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Technology and Innovation

OIOUBL Scenario description

Introduction to OIOUBL Procurement Scenarios

S01

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UBL 2.0



Document History

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1. Introduction

This document introduces the OIOUBL Procurement Scenario packages describing how the most common set of business scenarios in the public sector in Denmark should be implemented by utilizing the UBL 2.0 framework.

It intends to classify the scenarios in a structured way and thereby serves as a key to select, read and benefit from the different OIOUBL Procurement Scenario packages, which are self contained documents (see chapter 4).

The OIOUBL Procurement Scenario Packages are part of the full OIOUBL package which contains other documents such as the OIOUBL Overview document and the OIOUBL Guidelines (Ref. 1 + 4).

1.1 Purpose and target audience

The OIOUBL Procurement Scenario packages focus on the procurement process from a business perspective and on how to implement those processes using the OIOUBL framework.

The packages compliment the OIOUBL Guidelines (Ref. 4) and the OASIS Universal Business Language 2.0 specification (Ref. 5) which provides the **normative specification**¹ of OIOUBL.

The audience is particular technical and domain specialists responsible for implementing e-procurement, developers and project leaders responsible for implementing ERP-systems, Workflow-systems and other related systems on the Danish market.

The main focus is on public procurement but the specifications could be used also in the private sector.

It is our hope that the scenario descriptions can be an inspiration for every UBL user and in this way facilitate the adoption of UBL worldwide.

The flow, content and parameters for routing and addressing of involved business documents are described, but the description on how the document exchange mechanism works is considered out of scope.

1.2 Key to using this document

All scenario descriptions in the packages are based on research. The sources of this research are not mentioned in the packages, but can be acquired by contacting the Danish National IT and Telecom Agency.

The scenario packages are intended to be used as descriptions on how to use UBL 2.0. A lot of information is repeated in these packages, so they can be read individually with this document as context. By doing this, the packages can easily be extended and new packages can be added.

It is our observation that procurement is far too complicated to be described in a single process. The variations of how use cases can succeed each other are simply too big. Instead we intend to describe the possibilities in terms of scenarios.

The scenarios that relate to this document can be seen as contracts between sender and receiver in terms of how they are expected to react in the situations described in the scenario.

The document is divided into the following logical sections:

- General introduction
- The OIOUBL Scenario Classification
- Structure of the OIOUBL Scenario Description
- Introduction of the OIOUBL Scenario Packages

¹ This means that if in doubt the normative descriptions take precedence of the scenario descriptions.

- Terms and abbreviations

1.3 Prerequisites

It is assumed that the reader is familiar with the following:

- The UBL 2.0 party concept (Ref. no. 5)
- The OIOUBL profile specification (Ref. no. 3)

1.4 References

Ref no	Document id	Version	Title
1	I01	V1.1	OIOUBL package overview
3	G26	V1.1	OIOUBL Profile specification
4	I01	V1.1	Introduction to OIOUBL Guidelines
5		V1.0	OASIS Universal Business Language 2.0 specification

2. The OIOUBL Scenario Classification

An OIOUBL scenario reflects a fixed set of ***characteristics*** inside the defined ***scope***.

Examples of such characteristics are:

- How the trade items are identified by the Customer
- The characteristics of the trade items
- The originator of the procurement cycle
- Point of time where the invoice is issued
- Different types of delivery errors
- The number of involved parties and their roles
- Different types of content errors

OIOUBL classifies the different characteristics by the following three parameters:

Parameter	Description
Scenario situation	“Who procures what” and how the procurement is initiated
Scenario context	This means the rules and organization involved in the procurement
Scenario outcome	This indicates how the scenario turns out. If everything turns out as intended, we call it “the happy day scenario”.

Each parameter is described into more detail in the following chapters.

2.1 Scenario situation

The scenario situation is the starting point of the procurement (precondition). It determines who procures what such as:

- How the procurement is initiated
- The role of the initiator
- The way the initiator finds what he intends to procure
- The nature of what to procure
- The demand for delivery
- How the procurement is going to be paid

2.2 Scenario context

The scenario context is defined by:

- The scenario environment
- The buyers organization
- The sellers organization

2.2.1 The scenario environment

The scenario environment is an agreement on how to exchange information electronically between parties. This agreement is often specified by a standardization organization, a legal authority or by a bilateral contract between the buying and selling organization.

UBL 2.0 specifies its full scenario environment by its Extended Procurement Process model which is described in detail in Ref. 5.

OIOUBL addresses the need for a stepwise implementation of the UBL 2.0 Extended Procurement Process model by the concepts of **profiles**. This concept is described in more detail in Ref. 3.

