Business Process Analysis Worksheets & Guidelines

Procedures for developing business processes in ebXML

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1. Status of this Document

This document specifies an ebXML DRAFT for the electronic business community.

Distribution of this document is unlimited.

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4. Introduction

4.1. Summary

The primary goal of the ebXML effort is to facilitate the integration of e-businesses throughout the world with each other. Towards this end much of the work in ebXML has focused on the notion of a public process: the business process(es) by which external entities interact with an e-business. The specification and integration to such public processes has long been recognized as a significant cost to such businesses. In order to reduce this cost ebXML is recommending the use of Business Libraries. The principle goals of these libraries are to:

a) Promote reuse of common business processes and objects

b) Provide a place where companies and standards bodies could place the specifications of their public processes where appropriate trading partners could access them.

In order to realize these goals, a *lingua franca* needed to be leveraged so that all users of this repository could understand what each other here specifying. The ebXML community has decided to use as it's *lingua franca* the semantic subset of the UMM Metamodel, specified by the UN/CEFACT Modeling Methodology in the N090 specification.

The UMM “is targeted primarily at personnel knowledgeable in modeling methodology who facilitate business process analysis sessions and provide modeling support. It also serves as a checklist for standardized models when a previously specified business process is contributed to UN/CEFACT for inclusion and incorporation as a standard business process model.” [UMM]

People without the expertise in analysis and modeling will likely find that the UMM will be useful as a reference manual. These people will use UMM complient approaches or, even, alternative methodologies during the analysis of business processes. Practical experience tells us that it will be more useful to the electronic business community to have an approach that does not require such analysis and modeling expertise. An approach that a businessperson can apply would be most useful. The Business Process Analysis Worksheets and Guidelines provide such an approach.

This document contains several worksheets that guide analysts towards UMM compliant specifications of their common business processes. We have tried to provide tools for users regardless of whether we’re working on behalf of a standards body or an individual company. Furthermore, we provide a variety of scenarios guiding how one might go about filling out these worksheets (e.g. top-down vs. bottom up)

Different degrees of rigor are required within these worksheets. As we approach the lower level, certain elements and organization of the specification are required to meet the requirements of the ebXML technical framework. At higher levels there is a good deal of latitude about the way concepts are grouped. In many cases, things such as assumptions and constraints will be specified in natural language rather then in a formal one.

4.2. Audience

We do not expect the users of these worksheets to be experts in business modeling, however it is expected that they are subject matter experts in their respective areas of practice. They should have detailed knowledge of the inter-enterprise business processes they use to communicate with their trading partners.

This document could also be used by industry experts to help express their sectors business processes in a form that is amenable to the goals of the ebXML registry and repository.

Of course, software vendors that are supplying tools (modeling and otherwise) in support of the ebXML framework will find useful information within.

4.3. Related Documents

[TAS] *ebXML Technical Architecture Specification*. Version 1.0. 4 January 2001. ebXML Technical Architecture Project Team.

[UMM] *UN/CEFACT Modeling Methodology*. CEFACT/TMWG/N090R8E. October 2000. UN/CEFACT Technical Modeling Working Group.

[MM] ebXML Business Process Collaboration Metamodel.

[SCOR] *Supply Chain Operations Reference model*, The Supply Chain Council (http://www.supply-chain.org/)

[CCBP] ebXML Catalog of Business Processes. Version TBD. Date March 17, 2001. ebXML Business Process Project Team

[BPAO] ebXML Business Process and Business Document Analysis Overview. Version TBD. Date March 17, 2001. ebXML Business Process Project Team

[RCRCCBP] *ebXML The role of context in the re-usability of Core Components and Business Processes*. Version 1.01. February 16, 2001. ebXML Core Components Project Team.

[REG1] *ebXML Registry Information Model*. Version 0.56. Working Draft. 2/28/2001. ebXML Registry Project Team.

[REG2] *ebXML Registry Services*. Version 0.85. Working Draft. 2/28/2001. ebXML Registry Project Team.

[REA] Guido Geerts and William.E. McCarthy "An Accounting Object Infrastructure For Knowledge-Based Enterprise Models," IEEE Intelligent Systems & Their Applications (July-August 1999), pp. 89-94

[PVC] Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance*, 1998, Harvard Business School Press

4.4. Document Conventions

The keywords MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, RECOMMENDED, MAY, and OPTIONAL, when they appear in this document, are to be interpreted as described in RFC 2119 [Bra97].

Heretofore, when the term *Metamodel* is used, it refers to the UMM e-Business Process Metamodel as defined in [UMM].

5. Design Objectives

5.1. Goals/Objectives/Requirements/Problem Description

ebXML business processes are defined by the information specified in the ebXML UMM e-Business Process Metamodel (hereafter referred to as the “Metamodel”). The Metamodel specifies all the information that needs to be captured during the analysis of an electronic commerce based business process within the ebXML framework. ebXML recommends the use of the UN/CEFACT Modeling Methodology (UMM) in conjunction with the Metamodel. The UMM provides the prescriptive process (methodology) to use when analyzing and defining a business process.

The ebXML Business Process Worksheets are a set of business process design aids, to be used with the UMM as a reference. An ebXML business process, that is defined based on the UMM Metamodel, will sufficiently reflect all the necessary components of a business process and enable it's registration and implementation as part of the ebXML compliant electronic trading relationship. The Worksheet based approach that provides an easier way of applying the UMM and the UMM Metamodel.

The intent of the worksheets (or a business process editor[4]) is to capture all the bits of information that are required to completely describe a business process so that it can be registered, classified, discovered, reused and completely drive the software.

To develop company business processes for an ebXML compliant electronic trading relationship, use the UMM as a reference guideline plus the ebXML Business Process Worksheet to create the necessary business process models. These are the recommended steps for using the ebXML Business Process Worksheets

1. A business need or opportunity is identified and defined before using these procedures.

2. A Focus Project Team, usually representing a multifunctional set of experts from IT, business process ownership and business process experts needed to work out the business process using the ebXML Business Process Worksheet.

3. Using the ebXML Business Process Worksheets, the Focus Project Team will be able to develop an ebXML Business Process Specification that can be reviewed and verified by the business. In addition, all necessary information to populate the ebXML Metamodel will be made available to enable an ebXML trading relationship.

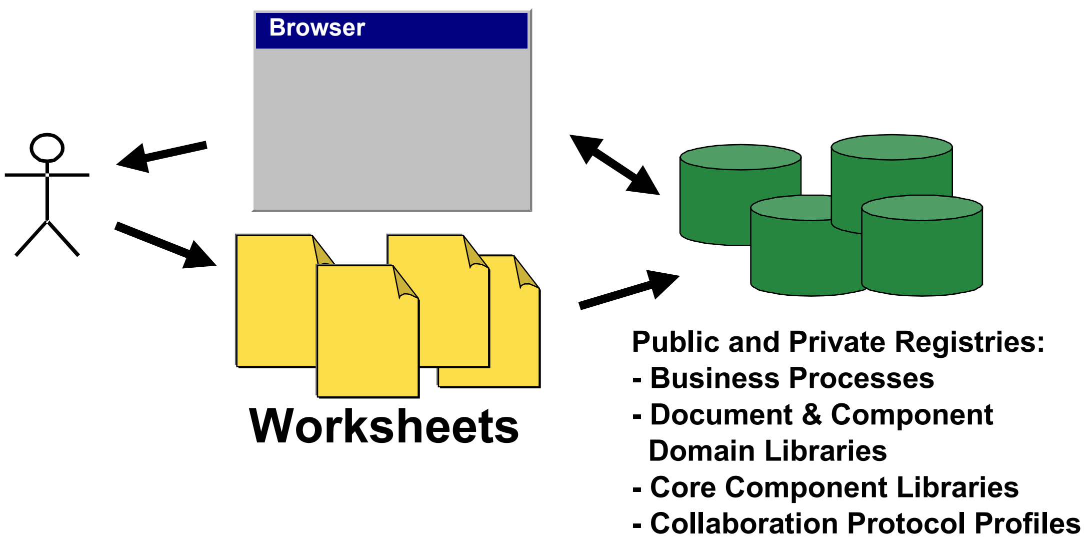


Figure 5-1, Worksheets Architectural Context

[4] A group of ebXML contributors are working on a prototype of an editor that uses *wizards* to guide the user through the construction of a UMM compliant Business Process.

5.2. The Analogy

The following analogy is useful in understanding the role of the Worksheets and other documentation and tools to the ebXML Business Process Collaboration Metamodel and the UN/CEFACT Modeling Methodology.

Item	**United States Internal Revenue Service (IRS) Tax System**
ebXML Business Process Collaboration Metamodel *UN/CEFACT Modeling Methodology*.	Entire tax code
Worksheets and Templates	IRS Forms
Methodology Guidelines	IRS Instruction Booklets
Business Process Editor Tool Suite Repository of Business Process Specifications, Core Components, etc.	Something like TurboTax and other software packages for preparing personal or business tax forms where these packages would have on-line access/search of all your tax and tax related records and the Tax code.

In order to actually specify a business process all we really need is the Worksheets and Templates[5]. However, in order to ensure that we fill in the forms properly we will need to have a set of instructions that augment the templates and provide some of the rationale behind the templates.

5.3. Caveats and Assumptions

The worksheets in this document are targeted towards the UMM as specified in the Revision 8E document. Revision 9 has come out while this document was under development but there was not enough time before the delivery date of this document to align it with the changes present in Rev 9. While we expect the UMM to continue to evolve, we also expect the specification schema to commit itself to compliance with a specific version. The intent is for this document to converge towards the version of the UMM the specification schema targets.

This document is *non-normative*; the documents identified above should be considered the authority on the definitions and specifications of the terminology used herein. This document is intended to be an application of those principals and technologies.

[5] A template is a document or file having a preset format that is used as a starting point for developing human-readable versions of the business process specifications so that the format does not have to be recreated each time it is used.

6. Worksheet Based Analysis Overview

As stated above, the purpose of this document is to provide worksheets that guide the user through the construction of a UMM compliant specification of their business processes. The following diagram shows mapping from the worksheets to the high level components of the UMM. Note, the document definition worksheet is currently not included in the set of worksheets.

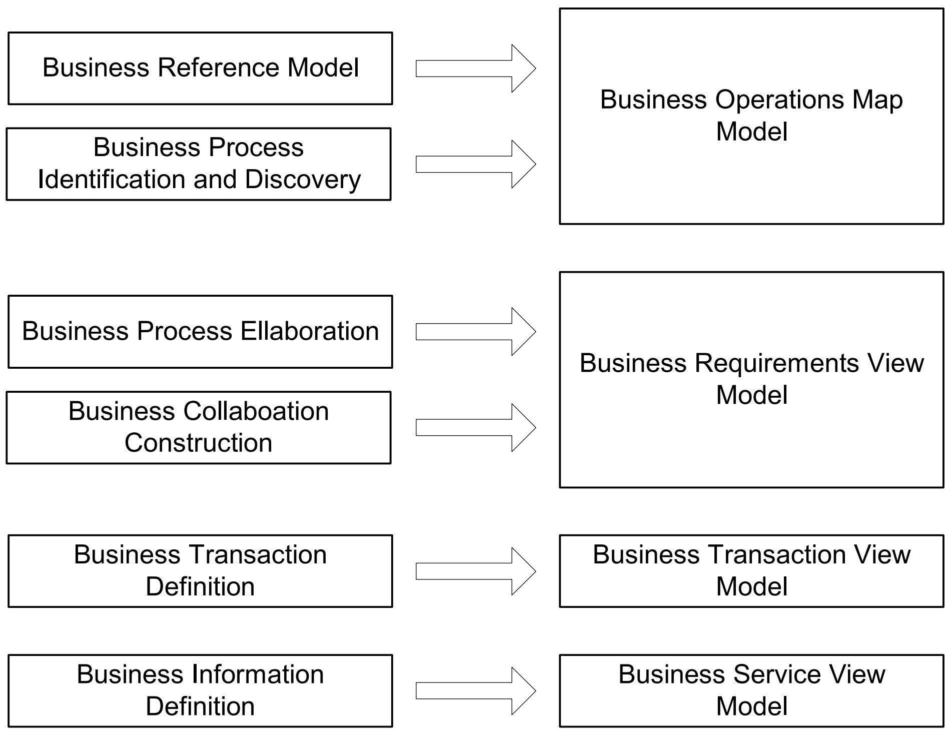


Figure 6-1 Overview of mapping from Worksheets to Metamodel

The expectation is that after the worksheets have been completed, there will be sufficient information to mechanically produce a Metamodel based specification of the modeled business process(es). The worksheets given above are:

Business Reference Model – Use this to define the “frame of reference” of the rest of the worksheets. This provides definitions of terms and, perhaps, canonical business processes (e.g. [SCOR][6])

Business Process Identification and Discovery – Use this to do an inventory of the business processes. This is really just a set of high-level use cases merely to identify the existence of processes and the stakeholders without going into detail.

Business Process Elaboration – These worksheets are used to flesh out the business processes. This identifies the actual actors as well as pre and post conditions for the business process.

[6] Defines plan, source, make and deliver business areas in their Supply Chain Operations Reference (SCOR) model

Business Collaboration Definition – In these worksheets we define the economic events that take place to fulfill the business process. This is where one defines the system boundaries and the protocols that flow between them.

Business Transaction Definition – These worksheets are more technically oriented than the others (which have a decidedly more "modeling" orientation). At this stage one defines the actual activities and authorized parties within the organization that initiate these transactions.

Business Information Definition – In these worksheets one defines the contents of the information field, widths, data types, descriptions, requirement traceability and, perhaps, the additional *context* ([RCRCCBP]) necessary to construct the document from the Core Components subsystem.

6.1. Basic Guidelines for filling out Worksheets

6.1.1 Focus on public Business Processes

While these worksheets could be used to model any kind of business process, the focus of the ebXML effort is to make trading partner integration easier, cheaper, and more robust. Therefore the expectation is that the primary focus will be on *public* faces of your business processes.

6.1.2 The REA Ontology

The UMM and ebXML groups are recommending the use of the Resource-Economic Event-Agent Ontology for the formalization of business collaborations. The worksheets in the main body of this document are intended to be more generic in nature however please refer to [BPAO] for further information on this topic[7] and associated worksheets.

6.1.3 Use the worksheets in the order that makes the most sense for you

For the purposes of this document we proceed from the top-level step (Business Reference Model) down to the lowest-level step (Business Transaction). It is important to note, however, that these worksheets can be filled out in whatever order makes the most sense from the user's perspective. For example, a person who is trying to retrofit an existing document based standard (e.g. EDIFACT) might want to start by filling in the Business Transaction Definition worksheets (perhaps only specifying trivial definitions for the higher level worksheets). A person looking to formalize the definitions for an entire industry may very well start from the Business Reference Model worksheet.

6.1.4 The worksheets can be used for projects of various scopes

Although the Metamodel has definite requirements on *what* objects need to be present to comprise a complete specification, it says little about the scope of what those specifications represent. For example, if you are only trying to model a specific interaction with one of your trading partners, you do not need to include a complete *Business Reference Model* for your entire industry, just include the parts that are directly relevant for the interaction you are modeling. Similarly, if you are just doing a small set of interactions for your company, you might choose to have the *Business Area* or *Process Area* just be your own company.

[7] Worksheets will be made available in a future version of this document.

6.1.5 Think how will people use what you construct

As you fill in these worksheets please keep in mind how the generated UMM specification will be used by a user of the repository. The two principal uses envisioned are:

- To determine if a given collaboration is appropriate for reuse (or at least is a close enough match for subsequent gap analysis)

- To be used as an *on-line implementation guide*. A potential trading partner (or a 3rd party on their behalf) could examine the public processes/collaborations you provide and construct an integration plan.

This means trying to use industry wide terms (or at least Business Reference Model terminology) to decrease the ambiguity or misunderstanding between you and the eventual consumers of these specifications.

6.1.6 Re-use is one of the primary goals of ebXML

As stated above, the hope is that users will develop models that are reusable by others. Towards that end, it is intended that the Worksheets be used in conjunction with a browser that lets the user search business process libraries for items that have already been defined. The items (e.g. business processes, business collaborations, document schemas, etc.) can be referenced (re-used as is) or copied to the worksheets and changed as needed. Over time, business process catalogs will become populated with a sufficiently large number of business processes. When this happens, the analysis processes will often become a matter of validating pre-defined business processes against requirements.

6.1.7 Note on optional fields in the worksheets

Some of the worksheets contain entries that are labeled as optional for ebXML. These are attributes that appear in the UMM but are not required as part of the ebXML Specification Schema. These are typically business objective/justification topics. While these are obviously very important aspects of any modeling endeavor, ebXML is oriented towards *exposing* an organization's public processes to their trading partners. Advertising that organizations justifications for such interfaces could potentially publicize strategic information that said organization would prefer to keep private.[9]

[9] There has been discussion on private vs. public repositories where some or all aspects of the model are stored in a restricted access repository.

6.1.8 Number your worksheets

Each of the worksheets has an entry for a *Form ID*. This ID can be used to reference one form from another. In addition, if you use an outline numbering scheme, it will be easy for the reader to determine parent-child relationships between elements of the model (of course, if you do a bottom up approach this will be significantly harder to do up front!).

The recommended format is:

<Form Type>-<Number>-<Description>

Where <*Form Type*> is

BRM for *Business Reference Model*
BA for *Business Area*
PA for *Business Process Area*
BP for *Business Process Summary*
BPUC for *Business Process Use Case*
BC for *Business Collaboration*
BT for *Business Transaction*

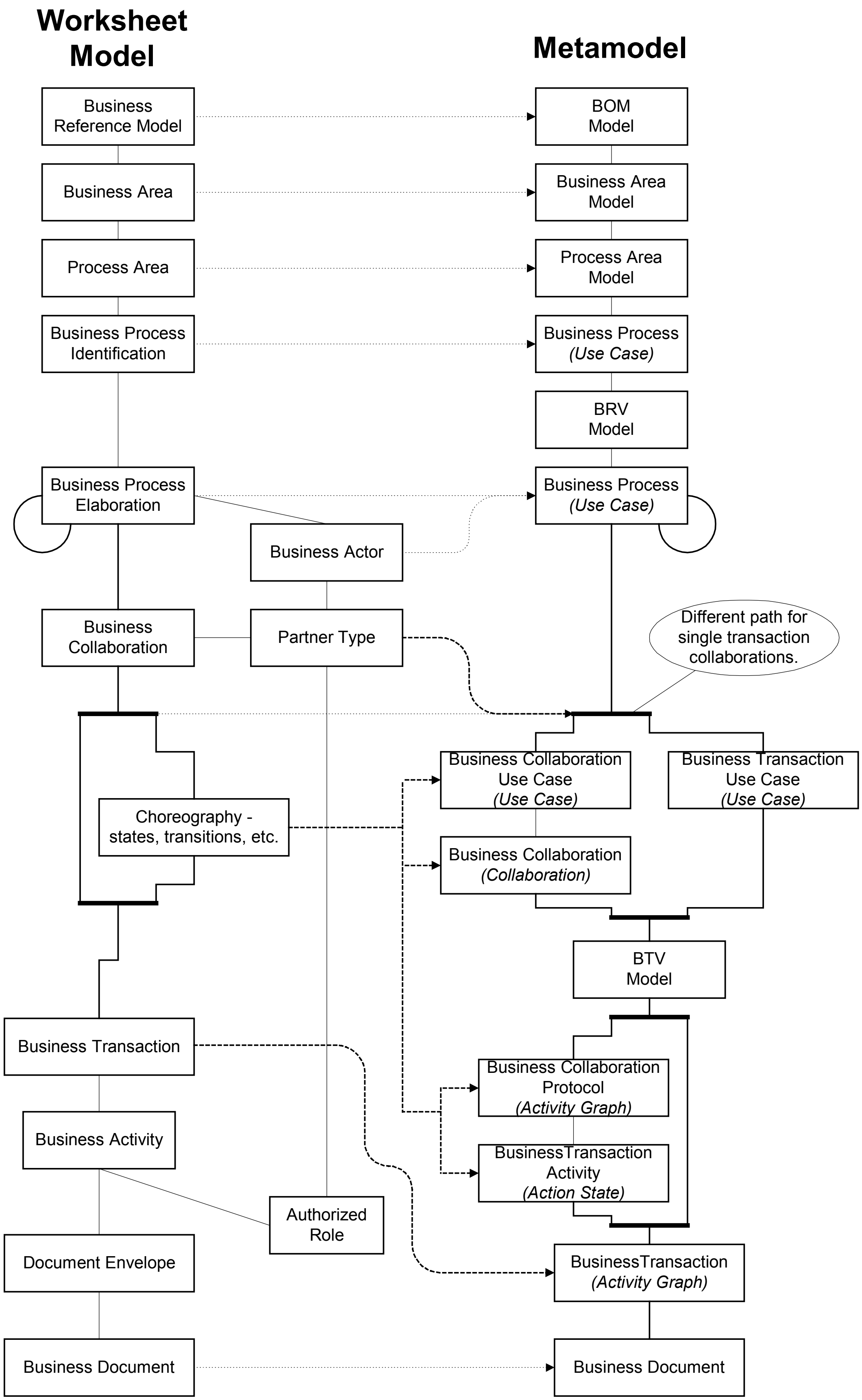
<*Number*> is, perhaps, an outline entry number

<*Description*> is some descriptive name.

