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UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

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

**BUSINESS REQUIREMENTS SPECIFICATION  
(BRS)**

**Documentation Template**

**Approved: UN/CEFACT Bureau \_\_\_\_\_**

**Version: 2.0**

**Release: 1.0**

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# 1 Introduction

In 2004 the UN/CEFACT Information Contents Group (ICG) introduced the Business Requirements Specification (BRS)<sup>1</sup> and Requirements Specification Mapping (RSM)<sup>2</sup> documentation templates and conformity rules to guide the development of a clear and comprehensive statement of the requirements that a business has for the e-commerce solution for a specific project. Based on version N090R10 of the UN/CEFACT's Modelling Methodology (UMM)<sup>3</sup>, these two documents provided a mechanism for developing and sharing e-business requirements within and between UN/CEFACT Groups in conformance with the UN/CEFACT workflow<sup>4</sup>. The BRS expressed these requirements in business terms and the RSM represented them in technical terms aligned to syntax specific solutions.

Since that time much experience has been gained in using these documents in developing business requirements specifications and in using the evolving UMM to guide this process. The purpose of this document is to reflect this experience and to introduce an updated version of the BRS that also reflects the evolution of the UMM specification itself. Note:- The BRS is intended to be applicable in all Business, Commerce or Government sectors and in this document the term “e-business” is intended to include electronic systems of information exchange in all these sectors.

## 2 The BRS and UN/CEFACT's Goals

UN/CEFACT's goal is to support governments and businesses with the provision of e-business standards to facilitate trade, with a primary focus on emerging and transition economies. Interoperable systems are key to reaching this goal which in turn requires data and process standardisation.

The BRS is the mechanism for documenting user requirements and guiding the standards development process. The Requirements Specification Mapping documents the proposed technical solutions to meet these requirements.

Because users have varying IT capabilities, UN/CEFACT supports a range of standards including paper documents, EDI message structures and e-business systems. The building block to all of these is a clear specification of the business processes and information that is needed to support them.

To enable these standards to be developed in a consistent way, UN/CEFACT has developed several technical specifications including Core Components Technical Specification, EDIFACT specifications (ISO 9735) and the UN/CEFACT Modeling Methodology.

The BRS template is designed to enable user requirements to be specified in business terms and also for these requirements to be expressed in a more formalised way as UML artifacts based on the UMM. The use of these formalised deliverables enables harmonisation and

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<sup>1</sup> UN/CEFACT. Information Content Group. Business Requirements Specification: Documentation Template. (CEFACT/ICG/005. Version 1, Release 5. 2005-03-09.

<sup>2</sup> UN/CEFACT. Information Content Group. Requirements Specification Mapping: Documentation Template and Conformity Rules. (CEFACT/ICG/006). Version 1, Release 0. 2005-09-28.

<sup>3</sup> UN/CEFACT. Techniques and Methodologies Group. UN/CEFACT's Modeling Methodology (CEFACT/TMWG/N090R10).

<sup>4</sup> Operating Procedures between UN/CEFACT Permanent Groups.

standardisation of data and process descriptions across the range of business applications and differing user technical capabilities. The BRS also provides the business understanding that should be incorporated into message implementation guides and other user documentation as well as supporting re-use of artefacts within the standards development process.

### **3 Audience**

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

### **4 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). CEFACT's Modelling Methodology (UMM): UMM Meta Model – Core Module. (Candidate for 2.0). 2009-01-30.
- UN/CEFACT. Techniques and Methodologies Group (TMG). 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 BRS specification may be found in the above references but for convenience some key definitions are included in Appendix 1 of this document.

### **5 Purpose of BRS 2.0**

A BRS is designed to capture the requirements that a business, government or sector has for an e-commerce solution in a particular area of business (i.e. domain) and to achieve it in such a way that it provides a basis for a subsequent standards development process within UN/CEFACT. Version 2 of the BRS documentation template requires that the business requirements are first specified in business terms and that these requirements are then expressed formally as UML diagrams or worksheets that aid standardisation and provide IT practitioners with the required artefacts from which to develop formal specifications.

By facilitating consistent documentation of business collaborations between participants, the BRS 2.0 template supports the standardization and harmonization of business processes and encourages re-use of the resulting artefacts in part or as a whole. This consistency, achieved through the systematic specification of requirements in the BRS, is vital if resulting e-business systems are to be interoperable. A clear specification of business requirements enables traceability between requirements and implementation so that no

identified requirements are overlooked thereby supporting the quality assurance process. As the BRS provides the description of the business processes and identifies the business data needed to support those processes, it can provide the necessary business understanding to enable successful data harmonization. It also provides the business understanding that must be incorporated when developing message implementation guides and other user documentation.

The use of a modeling tool that is designed or configured to support Version 2.0 of the UMM will enable the majority of the content of a BRS to be generated automatically.

This document may also be considered as a resource to support capacity building in developed or developing economies.

## **5.1 Overview of BRS Development Process**

A BRS **MUST** start with a clear specification of the scope of the project and where this project fits into a global context of business operations and **MAY** refer to a UMM model of the business domain.

The Scope **MUST** be specified in terms of the Business Processes that are involved and the Business Entities about which information is to be exchanged by the participants who are involved directly in the Information Exchanges that support the related business process. It **MUST** also indicate stakeholders who have an interest in the processes, or may participate in related processes, and whenever appropriate, what is out of scope of this particular project. The process and information flows that constitute the business process, the business rules that govern the exchanges and the details of the information that is to be exchanged during these processes, **SHOULD** then be elaborated.

The requirements **MUST** first be specified in business terms and then expressed in formalized terms. The business requirements **MUST** be presented as a numbered list so as to facilitate a check to be made that all requirements have been met in the eventual e-commerce solutions proposed. As the process of completing a BRS progresses, new requirements may be recognized and added to the list.

The resulting BRS will include text, templates (worksheets) and diagrams, and may refer to a UMM model of the domain. To help with future re-usability, interoperability and to provide a degree of standardization in the developing a BRS, an initial set of preferred terms is provided in Annex 2.

To minimize the work in creating a new BRS, improve harmonisation and encourage reusability, where ever possible, any relevant existing BRSs artefacts or UMM models **SHOULD** be used as a basis for producing the new requirements. A high level BRS<sup>5</sup> **MAY** be used to define the context and scope of a domain that is refined by a cascade of more specific BRSs.

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<sup>5</sup> For example, the Business Requirements Specification Cross-Border Supply Chain (UNeDocs) ECE/TRADE/C/CEFACT/2007/8. This BRS sets the scope for the Common Supply Chain BRS which in turn sets the scope for more specific BRSs for: Ordering, invoicing, etc.

## **5.2 BRS Business Requirements**

### **5.2.1 Scope of Project**

The Scope of the project **MUST** be identified in terms of the Business Processes to be covered - the key types of information that are to be exchanged in the processes and the types of participants that are involved directly or indirectly in providing or using the information exchanged.

The place of this project within the wider business domain **SHOULD** be identified.

For example projects in the International Supply Chain, this **SHOULD** be positioned with respect to the international supply chain reference model (BUY-SHIP-PAY process model)<sup>6</sup>. In other domains, the reference **MAY** be made to industry or sector models and to the Business Area/Process Area classification specified in the Common Business Process catalogue.<sup>7</sup>

The Context categories<sup>8</sup>, as specified in CCTS, **SHOULD** be used to help specify or limit the scope of the project.

### **5.2.2 Requirements List**

As they are discovered, the business requirements **MUST** be added to a numbered list<sup>9</sup>.

This list will cover:

- The business transactions between participants, the participant who initiates the activity, the participant who responds and the business conditions that govern the initiation and responses. Other business rules governing the Information Exchanges.
- The key classes of information (Business Entities), the detailed data (attributes) about these Entities that are to be exchanged, and the relation between the Entities.

### **5.2.3 Definitions**

The names and definitions of each of the business terms and data items used **MUST** be listed and **SHOULD** be added as they are discovered in the process of completing the BRS.

### **5.2.4 UMM representation of Business Requirements**

The business requirements **MUST** be formalized as appropriate UML artefacts, (Use Case Diagrams, Activity Diagrams, Class Diagrams and Business Entity Life Cycle Diagrams) or worksheets, by following the UN/CEFACT's Modelling Methodology (UMM).

### **5.2.5 The UN/CEFACT Modeling Methodology UMM**

An outline description of the UMM process is given below and examples of artefacts that should form part of the BRS are shown in section 7. The UMM consists of three main views:

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<sup>6</sup> BPAWG Reference Model of the International Supply Chain. UN/CEFACT/BPA/BP044 March 2003 & the BUY-SHIP- PAY Process Model.

