



UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

UNITED NATIONS CENTRE FOR TRADE FACILITATION  
AND ELECTRONIC BUSINESS (UN/CEFACT)

**Supply Chain Reference Data Model  
BUSINESS REQUIREMENT SPECIFICATION**

**(SCRDM-BRS)**

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## 1 About this document

This Supply Chain Reference Data Model Business Requirement Specification (SCRDM-BRS), in combination with the UN/CEFACT business process International Supply Chain Reference Model (ISCRM) and the BRS for the Multi-Modal Transport Reference Data Model (MMT RDM-BRS<sup>1</sup>) provides the framework for any cross-border transport-related business and government domains to specify their own specific information exchange requirements whilst complying with the overall process and data structures.

The UN/CEFACT SCRDM project has developed and published a business standard which can be applied by countries, regions or industries to provide the definitions of contextualised supply chain data exchanges which can be integrated into software solutions for traders, agents, banks, Customs and Other Governmental Authorities etc. The SCRDM business standard is a reference data model based on the UN/CEFACT Core Component Library (CCL). It forms the basis for constructing Business Data Exchange Structure(s), following the UN/CEFACT Core Components Business Document Assembly Technical Specification (CCBDA), a methodology for developing business documents.

This SCRDM BRS and together with the SCRDM Requirement Specification Mapping (SCRDM-RSM) give a high level view of the requirements of the SCRDM by describing the supported business and regulatory processes, the involved business areas, the main parties and the key business information entities. Derivative information exchange specifications can be developed to support the requirements of conventional UN/CEFACT data exchange formats for UN aligned paper documents, UN/EDIFACT or UN/CEFACT XML messages as well as information exchanges to support web based processes.

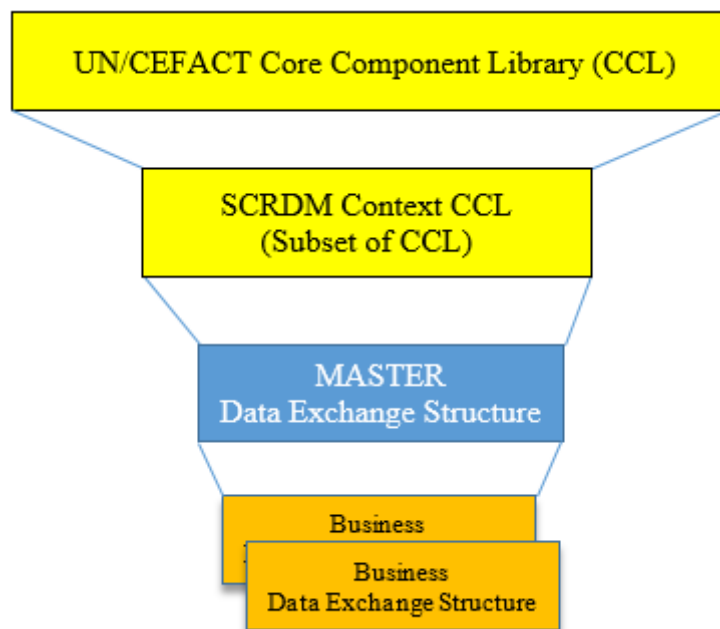


Figure 1 Concept of a UN/CEFACT Reference Data Model

<sup>1</sup> Not yet published at this moment.

The MMT (Multi Modal Transport) Reference Data Model project<sup>2</sup> is a closely related project of the Transport & Logistics Domain within the UN/CEFACT SHIP PDA (Programme Development Area).

### 1.1 Status of this document

This document has been developed in accordance with the UN/CEFACT/TRADE/22 Open Development Process for Guidelines and approved for publication by the UN/CEFACT Bureau.

### 1.2 Revision history

Version	Release	Date	Comment
1.0.0.1	Internal draft	2016-August 01	Initial
1.0.0.2	Draft	2016-December 15	Final

### 1.3 Document context

The SCRDM artefacts are published as reference Business Information Entities (BIEs). These artefacts have been specified in the business requirements lists of each supply chain process document (such as for the BRS ordering process) and mapped to elements of data in corresponding RSMs (Requirement Specification Mapping). The high level BRS and RSM for the SCRDM represent all of these artefacts and the mapping of these artefacts, not focusing on a particular process.