Please see the example in the Appendix for an illustration of this in practice.

6.2. Worksheets to Metamodel Mapping

The following diagram sketches out a more detailed mapping from the Worksheets Model to the Metamodel defined by the UMM. The leftmost column is the selection of the main elements that the Worksheets need to specify or edit. The rightmost column are the Metamodel elements that those worksheets map to, also showing intervening elements that the Worksheets need to construct and manage in order to be able to save and retrieve the business process model correctly (in terms of the Metamodel). The rightmost column also shows the base element for each element. The middle column is the other elements that are part of the Worksheets. They are the same as the Metamodel elements of the same name.


Worksheet Model
Metamodel
Business Reference Model
BOM Model
Business Area
Business Area Model
Process Area
Process Area Model
Business Process Identification
Business Process (Use Case)
BRV Model
Business Process Elaboration
Business Process (Use Case)
Business Actor
Business Collaboration
Partner Type
Different path for single transaction collaborations.
Business Collaboration Use Case (Use Case)
Business Transaction Use Case (Use Case)
Choreography - states, transitions, etc.
Business Collaboration (Collaboration)
BTV Model
Business Transaction
Business Collaboration Protocol (Activity Graph)
Business Activity
BusinessTransaction Activity (Action State)
Authorized Role
Document Envelope
BusinessTransaction (Activity Graph)
Business Document
Business Document

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7. Business Process Identification and Discovery

7.1. Goals

The first set of worksheets helps the user begin formalize the domain they are trying to model processes in. The first stage in the methodology is to identify the “top level” entities and organizing concepts in the domain.

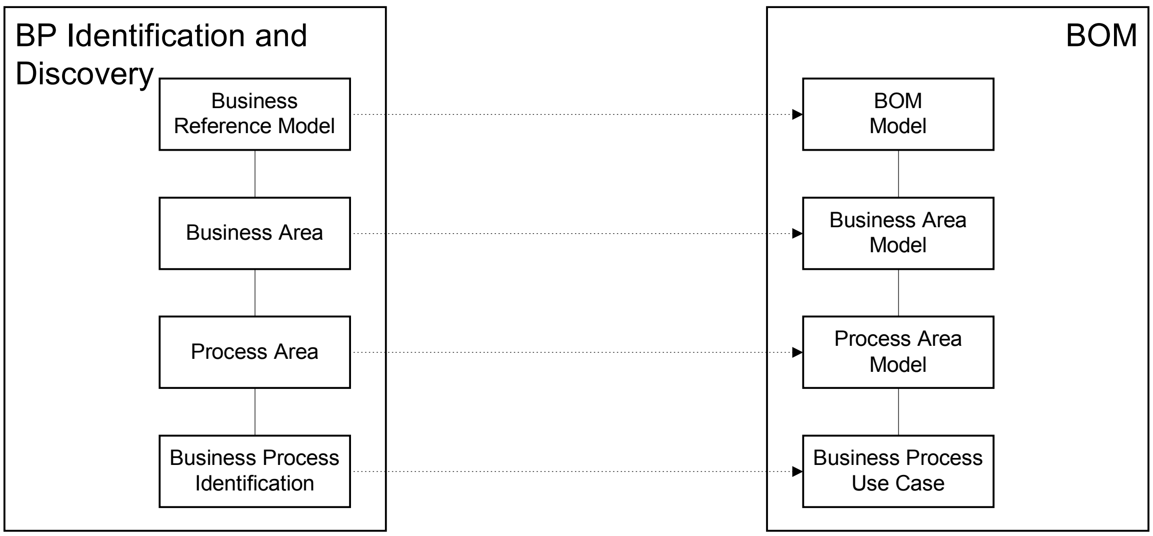

Figure 7-1 Business Process Identification and Discovery Worksheet to Metamodel Mapping

At this stage we define terminology and identify the players as well as which business processes those players interact with. To quote the UMM, at this stage in the model the goal is to:

- To understand the structure and dynamics of the business domain,
- To ensure that all users, standards developers and software providers have a common understanding of the business domain,
- To understand the daily business in the business domain independent of any technical solution,
- To create categories to help partition the business domain that enables an iteration plan to complete the model,
- To structure the model in the form of a Business Operations Map (BOM),
- To capture the justification for the project,
- To identify the stakeholders concerned with the modeled domain, some who will be independent of the processes within the domain.

The modeling artifacts that correspond to the UMM are:

- Business Area [Package]
- Process Area [Package]
- Process(es) [Use Cases]

7.2. Guidelines

7.2.1 How does one decide how big to make the various groupings at this level?

Referring back to the primary guidelines, think about what you are trying to communicate. If you are more focused on identifying the public processes, then think about grouping them by partner type or, perhaps by the area of your business these partners interact with. If you are trying to formalize an entire business sector, determine the *archetypes* that are prevalent in that sector and group them by business function area. These are just rules of thumb and this is still largely an “art”. Keep in mind your potential audience and think what would make the most useful organization for them.

The activity diagrams in this workflow will likely discover more refined business process use cases. The Business Operations Map (BOM) Metamodel allows a business process to be represented by more refined business processes. NOTE: At the point where the business process can not be broken down into more child business processes, the parent business process can be called a business collaboration use case as specified in the Requirements workflow.

7.2.2 What is the boundary of the business area?

According to the [UMM] the following guidelines are to be used in defining a business area:

- Stakeholders that are within the scope of the business domain and outside the scope of the business domain but affect or are affected by inputs/outputs to/from processes within the business domain. A stakeholder is defined as someone or something that is materially affected by the outcome of the system but may or may not be an actor. For example one who funds the business modeling project is a stakeholder. Actors are stakeholders that are involved in the business process and are thus part of the business model.

- Information passing into or out of the business domain. Where possible, the domain boundaries should be chosen so that a business transaction is logically initiated and concluded within them.

- Key business entity classes. (i.e., things that are accessed, inspected, manipulated, processed, exchanged, and so on, in the business process)

7.3. Worksheets[10]

7.3.1 Business Reference Model

Often times it is useful to define a “frame of reference” for the business processes being identified. This frame of reference might define basic terms accepted by the given industry segment. For

[10] Note that the examples given in the following worksheets more or less come from the hypothetical business process described in section 8.4 of [CCBP].

example the SCOR model defines a frame of reference for supply chain. VICS defines a frame of reference for trading partners in the retail industry. It also might be a more horizontal view such as the Porter Value Chain.

Form: Describe Business Reference Model	
Form ID	[Provide an ID for this form so other forms can reference it (§6.1.8)]
Business Reference Model Name	[Provide a name for the reference model. You can use an existing reference model such as the Supply Chain Council or the Porter's Value Chain or create your own name.] DOTCOM DROP SHIP RETAIL MODEL
Industry Segment	[Provide the name of the industry segment that this business applies to. Search the business process library for a list of possible industry segments. If the industry segment does not exist, then provide an appropriate name/label for the industry segment.] Retail.
Domain Scope	[Provide a high level statement that encapsulates the scope of all the business areas.] Online catalog, distribution center, delivery, billing.
Business Areas	[List the business areas within the scope. A business area is a collection of process areas. A process area is a collection of business processes. You may wish to refer to the ebXML Catalog of Business Processes that provides a list of normative categories that may be used as business areas.] Order Management, AR.
Optional for ebXML	
Business Justification	[Provide the business justification for the collection of business processes] Define more efficient on-line retailer/vendor interaction.

7.3.2 Business Area

As mentioned in the guidelines section, there are no hard and fast rules for how to divide up the model into different business areas. One suggestion is to group business processes according to the primary business function. You might consider using the Porter Value Chain classification scheme (see Appendix B).

Form: Describe Business Area	
Form ID	[Provide an ID for this form so other forms can reference it (§6.1.8)]
Business Area Name	[Provide a name for the business area. This should be listed in the Business Areas section of at least one Business Reference Model.] Direct to Customer Retail
Description	[A brief summary of this functional area.]
Scope	[Provide a high level statement that encapsulates the scope of all the business areas. The scope of the business area must be within the scope of the encompassing business reference model. Typically the scope of the business area will be more constrained or limited than the scope of the business reference model.] Online catalog, order placement, distribution center, delivery, billing.
Boundary of the Business Area	[Describe the boundary of the business area. This defines the entities that interact in this business area; actors, organizations, possibly systems] Customer, Retailer, DSVendor, Carrier, Credit Authority.
References	[Any external supporting documentation.] VICS, SCOR
Constraints	[Identify any constraints on the process areas (and, thus, business processes) within this business area.] 1. Completely automated system. 2. Web browser limitations. 3. Domestic orders only
Stakeholders	[Identify the practitioners that care about the definition of this business area. At this level, this is likely to be some participants in an industry group (perhaps a standards body or an enterprise). These are the people who will define the BRV.] Customer, Retailer, DSVendor, Carrier, Credit Authority.
Process Areas	[List the process areas within the scope. A process area is a collection of business processes. You may wish to refer to the ebXML Catalog of Business Processes that provides a list of normative process groups that may be used as process areas.] Customer Commitment, Order fulfillment, Billing, Inventory Management.
Optional for ebXML	
Objective	[Describe the objective of this business area.] To deliver a product to a customer in a timely efficient manner.
Business Opportunity	[Describe the business opportunity addressed by this business area.]

7.3.3 Process Area

Typically a business reference model would define a canonical set of process areas (see the Porter or SCOR reference models for examples). A process area consists of a sequence of processes that are combined to form the “value chain” of the given business area.

Form: Describe Process Area	
Form ID	[Provide an ID for this form so other forms can reference it (§6.1.8)]
Process Area Name	[Provide a name for the process area. This should be listed in the Process Areas section of at least one Business Area.] Order Fulfillment
Objective	[Describe the objective of this process area.] To deliver the goods ordered to the customer.
Scope	[Provide a high level statement that encapsulates the scope of all the business areas. The scope of the business area must be within the scope of the encompassing business reference model. Typically the scope of the process area will be more constrained or limited than the scope of the corresponding business area.] To fulfill customer’s order using the third party supplier for a drop ship delivery.
References	[External supporting documentation.]
Boundary of the Process Area	[Describe the boundary of the process area. The communicating services.] Retailer and third party vendor. [Issue: How is this different than Scope?]
Constraints	[Identify any constraints on the business processes within this process area.] Inventory availability. On time delivery. System constrain.
Stakeholders	[Identify the practitioners involved in this process area. *Question: is this a subset of those listed in the Business Area?*.] Retailer, Third party vendor
Business Processes	[List the business processes within the scope of this process area. You may wish to refer to the ebXML Catalog of Business Processes that provides a normative list of business processes.] Manage Purchase Order.
Optional for ebXML	
Business Opportunity	[Describe the business opportunity addressed by this process area.]

7.3.4 Identify Business Processes

For each business process in the process area fill in the following worksheet. A suggested rule of thumb for the appropriate granularity for a business process is that it is the smallest exchange of signals between stakeholders that has an identifiable economic value (cref. [REA]).*Note that this is not always appropriate since "negotiation" could be a valid business process but it doesn't really result in an economic consequence.*

Be sure to validate the information in the process area against the encompassing business area. For example, validate that the scope of the process area is within the scope of its business area.

Form: Identify Business Process	
Form ID	[Provide an ID for this form so other forms can reference it (§6.1.8)]
Business Process Name	[Provide a name for the business process. You may wish to refer to the ebXML Catalog of Business Processes [CCBP] that provides a suggested set of commonly used business processes.] Manage Purchase Order
Process Area	[A process area is a group of business processes. Complete a Process Area form.] Order Fulfillment
Business Area	[A business area group together related process areas. Create a Business Area form.] Direct to Customer Retail

8. Business Process Elaboration

8.1. Goals

At this stage we begin to move from requirements analysis to design analysis. Consider the following diagram:

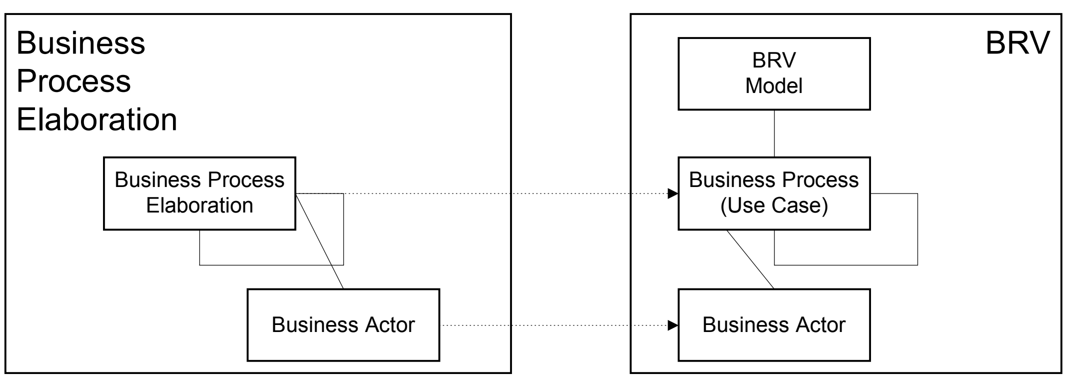

Figure 8-1 Mapping from business processes to the BRV

A business process is a use case that is used to gather requirements about business processes. Inputs to the business process must be specified in the preconditions and outputs from the business process must be specified in the post-conditions.

8.2. Worksheet

One of these is filled out for each business process. Keep in mind that a business process could be nested. You should use whatever organization makes sense for your purposes (though you might want to think in terms of reuse when considering possible decompositions).

Form: Business Process Use Case	
Form ID	[Provide an ID for this form so other forms can reference it (§6.1.8)]
Business Process Name	[Provide a name for the business process. This should be a name identified on the form "Identify Business Process" and on a "Describe Process Area" form. If you are starting with this form, you may wish to refer to the ebXML Catalog of Business Processes that provides a normative list of business processes.] Manage Purchase Order.
Identifier	[This is a unique identifier that follows the Business Process Identifier Naming Scheme. This can be provided when the business process description is submitted to a business process library. See Appendix A for a more detailed discussion.] bpid:ean.1234567890128:ManagePurchaseOrder$1.0
Actors	[List the actors involved in the use case.] Retailer, Vendor
Performance Goals	[A specification of the metrics relevant to the use case and a definition of their goals. Non-functional requirements may be a source of performance goals. For each performance goal, provide a name of the performance goal and a brief description of the performance goal.]
Preconditions	[Preconditions are constraints that must be satisfied starting the use case.] 1. Valid Sales Order 2. Valid Vendor Relation
Begins When	[Describe the initial event from the actor that starts a use case.] Sales Order Validation (expressed as events)
Definition	[A set of simple sentences that state the actions performed as part of the use case. Include references to use cases at extension points.] A valid Purchase Order placed by retailer with the vendor and a PO Ack is received from the vendor.
Ends When	[Describe the condition or event that causes normal completion of the use case.] PO Acknowledged returned to retailer.
Exceptions	[List all exception conditions that will cause the use case to terminate before its normal completion.] 1. PO Rejected (Failure state of a process) 2. Late PO acknowledged

Postconditions	[Post-conditions are constraints that must be satisfied ending the use case.] 1. Valid PO 2. Allocated Product
Traceability	[These are the requirements covered (as shown in Annex 4, Use Case Specification Template, in the UMM).] "PRD-FOO-6.5.4" (meaning Product Requirements Document for FOO project/solution, requirement 6.5.4).

9. Business Collaboration and Economic Events

9.1. Goals

These worksheets develop the Business Requirements View (BRV) of a process model.

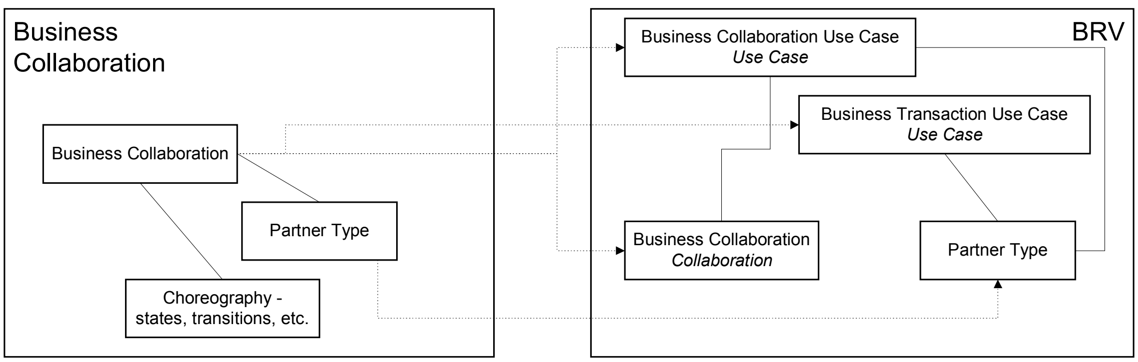

Figure 9-1 Mapping from Business Collaboration to BRV

The following items are specified:

- The business collaboration protocols that tie economic events together
- The system boundaries between which the protocols flow
- The input and output triggers of these collaborations
- The roles and constraints associated with the collaboration

The purpose of the Partner Collaboration and Economic Agreements Worksheets is:

> "… to capture the detailed user requirements, specified by the stakeholders, for the business-to-business project. … This workflow develops the Business Requirements View (BRV) of a process model that specifies the use case scenarios, input and output triggers, constraints and system boundaries for business transactions (BTs), business collaboration protocols (BCPs) and their interrelationships." ([UMM, 3.1])

The modeling artifacts to be identified are:

- Business Transactions [Use Case]
- Business Collaboration [Use Case]
- Business Collaboration Use Case [Use Case Realization, Activity Diagram]
- Economic Modeling Elements [Business Entities]

9.2. Worksheets

Detail the information in the table below for each business collaboration. Note that it may make sense to use UML diagrams to convey some of this information.

Form: Business Collaboration	
Form ID	[Provide an ID for this form so other forms can reference it (§6.1.8)]
Description	[Provide a descriptive overview of the collaboration.]
Partner Types	[This is a list of entities that participate in the collaboration. These participants exchange the events that form the collaboration.]
Authorized Roles	[These are the roles that a partner must be authorized to play to issue specific transitions in the collaboration (by sending certain signals).]
Legal steps/requirements	[If any step in the collaboration has any legal standing, it should be captured here.]
Economic consequences[11]	[If any step in the collaboration has and economic consequence, it should be captured here.]
Initial/terminal events	[List the events that initiate this collaboration and how it terminates.]
Scope	[Specify the set of business actions this collaboration encapsulates.]
Boundary	[Specify the systems and users that communicate with each other over he course of this collaboration.]
Constraints	[Spell out any special constraints that are relevant to this collaboration (e.g. business scenario, pre-conditions.)]

[11] Worksheets that address REA to greater detail and help users through the process of developing REA oriented collaborations will be developed in the future.

10. Business Transactions and Authorized Roles

10.1.Goals

The goal of this worksheet is to identify the individual transactions that implement the workflow of a Business Collaboration. A transaction is made up of several *activities* and each activity has an *authorized role* that the signaler must have in order to initiate that activity.

The modeling artifacts generated as a result of this worksheet is the BusinessTransaction Activity Diagram. Fill out one worksheet for each transaction in the collaborations

10.2.Guidelines

The UMM has defined several transaction patterns. It may be useful for you to identify your transactions with one of those (if for no other reason to make it clear to others the basic interaction pattern you intend to follow)

Some of these patterns have intrinsic semantics (e.g. non-repudiation, authorization) in them. If you choose to base this transaction on one of those patterns you do not have to repeat those here. However if you do not and you have these semantic requirements, make sure they are described here.