<sup>7</sup> UN/CEFACT/TBG14 Common Business Process Catalog Technical Specification.

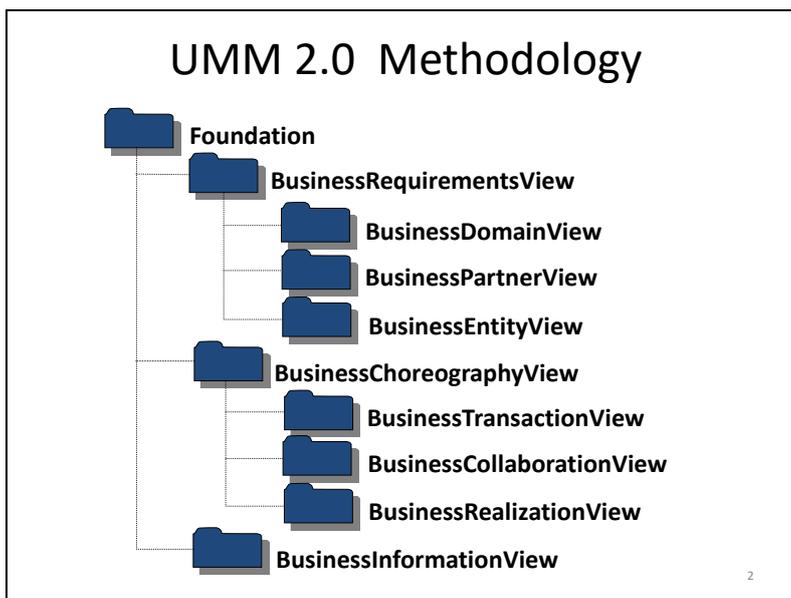
<sup>8</sup> UN/CEFACT. Techniques and Methodologies Group (TMG). Core Components Technical Specification

<sup>9</sup> See example in Section 7.5.1

The Business Requirements View enables the Business Information and Business Processes described in the first part of the BRS to be more formally described.

The Business Choreography View shows how the Business Processes may be created from a choreographed set of Business Transactions and the information exchanged in each transaction identified as Information Envelopes.

The Business Information View identifies the content of these information envelopes based on the specific data and syntax standards and is the substance of the related RSM.



**Figure 1 – UMM Outline**

## **UMM Business Requirements View**

This presents the view of the domain, the business processes, the participants and the Business Entities involved. They are detailed in the Business Domain View, Business Partner View and Business Entity View.

### **The Business Domain View**

This view identifies the scope of the domain in terms of the processes it covers. The Business Area /Process area<sup>10</sup> classification may be used to classify the business processes that make up the domain.

Each business process is represented by an Activity diagram, Use Case Diagram and Business Process Worksheet<sup>11</sup>. These document the Business Partner Types that are engaged in the information exchanges, the activities that initiate or receive each information flow and the rules governing the initiation of each Information Exchange. The state of the Business Entity resulting from each information exchange is shown in the activity diagram.

### **Business Partner View**

The business partner view captures a list of business partners and stakeholders in the domain under consideration as well as the relationships between them.

### **Business Entity View**

The range of states that a Business Entity may assume and the order in which they may occur as a result of the various information exchanges are documented in a Business Entity Life Cycle diagram.<sup>12</sup>This View MAY also contain Conceptual models that present a business view of the Information and the relationships between the Classes identified.

The Conceptual Model is assembled from the list of business requirements and expressed through the use of “class” diagrams. These describe the necessary classes of information, the relationship between the different classes and the required attributes that are to be found within each class. Each of these pieces of information should be fully described in the business definition section. It is important to stress that the class diagram for a Business Entity should reflect the information requirements expressed in business terms.

## **Business Choreography View**

This shows how the Business Processes identified in the Business Requirements View may be represented as one or more Business Transactions and the necessary choreography to enable the full functionality of each Business Process to be achieved. It consists of the Business Transaction View, Business Collaboration View and Business Realisation View

### **Business Transaction View**

The business transactions between each pair of data exchange participants that are part of the full Business Process are identified and described in a Transaction Worksheet and illustrated as Use Case diagrams<sup>13</sup>.

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<sup>10</sup> See Annex 2. Section1 and 2

<sup>11</sup> See Section 7.5.3.1

<sup>12</sup> See Section 7.5.3.3

<sup>13</sup> See Section 7.5.4.1

Six standard transaction patterns are identified within the UMM. Two of these represent participants sending and receiving information (Information distribution, Notification) and four represent participants sending and responding (Query Response, Request Response, Request Confirm, Commercial Transaction). Each transaction is further detailed in terms of:

- the name of the **Information Envelopes** sent or received
- the **Authorized roles** exercised by the sender and receiver
- the **Activities** that action the sending or receiving of the Information Envelope
- the conditions that cause the transaction to start or that exist as a result of the exchanges

. **Business Collaboration View**

The sequence or order in which the set of business transactions that make up the full business process is specified using a Use Case Diagram and an Activity diagram in the UMM **Business Collaboration View**.

**Business Realisation View**

A **Business Realization View** is used to indicate the role or responsibility that each participant plays in the business collaboration.

## **6 Business Requirements Specification Document**

### **6.1 Basic Outline**

Each Business Requirements Specification (BRS) document SHALL have the following basic outline that MUST be used in the BRS for UN/CEFACT standards development. Other standards organisations that have adopted the UMM and CCTS are encouraged to follow this template.

### **Business Requirements Specification**

**Title Page**

**Table of Contents**

**Document History**

**Change Log**

**1.0 Preamble**

**2.0 References**

**3.0 Objective**

**4.0 Scope**

**4.1 Description**

**4.2 Contexts**

**5.0 Business Requirements Elaboration**

**5.1 Business Requirements List**

**5.2 Definitions of Business Terms**

**5.3 Business Requirements View**

5.3.1 Business Domain View- Business Areas, Process Areas, Business Processes

5.3.2 Business Partner View-Participants and Stakeholders

5.3.3 Business Entity View- Entity States, Lifecycle and Conceptual Model

**5.4 Business Choreography View**

5.4.1 Business Transaction View-Transactions and Authorised Roles

5.4.2 Business Collaboration View-Linked Transactions

5.4.3 Business Realization View-Business Partner Types and Authorised Roles

Note: Some BRS's may not need all the above deliverables to be presented in order to fully identify the business requirements. A "high level" BRS may define the context and scope of a domain and will be primarily concerned with the Business Requirements View, whilst more transaction related BRS's will need to provide a fuller range of deliverables.

## 6.2 BRS Document Layout

### 6.2.1 Title Page

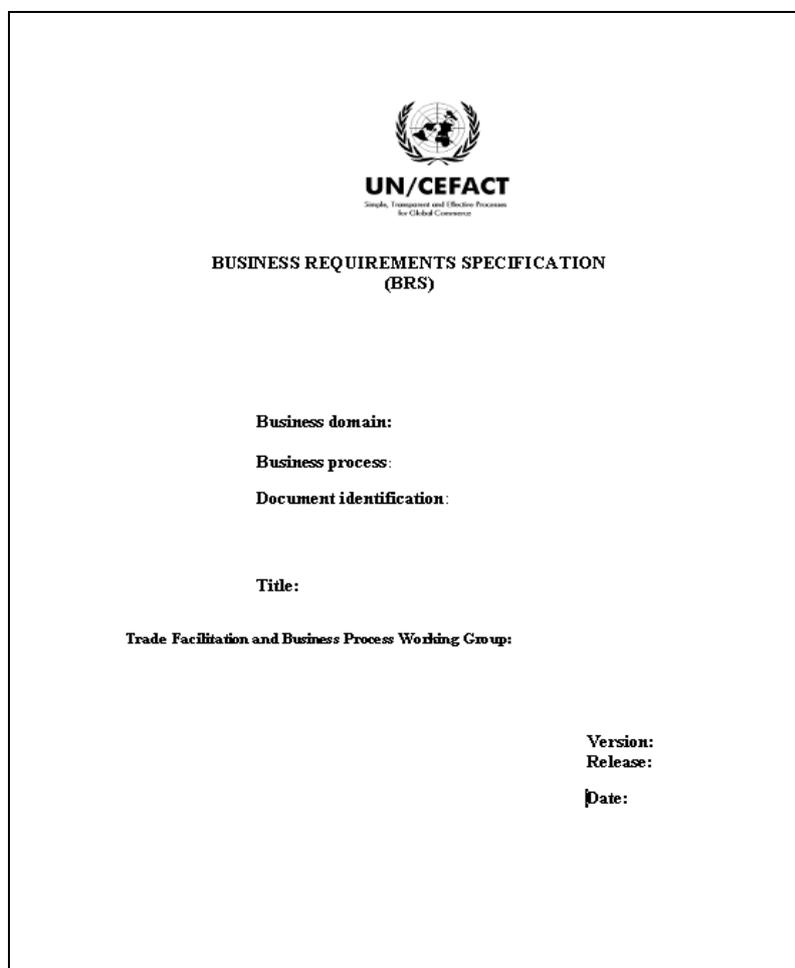


Figure 2 – BRS Title Page

### 6.2.2 Table of Contents

### 6.2.3 A table of contents SHOULD be created as in figure 6.1 and include a separate table for the list of figures. Document History

BRS development will normally include a number of phases. This information will allow interested parties to track and plan their engagement when the applicable phase is reached.

