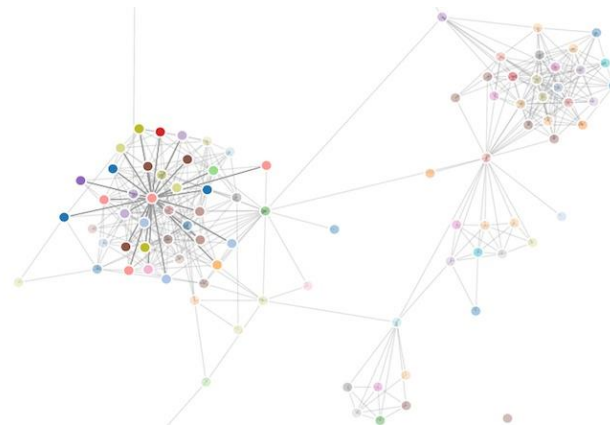




# e-Procurement Ontology

*Publications Office – Unit C2*

4th Working Group Meeting: 2018-02-23





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# 1. Presentations of the attendants

2. Introduction (*Manuela Cruz*)
3. Current Status of Work (*Natalie Muric*)
4. Glossary (*Laia Bota*)
5. Wiki Content Management (*Enric Staromiejski*)
6. Code lists (*Natalie Muric*)
7. Conceptual Data Model (*Maria Font*)
8. Technical Documentation (*Enric Staromiejski*)
9. Planning of actions and tasks



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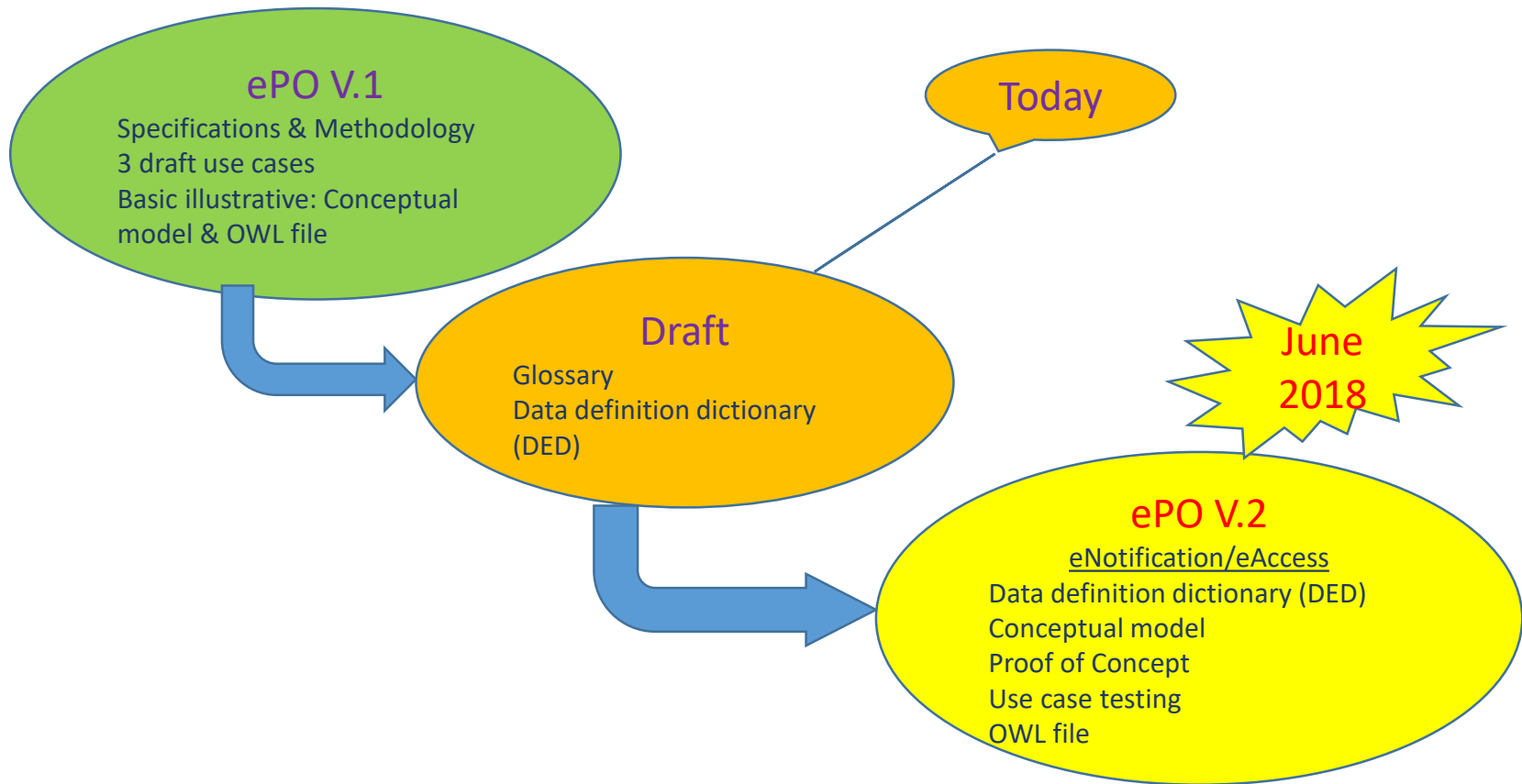
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### 3. Current status of work



