



## ISA Action 1.2 - Access to base registries

Identifying Business Needs and Reusable  
Solutions

May 2014

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**Deloitte Consulting CVBA**

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# Table of Contents



Chapter I – Introduction	6
Chapter II – Methodological Approach	11
Chapter III – European Initiatives	26
Chapter IV – Business Needs and Solutions	31
Chapter V – Cartography of Solutions and Business Needs	37
Chapter VI – Key Findings	58
Chapter VII – Potential New Solutions to Be Developed	68
Chapter VIII – Legal Context	82
Chapter IX – Conclusions	85
Chapter X – Recommendations	88

# Annexes



Annex 1 – Cartography and Analysis by European Initiative	106
Annex 2 – Aggregated Business Needs	167
Annex 3 – Member State Solutions	184
Annex 4 – Glossary	195
Annex 5 – EIRA	203



# CHAPTER I – Introduction

# Introduction



The ISA Programme launched this study to better understand the landscape of solutions for the interconnection of base registries at a European Level. In particular, ISA wanted to understand:

- The landscape of reusable solutions for the interconnection of base registries; and
- The business needs for different types of base registry interconnections.

The result of the investigation is a **cartography by building block of the EIRA** based on a sample of European level initiatives, of:

- **reusable solutions**, and
- **business needs**.

The catalogue represents a tool to **help ISA understand the EIRA building blocks that are addressed by existing solutions with potential reusability to interconnect base registries, as well as to identify areas where new solutions may need to be developed based on business needs.**

# Key Definitions



**Base registry** refers to a trusted authentic source of information under the control of an appointed public administration or organisation appointed by government. According to the European Interoperability Framework 2.0, base registries are:

*“reliable sources of basic information on items such as persons, companies, vehicles, licences, buildings, locations and roads” and “are authentic and authoritative and form, separately or in combination, the cornerstone of public services”.*

*Source: European Interoperability Framework 2.0*

**Base registry owner** refers to the organisation that is the appointed controller of the data in the base registry.

**Basic data:** base registries' data is sometimes referred to as 'basic data'.

**Electronic record**, a record which is in electronic form as a result of having been created, encoded or received by a software application or as a result of digitisation, e.g. by scanning.



The EIF version 2.0 published in 2010 provides guidance to public administrations on defining, designing and implementing European public services. It introduced a conceptual model for delivery of public services and a four-level model for interoperability.

### *The EIF 2.0 aims to*

- **Promote** and support the delivery of European public services by fostering cross-border and cross-sectoral interoperability;
- **Guide** public administrations in their work to provide European public services to businesses and citizens; and
- **Complement** and tie together national interoperability frameworks at European level.

Source:  
*European Interoperability Framework 2.0*

Alignment of legislation across Member States

### *Legal*



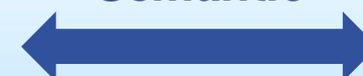
Alignment of organisational structures, policies, processes and business models across different organisations

### *Organisational*



Alignment of the meaning of information

### *Semantic*



Alignment of technical issues

### *Technical*



## How to Read the Document



For the purpose of readability, the cartography and analysis per European initiative can be found in Annex 1. The importance should however not be underestimated as these analyses are at the core of this project.

We first explain our methodological approach after which we shortly describe the 7 European initiatives that have been analysed. We then provide an overview of the identified business needs and solutions, followed by a mapping of these to specific architecture views.

Subsequently we summarise our key findings, describe a number of solutions to be developed and conclude on the overall study. Next we provide a number of recommendations which connect this study to previous studies, existing European actions and trends we have identified.

The annexes will assist in the understanding of the study.



## CHAPTER II – Methodological Approach

# Project Context



The ISA Programme launched a study to analyse the **landscape of business needs and existing solutions** of cross-border initiatives of interconnecting base registries



The contractor (Deloitte) analysed 7 initiatives, and identified:



## Business Needs

Needs and requirements for solutions within an initiative to enhance interoperability



## Existing Potentially Reusable Solutions

Identified existing solutions that could potentially be reused by other initiatives

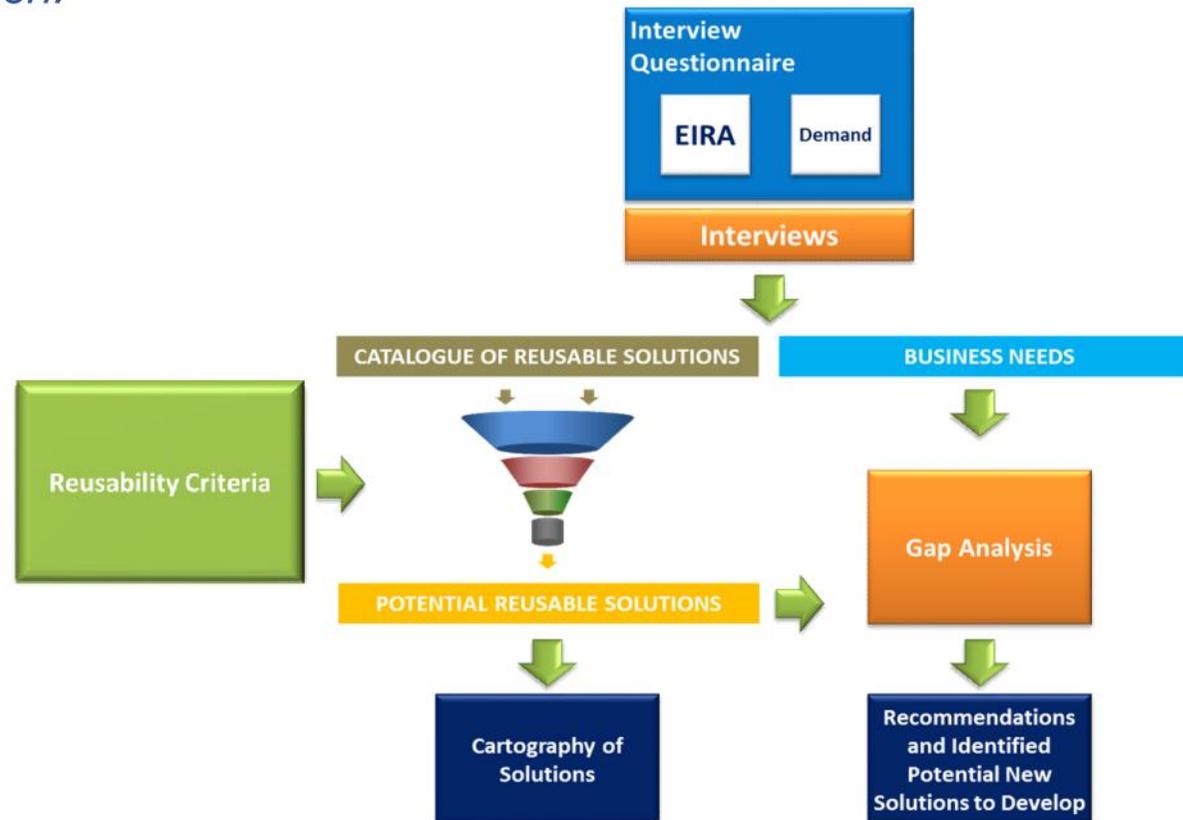


**Mapping of business needs and existing solutions to the EIRA and proposal of reusable solutions to be (further) developed**

# Approach (1/6)



We took a pragmatic approach to identify the cartography of potential reusable solutions and the unmet business needs, for which new solutions could be developed. The following diagram visualises the high – level approach.



## Approach (2/6)



The following steps were taken to provide a cartography of the reusable solutions and a set of recommendations to interconnect base registries:



## Approach (3/6)



### Step 1 Elicitation of business needs



This step aims to elicit a set of business needs for interconnection of base registries via interviews with the owners of the European level initiatives. This step will focus on the elicitation of (current and future) business needs.