10.3.Worksheets

Form: Business Transaction	
Form ID	[Provide an ID for this form so other forms can reference it (§6.1.8)]
Description	[Provide a descriptive overview of this transaction.]
Pattern	[If you have chosen to follow one of the canonical transaction patterns in the UMM[12] (or elsewhere) denote it here. If not and you have special semantics (as mentioned above), describe them here.]
Agents and Services	[This is a list of agents and services that initiate activities.]
Business activities and associated authorized roles	[List each activity (along with it's initiator) and the role required to perform that activity]
Constraints	[Any constraints should be listed here.]
Requesting Partner Type	[Partner type from collaboration.] Customer
Requesting Activity Role	[Role from collaboration] Buying Customer
Requesting Activity Document	[Document initiating the transaction. Might reference a standard document (e.g. an X12 document).] Sales Order
Responding Partner Type	[See above.] On-line Retailer
Responding Activity Role	[See above.] Customer Service
Responding Activity Document	[See above.] Confirmation email

11. Business Information Description

11.1.Goals

The goal of this set of worksheets is to identify the information requirements for the business documents specified in the business transactions.

11.2.Worksheets

The first step in specifying business documents in a business process and information model, is to attempt to reuse business information objects in a Business Library. If an existing business document cannot be found then, domain components from Domain Libraries and core components from the Core Library can be used. Until the Business Library is built up, or imported from a creditable source, core components are likely to be referred to frequently, to first add to the repertoire of business information objects in the Business Library, and second, to create business documents.

The steps for completing these worksheets are as follows:

[12] See chapter 4 in [UMM].

1. See what attributes are available in business information objects in the available Business Libraries that can be used in a business document.

2. If business information objects with appropriate attributes as required for business documents are not available, new business information objects must be created.

3. Look for re-usable information components in the business library and the Core Library as candidates for business information object attributes. Take context into account, as specified in the business process and information models. Extend existing business information objects, domain components, and core components as required.

4. Add the new attributes to existing business information objects, or introduce new business information objects through a registration process that manages changes to the Business Library.

5. Use the new attributes, now in the Business Library, as needed in creating the business documents.

11.2.1 Document Content Description

Describe each element or group of elements in the document. Logically related elements can be placed in separate forms (For example, a document may have logically three parts, a header, body, and summary. The body may have further logical partitioning.). Possible values for Occurs include: 1 (one instance), 0..1 (zero on one instance), 0..* (zero or more instances), 1..* (one or more instances), or n..m (n to m instances where n is less than m). Possible values for Data Type include primitive data types such as integer, string, date-type. If you happen to know the name of a reusable component from an domain library or the Catalog of Core Components, then you MAY reference it. The Semantic Description SHALL be stated in business terms and SHALL be unambiguous.

Form: Content Description					
Form Id:	[A name for the form. For example, “Invoice” or “Order Header”]				
Element/Component Name	**Occurs**	**Data Type**	**Field Width**	**Semantic Description**	**Notes**
[Provide a name for the element/component. For example, “Order Summary” or “Issued Date.”]					

11.2.2 Content Mapping

These forms SHOULD be completed. This information is very important as it shows that the documents have a basis in existing standards. Furthermore, the information will be used to create document transformations. Standards to map to include EDIFACT, X12, xCBL, RosettaNet, and other standards such as OBI. Use XPATH and XSLT notation for referencing XML elements and describing the mappings. If a new document schema is created to fulfil the content requirements specified in the Document Content Description forms, then a set of Content Mapping forms should be completed for that schema (the component names in the forms are simply requirements for information)

For each Content Description form, complete a Document Content Mapping form for each standard to be cross-referenced.

<table>
<tr><th colspan="3">Form: Content Mapping</th></tr>
<tr><td>Form Id:</td><td colspan="2">[A name of the corresponding Content Description the form. For example, “Invoice” or “Order Header”]</td></tr>
<tr><td>Standard</td><td colspan="2">[Name of the standard. For example, UN/EDIFACT]</td></tr>
<tr><td>Version</td><td colspan="2">[Standard version number. For example, D.01A]</td></tr>
<tr><td>Element/Component Name</td><td>Mapping/Transformation</td><td>Note</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

Appendix A Business Process Identifiers

Objects of the entire ebXML business arrangement embodied by the UMM can be identified by a Business Identifier Naming Scheme, directly related to the layers of the UMM. Specifically the Business Operations Map (BOM) with a Business Process Identifier naming Scheme (BPINS), the Business Requirements View with a Business Collaboration Identifier Scheme (BCINS) and the Business Transaction View with a Business Transaction Identifier Scheme (BTINS).

A BPINS naming scheme format is defined by :
bpid:<agency>:<agency-id>:<business-process-name>$<major-version-number>.<minor-version-number>
A BCINS naming scheme format is defined by :
bcid:<agency>:<agency-id>:<business-collaboration-name>$<major-version-number>.<minor-version-number>
A BTINS naming scheme format is defined by :
btid:<agency>:<agency-id>:<business-transaction-name>$<major-version-number>.<minor-version-number>

Where

- *bpid* is the fixed string “bpid” indicating the entire identifier is a business process identifier.
- *bcid* is the fixed string “bcid” indicating that the entire identifier is a business collaboration identifier.
- *btid* is the fixed string “btid” indicating that the entire identifier is a business transaction identifier.
- *agency* identifier or name of the agency that owns the agency-ids **and must be a globally unique identifier**. For example, DUNS and EAN.
- *agency-id* identifer of the organization that owns the business process **and must be a globally unique identifier**. *No other entity SHALL use the agency identification of another entity.*
- Major and minor version numbers are each integers and need to respect any specific Registry Authority conventions defined.

The business-process-name, business-collaboration-name, business-transaction-name should be descriptive names. It is recommended that the descriptive name be in camel-case. The names must not contain spaces, periods, colons, or dollar signs. The organization or agency-id that owns the business transaction SHALL be responsible for guaranteeing that the identifier is unique..

Valid examples of business processes using the identifier naming scheme include :
btid:ean.1234567890128:DistributeOrderStatus$1.0
bpid:icann:my.com:NewBusinessProcess$2.0

With respect to the ebXML Registry Information Model specification[13] the definition is as follows:

BPINS	Registry Information Model
bpid	ExtrinsicObject.objectType
bcid	ExtrinsicObject.objectType
btid	ExtrinsicObject.objectType
agency	Organization.name
agencyid	Organization.uuid
business-process-name	ExtrinsicObject.name
business-collaboration-name	ExtrinsicObject.name
business-transaction-name	ExtrinsicObject.name
major-version-number	ExtrinsicObject.majorVersion
minor-version-number	ExtrinsicObject.minorVersion

An ExtrinsicObject is a special type of ManagedObject (one that goes through a defined life cycle); the extrinsic object is not required for the core operation of a registry. An Organization is defined as an IntrinsicObject; it is core to the function of a registry.

[13] Cref [REG1] and [REG2].

Appendix B The Porter Value Chain

The following table shows the categories of the Porter Value Chain and how they map to REA concepts. This is included as an aid to help users formalize their classification of the elements of a business process specification.

Normative Category	Normative Sub-Category	Resource inflows & outflow	Major types of events	Economic Agents & Roles
Procurement	Bid Submission Contract Negotiation Purchase Order Preparation Receiving	Money Raw materials Facilities Services Technology	Payments Purchase Purchase Orders Price Quotes Contract Negotiation	Buyer Seller Vendor Cashier
Human Resources	Hiring Training Payroll Management Personnel Deployment	Money Purchased training materials Purchased benefit packages	Cash Payments Acquisition of labor Training	Employee Student Beneficiary
Transportation	Loading Shipping Packaging	Raw Materials Delivered Raw Materials Manufactured Goods Delivered Manufact. Goods	Shipment Warehousing Tasks Material Handling Trucking	Buyer Vendor Logistics Worker Trucker
Manufacturing	Product Development Product Design Assembly Quality control	Facilities & Technology Labor Raw Materials Finished Goods	Manufacturing Operation Raw Material Issue	Factory Worker Supervisor QC Inspector

Normative Category	Normative Sub-Category	Resource inflows & outflow	Major types of events	Economic Agents & Roles
			Manufacturing Job	
Marketing & Sales	Advertising Use & Campaigning Marketing Management Sales Calling Customer Credit Managemnt	Labor Advertising Service Delivered Goods Product Services Cash	Cash Payment Customer Invoice Sale Order Price Quotes Contract Negotiation	Customer Salesperson Cashier
Customer Service	After Sales Service Warranty Construction	Labor Purchased Services Product Warranties and Services	Service Call Product Repair Service Contract	Customer Service Agent Customer
Financing	Loan Management Stock Subscriptions and Sales Dividend Policy	Cash Bonds Stocks Derivative Instruments	Interest Payments Stock Subscriptions Dividend Declarations Cash Receipts	Stockholders BondHolders Investment Brokers Financial Managers
Administration	Accounting Financial Reporting Executive Management	Employee Labor	Employee Service Management Projects	Managers Clerks

Appendix C Drop Ship Scenario Example

The members of the *ebXML Business Process Analysis Joint Deliverable Team* are in the process of developing a *proof of concept* for presentation at the May 2001 ebXML meeting in Vienna. This appendix provides a partial snapshot of the worksheet based analysis being done for the business reference model “Direct to Customer Drop Ship Retail.” In many cases, UMM UML diagrams are provided. As with the rest of this document, it is work in progress. It is our hope that you find this information helpful in understanding how you can make these worksheets work for you.

[1.0] Top level of Business Reference Model : defines the “frame of reference” of all worksheets.
[2.0] Business Process Area : Form that defines the scope of the business area
[3.0] Business Process Identification and Discovery : Forms that inventory all business processes.
[4.0] Business Process Summary Name form
[5.0] Business Process Elaboration : Forms used to describe the business processes and identify actors as well as pre and post conditions for the business processes. (use cases)
[6.0] Business Collaboration Definition : define the economic events that take place to fulfill the business process, including system boundaries and the protocols that flow between them.
[7.0] Collaboration Transitions <<←- Brian’s going to supply
[7.1] Transaction Transitions <← Brian’s coming out with this.
[8.0] Business Transaction Definition : Forms that defines the actual activities and authorized parties within the organization that initiate these transactions.
[9.0] content/document definition
[10.0] Business information context
[11.0] Content mapping

Model Contents

Table Of Figures

C.1 Business Process Identification and Discovery: BRM-1.0-Direct-To-Customer-Drop-Ship-Retail-Model

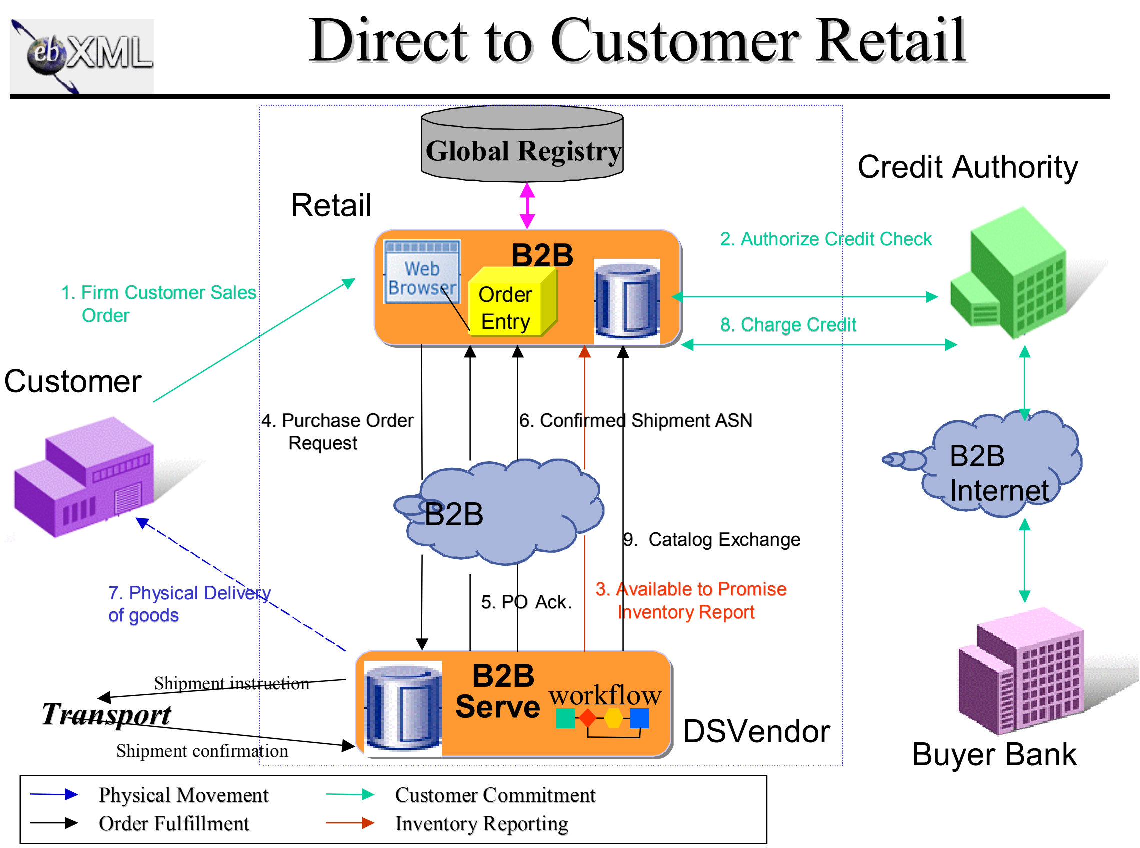

Figure 11-1, Direct To Customer Retail Transaction and Physical Goods Flow Overview

	Form: Business Reference Model
Form Id	BRM-1.0-Direct-To-Customer-Drop-Ship-Retail-Model
Business Reference Model Name	DIRECT TO CUSTOMER DROP SHIP RETAIL MODEL
Industry Segment	Retail
Domain Scope	Internet retail, catalog, distribution center, delivery, billing.
Business Areas	■ Direct To Customer Retail ■ Finance
	Optional for ebXML
Business Justification	Define more efficient on-line retailer/vendor interaction. Reduce

	inventory carrying costs.

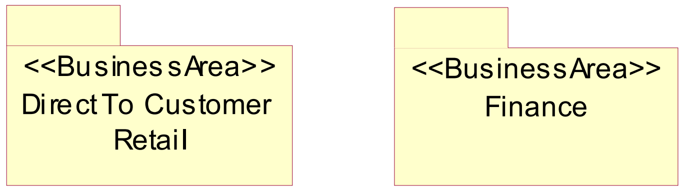

Figure 1-2, <<BusinessOperationsMap>>Direct To Customer Drop Ship Retail

C.1.1 Business Areas

C.1.1.1 BA-2.0-Direct-to-Customer-Retail

	Form: Business Area
Form Id	BA-2.0-Direct-to-Customer-Retail
Business Area Name	Direct to Customer Retail
Description	This is a demonstrative business process model, to illustrate ebXML business process modeling, and based on actual business practice conventions today. See 'Objective' section below in this form.
Scope	Internet based retail, mail order catalog, direct to customer product fulfillment logistics, single piece product delivery from a distribution center to an end customer.
Boundary of the Business Area	• Customer • Retailer • Direct Supply Retail Vendor (DSVendor) • Transport Carrier • Credit Authority
References	• EAN International • Global Commerce Initiative • VICS • SCOR • "my company typical Vendor Compliance Manual"
Constraints	• Internet based retail customer service system • Web browser limitations. • Domestic customer orders only
Stakeholders	• Customer • Retailer • Direct Supply Retail Vendor (DSVendor) • Transport Carrier • Credit Authority
Process Areas	• Customer Order Management • Customer Order Fulfillment • Vendor Inventory Management • Product Catalog Exchange
Optional for ebXML	
Objective	To deliver a commercial product directly to a customer, in a timely and efficient manner directly from a product supply source, with an online Internet retailer taking the customer order and providing direct customer service management.
Business Opportunity	Reduce retailer inventory carrying costs. Shorten the supply chain from a domestic vendor to a domestic customer; thus save trees, energy and lives.

Notes:

1. The Business Area diagram (below) shows all the process areas in this business area.

Direct To Customer Retail

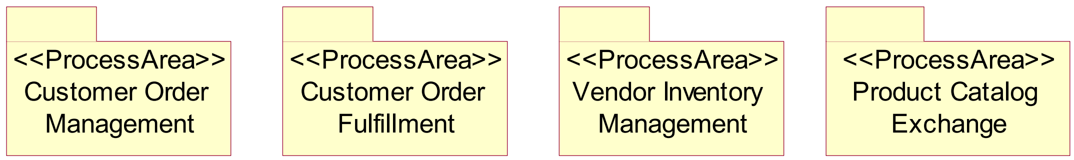

Figure 1-3, <<BusinessArea>>Direct to Customer Retail

C.1.1.2 BA-2.1-Finacial

	Form: Business Area
Form Id	BA-2.1-Finacial
Business Area Name	Finacial
Description	
Scope	
Boundary of the Business Area	• Retailer • Direct Supply Retail Vendor (DSVendor) •
References	•
Constraints	•
Stakeholders	• Retailer • Direct Supply Retail Vendor (DSVendor)
Process Areas	• Payment
Optional for ebXML	
Objective	
Business Opportunity	

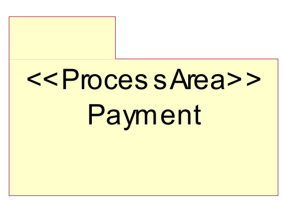

Figure 1-4, <<BusinessArea>> Finance

C.1.2 Direct To Customer Retail Process Areas

C.1.2.1 PA-3.1-Customer-Order-Management

Form: Business Process Area	
Form Id	PA-3.1-Customer-Order-Management
Process Area Name	Customer Order Management
Objective	• Take a sales order from an Internet based customer • Validate a customer's ability to pay for product upon delivery • Take payment from a customer's credit card after a product has been delivered directly to a customer
Scope	• Fulfill customer orders using a 3rd party supplier for drop ship (customer direct) delivery.
References	• "my company Vendor Operations Compliance Manual"
Boundary of the Process Area	
Constraints	• Customer promise of product availability most likely true at a vendor location when a customer order is accepted by the retailer. • Customer must have sufficient credit to eventually pay for the product after the product has been shipped.
Stakeholders	• Customer • Retailer • Credit Authority
Business Processes	• Firm Sales Order • Customer Credit Inquiry • Customer Credit Payment
Optional for ebXML	
Business Opportunity	

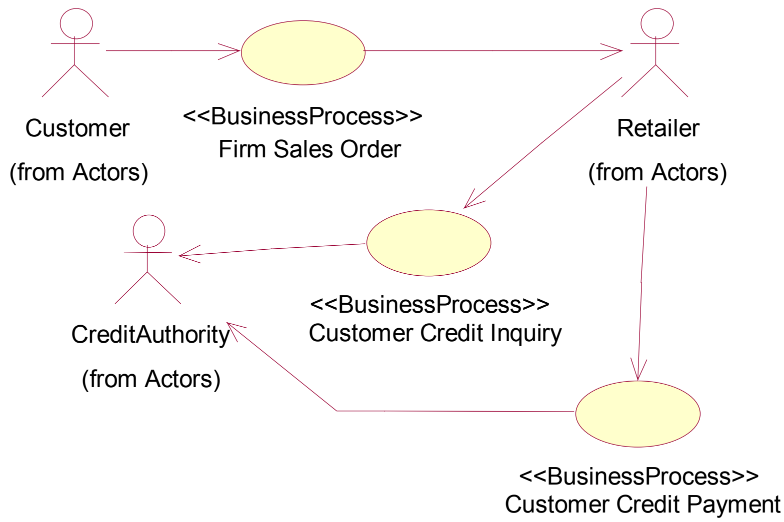

Figure 1-5, <<ProcessArea>>Customer Order Management

C.1.2.2 PA-3.2-Customer-Order-Fulfillment

	Form: Business Process Area
Form Id	PA-3.2-Customer-Order-Fulfillment
Process Area Name	Customer Order Fulfillment
Objective	Allow a retailer to instruct a direct supply vendor to deliver (within specific delivery times) specific product to a specific customer.
Scope	
References	• "my company Vendor Compliance Operating Manual"
Boundary of the Process Area	Activities directly pertaining to the registration of firm customer sales orders, and credit payment of delivered customer sales orders.
Constraints	• On hand product allocation to a customer order by a vendor immediately after processing a retailer's purchase order. • On time product delivery from vendor to customer. • Immediate notification by a vendor to a retailer of a direct to customer product delivery; with customer service details.
Stakeholders	• Retailer • DSVendor • Transport Carrier • Customer
Business Processes	• Purchase Order Management • Ship Goods •
	Optional for ebXML
Business Opportunity	

