e-Procurement ordering Solution Architecture Template (SAT)

Change control

Table 1-1

Modification	Details
Version 1.0.0 beta	
Initial version	

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1 INTRODUCTION

This document contains the description for a Solution Architecture Document (SAT) for the e-Procurement *ordering* business capability.

This SAT is based on EIRA*v2.0.0,* which is aligned with ArchiMate® *3.0.*

The ArchiMate source are embedded in this document in the "Archi format" as well as in "The Open Group ArchiMate Model Exchange File Format".

SAT e-Procurement ordering v1.0.0 beta

SAT e-Procurement ordering v1.0.0 beta

1.1 Purpose of this document

Enterprise and Solution architects can use this document to design solution architectures in the domain of e-Procurement ordering business capability.

1.2 List of acronyms used in this document

Table 1-1

ABB	Architecture Building Block
BII	Business Interoperability Interfaces
CA	Contracting Authority
CEF	Connecting Europe Facility
CEN	Comité Européen de Normalisation (European Committee for Standardization)
CEN TC 440	CEN Technical Committee 440 – Electronic Public Procurement
EIRA	European Interoperability Reference Architecture
EO	Economic Operator(s)
GDPR	General Data Protection Regulation
HI	Human Interface
IES	Interoperable European Solution
ISA²	Interoperability solutions for public administrations, businesses and citizens
MMI	Machine to Machine Interface
SAT	Solution Architecture Template
SBB	Solution Building Block
UBL	Universal Business Language

2 GOAL, DESCRIPTION AND TARGET AUDIENCE

This chapter gives the goals and a description on e-Procurement ordering business capability and indicates the target audience and their potential use of this Solution Architecture Template (SAT).

2.1 Goal

The purpose of this SAT is to provide guidance by defining a minimal, but holistic (legal, organisational, semantic and technical) interoperability architecture in the domain of e-Procurement ordering business capability. This SAT should allow businesses, citizens and public administrations to have a common understanding of the most-salient building blocks.

2.2 What is e-Procurement ordering business capability?

The ordering business capability of e-Procurement covers the issuing of an electronic order by the contracting body and its acceptance by the supplier or conversely issuing of an electronic order agreement by the supplier.

2.3 What is a solution architecture template (SAT)

A Solution Architecture Template (SAT) is a specification extending the EIRA providing support to solution architects in a specific solution domain. An SAT contains a motivation (principles, requirements), a goal and a description of the supported functionalities, a sub-set of the EIRA core Architecture Building Blocks (ABBs) covering the four views, a set of specific ABBs extending EIRA's views enabling specific functionalities to be provided by implementations derived from the SAT and the interoperability specifications of selected ABBs and a narrative for each EIRA view.

The benefits of a SAT are the following:

- Provides architects with a common approach to cope with a specific interoperability challenge. It also places the focus on the key-points you need to consider.
- A solution architect can create a solution architecture by mapping existing Solution Building Blocks (SBBs) to an SAT, based on the interoperability specifications that are provided. This is done by providing SBBs for the ABBs identified in the SAT.
- When an architect creates an SAT, he/she can define the interoperability specifications for the SAT's ABBs and moreover recommend specific SBBs which produces faster and more interoperable results.
- An SAT can be created within and across the different views of the EIRA. An SAT can then support architects specialised in different interoperability levels.

2.4 Target audience

This document has the following target audience:

Table 2-1

Audience	Description
Solution Architect	Solution architects in the need of understanding, implementing, or describing an e-Procurement ordering solution
Policy maker	Policy makers studying the implications due to policy changes in the area of e-Procurement, ordering part

Public Administration / Members States	Public Administrations of the European Union that need to have a holistic view of the e-Procurement, ordering part interoperability architecture

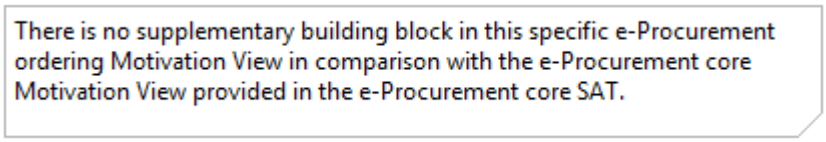
3 E-PROCUREMENT ORDERING INTEROPERABILITY MAPPED TO THE EIRA

This chapter contains for each EIRA view the corresponding ArchiMate model and narrative. Next to the SAT's EIRA architecture building blocks, the ArchiMate model includes, where applicable, the related specifications, principles and requirements.