The goal of this step is to:

- Identify what are the common needs across policy domains;
- Identify the specific business needs of each type of base registry: people, vehicle, land and business.

**OUTPUT:** Current and future business needs of the European initiatives to interconnect base registries

## Approach (4/6)



### Step 2 Revision of the catalogue of solutions to interconnect Base Registries



Step II covers the assessment of the solutions to interconnect base registries using defined reusability criteria for the selected initiatives.

**OUTPUT:** Updated list of solutions with a clear indication of their reusability

## Approach (5/6)



### Step 3 Mapping of solutions of the current catalogue to the EIRA (Cartography)



This step aims to answer the following questions:

Which EIRA building blocks are covered?

Which EIRA building blocks are not covered?

Which EIRA building blocks have “competing” solutions?

**OUTPUT:** Reusable solutions mapped to the EIRA model

## Approach (6/6)



### Step 4 Matching of reusable solutions to European business needs



Step IV focuses on the gap analysis to understand the coverage of business needs by the catalogue of reusable solutions.

**OUTPUT:** Gap analysis of existing solutions to European business needs

### Step 5 Develop recommendations



Step V aims to provide a set of recommendation on next steps towards the interconnection of base registries in a cross-sector and cross-border context at the European level.

**OUTPUT:** A set of recommendations for new solutions to be developed

## Use of the EIRA (1/2)



- EIRA (European Interoperability Reference Architecture) is a reference architecture for delivering digital public services across borders and sectors. EIRA represents a classification and an organization of interoperability building blocks.
- For the purposes of this study, solutions and business needs were mapped to the building blocks in the Business, Data, and Application views of the EIRA\*.
- EIRA can be used for several purposes:
  - **Organisation** i.e. to analyse the delivery of digital public services
  - **Assessment** i.e. to compare and improve how systems are architected
  - **Discovery** e.g. to this end, the Joinup website of the Commission will enable the discovery of ready to use solutions classified according to the EIRA
  - **Communication** i.e. to explain how systems are, or will be, composed

\* The Technology view of the EIRA was not used for the mapping because it supports the Application view by providing a more technical infrastructure decomposition that was out of scope of the study, and because the reusability criteria could be applied at the Application level, meaning that the Technology view provided no additional information to the reusability assessment.

## Use of the EIRA (2/2)



As a tool, the EIRA can be used as a means to understand the Architecture of current and future solutions.

The EIRA was used in this study for several reasons:

- To allow us to orchestrate the discussion during interviews in order to arrive at a concrete set of solutions;
- To allow us to build a Cartography, or a very high level Architecture, for the interconnection of base registries at a European Level; and
- To identify the key building blocks on which new efforts should be focused when developing solutions with a view on reusability.

For the EIRA Representation, please see Annex 5.

## Use of the Reusability Criteria (1/2)



We have identified four solution types, namely:

- Software,
- Semantic Assets,
- Services, and
- Other,

where 'Other' refers to one of the following categories of solutions:

- Agreements
- Business rules
- Service delivery models
- Policies
- Legislation
- Frameworks

While the templates or structure can be shared as best practice, the content of the 'Other' solutions is by nature specific and cannot be assessed for reusability.

## Use of the Reusability Criteria (2/2)



Solutions are categorised in one of 3 levels of **suitability for assessment of reusability**. This means that with each level up, the more a solution is potentially reusable at a European level. The assessment of reusability levels are based on the documentation made available during the study.

For this exercise we have categorised the solutions into 4 types, namely:

- Reusable and non-reusable solutions: these solutions have been assessed against the reusability criteria. They can be further split up into:
  - Software
  - Semantic asset
  - Service
- Planned solutions: these solutions are in development and thus could not be assessed against the reusability criteria. They are mapped as unmet business needs.
- Other solutions: these solutions refer to agreements, business rules, service delivery models, policies, legislation
  - Policies
  - Legislation

# Reusability Criteria (1/3)



Software		Level 1	Level 2	Level 3
Criteria		Compliance		
1. IPR	Free licence / Open source licence (software) or clear documentation on respecting the 4 freedoms	yes	yes	yes
2. Suitability	Does the documentation provide enough description to evaluate if it is suitable for implementation? 1: General description: Related EU policy or legislation, aim of the software, types of users 2: Who should use the software solution and for what applications? (include size of the organisation using it, domain, legislation) 3: Functional requirements – use cases 4: Process description	1	1 + 2 + [3 or 4]	1 + 2 + 3 + 4
3. Maturity	Which status does the software project have? 1: In development – 2: Beta – 3: Stable	1 - 3	2 - 3	2 - 3
4. Cross-border	Is the solution developed to be used cross border, to exchange information across borders, between Member States administrations or between Member States and the EU institutions?	-	-	yes

## Reusability Criteria (2/3)



Semantic Assets		Level 1	Level 2	Level 3
Criteria		Compliance		
1. IPR	<p>1: Is the asset available under an open licence ?</p> <p>2: If the license is unknown, is there a clear statement that assets need to be checked regarding IPR?</p>	1 or 2	1	1
2. Suitability	<p>Does the documentation provide enough description to evaluate if it is suitable for implementation?</p> <p>1: General description: Related EU policy or legislation; aim of the asset, types of applications using it</p> <p>2: Who should use the asset and for what applications? (include size of the organisation using it, domain, legislation)</p> <p>3: Functional requirements, use cases, or process description</p> <p>4: The latest documentation/ specifications (open access)</p>	1	1 + 2 + 3 + 4	1 + 2 + 3 + 4
3. Maturity	Has the asset been sufficiently developed? (i.e. is it in use?)	yes	yes	yes
4. Cross-border	Is the solution developed to be used cross border, to exchange information across borders, between Member States administrations or between Member States and the EU institutions?	-	-	yes

## Reusability Criteria (3/3)



Service		Level 1	Level 2	Level 3
Criteria		Compliance		
1. SLA	Is the Service Level Agreement available?	yes	yes	yes
2. Suitability	<p>Does the documentation provide enough description to evaluate if it is suitable for implementation?</p> <p>1: General description: Related EU policy or legislation; aim of the software, types of users</p> <p>2: Who should use the software solution and for what applications? (include size of the organisation using it, domain, legislation)</p> <p>3: Functional requirements, use cases or process description</p>	1	1 + 2	1 + 2 + 3



## CHAPTER III – European Initiatives

## 7 European Initiatives Investigated



During the study, we identified 7 European initiatives, spread across the 4 types of base registries. These initiatives were selected as a representative sample of the solutions for the interconnection of base registries at a European level.

### ***PEOPLE REGISTRIES***

- ECRIS
- ECRN

### ***VEHICLE REGISTRIES***

- EUCARIS

### ***LAND REGISTRIES***

- EULIS
- ELRA

### ***BUSINESS REGISTRIES***

- IRI
- BRIS

Note: In addition a collaboration with the TES action has been established in order to gather more information on the specific initiatives (i.e. IRI, ECRIS, EUCARIS, BRIS).