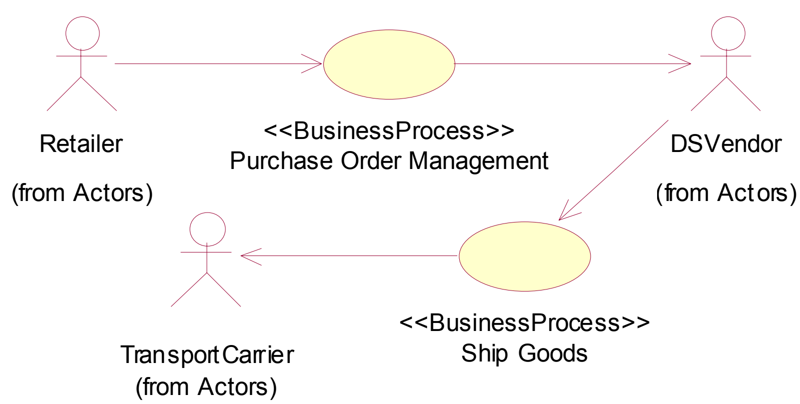

Figure 1-6, <<ProcessArea>>Customer Order Fulfillment

C.1.2.3 PA-3.3-Vendor-Inventory-Management

Form: Business Process Area	
Form Id	PA-3.3-Vendor-Inventory-Management
Process Area Name	Vendor Inventory Management
Objective	To allow a direct supply vendor to report “available on-hand” inventory to a retailer.
Scope	
References	• “my company Vendor Compliance Operating Manual”
Boundary of the Process Area	
Constraints	• Inventory, by product SKU identification, is “available on-hand” within the direct supply vendor’s inventory management system.
Stakeholders	• Retailer • DSVendor
Business Processes	• Inventory Management
Optional for ebXML	
Business Opportunity	

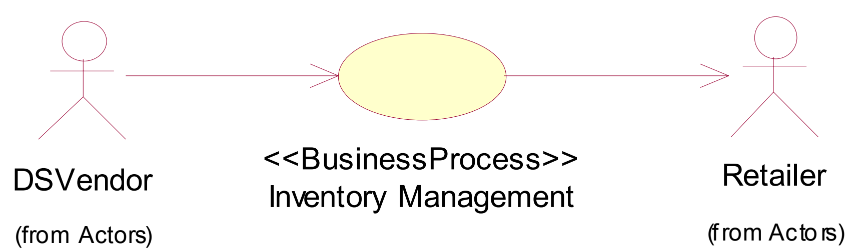

Figure 1-7, <<ProcessArea>>Vendor Inventory Management

C.1.2.4 PA-3.4-Product-Catalog-Exchange

	Form: Business Process Area
Form Id	PA-3.4-Product-Catalog-Exchange
Process Area Name	Product Catalog Exchange
Objective	To maintain an accurate catalog (list) of a vendor's products, in a retailer's business operating system; especially as vendor's products are introduced to the market or existing products require updated product specifications between the vendor and the retailer.
Scope	
References	• "my company Vendor Compliance Operating Manual"
Boundary of the Process Area	
Constraints	• Existence of a valid business operating relationship between a specific vendor and a retailer, such that products offered by a vendor can be in turn offered to an end customer by the retailer.
Stakeholders	• Retailer • DSVendor
Business Processes	• Sales Product Notification
	Optional for ebXML
Business Opportunity	

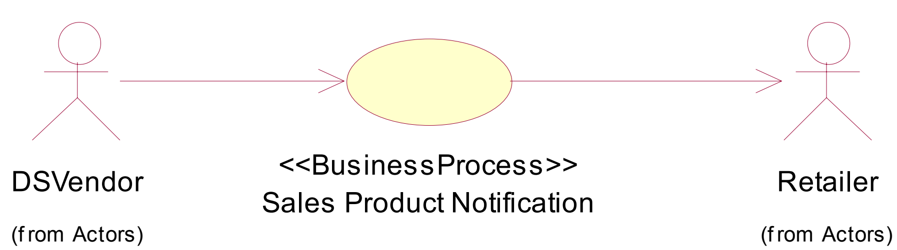

Figure 1-8, <<ProcessArea>>Product Catalog Exchange

C.1.3 Financial Process Areas

C.1.3.1 PA-3.5-Payment

	Form: Business Process Area
Form Id	PA-3.5-Payment
Process Area Name	Payment
Objective	For the vendor to invoice the retailer for goods shipped and services provided.
Scope	The scoped is defined by the following business processes: ▪ Present Invoice
References	• "my company Vendor Compliance Operating Manual"
Boundary of the Process Area	
Constraints	• Valid business relationship
Stakeholders	• Retailer • DSVendor
Business Processes	• Present Invoice
Optional for ebXML	
Business Opportunity	

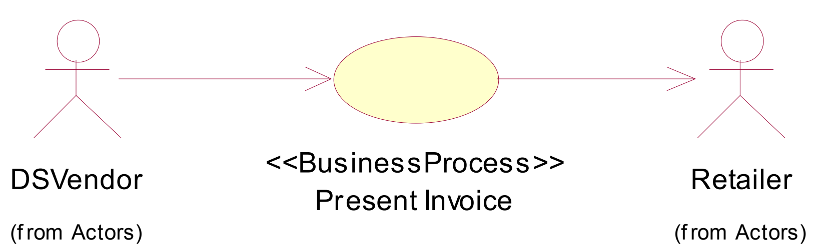

Figure 1-9, <<ProcessArea>> Payment

C.1.4 Customer-Order-Management Business Process Summaries

C.1.4.1 BPS-4.1-Firm-Sales-Order

	Form: Business Process Summary
Form Id	BPS-4.1-Firm-Sales-Order

Business Process Name	Firm Sales Order
Identifier	bpid:ean.1234567890128:FirmSalesOrder$1.0
Process Area	Customer Order Management
Business Area	Direct to Customer Retail

C.1.4.2 BPS-4.2-Customer-Credit-Inquiry

Form: Business Process Summary	
Form Id	BPS-4.2-Customer-Credit-Inquiry
Business Process Name	Customer Credit Inquiry
Identifier	bpid:ean.1234567890128:CustomerCreditInquiry$1.0
Process Area	Customer Order Management
Business Area	Direct to Customer Retail

C.1.4.3 BPS-4.3-Customer-Credit-Payment

Form: Business Process Summary	
Form Id	BPS-4.3-Customer-Credit-Payment
Business Process Name	Customer Credit Payment
Identifier	bpid:ean.1234567890128:CustomerCreditPayment$1.0
Process Area	Customer Order Management
Business Area	Direct to Customer Retail

C.1.5 Customer Order Fulfillment Business Process Summaries

C.1.5.1 BPS-4.4-Purchase-Order-Management

	Form: Business Process Summary
Form Id	BPS-4.4-Purchase-Order-Management
Business Process Name	Purchase Order Management
Identifier	bpid:ean.1234567890128:PurchaseOrderManagement$1.0
Process Area	Customer Order Fulfillment
Business Area	Direct to Customer Retail

C.1.5.2 BPS-4.5-Ship-Goods

	Form: Business Process Summary
Form Id	BPS-4.5-Ship-Goods
Business Process Name	Ship Goods
Identifier	bpid:ean.1234567890128:ShipGoods$1.0
Process Area	Customer Order Fulfillment
Business Area	Direct to Customer Retail

C.1.6 Vendor Inventory Management Processes Summaries

C.1.6.1 BPS-4.6-Inventory-Management

	Form: Business Process Summary
Form Id	BPS-4.6-Inventory-Management
Business Process Name	Inventory Management
Identifier	bpid:ean.1234567890128:InventoryManagement$1.0
Process Area	Vendor Inventory Management
Business Area	Direct to Customer Retail

C.1.7 Product Catalog Exchange Business Processes Summaries

C.1.7.1 BPS-4.7-Sales-Product-Notification

	Form: Business Process Summary
Form Id	BPS-4.7-Sales-Product-Notification
Business Process Name	Sales Product Notification
Identifier	bpid:ean.1234567890128:SalesProductNotification$1.0
Process Area	Product Catalog Exchange
Business Area	Direct to Customer Retail

C.1.8 Payment Business Process Summaries

C.1.8.1 BPS-4.8-Invoice-Presentment

	Form: Business Process Summary
Form Id	BPS-4.8- Present-Invoice
Business Process Name	Present Invoice
Identifier	bpid:ean.1234567890128:PresentInvoice$1.0
Process Area	Payment
Business Area	Finance

C.2 Business Process Elaboration

C.2.1 BPUC-5.1-Firm-Sales-Order

	Form: Business Process Use Case
Form Id	BPUC-5.1-Firm-Sales-Order
Business Process Name	Firm Sales Order
Identifier	bpid:ean.1234567890128:FirmSalesOrder$1.0
Actors	• Customer • Retailer
Performance Goals	• Accept a firm customer sales order for a product, and promise the customer a delivery time at total sales amount including all taxes within seconds after the customer has made a product choice and given relevant personal details; ie. while customer is online.
Preconditions	• Valid customer details (name, address, credit card) • Valid product details (product SKU details)
Begins When	• Customer completes all personal identity data for Retailer. • Customer successfully selects valid product to be purchased and specifies valid product quantity. • Customer accepts terms of sale.
Definition	• Retailer needs to validate customer's credit limit with a Credit Authority, and if enough credit is available to cover the product to be purchased, the Retailer will accept the Customers firm sales order.
Ends When	• Valid customer sales order is created in Retailer's business operating system.
Exceptions	• Customer fails internal credit check; ie. fraud. • Customer delivery needs violate Retailers standard terms of sale.
Postconditions	• Valid customer sales order. • Customer is notified of positive sale, and can expect delivery within promised delivery time.
Traceability	Not Applicable

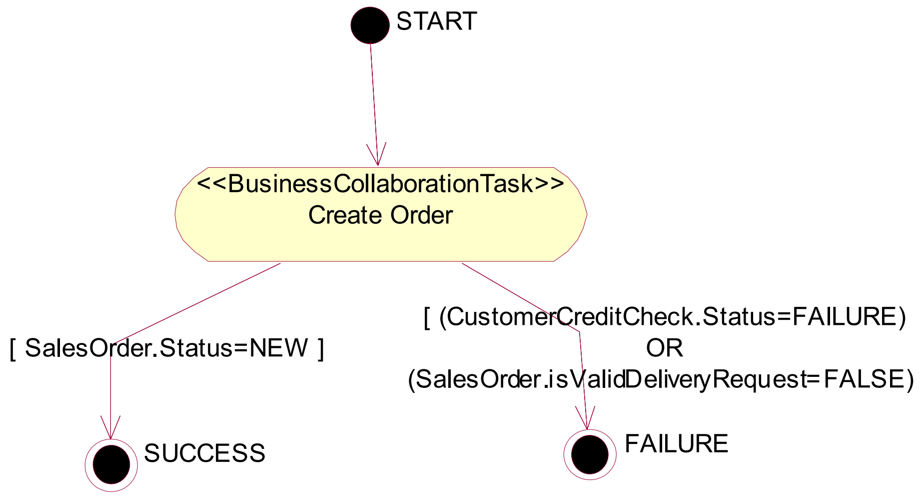

Figure , <<BusinessProcessActivityModel>>CreateCustomerOrder

C.2.2 BPUC-5.2-Customer-Credit-Inquiry

	Form: Business Process Use Case
Form Id	BPUC-5.2-Customer-Credit-Inquiry
Business Process Name	Customer Credit Inquiry
Identifier	bpid:ean.1234567890128:CustomerCreditInquiry$1.0
Actors	• Retailer • Credit Authority
Performance Goals	• Retailer expects the Credit Authority to perform a credit card check for a specified sales amount and in seconds.
Preconditions	• Customer credit card details known. • Total sales price, including taxes, known.
Begins When	• Retailer can present both all customer credit card details and a requested total credit amount to be checked against this customer.
Definition	• Retailer requests Credit Authority to authorize the total sales amount against the customer's credit amount. • The Credit Authority responds to the Retailer with either a positive or negative credit report on the customer.
Ends When	• Credit Authority returns either a positive or negative Customer report.
Exceptions	• Credit Authority fails to respond to Retailer within an acceptable period.
Postconditions	• Customer has a reserved credit cash equal to the total purchase amount authorized to the Retailer for a 24 hour period.
Traceability	Not Applicable

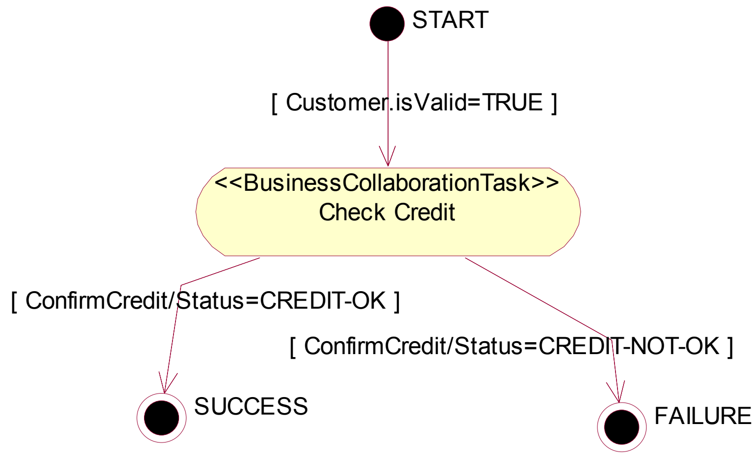

Figure 1-10, <<BusinessProcessActivityModel>> CustomerCreditCheck

C.2.3 BPUC-5.3-Customer-Credit-Payment

	Form: Business Process Use Case
Form Id	BPUC-5.3-Customer-Credit-Payment
Business Process Name	Customer Credit Payment
Identifier	bpid:ean.1234567890128:CustomerCreditPayment$1.0
Actors	• Retailer • Credit Authority
Performance Goals	• Retailer expects Credit Authority to positively charge the Customer's credit for the total sales amount immediately upon request.
Preconditions	• Confirmed shipment, by Vendor, of purchased product direct to Customer.
Begins When	• Vendor confirms to Retailer that the specified product prescribed on the current updated version of a DSVendor's purchase order has been actually shipped to the specified customer.
Definition	• Credit Authority makes a credit charge against the Customer's account, on behalf of the Retailer. • Credit Authority reports, to Retailer, the status of the credit charge.
Ends When	• Credit Authority reports back to the Retailer that the customer's credit has been charged for the total sales amount; and thus credited to the Retailer's account.
Exceptions	• Credit Authority reports to Retailer that the customer's credit account cannot be charged with total sales price.
Postconditions	• Credit Authority transfers total sales amount from the Customer's account to the Retailer's account.
Traceability	Not Applicable

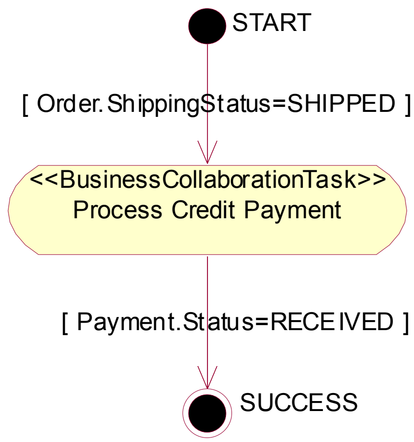

Figure 1-11, <<BusinessProcessActivityModel>> ProcessCreditPayment

C.2.4 BPUC-5.4-Purchase-Order-Management

	Form: Business Process Use Case
Form Id	BPUC-5.4-Purchase-Order-Management
Business Process Name	Purchase Order Management
Identifier	bpid:ean.1234567890128:PurchaseOrderManagement$1.0
Actors	• Retailer • Vendor
Performance Goals	• DSVendor returns a PO Acknowledgment to the Retailer within 4 hours of receipt of the Purchase Order.
Preconditions	• Valid Customer sales order with Retailer. • Valid Retailer–DSVendor relation; ie. terms and conditions.
Begins When	• Retailer has created a valid Purchase Order Request.
Definition	• Upon receiving a Purchase Order Request, the DSVendor does a product allocation to the PO against available inventory and returns a positive PO Acknowledgment to the Retailer.
Ends When	• Valid positive PO Acknowledgment returned from the DSVendor to the Retailer.
Exceptions	• DSVendor does not return any PO Acknowledgment • DSVendor returns a negative Purchase Order Acknowledgement
Postconditions	• DSVendor has allocated correct product to fill Purchase Order • DSVendor has created all correct instructions for it's warehouse management system to pick, pack and ship.

Traceability	Not Applicable

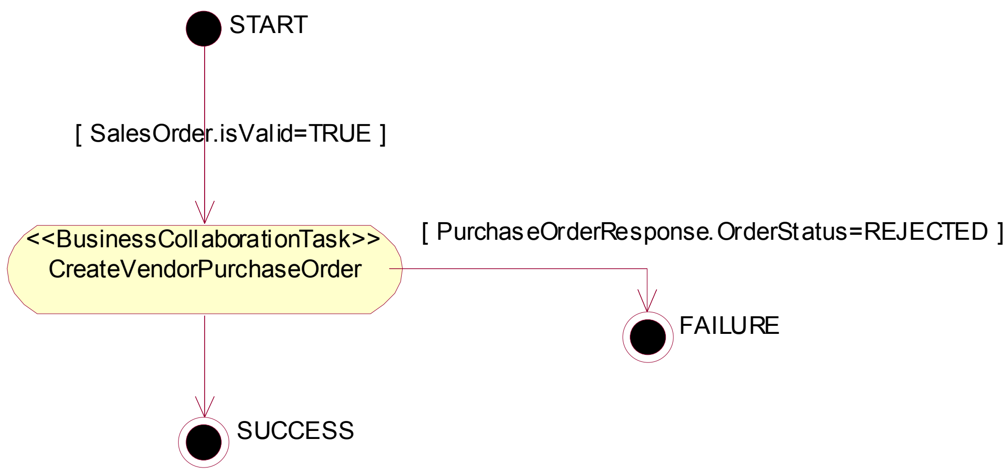

Figure 1-12, Figure , <<BusinessProcessActivityModel>> PurchaseOrderManagement

C.2.5 BPUC-5.5-Ship-Goods

	Form: Business Process Use Case
Form Id	BPUC-5.5-Ship-Goods
Business Process Name	Ship Goods
Identifier	bpid:ean.1234567890128:ShipGoods$1.0
Actors	• DSVendor • Transport Carrier
Performance Goals	• Transport Carrier informs DSVendor within seconds of PO pickup, and DSVendor registers PO transport tracking number within it's business operating system within seconds.
Preconditions	• PO has been picked, packed and is ready to be shipped.
Begins When	• DSVendor informs Transport Carrier of a PO needing to be delivered to a specific Customer address.
Definition	• DSVendor manifests PO with Transport Carrier • Transport Carrier registers transport, checks "ship to" details and assigns a tracking number for the shipment.
Ends When	• Transport Carrier confirms PO pickup to DSVendor and begin of ordered goods delivery to Customer.
Exceptions	• Transport Carrier detects that "Ship To" address is invalid. • Transport Carrier fails to confirm PO pickup.

