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3 Business Requirements

3.1 Workflow

3.1.1 Purpose

The purpose of the Business Requirements workflow is to capture the detailed user requirements, specified by the stakeholders, for the business-to-business project. The business models derived from the Business Modelling workflow are used as important inputs to identify use cases and to provide the framework for understanding of the requirements. 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.

3.1.2 Requirements Modeling Use Case

The use case that documents the requirements for the business-to-business project involves the business domain expert, the business process analyst and technical modeller, as shown in Figure 3-1. The business process analyst acts as a facilitator to extract business knowledge and requirements from the business domain expert.

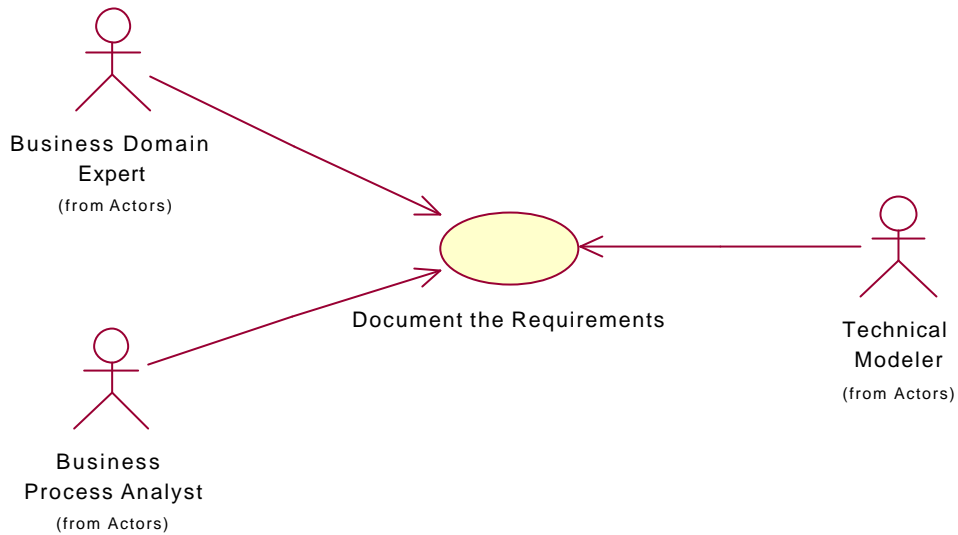


Figure 3-1. Capture the Business Requirements

3.1.3 UMM Framework: Requirements workflow

Figure 3-2 highlights the methodology steps, and the artifacts created. At the time of this writing, UN/CEFACT has not specified any business patterns that could be used in this workflow. There are efforts underway to discover reference material and determine their applicability for e-Business.

Workflow	Methodology	Pattern	Model Artifacts [UML]
Business Requirements	<ul style="list-style-type: none"> Requirements Gathering Use Case Analysis Process Analysis Activity Modeling 	<ul style="list-style-type: none"> Business Collaboration (The definition of Business Collaboration Patterns is a future activity.) 	BRV <ul style="list-style-type: none"> Business Process[es] [Use Case Identification] BusinessCollaborationUseCase [Use Case Realization, Activity Graph] Business Transaction [Use Case] Business Collaboration [Use Case Realization] Economic Modeling Elements [Business Entities]

Figure 3-2. Extract from the UMM Framework

3.1.4 Deliverables

Deliverables for the Business Requirement workflow are expansions to any or all of the Business Operations Map (BOM) deliverables including:

- Scope for the business-to-business project,
- Requirements list,
- Glossary,
- Use case diagrams and descriptions,
- Activity diagrams.

3.1.5 Objective & Scope for the Business-to-Business Project

The Business Modelling Workflow will have specified an initial statement of objective and scope. This may need refining at this stage as the stakeholders' requirements have been more fully articulated. If an existing (industry or sector) BOM has been identified as covering the business area of interest, then the relevant process area(s) identified from the BOM and statements of objective and scope will have to be created as specified in the Business Domain workflow. See Section 2.4.4 for an illustration.

3.1.6 Capture Requirements for each Use Case

The Business Modelling workflow identified the business tasks that the business processes perform. These tasks are now detailed and expressed as use cases (BusinessProcess, BusinessCollaborationUseCases or BusinessTransactionUseCases) based on the detailed business requirements specified by the stakeholders. The requirements are elucidated and recorded in the Requirements list (Annex 3). The roles that the participants to each use case perform are identified as Partner Types. The use case descriptions document these findings. See Figure 3-3 for an illustration of a business collaboration use case and Figure 3-4 for a Business Collaboration and for a business transaction use case.