# About the Initiatives (1/3)



Base registry type	Initiative	Description	Solution owner
	IRI  e-justice.europa.eu	The Interconnection of Member State Insolvency Registers (IRI) project provides an interconnected one-stop-shop access point to insolvency registers maintained and operated by Member State authorities.	European Commission
<b>Business</b>	BRIS  www.ercforum.org	BRIS stands for 'Business Registries Interconnection System'. BRIS is a new EU-wide project aiming to leverage existing business registry initiatives and harmonize information flows involving business registries. BRIS will use a service-based platform (EU Central Platform) and a portal (eJustice Portal). BRIS builds on experience of European platforms, pilots and projects, such as, among others: BRITE and EBR, ECRF, xEBR and XBRL, RMS, Interegisters or LEI.	European Commission
<b>People</b>	ECRIS  www.ec.europa.eu/justice/criminal/european-justice/ecris/	ECRIS stands for 'European Criminal Records Information System'. ECRIS provides an infrastructure to enable the exchange of criminal records. Member States exchange information on convictions with one another.	European Commission

## About the initiatives (2/3)



Base registry type	Initiative	Description	Solution owner
<b>People</b>	ECRN <a href="http://www.ecrn.eu">www.ecrn.eu</a>	ECRN stands for 'European Civil Registry Network'. This initiative provides an infrastructure to enable the exchange of information about civil acts (birth, death, marriage, divorce) across the EU. ECRN was initially co-funded by the ICT Policy Support Programme (PSP) of the EU. ECRN was originally a pilot among the 'Civil Acts Registry of National Administrations' to allow safe transmission, and certain identification, of Civil Acts among public administrations at local level.	Italian Association of civil Status Officers (ANUSCA) (current host)
<b>Vehicle</b>	EUCARIS <a href="http://www.eucaris.net">www.eucaris.net</a>	EUCARIS stands for 'EUropean CAR and driving licence Information System'. EUCARIS allows participating countries to consult and exchange data relating to motor vehicles and driving licences kept in the national registers of affiliated countries. This system helps fight car theft and registration fraud across the EU.	EUCARIS

## About the initiatives (3/3)



Base registry type	Initiative	Description	Solution owner
Land	EULIS <a href="http://www.euliss.eu">www.euliss.eu</a>	EULIS stands for 'European Land Information Service'. The main objective of EULIS is to sell land registry information. It provides easy access to land and property information for professional customers in Europe. It also is a hub of information about different land registration conditions in each country (EULIS glossary). Its long-term mission is to underpin a single European property market through cross-border lending. The service is aimed at professional customers who use land registry information to assist them in their day-to-day work life. It helps with access to land and property information via computer applications. It is not meant to be a database itself, but simply to facilitate access to and retrieval of information. The EULIS platform was improved to v2 by the project LINE.	Consortium of Member States specialising in land registration
	ELRA <a href="http://www.elra.eu">www.elra.eu</a>	ELRA stands for 'European Land Registry Association'. ELRA is a non-profit organisation having as its mission: "the development and understanding of the role of land registration in real property and capital markets". ELRA's main objective is to provide legal support and follow-up of land registries in Europe.	European Land Registry Association

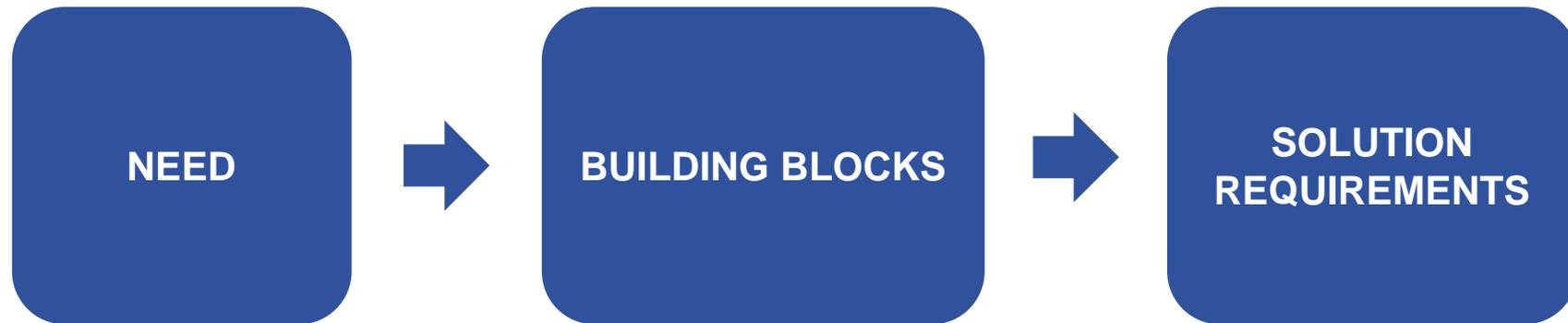
*While EULIS is providing direct access to land registers across Europe and is therefore in charge of the information system, ELRA is providing legal support, thereby complementing to the interoperability of land registers. ELRA is specifically concerned with land registers as juridical institutions. An example is their planned e-Conveyancing (CROBECO\*). Furthermore, ELRA provides legal fact sheets per Member State and aims for further implementation of reference data, building on INSPIRE's method of describing spatial data elements.*

\* For more details on the CROBECO project, please visit <http://www.elra.eu/elra-european-land-registry-association/crobeco/crobeco-ii/>



# CHAPTER IV – Business Needs and Solutions

# Identifying Business Needs



We identify the business-driven needs for which the selected sample of European initiatives may provide a solution

The impact of the business need is mapped to an EIRA building block of the existing or potential solution. In general, a need may impact one or more building blocks

We are then able to trace a link between a "Need", the impacted "Building Block" and the solution requirements at a high level

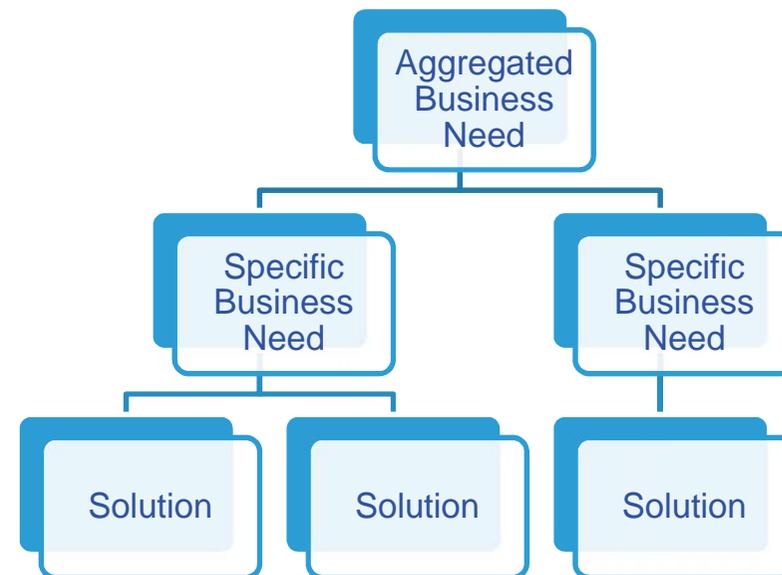
## Aggregated and Specific Business Needs (1/2)



Throughout the study of Access to Base Registries IV, we have identified 88 business needs that are specific to the European initiatives. These so-called specific business needs were clustered into 16 aggregated business needs (hereinafter 'ABN') based on their area of applicability. The hierarchy is shown in the diagram.

The ABN cover the four interoperability levels as identified in the European Interoperability Framework (EIF).

The mapping of the ABN to the EIF levels, as well as to the specific business needs, is provided in Annex 2.



# Solutions



The analysis of the solutions for interconnecting base registries reveals the following solution types\*:

- Reusable and non-reusable solutions
- Planned solutions
- Other solutions

## Reusable and non-reusable solutions

Three solution types have been assessed against the reusability criteria, namely semantic assets (SA), services (SE) and software (SW). A solution which meets the reusability criteria is classified as '**reusable**'. In turn, a solution which does not meet one or more reusability criteria is classified as '**non-reusable**'.

## Planned solutions

All solutions that were not implemented within an initiative, but are foreseen to be developed and implemented, are classified as '**planned**'.

## Other solutions

All solutions that could not be assessed for reusability, are classified as '**other**'. These are: agreements, business rules, service delivery models, policies, legislation, and frameworks.

\* Solutions that have been identified at Member State level in Base Registries Phase III are described in Annex 3.

## Other solutions



The following tables provide a categorisation of all the solutions identified as being of the 'Other' type. This categorisation connects to the EIRA building blocks to which the solutions have been mapped..