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

- Date last modified
- Phase
- Status

*Template:*

| <b>Phase</b> | <b>Status</b> | <b>Date Last Modified</b> |
|--------------|---------------|---------------------------|
|              |               |                           |
|              |               |                           |

**Figure 3 – Document History Template**

### **6.2.4 Change Log**

The change log is designed to alert users about significant changes that occurred during the development of the BRS instance.

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

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

| <b>Date of Change</b> | <b>Version</b> | <b>Paragraph Changed</b> | <b>Summary of Changes</b> |
|-----------------------|----------------|--------------------------|---------------------------|
|                       |                |                          |                           |
|                       |                |                          |                           |

**Figure 4 – Document Change Log Template**

*The detailed business requirements that make up the body of a BRS are illustrated by examples in section 7, below.*

## 7 BRS Content – Examples & Templates

The following sections provide guidance to assist BRS developers in elaborating their business requirements. Guidance is provided on the required contents for each section of the BRS along with examples of best practices from currently available BRS specifications.

### 7.1 Preamble

The preamble SHALL declare the document's authority, describe the document structure and define the process of creating and approving the document in question.

#### *Example (e-Cert BRS):*

“The current practice of the exchange of government-to-government certification associated with the import of agricultural commodities represents a major opportunity to improve the integrity and business processes of importing border authorities.

The trade of agricultural commodities is highly regulated by governments to protect human, animal and plant health. The importing authority sets standards for commodities (products) crossing their border and requires certification issued by the recognised competent export authority to verify compliance to bilaterally agreed requirements.

The E-cert system is currently operating between some participants with others indicating willingness to participate, Therefore this document seeks to initiate the process to standardise the data elements and message structure to facilitate global implementation.

The development of the E-cert system was a joint effort between the New Zealand Safety Authority and the Australian Quarantine and Inspection Service. The incentive to develop the system further for global implementation has its foundations in the Food Safety Quadrilateral Group (USA/Canada/Australia/New Zealand). Each of these countries has made significant progress in developing systems to exchange information electronically and have undertaken trials to verify the concept.”

### 7.2 References

The references SHOULD include a list of specifications that have substantially influenced the development of the business requirements specification document, including formal standards from UN/CEFACT, ISO, OASIS and other standards bodies, international treaties or agreements, industry sector and institutional specifications.

#### *Example (Common Supply Chain BRS):*

UN/CEFACT TBG 1 Common Supply Chain BRS, Release 1

UN/CEFACT TBG 2 Buy-Ship-Pay (including UNeDocs) BRS, Version 1.0

UN/CEFACT Modelling Methodology (UMM)

UN/EDIFACT – Invoice message

Report and recommendations of CEN/ISSS e-Invoicing Focus Group on standards and developments on electronic invoicing relating to VAT Directive 2001/115/EC

EANCOM® including the GS1 in Europe eINVOIC recommendation

GS1 XML Invoice BMS 2.4

OASIS Universal Business Language (UBL), Version 2.0

Joint Automotive Industry Forum (JAIF) Message Guideline E-14 Global Invoice

EdiFrance Invoice Implementation Guidelines (EDIFACT and ebXML)

### **7.3 Objective**

This section SHALL provide the intended business goal of the business process being described in the BRS instance.

**Example (Market Survey BRS):**

The objective of this document is to propose a standard for the Business Processes, the Business Transactions and the Information Entities used in the process of sourcing for results from Market Surveys.

The Business process is the detailed description of the way participants intend to play their respective roles, establish business relations and share responsibilities to interact efficiently with the support of their respective information systems. Each Business transaction is realized by an exchange of Business documents (also called messages). The sequence in which these documents are used, compose a particular instance of a scenario and are presented as use cases in the document.

The Business documents are composed of Information Entities, and represent the business view of structure and content of the data to be exchanged between the participants. The contents of the Business documents and the Information Entities are presented using class diagrams.

### **7.4 Scope**

#### **7.4.1 Description**

The Scope of the project SHOULD be identified in terms of the Business Processes to be covered and the types of participants that are involved directly or indirectly involved in providing or using the information exchanged.

**Example (e-Waste BRS):**

This project aims to standardize business process and information entity [for] Tracking of Waste Movements as required by the ratified parties of the United Nations Environment Program's Secretariat of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

#### **7.4.2 Contexts**

The extent and limits of the business process within the business domain SHOULD be described. Standardized business categories, when available, SHOULD be used for: business domain, business area, process areas that have been defined by UN/CEFACT standards development process. See Annex 1 for an initial list of available values for each category.

Identify where this project fits in to the wider business domain. In the case of projects in the International Supply Chain, this SHOULD be positioned with respect to the international supply chain reference model (BUY-SHIP-PAY process model)<sup>14</sup>. In other domains, the reference MAY be made to industry or sector models and to the Business Area/Process Area classification specified in the Common Business Process catalogue.<sup>15</sup>

The Context as specified by CCTS, SHOULD be used to set or limit the context of the BRS instance.

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<sup>14</sup> BPAWG Reference Model of the International Supply Chain. UN/CEFACT/BPA/BP044 March 2003 & BUY-SHIP-PAY Model .Version 2009A

<sup>15</sup> UN/CEFACT. Common Business Process Catalog Technical Specification.

**Example (Cross Industry Invoice BRS):**

| <b>Context Category</b> | <b>Description</b>  |
|-------------------------|---|
| Business Process        | Invoice process in the supply chain<br>BUY-SHIP-PAY/Procurement&Sales/Invoice |
| Product Classification  | All   |
| Industry Classification | All   |
| Geopolitical            | Global  |
| Official Constraints    | None  |
| Business Process Role   | Customer and Supplier   |
| Supporting Role         | ShipTo, ShipFrom, Consignor, Consignee, CustomersAccountant, Seller, etc,     |
| System Capabilities     | No limitations  |

**Figure 5 – Context Categories**

## **7.5 Business Requirements Elaboration**

### **7.5.1 Business Requirements Lists**

The business requirements and key business information **MUST** be presented in a numbered list.

This list will cover:

- The business interactions between participants, the participant who initiates the activity, the participant who responds and the business conditions that govern the initiation and responses. Other business rules relating to the exchanges e.g need for acknowledgements, security etc
- The key classes of information (Business Entities), the detailed data about these Entities (Attributes) that are to be exchanged, and the relation between the Entities.

**Example,;**

| <b>Number</b> | <b>Business Requirement Statement</b>   | <b>Business Transaction Name for this Requirement</b> |
|---------------|---|---|
| A.1           | The Customer initiates the quotation process by requesting a Quotation from the Supplier  | Request for Quotation                                 |
| A.2           | The Supplier may provide a Quotation or choose not to respond   | Quotation   |
| A.3           | The Supplier may respond by requesting further information as the request is incomplete or may indicate that a response will be provided later. | ....  |
| A.4           | .....   |   |

**Figure 6 – Business Requirement List Template**

| <b>Number</b> | <b>Data Requirement Statement</b>            |
|---------------|--|
| B1            | An Order may specify one or more Order Lines |

|    |   |
|----|---|
| B2 | An Order Line shall identify only one Product   |
| B3 | An Order shall be identified by an Order Number |
| B4 | A Consignment may contain one or more Packages  |
| B5 | A Package may contain one or more Products      |
| B6 | Consignment shall be delivered to Address       |
| B7 | An Address may specify a ZIP code               |

**Figure 7 – Date Requirement Statement Template**

## 7.5.2 Definitions Business Terms

The names and definitions of business terms used in the requirements specification **MUST** be listed.