OIOUBL profiles make it possible for business parties to agree on different implementation levels of the UBL 2.0 model, and thereby make it possible to start at a basic level, and maybe later extend to a more advanced level.

Business parties capable of using OIOUBL should register the profiles they support in a common registry, in order to minimize the need for signing mutually trade agreements.

Profiles are identified with a unique ID in every instance of the business documents, and by providing a given ID, the business party commits itself to follow the rules and flow of documents as specified for that profile ID.

An OIOUBL profile is made up of one or more business processes which are reused (building bricks) in the different profiles. The business processes are structured into four levels:

Process level	Description	UBL usage
Basic	Basic level processes	Basic UBL usage
Simple	Entry level processes	Simple UBL usage
Extended	Next level of business processes	Limited UBL usage
Advanced	Top level of business processes	Full UBL usage

In table 1 below you can see what business documents that are used in the different profiles.

Profile	Order	Document												
		OrderResponse	OrderResponseSimple	OrderChange	OrderCancellation	Invoice	CreditNote	Reminder	Statement	CatalogueRequest	Catalog	CatalogItemSpecificationUpdate	CatalogPricingUpdate	CatalogDeletion
Procurement-BilBas-1.0 and/or urn:www.nesUBL.eu:profiles:profile8:ver1.0						X	X							X
Procurement-BilSim-1.0					X	X	X							X
Procurement-PayBas-1.0									X					X
Procurement-OrdSim-BilSim-1.0	X	X			X	X	X							X
Procurement-OrdAdv-BilSim-1.0	X	X	X	X	X	X	X	X						X
Procurement-OrdSel-BilSim-1.0		X	X	X	X	X	X	X						X
Catalogue-CatBas-1.0										X			X	X
Catalogue-CatSim-1.0									X	X			X	X
Catalogue-CatExt-1.0									X	X	X	X	X	X
Catalogue-CatAdv-1.0									X	X	X	X	X	X

Table 1

The rules, processes and usage of business documents are described in detail for each OIOUBL profile in Ref. 3. As an example, in figure 1 below, you will find a diagram showing the flow for the simple ordering-to-billing profile.

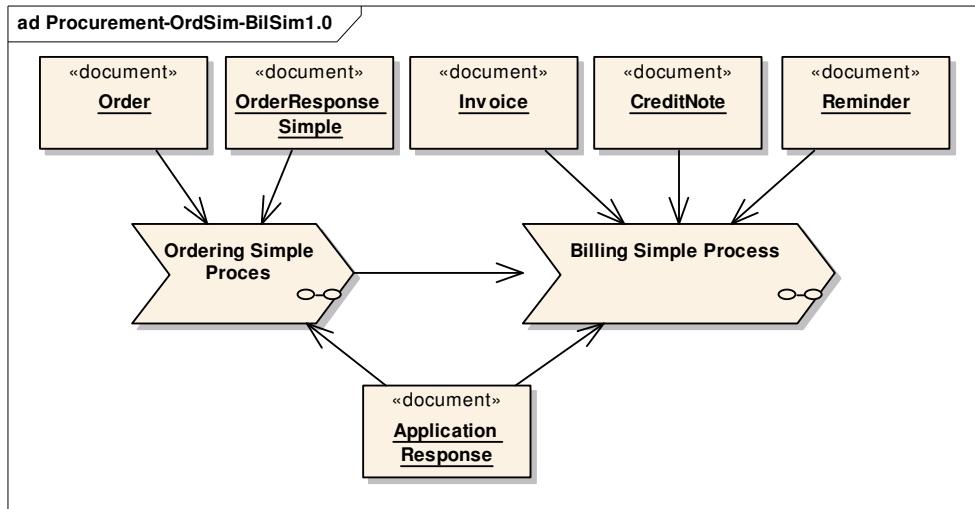


Figure 1, the simple ordering-to-billing profile

For each OIOUBL scenario it is stated what profiles that are used.

2.2.2 The buyers organization

The buyer's organization is defined by:

- The various departments or employees (parties) involved in the procurement. Who is responsible for determining what can be procured and from which supplier? Who is actually purchasing the order? Who is responsible for receiving the goods? Who receives and handles the invoice.
- The internal business rules and process for approving and checking the incoming documents. Standard processes are “approve procurement”, “match order response with order”, “match invoice with delivery”, and “match invoice with order”.
- The systems involved in the procurement and the interfaces between them. Which computer or manual system is involved in the different phases of the procurement?