Solution ID	Solution name	Building block	Category
O - 2.1	Bilateral agreements	Interoperability agreement	Agreement
O -2.2	Business rules	Business rule	Business rule
O - 2.4	Service delivery model	Service delivery model	Service delivery model
O - 2.15	Licencing policy	Licensing and charging policy	Policy
O - 2.16	Charging policy	Licensing and charging policy	Policy
O - 2.17	Security policy of the data exchange (infrastructure, user access management)	Security and privacy policy	Policy

## Other solutions



Solution ID	Solution name	Building block	Category
O - 2.18	Use of restricted data, the Prum Treaty	Security and privacy policy	Policy
O - 3.6	Data protection and access rules	Security & Privacy Policy	Policy
O - 3.12	Contracts & Code of Conduct	Interoperability Agreement	Agreement
O - 3.13	Re-use of Data Incentive Scheme	Service Delivery Model	Service Delivery Model
O - 6.2	CCRF (Cross Border Conveyancing Reference Framework)	Organisational Structure	Framework
O - 6.3	Legal fact sheet per Member State	Business Information Framework Entity	Framework
O - 7.2	Directive 2012/17/EU, Directive 2009/101/EU	Legislation - EU level	Legislation



# CHAPTER V – Cartography of Solutions and Business Needs

## Understanding the EIRA Mappings (1/3)



On the three EIRA Views of Business, Data and Application respectively, we have mapped the following:

- The identified specific business needs, and
- The identified solutions.

The first cartography shows the mapping of all solutions that could be assessed against the reusability criteria, i.e. the reusable and non-reusable solutions. Planned solutions could not be assessed against reusability criteria and are therefore shown as unmet business needs.

The second cartography shows the mapping of all solutions of the 'Other' type, i.e. agreements, business rules, service delivery models, policies, legislation, and frameworks.

# Reading the Cartography



Business needs are in blue boxes whereas solutions are in green boxes.

The business needs and solutions have a unique identifier where the first number indicates the initiative. The business needs start with 'BN' for *Business Need*. The solutions start with the letter(s) indicating its solution type. The text in the boxes have a color, indicating for a business need whether it is met or unmet, and for a solution its reusability level.

Initiative
ECRIS = 1.XX
EUCARIS = 2.XX
EULIS = 3.XX
IRI = 4.XX
ECRN = 5.XX
ELRA = 6.XX
BRIS = 7.XX

Type of solution
SA = Semantic Asset
SE = Service
SW = Software
O = Other
P = Planned

Color	If BN...	If solution...
White	BN is met	L3 reusability
Yellow	-	L2 reusability
Red	-	L1 reusability
Orange	BN is unmet	Non-reusable