*Example (Partial list from the Project Schedule and Cost Performance Management and e-Waste BRs):*

|                        |   |
|------------------------|---|
| ACTUAL COST            | The costs actually incurred and recorded in accomplishing work performed.   |
| ACTUAL DATE            | The date on which a milestone or scheduled work task is completed.  |
| APPORTIONED EFFORT     | Effort that by itself is not readily measured or divisible into discrete work packages but which is related in direct proportion to the planning and performance on other measured effort.  |
| AUTHORIZED WORK        | Effort (work scope) on contract or assigned by management.  |
| BUDGET AT COMPLETION   | The total authorized budget for accomplishing the program scope of work. It is equal to the sum of all allocated budgets plus any undistributed budget. (Management Reserve is not included.) The Budget At Completion will form the Performance Measurement Baseline as it is allocated and time-phased in accordance with program schedule requirements.            |
| CONSIGNEE              | A <i>Consignee</i> means the person or undertaking under the jurisdiction of the country of destination to whom or to which the waste is shipped for recovery or disposal   |
| CONTROL ACCOUNT        | A management control point at which budgets (resource plans) and actual costs are accumulated and compared to earned value for management control purposes. A control account is a natural management point for planning and control since it represents the work assigned to one responsible organizational element on one program work breakdown structure element. |
| COST VARIANCE          | A metric for the cost performance on a program. It is the algebraic difference between earned value and actual cost (Cost Variance = Earned Value - Actual Cost.) A positive value indicates a favorable position and a negative value indicates an unfavorable condition.  |
| CRITICAL PATH ANALYSIS | See NETWORK SCHEDULE.   |

**Figure 8 – Sample Definitions of Terms**

### 7.5.3 Business Requirements View

The business requirements MUST be formalized as appropriate UML artefacts - Activity Diagrams, Class Diagrams, Business Entity Life Cycle Diagrams and worksheets. An outline description of the artefacts that MAY form part of the BRS are given below and are described using the UMM terminology.

#### 7.5.3.1 Business Domain View

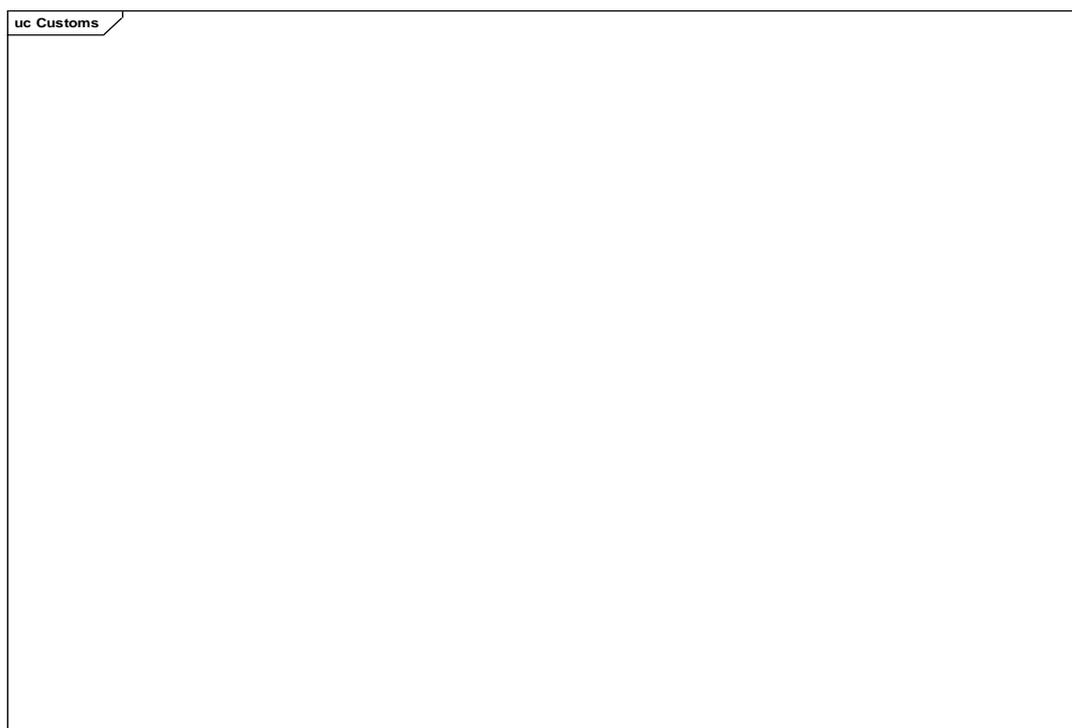
The business processes that are included in the Business Domain MUST be identified and classified in this view. The project MAY be positioned within a wider Business Domain.

A complex Business Domain MAY be divided into Business Areas and Process Areas and this division provides a classification for the business processes identified.

The Business Domain view SHOULD be represented by a Use Case Diagram.

#### *Example (Customs Domain):*

The various processes that are included within the Customs Domain are shown together with the four Business Partner Types participating in them. Agents may represent the Customer, Supplier or Transporter.



**Figure 9 - Business Domain Use Case Diagram - Business Processes in Customs Domain**

#### ***Business Processes within Business Domain***

Each identified Business Processes MUST be documented using a Business Process Worksheet and an Activity Diagram and MAY be shown as a Use Case Diagram. These artefacts elaborate the Business Partner Types that are engaged in the information exchanges, the activities that initiate or receive each information flow, and the state of the Business Entity resulting from each information exchange.

### 7.5.3.1.1 Business Process Worksheet

| <b>Form for Business Process</b>               |   |
|--|---|
| <b>General</b>                                 |   |
| Name   | Traditional Invoice   |
| Description                                    | The supplier sends the invoice to the customer. When the customer receives the invoice, he checks the price conditions applied, against the price conditions agreed and specified in the contract, agreement or order. The customer also checks the goods or services invoiced against the goods or services received and accepted. If no discrepancies are detected, the invoice is accepted and will be submitted to the payment administration. If discrepancy detected, correction procedure activated. |
| <b>Details</b>                                 |   |
| Classified to Business Areas and Process Areas | Business Area: <b>Procurement&amp;Sales</b><br>Process Area: <b>Pay</b>   |
| Participants and their interests               | Customer, Supplier  |
| Stakeholders and their interests               | Tax Authority-VAT<br>Accountant-Accounting Token  |
| Reference(s)                                   |   |
| <b>Start/End Characteristics</b>               |   |
| Pre-condition                                  | The supplier has provided goods or services according to the conditions set in the contract, agreement or order.<br>The customer has received the goods or services.<br>Invoice Awaited   |
| Post-condition                                 | Invoice Accepted  |
| Begins When                                    | Invoice Issued  |
| Ends When                                      | Invoice is accepted as correct, if necessary after initiating corrective procedure  |
| Actions  | None  |
| Exceptions                                     | Invoice discrepancy not resolved.   |
| <b>Relationships</b>                           |   |
| Included Business Processes                    | None  |
| Affected Business Entities                     | Invoice   |

Figure 10 – Business Process Worksheet

### 7.5.3.1.2 Business Process Use Case

*Example - Cross Industry Invoice:*

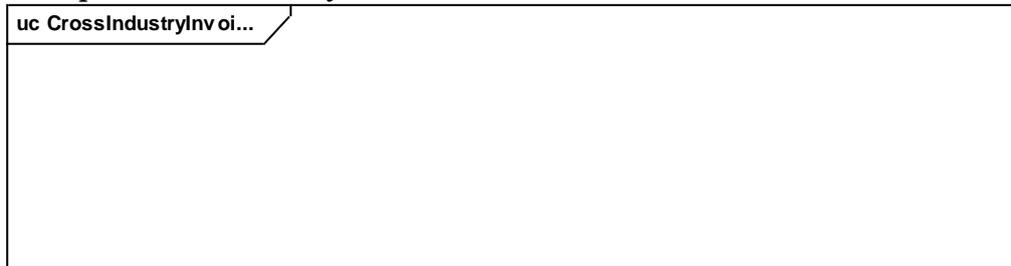


Figure 11 - Business Process Use Case Diagram - Cross Industry Invoice

### 7.5.3.1.3 Business Process Activity Diagram

A Business Process Activity Diagram is used to model the dynamics of each business process, to depict a collaborative process involving two or more Business Partners and to denote important states of business entities that are manipulated during the execution of a business process.