Postconditions	• Carrier assigns Transport tracking number to Purchase Order and informs DSVendor of tracking number.
Traceability	Not Applicable

C.2.6 BPUC-5.6-Inventory-Management

Form: Business Process Use Case	
Form Id	BPUC-5.6-Inventory-Management
Business Process Name	Inventory Management
Identifier	bpid:ean.1234567890128:InventoryManagement$1.0
Actors	• Retailer • DSVendor
Performance Goals	• Once a day, the DSVendor reports their “available on-hand” inventory to the Retailer.
Preconditions	• Valid business agreement.
Begins When	• Repeating event, occurs unsolicited from DSVendor to Retailer.
Definition	• DSVendor reconciles “available on-hand” inventory and reports only product availability for those products which are agreed upon between Retailer and DSVendor.
Ends When	• Retailer has received a valid “available on-hand” inventory report from DSVendor.
Exceptions	• No “available on-hand” inventory report received. • Reported product quantiry on hand with DSVendor is less than any prior agreed Safety Stock level with Retailer.
Postconditions	• Retailers business operating system has recorded new “available on-hand” inventory by product.
Traceability	Not Applicable

C.2.7 BPUC-5.7-Sales-Product-Notification

	Form: Business Process Use Case
Form Id	BPUC-5.7-Sales-Product-Notification
Business Process Name	Sales Product Notification
Identifier	bpid:ean.1234567890128:SalesProductNotification$1.0
Actors	• Retailer • DSVendor
Performance Goals	• None
Preconditions	• Valid DSVendor – Retailer business relationship
Begins When	• Initial start of the business relationship, for all related products. • Whenever DSVendor has a product specification change or addition that applies to the Retailer.
Definition	• DSVendor initiates a product specification request to "offer for sale" the Retailer. • Retailer either accepts product offer, or rejects the offer.
Ends When	• Retailer responds to DSVendor acceptance or rejection of product offer for sale.
Exceptions	• None
Postconditions	• On product acceptance, Retailer can register product for sale to Customers.
Traceability	Not Applicable

C.2.8 BPUC-5.8-Present-Invoice

	Form: Business Process Use Case
Form Id	BPUC-5.8-Present-Invoice
Business Process Name	Present Invoice
Identifier	bpid:ean.1234567890128:PresentInvoice$1.0
Actors	• DSVendor • Retailer
Performance Goals	•
Preconditions	• Valid DSVendor – Retailer business relationship • Corresponding Purchase Order was accepted • Related Advance Shipment Notification was sent
Begins When	• Whenever DSVendor wants to invoice the Retailer for goods shipped.
Definition	•

Ends When	•
Exceptions	•
Postconditions	•
Traceability	Not Applicable

C.3 Business Collaboration and Economic Events

C.3.1 BC-6.1-Create-Customer-Order

	Form: Business Collaboration
Form Id	BC-6.1-Create-Customer-Order
Identifier	bcid:ean.1234567890128:CreateCustomerOrder$1.0
Description	The customer enters a sales order using on-line store-front application.
Partner Types	Customer Retailer
Authorized Roles	
Legal steps/requirements	
Economic consequences[14]	
Initial/terminal events	
Scope	
Boundary	
Constraints	

[14] Worksheets that address REA to greater detail and help users through the process of developing REA oriented collaborations will be developed in the future.

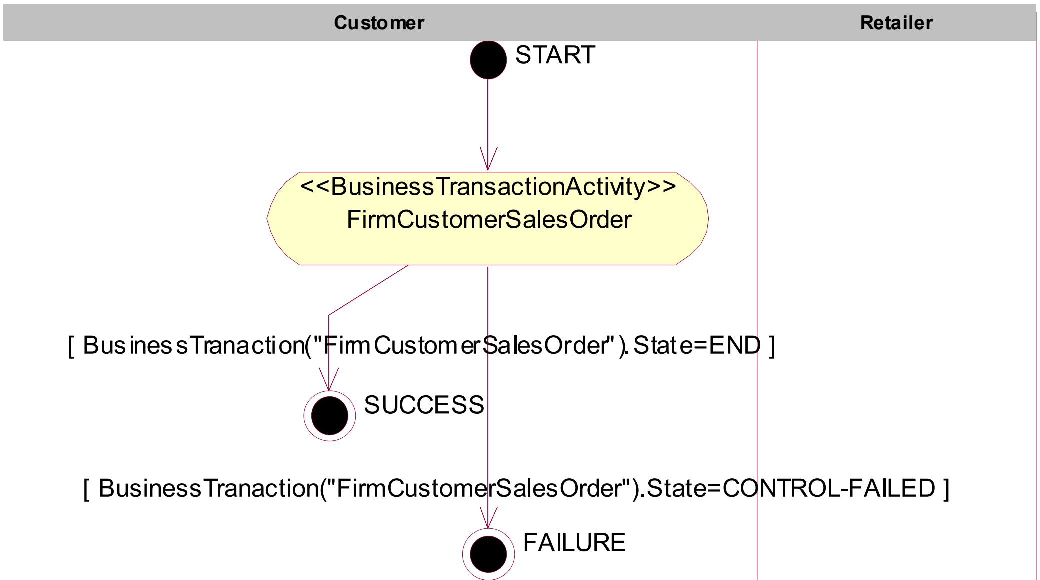

Figure 1-13, <<BusinessCollaborationProtocol>> CreateCustomerOrder

Note that in this business collaboration protocol, there is only one business transaction activity and the Customer (partner type) initiates it. The Retailer, although shown in the diagram for completeness, does not initiate any business transaction activity.

				Form: Business Collaboration Protocol Table
Form Id	BCPT-7.1-Create-Customer-Order			
Identifier	bcid:ean.1234567890128:CreateCustomerOrder$1.0			
From Business Activity (Transaction)	**Initiating Partner Type**	**Business Activity**	**Responding/ Receiving Partner Type**	**Transition Condition**
START	Customer	Create Order	Retailer	NONE
Create Order	NOT-APPLICABLE	SUCCESS	Customer	BusinessTransaction("FirmCustomerSalesOrder").State=END]
Create Order	NOT-APPLICABLE	FAILURE	Customer	BusinessTransaction("FirmCustomerSalesOrder").State=CONTROL-FAILED]

C.3.2 BC-6.2-Check-Customer-Credit

Form: Business Collaboration	
Form Id	BC-6.2- Check-Customer-Credit
Identifier	bcid:ean.1234567890128: CheckCustomerCredit$1.0
Partner Types	• Retailer • Credit Authority
Authorized Roles	• Retailer • Credit Authority Credit Service
Legal steps/requirements	None
Economic consequences[15]	As the result of the credit check, the customer's available credit is reduced by the total sales amount for a period of 24 hours.
Initial/terminal events	Initial - Valid customer Terminal – Customer bad credit causes Credit Authority check to fail.
Scope	Credit Authority provides necessary information to retailer to continue processing order.
Boundary	Systems include : • Credit Authority service. • DSVendor customer order entry system
Constraints	None

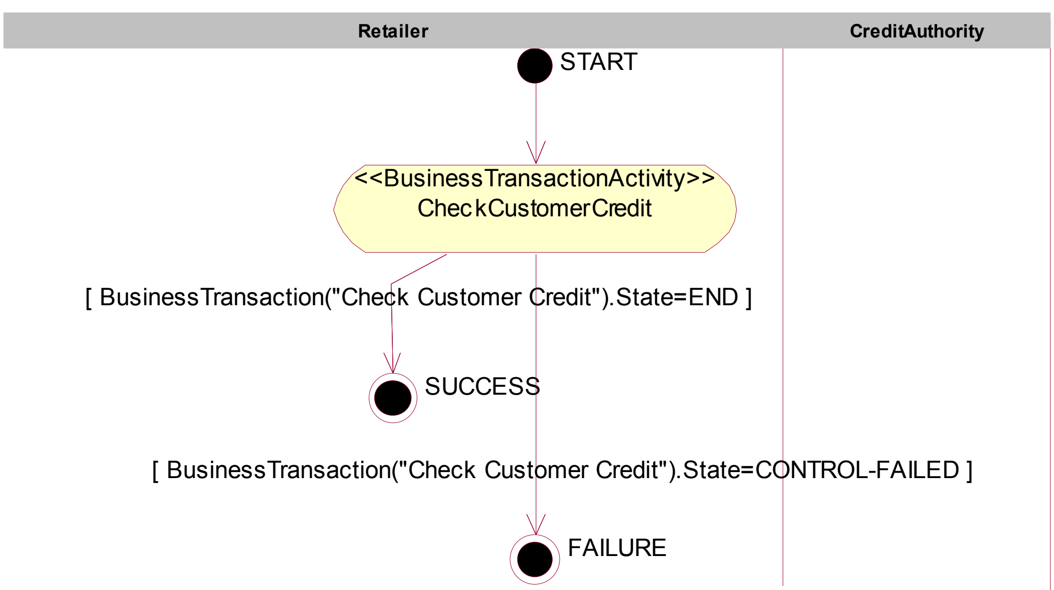

Figure 1-14, <<BusinessCollaborationProtocol>> CheckCustomerCredit

[15] Worksheets that address REA to greater detail and help users through the process of developing REA oriented collaborations will be developed in the future.

Note that there is only one initiated activity, CheckCustomerCredit, in this collaboration.

Form: Business Collaboration Protocol Table				
Form Id	BCPT-7.2- Check-Customer-Credit			
Identifier	bcid:ean.1234567890128:CustomerCreditCheck$1.0			
From Business Activity (Transaction)	**Initiating Partner Type**	**Business Activity**	**Responding/ Receiving Partner Type**	**Transition Condition**
START	Retailer	Check Customer Credit	Credit Authority	
Check Customer Credit	NOT-APPLICABLE	SUCCESS	Retailer	BusinessTransaction("Check Customer Credit").State=END
Check Customer Credit	NOT-APPLICABLE	FAILURE	Retailer	BusinessTransaction("Check Customer Credit").State=CONTROL-FAILED

C.3.3 BC-6.3-Process-Credit- Payment

Form: Business Collaboration	
Form Id	BC-6.3-Process-Credit- Payment
Identifier	bcid:ean.1234567890128:ProcessCreditPayment$1.0
Partner Types	• Retailer • Credit Authority
Authorized Roles	• Retailer.Accounts Receivable • Credit Authority Service
Legal steps/requirements	• Sale of goods has taken place •
Economic consequences[16]	• Retailer receives payment • Customer actually gets charged
Initial/terminal events	Initial – Products are being delivered (in-route) or have been delivered. Terminal – Retailer receives payment
Scope	Credit Authority credits customer's credit, only after product(s) have been shipped (or are being shipped) to customer.

[16] Worksheets that address REA to greater detail and help users through the process of developing REA oriented collaborations will be developed in the future.

Boundary	Systems include : • Credit Authority payment system
Constraints	DSVendor must confirm that shipment of product direct to customer has taken place.

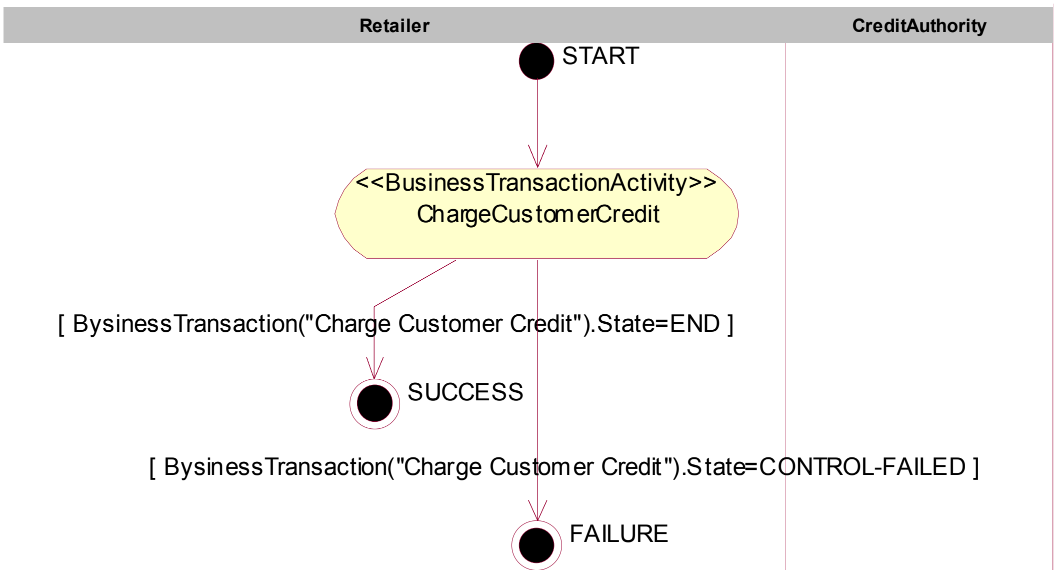

Figure 1-15, <<BusinessCollaborationProtocol>> ProcessCreditPayment

				Form: Business Collaboration Protocol Table
Form Id	BCPT-7.3-Credit-Card-Payment			
Identifier	bcid:ean.1234567890128:CreditCardPayment$1.0			
From Business Activity (Transaction)	**Initiating Partner Type**	**Business Activity**	**Responding/ Receiving Partner Type**	**Transition Condition**
START	Retailer	Charge Customer Credit	Credit Authority	NONE
Charge Customer Credit	NOT-APPLICABLE	SUCCESS	Retailer	BysinessTransaction("Charge Customer Credit").State=END
Charge Customer Credit	NOT-APPLICABLE	FAILURE	Retailer	BysinessTransaction("Charge Customer Credit").State=CONTROL-FAILED

C.3.4 BC-6.4-Create-Vendor-Purchase-Order

	Form: Business Collaboration
Form Id	BC-6.4-Create-Vendor-Purchase-Order
Identifier	bcid:ean.1234567890128:CreateVendorPurchaseOrder$1.0
Partner Types	• Retailer • DSVendor
Authorized Roles	• Retailer.InventoryBuyer • DSVendor.CustomerService
Legal steps/requirements	Confirmed PO Acknowledgment implies a binding agreement between Retailer and DSVendor, per conditions of an existing business relation and a specific open Purchase Order.
Economic consequences[17]	• Intent to purchase product (liability) • DSVendor allocates on-hand inventory to cover PO SKU quantity for immediate direct shipment to customer
Initial/terminal events	• Valid sales order exists • Purchase Order response
Scope	Checking DSVendor on-hand inventory to determine if a Purchase Order can be accepted or rejected.
Boundary	Systems include : • Retailer Purchase Order Management system • DSVendor Customer Order Entry system
C	

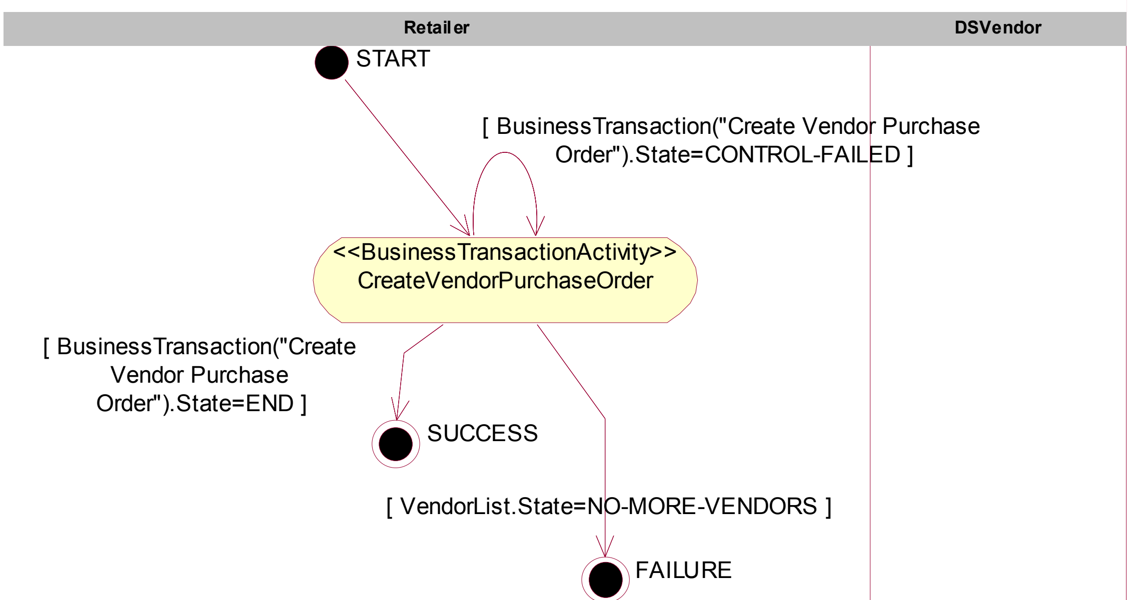

Figure 1-16 , <<BusinessCollaborationProtocol>> CreateVendorPurchaseOrder

[17] Worksheets that address REA to greater detail and help users through the process of developing REA oriented collaborations will be developed in the future.

Form: Business Collaboration Protocol Table				
Form Id	BCPT-7.4-Create-Vendor-Purchase-Order			
Identifier	bcid:ean.1234567890128:CreateVendorPurchaseOrder$1.0			
From Business Activity (Transaction)	**Initiating Partner Type**	**Business Activity**	**Responding/ Receiving Partner Type**	**Transition Condition**
START	Retailer	Create Vendor Purchase Order	DSVendor	SalesOrder.Status =VALID
Create Vendor Purchase Order	NOT-APPLICABLE	SUCCESS	Retailer	BusinessTransaction("Create Vendor Purchase Order").State=END
Create Vendor Purchase Order	NOT-APPLICABLE	Create Vendor Purchase Order	Retailer	BusinessTransaction("Create Vendor Purchase Order").State=CONTROL-FAILED
Create Vendor Purchase Order	NOT-APPLICABLE	FAILURE	Retailer	VendorList.State= NO-MORE-VENDORS

C.3.5 BC-6.5-Shipment-Instruction

Form: Business Collaboration	
Form Id	BC-6.5-Shipment-Instruction
Identifier	bcid:ean.1234567890128:ShipmentInstruction$1.0
Partner Types	• DSVendor • Transport Carrier
Authorized Roles	• DSVendor.Shipper • Transport Carrier.Customer Service
Legal steps/requirements	Vendor declares goods of carriage to carrier. (note: for this example we are using domestic shipments only)
Economic consequences[18]	None
Initial/terminal events	Initial – Successful Create Vendor Purchase Order business collaboration. Terminal – Transport Carrier provides vendor with transport manifest.

[18] Worksheets that address REA to greater detail and help users through the process of developing REA oriented collaborations will be developed in the future.

Scope	Pertains to arrangement of physical transport per prior agreement between Retailer and Transport Carrier.
Boundary	Systems include : • DSVendor warehouse management / transport planning system. • Transport Carrier manifesting / Bill of Lading document management system.
Constraints	• Electronic shipment manifesting only • Timely product pickup by transport carrier • DSVendor must use a pre-approved Transport Carrier as specified by Retailer within Business Document details.

