

# **UN/CEFACT**

# Reference Data Models (Semantic Models)





# 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 and APIs
- 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

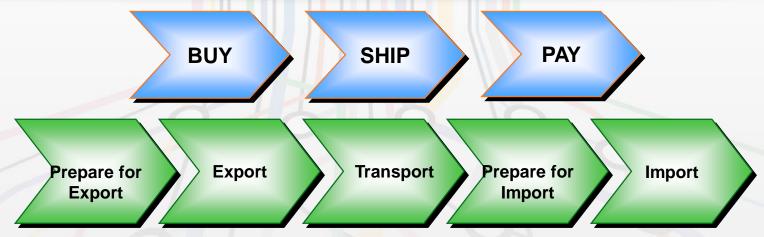
Buy/Ship/Pay RDM

Supply Chain RDM

Multimodal Transport RDM



### **UN/CEFACT International Supply Chain Process Model**



#### **INVOLVES**

#### Commercial Procedures

- •Establish Contract
- Order Goods
- Advise On Delivery
- Request Payment
- Packing
- Inspection
- Certification
- Accreditation
- Warehousing

#### Transport Procedures

- •Establish Transport Contract
- Collect, Transport and Deliver Goods
- Provide Waybills, Goods Receipts Status reports etc.

#### **Regulatory Procedures**

- Obtain Import/Export
- Licences etc
- Provide Customs
- **Declarations**
- Provide Cargo
- **Declaration**
- Apply Trade Security
- **Procedures**
- •Clear Goods for Export/Import

## CUSTOMS

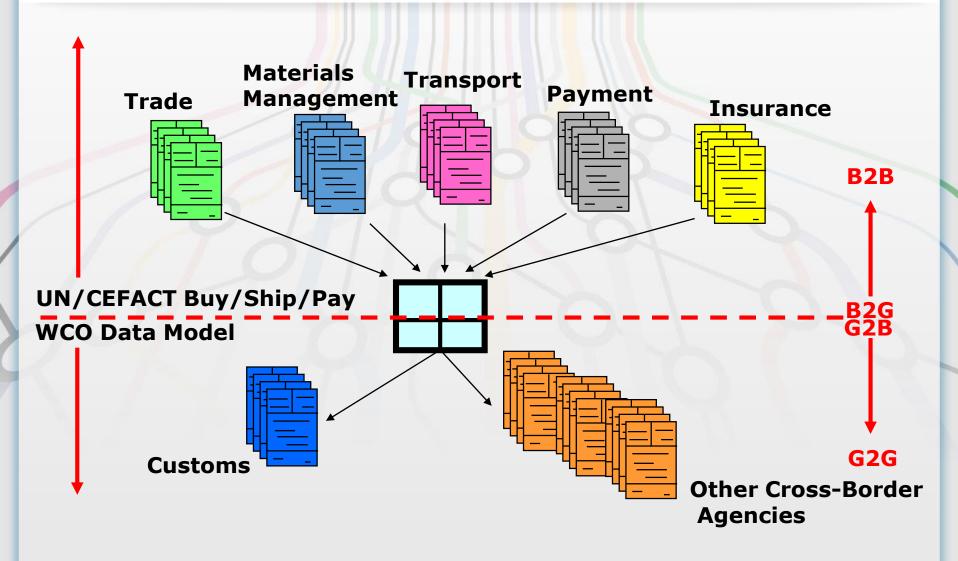
#### **Financial Procedures**

- •Provide Credit Rating
- Provide Insurance
- Provide Finance
- •Execute Payment
- Issue Statements





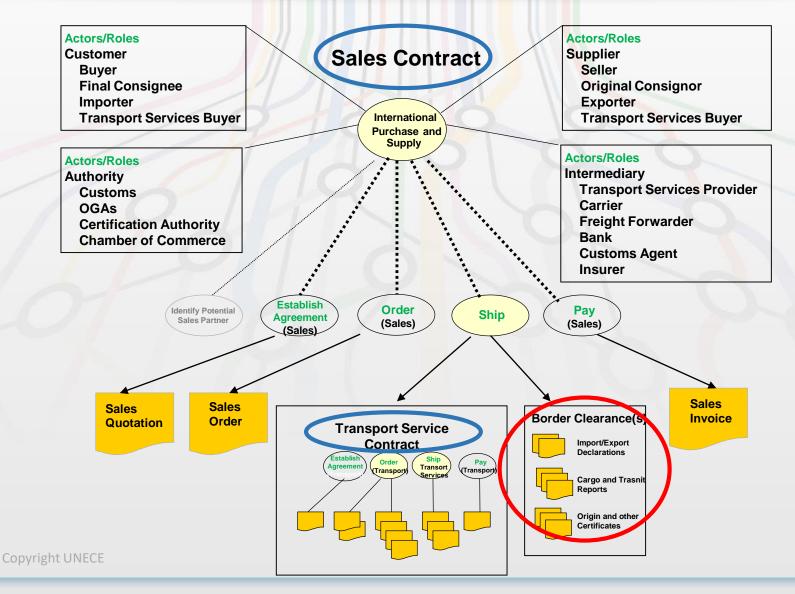
## Single Windows Document Families – Border Challenges