*Example- Order from Quote:*

*(Note: UMM stereotype identification omitted from diagram for ease of presentation)*

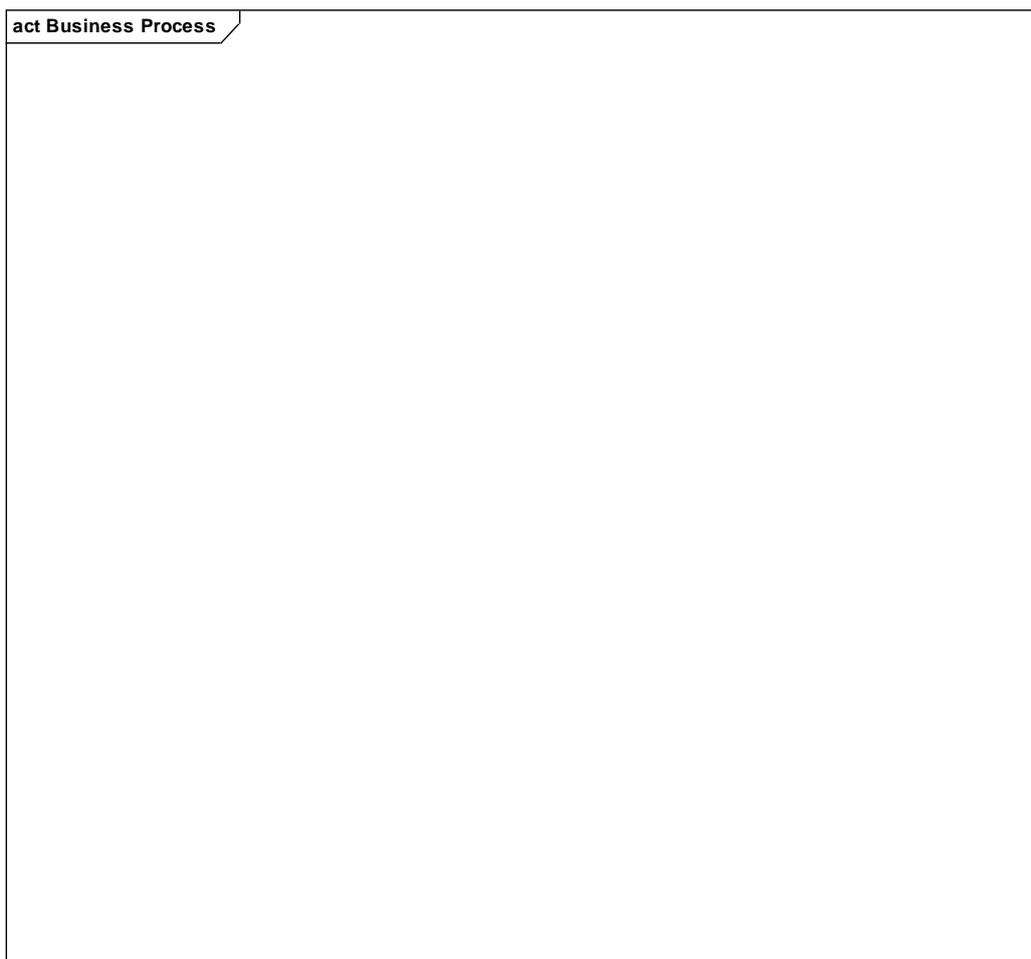


Figure 12 – Business Process Activity Diagram – Order from Quote

### 7.5.3.2 Business Partners View – Participants and Stakeholders

A participant is a “business partner type” that takes part in a business process. A stakeholder is a person or representative of an organization who has a stake – a vested interest – in a certain business category or in the outcome of a business process or who may participate in a related business process. The Participants and Stakeholders **MUST** be listed and **MAY** be shown diagrammatically. This aspect may already have been covered in the Business Domain View.

*Example Deep-Sea Transport BRS:*



Figure 13 – Business Partner View Use Case Diagram

It is useful to explain what a participant does when the name alone is insufficient. This explanation should be included in the data definitions section 6.5.2.

### 7.5.3.3 Business Entity View – Lifecycle Diagram

The range of states that a Business Entity may assume and the order in which these states may occur as a result of the various information exchanges **MAY** be documented in a Business Entity Lifecycle Diagram.

*Example (Waste Transport Entity – Lifecycle Diagram):*

This shows the states that the entity (Waste Transport) may pass through in the course of the processes involved (Movement of Waste).

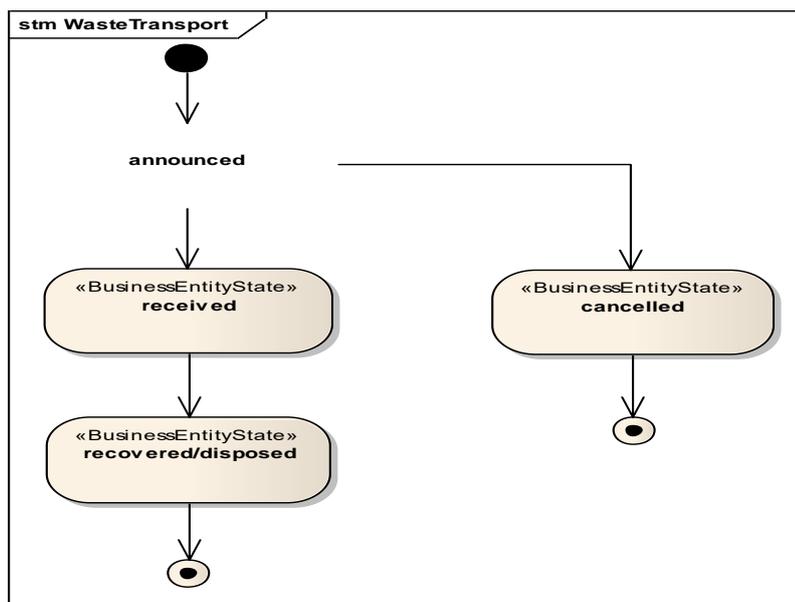


Figure 14 – Entity Lifecycle Diagram – Waste Transport Entity

### 7.5.3.3.1 Conceptual Model

Within the Business Entity View, a Conceptual Model SHOULD be used to identify the main Entity Classes that are referred to in the information exchange(s) that occur in the Domain. It is modeled as a class diagram showing the relationships between the Entity Classes and their cardinalities.

#### Example– Invoice Business Entity

An INVOICE is issued by the SELLER and received by the BUYER. It requests the SETTLEMENT(Payment) for GOODS provided in a DELIVERY, according to terms specified in an AGREEMENT.

The INVOICE consists of one or more LINE-ITEMS that each specifies a PRODUCT.