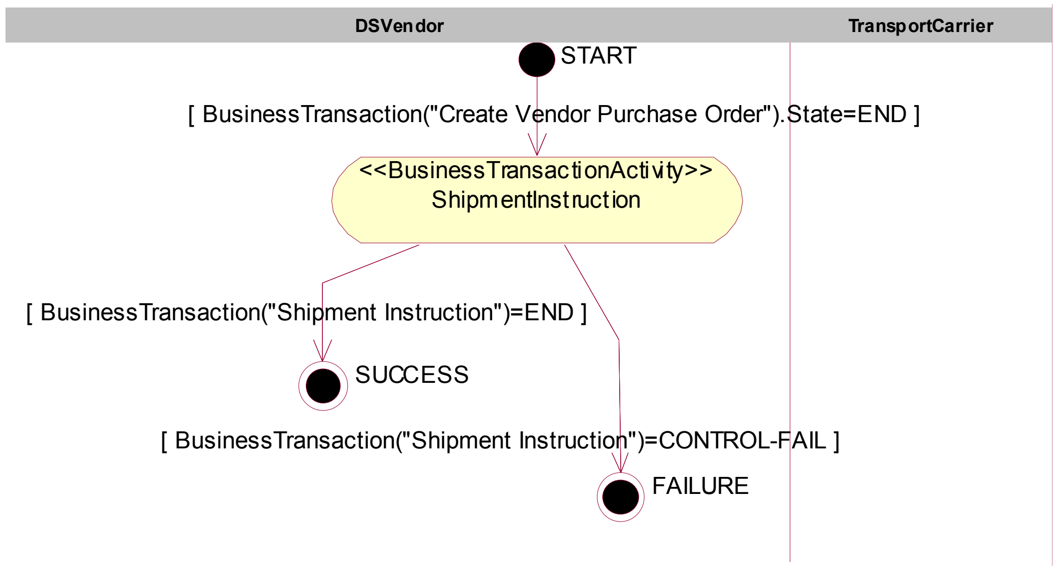

Figure 1-17, <<BusinessCollaborationProtocol>> ShipmentInstruction

				Form: Business Collaboration Protocol Table
Form Id	BCPT-7.5-Shipment-Instruction			
Identifier	bcid:ean.1234567890128:ShipmentInstruction$1.0			
From Business Activity (Transaction)	**Initiating Partner Type**	**Business Activity**	**Responding/ Receiving Partner Type**	**Transition Condition**
START	DSVendor	ShipmentInstruction	TransportCarrier	NONE
ShipmentInstruction	NOT-APPLICABLE	SUCCESS	NOT-APPLICABLE	BusinessTransaction("Shipment Instruction")=END

ShipmentInstruction	NOT-APPLICABLE	FAILURE	NOT_APPLICABLE	BusinessTransaction("Shipment Instruction")=CONTROL-FAIL

C.3.6 BC-6.6-Confirm-Shipment

Form: Business Collaboration	
Form Id	BC-6.6-Confirm-Shipment
Identifier	bcid:ean.1234567890128:ConfirmShipment$1.0
Partner Types	• Retailer • DSVendor
Authorized Roles	• Retailer.Customer Service • DSVendor.Inventory Management
Legal steps/requirements	• DSVendor declares customer shipment to Retailer • Retailer agrees to be billed by DSVendor for original purchase price on the Purchase Order Acceptance. • (for this scenario, DSVendor provides free shipping to customers)
Economic consequences[19]	Point of sale between DSVendor and Retailer.
Initial/terminal events	• Initial – DSVendor notifies Retailer of shipment • Terminal – DSVendor receives Transport Carrier shipping instruction.
Scope	Notification of customer shipment by DSVendor.
Boundary	Systems include : • DSVendor PO Management system • DSVendor Financial system • DSVendor Inventory Management system • Retailer PO Management system • Retailer Financial system • Retailer Customer Service Management system
Constraints	Retailer must receive Avanced Shipping Note (ASN) as confirmation of product shipment to customer in a timely fashion, and no later than 4 hours of physical product shipment from the DSVendor's distribution point.

[19] Worksheets that address REA to greater detail and help users through the process of developing REA oriented collaborations will be developed in the future.

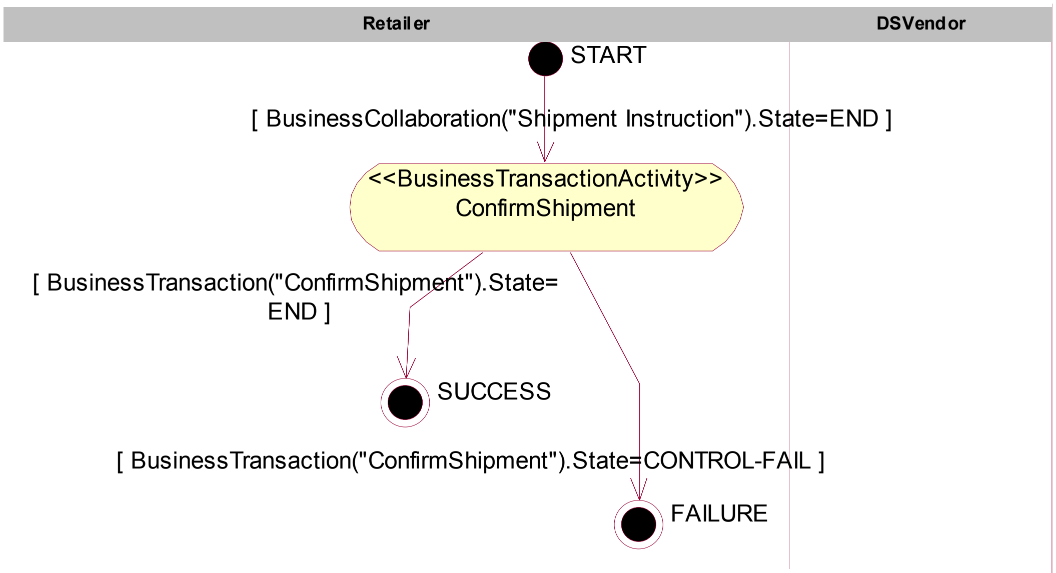

Figure 1-18, <<BusinessCollaborationProtocol>> ConfirmShipment

				Form: Business Collaboration Protocol Table
Form Id	BCPT-7.6-Confirm-Shipment			
Identifier	bcid:ean.1234567890128:ConfirmShipment$1.0			
From Business Activity (Transaction)	**Initiating Partner Type**	**Business Activity**	**Responding/ Receiving Partner Type**	**Transition Condition**
START	Retailer	ConfirmShipment	DSVendor	NONE
ConfirmShipment	NOT-APPLICABLE	SUCCESS	NOT-APPLICABLE	BusinessTransaction("ConfirmShipment").State=END
ConfirmShipment	NOT-APPLICABLE	FAILURE	NOT-APPLICABLE	BusinessTransaction("ConfirmShipment").State=CONTROL-FAIL

C.3.7 BC-6.7-Vendor-Inventory-Reporting

	Form: Business Collaboration
Form Id	BC-6.7-Vendor-Inventory-Reporting
Identifier	bcid:ean.1234567890128:VendorInventoryReporting$1.0

Partner Types	• Retailer • DSVendor
Authorized Roles	• Retailer.Requestor • DSVendor.Reporter
Legal steps/requirements	None.
Economic consequences[20]	None !
Initial/terminal events	Initial – Inventory physically exists Terminal – Retailer receives inventory position report.
Scope	The DSVendor is reporting a latest stage of Available to Promise but makes no warranty that when the Retailer places a PO, there will be available product to cover the PO. Rather forecasting should be used to cover at least sufficient safety stock.
Boundary	Systems include : • Retailer inventory management systems • DSVendor inventory / sales management systems
Constraints	Daily reporting by DSVendor. Only affected products, as a result of the Catalog Exchange process are to be reported by the DSVendor; and no other products are to be included. DSVendor reports product availability by number of SKU's, versus a gross classification of 'available or not available'.

[20] Worksheets that address REA to greater detail and help users through the process of developing REA oriented collaborations will be developed in the future.

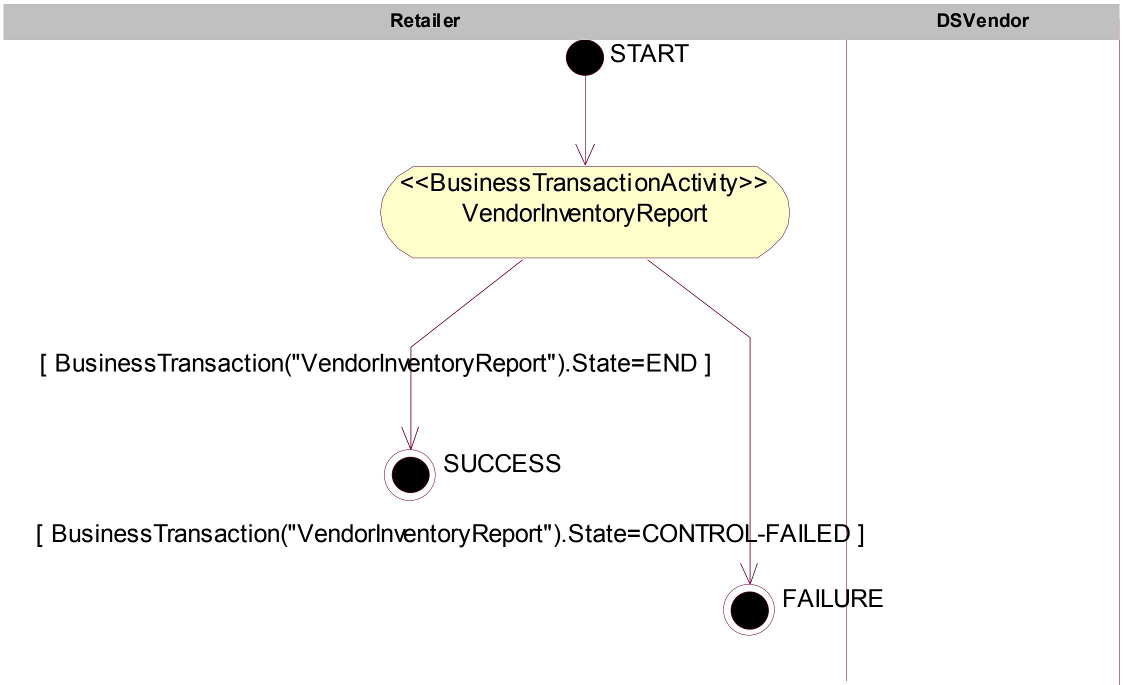

Figure 1-19, <<BusinessCollaborationProtocol>> VendorInventoryReporting

				Form: Business Collaboration Protocol Table
Form Id	BCPT-7.7-Vendor-Inventory-Reporting			
Identifier	bcid:ean.1234567890128:VendorInventoryReporting$1.0			
From Business Activity (Transaction)	**Initiating Partner Type**	**Business Activity**	**Responding/ Receiving Partner Type**	**Transition Condition**
START	Retailer	VendorInventoryReport	DSVendor	NONE
VendorInventoryReport	NOT-APPLICABLE	SUCCESS	NOT-APPLICABLE	BusinessTransaction(“InventoryReport”).State=END
VendorInventoryReport	NOT-APPLICABLE	FAILURE	NOT-APPLICABLE	BusinessTransaction(“InventoryReport”).State=CONTROL-FAILED

C.3.8 BC-6.8-Request-Inventory-Report

	Form: Business Collaboration
Form Id	BC-6.8-Request-Inventory-Report

Identifier	bcid:ean.1234567890128:RequestInventoryReport$1.0
Partner Types	• Retailer • DSVendor
Authorized Roles	• Retailer.Inventory Management • DSVendor.Inventory / Customer Service Management
Legal steps/requirements	None
Economic consequences[21]	None
Initial/terminal events	See BC-6.7-Vendor-Inventory-Management
Scope	See BC-6.7-Vendor-Inventory-Management
Boundary	See BC-6.7-Vendor-Inventory-Management
Constraints	See BC-6.7-Vendor-Inventory-Management

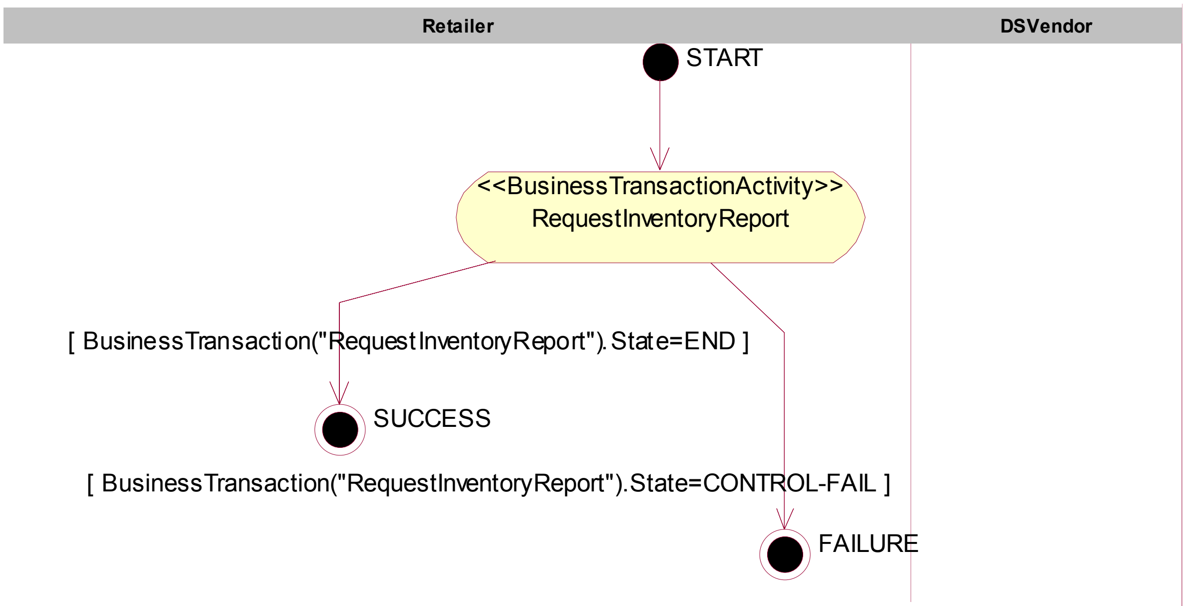

Figure 1-20, <<BusinessCollaborationProtocol>> RequestInventoryReport

Form: Business Collaboration Protocol Table				
Form Id	BCPT-7.8-Request-Inventory-Report			
Identifier	bcid:ean.1234567890128:RequestInventoryReport$1.0			
From Business Activity (Transaction)	**Initiating Partner Type**	**Business Activity**	**Responding/ Receiving Partner Type**	**Transition Condition**

[21] Worksheets that address REA to greater detail and help users through the process of developing REA oriented collaborations will be developed in the future.

START	Retailer	RequestInventory Report	DSVendor	NONE
RequestInventory Report	NOT-APPLICABLE	SUCCESS	NOT-APPLICABLE	BusinessTransaction(“RequestInventoryReport”).State =END
RequestInventory Report	NOT-APPLICABLE	FAILURE	NOT-APPLICABLE	BusinessTransaction(“RequestInventoryReport”).State =CONTROL-FAIL

C.3.9 BC-6.9-Sales-Product-Offering

	Form: Business Collaboration
Form Id	BC-6.9-Sales-Product-Offering
Identifier	bcid:ean.1234567890128:SalesProductOffering$1.0
Partner Types	• DSVendor • Retailer
Authorized Roles	• Retailer.Merchandising • DSVendor.Sales
Legal steps/requirements	DSVendor warrants that products offered for consumer sale are valid and legal.
Economic consequences[22]	None, unless prior business agreements of minimum sales quantities are applicable.
Initial/terminal events	Initial – DSVendor sends Retailer valid product specifications Terminal – Retailer receives valid product specifications.
Scope	At start of a relationship, the DSVendor will offer a full list of all products that may be offered for consumer sale by the Retailer.
Boundary	Systems include : • DSVendor inventory management systems • Retailer inventory management systems
Constraints	Only products intended for consumer resale are offered by the DSVendor to the Retailer. (i.e. No spamming the Retailer).

[22] Worksheets that address REA to greater detail and help users through the process of developing REA oriented collaborations will be developed in the future.

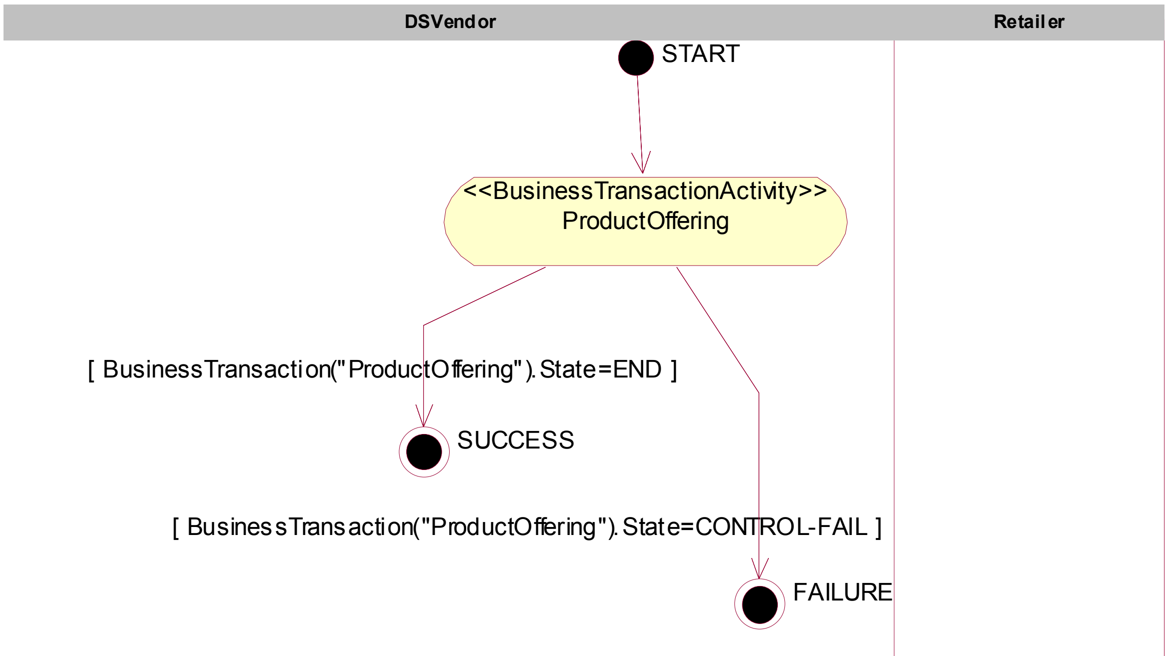

Figure 1-21, <<BusinessCollaborationProtocol>> SalesProductOffering

Form: Business Collaboration Protocol Table				
Form Id	BCPT-7.9-Sales-Product-Offering			
Identifier	bcid:ean.1234567890128:SalesProductOffering$1.0			
From Business Activity (Transaction)	**Initiating Partner Type**	**Business Activity**	**Responding/ Receiving Partner Type**	**Transition Condition**
START	DSVendor	ProductOffering	Retailer	NONE
ProductOffering	NOT-APPLICABLE	SUCCESS	NOT-APPLICABLE	BusinessTransaction("ProductOffering").State=END
ProductOffering	NOT-APPLICABLE	FAILURE	NOT-APPLICABLE	BusinessTransaction("ProductOffering").State=CONTROL-FAIL

C.3.10 BC-6.10-Invoice-Presentment

Form: Business Collaboration	
Form Id	BC-6.10-Invoice-Presentment
Identifier	bcid:ean.1234567890128:InvoicePresentment$1.0
Partner Types	• DSVendor • Retailer

Authorized Roles	• Retailer.ProcessPayment • DSVendor.ProcessPayment
Legal steps/requirements	
Economic consequences[23]	
Initial/terminal events	
Scope	
Boundary	•
Constraints	

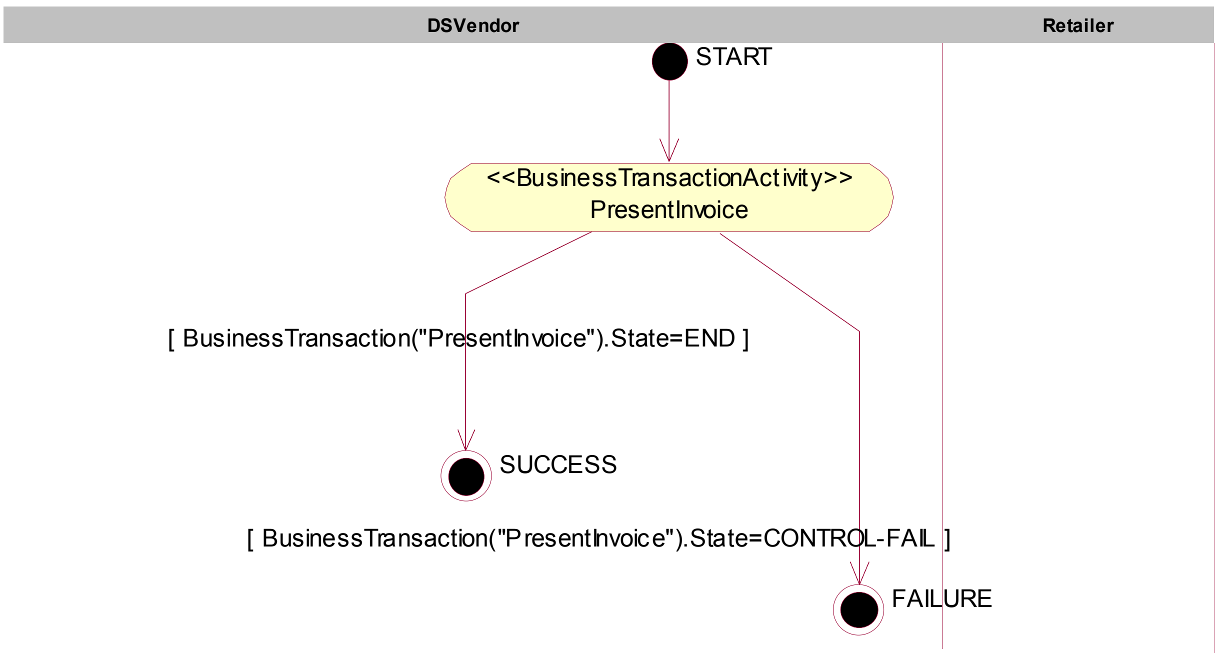

Figure 1-22, <<BusinessCollaborationProtocol>> InvoicePresentment

Form: Business Collaboration Protocol Table				
Form Id	BCPT-7.10-Invoice-Presentment			
Identifier	bcid:ean.1234567890128:InvoicePresentment$1.0			
From Business Activity (Transaction)	**Initiating Partner Type**	**Business Activity**	**Responding/ Receiving Partner Type**	**Transition Condition**
START	DSVendor	Present Invoice	Retailer	NONE

[23] Worksheets that address REA to greater detail and help users through the process of developing REA oriented collaborations will be developed in the future.