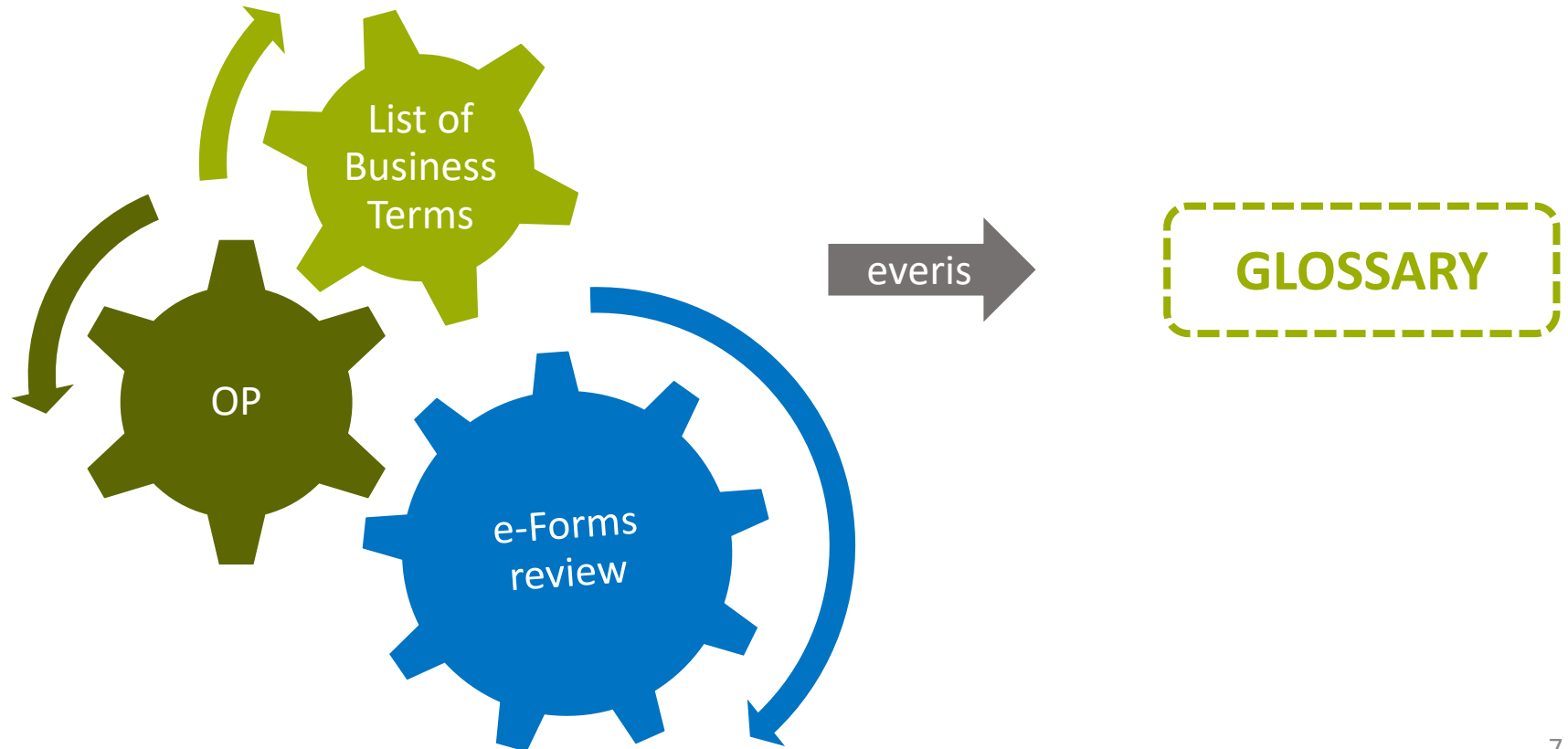


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## 4. Glossary

Background



## 4. Glossary

Content (1/2)