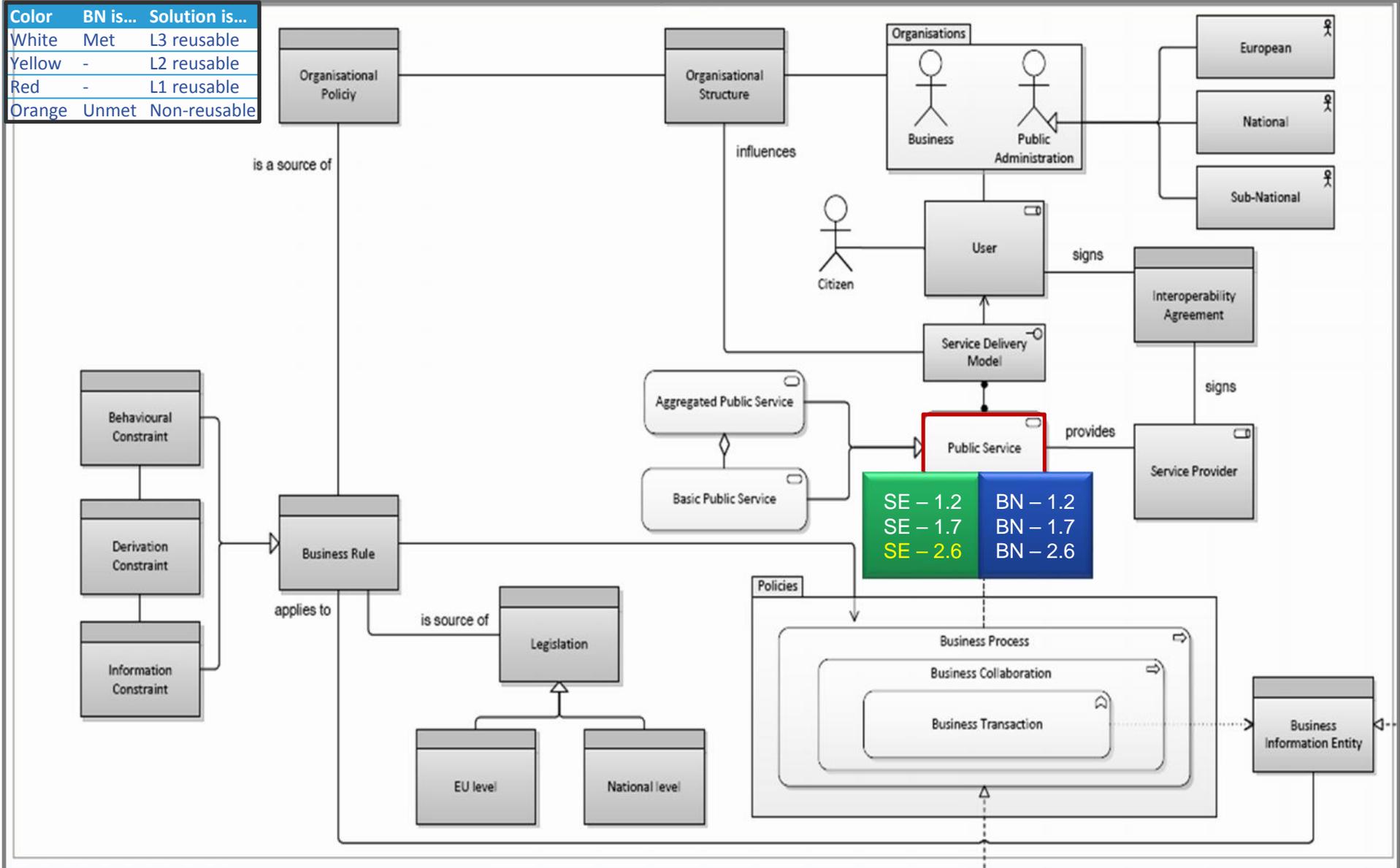


# Section I – Cartography of the Reusable and Non-Reusable Solutions

# Overall Cartography - Business View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable



# Business View – Legend



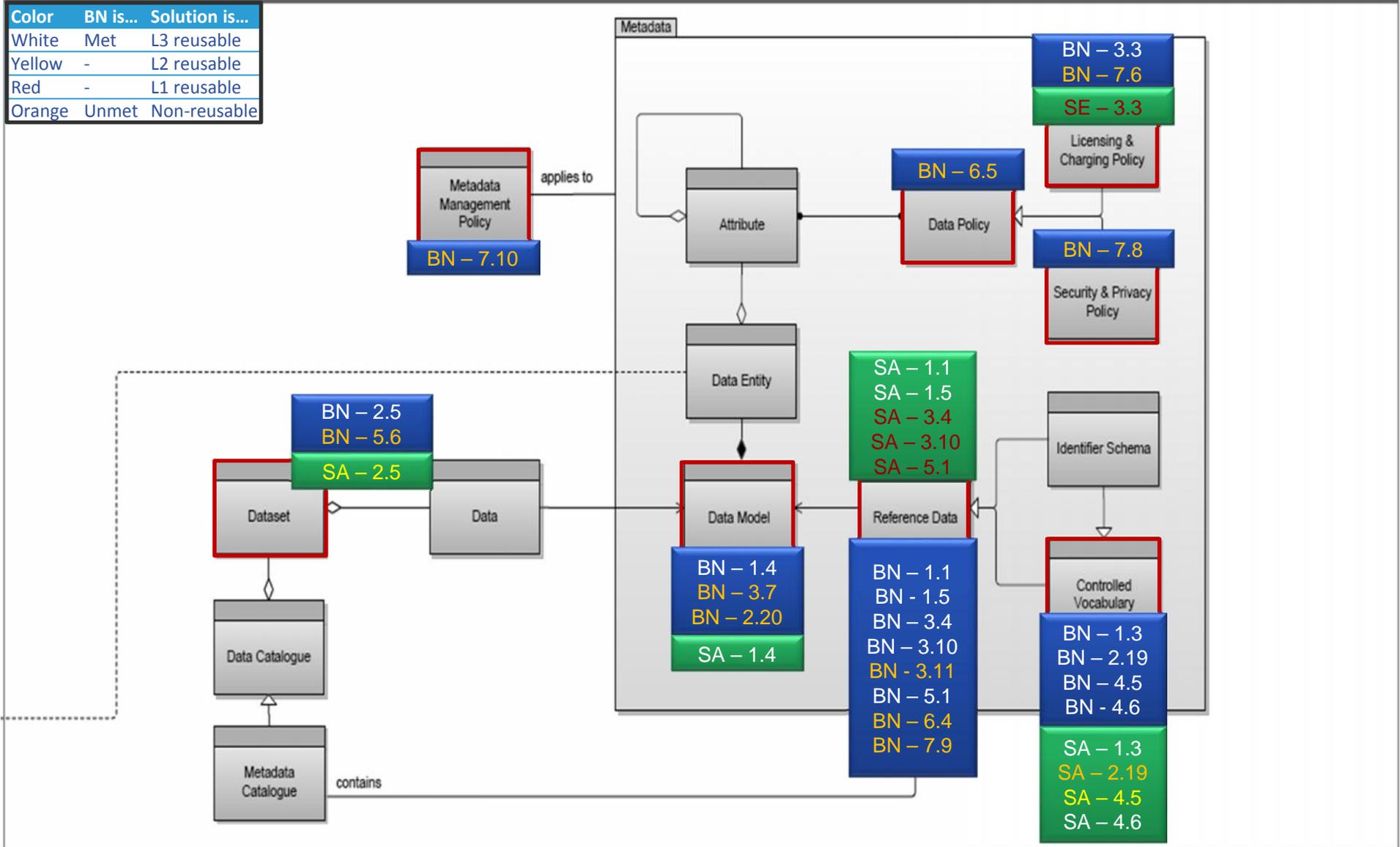
Solution ID	Solution name	Specific business need ID	Specific business need
SE - 1.2	<b>ECRIS Services</b>	BN - 1.2	Need for a service to enable exchange of criminal records as defined according to Council Framework Decision 2009/315/JHA and Council Decision 2009/316/JHA
SE - 1.7	<b>Maintenance and Development of IS</b>	BN - 1.7	Need for a service for maintenance and development of a solution to exchange criminal records
SE - 2.6	<b>EUCARIS Services</b>	BN - 2.6	Specific business needs are detailed below
	Vehicle registration service		Need for a service to exchange vehicle registration information
	Data exchange service between the MS regarding vehicle data		Need for a service to exchange driving license information
	Enforcement of traffic fines		Need for a service to enforce the exchange of information about the traffic fines
	Police investigation service		Need for a service to exchange information about crime investigation
	Rescue operations service		Need for a service to exchange the vehicle data to support rescue operations
	Sanctions and infringements data exchange service		Need for a service to exchange information on infringements and sanctions
	Exchange of tachograph card information service		Need for a service to exchange tachograph card information

Note: BN = Business need / O = Other / P = Planned / SA = Semantic Asset / SE = Service / SW = Software

# Overall Cartography - Data View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable



# Data View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SA - 1.1	<b>ECRIS list of terminology and concepts</b>	BN - 1.1	Need for a common list of terminology and concepts regarding the criminal records
SA - 1.3	<b>Code list for offences and penalties</b>	BN - 1.3	Need for a common list of codes of criminal offences and penalties
SA - 1.4	<b>Domain model</b>	BN - 1.4	Need for a domain model for criminal records
SA - 1.5	<b>Reference Tables</b>	BN - 1.5	Need for reference tables for criminal records
SA - 2.5	<b>Dataset of the vehicle documentation</b>	BN - 2.5	Need for a European-wide unambiguous vehicle identification
SA - 2.19	<b>Code lists</b>	BN - 2.19	Need for a list of codes for the vehicle registers to exchange data cross border to meet the requirements of the legislation
P - 2.20	<b>Data model (semantic rules and data requirements)</b>	BN - 2.20	Need for controlled vocabularies to be obligatory to use
SE - 3.3	<b>Click-wrap license policy</b>	BN - 3.3	Need for a common policy for data licencing
SA - 3.4	<b>EULIS Glossary of key terms and template for Reference data</b>	BN - 3.4	Need for a common glossary of terms and templates for reference data

Note: BN = Business need / O = Other / P = Planned / SA = Semantic Asset / SE = Service / SW = Software

# Data View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
P - 3.7	<b>Model for land registries, including a semantic model for key registers</b>	BN - 3.7	Need for a model of land registries including a semantic model for the key land registries
SA - 3.10	<b>Reference data</b>	BN - 3.10	Need for standard required information (e.g. pre-defined codes or definitions) for the data requests and response messages
P - 3.11	<b>Standard Land Property Document</b>	BN - 3.11	Need for reference data for query services
SA - 4.5	<b>Rendering Catalogue</b>	BN - 4.5	Need for a list of allowed terms and their definition regarding insolvency registers
SA - 4.6	<b>Insolvency Glossary</b>	BN - 4.6	Need for a glossary
SA - 5.1	<b>The Hague Convention - multilingual pre-defined forms</b>	BN - 5.1	Need for a multilingual form recognising the documents in various language to avoid translation and authentication of documents in the receiving country
N/A	<b>No solution exists</b>	BN - 5.5	Need for an agreement about the details of data to be recorded for each life event
N/A	<b>No solution exists</b>	BN - 6.4	Need to implement more Reference Data, among which unique identifiers. This becomes especially important if the land registries would become linked with BRIS.
N/A	<b>No solution exists</b>	BN - 6.5	Need for a common data policy across Member States