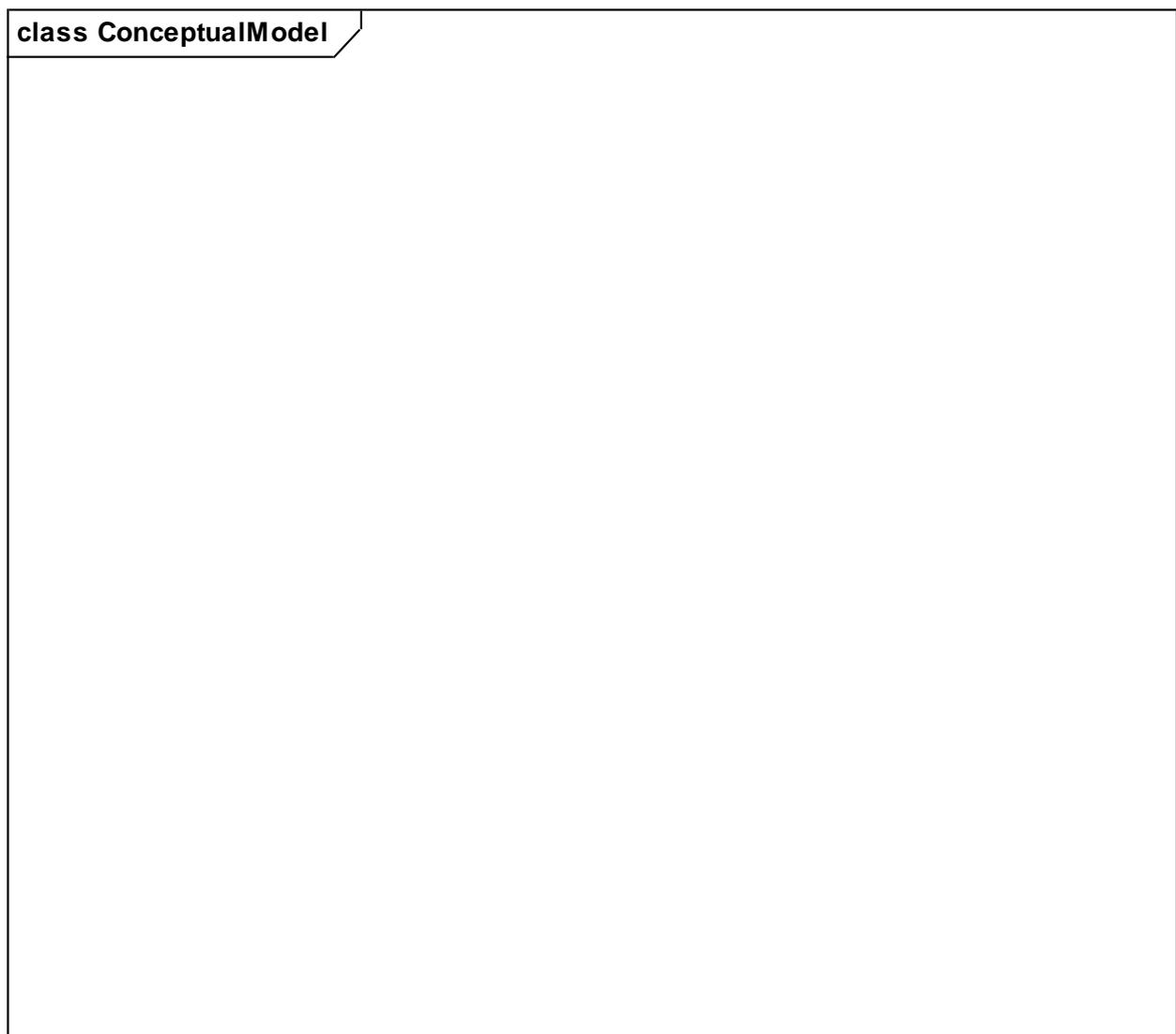
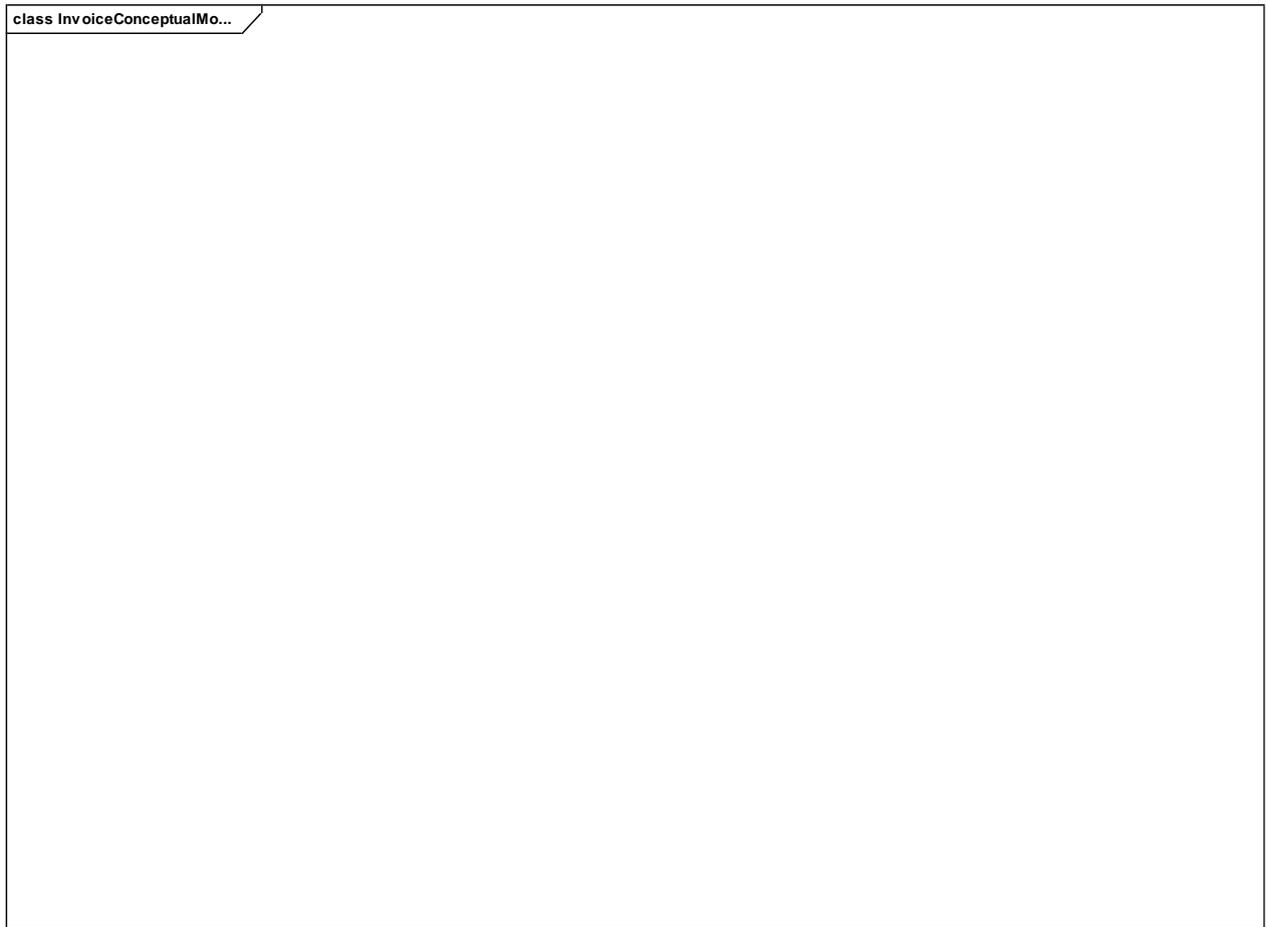


Figure 15 - Invoice Conceptual Model

The attributes for each of the classes that make up the Invoice Entity MUST be shown in either a conceptual model in the form of a class diagram or be documented in tabular form.

***Example- Invoice Entity***



**Figure 16 - Invoice Conceptual Model-Classes and Attributes**

## 7.5.4 Business Choreography View

A business choreography describes the sequence of information exchanges executed by a business process. The Business Choreography View includes a Business Transaction View, a Business Collaboration View and a Business Realization View.

### 7.5.4.1 Business Transaction View

A business transaction defines a simple exchange of business information between two authorized roles and an optional response. It **MUST** be described a Business Transaction worksheet and **MAY** be shown as a Business Transaction Use Case Diagram and a Business Transaction Activity Diagram. There **MUST** be a set of these artefacts for each of the business transactions identified.

#### 7.5.4.1.1 Business Transaction Use Case Worksheet

| <b>Form for Business Transaction</b>            |  |
|---|--|
| <b>Business Transaction Use Case</b>            |  |
| Name  | Traditional Invoice  |
| Description                                     | The supplier presents to the customer, for the ordered or delivered, received or consumed goods or services, a detailed statement of trade account payable (invoice). The customer receives the invoice. |
| <b>Details</b>                                  |  |
| Requesting Role                                 | Invoice Issuer   |
| Responding Role                                 | Invoicee   |
| Requesting Activity                             | Issue Invoice  |
| Responding Activity                             | Receive Invoice  |
| Is Included In (Name of Business Collaboration) | Cross Industry Traditional Invoice   |
| <b>Start/End Characteristics</b>                |  |
| Affected Business Entities                      | Invoice  |
| Pre-condition                                   | Invoice Awaited  |
| Post-condition                                  | Invoice Received   |
| Begins When                                     | Invoice Issued   |
| Ends When                                       | Invoice Received   |
| Exceptions                                      | None   |
| <b>Business Transaction Activity Details</b>    |  |

|                                      |  |
|--------------------------------------|--|
| Business Transaction Pattern         | <input type="checkbox"/> Information Distribution <input checked="" type="checkbox"/> Notification<br><input type="checkbox"/> RequestResponse <input type="checkbox"/> RequestConfirm<br><input type="checkbox"/> QueryResponse <input type="checkbox"/> Commercial Transaction |
| <b>Requestor's Side</b>              |  |
| Requesting Role                      | Invoice Issuer   |
| Requesting Business Action Name      | Issue Invoice  |
| Requesting Information Envelope Name | Invoice  |
| <b>Responder's Side</b>              |  |
| Responding Role                      | Invoicee   |
| Responding Business Action Name      | Receive Invoice  |
| Responding Information Envelope Name | N.A  |

Figure 17 – Business Transaction Use Case Worksheet

#### 7.5.4.1.2 Business Transaction Use Case

A Business Transaction Use Case Diagram illustrates the “authorized roles” that participants play in the particular named transaction.

Example:



Figure 18 – Business Transaction Use Case Diagram – Cross Industry Invoice

### 7.5.4.1.3 Business Transaction Activity Diagram

A Business Transaction Activity Diagram shows the actions that the two “authorized roles” carry out in the particular transaction. It shows the various responses (contained in various Information Envelopes) that the requesting role (buyer) and responding role (seller) in this case) can make and the resulting entity states.