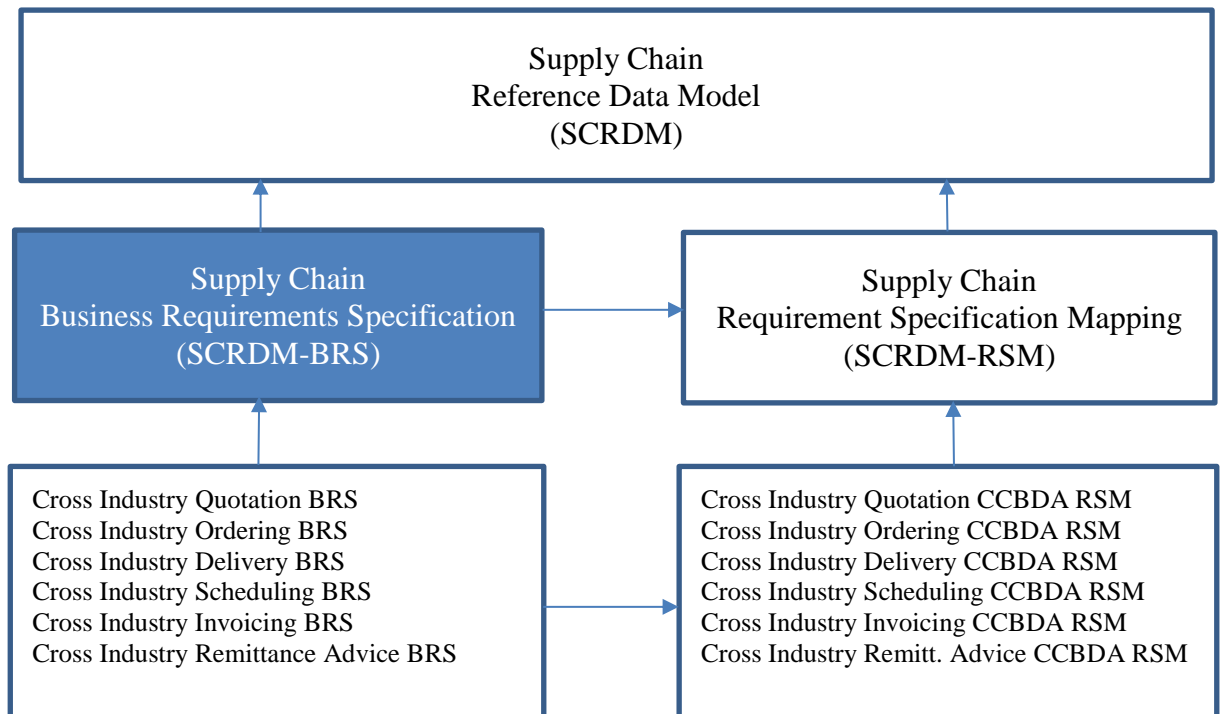


Figure 2 Document context<sup>3</sup>

<sup>2</sup> At this moment in progress

<sup>3</sup> At this moment only the CI Invoicing CCBDA RSM has been published

## 2 Project Team

### 2.1 Disclaimer

The views and specification expressed in this document are those of the authors and are not necessarily those of their employers. The authors and their employers specifically disclaim responsibility for any problems arising from correct or incorrect implementation or use of this technical specification.

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### 3 Introduction

The main audience for this document is the UN/CEFACT business and Information Technology (IT) experts who are responsible for specifying, creating or updating existing UN/CEFACT reference data models, the business requirements for e-business solutions in a specific domain and for furthering the development of solutions as relevant standards. Other audiences may include other standards bodies or users and developers in developed or developing economies.

An understanding of data modelling would help the reader to fully take advantage of this document.

The information described in this manual is aimed at:

- Corporate Chief Technology Officers and their staff
- UN/CEFACT community
- Business process modellers
- Business data modellers
- Application developers

#### 3.1 Related Documents

- UN/CEFACT White Paper - Reference Data Model (RDM) (Draft, v1.0.0.2).
- UN/CEFACT Reference Data Model (RDM) Guideline (Draft, v1.0.0.2).
- UN/CEFACT Supply Chain Reference Data Model Requirement Specification Mapping (SCRDM-RSM) (Draft, v1.0.0.2).
- UN/CEFACT SCRDM Master Structure and Subset of CCL D16B (Context CCL) (Draft v1.0.0.2).
- UN/CEFACT Core Component Library D16B<sup>4</sup>.
- UN/CEFACT Techniques and Methodologies Group (TMG) UN/CEFACT's Modelling Methodology (UMM): UMM Meta Model Foundation Module (Candidate for 2.0) 2009-01-30.
- UN/CEFACT – Core Component Technical Specification Technical Corrigendum Version 2.01 (Corr. 1) dated 12 February 2007 (CCTS 2.01 Corr.1).
- UN/CEFACT XML Naming and Design Rules Version 2.1, dated 27 May 2014 (NDR 2.1).
- UN/CEFACT Core Components Business Document Assembly Technical Specification (CCBDA) version 1.0 27 June 2012.
- UN/ESCAP UNNExT UNECE Data Harmonization and Modelling Guide for Single Window environment, version 2012, ST/ESCAP/2619.
- UNECE - Recommendation No. 1 – United Nations Layout Key for Trade Documents.
- UNECE - Recommendation No. 33 Recommendation and Guidelines on establishing a Single Window.