The buyer's organization can be categorized into:

- Simple buyer organization. An organization where it is the same person who fulfills all the roles in the procurement scenario. The procurement is born in the financial accounting systems and maintained only there.
- Complex buyer organization. An organization where the different departments and systems are involved in the different phases of the procurement. One department may take care of the ordering, others of the delivery reception and others again for the handling of the invoice. Some of the responsibility may even be taken care of by another company.

2.2.3 The sellers organization

The seller's organization is defined by characteristics such as:

- The way the seller lets the buyers know what he can provide, e.g. a catalogue on the Internet, sending catalogues to the buyer or establishing contracts for delivery.
- The parties involved in fulfilling the orders, e.g. whether parts of the task are outsourced to other companies.

2.2.4 The UBL 2.0 Party model

UBL 2.0 describes the different business parties and their role with the UBL 2.0 Party model, see figure 2 next page. This model is the underlying model when talking parties within the OIOUBL Scenario descriptions. Refer to Ref. 5 for more details.

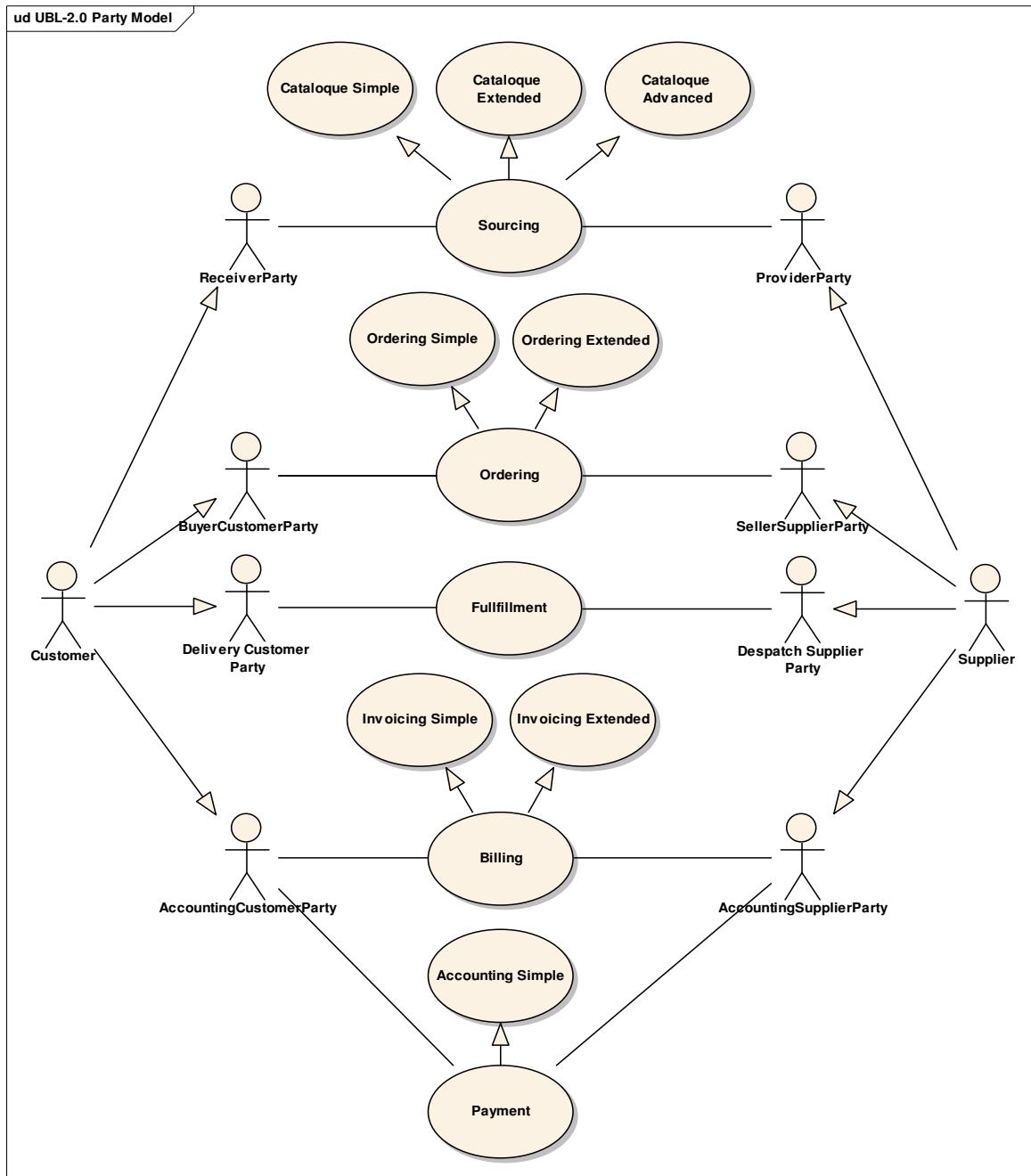


Figure 2, the UBL 2.0 Party model

2.3 The scenario outcome

The scenario outcome is the result of the procurement containing happy day scenario and all kind of error scenarios.