Definitions tab

- List of the Business Terms and their corresponding definitions;
- Comments from everis and from OP



Details tab

- Other extra definitions obtained from additional sources of information to get a broader overview of the Business Terms;
- The Use Case related to each Business Term;
- The e-Procurement phases related to each Business Term

## 4. Glossary

### Content (2/2)

#### Definitions tab:

1	ID	Context	Business Term	Definition	Comments	Status	OP comments
1195	BT-194	Notice/Result/	Exclusion Tenders Abnormally Low	There are one or several bids with unexpected cheap prices.	Ontology proposal. See ID C-112 in Details tab for further information. New Business Term proposed (it replaces "Exclusion Tenders Anormally Low Indicator": an indicator to specify whether the tenders are abnormally low or not).	Reviewed and Pending Approval	

#### Details tab:

1	Concept identification		Concept definition			
2	ID	Concept	Definition	Source	Additional source information	Related BT in Definitions tab
3	C-112	Abnormally low tenders	There are one or several bids with unexpected cheap prices.	Ontology proposal	An indicator to specify whether the tenders are abnormally low or not	BT-194
4	C-112	Abnormally low tenders	Tenders that appear abnormally low in relation to the works, supplies or services might be based on technically, economically or legally unsound assumptions or practices. Where the tenderer cannot provide a sufficient explanation, the contracting authority should be entitled to reject the tender.	DIRECTIVE 2014/24/EU	Whereas (103)	BT-194
5	C-112	Abnormally low tenders	Contracting authorities shall require economic operators to explain the price or costs proposed in the tender where tenders appear to be abnormally low in relation to the works, supplies or services	DIRECTIVE 2014/24/EU	Article 69	BT-194
6	C-112	Abnormally low tenders	Text describing the exclusion criterion for abnormally low tenders.	UBL		BT-194
7	C-112	Abnormally low tenders	Text describing the exclusion criterion for abnormally low tenders.	ESPD		BT-194



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## 5. Wiki Content Management



The screenshot shows the GitHub Wiki interface for the ePO v2.0.0 project. The top navigation bar includes links for Code, Issues (3), Pull requests (1), Projects (0), Wiki (active), Insights, and Settings. The main content area is titled 'HOME' and shows a recent edit by 'sembu-eproc' 2 days ago with 10 revisions. Below this is a large blue padlock icon with yellow stars, representing the European Union flag. The main heading is 'Welcome to the ePO v2.0.0 Wiki'. The text describes the ultimate objective of the e-procurement ontology (ePO) and the framework of the project. On the right side, there is a sidebar with a 'Pages' section showing 31 pages, a 'Glossary' section with links to 'EU eProcurement Glossary' and 'Glossary Management', and a 'Specification' section with links to 'Online documentation (in progress...)', 'PDF version', and 'Use case 1: Transparency and Monitoring'. Below these are sections for 'Development', 'Information Requirements', and 'Conceptual Model', each with a list of links to specific documents.

<> Code ① Issues 3 📄 Pull requests 1 📁 Projects 0 📖 Wiki 📊 Insights ⚙ Settings

HOME

sembu-eproc edited this page 2 days ago · 10 revisions



### Welcome to the ePO v2.0.0 Wiki

The ultimate objective of the e-procurement ontology (ePO) is to put forth a commonly agreed OWL ontology that will conceptualise, formally encode and make available in an open, structured and machine-readable format data about public procurement, covering it from end to end, i.e. from notification, through tendering to awarding, ordering, invoicing and payment. It is the intention of the e-procurement ontology to unify existing practices, thus facilitating seamless exchange, access and reuse of data.