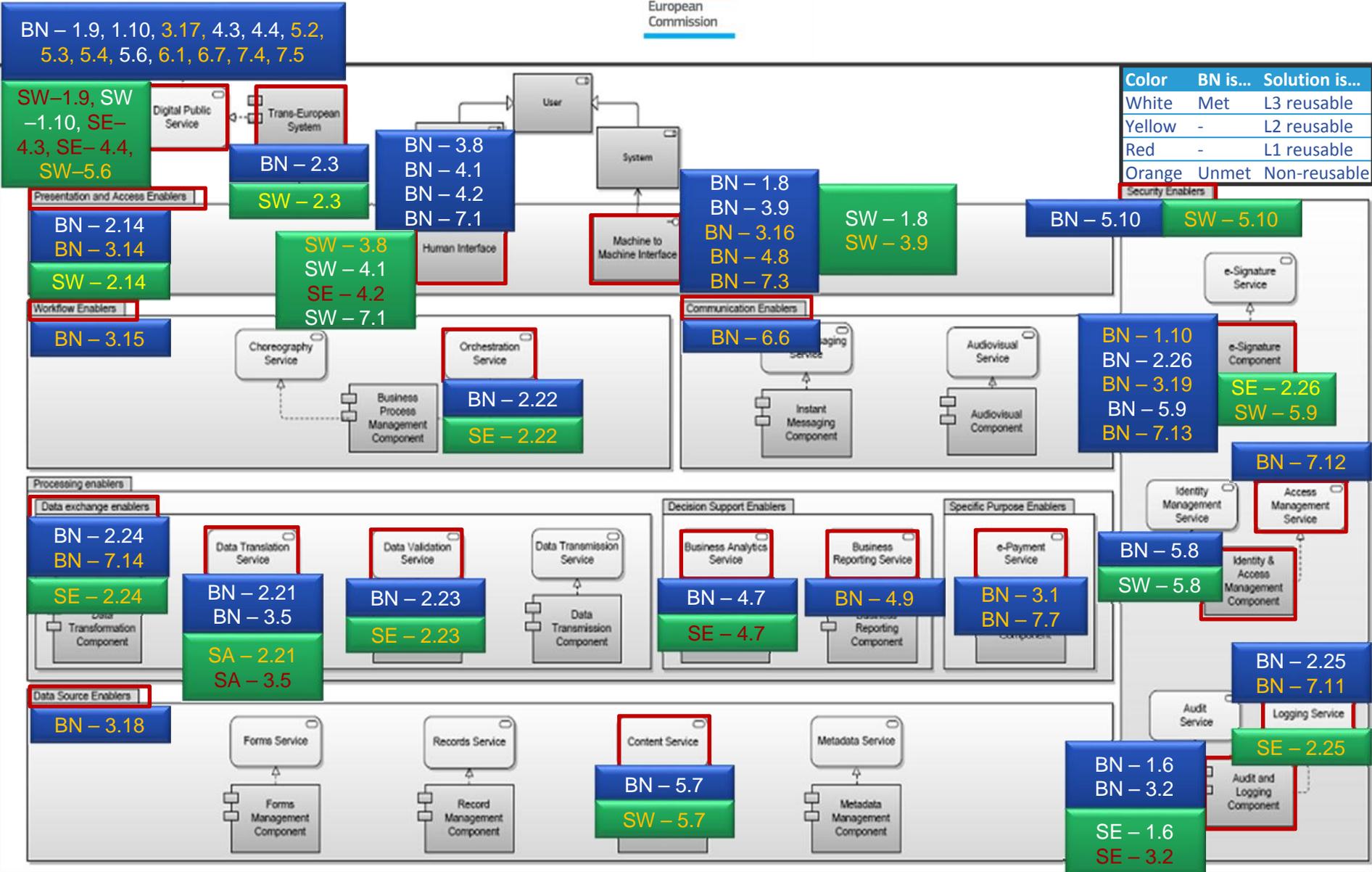
Note: BN = Business need / O = Other / P = Planned / SA = Semantic Asset / SE = Service / SW = Software

# Data View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
P - 7.6	<b>Payment service</b>	BN - 7.6	Need for a charging policy
P - 7.8	<b>An agreed Security &amp; Privacy Policy</b>	BN - 7.8	Need for ensuring the privacy and security of data

# Overall Cartography - Application View



# Application View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SE - 1.6	<b>Monitoring service</b>	BN - 1.6	Need for a service to monitoring the use statistics about the exchange of criminal records
SW - 1.8	<b>sTESTA network services</b>	BN - 1.8	Need for a machine-to-machine interface supporting the exchange of criminal records
SW - 1.9	<b>ECRIS IS (ECRIS Reference Implementation)</b>	BN - 1.9	Need for a software reference implementation for ECRIS
N/A	<b>No solution exists</b>	BN - 1.10	Need for mechanisms for a secure exchange of criminal records
SW - 2.3	<b>Platform to exchange vehicle registries data</b>	BN - 2.3	Need for a platform to search for data, to notify and to transfer specific files
SW -2.14	<b>Standardised interface</b>	BN - 2.14	Need for a standardised interface for the Member States to map the vehicle data according to the legislation
SA - 2.21	<b>Standard web client</b>	BN - 2.21	Need for a standard web client to code and translate exchanged messages
SE - 2.22	<b>Message orchestration services</b>	BN - 2.22	Need for a service to exchange a series of messages with not a standardised content
SE - 2.23	<b>Data validation services</b>	BN - 2.23	Need for validation data fields and content validation services
SE - 2.24	<b>Data exchange enabler services</b>	BN - 2.24	Need for services to enable data exchange regarding: communication, translation, help files, versioning, authentication and logging
SE - 2.25	<b>Logging services</b>	BN - 2.25	Need for logging services for the audit and business analysis purposes

Note: BN = Business need / O = Other / P = Planned / SA = Semantic Asset / SE = Service / SW = Software

# Application View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SE - 2.26	<b>e-Signature solution (XML signature)</b>	BN - 2.26	Need for an e-signature service
P - 3.1	<b>e-Payment</b>	BN - 3.1	Need for a common charging method
SE - 3.2	<b>Logging &amp; Billing</b>	BN - 3.2	Need for a logging service monitoring the use of data exchange; need for a service to charge for the data usage
SA - 3.5	<b>Interface in English and EULIS Common Terms Translation Tool</b>	BN - 3.5	Need for a translated user interface
SW - 3.8	<b>EULIS Portal</b>	BN - 3.8	Need for a portal to exchange land registries data in a multilingual environment
SW - 3.9	<b>Platform to interconnect land registries</b>	BN - 3.9	Need for a technology solution to exchange land registries data
P - 3.14	<b>Integration of the IS with e-Justice Portal</b>	BN - 3.14	Need for an integrated one-stop-shop giving access to land registries
P - 3.15	<b>Search services</b>	BN - 3.15	Need for a search functionality enabling search for land registries information
N/A	<b>No solution exists</b>	BN - 3.16	Need for choreography and orchestration services supporting the land registries data exchange
N/A	<b>No solution exists</b>	BN - 3.17	Need for automation of data exchange for land registries
N/A	<b>No solution exists</b>	BN - 3.18	Need for records and content services for land registries

Note: BN = Business need / O = Other / P = Planned / SA = Semantic Asset / SE = Service / SW = Software

# Application View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
N/A	<b>No solution exists</b>	BN - 3.19	Need for a service for the generation, verification and extension of interoperable electronic signatures
SW - 4.1	<b>e-Justice Portal</b>	BN - 4.1	Need for a one-stop-shop solution to exchange data about the insolvency registries
SE - 4.2	<b>Search functionality on the e-Justice Portal</b>	BN - 4.2	Need for a search functionality
SE - 4.3	<b>Testing of the Information System</b>	BN - 4.3	Need for security, stress tests, and hosting of the IS
SE - 4.4	<b>Maintenance and development of IS</b>	BN - 4.4	Need for a maintenance and development of the solution by external contractors
SE - 4.7	<b>Business Analytics Services</b>	BN - 4.7	Need for analysing the usage of the data exchange service
N/A	<b>No solution exists</b>	BN - 4.8	Not enough information
N/A	<b>No solution exists</b>	BN - 4.9	Not enough information
P - 5.2	<b>Event based requested transmission</b>	BN - 5.2	Need for submitting an event based request "on the screen", that is with the use of an electronic submission and electronic signature.
P - 5.3	<b>Event based automatic transmission</b>	BN - 5.3	Need for a consistent automation of transmission of life event data between the Member States
P - 5.4	<b>Transmission between event based registries and central registers</b>	BN - 5.4	Need for transmission of life event data related to citizens whose life events have been recorded in several Member States

Note: BN = Business need / O = Other / P = Planned / SA = Semantic Asset / SE = Service / SW = Software

