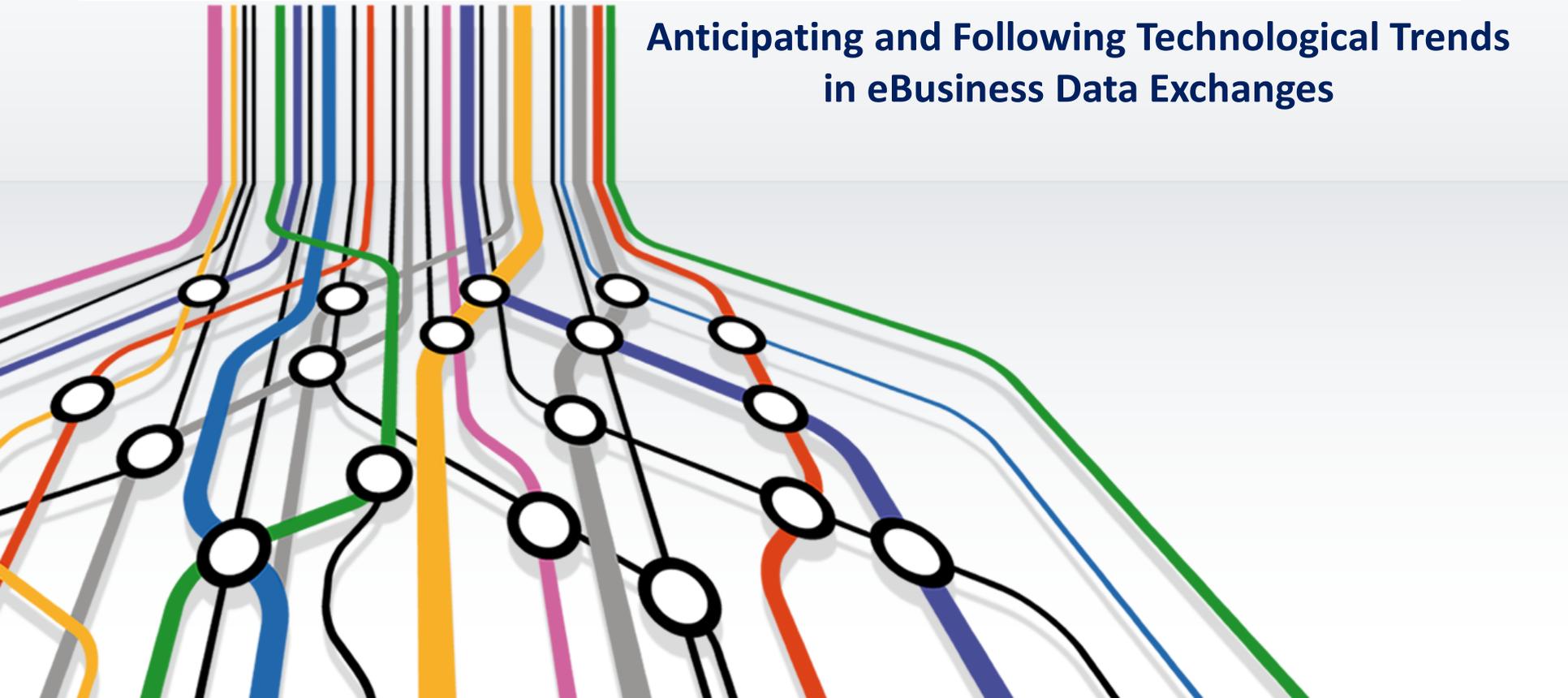


UN/CEFACT

# Reference Data Models (Semantic Models)

**Anticipating and Following Technological Trends  
in eBusiness Data Exchanges**



# UN/CEFACT: Who we are and what we do

## Objectives

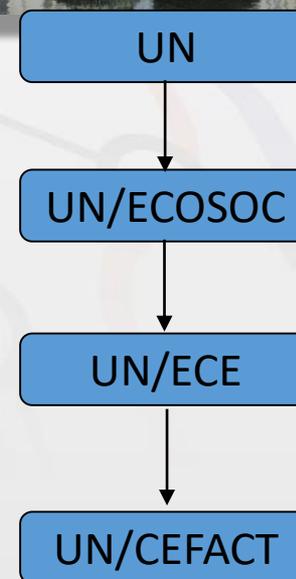
- Simple, transparent and effective processes for global trade
- Efficient and automated exchange of information

## Outputs

- Global Trade Facilitation and Electronic Business Recommendations and Standards

## Means

- Public Private Sector Partnership – over 200 experts from government and business
- Meet virtually every week plus two Forums per year



# Key Cross-Border Challenges faced by the Private Sector

- Too many legal or governmental requirements mandating use of paper documents
- Non-aligned modal specific international transport conventions in an increasingly intermodal or synchromodal transport & logistics world
- Multiple regulatory requirements with unharmonised data definitions and exchange protocols
- Legal goods held back at borders or en route by Customs, Port Health or other cross-border agency due to:
  - Lack of accurate targetting information
  - Lack of availability of accurate data at inspection point

# UN/CEFACT Reference Data Models

- Exchange syntax neutral semantic models
- A rich collection of business artefacts contextualized for a specific domain
- An appropriate subset of the UN/CEFACT Core Component Library (CCL)
- All business artefacts can be contextualized at different semantic model levels (e.g. library/process/message).
- Semantic models aligned to the principles laid down in the UN Layout Key (UNECE Rec 1), UN Trade Data Element Directory (also published as ISO 7372) and UN/EDIFACT
- Based on UN/CEFACT principles of harmonization, standardization and simplification