3.1.7 Derive Activity Diagram for each Use Case

Each use case is defined in an activity graph that concentrates on the inter-organisational activities. If these diagrams become large or complex this may suggest that the original use case was at too high a level and should be replaced by two or more use cases that each reflect simpler processes.

3.1.8 Discover Business Entities

Business entities are "things" that are of importance in the execution of a business collaboration (Economic Modeling Elements). Business entities may be identified in the statements of requirements as "things" that are described by nouns and that have characteristics (or attributes) that take on values, and have responsibilities or behavior. The attributes will be linked to the business entities. See Figure 3-4 for examples of Business Entities and Economic Elements. The definition of these business entities and attributes are recorded in the Glossary. (Annex 3)

3.2 Artifacts

The Business Requirements View is comprised of the following key modelling elements or artefacts.

BusinessProcess

A business process is a use case that is used to identify activities about business domains.

BusinessCollaborationUseCase

A business collaboration use case is an abstraction for a business collaboration protocol use case and a business transaction use case. The abstraction permits the reuse of the business collaboration realization relationship.

BusinessCollaboration

A business collaboration specifies the input and output relationships between business collaboration use cases and Agents. Agents provide input triggers to use cases and business collaboration use cases can provide input triggers and output triggers to and from other business collaboration use cases. A business collaboration also captures business information constraints imposed by a specific partner type collaboration.

BusinessTransactionUseCase

A business transaction use case is used to gather requirements for business transaction specifications.

Economic Modelling Elements

Economic modelling elements are used to express the structure, interrelationships and behaviour of economic entities in the BRV of an economic model depicting resources, events and agents (REA).

3.3 Guidelines

3.3.1 Business Process Elaboration

Goals

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

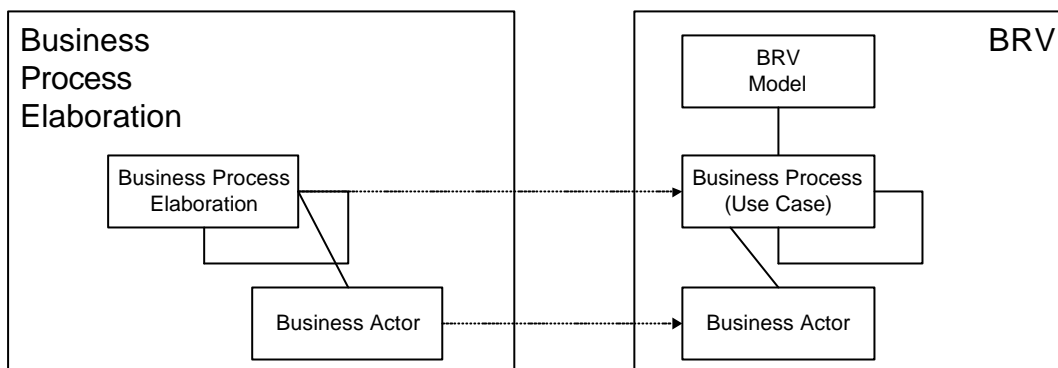


Figure 3-1 Mapping from business processes to the BRV

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.

Business Process Use Case	
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.] <u>Manage Purchase Order.</u>
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.] <u>bpid:ean.1234567890128:ManagePurchaseOrder\$1.0</u>
Actors	[List the actors involved in the use case.] <u>Retailer. Vendor</u>
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.] <u>1. Valid Sales Order 2. Valid Vendor Relation</u>
Begins When	[Describe the initial event from the actor that starts a use case.] <u>Sales Order Validation (expressed as events)</u>
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.] <u>A valid Purchase Order placed by retailer with the vendor and a PO Ack is received from the vendor.</u>
Ends When	[Describe the condition or event that causes normal completion of the use case.] <u>PO Acknowledged returned to retailer.</u>

Exceptions	[List all exception conditions that will cause the use case to terminate before its normal completion.] <u>1. PO Rejected (Failure state of a process)</u> <u>2. Late PO acknowledged</u>
Postconditions	[Post-conditions are states that must be satisfied ending the use case.] <u>1. Valid PO</u> <u>2. Allocated Product</u>
Traceability	[These are the requirements covered (as shown in Annex 4, Use Case Specification Template, in the UMM).] <u>"PRD-FOO-6.5.4"</u> <u>(meaning Product Requirements Document for FOO project/solution, requirement 6.5.4).</u>

Economic Elements

Goals

Develop the economic elements of business processes as elaborated in the REA ontology [REA]. The intent is to conform to the specific modeling elements of the Business Requirements View (BRV) of the UMM. Not all business processes include economic exchanges as defined by REA, so the use of these worksheets will occur in only a portion of business processes and business collaborations. The semantics of legal ownership and GAAP (generally accepted accounting principles) financial reporting depend upon correct modeling and understanding of the BRV elements in this section.