The models have been scaled down to fit with the text, they are included in bigger format in the appendix.

3.1 ArchiMate Motivation extension

There is no supplementary building block in this specific e-Procurement ordering Motivation View in comparison with the e-Procurement core Motivation View provided in the e-Procurement core SAT. The core Motivation View specified in the e-Procurement core SAT applies.



3.2 How to use this SAT

The present SAT is specifically related to the ordering business capability of e-Procurement. The present document has to be used in complement to the SAT related to e-Procurement.

Indeed:

- The e-Procurement core SAT focuses on the architecture that is common to all e-Procurement business capabilities.
- The present e-Procurement ordering SAT addresses the architecture that is specific to the ordering business capability.

Said in other words, the e-Procurement core SAT provides the foundation for the core e-Procurement, while the present SAT complements it by addressing the e-Procurement ordering specificities.

A solution architect that uses the two Solution Architecture Templates typically wants to perform a gap-analysis between an existing solution and these SATs, or he/she wants to model a solution in the domain of e-Procurement ordering and uses the two SATs as guidance.

3.2.1 e-Procurement ordering Gap Analysis use case

Using the two *e-Procurement core* and *e-Procurement ordering* SATs for gap analysis, the solution architect can map the building blocks of the solution to the ones in the two SATs and identify which building blocks are missing. These building blocks can either indicate missing functionality or missing interoperability specifications.

3.2.2 e-Procurement ordering Building a solution architecture use case

When building a solution architecture, the solution architect is expected to use the four different EIRA views in the two *e-Procurement core* and *e-Procurement ordering* SATs and provide a solution in the form of Solution Building Blocks (SBBs) for the Architecture Building Blocks (ABBs) that are indicated. This is done by replacing the Architecture Building Block (ABB) with an annotated Solution Building Block (SBB). The existing Solution Building Blocks in the two SATs

should not be removed and replaced. However, the acknowledgement of reusing these building blocks can be done by removing the ABBs which they specialise.

Interoperability Specifications (IoP specs) are added as specialisation of an Interoperability ABB, implemented in the form of an SBB and attached to an ABB as interoperability requirements. The final solution should only contain the implementation (the SBB) of the IoP Spec

The result will be a solution architecture that will contain only SBBs, all ABBs should have been removed (in the case this SAT already provides SBBs for this ABB) or replaced by SBBs (solutions that implement that ABB).

The SAT is a document describing the needed Architecture Building Blocks for a desired solution. This should not be taken as restrictive but as advisory. When an Architecture Building Block (ABB) is present for which there is no implementation foreseen in the form of a Solution Building Block (SBB), it is *strongly* recommended, but not mandatory, to take this ABB into consideration in the final solution.