# The UN/CEFACT evolution/revolution

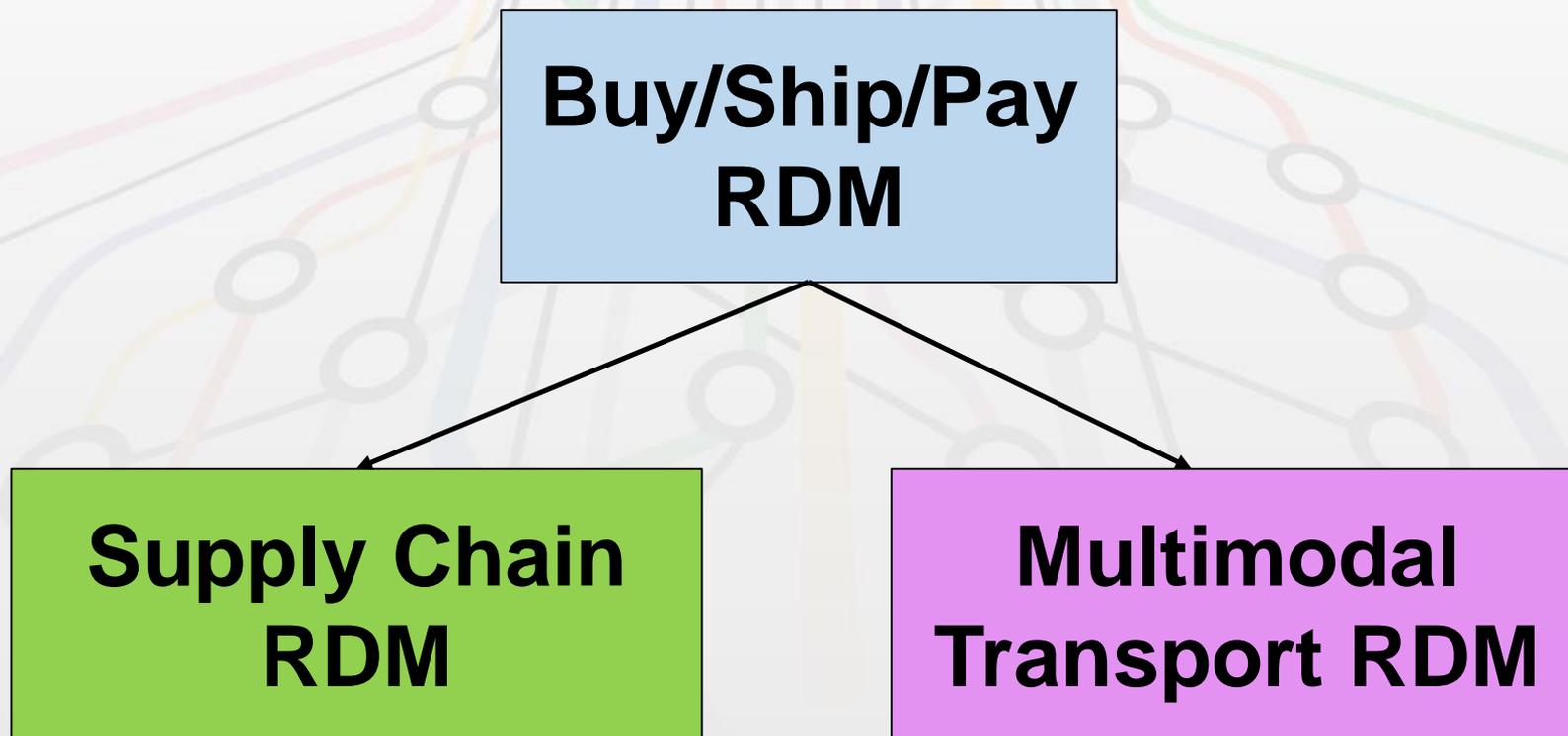
## Exchange-syntax neutral Reference Data Model approach

- From Document centric to Process driven artefacts  
*(Contextualized Business Artefacts)*
- Supports Document centric & Process driven workflows
- Standardized syntax-neutral data exchange structures,  
based on common Master data exchange structure  
*(from which complete documents and/or snippets of documents can  
be created in any chosen syntax e.g. XML, JSON or UN/EDIFACT etc.)*

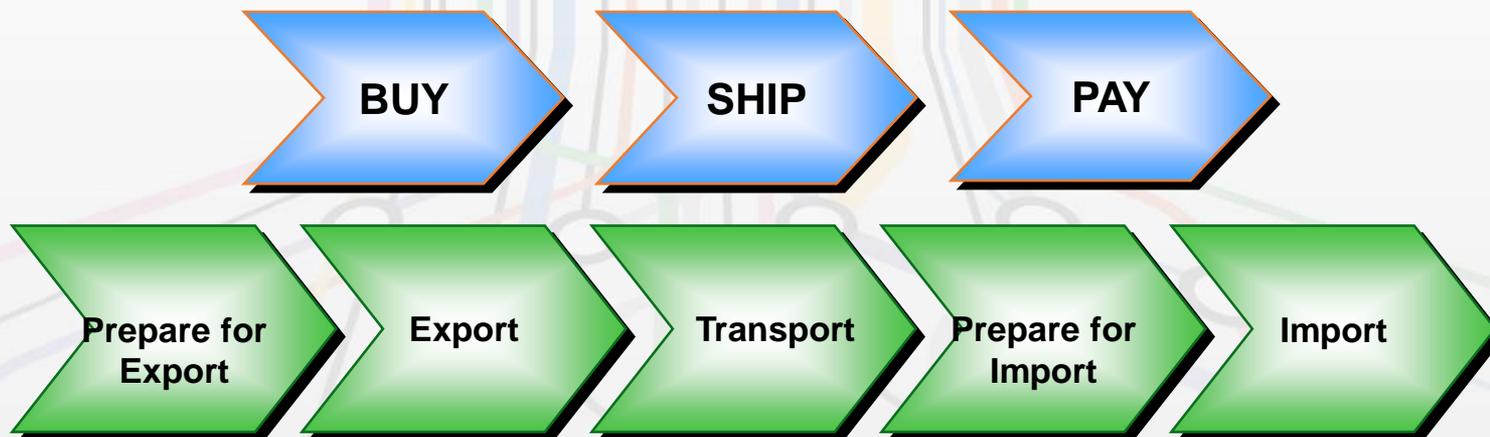
# UN/CEFACT BUY-SHIP-PAY reference data models