3.3.2 Guidelines

There are two worksheets in this section. These worksheets model the following economic entities: Economic Events, Economic Resources, Partner Types, Business Events, Agreements, Economic Contracts, and Commitments. Building an Economic Exchange model with these elements normally involves specification of two matching components of a marketplace exchange. For example:

A shipment (economic event) of goods (economic resource) between a supplier and a customer (partner types) occurs. This is normally followed by a payment (economic event) involving cash (economic resource) between the same two parties (partner types). This shipment for cash might have been preceded by quotes and pricing exchanges (business events). The shipment might also be governed by a purchase order (agreement or economic contract). This purchase order (economic contract) might specify the expected types of goods (economic resource types) and the expected dates of the shipments and payments (commitments).

The first worksheet specifies the items for an economic exchange, while the second specifies the economic primitives for the agreement that might govern that exchange. Not all economic exchanges are governed by agreements or contracts, so the second worksheet will be used less frequently. Where necessary, space has been provided for cross-references between economic exchanges and the agreements that govern them. It is also possible for agreements to recursively reference other agreements. Business Collaborations as defined in the next section of worksheets might correspond to an entire economic exchange, an economic event, or a business event. Collaborations may also correspond to agreements or economic contracts.

Economic Exchange	
Economic Exchange Name	[Provide a name for the exchange (like “cash purchase” or “credit acquisition of services”)]
Identifier	[This is a unique identifier that follows the Business Process Identifier Naming Scheme.]
Initiator Resource Flow	
Initiator Economic Event (s)	[Provide the business name for the economic event (shipment, service, payment, etc.)]
Initiator Economic Resource(s)	[Describe the goods or services (inventory, transportation, cash, etc.) to be exchanged.]
Initiator Supplying Partner Type	[Describe the party who supplies the economic resource.]
Initiator Receiving Partner Type	[Describe the party who receives the economic resource.]
Initiator Exception Events	[Describe the events that constitute the exceptions to the expected exchange and explain their consequences (incomplete shipment or disallowed payment, etc.).]
Terminator Resource Flow	
Terminator Economic Event(s)	[Provide the business name for the economic event (shipment, service, payment, etc.)]
Terminator Economic Resource(s)	[Describe the goods or services (inventory, transportation, cash, etc.) to be exchanged.]
Terminator Supplying Partner Type	[Describe the party who supplies the economic resource]
Terminator Receiving Partner Type	[Describe the party who receives the economic resource.]
Terminator Exception Events	[Describe the events that constitute the exceptions to the expected exchange and explain their consequences (incomplete shipment or disallowed payment, etc.).]
Overall Economic Exchange	
Enabling Business Events	[Describe the business events that normally accompany this economic exchange and that enable its operation (For example: query availability, supply catalog information, and check credit might all precede a shipment of goods for cash).]
Normal Terms of Settlement	[Describe normal settlement arrangements (payment upon receipt, etc.).]
Recognition of Claim	[Describe whether or not an incomplete (unrequited) state of the exchange needs to be explicitly recognized with a claim (like an invoice).]
Need for Contract or Agreement	[Indicate whether or not this exchange is to be governed by an economic agreement or contract. If necessary, complete the next worksheet.]

Economic Agreement	
Economic Agreement Name	[Provide a name or a specific identifier for the agreement that usually governs the economic exchange from the linked worksheet.]
Identifier	[This is a unique identifier that follows the Business Process Identifier Naming Scheme.]
Linked Worksheet for Economic Exchange	[Provide the Identifier for the governed economic exchange (as identified in prior worksheet).]
Governing Economic Agreement (Higher Order)	[Describe and provide Identifier for any longer term agreement that governs the operation of this specific (shorter-term) agreement.]
Governed Economic Agreement (Lower Order)	[Describe and provide Identifier for any shorter term agreement that are governed by the operation of this specific (longer-term) agreement.]
Economic Contract	[Describe whether or not this agreement meets the conditions for an enforceable legal contract.]
Parties to the Economic Agreement	[Identify the Partner Types responsible for the establishment of the agreement.]
Establishing Event	[Identify the Business Event which establishes this agreement.]
Enabling Business Events	[Describe the set of Business Events that enabled the establishment of this agreement (from the negotiation pattern for example).]
Initiator Commitment(s)	Describe the nature of the initiating commitment for the governed exchange (for example: ship inventory according to a certain schedule).]
Initiator Resource Types	[Describe the Economic Resource Types for the initiating commitment and projected quantities if appropriate.]
Initiator Partner Type	[Identify the Partner Type responsible for the initiating commitment in the governed exchange.]
Terminator Commitment(s)	[Describe the nature of the terminating commitment for the governed exchange (for example: submit payment within 30 days of receipt).]
Terminator Resource Types	[Describe the Economic Resource Types for the initiating commitment and projected quantities if appropriate.]
Terminator Partner Type	[Identify the Partner Type responsible for the initiating commitment in the governed exchange.]

