object or a system... Representation of the physical world in the digital space."

Multiple Digital streams to enhance the transparency
# The smart container: The new actor in the Supply Chain

Standardized Smart Container data is key to smart Supply Chain

Track & Trace Data and Data Pipelines Waypoints

Seller · Pre-carriage · Main carriage · Onward carriage · **Buyer**

Order placed — Goods Loaded — Loaded on vessel — Vessel departed — Vessel arrived — Unloaded from vessel — Out for Delivery — Delivered

Manufacturer · Pallet · Transport · Port or Harbour · Transport · Customs · Port or Harbour · Container · Transport · Logistic Service Provider Distribution Centre · Transport · Pallet · Retailer · Consumer

- Electronic record of data about the goods and movement built up from the supply chain
- Data can be provided in 'snippets' at various waypoints
- The person who knows the information to be true should provide the data
- Those who need the information should have access to those data fields to perform their role

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Key take away messages

- Logistics industry is *essential* for the world economy
- Logistics industry is a *fragmented* self-organized ecosystem
- Digital Data Streams (DDS) are important for a better *context awareness* and *decision making*
- *Track & Trace Standards can* enable multimodal transparency
- Smart Containers *complete the missing* link offering an end-to-end visibility
- Innovation is needed to enhance *predictability* and *efficiency*
- Standards secure investments and facilitate integration of DDS
- Collaboration of all actors is needed for *resilient eco-friendly* supply chain
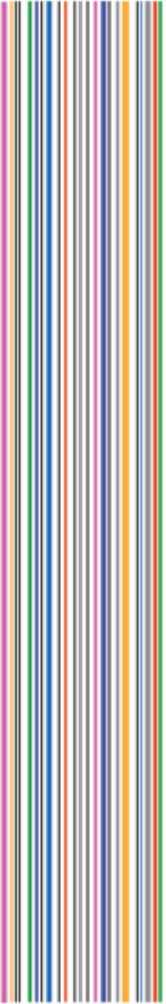
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Thank you

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