**Example (Place Order in UMM 2.0):**

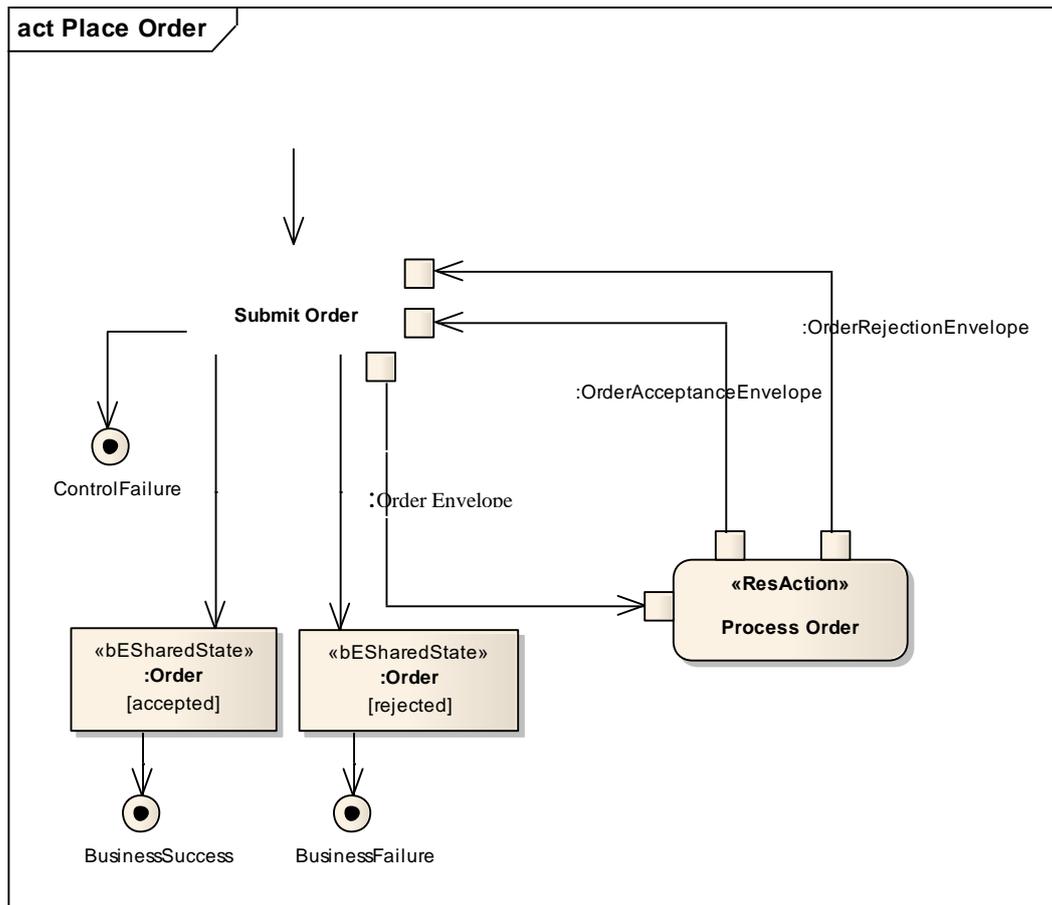


Figure 19 – Business Transaction Activity Diagram - Place Order

### 7.5.4.2 Business Collaboration View

The Business Collaboration View SHOULD be described in a Business Collaboration Worksheet and MAY be shown as a Use Case Diagram and Activity diagram. It MAY be omitted if the business process consists of only a single transaction.

#### 7.5.4.2.1 Business Collaboration Worksheet

| <b>Form for Business Collaboration Use Case</b>  |   |
|--|---|
| <b>General</b>   |   |
| Name   | Order from Quote  |
| Description  | The Customer requests and receives a quotation from a supplier. The Customer then Orders the goods and receives a response. |
| <b>Participants</b>  |   |
| Participating Role   | Order Requester   |
| Participating Role   | Order Responder   |
| Participating Role   | Quotation Requester   |
| Participating Role   | Quotation Provider  |
| Is Included In (Name of parent Business Collaboration - if there is any)                           | None  |
| <b>Start/End Characteristics</b>   |   |
| Affected Business Entities   | Quote, Order  |
| Pre-condition  | Quote Awaited   |
| Post-condition   | Response to Order received by Customer  |
| Begins When  | Customer issues a request for Quote   |
| Ends When  | Customer receives a response to his Order   |
| Exceptions   | Quote not provided, Order not acknowledged.   |
| <b>Included Business Transaction Use Cases (add more Business Transaction Use Cases if needed)</b> |   |
| Business Transaction Use Case Name   | Request for Quote   |
| Business Transaction Use Case Name   | Place Order   |

Figure 20 – Business Collaboration Use Case Worksheet

7.5.4.2.1 Business Collaboration Use Case

The Business Collaboration Use Case diagram shows those Business Transaction Use Cases that make up the Business Collaboration.

Example (Order from Quote in UMM 2.0):

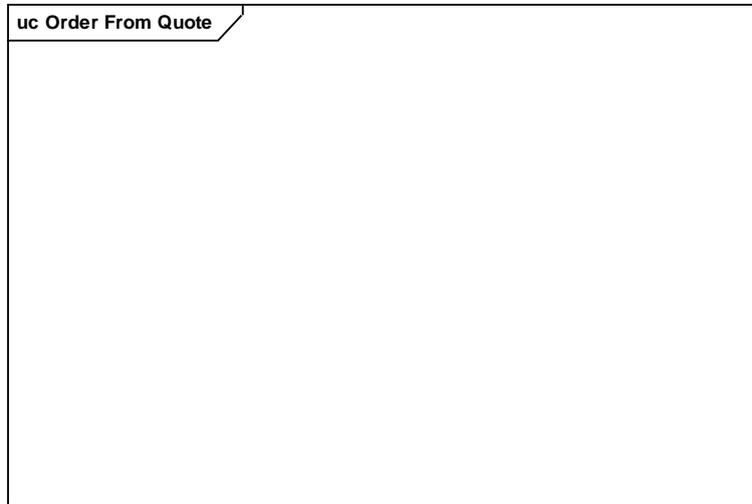


Figure 21 – Business Collaboration Use Case Diagram - Order from Quote

7.5.4.2.2 Business Collaboration Activity Diagram

The Business Collaboration Activity diagram shows the Business Transaction actions, the order in which they occur and the authorized roles participating in sending or receiving the transactions.

Example (Order from Quote in UMM 2.0):

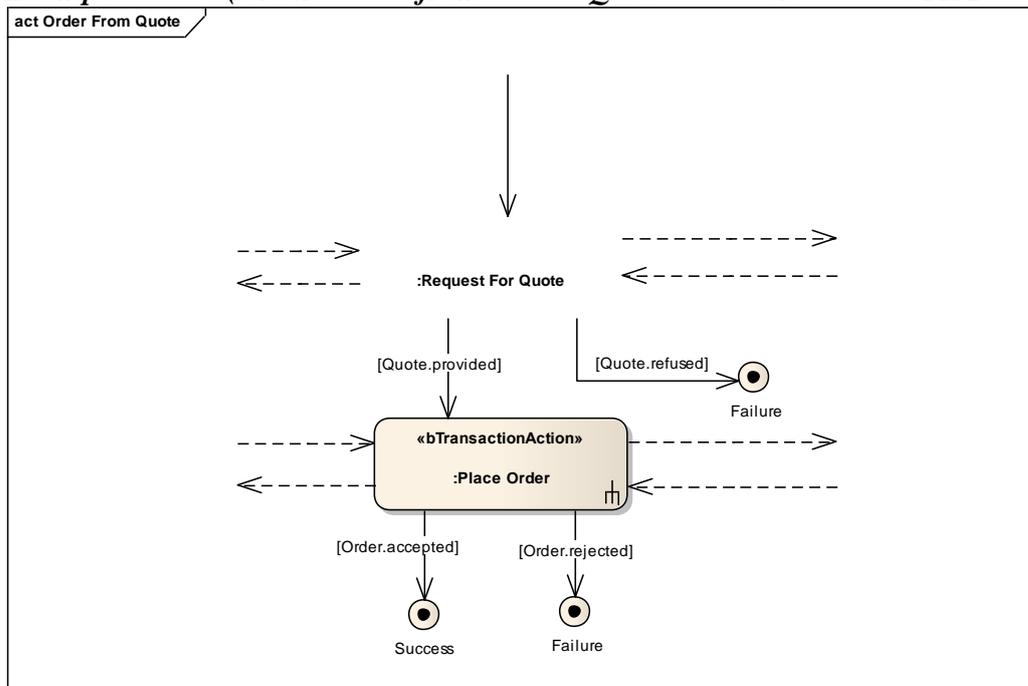


Figure 22 – Business Collaboration Activity Diagram - Order from Quote

### 7.5.4.3 Business Realisation View

A Business Realisation view MUST be used to link the constituent business collaboration use cases and/or transaction use cases, including the respective “authorised roles” to the Business Partner Types (participants) who exercise them. It is shown as a Use Case diagram.

#### 7.5.4.3.1 Business Realisation Use Case diagram

The Business Realisation Use Case diagram shows the Business Partner Types that exercise the authorized roles in the Business Collaboration Use Case.

