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United Nations Centre for Trade Facilitation and Electronic Business

UN/CEFACT

Message Construction Guidelines for CCBDA

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1. About this document

This guideline describes how to construct UN/CEFACT compliant XML messages according to Core Component Business Document Assembly Technical Specification (CCBDA).

1.1 Executive Summary

For semantic interoperability in the field of Trade Facilitation and eBusiness, UN/CEFACT Technical Specifications and Dictionaries should be used more widely in the world.

There are several standard messages published on the UN/CEFACT web site¹ which are designed to be used widely including general purpose business information entities and code lists.

The other hand, a user's application used within a trading partner's needs and can handle a part of information of the standard message. This may cause difficulties among users especially SMEs, such as;

- (1) It needs a large size standard message for the small set of information used in user's application.
- (2) Each user application has to handle a set of information defined in the standard message.
- (3) A user cannot predict the usable set of information in the standard message received.

Fortunately, we have the technical specification Core Component Business Document Assembly (CCBDA) which enables defining a subset of the standard message.

In this guideline two types of message constructing approach based on CCBDA are introduced.

➤ Document Centric approach

A collection of Message Business Information Entities (MBIEs) within a specific business process, structured in such a way that it covers the business data exchange needs. MBIE may be restricted based on the BIE registered in UN/CEFACT Core Component Library (CCL) following the business needs.

➤ Reference Data Model approach

A collection of Reference Business Information Entities (Reference BIEs) representing the business information needs within a specific domain or sub-domain. This collection is also known as "Context CCL" or "Contextualized subset of CCL".

Furthermore, this guideline identifies user requirements for message construction and gives solutions for those requirements as follows.

- Guidelines for identification MA
- Clear rules for restriction of BIE

¹ <https://www.unece.org/uncefact/mainstandards.html>

- NDR related guidelines
- Rules for restricting code list
- Publication guidelines for MA based on CCBDA
- CCBDA template
- Facets for MBIEs
- Guidelines for interoperability
- Annotation Guidelines

1.2 Status of this document

This document will be developed in accordance with the UN/CEFACT/TRADE/22 Open Development Process for Guidelines.

This version of the guideline is the initial draft for discussion in the project team.

1.3 Revision history

Version	Release	Date	Comments
0.1	Initial draft for the project team	2020-02-28	
0.2	Message Construction Guideline V0.2	2020-04-01	
0.3	Message Construction Guideline V0.3	2020-05-16	
1.0	Message Construction Guideline for CCBDA, Public Draft v1.0	2020-05-27	

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.

2.2 Project team participants

Project Team Lead:

Hisanao Sugamata

Editing Team

Gerhard Heemsker

Hidekazu Enjo
Michel Bormans
Niki Dieckmann
Andreas Pelekies
Natthaphat Rojanasupamit

3. Introduction

The main audiences for this guideline are primarily.

- XML message designers
- XML message tool developers

3.1 Structure of this document

This guideline covers the following 2 subjects, Message Construction Approach and User Requirements and Solutions.

The Message Construction Approach chapter is introducing 2 types of message design methods, Document Centric (DC) message and Reference Data Model (RDM) message.

The other chapters are identifying 9 subjects as follows.

- Guidelines for identification of MA
- Clear rules for restriction of BIE
- NDR related guidelines
- Rules for restricting code list
- Publication guidelines for MA based on CCBDA
- CCBDA template
- Facets for MBIEs
- Guidelines for interoperability
- Annotation rule

3.2 Related Document

- UN/CEFACT Core Components Technical Specification – Part 8 of the ebXML Framework, Version 2.01
- UN/CEFACT Core Components Business Document Assembly Technical Specification, CCBDA, version 1.0
- UN/CEFACT XML Naming and Design Rules for CCTS 2.01 Version 2.1 dated 27 May 2014
- UN/CEFACT Requirements Specification Mapping (RSM) Documentation Template Guidelines

Version 2.0, dated May 2012

- UN/CEFACT Code Management User Guide Version 1.0, dated March 2018

3.3 Purpose and scope

The guidelines introduce the method to design a XML user message using MA, MBIE and QDT under the rules of CCTS, CCBDA and NDR.

4. Message Construction Approach

The UN/CEFACT have published several Standard Messages in XML Schema those which are importing all the Reusable ABIEs of the published Core Component Library (CCL).

The Core Components Business Document Assembly (CCBDA) Technical Specification can be employed wherever business information is being shared or exchanged amongst and between enterprises, governmental agencies and/or other organizations in an open environment. This environment can be of a worldwide scope or restricted to a specific business context (such as an industry or region).

The UN/CEFACT published message assemblies (MA) can be customized by user communities using the CCBDA methodology. This methodology can be applied on all message assemblies by the Document Centric (DC) or the Reference Data Model (RDM) approach.

- Document Centric (DC) approach: A collection of information used within a specific business process, structured in such a way that it covers the business data exchange needs. DC message may be published for a specific document by a specific industry domain group, a specific local group or a specific user group using restricted BIEs according to the rules of CCBDA.
- Reference Data Model (RDM) approach: A collection of Reference Business Information Entities (Reference BIEs) structured in such a way that it covers the business data exchange needs within a specific domain which can be even further restricted by a particular industry group, a specific local group or a specific user group according to the rules of CCBDA. The main differences between the DC approach is that only Reference BIEs instead of Messages BIEs are in scope. The business needs are reflected by contextualizing Reference BIEs. This collection of Reference BIEs is also known as a “Context CCL” or “Contextualized subset of the CCL”. Regarding the message assembly the same CCBDA rules are being applied, but, as written, on the contextualized Reference BIEs instead of the Messages BIEs residing in the CCL.

4.1 Document Centric approach

Document Centric (DC) message is constructed by Message Business Information Entities (MBIEs) used

in the target message for the specific industry, the local area or the specific user group.

The Aggregate Business Information Entities (ABIEs) used in DC message may be the message specific one, such as the ABIE qualified with message specific term (ex. CIOH_ Exchanged_ Document. Details where CIOH means Cross Industry Order Header).

4.1.1 Document Centric Message construction step

- (1) UN/CEFACT Standard Message can be used as a template for assembling a Document Centric Message.
- (2) Select specific ABIEs in CCL used in the message accordance with the business process needs defined by the user group (a business domain or a local industry).
- (3) Define MBIEs for the selected Aggregate Business Entities (ABIEs), Associated Business Information Entities (ASBIEs) and Basic Business Entities (BBIEs) according to the CCBDA rules.
- (4) All the MBIE XML statements may be specified in Root schema module or Internal schema module according to the NDR rules.

4.2 Reference Data Model approach

The advantage of the Reference Data Model (RDM) approach is that an RDM draws on the overall available Reference Aggregate Business Information Entities (ABIEs) within the UN/CEFACT Core Component Library (CCL), creating a complete and focused subset specific to the needs of a segment (particular industry domain group or sub-domain). An example of an UN/CEFACT RDM is the Supply Chain Reference Data Model (SCRDM) covering the contract for the supply of the goods. An RDM, which is a contextualized subset of the CCL, can also be based on another contextualized subset of the CCL (a sub-RDM). The SCRDM and Multimodal Transport (MMT) RDM are contextualized subsets of the Buy-Ship-Pay (BSP) RDM.

The basis of all data exchanges starts with a Core Component (CC) being qualified in order to provide a business meaning (e.g. Reference BIE is CC “instructions” qualified with “handling”). A Reference BIE can be double qualified, but an RDM merely uses double qualifiers as business information entities are primarily being contextualized. An example of a double qualified Reference BIE is “Referenced_ Logistics_ Transport Means”. The reason for this is a business need for having two restricted versions available in a data exchange structure. One specifying all details of a means of transport and another referencing only the necessary data, such as an identification and type code of means of transport.

The type of restrictions can be:

- The number of attributes
- The number of associations
- The cardinality of attributes/associations

Note: The CCBDA (Core Component Business Document Assembly) specification does not use the term “Reference BIE” as used in the published CCL. It uses only the term Message BIE (MBIE). In the context of an RDM only Reference BIEs are used to build a data exchange structure (or message body). From an assembly perspective it is the same. The published Message BIE library only reflects the Reference BIEs being used in messages in relation to the document centric approach. Within this Message BIE Library, you will find a large number of document centric business information entities. These entities are built to be used within only a specific document (a.k.a. document centric), such as “CIOH_Supply Chain_Trade Agreement” which is only used in the Order. Unlike this, Reference BIEs are document independent and process driven and can be used in every possible data exchange structure.

Qualified Data Types (qDTs) cannot be restricted in the context of an RDM due to strict inheritance as specified by CCTS rules. The Code Management User Guide describes solutions for restriction code list values in case of the need for contextualizing qDT of a business entity.