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<sup>4</sup> For the initial publication, the latest published CCL is D16B  
15 December 2016 1.0.0.2

- UNECE - Recommendation No. 34 – Data Simplification and Standardization for International Trade.
- UNTDED United Nations Trade Data Elements Directory 2005 (UNTDED).
- UN/CEFACT BRS Cross Industry Quotation, version R1.00.12.
- UN/CEFACT BRS Cross Industry Ordering, version 1.00.09.
- UN/CEFACT BRS Cross Industry Delivery, version 1.00.13.
- UN/CEFACT BRS Cross Industry Scheduling, version 1.00.09.
- UN/CEFACT BRS Cross Industry Invoicing, version: 2.00.06.
- UN/CEFACT BRS Cross Industry Remittance Advice, version: 1.00.01.
- UN/CEFACT CCBDA Requirement Specification Mapping (RSM) Cross Industry Invoicing, version: 1.0<sup>5</sup>.
- In this document the set of CCTS 2.01 / CCTS 2.01 Corr.1 / NDR 2 / CCDTC 2.1 specifications are referred to as "UN/CEFACT Technical Specifications Version 2".
- Formal definitions of many of the technical terms used in this BRS guideline may be found in the above references but for convenience some key definitions are included in section 5 of this document.

The SCRDM has been created from the artefacts, semantics used in RSMs belonging to the above specified BRSs. The document centric artefacts were the basis for the development of the non document, process driven SCRDM artefacts, which are published in the CCL<sup>6</sup>.

### 3.2 Purpose and scope

This section describes the aspects of the international purchase and supply chain covered by the SCRDM and relates them to the ISCRM.

The extent and limits of the business processes described in this document have been developed in such a way that it allows application of SCRDM-based implementations of national, regional or industry specific cross-border scenarios. Only the high-level process descriptions are described in order that the detailed process analysis of the subset scenarios can be provided in further refined Business Requirements Specifications (BRSs).

The business goal of this guideline is:

- To support easy interchange of information models within the Supply Chain and between different domains.
- To facilitate the use of the UN/CEFACT standardized and harmonized semantic framework.
- To encourage the use of UN/CEFACT CCTS 2.01 compliant information models.
- To support alignment between UN/CEFACT Reference Data Models.
- To support UN/CEFACT CCBDA implementation.

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<sup>5</sup> At this moment only the CI Invoicing CCBDA RSM has been published.

<sup>6</sup> For the initial publication, the latest published CCL is D16B.

### 3.3 Scope comparison

The ISCRM covers the processes following the recognition of need by a Customer for a product or service up until the fulfilment of an order by a Supplier and the resulting financial settlement. In addition to the business processes associated with cross-border trading it also incorporates the necessary logistical and cross-border regulatory activities which may be required by Intermediaries and Authorities. This is illustrated in the following use case diagram.