- Cover the data requirements of the international supply chain (BUY-SHIP-PAY) process model
- Share a common library (subset of the UN/CEFACT Core Component Library – CCL)
- Include “Master” exchange syntax neutral message structures for developing process aligned subset structures
- Subset message structures can be realized into any required exchange syntax (e.g. JASON, any XML or EDIFACT etc.)
- Support collaborative information sharing
  - such as enabled by data exchange pipelines

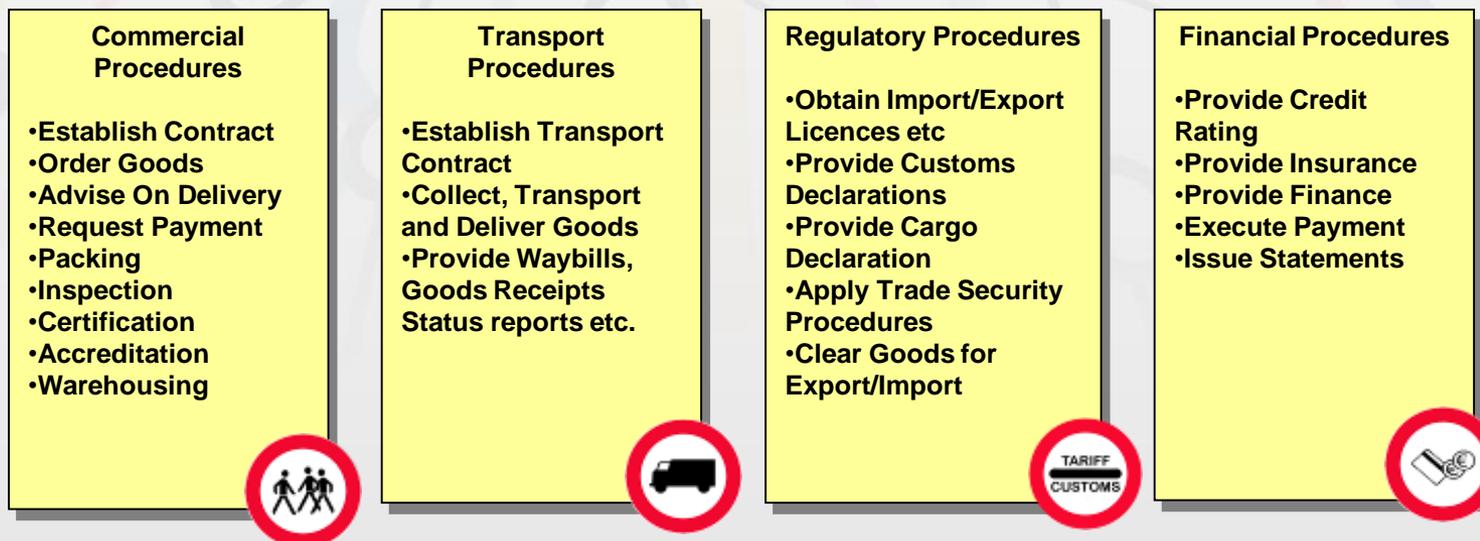
## UN/CEFACT International Supply Chain Reference Data Model Family



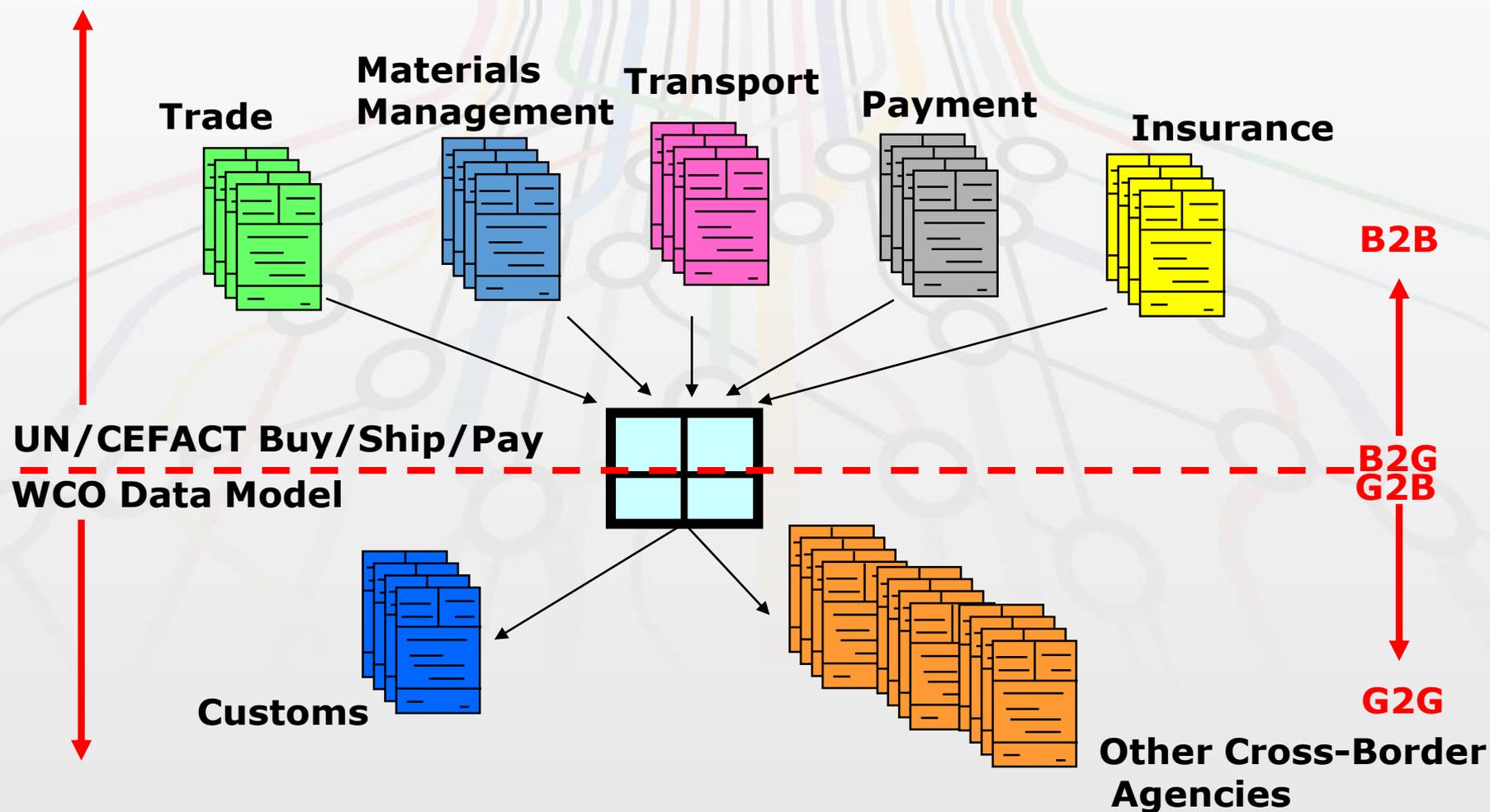
# UN/CEFACT International Supply Chain Process Model