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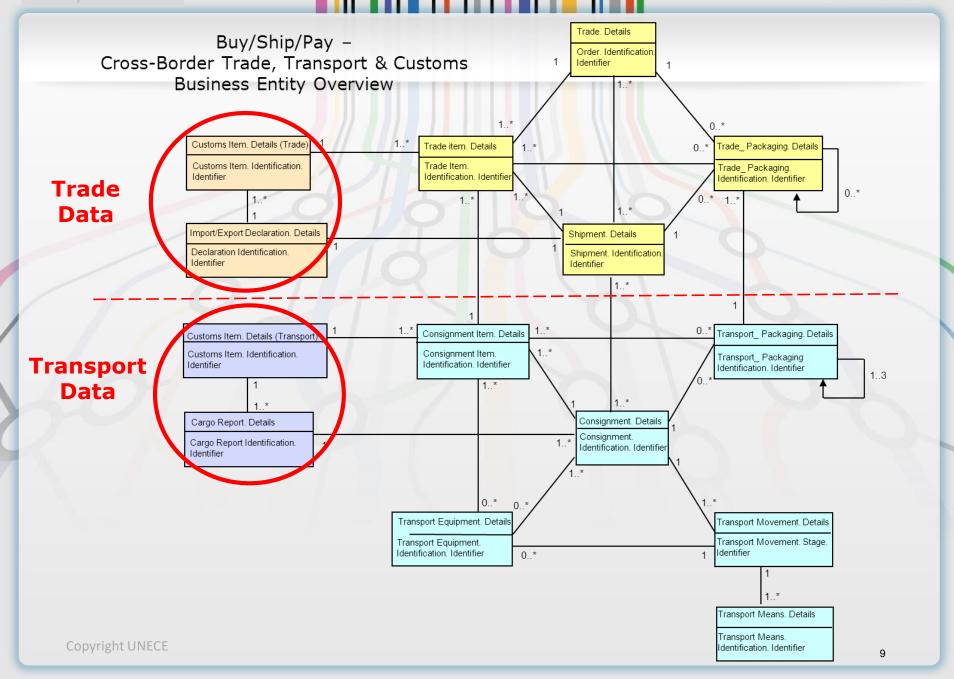
# The Relationship between International Sales and Transport Service Contracts





## Global Trade – Semantic Anchors

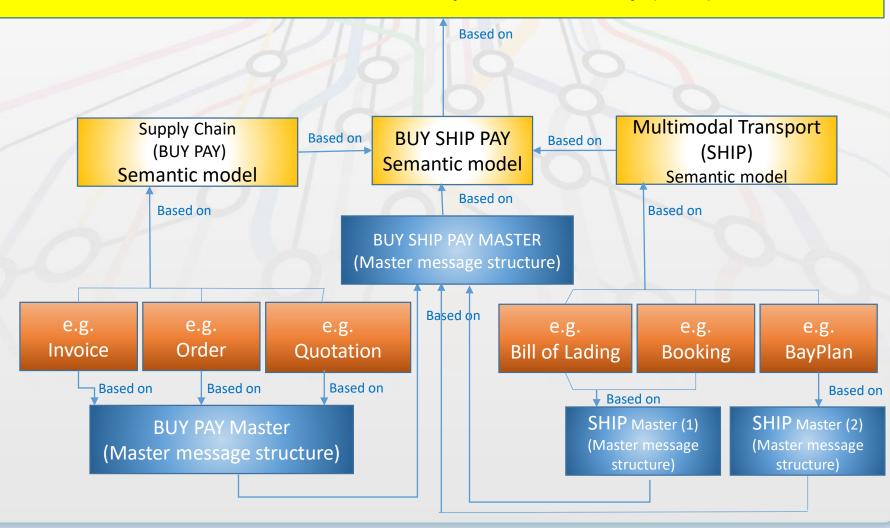
- Shipment (Trade Delivery)
- A shipment is an identifiable collection of one or more Trade Items (available to be) transported together from the Seller (Original Consignor/Shipper) to the Buyer (Final/Ultimate Consignee):
  - A Shipment can only be destined for one Buyer
  - A Shipment can be made up 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