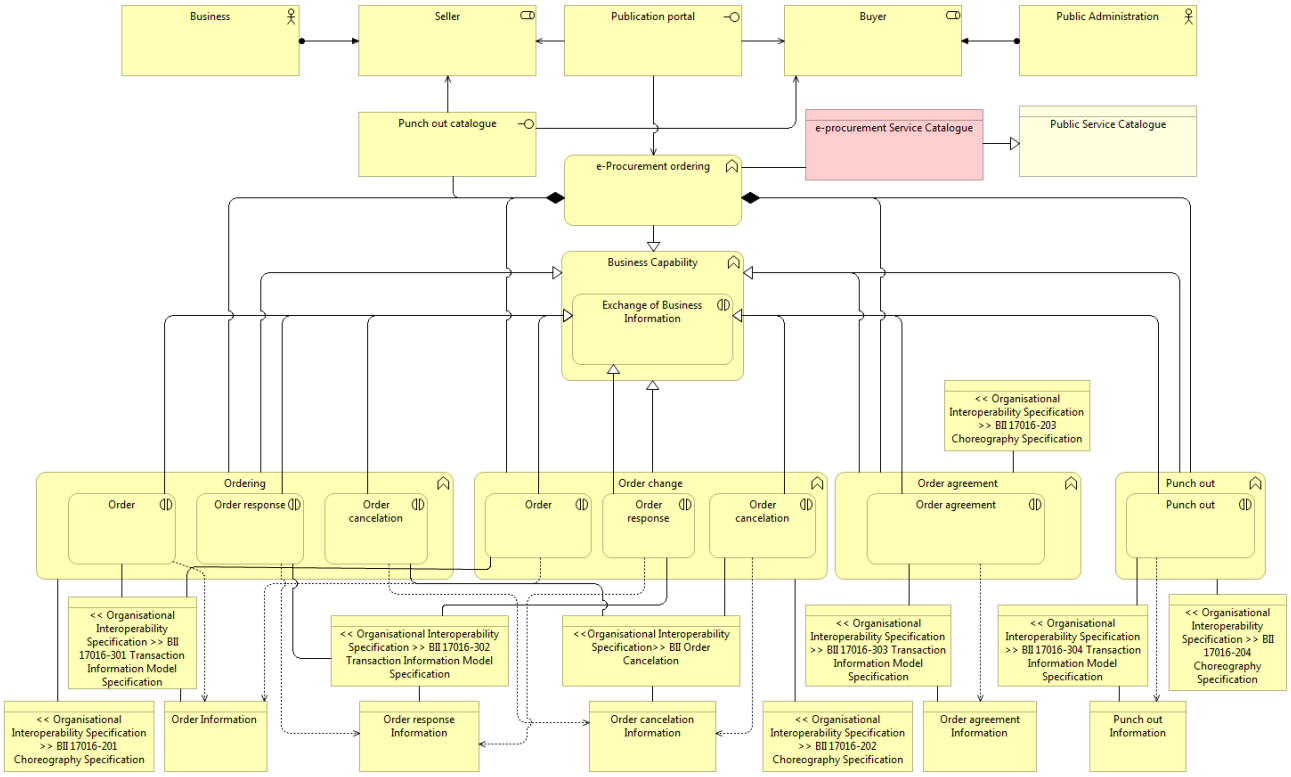
3.3 e-Procurement ordering Legal View

There is no supplementary building block in this specific e-Procurement ordering Legal View in comparison with the e-Procurement core Legal View provided in the e-Procurement core SAT. The core Legal View specified in the e-Procurement core SAT applies.

There is no supplementary building block in this specific e-Procurement ordering Legal View in comparison with the e-Procurement core Legal View provided in the e-Procurement core SAT.

3.4 e-Procurement ordering Organisational View

The Organisational view for the e-Procurement ordering business capability consists in the following sub-set of EIRA Architecture Building Blocks (ABBs) as well as a number of predefined Solution Building Blocks (SBBs):



The e-Procurement ordering Business Capability is provided using the Publication portal Service Delivery Model and is listed in the e-procurement Service Catalogue.

The Publication Portal is used by the Buyer (in the present case a Public Administration) to issue an electronic order and by the Seller (i.e. Business entities) to accept it or to issue an electronic order agreement.

The e-Procurement ordering Business Capability is made up of the following Business Capabilities. For each capability, the Exchanges of Business Information between the Buyer and the Seller it involves are given:

1. Ordering

   Exchange of Business Information: Order.

2. Order change

   Exchange of Business Information: Order response.

3. Order agreement

   Exchange of Business Information: Order agreement.

The following table lists the Organisational Interoperability Specifications applying to the Business Capabilities and Exchanges of Business Information:

Table 3-1

Business Capability and Exchange of Business Information	Organisational Interoperability Specification
Ordering	BII 17016-201
Order	BII 17016-301
Order response	BII 17016-302
Order cancelation	BII 17016-303
Advanced ordering	BII 17016-202
Order	BII 17016-301
Order response	BII 17016-302
Order cancelation	BII 17016-303
Order agreement	BII 17016-203
Order agreement	BII 17016-304
Punch out	BII 17016-204
Punch out	BII 17016-305

Ordering Choreography

Describes the basic order process where the Buyer sends an order to the Seller and the Seller may or may not answer with an order response. The order may or may not be based on a contract. In this process is envisaged that the Seller can cancel the order by sending an order cancelation.