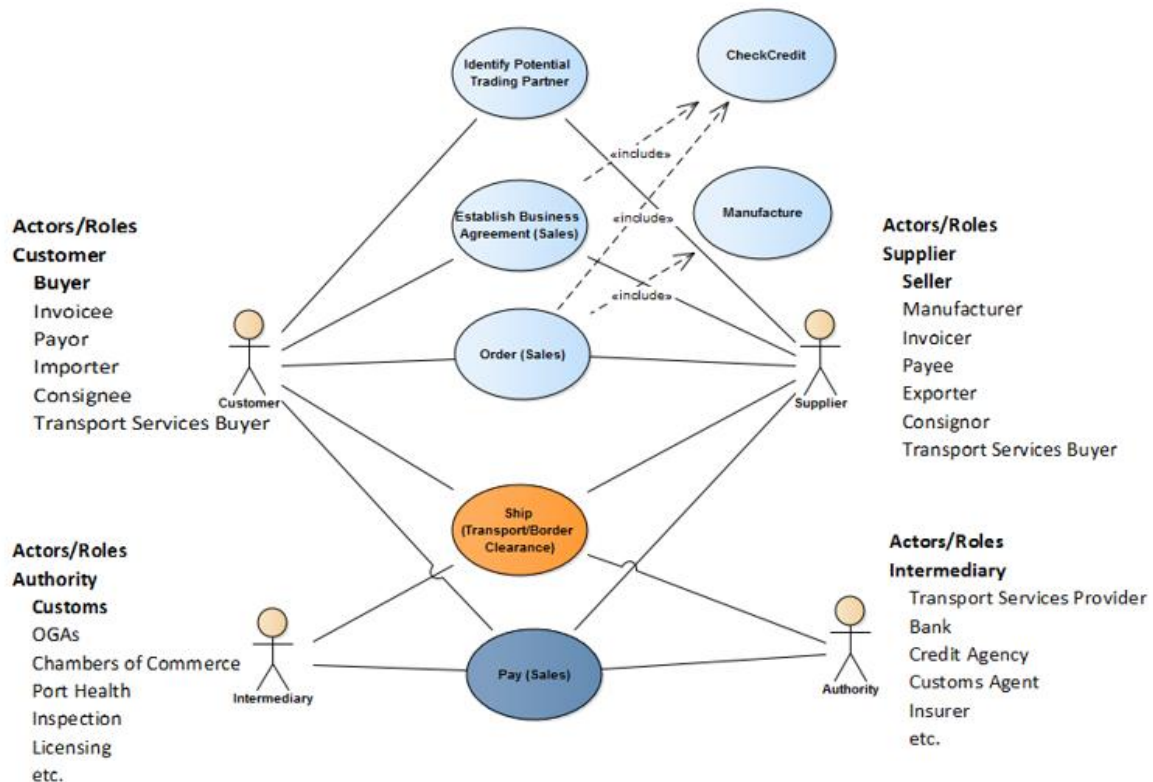


Figure 3 International Supply Chain Reference Model

### 3.4 Scenario introduction

The scope of the SCRDM can be expressed as a subset of the scope of the ISCRM covering cataloguing through payment. Included are the delivery of goods and associated import/export regulatory declarations.

The ISCRM covers processes in the four main business areas - Commercial, Logistics, Regulatory and Financial as illustrated in Figures 4 and 5. The SCRDM supports the processes across the Commercial and Regulatory areas plus some related Logistics processes.