# Building semantic models using a common library

### **UN/CEFACT Core Component Library (CCL)**





# Example: UN/CEFACT eCMR

Buy/Ship/Pay (BSP)
Semantic model
Subset of CCL

SEMANTIC MODEL

MultiModal Transport (MMT)

(subset of BSP)

Part of

BUY SHIP PAY
Master message

Master message structure

MultiModal (MMT)
Master message structure

Part of

MMT subset

Exchange Syntax-neutral data exchange structure

eCMR message model

Syntax
XML eCMR schema



# BUY SHIP PAY master message structure

# master message structure

- B BSP D17B Master
- M Core Component Types
- M BSP D17B Context CCL
- M CCL17B uDT2-3; edit
- Main
- Masters
  - C Buy Ship Pay Master
    - > C Exchanged Document Context
    - > C Exchanged Document
    - > 🌘 🕻 Exchanged Declaration
    - C Logistics Transport Movement
    - > C Supply Chain Consignment
    - C Logistics Transport Equipment
    - > C Transport Service
    - > C Trade Settlement Payment
    - > 🌘 🕻 Supply Chain Trade Transaction
    - Valuation Breakdown Statement

#### **Library CCL**

Based on

Semantic model See next slide

Based on

BUY SHIP PAY MASTER (Master message structure)



# Contextualized library (BUY SHIP PAY semantic model)

Based on

COMPLETE LIBRARY
UN/CEFACT CCL

restrictions

# BUY SHIP PAY Semantic model Library subset/restrictions

- C Iraue\_ can yet vetail
- C Trade\_ Delivery Terms. Details
- C Trade\_ Geopolitical Region. Details
- C Trade\_ Location. Details
- Z Trade\_ Note. Details
- 🗷 Trade\_ Package. Details
- C Trade\_ Party. Details
- C Trade\_ Payment Discount Terms. Details
- Z Trade\_Payment Instruction. Details
- 🖊 🗷 Trade\_ Payment Means. Details
- C Trade\_ Payment Penalty Terms. Details
- C Trade\_ Payment Terms. Details
- C Trade\_ Price. Details
- C Trade\_ Product Group. Details
- C Trade\_ Product Instance. Details
- Z Trade\_ Product Warranty. Details
- C Trade\_ Product. Details
- C Trade\_ Tax. Details
- Z Trade\_ Transport Means. Details
- Z Trade\_ Transport Mode. Details
- C Trade\_ Workflow Object. Details
- > Z Transaction\_ Period. Details
- C Transport Service\_Location. Details



# Contextualized library (created semantic models)

Based on

# BUY SHIP PAY Semantic model

Supply Chain
Semantic model
Library subset/restrictions

- C Trade Country
- C Trade Currency Exchange
- C Trade Delivery Terms
- 🗷 Trade Geopolitical Region 🖣
- C Trade Location
- ▼ Trade Note
- X Trade Package
- C Trade Party
- C Trade Payment Discount Terms
- X Trade Payment Instructions
- ★ Trade Payment Means
- C Trade Payment Penalty Terms
- C Trade Payment Terms
- C Trade Price
- C Trade Product Group
- C Trade Product Instance
- ★ Trade Product Warranty
- C Trade Product
- C Trade Tax

Multimodal Transport
Semantic model
Library subset/restrictions

- C Trade Country
- C Trade Currency Exchange
- C Trade Delivery Terms
- C Trade Geopolitical Region
- C Trade Location
- X Trade Note
- X Trade Package
- C Trade Party
- Trade Payment Discount Terms
- ✗ Trade Payment Instructions
- ▼ Trade Payment Means
- Trade Payment Penalty Terms
- C Trade Payment Terms
- C Trade Price
- Trade Product Group
- C Trade Product Instance
- ★ Trade Product Warranty
- C Trade Product
- C Trade Tax