# Application View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SW - 5.6	<b>Web-based platform</b>	BN - 5.6	Need for a web-based solution for the exchange of base registry documents
SW - 5.7	<b>ECRN container</b>	BN - 5.7	Need to temporarily store civil act data and metadata information
SW - 5.8	<b>STORK authentication platform</b>	BN - 5.8	Need to identify and authenticate users and signers, ensuring non-repudiation of exchanged documents
SE - 5.9	<b>Digital signature using a personal smartcard</b>	BN - 5.9	Need for the interoperability of a system of electronic signatures between the Member States for the civil status registration
SE- 5.10	<b>Confidentiality service</b>	BN - 5.10	Need for confidentiality of exchange information
P - 6.1	<b>Cross Border Electronic Conveyancing (CROBECO)</b>	BN - 6.1	Need for fast and secure transmitting of legal data cross-border
N/A	<b>No solution exists</b>	BN - 6.6	Need for instant messaging & audio-visual service
N/A	<b>No solution exists</b>	BN - 6.7	Need for a notification service
SW - 7.1	<b>e-Justice Portal</b>	BN - 7.1	Need for a front-end interface
P - 7.3	<b>European Central Platform</b>	BN - 7.3	Need for a platform
P - 7.4	<b>Search engine on the e-Justice Portal</b>	BN - 7.4	Need for a search facility

Note: BN = Business need / O = Other / P = Planned / SA = Semantic Asset / SE = Service / SW = Software

# Application View – Legend

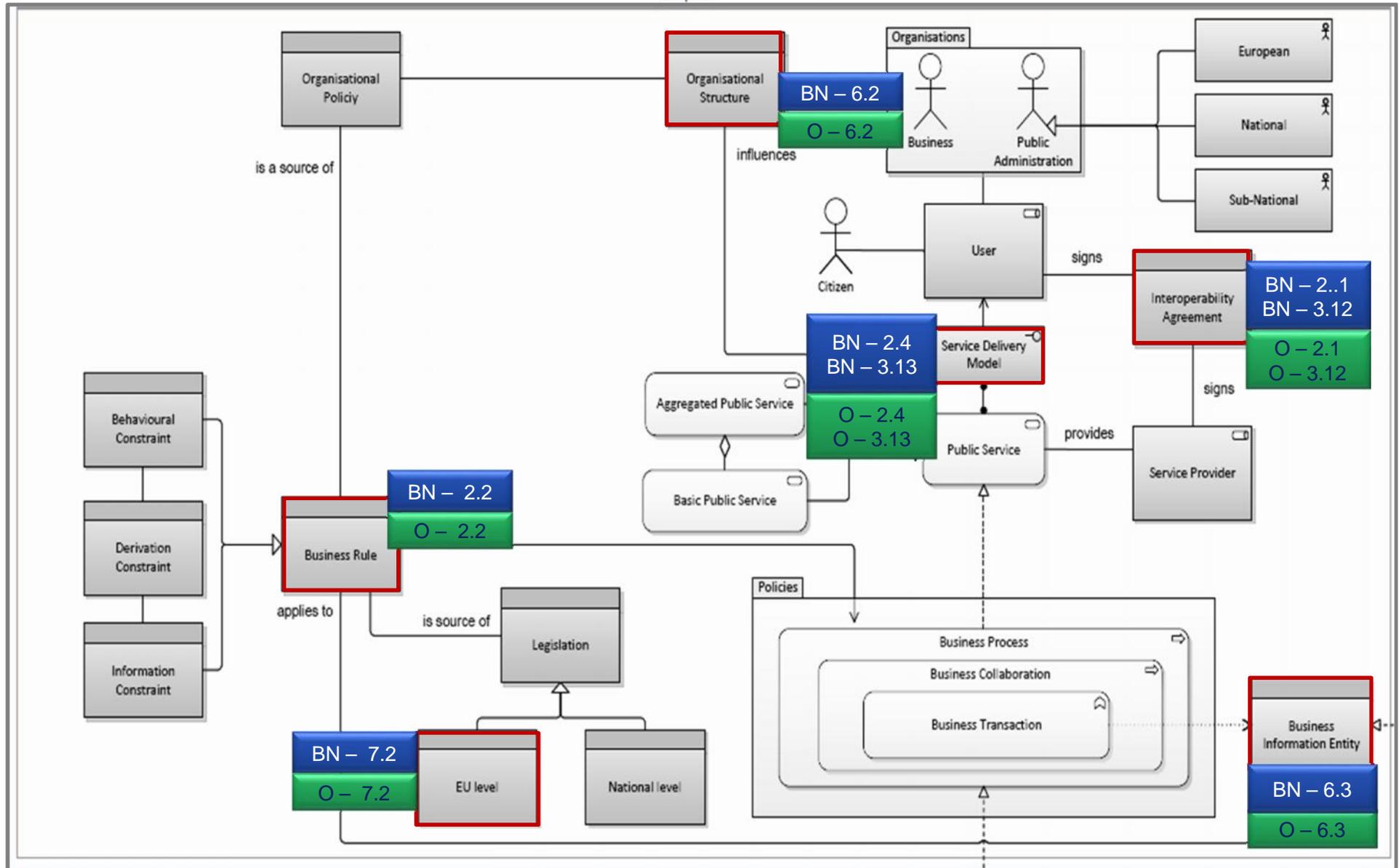


Solution ID	Solution name	Specific business need ID	Specific business need
P - 7.5	<b>Notification functionality on the European Central Platform</b>	BN - 7.5	Need for a notification functionality and to set rules for the use of notifications
P - 7.7	<b>Payment service</b>	BN - 7.7	Need for a payment service