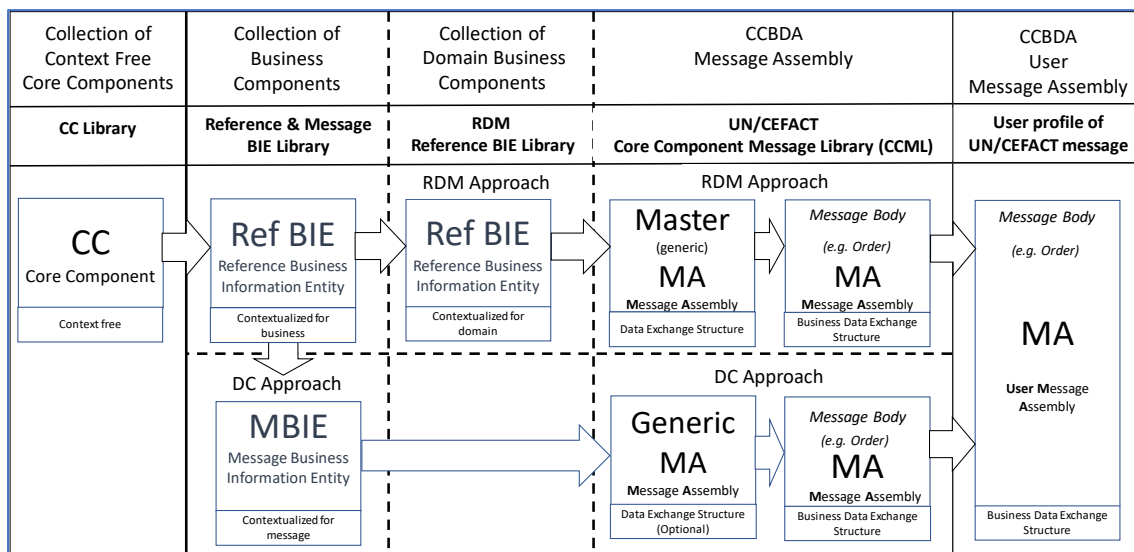


Figure 1: The use of BIEs within the Reference Data Model (RDM) and Document Centric (DC) approach

4.2.1 Domain Reference BIE

A “Domain Reference Business Information Entity” represents the business information needs within a particular domain (such as Supply Chain or Transport & Logistics) or sub-domain and is represented by contextualized ABIEs or BBIEs or ASBIEs. A collection of Domain Reference BIEs is a.k.a. an RDM or

Context CCL. The context as expressed "scopes" the domain. Industry domain groups and other users can further restrict this subset and derived messages using CCBDA rules.

4.2.2 Domain Master Data Exchange Structure

A collection of information structured and contextualized in such a way that it covers the data exchange structure(s) required by users within a domain or sub-domain, such as Supply Chain. From the "Domain Master Data Exchange Structure" different "Business Data Exchange Structures" can be derived. The context as expressed "scopes" the domain. Industry domain groups and other users can further restrict this "Master Data Exchange Structure" to their needs.

4.2.3 Business Data Exchange Structure

Commonly, the needed restrictions on Reference Business Information Entities will be reflected by Domain Reference BIEs. Further restrictions can be realized within the Domain Master Data Exchange Structure and/or within the derived Business Data Exchange Structure(s). A CCBDA compliant model may serve as the computer readable part of an EDI Document Implementation Guideline. Due to the reusable aspect of a Reference BIE, it is obvious that restrictions to a Reference BIE will be applicable no matter the location(s) it is being used in a data structure. Different information needs for the same Reference BIE within a data structure will end up in the creation of a new Reference BIE (e.g. Header_ Trade Agreement and Line_ Trade Agreement). Most UN/CEFACT published message assemblies are being customized by industry domain groups using the CCBDA methodology. For their context (region, industry) they possibly need more restrictions.

5. User Requirements and Solution

5.1 Guidelines for identification of MA

The identification of restricted version of MA can be user defined.

As an example: an identification of a restricted MA for DC message as follows.

DCXXXX_YYYY_ZZZZ

Where;

XXXX (4 digits) is the ID of 3055 (Code List Responsible Agency).

=>Ex."0413" UN/CEFACT Japan committee

YYYY (variable length text) is the Business Process name for the domain.

=>Ex."Agricultural Machine"

ZZZZ (variable length text) is the UNSM Name.

=>Ex."Order"

As an example: an identification of a restricted MA for RDM based message as follows.

RDM-CCBDA-XXXXX-Message Structure – Version ID

Where;

“RDM-CCBDA” is the fixed word.

XXXXX (variable length text) is the acronym of the message.

=>Ex.”CIO” for Cross Industry Order.

=> “Message Structure” is the fixed word.

Version ID is the identification of the version.

No identifiers for MBIEs are needed since they are unique within their context, i.e. the message. As long as they are duly noted in the Requirement Specification Mapping (RSM), they are accessible and cannot be confused with other MBIEs. It is however important to note the UN id number for the ABIE from which it is derived.

5.2 Clear rules for restriction of BIE

Both a Message BIE (MBIE) and Reference BIE inherit the name, structure and definition from the BIE registered in UN/CEFACT CCL on which they are based. For this reason, UN/CEFACT will not register extensions of a definition requested by a industry domain group or sub-domain or even user communities. A change of the definition requested by users will always invoke a change request for the applicable CC and BIE in the CCL. Additional text added to the definition are regarded as maintained by user communities within their libraries or guidelines.

Note: Restricting a definition

In order to keep the originally assigned definition of a BIE intact, users should inherit this definition. A user community (region or industry), may restrict the definition as long as the original semantic meaning does not get lost. Respecting the original definition will enhance interoperability.

5.2.1 Restriction rules

(1) Limitation rule for BBIEs and ASBIEs under the ABIE

CCBDA[R05]: An MBIE inherits its structure from the ABIE on which it is based. The set of properties of an MBIE may be a subset of the set of properties of the ABIE on which it is based.

(2) Limitation rule for occurrence of BBIE or ASBIE

CCBDA[R11]: An MBIE property may be a restriction of its inherited ABIE property in any or all of the following ways:

- a. A used optional property may be made mandatory.
- b. An optional property may be not used.
- c. A used optional or mandatory property may specify a lower number of maximum occurrences but not lower than the minimum occurrences.

5.2.2 Prohibited extensions

Following MBIEs are not allowed.

- Adding BBIEs and/or ASBIEs to the published ABIE.
- Expand occurrence for BBIE or ASBIE.
- Remove existing qDT specified for BBIE.
- Additional qDT for the BBIE.
- Change the order of ABIE properties.

5.3 NDR related guidelines

The Core Component Business Document Assembly (CCBDA) technical specification provides a mechanism for restricting ABIEs in order to assemble a single message.

5.3.1 Internal Schema

Messages in an XML context correspond to a root schema, and as such, the restricted ABIEs would be declared in an internal schema. These ABIEs will be defined as `xsd:complexType` in an internal schema module rather than in the reusable ABIE schema module. UN/CEFACT XSD Schema may have zero or more internal schema modules.

5.3.2 Document Centric message XML schema

A UN/CEFACT internal schema module will contain schema constructs representing ABIEs that are specific to a given root schema, such as restricted ABIEs created based on CCBDA. Internal schema modules reside in the same namespace as their root schema.

Document centric approach has an assumption that each message has an unique set of MBIE, MBBIE, ASMBIE and MDT (Message Data Type) such as restricted ABIEs, BBIEs and ASBIEs and restricted Data Types (DTs) such as Qualified or Unqualified DTs. Those MBIEs, MBBIEs, ASMBIEs and MDTs are strongly dependent MA and ASMA.

Document Centric approach prefers those MBIEs, MBBIEs, ASMBIEs, MDTs are included in the root schema consisted depended MA and ASMA instead of internal schema.

5.3.3 Reference Data Model approach XML schema

A UN/CEFACT internal schema module will contain schema constructs representing ABIEs that are specific to a given root schema, such as restricted ABIEs created based on CCBDA. Internal schema

modules reside in the same namespace as their root schema.

Reference Data Model approach has an assumption that each message is derived from a “Master Data Exchange Structure” which is based on a contextualized collection of Reference BIEs. During the message construction, these Reference BIEs are represented as MBIE, MBBIE, ASMBIE and MDT (Message Data Type) which can be further restricted, Those MBIEs, MBBIEs, ASMBIEs and MDTs are strongly dependent MA and ASMAs.

Reference Data Model approach prefers those MBIEs, MBBIEs, ASMBIEs, MDTs are included in the root schema consisted depended MA and ASMAs instead of internal schema.