2.4 Scenario numbering rules

The scenarios are organized into a number of packages each having its own focus. Each scenario is identified by an ID² with the following format “ID1_ID2_ID3_ID4” where:

- ID1 = Abbreviation of the package
- ID2 = A number that identifies the scenario within the package
- ID3 = A number that identifies the scenario situation and context within the package
- ID4 = A number identifying the outcome of the procurement

An example could be the following: BASPRO_01_01_00.

For ID1 and ID4 the following values have been defined:

ID1	Description
BASPRO	OIOUBL Basic Procurement Cycle
ADVORD	OIOUBL Advanced Ordering Procurement Cycle
COMDEL	OIOUBL Complex Delivery Procurement Cycle
COMORG	OIOUBL Complex Organizations Procurement Cycle
COMPAY	OIOUBL Complex Payment Cycle
CATEXE	OIOUBL Catalogue Exchange

ID4	Description
00	Happy day
01	Order mismatch
02	Out of stock
03	Price changed since ordered
04	Delivery failure
05	Invoiced non-delivered goods
06	Invoice missing agreed discount
07	Invoice miscalculated
08	Invoice not paid
99	Other failure

² The same ID is used when identifying the XML example instance files related to the scenario description.

3. Structure of the OIOUBL Scenario Description

A scenario package description is divided into the following logical sections:

- General introduction
- A definition of the Procurement Cycle covered in the package
- A number of related scenario descriptions (Use Cases) including example XML instance files
- Description of selected internal processes and eBusiness benefits

The flow of activities and usage of business documents are described by a number of activity diagrams and a related detailed description.

Business processes (or activities) are classified the following way throughout the document:

- Primary activities (external processes inside the defined scope)
- Secondary activities (external processes outside the defined scope and internal processes)

Primary activities are generic in their nature and will be described as such. These activities are the main focus of the document. However selected internal processes will be discussed based on our observations.

The example sections are provided as a help to speed up the implementation process and in order to minimize implementation errors and misinterpretation of document instances.

4. OIOUBL Scenario Packages

In the following chapters the different OIOUBL packages and scenarios will be introduced. Each OIOUBL scenario reflects a fixed set of characteristics inside the defined scope.

4.1 OIOUBL Basic Procurement Cycle (BASPRO)

The OIOUBL Basic Procurement Cycle is a good starting point when implementing eBusiness using OIOUBL. It covers the basic or simple flow from Order to Invoice between small organizations based on the following assumptions:

- The customer knows the item(s) in advance by identifying it using a catalogue
- The item(s) can be identified with a unique item number
- We are dealing with small (non complex) organizations
- Few departments involved in the procurement process
- One Order – One Order Response Simple – One delivery – One Invoice

The scenarios contained in this package are:

Scenario ID	Scenario title	Document ID
BASPRO_01_01_00	Procurement of a blackboard to a minor public school	S03
BASPRO_02_01_02	Procurement of a blackboard to a minor public school (out of stock)	S03
BASPRO_03_01_06	Procurement of a blackboard to a minor public school (invoice failure)	S03
BASPRO_04_01_08	Procurement of a blackboard to a minor public school (no payment)	S03

4.2 OIOUBL Advanced Ordering Procurement Cycle (ADVORD)

The OIOUBL Advanced Ordering Procurement Cycle covers issues not covered in the OIOUBL Basic Ordering Procurement Cycle document. Issues such as:

- Textual based ordering
- Notify orders
- Seller initiated ordering
- Forecasting
- Ordering based on contracts

The scenarios contained in this package are:

Scenario ID	Scenario title	Document ID
ADVORD_01_01_00	Seller initiated order	S02
ADVORD_02_02_00	Forecasting	S02
ADVORD_03_03_00	Contract-based procurement	S02
ADVORD_04_04_00	Text based ordering	S02
ADVORD_05_04_01	Text based ordering – cancellation	S02
ADVORD_06_05_00	Settlement of a loan	S02

4.3 OIOUBL Complex Delivery Procurement Cycle (COMDEL)

In the OIOUBL Complex Delivery Procurement Cycle a public organization purchases trade items with several deliveries on the basis of one single order. The complexity of this procurement cycle originates in the amount of deliveries – over time or to different locations.