In the framework of this project, we will identify and give examples of each step of the process for creating the e-procurement ontology. Clearly specifying the roles of the different actors and the input required of them within the timeline of creating the ontology. The different phases needed to create the ontology and the intermediary processes within these phases will be clearly defined giving examples taken from the 3 use cases. In parallel to this process, a working group composed of stakeholders from multiple interested groups will be set up. This working group will decide by consensus on how the ontology should be developed at all stages and may decide to adopt the first draft of the specification proposed and described during the first meeting. This project will provide the working group with the process, methodology and technology to be followed for developing the final version of the e-procurement ontology.

► Pages 31

#### Glossary

- [EU eProcurement Glossary](#)
- [Glossary Management](#)

#### ePO v2.0.0

#### Specification

- [Online documentation](#) (in progress...)
- [PDF version](#)
- [Use case 1: Transparency and Monitoring](#)

#### Development

#### Information Requirements

- [Information Requirements](#)
- [Information requirement and DED management](#)

#### Conceptual Model

- [CM - Visualisation](#)
- [CM - Classes](#)

Link to the [Wiki](#)

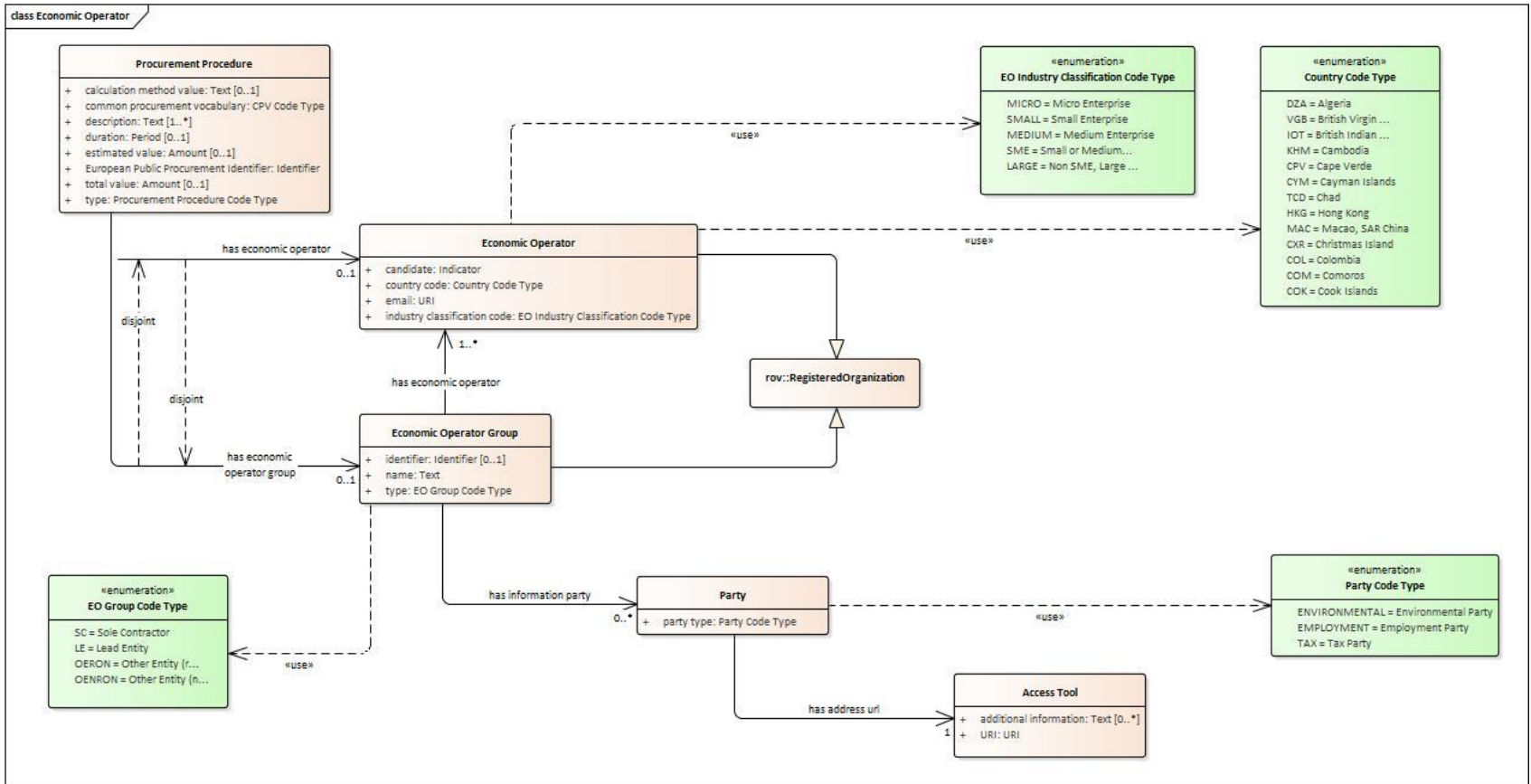


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## 6. Code lists

### Conceptual data model



## 6. Code lists



[MDR](#) > *Authorities*

In order to harmonise and standardise the codes and the associated labels used in the Publications Office and on inter-institutional level in the context of the data exchange between the institutions involved in the legal decision-making process, a number of Named Authority Lists (NALs) have been defined. These NALs are also known as (Common) Authority Tables (CATs), controlled vocabularies or value lists.

The following NALs are maintained in the Metadata Registry:

### List of available tables

If you click on the links, the last published version of the table will be displayed in different formats.

The released NAL versions are available as well as datasets on the [European Union Open Data Portal](#) (ODP).

- |   |  |  |  |
|---|--|--|--|
| <ul style="list-style-type: none"><li>• <a href="#">Access right</a></li><li>• <a href="#">Address type</a></li><li>• <a href="#">Administrative territorial unit</a></li><li>• <a href="#">Administrative territorial unit type</a></li><li>• <a href="#">Capital classification</a></li><li>• <a href="#">Case report</a></li><li>• <a href="#">Case status</a></li><li>• <a href="#">Concept status</a></li><li>• <a href="#">Continent</a></li><li>• <a href="#">Corporate body</a></li><li>• <a href="#">Corporate body classification</a></li><li>• <a href="#">Correction status</a></li><li>• <a href="#">Country</a></li><li>• <a href="#">Court type</a></li><li>• <a href="#">Currency</a></li><li>• <a href="#">Data theme</a></li><li>• <a