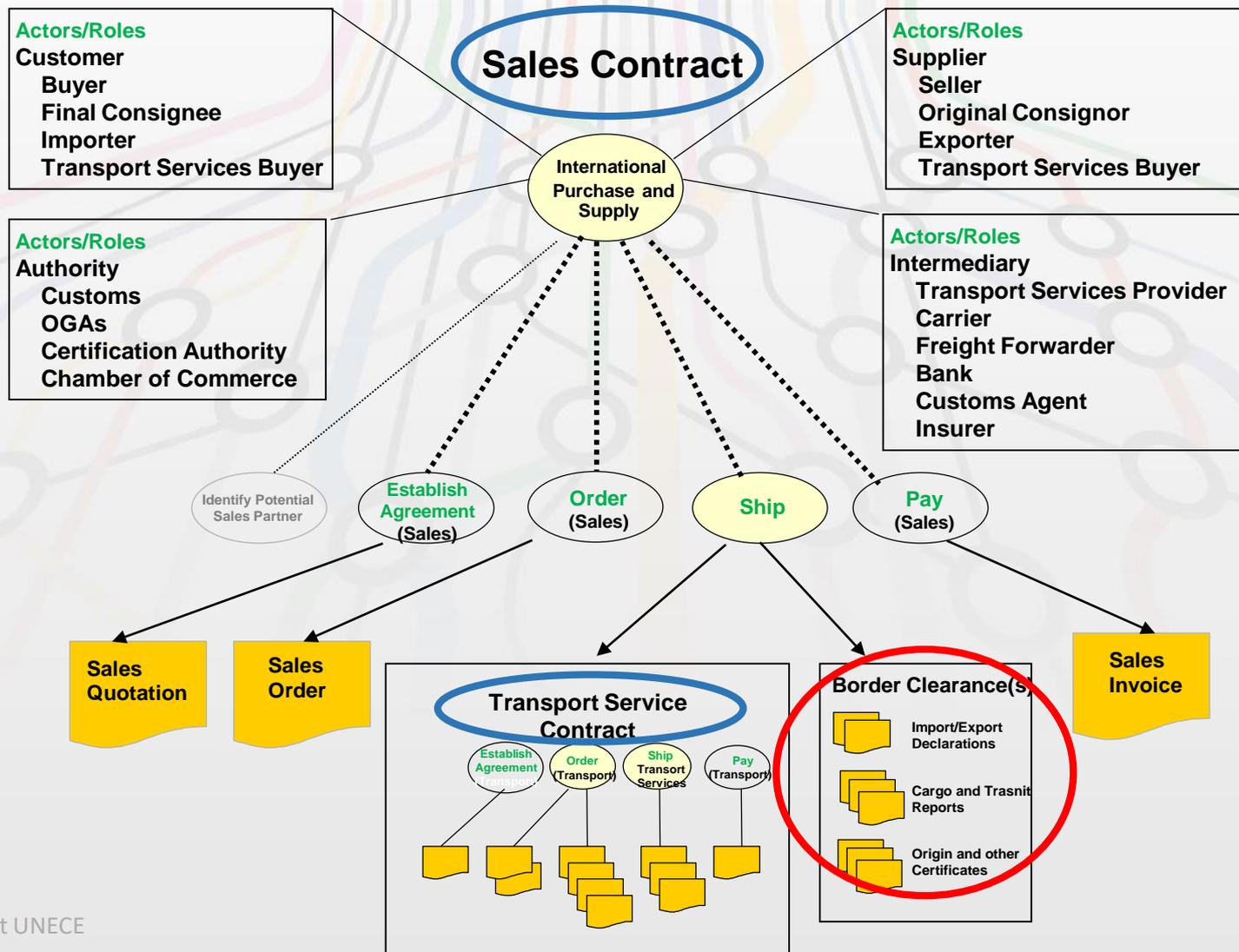
## INVOLVES



# Single Windows Document Families – Border Challenges



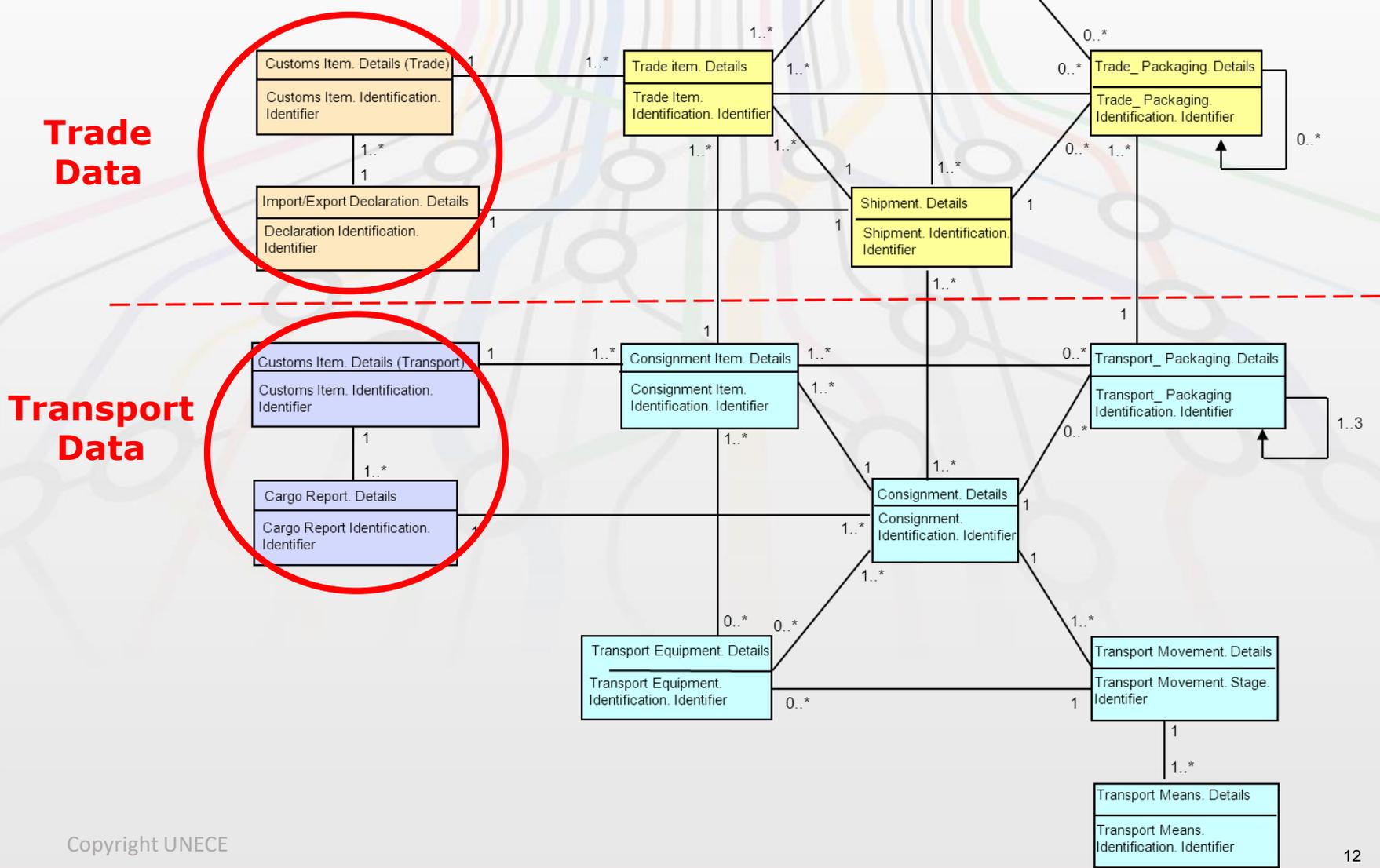
# The Relationship between International Sales and Transport Service Contracts



# Global Trade – Semantic Anchors

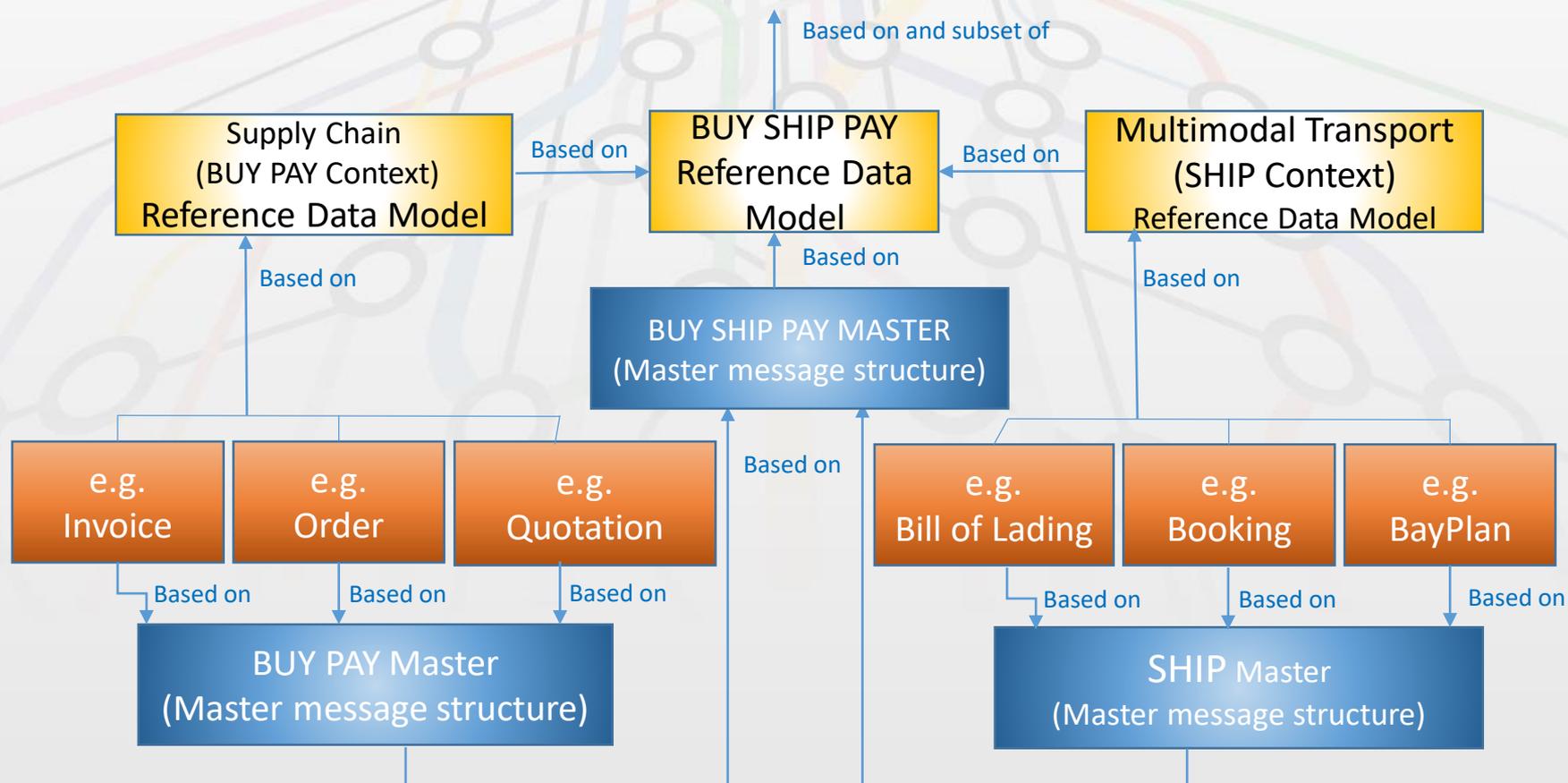
- **Shipment (Trade Delivery)**
- A shipment is an identifiable collection of one or more Trade Items (available to be) transported together from the Seller (Original Consignor/Shipper) to the Buyer (Final/Ultimate Consignee):
  - A Shipment can only be destined for one Buyer
  - A Shipment can be made up of some or all Trade Items from one or more Sales Orders
  - A Shipment can have only one Customs UCR
  - A shipment may form part or all of a Consignment or may be transported in different Consignments.
- **Consignment**
- A consignment is a separately identifiable collection of Consignment Items (available to be) transported from one Consignor to one Consignee via one or more modes of transport as specified in one single transport service contractual document:
  - A Consignment can only have one Transport Service Buyer
  - A Consignment can only have one Transport Service Provider
  - A Consignment can only have one Consignor
  - A Consignment can only have one Consignee
  - The Transport Service Buyer can be either the Consignor or the Consignee
  - A Consignment is made up of one or more Consignment Items
  - A Consignment can be made up of some or all Trade Items (aggregated into Consignment Items) from one or more Shipments