Present Invoice	DSVendor	SUCCESS	NOT-APPLICABLE	BusinessTransaction("PresentInvoice").State=END
Present Invoice	DSVendor	FAILURE	NOT-APPLICABLE	BusinessTransaction("PresentInvoice").State=CONTROL-FAIL

C.4 Business Transactions and Authorized Roles

C.4.1 BT-8.1-Firm-Customer-Sales-Order

	Form: Business Transaction
Form Id	BT-8.1-Firm-Customer-Sales-Order
Identifier	btid:ean.1234567890128:FirmCustomerSalesOrder$1.0
Description	Register customer demand for specific product to be fulfilled.
Pattern	Business Transaction (per UMM pattern specification)
Agents and Services	
Business activities and associated authorized roles	
Constraints	• Valid Customer • Valid Product • Valid Vendor
Requesting Partner Type	Customer
Requesting Activity Role	Buying Customer
Requesting Activity Document	Sales Order
Responding Partner Type	Retailer
Responding Activity Role	Customer Service
Responding Activity Document	Confirmation email

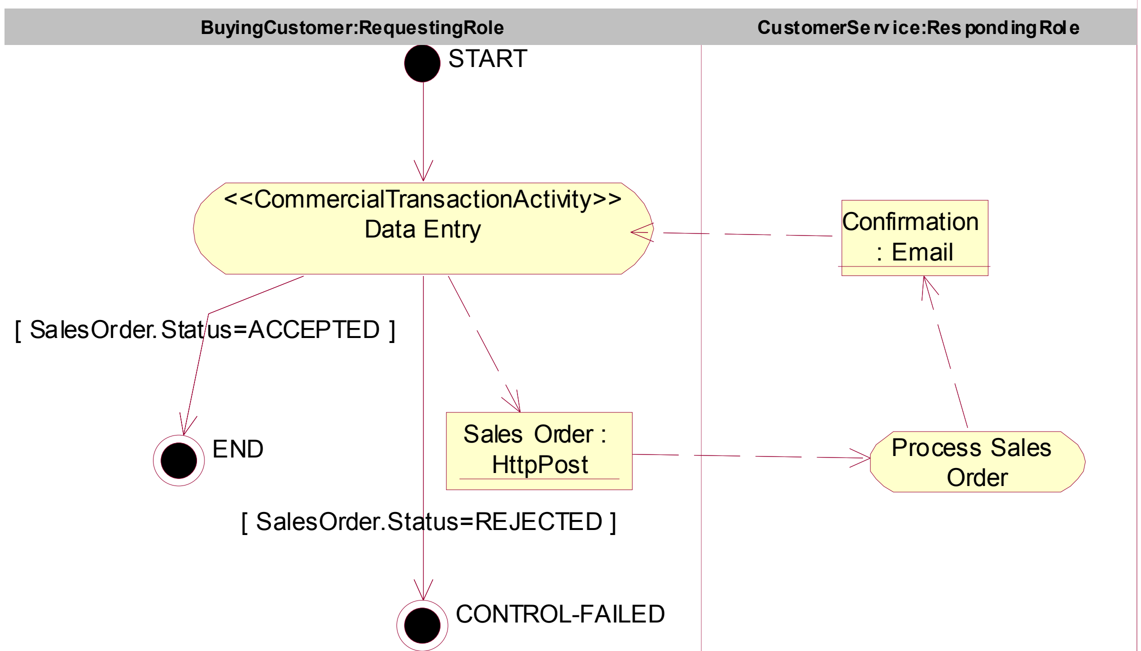

Figure 1-23, <<BusinessTransaction>> FirmCustomerSalesOrder

C.4.2 BT-8.2-Check Customer Credit

	Form: Business Transaction
Form Id	BT-8.2-Check Customer Credit
Identifier	btid:ean.1234567890128:CheckCustomerCredit$1.0
Description	With complete customer details, including a total sales amount, check the customer's credit ability to eventually pay for product once drop shipped from the vendor.
Pattern	Request/Response (according to UMM)
Agents and Services	
Business activities and associated authorized roles	See BTTT-8.2- Check-Customer-Credit
Constraints	• Valid business agreement with vendor • Valid customer details
Requesting Partner Type	Retailer
Requesting Activity Role	Customer Service
Requesting Activity Document	Credit Check (typically a proprietary document)

Responding Partner Type	Credit Authority
Responding Activity Role	Credit Service
Responding Activity Document	proprietary document

Form: Business Transaction Transition Table					
Form Id	BTTT-8.2- Check-Customer-Credit				
From Activity	**From Role**	**Document**	**To Activity**	**To Role**	**Guard Condition**
START	NOT-APPLICABLE	NONE	Request Check Credit	Retailer.CustomerService	NONE
Request Check Credit	Retailer.CustomerService	Credit Check Request	Process Credit Check	CreditAuthority.CreditService	NONE
Process Credit Check	CreditAuthority.CreditService	Credit Check Response	Request Check Credit	Retailer.CustomerService	NONE
Request Check Credit	Retailer.CustomerService	NONE	END	NOT-APPLICABLE	CreditCheckResponse.Status=GOOD-CREDIT
Request Check Credit	Retailer.CustomerService	NONE	CONTROL-FAILED	NOT-APPLICABLE	CreditCheckResponse.Status=BAD-CREDIT

C.4.3 BT-8.3-Charge-Customer-Credit

Form: Business Transaction	
Form Id	BT-8.3-Charge-Customer-Credit
Identifier	btid:ean.1234567890128:ChargeCustomerCredit$1.0
Description	Given all customer details, plus total sales amount based on product actually shipped by DSVendor, do a charge on the customer’s credit.
Pattern	Business Transaction (per UMM patterns)
Agents and Services	

Business activities and associated authorized roles	See BTTT-8.3-Charge-Customer-Credit
Constraints	Valid sales order Confirmed Shipped product
Requesting Partner Type	Retailer
Requesting Activity Role	ChargeCredit
Responding Partner Type	Credit Authority
Responding Activity Role	CreditService.ChargeCredit

Form: Business Transaction Transition Table					
Form Id	BTTT-8.3-Charge-Customer-Credit				
From Activity	**From Role**	**Document**	**To Activity**	**To Role**	**Guard Condition**
START	N/A	N/A	RequestCredit Charge	Retail.Charge Credit	NONE
RequestCredit Charge	Retail.Charge Credit	ChargeCredit	ProcessCredit Charge	CreditAuthorit y.CreditServic e	NONE
ProcessCredit Charge	CreditAuthorit y.CreditServic e	ConfirmCredit	RequestCredit Charge	Retail.Charge Credit	NONE
RequestCredit Charge	Retail.Charge Credit	N/A	END	N/A	Message(Con firmCredit).Sta tus =RECEIVED
RequestCredit Charge	Retail.Charge Credit	N/A	CONTROL-FAILED	N/A	Message(Con firmCredit).Sta tus =NOT-RECEIVED

C.4.4 BT-8.4-Create-Vendor-Purchase-Order

Form: Business Transaction	
Form Id	BT-8.4-Create-Vendor-Purchase-Order
Identifier	btid:ean.1234567890128:FirmCustomerSalesOrder$1.0
Description	Given a multi-vendor / single product relationship, Retailer needs to send a DSVendor a Purchase Order REQUEST, which will need to be responded back (with confirmed allocated product to cover the PO) by the DSVendor.

Pattern	Business Transaction (per UMM patterns)
Agents and Services	
Business activities and associated authorized roles	See BTTT-8.4-Create-Vendor-Purchase-Order
Constraints	Valid Sales order Valid customer credit check
Requesting Partner Type	Retailer
Requesting Activity Role	Inventory Buyer
Requesting Activity Document	Purchase Order Request
Responding Partner Type	DSVendor
Responding Activity Role	Seller
Responding Activity Document	Purchase Order Acknowledgement

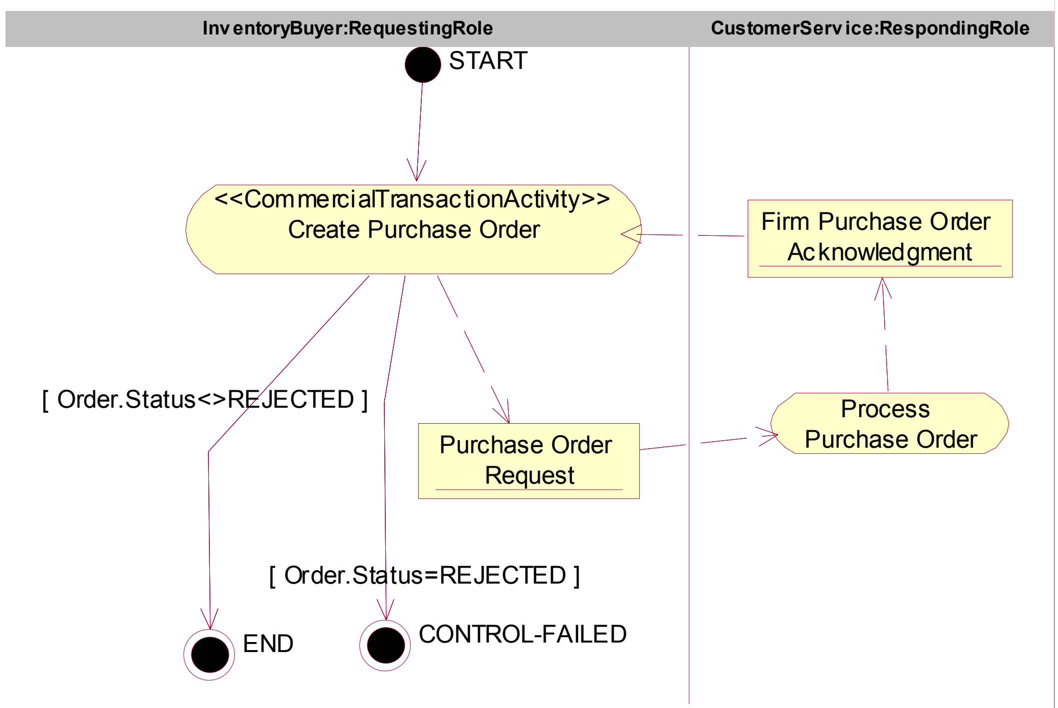

Figure 1-24, <<BusinessTransaction>> PurchaseOrderRequest

Form: Business Transaction Transition Table					
Form Id	BTTT-8.4-Create-Vendor-Purchase-Order				
From Activity	**From Role**	**Document**	**To Activity**	**To Role**	**Guard Condition**
START	N/A	N/A	Create Purchase Order	InventoryBuyer	NONE
Create Purchase Order	InventoryBuyer	Purchase Order Request	Process Purchase Order	CustomerService	NONE
Process Purchase Order	CustomerService	Firm Purchase Order Acknowledgement	Create Purchase Order	InventoryBuyer	NONE
Create Purchase Order	InventoryBuyer	N/A	END	N/A	Order.Status<>REJECTED
Create Purchase Order	InventoryBuyer	N/A	CONTROL-FAILED	N/A	Order.Status=REJECTED

C.4.5 BT-8.5-Vendor-Inventory-Report

Form: Business Transaction	
Form Id	BT-8.5-Vendor-Inventory-Report
Identifier	btid:ean.1234567890128:VendorInventoryReport$1.0
Description	Regular periodic notification, unsolicited, from the DSVendor to the Retailer, containing Available to Promise On-Hand inventory.
Pattern	Notification (per UMM pattern specifications)
Agents and Services	
Business activities and associated authorized roles	See BTTT-8.5-Vendor-Inventory-Report
Constraints	Only send product inventory which has been agreed to be made consumer available per agreement from the Product Catalog Exchange negotiation pattern.
Requesting Partner Type	DSVendor
Requesting Activity Role	Inventory Buyer

Requesting Activity Document	Inventory Report
Responding Partner Type	Retailer
Responding Activity Role	Inventory Buyer
Responding Activity Document	On-hand Product availability

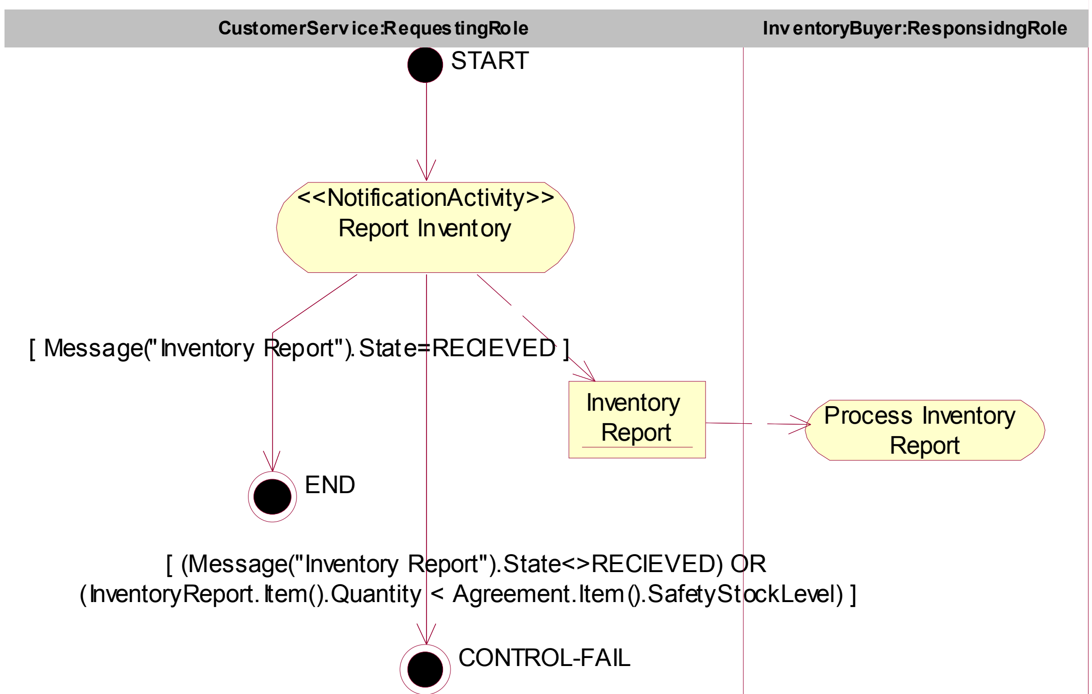

Figure 1-25, <<BusinessTransaction>> VendorInventoryReport

Form: Business Transaction Transition Table					
Form Id	BTTT-8.5-Vendor-Inventory-Report				
From Activity	**From Role**	**Document**	**To Activity**	**To Role**	**Guard Condition**
START	NOT-APPLICABLE	NONE	Report Inventory	DSVendor.CustomerService	NONE
Report Inventory	DSVendor.CustomerService	Inventory Report	Process Inventory Report	Retailer.InventoryBuyer	NONE
Report Inventory	DSVendor.CustomerService	NONE	END	N/A	Message(“Inventory Report”).State

					=RECIEVED
Report Inventory	DSVendor.CustomerService	NONE	CONTROL-FAILED	N/A	Message(“Inventory Report”).State <>RECEIVED OR InventoryReport..Item().Quatntity<Agreement.Item().SafteyStockLevel

C.4.6 BT-8.6-Request-Inventory-Report

	Form: Business Transaction
Form Id	BT-8.6-Request-Inventory-Report
Identifier	btid:ean.1234567890128:RequestInventoryReport$1.0
Description	Query Response dialogue where the Retailer requests the DSVendor for the current Avaialable to Promise position of a product; or series of products.
Pattern	Query / Response (per UMM pattern specirfications)
Agents and Services	
Business activities and associated authorized roles	See BTTT-8.6-Request-Inventory-Report
Constraints	See BT-8.5-Vendor-Inventory-Report
Requesting Partner Type	Retailer
Requesting Activity Role	Inventory Buyer
Requesting Activity Document	On-hand Available to Promise Product Availability Request
Responding Partner Type	DSVendor
Responding Activity Role	Customer Service
Responding Activity Document	on-hand Available to Promise report

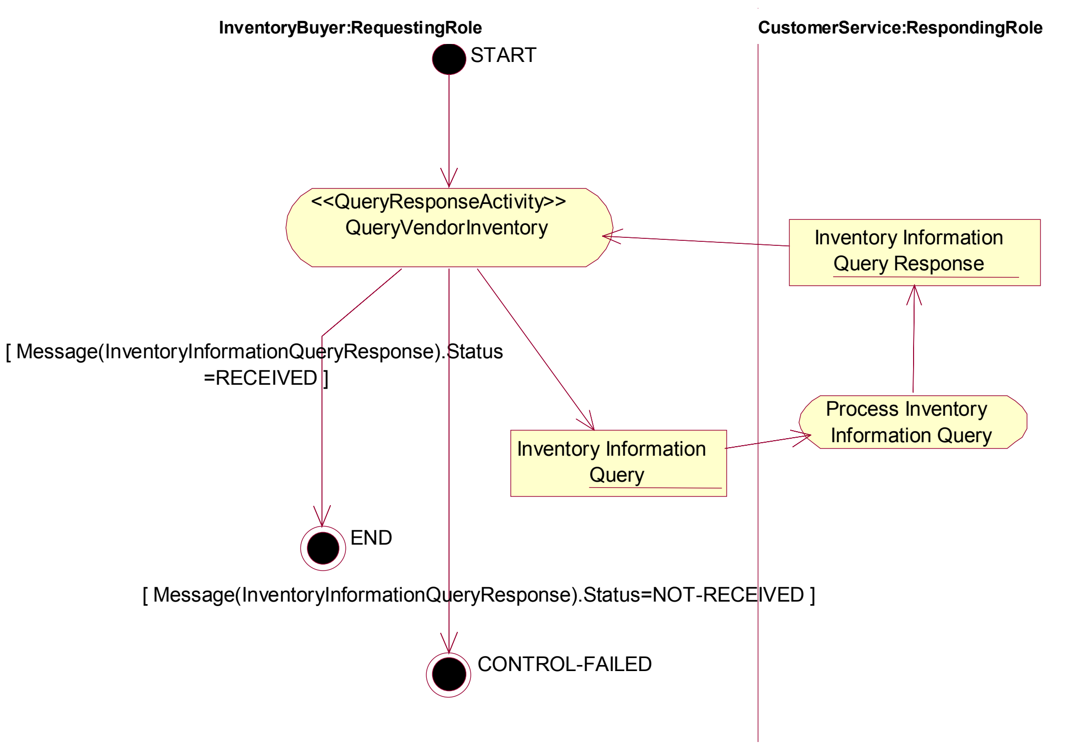

Figure 1-26, <<BusinessTransaction>> RequestInventoryReport

					Form: Business Transaction Transition Table
Form Id	BTTT-8.6-Request-Inventory-Report				
From Activity	**From Role**	**Document**	**To Activity**	**To Role**	**Guard Condition**
START	N/A	N/A	QueryVendorInventory	InventoryBuyer	NONE
QueryVendorInventory	InventoryBuyer	Inventory Information Query	Process Inventory Information Query	CustomerService	NONE
Process Inventory Information Query	CustomerService	Inventory Information Query Response	QueryVendorInventory	InventoryBuyer	NONE
QueryVendorInventory	InventoryBuyer	N/A	END	N/A	Message(InventoryInformationQueryResponse).Status

					=RECEIVED
QueryVendorInventory	InventoryBuyer	N/A	CONTROL-FAILED	N/A	Message(InventoryInformationQueryResponse).Status =NOT-RECEIVED