5.3.4 Namespace Uniform Resource Identifiers

To ensure consistency, each UN/CEFACT namespace will have the same general structure. This namespace structure will follow the provisions of Internet Engineering Task Force (IETF) Request For Comments (RFC) 2141 – URN Syntax. That specification calls for a standardized URN syntax structure as follows: (phrases enclosed in quotes are REQUIRED):

<URN> ::= "urn:" <NID> ":" <NSS>

where :

<NID> = the Namespace Identifier

<NSS> = the Namespace Specific String.

The leading "urn:" sequence is case-insensitive.

The Namespace identifier determines the syntactic interpretation of the Namespace Specific String.

Following this pattern, the UN/CEFACT namespace general structure for a namespace name should be:

urn:un:unece:uncefact:<schematype>:<status>:<name>:<version>

Where:

- Namespace Identifier (NID) = un
- Namespace Specific String =
 - unece:uncefact:<schematype>:<status>:<name>:<version> with unece and uncefact as fixed value second and third level domains within the NID of un
 - schematype = a token identifying the type of schema module:
 - data|process|codelist|identifierlist|documentation
 - status = the status of the schema as: draft|standard
 - name = the name of the schema module (using upper camel case) with periods, spaces, or other separators and the words ‘schema module’ removed.
 - version = The major version number. Sequentially assigned, first release starting with the number 1.

Namespaces for UN/CEFACT managed messages are well defined. However, Document centric approach has an assumption that of other agencies such as Code list responsible agency coded in 3055 will manage

their own messages based on CCBDA.

There may be two options for specifying the namespace:

- 1) Other agencies use their own namespace.
- 2) Extending Namespace Specific String as

unece:uncefact:3055:<agency code>:<schematype>:<status>:<name>:<version>

for 3055 registered agencies namespaces. Original Namespace Specific String is still

for UN/CEFACT managed messages.

5.3.5 Annotation guidelines

Users can decide whether or not to use annotations within the message schemas. It means that all annotation rules as [R92], [R113], [R115], [R116], [R129], [R130], [R148], [R149], [R161], [R162], [R179] and [R197] in NDR are changed to be applied OPTIONAL. An annotation rule as [R113] related ABIE MAY be applied to MBIE. An annotation rule as [R115] related BBIE MAY be applied to MBBIE. An annotation rule as [R116] related ASBIE MAY be applied to ASMBIE.

The advantage of annotations is that on implementation level the meaning of each element etcetera is provided within the message schema. The disadvantage is the load of text being present in the reusable business information entity schema. Users may decide to restrict the number of annotations being included per MBIE to minimize this disadvantage.

5.4 Rules for restricting or extending code list

Handling the following requirements for code list is specified in *Code Management User Guide*.

- Restricted code list
- Extended code list
- Choosing or combining code list
- User-defined code list

5.5 Publication guidelines for MA based on CCBDA

5.5.1 Publication format for UN Standard message

Message assembly for UN/CEFACT standard message requires to define MA (Message Assembly) and constructed ASMA (Association Message Assembly). All the ABIEs referenced by ASMA are defined in the reusable ABIE module.

The UN/CEFACT MA may be published in a spread sheet form equivalent the following Information model.

MA			
ID (1..1)		ASMA	ABIE (Top Level ABIE)
Version (1..1)		ID (1..1): ASMA UID	ID (1..1): ABIE UID
Name (1..1)	1..n	Name (1..1): ASMA DEN	1..1 Name (1..1): ABIE DEN
Definition (1..1)		Definition (1..1)	Definition (1..1)
Publication Comments (0..n)		Context Category(x) (0..1)	Publication Comments (0..n)
Context Category(x) (0..1)			Business Terms (0..n)
		*Note	Usage Rules (0..n)
		Context Category(x)	Context Category(x) (0..1)
		Business Process	ExampIs (0..1)
		Product	Short Name (0..1)
		Industry	
		Region(Geopolitical)	
		Official Constraint	
		Role	
		Supporting Role	
		System Constraints	

MA (Message Assembly)

MA is associating more than one ASMA.

ID (1..1)	The identifier of MA assigned by UN/CEFACT. (Note: Abbreviated message names are used in the UN/CEFACT schema library, such as CII-2 for Cross Industry Invoice version2.)
Version (1..1)	The version identifier assigned by UN/CEFACT, such as 1.0.
Name (1..1)	The dictionary entry name of MA shall consist of a meaningful object class term and optionally preceded by additional qualifier term(s), follows a dot, a space character, and the term Message. UN/CEFACT assigns standard name for the MA, such as “Cross Industry_ Order. Message”.
Definition (1..1)	The definition of the MA.
Publication Comments (0..n)	Any comments for publication of the MA.
Context Category (*) (0..1)	A group of one or more related values used to express a characteristic of a business circumstance. Eight context categories can be specified, such as Business Process, Product, Industry, Region (Geopolitical), Official Constraint,

ASMA (Association Message Assembly)

ASMA is an association, without any metadata. Therefore, the ASMA Class in the class diagram is displayed with dotted line.

ASMA is an association of the MA with the top level ABIE without a property term. For the Publication, it can be specified the top level ABIEs for the MA, instead of specifying the ASMA independently.

ASMA is followed by one and only one ABIE (the top level ABIE).

ID (1..1)	The identifier of ASMA which is to be assigned by UN/CEFCT, such as CIO01 (Cross Industry Order association 01) or UN01008492 (UNID for associating ABIE).
Name (1..1)	The dictionary entry name (DEN) of the ASMA consists of the MA name without the term “. Message”, followed by a dot, a space character and the name of the associating ABIE (the top level ABIE).
Definition (1..1)	To specify the definition of the ASMA. The definition of the ASMA may be the same definition of the ABIE associated by the ASMA.
Context Category (*) (0..1)	A group of one or more related values used to express a characteristic of a business circumstance. Eight context categories can be specified, such as Business Process, Product, Industry, Region (Geopolitical), Official Constraint,

ABIE (Aggregate Business Information Entity)

ASMA is associating the top level ABIE in the reusable ABIE module in the targeted Core Component Library.

ID (1..1)	The identifier of ABIE which is the UN Identifier (UNID) of the ABIE being associated the ASMA.
Name (1..1)	The dictionary entry name (DEN) of the ABIE being associated the ASMA.
Definition (1..1)	The definition of the ABIE being associated the ASMA.

Publication Comments (0..n)	Any comments for publication of the ABIE used for ASMA.
Business Terms (0..n)	Those terms are commonly used for day-to-day information exchange within this MA for the ABIE used for ASMA.
Usage Rules (0..n)	Any constraints that describe the specific conditions applicable for the ABIE used for ASMA.
Context Category (*) (0..1)	A group of one or more related values used to express a characteristic of a business circumstance. Eight context categories can be specified, such as Business Process, Product, Industry, Region (Geopolitical), Official Constraint,
Examples (0..1)	Examples can be specified.
Short Name (0..1)	A Short Name can be specified in the simplified form of Dictionary Entry Name for a better understanding of information entities.

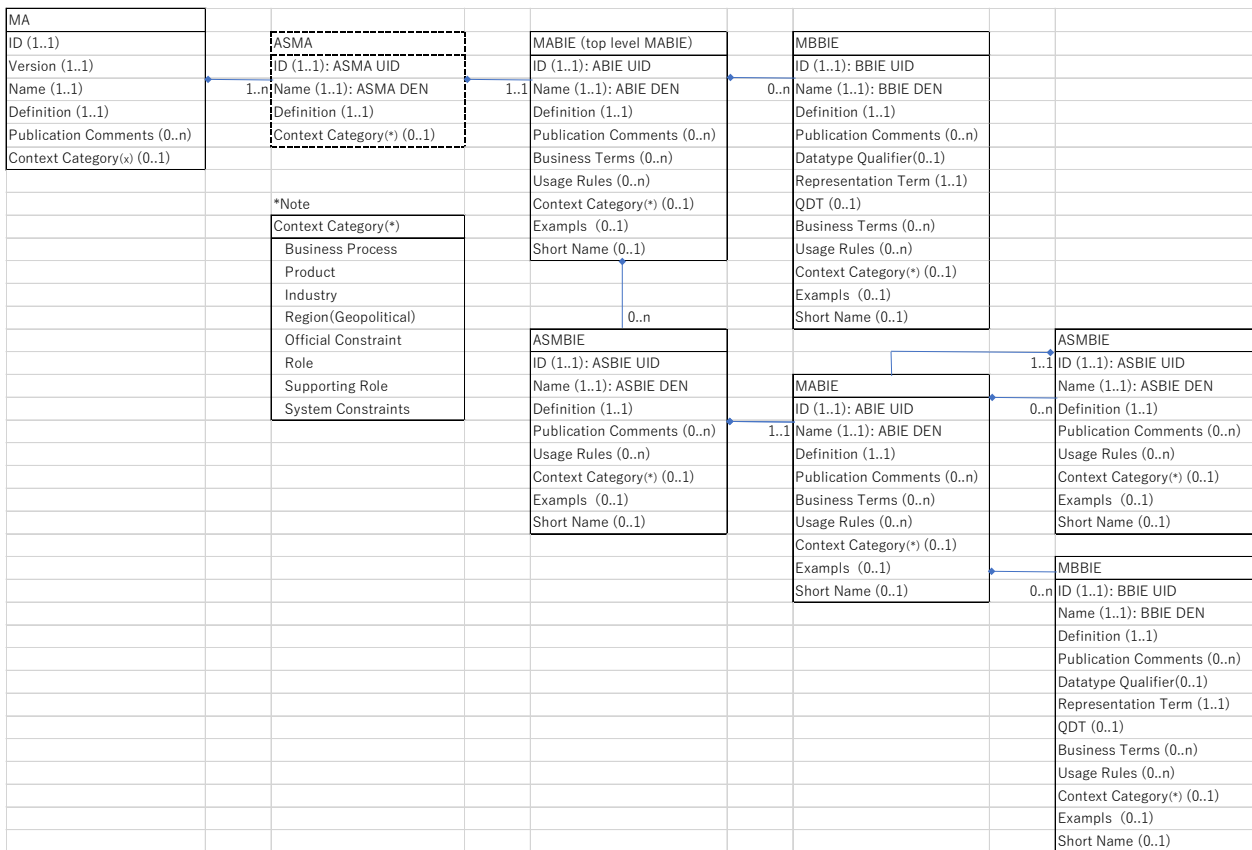
5.5.2 Publication format for Document Centric message