Order transaction

Describes the information content of the order documents exchanged in ordering and advanced ordering choreographies by providing a semantic data model. A specific business process ID may indicate whether the order is a substitute of a former order or not.

Order response transaction

Describes the information content of the order response document given by the Seller to the Buyer by providing a semantic data model. A specific business process ID may indicate whether the order response is intended to ask the Buyer to modify the order to which it refers.

Order cancelation transaction

Describes the information content of the of the order cancelation document exchanged in ordering and advanced ordering choreographies by providing a semantic data model.

Advanced ordering Choreography

Describes a more complex order process where the Buyer sends an order to the Seller and the Seller may or may not answer with an order response. By the order response the Seller can propose to change the content of the order to the Buyer; the Buyer can accept the proposed changes by sending a new version of the order that substitutes the former one. The order may or may not be based on a contract. In this process it is envisaged that the Seller can cancel the order by sending an order cancelation.

Order agreement Choreography

Describes the process where an order agreement is established between a Buyer and a Seller, laying down the terms applicable to procurement of one or more named items such as delivery terms and conditions or specifications of how they can be determined for a stated period; the agreement also contains detailed specifications on the goods or services to be supplied and affirms their agreed upon prices (or the formula or method used in price determination) and specifies the

point at which each order becomes a binding contract (e.g., issuance of the order, acceptance of the order in a specified manner, or failure to reject the order within a specified number of days). The process does not envisage a response by the Seller. The order agreement cannot be substituted by a new one.

Order agreement transaction

Describes the information content of the of the order agreement document used in the order agreement choreography by providing a semantic data model.

Punch out Choreography

Punch out choreography describes the process and its variants by which the buyer (the contracting body) selects a seller that has a punch out catalogue system from which he picks all required items in a shopping cart that is sent back to the buyer in a form of a quote that he can use to start an ordering process.

The key aspects of this choreography are:

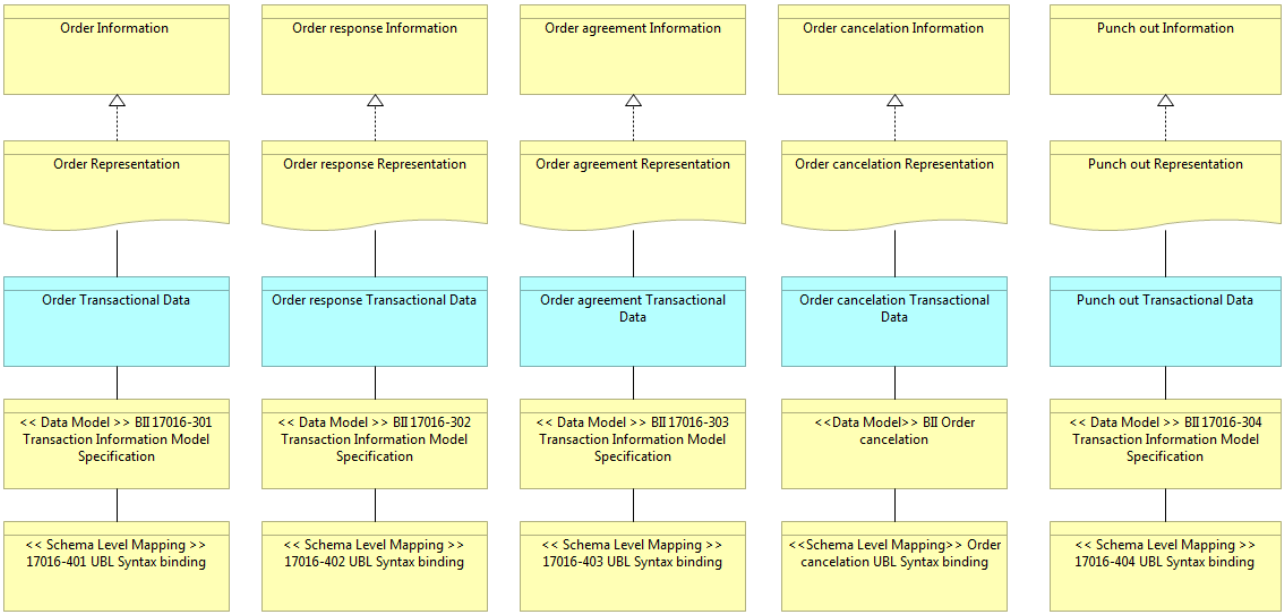
- The buyer accesses the system of the seller to build the shopping cart.
- The shopping cart is sent to the system of the buyer.