href="#">Dataset status</a></li><li>• <a href="#">Dataset type</a></li><li>• <a href="#">Directory of EU legal acts</a></li></ul> | <ul style="list-style-type: none"><li>• <a href="#">Distribution type</a></li><li>• <a href="#">Documentation type</a></li><li>• <a href="#">EU budget amount status</a></li><li>• <a href="#">EU budget stage</a></li><li>• <a href="#">EU budget status</a></li><li>• <a href="#">EU programme</a></li><li>• <a href="#">Event</a></li><li>• <a href="#">File type</a></li><li>• <a href="#">Formation of the Court</a></li><li>• <a href="#">Frequency</a></li><li>• <a href="#">Grammatical alternation</a></li><li>• <a href="#">Grammatical consciousness</a></li><li>• <a href="#">Grammatical gender</a></li><li>• <a href="#">Grammatical number</a></li><li>• <a href="#">Honorific</a></li><li>• <a href="#">Human sex</a></li><li>• <a href="#">Interinstitutional procedure</a></li><li>• <a href="#">Label type</a></li><li>• <a href="#">Language</a></li></ul> | <ul style="list-style-type: none"><li>• <a href="#">Legal proceeding</a></li><li>• <a href="#">Legal proceeding result</a></li><li>• <a href="#">Legal proceeding type</a></li><li>• <a href="#">Licence</a></li><li>• <a href="#">Licence domain</a></li><li>• <a href="#">Membership classification</a></li><li>• <a href="#">Modification type</a></li><li>• <a href="#">Multilingual</a></li><li>• <a href="#">Notation type</a></li><li>• <a href="#">Number</a></li><li>• <a href="#">Number type</a></li><li>• <a href="#">Organization type</a></li><li>• <a href="#">Place</a></li><li>• <a href="#">Position grade</a></li><li>• <a href="#">Position status</a></li><li>• <a href="#">Position type</a></li><li>• <a href="#">Procedure nature</a></li><li>• <a href="#">Product form</a></li><li>• <a href="#">Publication theme</a></li></ul> | <ul style="list-style-type: none"><li>• <a href="#">Resource type</a></li><li>• <a href="#">Role</a></li><li>• <a href="#">Role nature</a></li><li>• <a href="#">Role qualifier</a></li><li>• <a href="#">Script</a></li><li>• <a href="#">Site</a></li><li>• <a href="#">Subdivision</a></li><li>• <a href="#">Subdivision position</a></li><li>• <a href="#">Subject matter</a></li><li>• <a href="#">Summaries of EU legislation classification</a></li><li>• <a href="#">Target audience</a></li><li>• <a href="#">Time period</a></li><li>• <a href="#">Treaty</a></li><li>• <a href="#">Treaty classification</a></li><li>• <a href="#">Use context</a></li><li>• <a href="#">Writing system</a></li></ul> |
| <ul style="list-style-type: none"><li>• <a href="#">Authority Type</a></li><li>• <a href="#">Legal Basis</a></li><li>• <a href="#">Procurement Procedure</a></li></ul>  | <ul style="list-style-type: none"><li>• <a href="#">Award Criteria</a></li><li>• <a href="#">Main Activity</a></li></ul>   | <ul style="list-style-type: none"><li>• <a href="#">Bid Type</a></li><li>• <a href="#">Market Regulation</a></li></ul>   | <ul style="list-style-type: none"><li>• <a href="#">Contract Nature</a></li><li>• <a href="#">Notice Type</a></li></ul>  |