Message assembly for Document Centric (DC) message requires to define MA (Message Assembly) with constructed ASMAs (Association Message Assembly) and all the MABIEs which are specified with required ASMBIEs and MBBIEs.

Those MA, ASMAs, MABIEs, ASMBIEs and MBBIEs are specified in the root schema module and/or the internal schema module for the XML message schema.

The DC MA may be published by the specific domain group which is recommended to be one of code list responsible agencies registered in UNCL3035 code list.

The DC MA may be published in a spread sheet form equivalent the following class diagram.



MA (Message Assembly)

MA is associating more than one ASMA.

ID (1..1)	The identifier of MA, such as UN standard message name qualified by the specific domain group identifier.
Version (1..1)	The version identifier, such as Year plus release number.
Name (1..1)	DC message name which may specified accordance with the naming rule of MA for DC message (Refer 5.1 Guidelines for identification MA).
Definition (1..1)	The definition of the MA.
Publication Comments (0..n)	Any comments for publication of the MA.
Context Category (*) (0..1)	A group of one or more related values used to express a characteristic of a business circumstance. Eight context categories can be specified, such as Business Process, Product, Industry, Region (Geopolitical), Official Constraint.

ASMA (Association Message Assembly)

ASMA is an association, without any metadata. Therefore, the ASMA Class in the class diagram is displayed with dotted line.

ASMA is an association of the MA with the top level MABIE without a property. For the publication, it can be specified the top level MABIEs for the MA, instead of specifying the ASMA independently.

ASMA is followed by one and only one MABIE (the top level MABIE).

ID (1..1)	The identifier of ASMA which is assigned by the specific domain group. It may be the UN Identifier (UNID) of the ABIE underlining the MABIE directly associated.
Name (1..1)	The dictionary entry name (DEN) of the ASMA consists of the name of MA, followed by a dot, a space character and the name of associating MABIE (the top level MABIE).
Definition (1..1)	To specify the definition of the ASMA. The definition of the ASMA may be the same definition of the MABIE associated by the ASMA.
Context Category (*) (0..1)	A group of one or more related values used to express a characteristic of a business circumstance. Eight context categories can be specified, such as Business Process, Product, Industry, Region (Geopolitical), Official Constraint,

MABIE (Message Aggregate Business Information Entity)

ASMA is associating the top level MABIE.

MABIE has zero or many MBBIEs as it's property and is associating zero or many MABIEs through the related ASMBIEs.

All the MABIEs, ASMABIEs and MBBIEs should be defined in the specification of the DC MA.

ID (1..1)	The identifier of MABIE is the UN identifier (UNID) of the ABIE underlining the MABIE.
Name (1..1)	The dictionary entry name (DEN) of the ABIE underlining the MABIE.

Definition (1..1)	The definition of the ABIE underlining the MABIE.
Publication Comments (0..n)	Any comments for publication of the MABIE addition to the comments specified for the ABIE underlining the MABIE.
Business Terms (0..n)	Any business terms commonly used for day-to-day information exchange within this MA for the MABIE addition to the business terms specified for the ABIE underlining the MABIE.
Usage Rules (0..n)	Any constraints that describe specific conditions applicable for the MABIE addition to the usage rules specified for the ABIE underlining the MABIE.
Context Category (*) (0..1)	A group of one or more related values used to express a characteristic of a business circumstance. Eight context categories can be specified, such as Business Process, Product, Industry, Region (Geopolitical), Official Constraint.
Examples (0..1)	Examples can be specified.
Short Name (0..1)	A Short Name can be specified in the simplified form of Dictionary Entry Name for a better understanding of information entities.

ASMBIE (Association Message Business Information Entity)

ID (1..1)	The identifier of ASMBIE which is the UN Identifier (UNID) of the ASBIE underlining the ASMBIE.
Name (1..1)	The dictionary entry name (DEN) of the ASBIE underlining the ASMBIE.
Definition (1..1)	The definition of the ASBIE underlining the ASMBIE.
Publication Comments (0..n)	Any comments for publication of the ASMBIE addition to the comments specified for the ASBIE underlining the ASMBIE.
Usage Rules (0..n)	Any constraints that describe specific conditions applicable for the ASMBIE addition to the constraints specified for the ASBIE underlining the ASMBIE.
Context Category (*) (0..1)	A group of one or more related values used to express a characteristic of a business circumstance.

	Eight context categories can be specified, such as Business Process, Product, Industry, Region (Geopolitical), Official Constraint.
Examples (0..1)	Examples can be specified.
Short Name (0..1)	A Short Name can be specified in the simplified form of Dictionary Entry Name for a better understanding of information entities.

MBBIE (Message Basic Business Information Entity)

ID (1..1)	The identifier of MBBIE which is the UN Identifier (UNID) of the BBIE underlining the MBBIE.
Name (1..1)	The dictionary entry name (DEN) of the BBIE underlining the MBBIE.
Definition (1..1)	The definition of the BBIE underlining the MBBIE.
Publication Comments (0..n)	Any comments for publication of the MBBIE addition to the comments specified for the BBIE underlining the MBBIE.
Datatype Qualifier (0..1)	The datatype qualifier of MBBIE should be the same as specified for the BBIE underlining the MBBIE.
Representation Term (1..1)	The representation of MBBIE should be the same as specified for the BBIE underlining the MBBIE.
QDT (0..1)	The qualified datatype (QDT) of MBBIE should be the same as specified for the BBIE underlining the MBBIE.
Business Terms (0..n)	Any business terms commonly used for day-to-day information exchange within this MA for the MBBIE addition to the business terms specified for the BBIE underlining the MBBIE.
Usage Rules (0..n)	Any constraints that describe specific conditions applicable for the MBBIE addition to the usage rules specified for the BBIE underlining the MBBIE. The restriction of supplementary component for QDT and UDT can be specified in the Usage Rule.
Context Category (*) (0..1)	A group of one or more related values used to express a characteristic of a business circumstance. Eight context categories can be specified, such as

	Business Process, Product, Industry, Region (Geopolitical), Official Constraint.
Examples (0..1)	Examples can be specified.
Short Name (0..1)	A Short Name can be specified in the simplified form of Dictionary Entry Name for a better understanding of information entities.

5.5.3 Streamlined presentation for Reference Data Model based messages

The “Streamlined presentation of UN/CEFACT standards”² contains next to the UN/EDIFACT messages a list of messages standards either based on a Reference Data Model, such as SCRDM or MMT RDM, and based on the Message BIEs of the CCL, such as for Accounting and Audit. The message schemas published on this based follow the rules of CCBDA described in this document.

5.6 RSM for CCBDA

The document template guidelines of Requirement Specification Mapping (RSM) for Core Component Business Document Assembly (CCBDA) is edited with reference to Requirement Specification Mapping (RSM) Template Guide Version 2.0.

The document template guidelines of Requirement Specification Mapping (RSM) for Core Component Business Document Assembly (CCBDA) is posted in Annex 2.