Punch out transaction

Punch out BII transaction provides the set of interoperability specifications to support the electronic exchange of information on items selected by the buyer, e.g., prices, ordering information or properties, offered by the seller in a structured format as part of the shopping cart. The validity period of the information is stated.

3.5 e-Procurement ordering Semantic View

The Semantic view of this SAT consists of the following sub-set of EIRA Architecture Building Blocks (ABBs) as well as a number of predefined Solution Building Blocks (SBBs):



The Transactional Data ABBs represent at the semantic point of view the business information exchanged at the organisational point of view.

Consequently, there are 5 Transactional Data ABBs in the e-ordering semantic view:

1. Order
2. Order response
3. Order cancelation
4. Order agreement
5. Punch out

Each Transactional Data is defined in a Data Model SBB, the BII Transaction Information Model Specification, itself associated to a Schema Level Mapping SBB, the UBL Syntax Binding specification. These are listed in the following table:

Table 3-2

Transactional Data	Transaction Information Model Specification	UBL Syntax Binding
Order	BII 17016-301	17016-401
Order response	BII 17016-302	17016-402
Order cancelation	BII 17016-303	17016-403
Order agreement	BII 17016-304	17016-404
Punch out	BII 17016-305	17016-405

3.6 e-Procurement ordering Technical View – Application

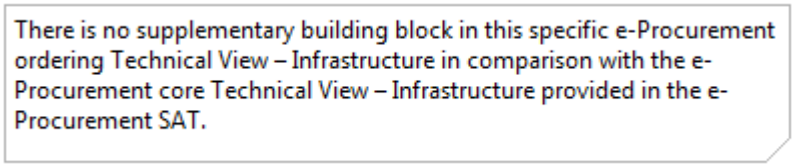
There is no supplementary building block in this specific e-Procurement ordering Technical View – Application in comparison with the e-Procurement core Technical View – Application provided in the e-Procurement core SAT. The core Technical View – Application specified in the e-Procurement core SAT applies.

The Representations of Transactional Data that the MMI presented in the e-Procurement core SAT has to process are the ones shown in the specific Semantic View shown in the previous paragraph of the present document.

There is no supplementary building block in this specific e-Procurement ordering Technical View – Application in comparison with the e-Procurement core Technical View – Application provided in the e-Procurement SAT.

3.7 e-Procurement ordering Technical View – Infrastructure

There is no supplementary building block in this specific e-Procurement ordering Technical View – Infrastructure in comparison with the e-Procurement core Technical View – Infrastructure provided in the e-Procurement core SAT. The core Technical View – Infrastructure specified in the e-Procurement core SAT applies.



4 REFERENCES

The references listed in the e-Procurement core SAT apply.