### INTERNATIONAL TRADE TRANSACTION PROCESSES

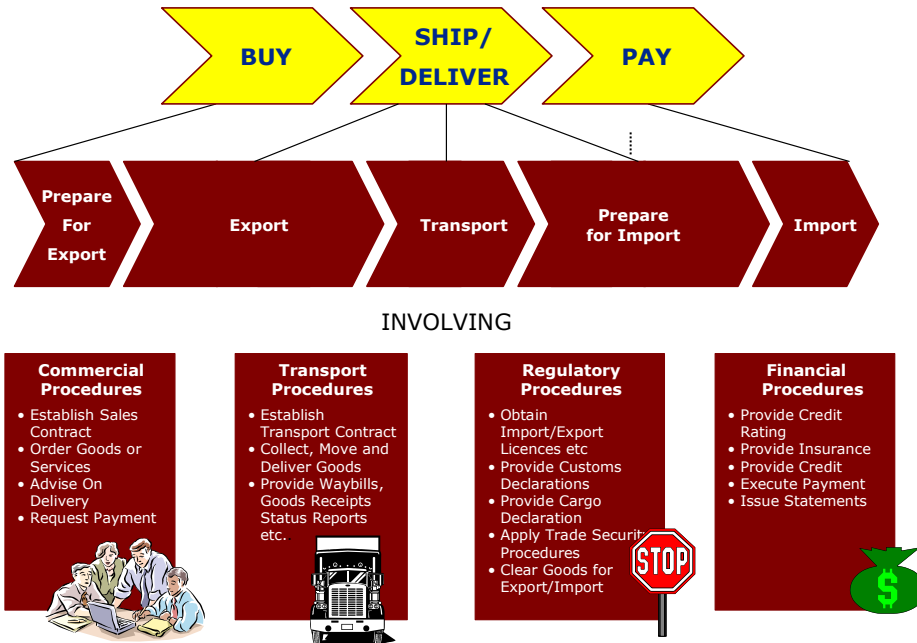


Figure 4 Business processes within the four main Business Areas

### International Supply Chain Processes and Procedures

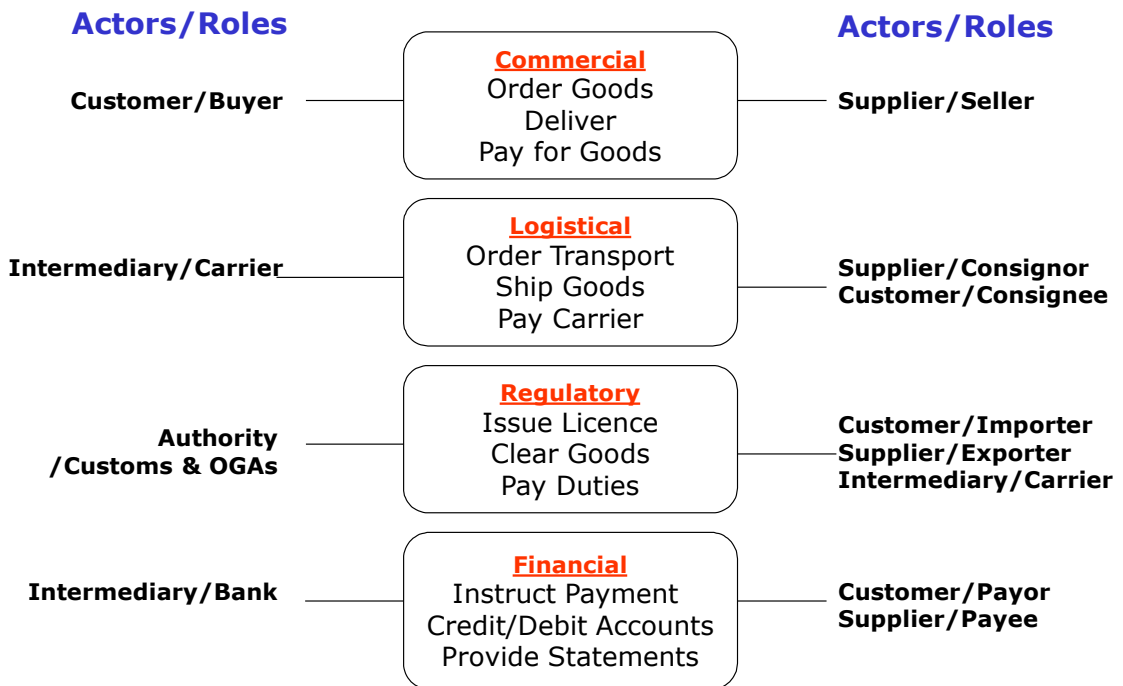


Figure 5 Key Actors/Roles associated with the four main Business Areas

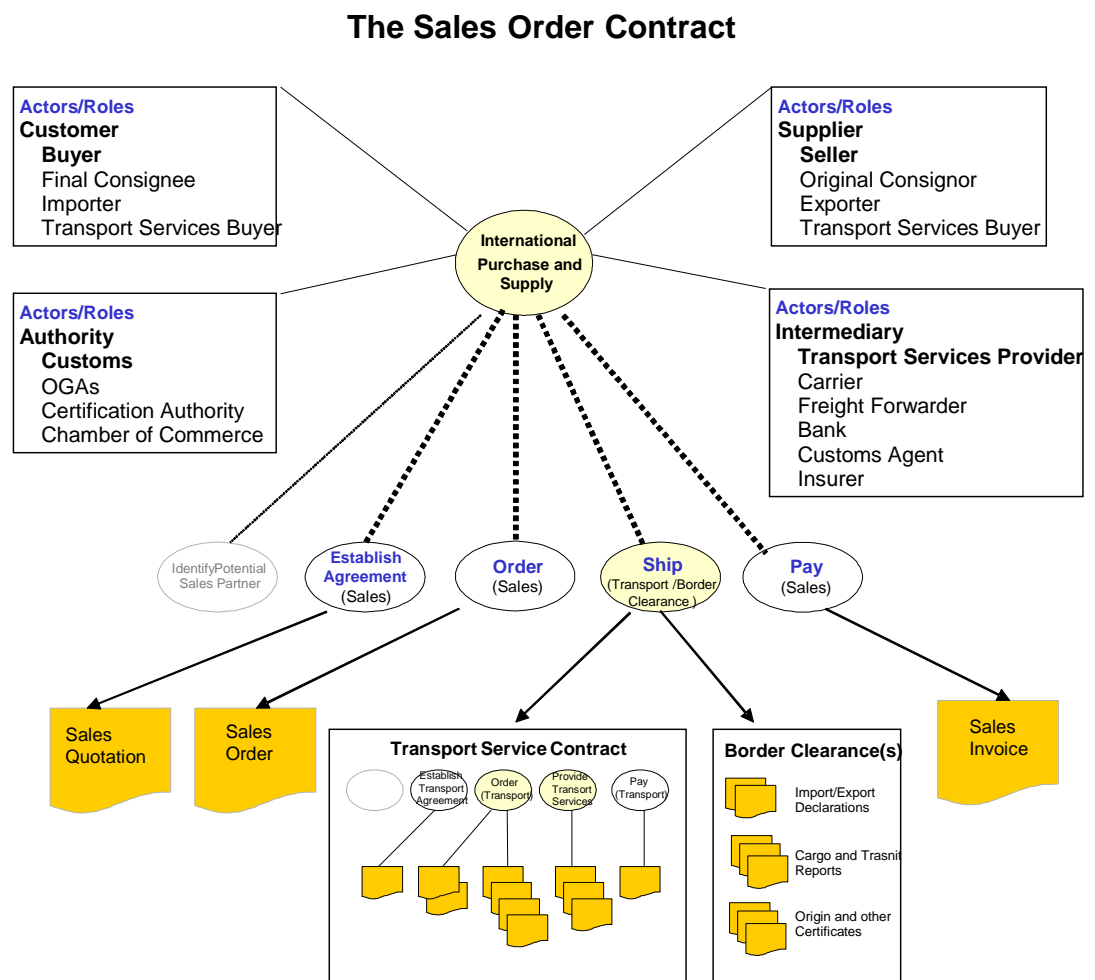
### **3.5 Target Solution**

The objective of this SCRDM-BRS is to describe the requirements for a reference data model supporting the business and regulatory processes involved in the cross border supply chain and covering at a high-level the involved business areas, the main parties and the information involved.