5.7 Facets for MBIEs

CCBDA[R26] If an MBIE contains any constraints then each constraint must contain one or more of the following:

- the text of the constraint
- a reference identifier to a constraint defined in an external list of constraints if applicable
- a code defining the type of the constraint condition
- in the case of structured constraints, a code indicating the constraint language in which the constraint is expressed

CCBDA[R27] An unstructured constraint shall have or refer to a free form text expression that fully details the business requirements that it is addressing.

CCBDA[R28] A structured constraint shall have or refer to a formal constraint language expression.

5.8 Assisting semantic interoperability

² <https://www.unece.org/unecefact/mainstandards.html>

There are several facets supporting to understand the meaning of the BIE in UN/CEFACT CCL, such as Business Terms, Usage Rules and Context Categories. Those facts may be useful for designing a message.

In addition to those CCL facets, 2 more facets are introduced in this guideline, Short Name and Business Name.

5.8.1 Business Terms

Business Information Entity Business Terms are those terms that are commonly used for day-to-day information exchanges within a given domain. As such, no specific naming rules apply to *Business Terms*. Interoperability of *Business Terms* will be given by linking them to the formalized names of the corresponding *Business Information Entity* dictionary entries.

Business Terms are specified on the level of the CCL. Industry domain groups can specify their business terms on the level of the BIE and even on a lower level, the MBIE.

5.8.2 Usage Rule

A constraint that describes specific conditions that are applicable to the *Business Information Entity*.

- Usage rule for BIE
- Usage rule for Qdt
- Usage rule for Constraint

The facets for MBIEs described in Section 5.7 can be specified in Usage Rule.

5.8.3 Context Category

A group of one or more related values used to express a characteristic of a business circumstance.

- *Business Process Context*
- *Product Classification Context*
- *Industry Classification*
- *Geopolitical Context*
- *Official Constraints Context*
- *Business Process Role Context*
- *Supporting Role Context*
- *System Capabilities Context*

5.8.4 Short Name

For a better understanding of information entities, the Short Name is introduced by UN/CEFACT Library Maintenance group.

The short name is a user-friendly name for the dictionary entry name. It skips the use of dots or underscores, object class name (the latter in case of a basic or association component). Besides, abbreviations are used as much as possible in a short name (e.g. “Project_ Document. Identification. Identifier” is shortened just by “ID”).

The data type is included in the short name if needed, for example when a basic component is represented by multiply data types (e.g. “Project_ Note. Content. Text” will be shortened by “Context Text” and “Project_ Note. Content. Code” will be shortened by “Content Code”).

The “Business Name” is a domain specific, contextualized short name given to a business information entity (e.g. “Road Consignment” given for “Supply_ Chain Consignment”). The business name is used within the RDM approach and can be used on different levels, such as RDM Reference BIEs, the Reference BIEs used in the Master Data Exchange Structure or those used in the Business Data Exchange Structure.

The short name can be regarded as a CCTS annotation.

5.8.5 Business Name

The “Business Name” is a domain specific, contextualized short name given to a business information entity (for example “Road Consignment” used as business name “Supply_ Chain Consignment” in a Road Consignment Message. The business name is used within the Reference Data Model, but could also be used within the Document Centric approach. The business name can be regarded as a new CCTS annotation.

Note: The “Business Name” is not the same as the “Business Term”. The latter is a synonym and is being assigned at the lowest level of creation, the Reference BIE library within the Core Component Library (CCL). A business term is therefore process independent, whereas a business name is being used within a particular process, industry, user community etcetera.

6. Definition of Terms

Business Data Exchange Structures

A collection of information used within a particular business process, structured in such a way that it covers the business data exchange needs (a.k.a. the “*Message Body*”). 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.

Business Name

The “Business Name” is a domain specific, contextualized short name given to a business information entity (e.g. “Road Consignment” given for “Supply_ Chain Consignment”). The business name is used within the RDM approach and can be used on different levels, such as RDM Reference BIEs, the Reference BIEs used in the Master Data Exchange Structure or those used in the Business Data Exchange Structure.

Domain Master Data Exchange Structure

A collection of information structured and contextualized in such a way that it covers the data exchange structure(s) required by users within a domain or sub-domain, such as Supply Chain. From the Domain Master Data Exchange Structure, one or more Business Data Exchange Structures can be derived. The context as expressed "scopes" the domain. Industry domain groups and other users can further restrict this “Master Data Exchange Structure” to their needs.

Domain Reference Business Information Entity (BIE)

A “Domain Reference Business Information Entity” which is represented by a contextualized ABIE or BBIE or ASBIE represents the business information needs within a particular domain (such as Supply Chain or Transport & Logistics) or sub-domain. A collection of Domain Reference BIEs is also known as an RDM or Context CCL. The context as expressed "scopes" the domain. Industry domain groups and other users can further restrict this subset and derived messages using CCBDA rules.

Message Assembly (MA)

The body of a (business) message represented as an aggregation of different Aggregate Business Information Entities (ABIE) structured in such a way that it covers the needs of users. MAs may be based on more generic MAs. The result of a MA is a.k.a. message body or business data exchange structure. The used ABIEs can be of type domain specific Reference BIEs (RDM approach) or Message (Reference) BIEs (DC Approach).

Reference Data Model

A collection of Reference Business Information Entities (Reference BIEs) representing the business information needs within a particular domain or sub-domain. This collection is also known as a “Context

CCL” or “Contextualized subset of the CCL”.

Short Name

A short name represents a brief version of a Dictionary Entry Name (DEN) as published in the Core Component Library.

Annex 1. Review of CCBDA Version 1.0

1. Figure 4-2 (page 10)
 - The BDH is not clearly specified as mandatory in the text of the specification. Therefore the cardinality of BDH in Figure 4-2 may be changed (1..1) to (0..1).
2. R16 (page 14)
 - There are 2 rules in R16. It leads some confusion between “cardinality of a supplementary component and “number of supplementary components”.
3. Figure 5-1 (page 15)
 - There are no definition of <abstract>Message Property of Message Assembly in the text of the specification. Remove the association between Message Assembly and Message Property in Figure 5-1.
4. R20 (page 16)
 - The rule says that “inherits its name and definition”. Dose “name” mean “Dictionary Entry Name” or other names, such as Short name or Business term?
5. R24 (page 16)
 - Add another rule for R24: Sequencing the properties of MABIE should keep the order of the properties of the derived ABIE.
6. Constraints (page 17)
 - Line 389: Document Assembly should be Message Assembly.
But there are no rules for MA constraints (It should be defined in Figure5-1).

**Annex 2. Requirement Specification Mapping (RSM) for Core
Component Business Document Assembly (CCBDA) Document
Template**

REQUIREMENTS SPECIFICATION MAPPING
For Core Component Business Document Assembly
(RSM for CCBDA)

Documentation Template Guidelines

Version: 1.0

Release: 1.0

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1 Introduction

Requirement Specification Mapping (RSM) Document Template Guidelines Version 2.0 has been published in 2012. This template is prepared for guiding to specify RSM for Core Component Business Document Assembly (CCBDA) based on RSM Document Template Guidelines Version 2.0.

This template excludes the topics related to update Core Component Libraries and the topics of using code list. If the designated business document assembly requires adding the new Core Components (CCs), the new Business Information Entities (BIEs) for underlining the Message Business Information Entities (MBIEs) and/or changing CCs, BIEs for underlining MBIEs, RSM Document Template Guidelines Version 2.0 can be referenced. Using code list, RSM Document Template Guidelines Version 2.0 and Code Management User Guide Version 1 can be referenced.

1.1 Audience

The main audiences for this document are the potential authors of individual RSM for CCBDA. These are primarily the UN/CEFACT business and IT experts who are responsible for specifying the business requirements for e-business solutions in a specific domain and for furthering the development of solutions compliant to the relevant standards. Authors may include other standards bodies or users and developers in developed or developing economies.

1.2 Reference Documents

Knowledge and application of the following standards is crucial to the development of quality business requirements specifications. Other key references are shown in the appropriate part of the document.

UN/CEFACT. Techniques and Methodologies Group (TMG). UN/CEFACT's Modelling Methodology (UMM): UMM Meta Model Core Module. (Candidate for 2.0). 2009-01-30.

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.

Formal definitions of many of the technical terms used in this RSM for CCBDA guideline may be found in the above references but for convenience some key definitions are included in Annex 1 of this document.

UN/CEFACT Core Components Technical Specification – Part 8 of the ebXML Framework dated 15 November 2003 Version 2.01 - (CCTS 2.01)

UN/CEFACT – Core Component Technical Specification *Technical Corrigendum* Version 2.01 (Corr.