## 6. Code lists

### Public procurement formats



[MDR](#) > [Authorities](#) > [Currency NAL](#)

The Currencies Named Authority List (NAL) or Common Authority Table (CAT) is a controlled vocabulary listing currencies with their authority code and labels in the 24 official languages of the EU (when available). The list is based on the ISO standard ISO 4217. This NAL is maintained by the Publications Office of the EU in its Metadata Registry (MDR).

The following distributions are available:

- [XML](#) (source format)
- [SKOS](#) (standard [SKOS](#) RDF/XML distribution; does not contain all elements included in XML)
- [SKOS-AP-EU](#) (enriched RDF/XML distribution conform to SKOS-AP-EU profile covering all XML elements) **Beta version**
- [HTML](#) (does not contain all elements included in XML)
- eProcurement simpleType declaration:
  - [t\\_currency\\_tedschema.xsd](#) (documentation)
  - [t\\_currency\\_devcoschema.xsd](#) (documentation)

These links lead to the latest version of the NAL in question. For previous versions, please consult the complete [MDR publications](#).

[Documentation](#)

[MDR](#) > [Authorities](#) > [Authority type NAL](#)

This table provides a list of types of buyer within the domain of public procurement.


The following distributions are available:

- [XML](#) (source format)
- [SKOS](#) (standard [SKOS](#) RDF/XML distribution; does not contain all elements included in XML)
- [SKOS-AP-EU](#) (enriched RDF/XML distribution conform to SKOS-AP-EU profile covering all XML elements) **Beta version**
- [HTML](#) (does not contain all elements included in XML)
- eProcurement simpleType declaration:
  - [t\\_authority-type\\_tedschema.xsd](#) (documentation)

These links lead to the latest version of the NAL in question. For previous versions, please consult the complete [MDR publications](#).

[Documentation](#)

## 6. Code lists



# EU Vocabularies

EU Vocabularies
Search
English (en)

EUROPA > EU law and publications > EU Vocabularies > Controlled vocabularies > **Authority tables**
My portal

Home
Controlled vocabularies
Models
Metadata Registry
Template Management

### Controlled vocabularies

- Authority tables
- Thesauri
- ATTO tables
- Alignments

### Authority tables

In order to harmonise the standardise in the code and the associated label user in the Publications Office and on inter-institutional level in the contest of the data exchange between the institutions involved in the legal decision making process, a number of Named Authority Lists (NAL's) have been defined. The NAL's are also known al (Common) Authority Tables (CAT's), controlled vocabularies or value lists.

The following NALs are maintained in the Metadata Registry:

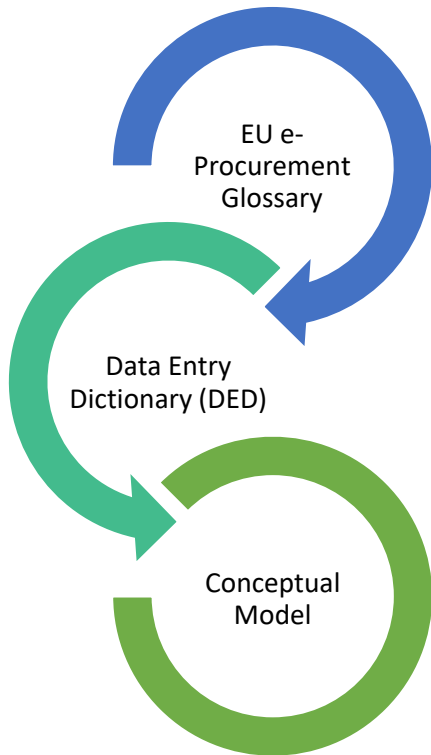
Access right	Event (under review)	Organization type
Address type	File type	Place
Administrative territorial unit	Formation of the Court	Position grade
Administrative territorial unit type	Frequency	Position status
Capital classification	Grammatical alternation	Position type
Case report	Grammatical consciousness	Procedure nature
Case status	Grammatical gender	Product form
Concept status	Grammatical number	Publication theme
Continent	Honorific	Resource type
Corporate body	Human sex	Role
Corporate body classification	Interinstitutional procedure	Role nature
Correction status	Label type	Role qualifier
Country	Language	Script
Court type	Legal proceeding	Site
Currencies	Legal proceeding result	Subdivision
Data theme	Legal proceeding type	Subdivision position
Dataset status	Licence	Subject matter
Dataset type	Licence domain	Summaries of EU legislation classification
Directory of EU legal acts	Membership classification	Target audience
Distribution type	Modification type	Time period
Documentation type	Multilingual	Treaty
EU budget amount status	Notation type	Treaty classification
EU budget stage	Number	Use context
EU budget status	Number type	Writing system
EU programme		



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## 7. Conceptual Data Model



### DED.

- Excel file;
- The result of a mapping between the Glossary and the Ontology;
- The classes and the attributes will be identified together with the data types and their cardinality.

### Conceptual Model.

- Enterprise Architect (EA) file;
- This tool will allow us to obtain a first version of this model: a graphic with all the classes, attributes and relations.

## 7. Conceptual Data Model

**Glossary** is static.

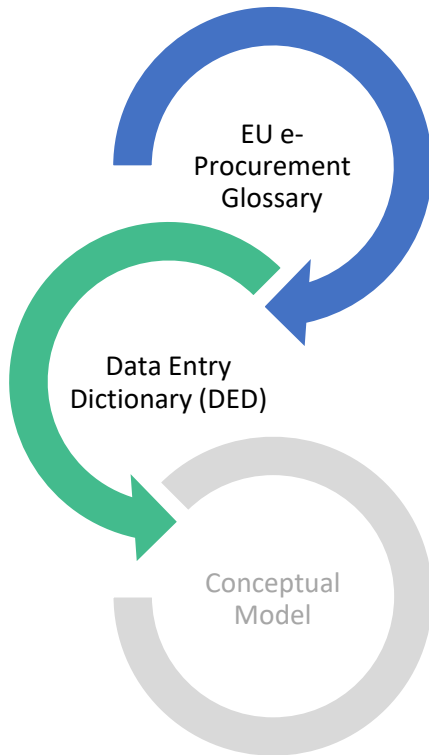
B	C	D	E
ID	Concept	Concept Definition	Source
C-112	Abnormally low tenders	There are one or several bids with unexpected cheap prices.	Ontology proposal

*Glossary definition or  
Updated WG definition*

ePO Business Term	Concept Definition (these definitions come from the Glossary)	Examples	Co
Abnormally Low Tender	A tender that is judged by the contracting authority as abnormally low in relation to the works, s		

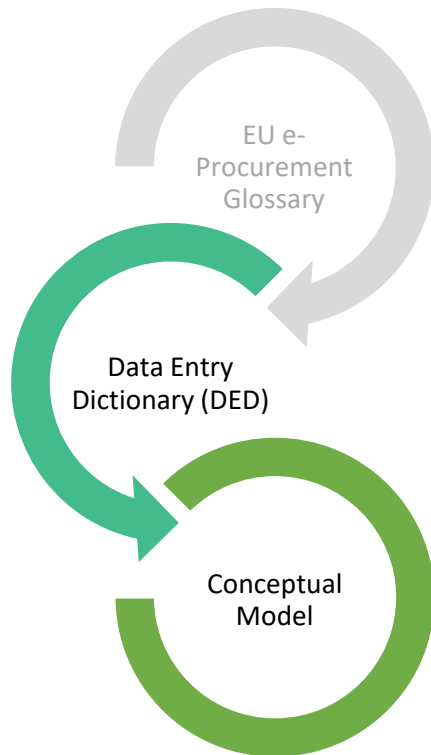
**DED** is dynamic.