# Contextualized artefacts (of the semantic models)

Based on

# SEMANTIC MODEL TRADE PRICE

**Multimodal Transport Supply Chain** Semantic model Semantic model **Trade Price subset/restriction Trade Price subset/restriction** C Trade Price C Trade Price X. Net Price Indicator Net Price Indicator A. Type Code A. Type Code A. Charge Amount A. Charge Amount A. Basis Quantity A. Basis Quantity Minimum Charge Amount X. Minimum Charge Amount Maximum Charge Amount X. Maximum Charge Amount A. Minimum Quantity Minimum Quantity A. Maximum Quantity Maximum Quantity Unit Amount A. Unit Amount A. Change Reason Text A. Order Unit Conversion Factor Order Unit Conversion Factor Repackaging Charge Amount X. Repackaging Charge Amount Repair Charge Amount X. Repair Charge Amount Deprecated Validity Period Cr Deprecated Validity Period Cr Applied Allowance/Charge Applied Allowance/Charge Cr Validity Period Cr Validity Period C<sub>r</sub> Included Tax Included Tax Referenced Document Referenced Document C<sub>r</sub> Delivery Location ∠ Delivery Location Comparison Price Comparison Price Cr Trade Comparison Price Cr Trade Comparison Price C<sub>r</sub> Associated Document

C<sub>r</sub> Associated Document



# BUY SHIP PAY master message structure

# master message structure

- BSP D17B Master
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**Library CCL** 

Based on

**BUY SHIP PAY** Semantic model See next slide

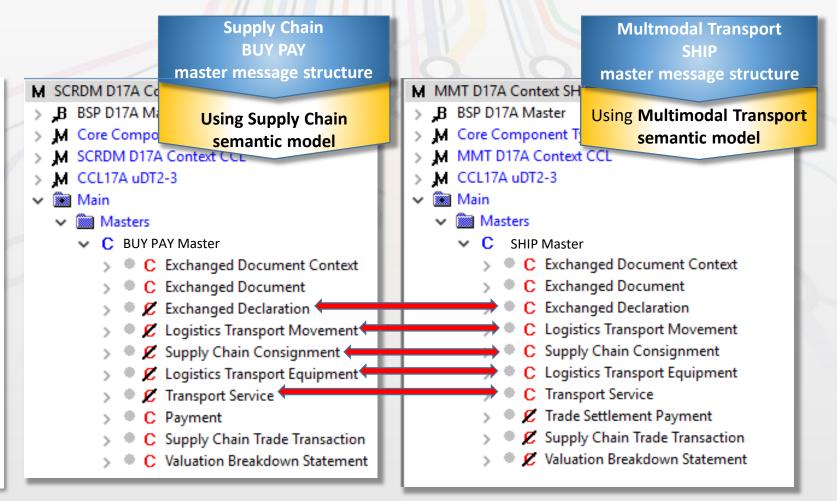
Based on

**BUY SHIP PAY MASTER** (Master message structure)



# Contextualized master message structures (of the semantic models)

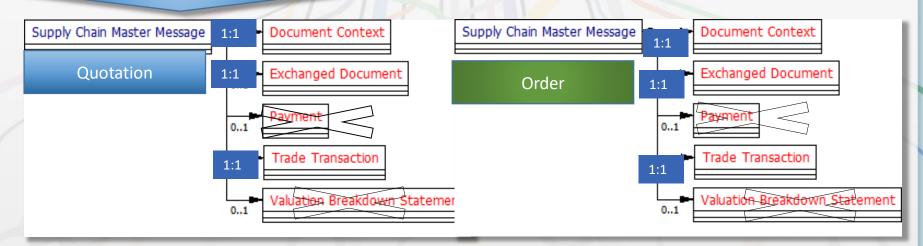
# subset/restriction

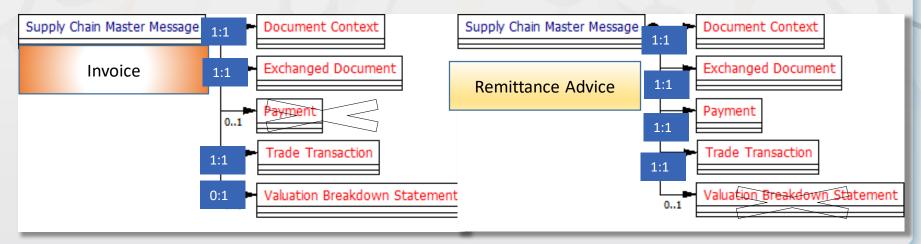




# Contextualized messages structures - Supply Chain

Supply Chain
BUY PAY
master message structure







#### Contextualized messages structures – Multimodal Transport