1) dated 12 February 2007 (CCTS 2.01 Corr.1)

UN/CEFACT Core Components Data Type Catalogue Version 2.1 dated 2008-04-08 (CCDTC 2.1)

UN/CEFACT XML Naming and Design Rules Version 2.0, dated 17 February 2006 (NDR 2)

UN/CEFACT UML Profile for Core Components (UPCC), Version 1.0, Final Specification, 2008-01-16

UN/CEFACT UML Profile for Core Components (UPCC), Version 3.0

UN/CEFACT Requirement Specification Mapping (RSM) Document Template Guidelines Version 2.0, dated May 2012

UN/CEFACT Code Management User Guide Version 1, dated 2017

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" .

The following Technical Specifications are at the time of the writing of this document not finalized, but are all highly relevant to the contents of this document and are referred to herein.

UN/CEFACT Context Methodology

UN/CEFACT XML For CCTS

2 Template Guidelines

The keywords MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, RECOMMENDED, MAY, and OPTIONAL, when they appear in this guideline, are to be interpreted as described in Internet Engineering Task Force (IETF) Request For Comments (RFC) 2119.1

Throughout this document the term ‘core component’ includes Core Component (CC), Business Information Entity (BIE) and Data Type (DT) – see Definition of Terms.

2.1 Document History

A document history SHOULD be provided and SHOULD detail all the changes that have been applied with each new version/release of an RSM for CCBDA. The history SHOULD provide the following information:

- Date last modified
- Phase
- Status

Table 1: Example Document History

Phase	Status	Date Last Modified

2.2 Change Log

A change log SHOULD be provided and SHOULD detail all the changes that have been applied with each new version/release of an RSM for CCBDA. The log SHOULD provide the following information:

- Date of change
- Version
- Paragraphs affected
- Summary of the change
- Author

Table 2: Example Change Log

Date of Change	Version	Paragraph Changed	Summary of Changes	Author

2.3 Purpose and Scope

The RSM for CCBDA SHOULD identify the scope:

- Messages and message models
- Models covering common data elements used across different messages
- Reference models

and identify where this project fits in to the wider business domain.

In the case of projects in the International Supply Chain, the RSM for CCBDA SHOULD be positioned with respect to the international supply chain reference model (BUY-SHIP-PAY process model).

In other domains, reference MAY be made to industry or sector models.

2.4 Target Solution

The RSM for CCBDA SHOULD state the technical (syntax) solution(s) resulting from this specification, for example XML, EDIFACT or both.

The transformation from this RSM for CCBDA into the target solutions will be defined by the relevant naming and design rules (e.g. UN/CEFACT XML Naming and Design Rules).

In some cases, the deliverables specified within this RSM for CCBDA may only be additions to the Core Component Library. Messages might not be defined in this RSM for CCBDA but might be defined by other organisations.

2.5 Business Requirements Summary

The functional requirements of a collaborative business project are documented in a Business Requirements Specification (BRS) that specifies the Business processes and the business data that is to be exchanged. The BRS provides the input to a Requirements Specification Mapping (RSM) for CCBDA.

Business requirement details, including all the UMM artefacts, SHOULD be found in the project related BRS or MAY be found in other referenced documents. The following tables and diagrams SHOULD be provided to summarise the key requirements.

3 Business Processes, Information Envelopes and Authorised Roles

Table 3: Example Business Process Table

Business Process Name: Tendering

Information Envelope Name	UMM Business Transaction Name	Authorised Role Requester Name	Authorised Role Responder Name	Collaboration Requirements Name	Collaboration Realisation Name
Invitation to Tender	Issue Invitation To Tender	Invitation to Tender Requester	Invitation To Tender Receiver	Tendering	Tendering
Tender	Submit Tender	Tender Provider	Tender Receiver		
Receipt Notice		Tender Receiver	Tender Provider		
Tender Response	Respond To Tender	Tender Responder	Response Receiver		

4 Business Partner Types and Authorised Roles

Table 4: Example Collaboration Realization Table

Collaboration Realisation Name: Tendering

Authorised Role Name	Business Partner Type Name
Invitation To Tender Requester	Procuring Organisation
Invitation To Tender Receiver	Tendering Organisation
Tender Provider	Tendering Organisation
Tender Receiver	Procuring Organisation
Tender Responder	Procuring Organisation
Response Receiver	Tendering Organisation

5 Conceptual Model

A conceptual model identifies, in business terms, the main Entity Classes and their attributes for each of the Business Entities that are referred to in the information exchange(s) that occur in the Domain. It MUST be shown in the form of a class diagram OR be documented in tabular form.

Example-Conceptual Model for Invoice Business Entity

Table 5: Example Entities and Attributes Table

Entities and Attributes Table: INVOICE

Entity Class Name	Attribute Name	Attribute Description	Attribute Type e.g. Text, Number, Date
Invoice	Invoice Number	The identifying number of the invoice.	Identifier
	Invoice Date	The date the invoice was issued.	Date Time
	Order Reference	A reference to the original order.	Text
Line Item	Line Item Number	The identifying number of the line item.	Identifier
Product	Product id	The identifier of the product.	Identifier
	Product Name	The name of the product.	Text
	Country of Origin	The country where the product originated.	Identifier
Etc			

5.1 Information Mapping

5.1.1.1 Referenced CCL

When mapping the information requirements outlined in the BRS, modellers should review the latest CCL and re-use core components where these are available. If, after examination of the latest CCL, the modeller requires additions or changes to the CCL. During the harmonization process the change requests will be considered against the whole CCL and may lead to suggestions for the re-use or modification of existing core components.

5.1.1.2 Message Business Information Entity Model

The Message Business Information Entity Model (shown in Diagram 4) is a canonical data model that is a UMM compliant formalisation of the (conceptual) information model in the BRS, using core components.

The canonical data model will be used as the basis for the transformation into the required technology solution. It will be depicted in the RSM for CCBDA documentation in two forms; the pictorial form (UML class diagram) and as an associated model interchange file such as an XML Metadata Interchange (XMI) format.

The canonical data model contains all the business information requirements found in the conceptual data model class diagram as a result of the transformation of these requirements into existing and if needed, candidate Message Business Information Entities (MABIEs, MBBIEs, ASMBIEs).

5.1.1.3 New and Changed Components

Information about the new and changed components (Aggregate Business Information Entities, Basic Business Information Entities and Association Business Information Entities) SHOULD be identified here. The relationship between the proposed Business Information Entities (BIEs) and the information requirements identified in the Business Requirements Summary of the RSM for CCBDA SHOULD be highlighted.

Message Business Information Entity (MBIE) specified in the RSM for CCBDA SHOULD be compliant to the underlining BIE in the latest version of Core Component Library (CCL) accordance with the rules specified in Core Component Business Document Assembly (CCBDA).

5.1.1.4 New and Changed Data Types

Information on the new and changed Qualified Data Types (UN/CEFACT Technical Specifications Version 2) SHOULD be identified here. The relationship between the proposed data types and any data type requirements identified in the Business Requirements Summary of the RSM for CCBDA SHOULD be highlighted.

5.1.1.5 Presentation

Each RSM for CCBDA SHOULD contain one or more diagrams detailing the Message Business Information Entities (MBIEs) identified as part of the solution. While a single diagram detailing all of the MBIEs may be desirable, it is recognized that in many cases a single diagram may be unreadable due to the number of Message Aggregate Business Information Entities (MABIEs) and the associations between them. In such cases, it is advisable to provide multiple diagrams, broken down in a logical fashion. One way of organizing the diagrams can be around the messages. Modellers SHOULD ensure that the diagrams are organized to provide complete coverage of the entities that are part of the solution.

Information about the content models of the Message Business Information Entities (MBIEs) of which the underlining BIEs are the new and changed business information entity components SHOULD be presented in the form of Class Diagrams showing at least the Message Aggregate Business Information Entity (MABIE), and its properties (Message Basic Business Information Entities (MBBIEs) and its Association Message Business Information Entities (ASMBIEs)), and relevant cardinalities.