# Buy/Ship/Pay – Cross-Border Trade, Transport & Customs Business Entity Overview



# Building semantic models using a common library

## UN/CEFACT Core Component Library (CCL)



# Example message subset: UN/CEFACT Cross Industry Invoice

**BUY SHIP PAY**

*Semantic model*

Reference Data Model  
Supply Chain (BUY PAY)  
*(subset of CCL)*

**BUY SHIP PAY**

*Master message structure*

Supply Chain (BUY PAY)  
Master message structure

**BUY PAY**

*Syntax-neutral business data exchange structure*

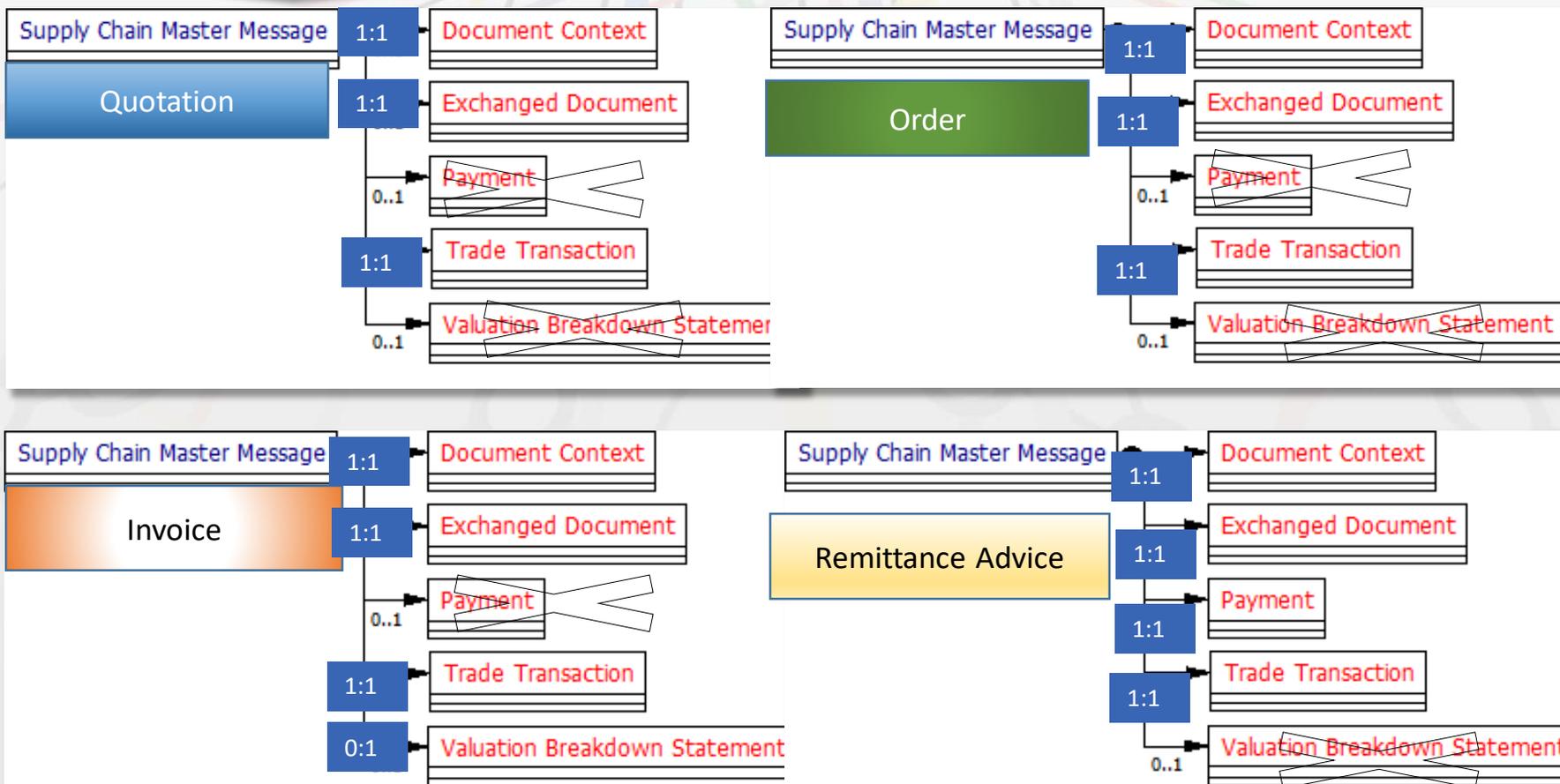
Invoice message model

Syntax

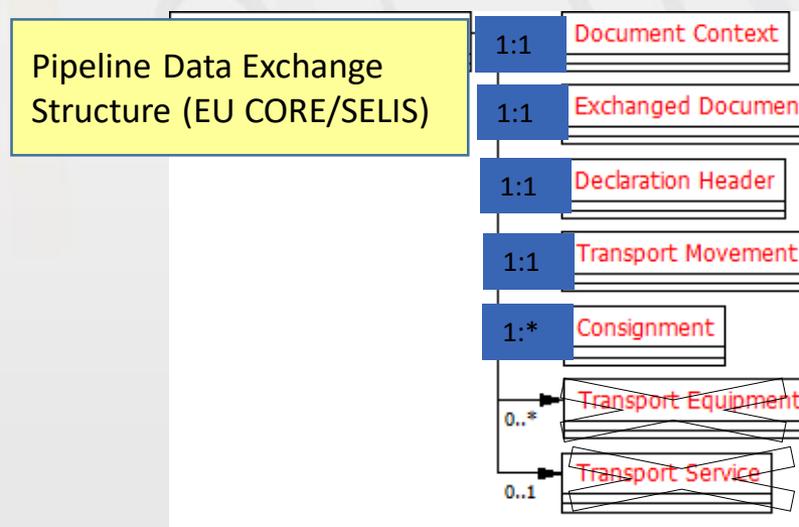
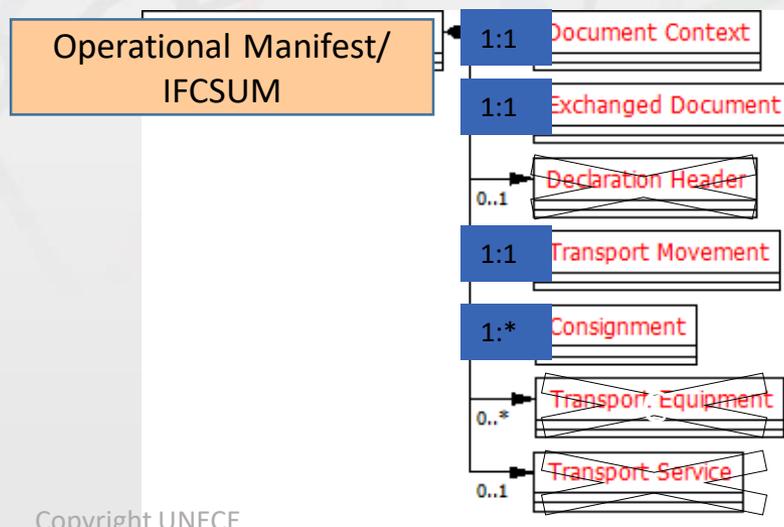
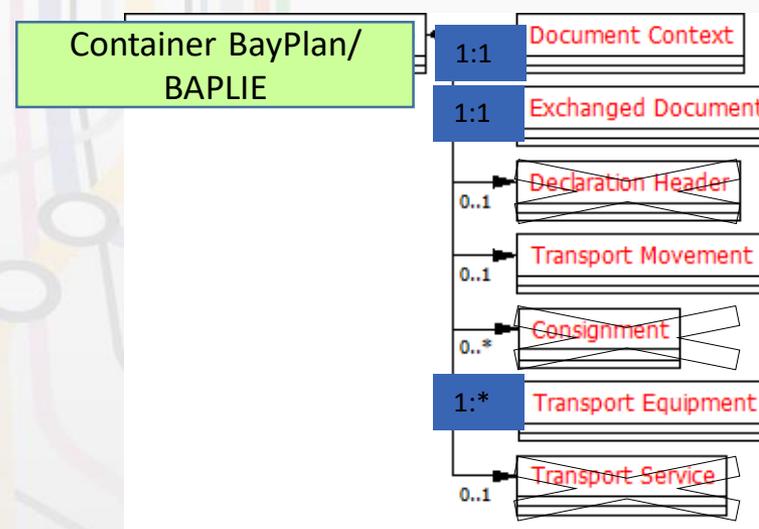
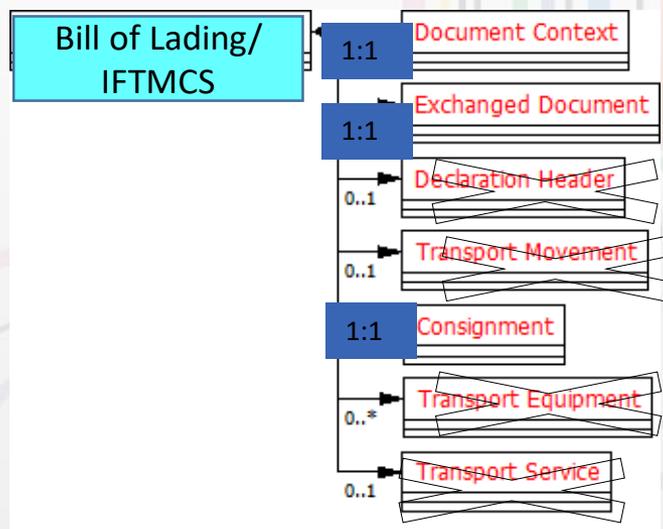
XML Invoice schema