C.4.7 BT-8.7-Shipment-Notification

Form: Business Transaction	
Form Id	BT-8.7-Shipment-Notification
Identifier	btid:ean.1234567890128:FirmCustomerSalesOrder$1.0
Description	Arrangement of carriage by the DSVendor towards a Transport Carrier; who is expected to physically ship the product direct to the Customer.
Pattern	Business Transaction (per UMM pattern specifications)
Agents and Services	
Business activities and associated authorized roles	See BTTT-8.7-Shipment-Notification
Constraints	Customer Ship To details must be accurate
Requesting Partner Type	DSVendor
Requesting Activity Role	Shipper
Requesting Activity Document	Shipment Instruction (UN/CEFACT EDIFACT IFTMIN D01)
Responding Partner Type	Transport Carrier
Responding Activity Role	Customer Service
Responding Activity Document	Electronic copy of a Bill of Lading (UN/CEFACT EDIFACT IFTMCS D01)

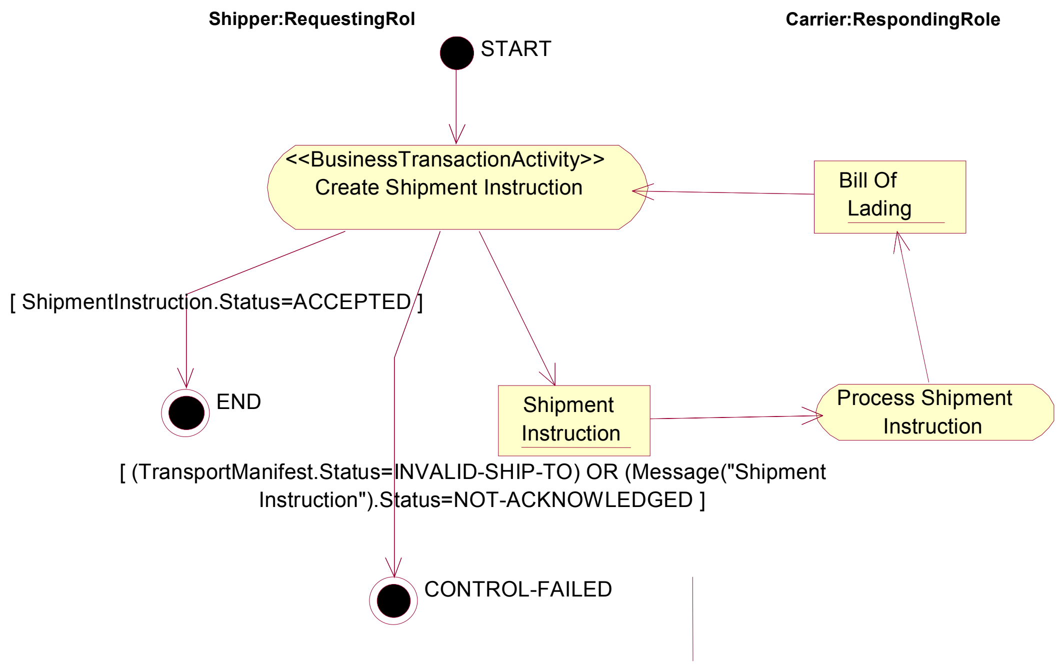

Figure 1-27, <<BusinessTransaction>> ShipmentInstruction

Form: Business Transaction Transition Table					
Form Id	BTTT-8.7-Shipment-Notification				
From Activity	**From Role**	**Document**	**To Activity**	**To Role**	**Guard Condition**
START	NOT-APPLICABLE	NONE	Prepare Shipping Instruction	DSVendor.Shipper	NONE
Prepare Shipping Instruction	DSVendor.Shipper	Shipment Instruction	Process Shipment Instruction	TransportCarrier.CustomerService	NONE
Process Shipment Instruction	TransportCarrier.CustomerService	Bill Of Lading	Process Shipment Instruction	DSVendor.Shipper	NONE
Process Shipment Instruction	DSVendor.Shipper	NONE	END	NOT-APPLICABLE	Message(“Bill Of Lading”).State =RECIEVED
Process Shipment Instruction	DSVendor.Shipper	NONE	CONTROL-FAILED	NOT-APPLICABLE	Message(“Bill Of Lading”).State <>RECEIVED

					[24]

C.4.8 BT-8.8-Confirm-Shipment

	Form: Business Transaction
Form Id	BT-8.8-Confirm-Shipment
Identifier	btid:ean.1234567890128:FirmCustomerSalesOrder$1.0
Description	DSVendor informs the Retailer that the Customer's product has been shipped to the Customer; and thus the conditions of the PO have been fulfilled.
Pattern	Notification
Agents and Services	
Business activities and associated authorized roles	See BTTT-8.8-Confirm-Shipment
Constraints	■ Product must actually be shipped ■ DSVendor must return a Transport Carrier tracking number; for customer service.
Requesting Partner Type	DSVendor
Requesting Activity Role	Shipper
Requesting Activity Document	Advance Ship Notice (UN/CEFACT EDIFACT DESADV D01)
Responding Partner Type	Retailer
Responding Activity Role	Customer Service
Responding Activity Document	NONE

[24] DSVendor.Shipper may get an emial or phone calls stating that the goods will not be shipped.

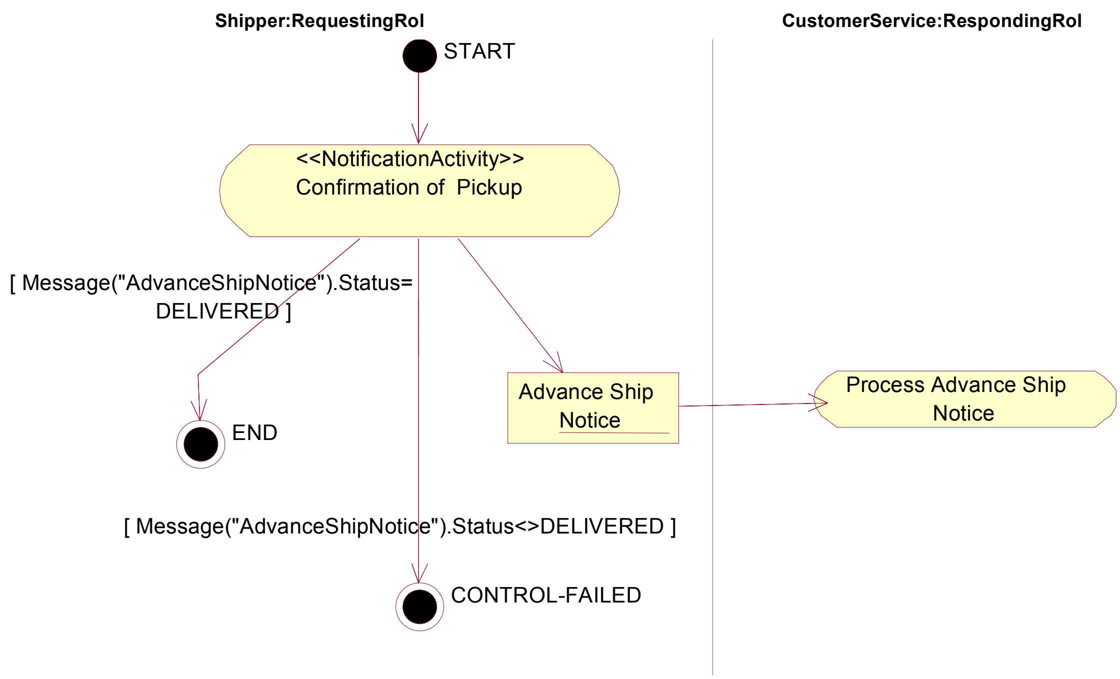

Figure 1-28, <<BusinessTransaction>> ConfirmShipment

Form: Business Transaction Transition Table					
Form Id	BTTT-8.8-Confirm-Shipment				
From Activity	**From Role**	**Document**	**To Activity**	**To Role**	**Guard Condition**
START	NOT-APPLICABLE	NONE	Confirmation of Pickup	Shipper	NONE
Confirmation of Pickup	Shipper	Advance Ship Notice	Process Advance Ship Notice	Retailer.CustomerService	NONE
Confirmation of Pickup	Shipper	NONE	END	NOT-APPLICABLE	Message(“Advance Ship Notice”).State =RECEIVED
Confirmation of Pickup	Shipper	NONE	CONTROL-FAILED	NOT-APPLICABLE	Message(“Advance Ship Notice”).State <>RECEIVED

C.4.9 BT-8.9-Product-Offering

	Form: Business Transaction
Form Id	BT-8.9-Product-Offering
Identifier	btid:ean.1234567890128:ProductOffering$1.0
Description	DSVendor offers product details to the Retailer, where the Retailer is expected to either accept the DSVendor's product for consumer sale or reject the product; perhaps because of unacceptable product terms and conditions.
Pattern	Request / Confirm (per UMM pattern specifications)
Agents and Services	
Business activities and associated authorized roles	See BTTT-8.9-Product-Offering
Constraints	Valid products for consumer sale by Retailer
Requesting Partner Type	DSVendor
Requesting Activity Role	Catalog Publishing
Requesting Activity Document	Product Catalog Offering (ANSI X.12 832 4010 version)
Responding Partner Type	Retailer
Responding Activity Role	Merchandising
Responding Activity Document	Product Catalog Acceptance (often proprietary format response document)

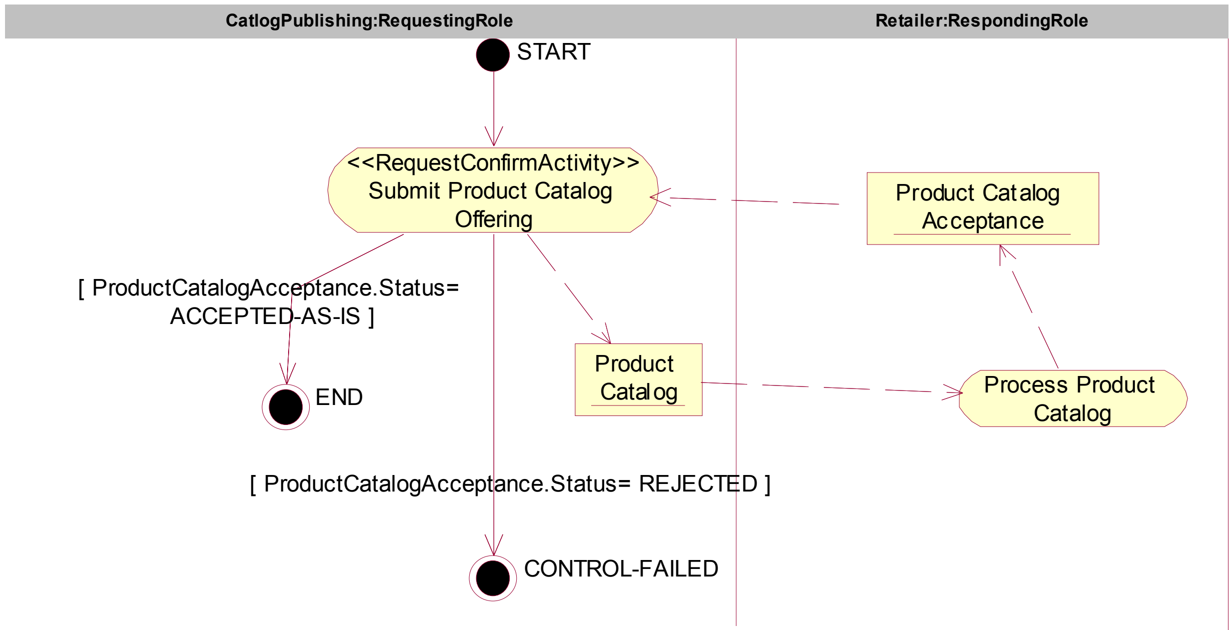

Figure 1-29, <<BusinessTransaction>> ProductOffering

Form: Business Transaction Transition Table					
Form Id	BTTT-8.9-Product-Offering				
From Activity	**From Role**	**Document**	**To Activity**	**To Role**	**Guard Condition**
START	NOT-APPLICABLE	NONE	Submit Product Catalog Offering	CatalogPublishing	NONE
Submit Product Catalog Offering	CatalogPublishing	Product Catalog	Process Product Catalog	Retailer.Merchandising	NONE
Process Product Catalog	Retailer.Merchandising	Product Catalog Acceptance	Submit Product Catalog Offering	CatalogPublishing	NONE
Submit Product Catalog Offering	CatalogPublishing	NONE	END	NOT-APPLICABLE	ProductCatalogAcceptance.Status=ACCEPTED-AS-IS
Submit Product Catalog	CatalogPublishing	NONE	CONTROL-FAILED	NOT-APPLICABLE	ProductCatalogAcceptance.Status=REJE

Offering					CTED

C.4.10 BT-8.11-Present-Invoice

Form: Business Transaction	
Form Id	BT-8.11-Present-Invoice
Identifier	btid:ean.1234567890128:PresentInvoice$1.0
Description	This is the vendor's invoice to the retailer for products and services shipped to customer.
Pattern	Notification
Agents and Services	
Business activities and associated authorized roles	See BTTT-8.11-Present-Invoice
Constraints	■ The invoice shall only be sent after confirmed shipment ■ The invoice shall reflect the confirmed shipment
Requesting Partner Type	DSVendor
Requesting Activity Role	Payee
Requesting Activity Document	Invoice
Responding Partner Type	Retailer
Responding Activity Role	Payor
Responding Activity Document	NONE

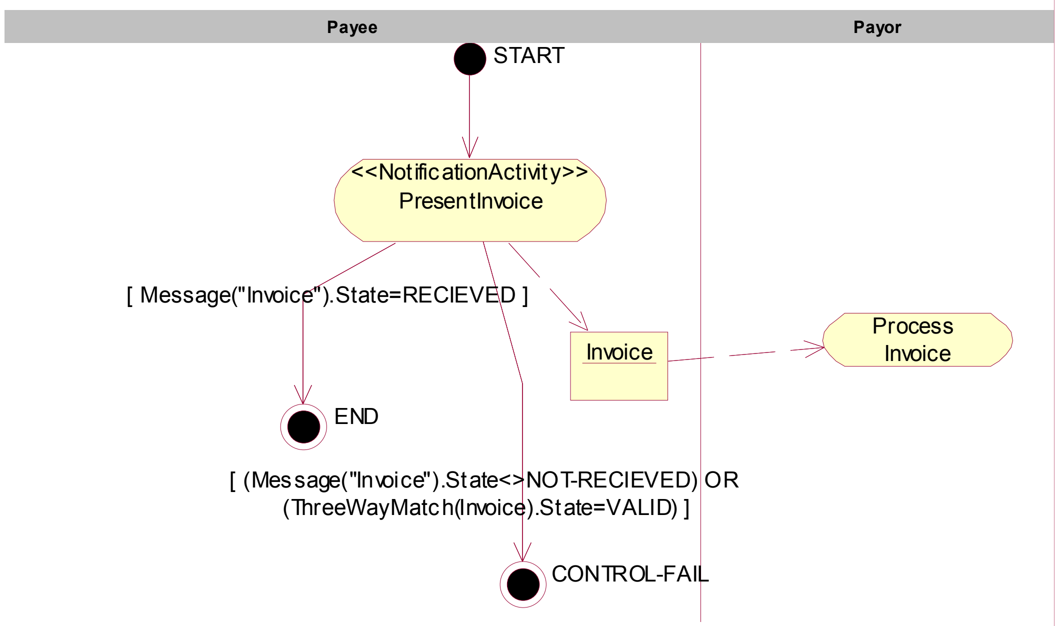

Figure 1-30, <<BusinessTransaction>> PresentInvoice

Form: Business Transaction Transition Table					
Form Id	BTTT-8.11-Present-Invoice				
From Activity	**From Role**	**Document**	**To Activity**	**To Role**	**Guard Condition**
START	NOT-APPLICABLE	NONE	Present Invoice	Payee	NONE
Present Invoice	Payee	Invoice	Process Invoice	Payor	NONE
Present Invoice	Payee	NONE	END	NOT-APPLICABLE	Message("Invoice").State=RECEIVED
Present Invoice	Payee	NONE	CONTROL-FAILED	NOT-APPLICABLE	Message("Invoice").State<>RECEIVED OR ThreeWayMatach(Invoice).State=VALID

C.5 Business Information Description

C.5.1 Purchase Order

C.5.1.1 Purchase Order Business Information Context

Form: Business Information Context	
Form Id:	BIC-10.1-Purchase-Order
Industry	Retail
Business Process	BPUC-5.4-Purchase-Order-Management BC-8.4-Create-Vendor-Purchase-Order BT-8.4-Create-Vendor-Purchase-Order
Product	NOT-APPLICABLE
Physical Geography /Conditions /Region	
Temporal	
Geo-Political Legislative/ Regulatory/ Cultural	
Application Processing	
Business Purpose /Domain	
Partner Role	
Service Level (profiles – not preferences.)	
Virtual marketplace	
Info. Structural Context	
Contracts/ Agreements	

C.5.1.2 CD-9.1-Order

Form: Content Description					
Form Id:	CD-9.1-Order				
Element/Component Name	**Occurs**	**Data Type**	**Field Width**	**Semantic Description**	**Notes**
Order Header	1		N/A	The Order Header contains the header information of the order	
Order Detail	0..1		N/A	The Order Detail contains the line item and package details of the Order.	
Order Summary	0..1		N/A	The Order Summary contains the summary information of the order, typically totals of numerical fields	

C.5.1.3 CD-#.#-Order-Summary

Form: Content Description					
Form Id:	CD-9.2-Order-Summary				
Element/Component Name	**Occurs**	**Data Type**	**Field Width**	**Semantic Description**	**Notes**
Number Of Lines	0..1	Integer		Number Of Lines identifies the number of line items.	
Total Tax	0..1	Monetary Value	N/A	Total Tax contains the total tax amount for the Order.	

Total Amount	0..1	Monetary Value	N/A	Total Amount contains the total price for the entire Order.	
Transport Packaging Totals	0..1			Transport Packaging Totals is a summary of transport and packaging information if included in the Order.	
Summary Note	0..1	String		Summary Note contains any free form text for the Order Summary. This element may contain notes or any other similar information that is not contained explicitly in the another structure. You should not assume that the receiving application is capable of doing more than storing and/or displaying this information	

C.5.2 Content Mapping

[If we feel so ambitious, we can use the ANSI X12 4010 mappings available at http://www.xcbl.org/xcbl30/Mapping/smg.html]

These forms SHOULD be completed. This information is very important as it shows that the documents have a basis in existing standards. Furthermore, the information will be used to create document transformations. Standards to map to include EDIFACT, X12, xCBL, RosettaNet, and other standards such as OBI. Use XPATH and XSLT notation for referencing XML elements and describing the mappings. If a new document schema is created to fulfil the content requirements specified in the Document Content Description forms, then a set of Content Mapping forms should be completed for that schema (the component names in the forms are simply requirements for information)

For each Content Description form, complete a Document Content Mapping form for each standard to be cross-referenced.

C.5.2.1 CM-11.1-Order-Summary

Form: Content Mapping		
Form Id:	CM-11.1-Order-Summary	
Content Description Form Id	CD-11.1-Order-Summary	
Standard	ANSI X12 850	
Version	4010	
Element/Component Name	**Mapping/Transformation**	**Note**
Number Of Lines	850:S:CTT:010:CTT:01:354:	
Total Tax	NOT USED	
Total Amount	Various (850:S:CTT:020:AMT:02:782:, etc.)	Total amount is a complex structure that includes things like reference currency, target currency, and rate of exchange. For an example mapping see xCBL.org). Do mapping

		in a separate table.
Transport Packaging Totals	Various	Transport packing totals is a complex structure. Do mapping in a separate table.
Summary Note	850:S:CTT:010:CTT:02:347:	

Appendix D 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 design.

Appendix E Contact Information

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Copyright Statement

Page: 6

[F1]p5, s4.1 I was thinking for a moment that it would be nice if the subject of the document (worksheets and guidelines) got mentioned earlier than the fourth paragraph. But, I won't make the suggestion: the subject is mentioned on the title of the document.

Page: 12

[F2]Good Enough?

[F3]grrr… cant get rid of this note ☺

Page: 30

[F4]What goes here?