## 4 Business Requirements

### 4.1 Business requirements views

The SCRDM process includes interrelated business areas representing Commercial Transport Contracts, Operational Transport & Logistics, Regulatory and Border Clearance processes together with the corresponding information used both within each business area and which passes between them. The following diagram describes these areas in terms of the key governing contracts – the Sales Order Contract and the Transport Service Contract – and this diagram also shows the relationships between the key process areas together with an indication of the documentary requirements.



**Figure 6 The Sales Order Contract view**

The Transport Services Contract use cases are within the scope of the MMT. However, only the booking process is included in the Establish Business Agreement use case and only invoicing is included within the Pay use case. The MMT scope therefore includes the transport booking, transport ordering and freight invoicing processes together with the actual transportation.

## 4.2 Commercial Data Exchanges / Processes

May include:

- Issuing of Catalogue
- Issuing of Quotation
- Confirmation of Sales Order
- Materials Management
  - Delivery Scheduling
  - Issuing of Despatch Advice and Packing List
- Sales Invoicing
- Remittance Advice

## 4.3 Logistical (Transport) Data Exchanges / Processes<sup>7</sup>

May include:

- Booking of Cargo Space
- Issuing of Shipping Instructions
- Issuing of Transport Contract Document (Air Waybill, etc.)
- Transportation of Goods
- Requesting and Issuing of Transport Status Reports
- Freight Invoicing

## 4.4 Regulatory Data Exchanges / Processes

May include reporting to Customs or appropriate Other Governmental Agencies:

- Import/Export Declarations
- Certificates of Origin
- Phytosanitary Certificates
- Dangerous Goods Declarations including OECD (Organization for Economic Co-operation and Development) Hazardous Waste notifications
- Cargo and Transit Reports<sup>8</sup>
- Cross-border Regulatory Data Pipeline<sup>9</sup>

## 4.5 Financial Data Exchanges / Processes

May include:

- Documentary Credit procedures
- Cargo Insurance

## 4.6 Participating Parties

There are potentially many parties participating in the cross-border international supply chain. These parties can be grouped into four main categories as indicated in the table below:

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<sup>7</sup> In scope of multi modal transport

<sup>8</sup> In scope of multi modal transport

<sup>9</sup> In scope of multi modal transport

**Table 1 Trade/Transport/Customs Party Roles**

<b>Sales Order Contract</b>	<b>Transport Service Contract</b>	<b>Definition</b>
Seller	Original Consignor/ Original Shipper	The party selling goods or services as stipulated in a Sales Order Contract.
Buyer	Final Consignee/ Ultimate Consignee	The party to whom goods are sold or services as stipulated in a Sales Order Contract.
	Transport Services Buyer (Consignor or Consignee)	The buyer of transport services as stipulated in a Transport Service Contract.
	Transport Services Provider (Carrier or Freight Forwarder)	The provider i.e. seller of transport services as stipulated in a Transport Service Contract.
	Consignor	The party consigning goods as stipulated in a Transport Service Contract.
	Consignee	The party receiving a consignment of goods as stipulated in a Transport Service Contract.
	Carrier	The party which provides transport services.
	Freight Forwarder	The party undertaking the forwarding of goods by provision of transport, logistics, associated formalities services etc.
	Despatch Party	The party where goods are collected or taken over by the transport services provider. Operational term is "Pick-up Place".
	Delivery Party	The party to which goods should be delivered by the transport services provider. Operational term is "Place of Positioning".
Ship From	Original Despatch Party	The party from whom goods will be or have been originally shipped.
Ship To	Final Delivery Party/ Ultimate Delivery Party	The party to whom goods will be or have been ultimately shipped.

**Buyer**

The party stipulated as the party to whom goods or services are sold. The primary role of the Customer as specified in a Sales Order Contract is the Buyer and other possible roles include the Final/Ultimate Consignee, Transport Services Buyer, Importer and Invoicee.

**Importer**

The party who makes, or on whose behalf a Customs clearing agent or other authorized person makes, an import declaration. This may include a person who has possession of the goods or to whom the goods are consigned.

**Invoicee**

The party to whom an invoice is issued.

**Seller**

The party stipulated as the supplier of goods or services. The primary role of the Supplier as specified in the Sales Order Contract is the Seller and other possible roles include the Original Consignor/Shipper, Transport Services Buyer, Exporter, and Invoice Issuer.

**Transport Service Buyer**

The party stipulated as the buyer of transport services in a Transport Service Contract. The Transport Service Buyer role may be performed by either the Consignor or the Consignee depending on the Terms of Delivery specified in the associated Sales Order Contract.