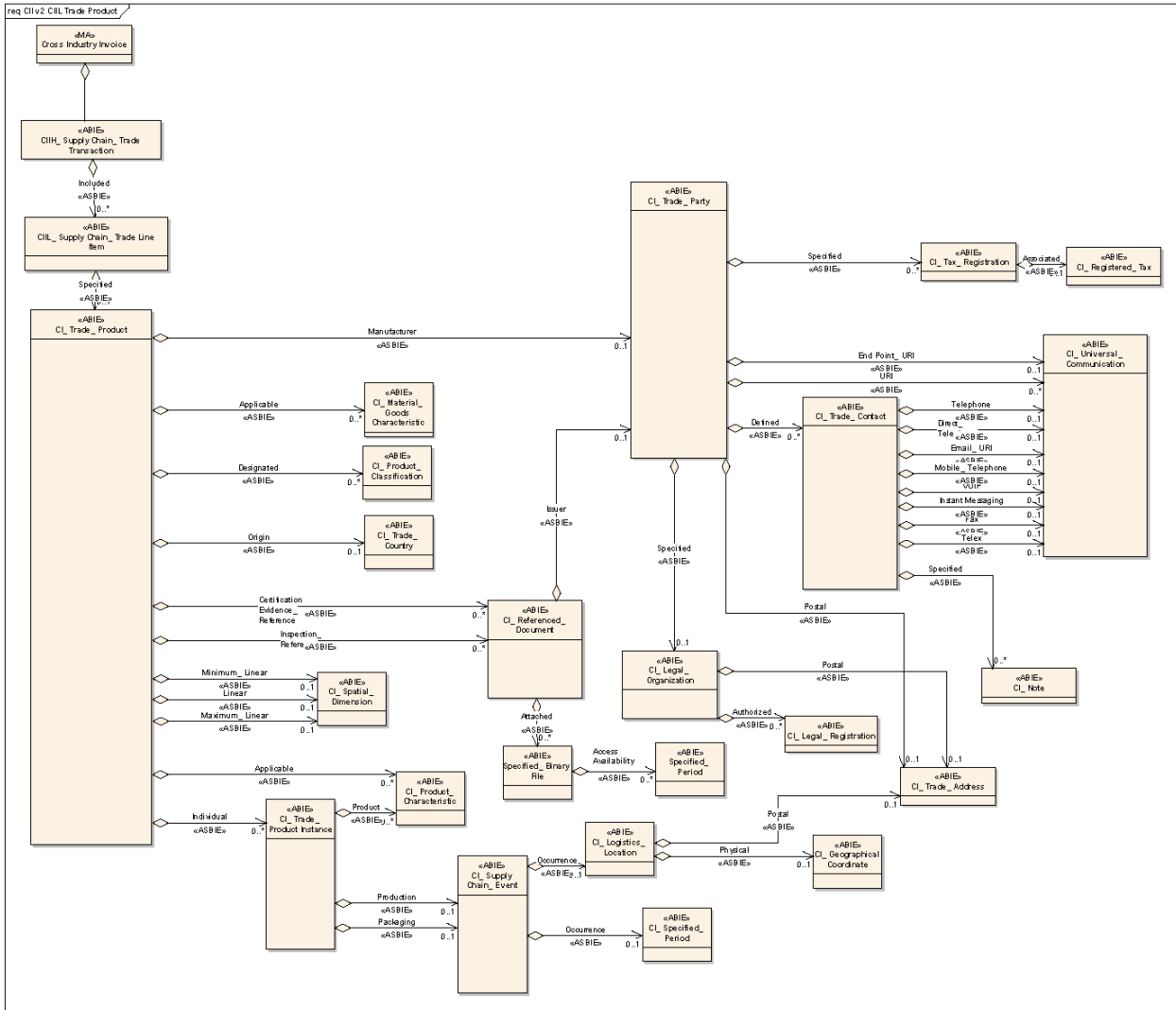
In respect of UN/CEFACT projects the class diagrams SHOULD where possible follow the conventions described in the UML Profile for Core Components (UPCC) Technical Specification Version 1.0. The number of components shown on a diagram and the size of the class diagrams is at the discretion of the author of the RSM for CCBDA. Good modelling practice should be adopted.

The class diagrams SHOULD only show the relationship between Message Business Information Entities (MBIEs). A detailed definition of each of the MBIEs is the same as the definition of the underlining Business Information Entity (BIE) provided in CCL. If necessary, some explanatory texts can be added to the definition of the underlining BIE in the class diagram.

5.1.1.6 Examples

In the diagrams, Message Aggregate Business Entity (MABIE), Message Basic Business Entity (MBBIE) and Association Message Business Entity (ASMBIE) are presented as Aggregate Business Entity (ABIE), Basic Business Entity (BBIE) and Association Business Entity (ASBIE).

Diagram 1: Example MABIE Diagram



Occurrence	Element/Attribute	
	ABIE	CI_Trade_Product_Details
0 .. 1	BBIE	CI_Trade_Product. Identification. Identifier
0 .. 1	BBIE	CI_Trade_Product. Global_ Identification. Identifier
0 .. 1	BBIE	CI_Trade_Product. Seller Assigned_ Identification. Identifier
0 .. 1	BBIE	CI_Trade_Product. Buyer Assigned_ Identification. Identifier
0 .. 1	BBIE	CI_Trade_Product. Manufacturer Assigned_ Identification. Identifier
0 .. unbounded	BBIE	CI_Trade_Product. Name. Text
0 .. 1	BBIE	CI_Trade_Product. Trade_ Name. Text
0 .. 1	BBIE	CI_Trade_Product. Description. Text
0 .. 1	BBIE	CI_Trade_Product. Type. Code
0 .. 1	BBIE	CI_Trade_Product. Net Weight. Measure
0 .. 1	BBIE	CI_Trade_Product. Gross Weight. Measure
0 .. 1	BBIE	CI_Trade_Product. Drained_ Net Weight. Measure
0 .. 1	BBIE	CI_Trade_Product. Brand_ Name. Text
0 .. 1	BBIE	CI_Trade_Product. Sub-Brand_ Name. Text
0 .. unbounded	BBIE	CI_Trade_Product. Product Group. Identifier
0 .. 1	BBIE	CI_Trade_Product. Area Density. Measure
	Definition:	The measure of the area density, such as paper density in grams per square metre (gsm), of
0 .. 1	BBIE	CI_Trade_Product. Colour. Code
0 .. unbounded	BBIE	CI_Trade_Product. Colour_ Description. Text
0 .. unbounded	BBIE	CI_Trade_Product. Use_ Description. Text
0 .. unbounded	BBIE	CI_Trade_Product. Designation. Text
0 .. unbounded	BBIE	CI_Trade_Product. End Item_ Name. Text
0 .. 1	BBIE	CI_Trade_Product. Latest_ Product Data Change. Date Time
	Definition:	The date, time, date time, or other date time value of the latest change in the product data for
0 .. unbounded	BBIE	CI_Trade_Product. End Item_ Type. Code
0 .. 1	BBIE	CI_Trade_Product. Variable Measure. Indicator
	Definition:	The indication of whether or not instances of this CI trade product have a variable measure.
0 .. unbounded	ASBIE	CI_Trade_Product. Applicable. CI_Product_ Characteristic
0 .. unbounded	ASBIE	CI_Trade_Product. Applicable. CI_Material_ Goods Characteristic
0 .. unbounded	ASBIE	CI_Trade_Product. Designated. CI_Product_ Classification
0 .. unbounded	ASBIE	CI_Trade_Product. Individual. CI_Trade_Product Instance

0 .. unbounded	ASBIE	CI_Trade_Product. Certification Evidence_ Reference. CI_Referenced_ Document
0 .. unbounded	ASBIE	CI_Trade_Product. Inspection_ Reference. CI_Referenced_ Document

Occurrence	Element/Attribute
0 .. 1	ASBIE CI_Trade_Product. Origin. CI_Trade_Country
0 .. 1	ASBIE CI_Trade_Product. Linear. CI_Spatial_Dimension
0 .. 1	ASBIE CI_Trade_Product. Minimum_Linear. CI_Spatial_Dimension
0 .. 1	ASBIE CI_Trade_Product. Maximum_Linear. CI_Spatial_Dimension
0 .. 1	ASBIE CI_Trade_Product. Manufacturer. CI_Trade_Party
0 .. 1	ASBIE CI_Trade_Product. MSDS_Reference. CI_Referenced_Document
0 .. unbounded	ASBIE CI_Trade_Product. Additional_Reference. CI_Referenced_Document
0 .. unbounded	ASBIE CI_Trade_Product. Information. CI_Note
0 .. 1	ASBIE CI_Trade_Product. Brand Owner. CI_Trade_Party
0 .. 1	ASBIE CI_Trade_Product. Legal Rights Owner. CI_Trade_Party
0 .. unbounded	ASBIE CI_Trade_Product. Presentation. Specified_Binary File

5.2 Logical Message Structure

An RSM for CCBDA can contain the definitions of one or more message structures. For each message structure there SHOULD be a message assembly definition. An RSM for CCBDA MUST only contain messages that share the same context.

6 Message Assembly³

The purpose of this section of the RSM for CCBDA is to describe the content or business information payload of each message by showing the top level MABIEs that connect to the root of the message.

If messages are a required deliverable of this RSM for CCBDA then this section SHOULD contain a simple diagram for each message showing the root of the message assembly and associations to the ‘first level ABIEs’. However these diagrams MAY show the whole message but in this case the root of the messages MUST be clear.

A table SHOULD be included that shows how the Information Envelopes identified in the BRS are realised by the Message Assemblies (MA) defined in this section.