5 ACKNOWLEDGEMENTS

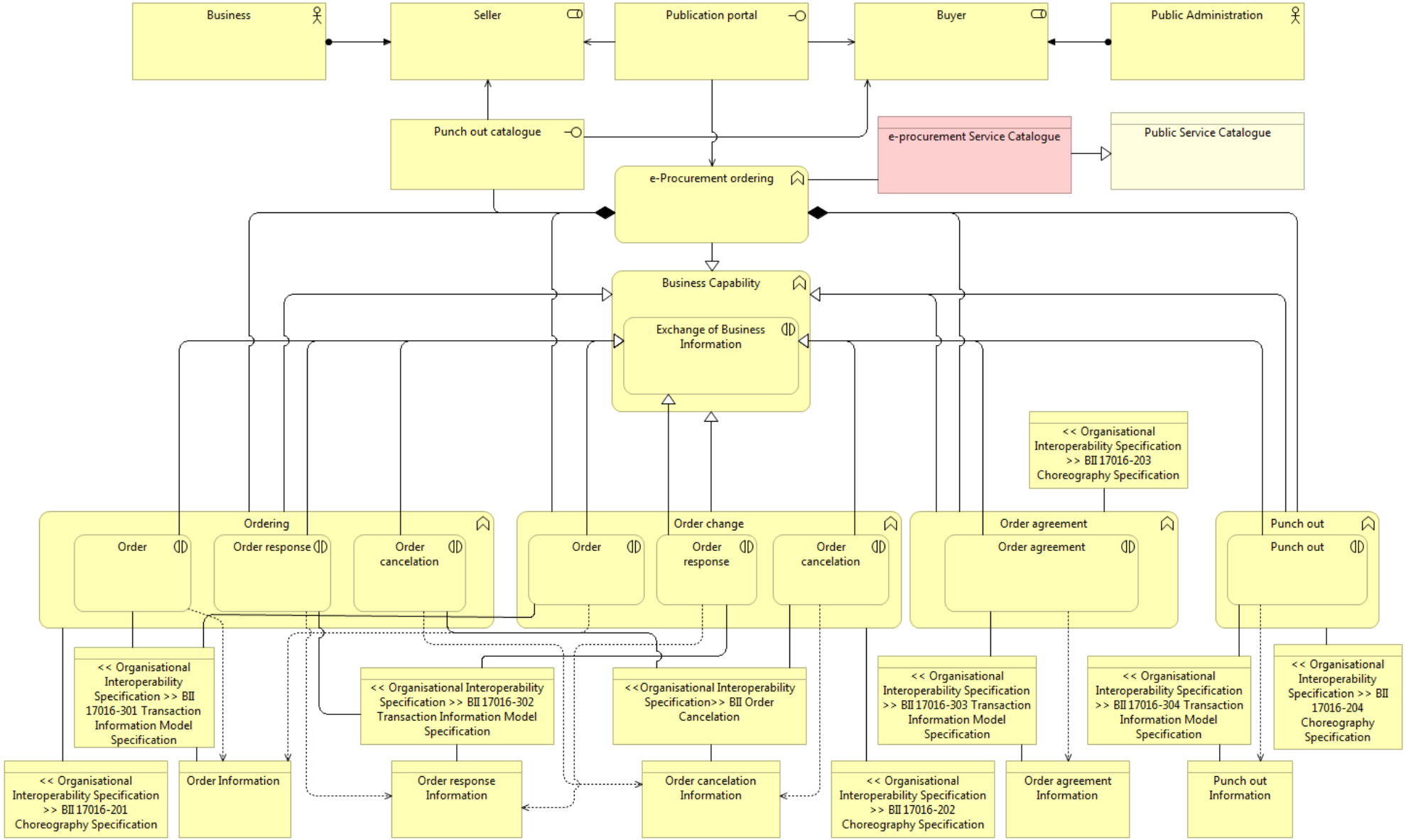
The creation of this SAT was made possible with the help of CEN Technical Committee 440 – Electronic Public Procurement. We would like to thank the following people for their input (alphabetical order):

- APOLOZAN Liviu
- BLOMMESTEIN Fred
- DRIJFHOUT Kornelis
- FROMYR Jostein
- GUASCH Cécile