Business Collaboration

Goals

Develop the Business Requirements View (BRV) of a process model.

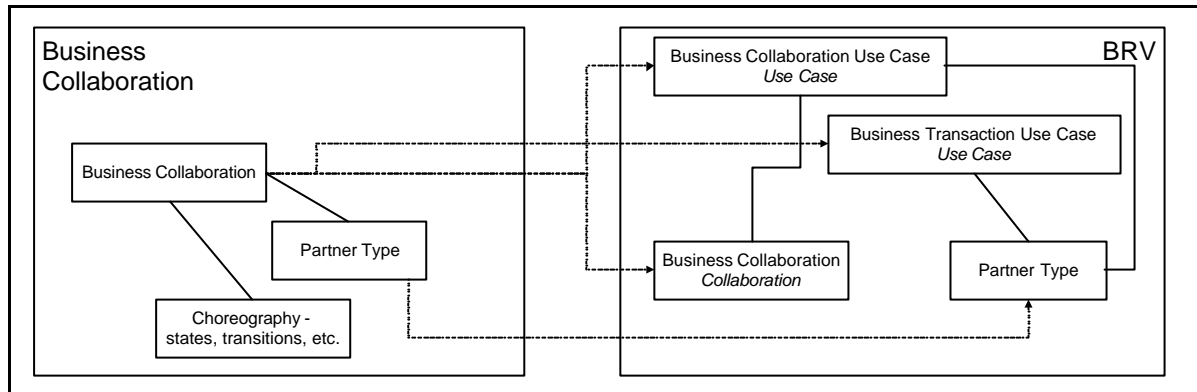


Figure 3-2 Mapping from Business Collaboration to BRV

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 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 Consequences of Business Collaborations

3.4 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.

Business Collaboration	
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.]
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 transactions 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	[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 the course of this collaboration.]
Constraints	[Spell out any special constraints that are relevant to this collaboration (e.g. business scenario, pre-conditions.)]

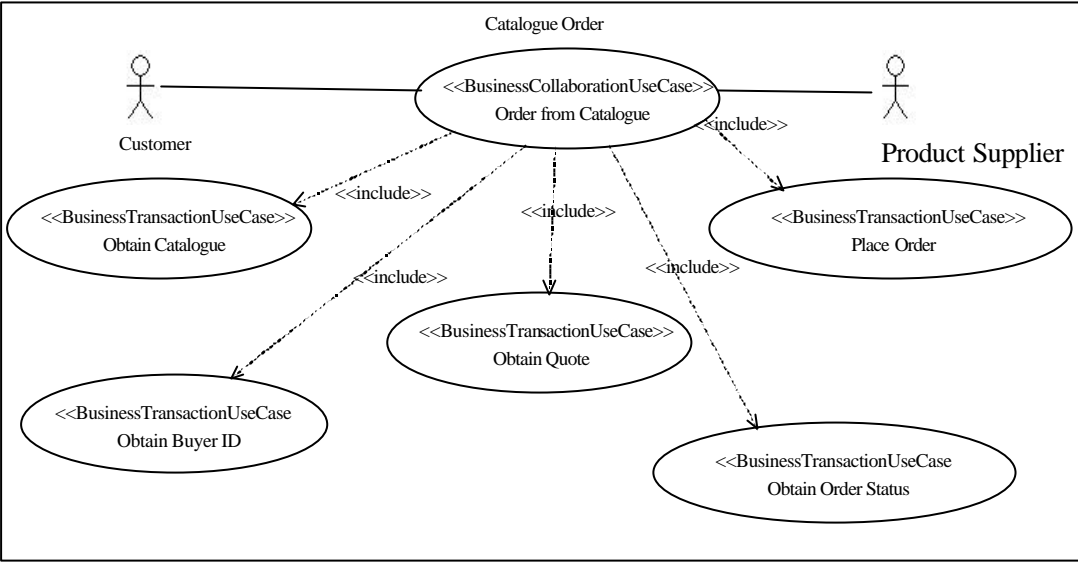
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Business Collaboration Protocol Table				
Identifier	[Enter the Identifier from the associated Business Collaboration form.]			
From Business Activity (Transaction)	Initiating Partner Type	To Business Activity	Responding/ Receiving Partner Type	Transition Condition
[START for the first activity or the name of originating business activity.]	[Partner type name or NOT-APPLICABLE.]	[Name of destination business activity.]	[Partner type name or NOT-APPLICABLE.]	[A boolean expression defining or describing the condition for the transition or NONE.]
[Name of an activity.]	NOT-APPLICABLE	SUCCESS	NOT-APPLICABLE	[A boolean expression defining or describing the condition for the transition.]
[Name of an activity.]	NOT-APPLICABLE	FAILURE	NOT-APPLICABLE	[A boolean expression