A Message Assembly table MUST be provided as an Appendix to the RSM for CCBDA so that syntax specific

³ This section of the guidelines will be subject to change after publication of the Core Component Document Assembly Technical Specification.

messages can be constructed.

Message Assemblies SHOULD be shown in a diagrammatical form (UML Class Diagram or equivalent) in addition to a Message Assembly table.

If a class diagram is provided then the following rules apply.

- If only the top level MABIEs are shown in Message Assembly (MA) diagrams then child MABIEs SHOULD be shown in the Business Information Entity Diagrams in the next section.
- The MA diagrams MUST show a single MA (stereotyped UML class or equivalent) that represents the message.
- The MA diagrams MUST show the cardinality of the associations (ASMAs) between the MA (stereotyped UML class or equivalent) and the top level MABIE classes. The Property Terms on the ASMAs MUST be shown if used.

7 Message Business Information Entities Used

This section SHOULD provide a complete listing of MABIEs required for all the messages defined in this RSM for CCBDA showing the MABIEs, Properties and Associations, their Dictionary Entry Names and cardinalities. It is a summary of the structure only. Full definitions SHOULD either be contained in the Core Component Library Submission (for new or changed components) or in the existing Core Component Library. Changed/New BIEs underlining MBIEs SHOULD be highlighted in the listing.

This section MAY include diagrams to show the complete message structure but alternatively a message model MAY be provided with a viewer or HTML output.

Table 6 Message Assembly Realization Table

BRS «InformationEnvelope» Name	RSM «MA» Name
Invoice	Cross Industry Invoice

7.1 Message Library Update

8 Message Assembly Submission

Messages SHOULD be provided in accordance with the Core Component Business Document Assembly (CCBDA) specification. Refer to that document for examples.

8.1 Definition of Terms

Any terms used within the RSM that may be ambiguous or may have specific sector or usage meanings SHOULD be defined in this section in order to ensure clarity during the development of each technological solution.

Annex 1. Definitions

Source: OMG (Object Management Group) UML Specification (refer http://www.omg.org)	
Association:	The semantic relationship between two or more classifiers that specifies connections among their instances. An association may represent <i>an aggregation</i> (i.e., a whole/part relationship). In this case, the association-end attached to the whole element is designated, and the other association-end of the association represents the parts of the aggregation. <i>Composite aggregation</i> is a strong form of aggregation, which requires that a part instance be included in at most one composite at a time and that the composite object has sole responsibility for the disposition of its parts. This means that the composite object is responsible for the creation and destruction of the parts. If a composite object is destroyed, it must destroy all of its parts. It may remove a part and give it to another composite object, which then assumes responsibility for it.
Cardinality:	The number of elements in a set.
Class diagram:	A class diagram shows the static structure of the information model, in particular, the things that exist, their internal structure, and their relationships to other things. A class diagram does not show temporal information. It is a diagram that shows a collection of declarative (static) model elements, such as classes, types, and their contents and relationships.
Class:	A description of a set of objects that share the same attributes, operations, methods, relationships, and semantics.
Constraint:	A semantic condition or restriction.
Datatype:	A descriptor of a set of values that lack identity and whose operations do not have side effects. Datatypes include primitive pre-defined types and user-definable types. Predefined types include numbers, string and time. User definable types include enumerations.
Enumeration:	A list of named values used as the range of a particular attribute type. For example, RGBColor = {red, green, blue}.

Source: OMG (Object Management Group) UML Specification (refer http://www.omg.org)	
Generalization:	A taxonomic relationship between a more general element and a more specific element. The more specific element is fully consistent with the more general element (it has all of its properties, members, and relationships) and may contain additional information.
Multiplicity:	A specification of the range of allowable cardinalities that a set may assume. Multiplicity specifications may be given for roles within associations, parts within composites, repetitions, and other purposes. Essentially a multiplicity is a (possibly infinite) subset of the non-negative integers.
Relationship:	A semantic connection among model elements. Examples of relationships include associations and generalizations.
Role:	The named specific behaviour of an entity participating in a particular context.
Stereotype:	A type of modelling element that extends the semantics of the metamodel. Stereotypes must be based on certain existing types or classes in the metamodel. Stereotypes may extend the semantics, but not the structure of pre-existing types and classes.

Source: Core Components Technical Specification Version 2.01	
<i>Aggregate Business Information Entity</i> (ABIE)	A collection of related pieces of business information that together convey a distinct business meaning in a specific <i>Business Context</i> . Expressed in modelling terms, it is the representation of an <i>Object Class</i> , in a specific <i>Business Context</i> .
<i>Aggregate Core Component</i> (ACC)	A collection of related pieces of business information that together convey a distinct business meaning, independent of any specific <i>Business Context</i> . Expressed in modelling terms, it is the representation of an <i>Object Class</i> , independent of any specific <i>Business Context</i> .
<i>Association Business Information Entity</i> (ASBIE)	A <i>Business Information Entity</i> that represents a complex business characteristic of a specific <i>Object Class</i> in a specific <i>Business Context</i> . It has a unique <i>Business Semantic</i> definition. An <i>Association Business Information Entity</i> represents an <i>Association Business Information Entity Property</i> and is associated to an <i>Aggregate Business Information Entity</i> , which describes its structure. An <i>Association Business Information Entity</i> is derived from an <i>Association Core Component</i> .

Source: Core Components Technical Specification Version 2.01	
<i>Association Core Component (ASCC)</i>	A <i>Core Component</i> which constitutes a complex business characteristic of a specific <i>Aggregate Core Component</i> that represents an <i>Object Class</i> . It has a unique <i>Business Semantic</i> definition. An <i>Association Core Component</i> represents an <i>Association Core Component Property</i> and is associated to an <i>Aggregate Core Component</i> , which describes its structure.
<i>Basic Business Information Entity (BBIE)</i>	A <i>Business Information Entity</i> that represents a singular business characteristic of a specific <i>Object Class</i> in a specific <i>Business Context</i> . It has a unique <i>Business Semantic</i> definition. A <i>Basic Business Information Entity</i> represents a <i>Basic Business Information Entity Property</i> and is therefore linked to a <i>Data Type</i> , which describes its values. A <i>Basic Business Information Entity</i> is derived from a <i>Basic Core Component</i> .
<i>Basic Core Component (BCC)</i>	A <i>Core Component</i> which constitutes a singular business characteristic of a specific <i>Aggregate Core Component</i> that represents an <i>Object Class</i> . It has a unique <i>Business Semantic</i> definition. A <i>Basic Core Component</i> represents a <i>Basic Core Component Property</i> and is therefore of a <i>Data Type</i> , which defines its set of values. <i>Basic Core Components</i> function as the <i>Properties</i> of <i>Aggregate Core Components</i> .
<i>Business Context</i>	The formal description of a specific business circumstance as identified by the values of a set of <i>Context Categories</i> , allowing different business circumstances to be uniquely distinguished.
<i>Business Information Entity (BIE)</i>	A piece of business data or a group of pieces of business data with a unique <i>Business Semantic</i> definition. A <i>Business Information Entity</i> can be a <i>Basic Business Information Entity (BBIE)</i> , an <i>Association Business Information Entity (ASBIE)</i> , or an <i>Aggregate Business Information Entity (ABIE)</i> .
<i>Core Component (CC)</i>	A building block for the creation of a semantically correct and meaningful information exchange package. It contains only the information pieces necessary to describe a specific concept.
<i>Core Component Type (CCT)</i>	A <i>Core Component</i> , which consists of one and only one <i>Content Component</i> that carries the actual content plus one or more <i>Supplementary Components</i> giving an essential extra definition to the <i>Content Component</i> . <i>Core Component Types</i> do not have <i>Business Semantics</i> .
<i>Data Type</i>	Defines the set of valid values that can be used for a particular <i>Basic Core Component Property</i> or <i>Basic Business Information Entity Property</i> . It is defined by specifying restrictions on the <i>Core Component Type</i> that forms the basis of the <i>Data Type</i> .

Source: Core Components Technical Specification Version 3.0	
<i>Association Business Information Entity (ASBIE) Property</i>	An association business information entity property is a business information entity property for which the permissible values are expressed as a complex structure, represented by an aggregate business information entity.
<i>Association Core Component (ASCC) Property</i>	An association core component property is a core component property for which the permissible values are expressed as a complex structure, represented by an aggregate core component.
<i>Business Information Entity (BIE) Property</i>	A business information entity property is a business characteristic belonging to the Object Class in its specific business context that is represented by an aggregate business information entity.
<i>Basic Core Component (BCC) Property</i>	A basic core component property is a core component property for which the permissible values are expressed by simple values, represented by a data type.
<i>Business Data Type</i>	A business data type is a data type consisting of one and only one business data type content component that carries the actual content plus zero or more business data type supplementary components giving essential extra definition to the business data type content component. Business data types have business semantics.