Any concept definition improvement coming from the Working Group is updated in this file.

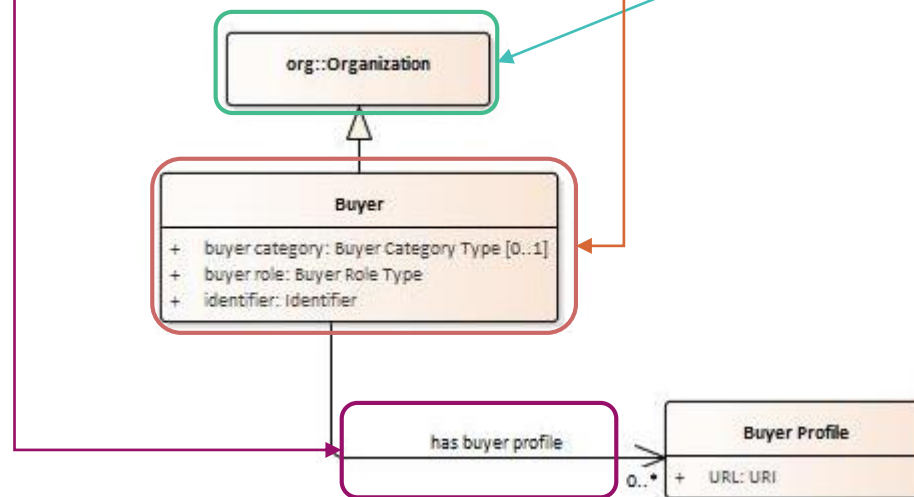


## 7. Conceptual Data Model

- "**Pink** rows": represent a **class**. The rows between one pink row and another show the content of the class;
- "**White** rows": represent an **attribute** (simple data type) of a class;
- "**Green** rows": represent a **relationship** between other classes of the Ontology.



ePO Business Term	Concept Definition (these definitions come from the Glossary)	Examples	Comments	Inheritance	Range	Cardinality
Buyer	Body that managed the the budget allocated for the proce			org:Organization		
Buyer Category	Category of the procuring agent in the procurement procedure.		This make sense especially, but perh		Code	0..1
Buyer Role	Identifies the function of the buyer in the procurement procedure.		Two roles identified so far: CPB, Buyer		Code	1
Buyer Profile	Web site where the buyer publishes information regarding				Buyer Profile	0..n
Buyer Profile	Web site where the buyer publishes information regarding					





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## 8. Technical Documentation

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### Glossary

- [EU eProcurement Glossary](#)
- [Glossary Management](#)

### ePO v2.0.0

#### Specification

- [Online documentation](#) (in progress...)
- [PDF version](#)
- [Use case 1: Transparency and Monitoring](#)

#### Development

##### Information Requirements

- [Information Requirements](#)
- [Information requirement and DED management](#)

##### Conceptual Model

- [CM - Visualisation](#)
- [CM - Classes](#)

#### Table of Contents

Abstract  
I. Introduction  
    About ePO v1.00  
    ePO v2.0.0. objectives and scope  
    Methodological approach  
    ePO governance  
II. Approach  
III. Information Requirements  
IV. Conceptual Data Model  
V. Design and Implementation  
VI. Proof of Concept  
VII. Conclusions and next steps

## ePO - The European eProcurement Ontology (v2.0.0)

### Abstract

In 2016 the [Publications Office of the European Union](#) (Publications Office or OP) was commissioned by the [ISA Programme](#) to organise and support the development of an Ontology of the Public e-Procurement (ePO).

The ultimate objective of the Ontology is to put forth a commonly agreed OWL ontology that will conceptualise, formally encode and make available in an open, structured and machine-readable format data about public procurement, covering it from end to end, i.e. from notification, through tendering to awarding, ordering, invoicing and payment. With this goal in mind the OP engaged a Working Group of experts with the mission of building consensus on the analysis results and deliverables developed by the OP's teams.

By mid-2017 a version 1.00 of the Ontology was delivered and submitted to the Working group for discussion. All the materials related to this version were made public and are accessible through the ISA2 [Joinup](#) platform; including the discussions held in the Working Group.

A new stage of the development, identified as ePO v2.0.0, was initiated in January 2018. The goal of this new version is to improve and extend the previous version. This document describes the objectives, the methodological approach and the deliverables produced in this new version.

Link to the [Technical Documentation](#)



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