- One order can trigger a continuous string of trade items to be delivered for instance once a week on the same location
- One order can trigger a delivery of trade items to a number of locations for instance to citizens of a municipality

It must be emphasized that the complexity in focus in this scenario package relates to the deliveries and therefore not to the complexity of the ordering organization – even though a public organization is indeed a complex entity. This subject is covered in the COMORG scenario package.

The scenarios contained in this package are:

Scenario ID	Scenario title	Document ID
COMDEL_01_01_00	Procurement of fruit delivered to a university administration office	S05
COMDEL_02_02_00	Procurement of wheelchairs delivered to citizens of a municipality	S05
COMDEL_03_01_04	Procurement of fruit delivered to an university administration office where one delivery is not accepted	S05
COMDEL_04_02_04	Procurement of wheelchairs delivered to citizens of a municipality where one delivery is not delivered on time	S05

4.4 OIOUBL Complex Organizations Procurement Cycle (COMORG)

In the OIOUBL Complex Organizations Procurement Cycle we are dealing with complex customer and/or supplier organizations. The complexity could be due to a number of factors such as:

- A large number of employees
- A large number of different internal departments
- A large number of different internal IT systems
- The organization is geographically divided
- High complexity of the organization's internal procedures
- More than one organization involved in the procurement cycle

Common for these scenarios are that the originator of the procurement process is not the same person as the customer.

Typically different departments and systems are involved in the different phases of the procurement cycle. One department may take care of the ordering, others of the delivery reception and others again for the handling of the invoice. Some of the responsibility may even be taken care of by another company.

The scenarios contained in this package are:

Scenario ID	Scenario title	Document ID
COMORG_01_01_00	Procurement of various office supplies for a government agency	S06
COMORG_02_02_00	Procurement of a computer monitor in government agency	S06
COMORG_03_03_00	Procurement of medicine	S06

4.5 OIOUBL Complex Payment Cycle (COMPAY)

The OIOUBL Complex Payment cycle is dealing with special or complex ways of processing invoices and how registration and payment should be handled in these situations.

A number of factors are unique to this procurement cycle such as:

- The invoice is sent from other parties than the Supplier
- The invoice has to be paid to another legal entity than the Supplier.

The scenarios contained in this package are:

Scenario ID	Scenario title	Document ID
COMPAY_01_01_00	Procurement of flight tickets by a credit card	S07
COMPAY_02_02_00	Settlement of stamping from a minor school using Self Billed invoice	S07
COMPAY_03_03_00	Payment administration using factoring company	S07
COMPAY_04_04_00	Magazine subscription administration by 3 rd party	S07

4.6 OIOUBL Catalogue Exchange (CATEXE)

In the OIOUBL Catalogue Exchange Cycle a Catalogue or a Catalogue update is exchanged between a Receiver Party on the customers' side and a Provider Party on the suppliers' side. The exchange of catalogue documents can be initiated from the different parties for different purposes. The initiator can be a customer, a supplier or a third party e.g. a catalogue or contract manager or a portal or market place. The purpose can vary from an annual price update from the supplier based on a contract, to a display of products in a portal.

The focus of the scenario package is not as much the diversity in the catalogue request, but rather the differences between the catalogue and the catalogue update documents, and how and when to use the documents.

The scenarios contained in this package are:

Scenario ID	Scenario title	Document ID
CATEXE_01_01_00	Creation of a new mobile phone catalogue requested by a public school	S04
CATEXE_02_02_07	Update of an existing mobile phone catalogue requested by a public school	S04
CATEXE_03_03_00	Update of item specifications in an existing catalogue requested by a public school	S04
CATEXE_04_04_00	Annual price update from a paper supplier to a public school	S04
CATEXE_05_05_00	Medical supply catalogue hosted by a marketplace	S04
CATEXE_06_06_00	Deletion of existing paper catalogue send from the supplier	S04

5. Terms and abbreviations

Term	Definition
Scenario	An OIOUBL scenario reflects a fixed set of characteristics inside the defined scope .
Happy day scenario	An OIOUBL scenario where everything turns out as intended.
Network provider	A service to exchange documents. Both VANS, Internet etc.
NES	Northern European Subset is an effort by Northern European countries to co-ordinate content and usage of electronic business documents, based on UBL 2.0.
GLN	A unique identifier provided by GS1. In this context it means a location number, a number that identifies a sender or a receiver of a document, or simply an address. Location numbers are broadly used in EDI solutions. A GLN number was previously named 'EAN location number'.
EAN	See GLN.