**Exporter**

The party who makes, or on whose behalf the export declaration is made, and who is the owner of the goods or has similar rights of disposal over them at the time when the declaration is accepted.

**Invoice Issuer**

The party who issues an invoice.

**Intermediary**

Within the international purchase and supply chain, an Intermediary can be any party who provides services to support either the Sales Order Contract or the Transport Service Contract. The possible roles of an Intermediary include the Transport Service Provider (e.g. Carrier, Freight Forwarder), Financial Institution or Customs Agent etc.

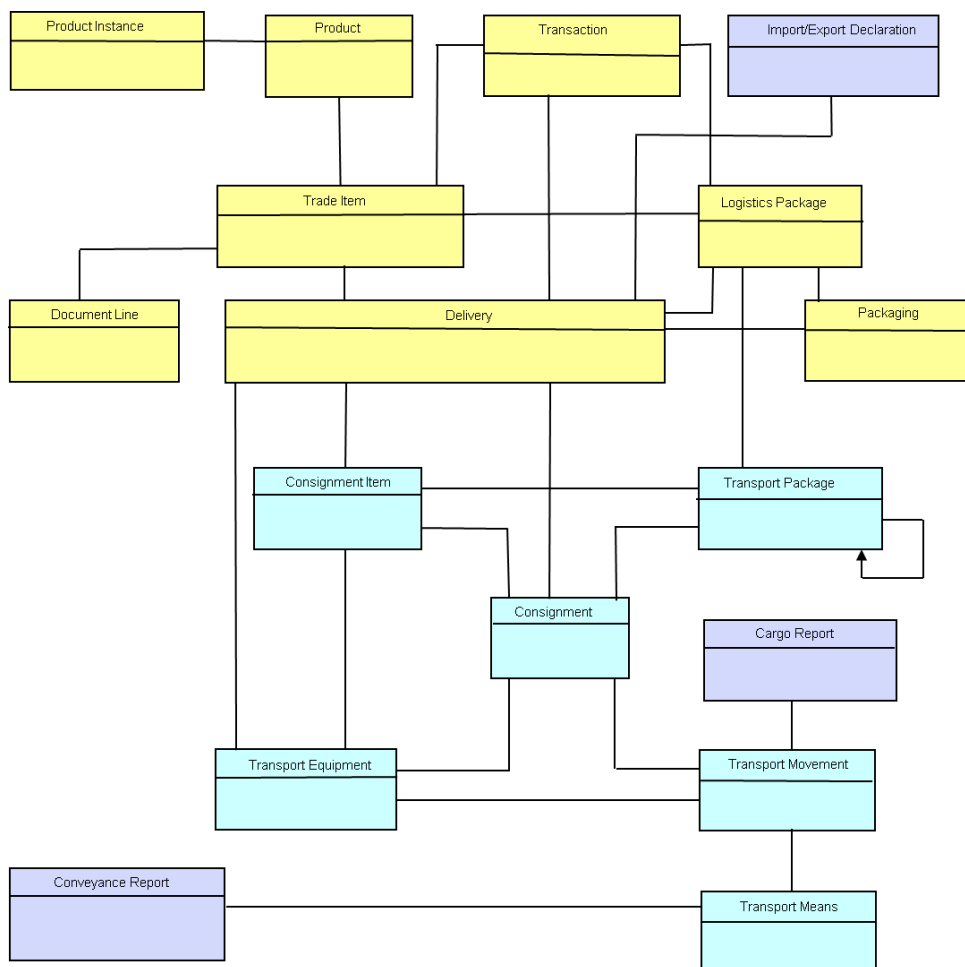
**Authority**

An Authority provides authorisation associated with any conventions or regulations applicable to the trading of goods within the purchase and supply chain. The possible roles of an Authority include border control authorities (e.g. Customs), permit/licensing issuing authorities and port authorities etc.

## 4.7 Business Entities and Business Rules

Throughout the international purchase and supply chain various types of information are exchanged. The SCRDM and MMT RDM provide a cross-domain framework for the derivation of generic data exchange structures for the exchange of information between the Customers, Suppliers, Intermediaries and Authorities no matter which countries or modes of transport may be involved. Therefore, both the SCRDM and MMT RDM use the same set of generic terms and their definitions for the involved parties and for the business information entities contained within it.

The following diagram and accompanying text describe the relationships between the highest-level Business Information Entities of the SCRDM and MMT RDM.



**Figure 7 SCRD and MMT RDM High-Level Entity Relationships**

### Sales Order

A sales order is a contractual document by means of which a buyer initiates a transaction with a seller involving the supply of goods or services as specified, according to conditions which are either set out in a formal quotation or otherwise known to the buyer. The information included in the cross-border Order document covers the commercial information between the Buyer and the Seller relating to the Sales Order and also the additional transport and regulatory information required by intermediaries and authorities.