*Example (Order from Quote in UMM 2.0):*

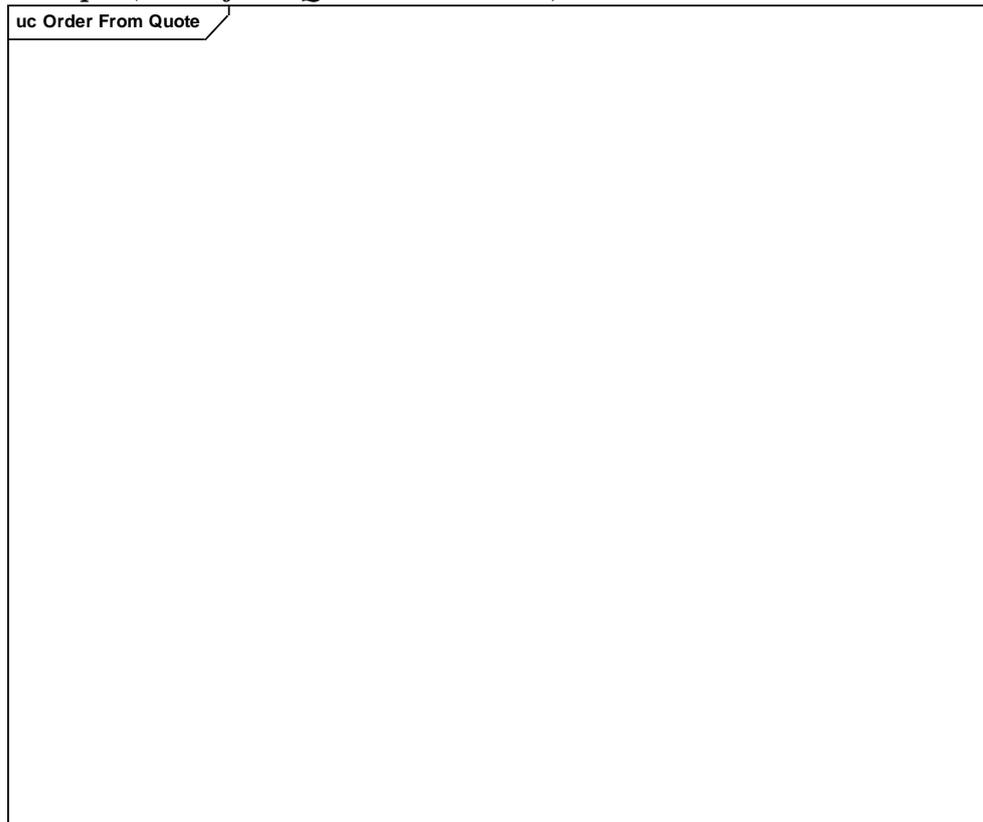


Figure 23 – Business Realisation Use Case - Order from Quote

## Annex 1. Definitions

These definitions are included here to assist the reader in the use of this document. Additional notes are provided to interpret them in relation to their use in the BRS.

Further definitions can be found in the UMM 2.0, CCTS and UML specifications.

**Activity diagram:** A diagram that shows the flow from activity to activity: activity diagrams address the dynamic view of a system.

**Authorised Role** (e.g. buyer) is a concept which is more generic than a business partner (e.g. a wholesaler) and allows the re use of collaborations by mapping an *AuthorisedRole* to a business partner within a given scenario. Since business collaboration use case and business transaction use case are defined as occurring between authorised roles, they may be re used by different business partners (a “wholesaler” or a “broker”) in different scenarios of the same domain or even in different domains.

**Business Area** usually corresponds to a division of an enterprise. Business Areas might be structured recursively. A business area is a category of decomposable business areas or process areas (on the lowest level of a business area hierarchy). This means that a business area collates either other business areas, process areas, or business process use cases.

**Business Collaboration Use Case** describes in detail the requirements on the collaboration between two or more involved partners. Business partner types take part in a business collaboration use case by playing an authorised role in it. A business collaboration use case can be broken down into further business collaboration use cases and business transaction use cases. A business collaboration use case may extend another business collaboration use case.

**Business Entity** is a real world thing having business significance that is shared amongst two or more business partner types in a collaborative business process (e.g. product, order, account etc).

*Note: Business Entities may be identified by nouns in a business requirements statement or use case description.*

**Business Entity State** represents a specific state in which a business entity can exist during its lifetime (For Example: an order can exist in the state issued, rejected, confirmed, etc).

**Business Domain.** A Business Domain is the area of interest in the project. It represents a sphere of knowledge, influence and activity.

*Note: Complex business domains that are the subject of a particular BRS may be subdivided into smaller more homogeneous areas known as Business Areas.*

**Business Partner type** is an organisation type, an organisation unit type, or a person type that participates in a business process. Business partner types typically provide input to and or receive output from a business process. Due to the fact that a business partner type participates in a business process, they have, by default, a vested interest in the business process. Therefore, a business partner type is a kind of stakeholder.

**Business Process** *A business process is a collection of related, structured activities or tasks that serve a particular business goal. Complex business processes may involve many participants and can be made up of other business processes. The simplest business process involving two participants is known as a business transaction*

**Business Process Use Case** is a set of related activities that together create value for a business partner. A business process use case might be performed by a single business partner type or by multiple business partner types crossing organisational boundaries. In the case where organisations collaborate in a business process, the business process should create value for all its participants. A business process use case can be decomposed into sub processes using the <<include>> and <<extends>> association stereotypes defined in UML.

**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.

**Information Model:** An information model is an abstract, formal representation of many kinds of real-world objects, such as business documents (e.g. orders), transportation mechanisms (e.g. trucks, containers, ship bays, etc.) and/or abstract objects, such as for the entities used in a billing system. The objects have a name, properties and relationships to other objects. An information model provides a means to describe the information in a domain of interest without constraining how that description is mapped to an actual implementation in software.

**Information Envelope:** An InformationEnvelope is a sub type of BusinessInformation and represents a concrete business message which is exchanged in a UMM Business Transaction.

*Note: The name chosen for the informationenvelope should be the name that is eventually used for the EDIFACT message or XML message schema.*

**Process Area** corresponds to a set of common operations within a business area. Process areas might be structured recursively. A process area is a category of common business process use cases. This means a process area collates either other process areas or business process use cases.

*Note: Each Business Area may involve many business processes and these processes may in turn be grouped into more homogeneous area known as Process Areas.*

**Stakeholder** is a person or representative of an organisation who has a stake – a vested interest - in a certain business category or in the outcome of a business process. A stakeholder does not necessarily participate in the execution of a business process.

## **Annex 2. Standard Values and Preferred terms**

The following standard values and preferred terms represent an initial list<sup>16</sup> that should be expanded as additional categories and values are identified.

### ***1.Business Area Classification***

The Common Business Process Catalog Specification<sup>17</sup> introduced a set of eight normative categories, based on the Porter Value Chain. The BUY-SHIP-PAY Model uses a selection of four of these categories, to classify the supply chain aspects.

#### ***CBPC Normative Categories***

Procurement/Sales

Design

Manufacture

Logistics

Recruitment/Training

Financial Services

Regulation

Health Care

### ***2.Process Area Classification***

The ISO classification of Processes Phases<sup>18</sup> provides a generic classification of business processes, independent of domain, which may be used where there is no more specific Domain or Sector Classifications.

Planning

Identification

Negotiation

Actualisation

Post-Actualisation

The International Supply Chain Reference Model BUY-SHIP-PAY uses the following Process Area Classification.

Identify Partners and Products

---

<sup>16</sup> UN/CEFACT TBG14 BPA/N063 BUY-SHIP-PAY Modeling Guidelines

<sup>17</sup> UN/CEFACT. Common Business Process Catalog Technical Specification

<sup>18</sup> ISO Open-edi phases. Reference TBD

Establish Business Agreement

Order

Ship

Pay

### ***3.Initial List of Entity States***

**Entity States:** An initial list of preferred values for entity states to aid standardization.

Planned

Completed

Proposed

Accepted

Rejected

Confirmed

Declared

Released

Issued

Informed

Checked

Prescribed

Paid

Terminated

### ***4.Authorised Roles***

The following is an initial list of preferred terms for authorized roles that may be further qualified to provide more specific context.

|            |            |                  |
|------------|------------|------------------|
| Authoriser | Instructor | Receiver         |
| Claimer    | Issuer     | Releaser         |
| Confirmer  | Notifier   | <b>Requester</b> |
| Declarer   | Proposer   | <b>Responder</b> |
| Despatcher | Provider   | Sender           |

Many of the qualified versions of the above list have specific names that may be used where appropriate. Thus an “Invoice Receiver” may be named as an “Invoicee”.