				defining or describing the condition for the transition.]
--	--	--	--	---

1
2

1 3.5 Order from Catalogue Example



3

Precondition:	Customer has identified Product Supplier. PurchaseOrder exists.
BeginsWhen:	Customer initiates the Product Order.
Definition:	<p>If Catalogue does not exist or Catalogue.effectiveDate is less than currentDate, then perform Obtain Catalogue.</p> <p>If PurchaseOrder.BuyerId does not exist, then perform Obtain Buyer ID.</p> <p>For each PurchaseOrder.ProductItem If PurchaseOrder.ProductItem.price does not equal Catalogue.ProductItem.price then perform Obtain Quote.</p> <p>Perform Place Order</p> <p>Perform Obtain Order Status</p>
EndsWhen:	Purchase Order Status Returned
Exceptions:	Unable to obtain current catalogue. Catalogue does not contain listed products. Catalogue or quoted price exceeds maximum allowed for a product. Supplier returns a negative acknowledgement in response to a Catalogue Request. Supplier returns a negative acknowledgement in response to a

Postcondition: Traceability: RecordMetrics:	Product Quote Request. Supplier returns a negative acceptance in response to a Purchase Order.
	Purchase Order Response exists.
	Purchase Order Status exists
	<i>List of Business Requirements.</i>
	False

Figure 3-3. Catalogue Order business collaboration use case

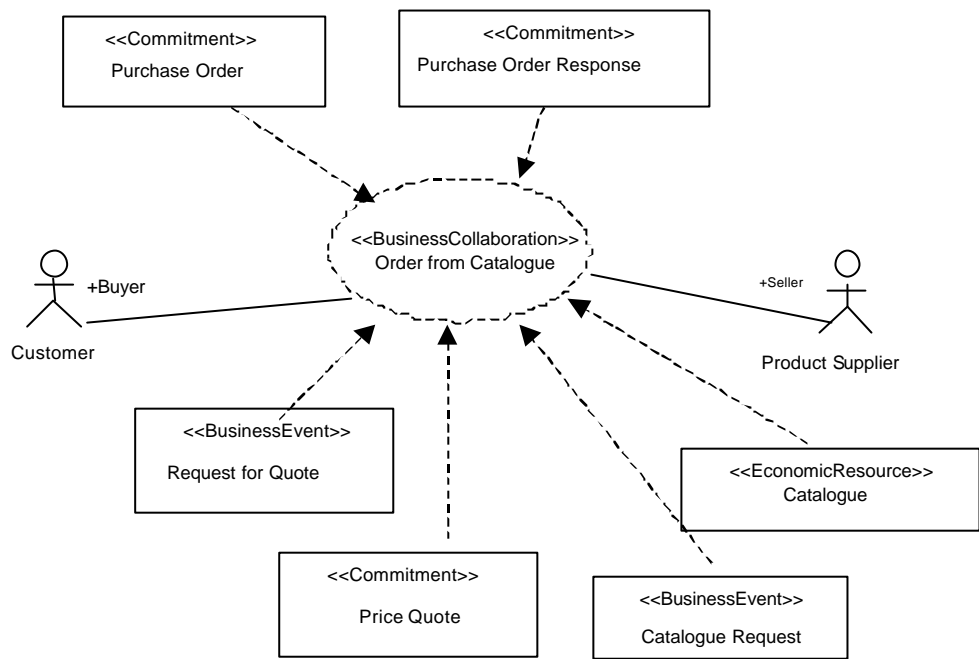


Figure 3-4. Catalogue Order business collaboration