- A Sales Order can only have one Buyer
- A Sales Order can only have one Seller
- A Sales Order is made up of one or more Trade Items

### Trade Item

A Trade Item describes the lowest level of "commercial" information in a Sales Order between the Buyer and the Seller. Each Trade Item will usually be associated with a particular product and will include details such as product code, quantity and unit price etc. In the case of cross-border orders each product will also have an associated Customs tariff code. The Customs tariff code, also known as the commodity code, specifies the goods classification under the Harmonized Commodity Description and Coding System of the WCO.

- A single Trade Item can be split across Deliveries/Shipments
- Trade Items are aggregated by Tariff Code/Packaging into Consignment Items

**Delivery**<sup>10</sup>

Shipping arrangements between buyer and seller about movement of products and or services including despatch and delivery. A delivery 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 delivery can only be destined for one Buyer
- A delivery can be made up of some or all Trade Items from one or more Sales Orders
- A delivery may form part or all of a Consignment or may be transported in different Consignments.

**Consignment Item**

A separately identifiable quantity of products grouped together by Customs tariff code or packaging for transport purposes. A Consignment Item is the lowest level of information within a Consignment.

- A Consignment Item can contain one or more Trade Items

**Consignment (Transport Service Order)**

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
- A Consignment is made up of one or more Customs Items for reporting to Customs
- A Consignment can have one or more Customs UCRs (Unique Consignment Reference)

**Import/Export Customs Declaration**

Documents by which consignments of goods are declared for either export or import Customs clearance, conforming to the layout key set out at Appendix I to Annex C.1 concerning outright exportation to the Kyoto convention (WCO).

- An Export or Import Declaration can contain one or more Customs Items
- An Export or Import Declaration can have only one UCR

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<sup>10</sup> In other domains than Supply Chain, the term 'Shipment' is used.



### **Customs Item**

A Customs Item is a Consignment Item, a Trade Item or an aggregation of Consignment or Trade Items with distinct Customs tariff code for reporting to Customs.

- A Customs Item can only have one associated Customs tariff code
- A Customs Item can refer to one or more Trade Items
- Each reported Transaction may contain one or more separately reported Customs Items

## 5 Definition of Terms

Term	Definition
Business Data Exchange Structure	A collection of information used within a particular business process, structured in such a way that it covers the business data exchange needs. These structures can be a complete business document, such as an invoice or a mini document (snippet) as a result of a query e.g on master data.
Consignment item	An item within a consignment of goods separately identified for transport or regulatory purposes.
Consignment	A separately identifiable collection of goods items to be transported or available to be transported from one consignor to one consignee via one or more modes of transport where each consignment is the subject of one single transport contract.
Conveyance Report	A Conveyance Report permits the transfer of data from a carrier to a Customs administration for the purpose of meeting Customs reporting requirements in respect of the means of transport on which cargo is carried.
Customs Cargo Report	Documents by which movements of goods are reported to Customs at a place of export, import or transit.
Delivery	Shipping arrangements and movement of products and or services including despatch and delivery.
Document Line	A collection of data for a line on a piece of written, printed or electronic matter that provides information or evidence.
Import/Export Declaration	Documents by which consignments of goods are declared for either export or import Customs clearance, conforming to the layout key set out at Appendix I to Annex C.1 concerning outright exportation to the Kyoto convention (WCO).
Logistics Package	A self-contained wrapping or container within which goods can be contained for logistics purposes, such as a box or a barrel which can be filled, partially filled or empty.
Master Data Exchange Structure	A collection of information structured in such a way that it covers the data exchange structures required by users within the Reference Data Model domain, such as the Supply Chain. From the Master Data Exchange Structure different Business Data Exchange Structures can be derived.
Packaging	Any material with which supply chain goods are packaged, such as a box or bubble wrap.
Product	Any tangible output or service produced by human or mechanical effort or by a natural process for trade purposes.
Product Instance	An individual trade product or batch of similar trade products produced by human or mechanical effort or by a natural process.
Single Window	A Single Window is defined as a facility that allows parties

Term	Definition
	involved in trade and transport to lodge standardized information and documents with a single entry point to fulfil all import, export, and transit-related regulatory requirements. If information is electronic, then individual data elements should only be submitted once.
Trade Item	A collection of information specific to an item being used or reported on for supply chain trade purposes.
Transaction	A group of supply chain trade items, trade agreement, trade delivery and trade settlement details.
Transport Equipment	A piece of equipment used to hold, protect or secure cargo for logistics purposes.
Transport Means	The devices used to convey goods or other objects from place to place during logistics cargo movements.
Transport Movement	The conveyance (physical carriage) of goods or other objects used for transport purposes.
Transport Package	A self-contained wrapping or container within which goods can be contained for transport purposes, such as a box or a barrel which can be filled, partially filled or empty.
Transport Service Order	See consignment