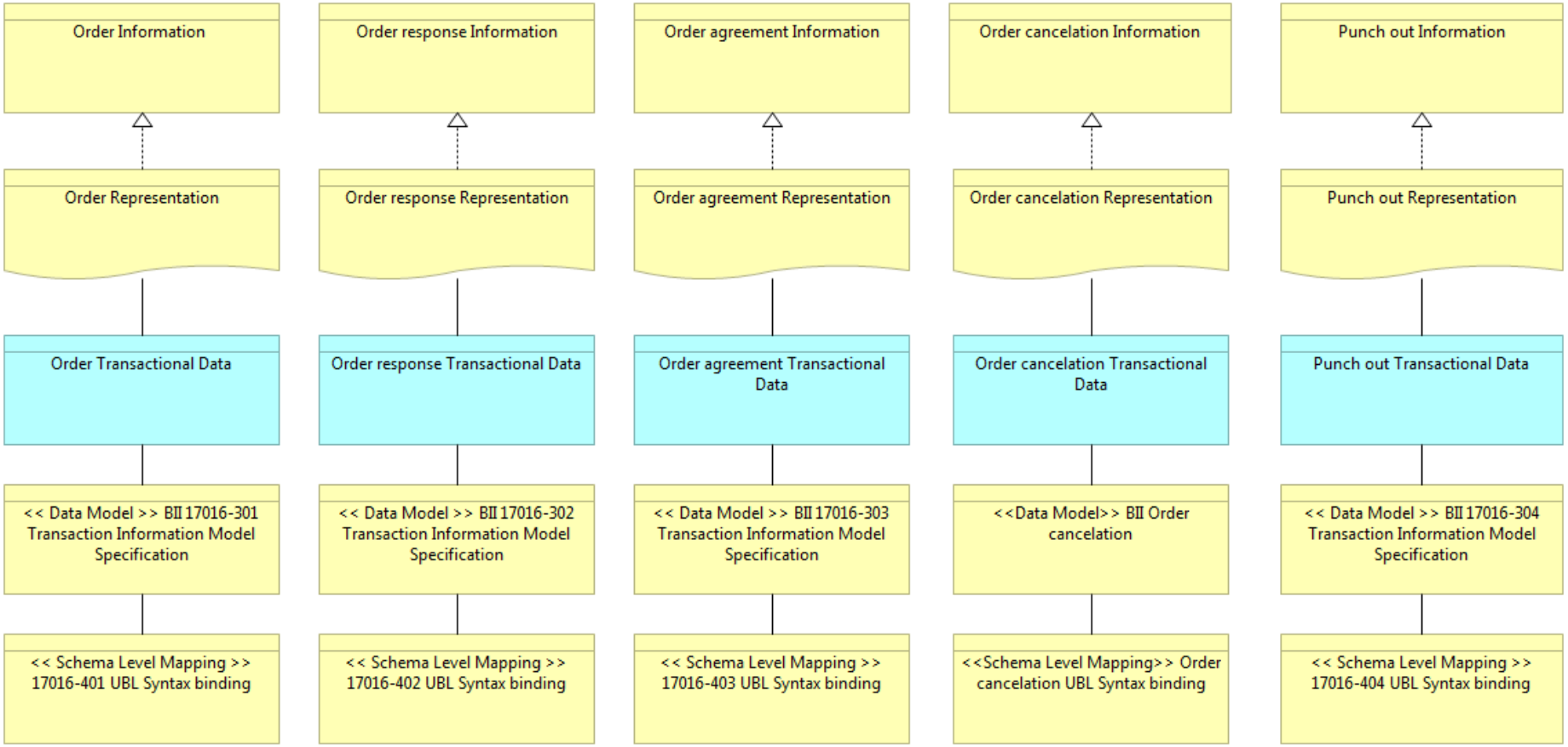
6 APPENDIX: LEGAL VIEW

There is no supplementary building block in this specific e-Procurement ordering Legal View in comparison with the e-Procurement core Legal View provided in the e-Procurement core SAT.

7 APPENDIX: ORGANISATIONAL VIEW



8 APPENDIX: SEMANTIC VIEW



9 APPENDIX: TECHNICAL VIEW – APPLICATION

There is no supplementary building block in this specific e-Procurement ordering Technical View – Application in comparison with the e-Procurement core Technical View – Application provided in the e-Procurement SAT.

10 APPENDIX: TECHNICAL VIEW – INFRASTRUCTURE

There is no supplementary building block in this specific e-Procurement ordering Technical View – Infrastructure in comparison with the e-Procurement core Technical View – Infrastructure provided in the e-Procurement SAT.