# Contextualized messages structures

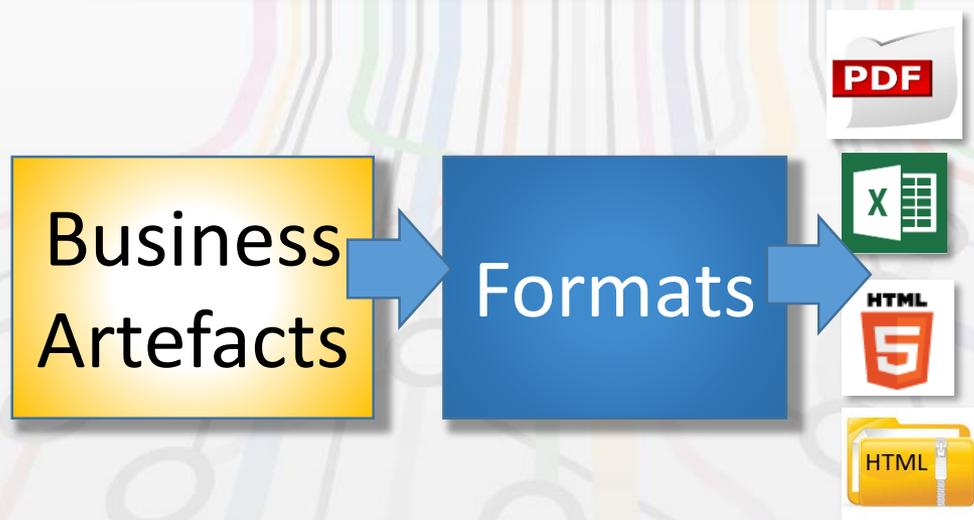
## Supply Chain BUY PAY master message structure



# Contextualized messages structures – Multimodal Transport



# Publication of UN/CEFACT Reference Data Models

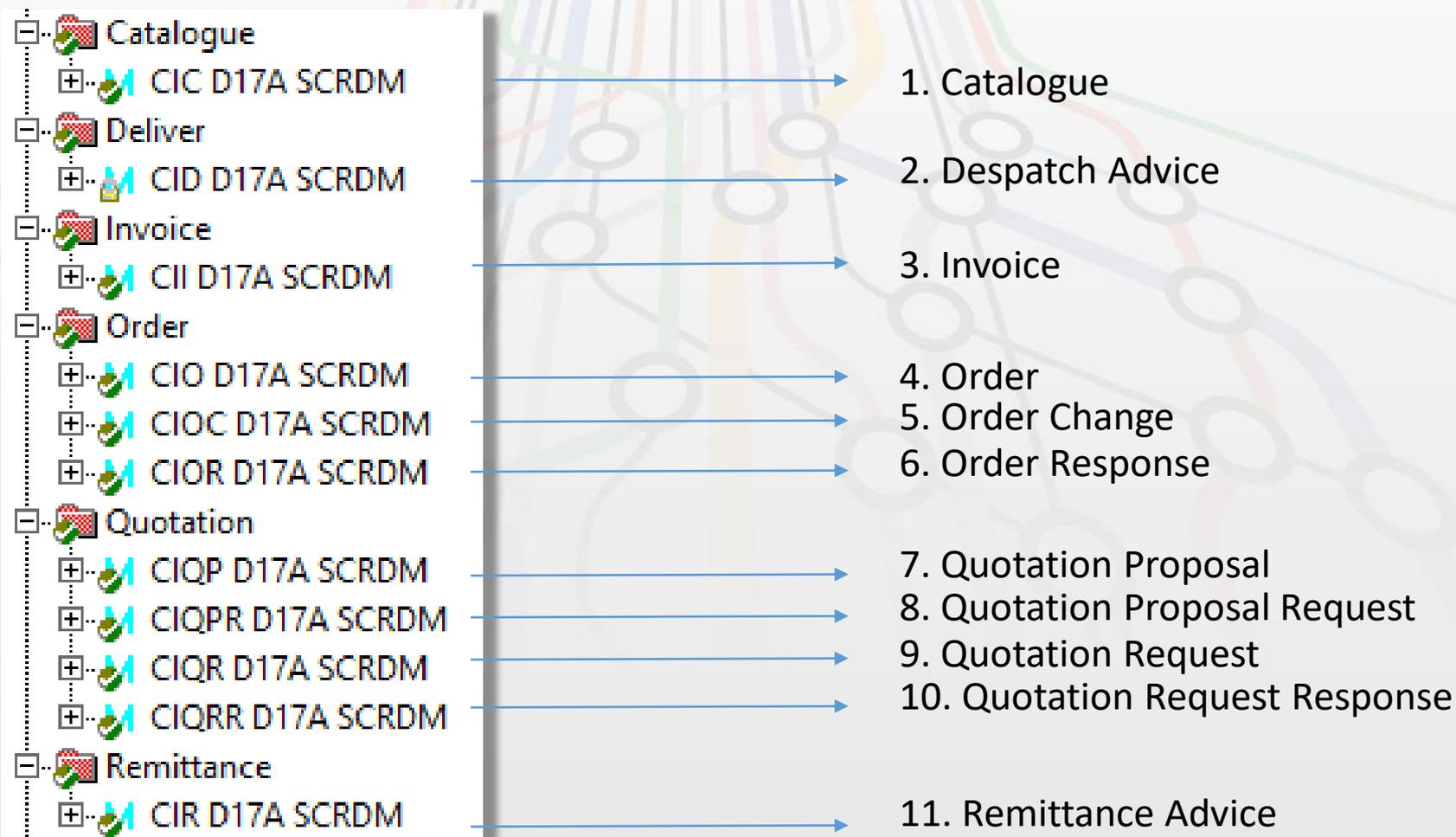


Semantic model and message subset structures published as UN/CEFACT Business Standards in

- ✓ PDF
- ✓ MS Excel
- ✓ HTML
- ✓ UN/XML and/or UN/EDIFACT syntax instantiations
- ✓ machine-to-machine format (in development)

- UN/CEFACT semantic models already available for reuse in tool(s) (e.g. GEFEG FX)

# Supply Chain profile messages in public review



## Multimodal Logistics profile messages in advanced development

- eCMR electronic international road consignment note
- Logistics pipeline data exchange structure

## Multimodal Logistics profile messages planned for future development

- Other modal transport contract messages
- Container handling messages
- Bayplan, Verified Gross Mass and Container Handling messages
- IMO FAL messages
- Consignment tracking messages

## For further information:

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