## Section II – Cartography Other Solutions

# Other Solutions - Business View

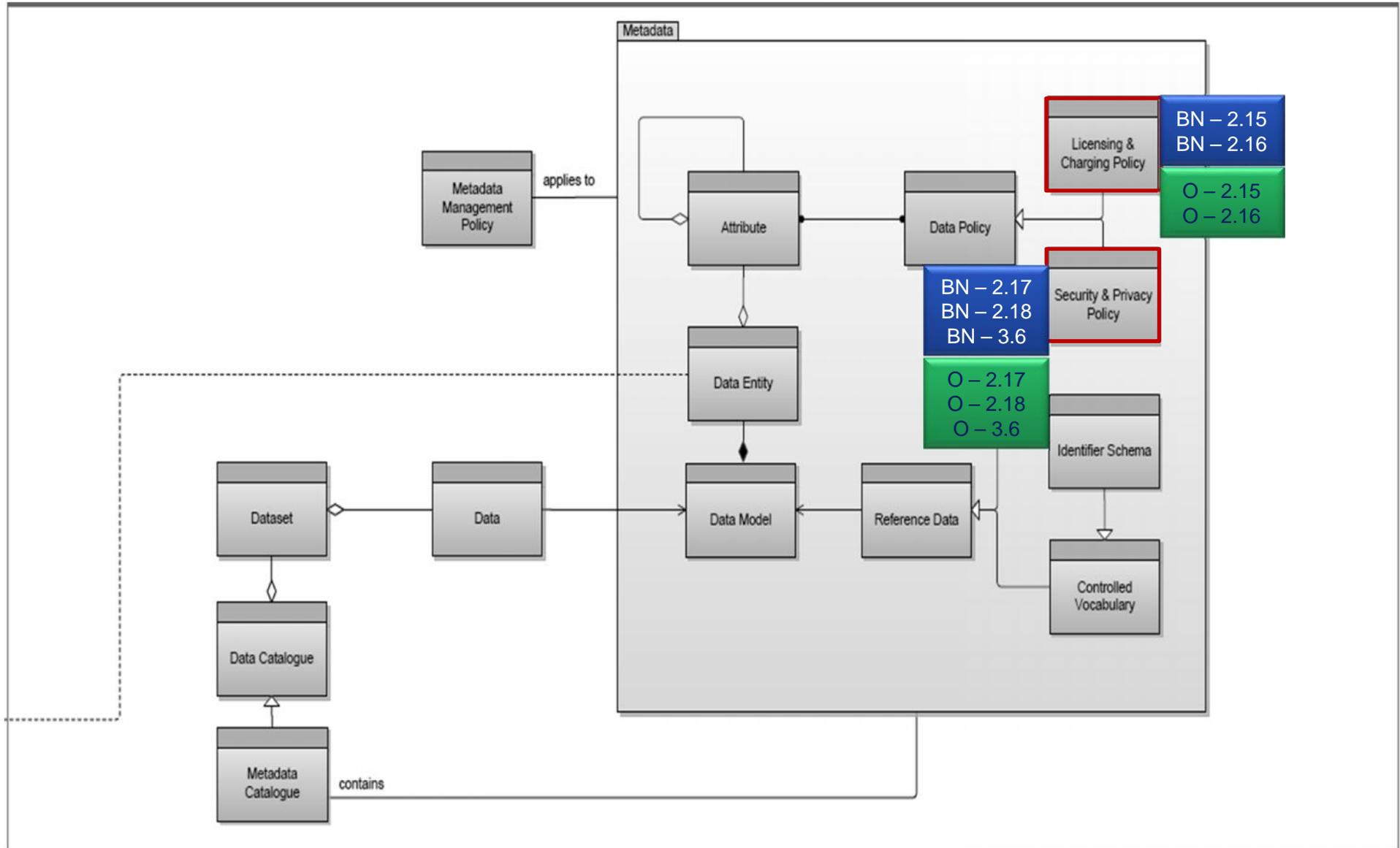


# Business View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
O - 2.1	<b>Bilateral agreements</b>	BN - 2.1	Need for bilateral agreements between the MSs setting the rules for collaboration
O -2.2	<b>Business rules</b>	BN - 2.2	Need for business rules for data cost sharing, management of data exchange and the scope of the solution
O - 2.4	<b>Service delivery model</b>	BN - 2.4	Need for a service delivery model
O - 3.12	<b>Contracts &amp; Code of Conduct</b>	BN - 3.12	Need for membership rules for EULIS Members and Associates regarding the exchange of land registries data
O - 3.13	<b>Re-use of Data Incentive Scheme</b>	BN - 3.13	Need for an incentive scheme to share and re-use the land base registries
O - 6.2	<b>CCRF (Cross Border Conveyancing Reference Framework)</b>	BN - 6.2	Need for an organisational structure with specification of roles and responsibilities
O - 6.3	<b>Legal fact sheets per Member State</b>	BN - 6.3	Need for easily available information on different legal systems in Member States on the portal
O - 7.2	<b>Directive 2012/17/EU, Directive 2009/101/EU</b>	BN - 7.2	Need for business rules and base registries sharing principles

# Other solutions - Data View



# Data View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
O - 2.15	<b>Licencing policy</b>	BN - 2.15	Need for a licensing policy at the initiative level
O - 2.16	<b>Charging policy</b>	BN - 2.16	Need for a charging policy agreed at the initiative level
O - 2.17	<b>Security policy of the data exchange (infrastructure, user access management)</b>	BN - 2.17	Need for a security and privacy policy at the initiative level
O - 2.18	<b>Use of restricted data, the Prum Treaty</b>	BN - 2.18	Need for the implementation of the use of the restricted data to meet the requirements of the legislation
O - 3.6	<b>Data protection and access rules</b>	BN - 3.6	Need for a common data policy between the EULIS Members compliant with EU as well as national legislation



## CHAPTER VI — Key Findings

## Business Needs and Solutions (1/2)



- A total of 88 specific business needs were identified, 54 of which are met by an existing solution while 34 business needs are unmet
- A total of 71 solutions could be identified, of which 29 have a level of reusability, 12 are non-reusable, 17 are planned solutions, and 13 are of the type 'Other'\*
- After having identified the business needs and solutions, and assessing the solutions against reusability criteria, a gap-analysis is performed by cross-mapping the business needs and solutions of all 7 initiatives to see whether any unmet business need from one initiative could potentially be addressed by an existing solution from another initiative.

\* All solutions that could not be assessed for reusability, are classified as 'other'. These are: agreements, business rules, service delivery models, policies, legislation, and frameworks.

## Business Needs and Solutions (2/2)



- The unmet business needs map to 19 building blocks, of which 15 are addressed by solutions from other initiatives, most of which have met the reusability criteria for level 1, 2, or 3.
- Whether these solutions can be reused by the initiatives would need to be clarified by an in-depth assessment to ensure fit-for-purpose.
- The next slides display tables mapping the unmet business needs (BN) of each initiative to identified solutions of other initiatives addressing the same building block.

## Business Needs Met by Another Initiative (1/7)



Initiative	BN name	Building block	Solutions	Description of other initiatives' solution*
ECRIS	Need for mechanisms for a secure exchange of criminal records	e-Signature Service	SE – 2.26 SE – 5.9	e-Signature solution (XML signature); Digital signature using a personal smartcard
EUCARIS	Data model (semantic rules and data requirements)	Data Model	SA - 1.4	Domain model
EULIS	Need for a common charging method	e-Payment Service		Unmet
	Need for a model of land registries including a semantic model for the key land registries	Data Model	SA - 1.4	Domain model
	Need for reference data for query services	Reference Data	SA - 1.1 SA - 1.5 SA – 3.4 SA - 3.10 SA – 5.1	ECRIS list of terminology and concepts; Reference Tables; EULIS Glossary of key terms and template for reference data; Reference data; The Hague Convention - multilingual pre-defined forms

## Business Needs Met by Another Initiative (2/7)



Initiative	BN name	Building block	Solutions	Description of other initiatives' solution*
EULIS	Need for an integrated one-stop-shop giving access to land registries	Presentation and Access Enablers	SW - 1.8 SW -2.14 SA - 3.5 SW - 3.8 SW - 3.9 SW - 4.1 SW - 7.1	sTESTA network services; Standardised interface; Interface in English and EULIS Common Terms Translation Tool; EULIS Portal; Platform to interconnect land registries; e-Justice Portal; e-Justice Portal
	Need for choreography and orchestration services supporting the land registries data exchange	Workflow Enablers	SE - 2.22	Message orchestration services
	Need for automation of data exchange for land registries	Machine-to-Machine Interface	SW - 1.8 SW - 3.9	sTESTA network services; Platform to interconnect land registries
	Need for a search functionality enabling search for land registries information	Digital Public Service	SW - 1.9 SE - 4.2 SE - 4.3 SE - 4.4 SW - 5.6	ECRIS IS (ECRIS Reference Implementation); Search functionality on the e-Justice Portal; Testing of the Information System; Maintenance and development of IS; Web-based platform

## Business Needs Met by Another Initiative (3/7)



Initiative	BN name	Building block	Solutions	Description of other initiatives' solution*
EULIS	Need for records and content services for land registries	Data Source Enablers	SW - 5.7	ECRN container
	Need for a service for the generation, verification and extension of interoperable electronic signatures	e-Signature Service	SE – 2.26 SE – 5.9	e-Signature solution (XML signature); Digital signature using a personal smartcard
IRI	Not enough information	Machine-to-Machine Interface	SW - 1.8 SW - 3.9	sTESTA network services; Platform to interconnect land registries
	Not enough information	Business Reporting Service		Unmet

## Business Needs Met by Another Initiative (4/7)



Initiative	BN name	Building block	Solutions	Description of other initiatives' solution*
ECRN	Need for an agreement about the details of data to be recorded for each life event	Dataset	SA – 2.5	Dataset of the vehicle documentation
	Need for submitting an event based request "on the screen"; Need for automation of transmission of life event data; Need for transmission between event based registries and central registries	Digital Public Service	SW - 1.9 SE - 4.2 SE - 4.3 SE - 4.4 SW - 5.6	ECRIS IS (ECRIS Reference Implementation); Search functionality on the e-Justice Portal; Testing of the Information System; Maintenance and development of IS; Web-based platform
	Need for the interoperability of a system of electronic signatures between the Member States for the civil status registration	e-Signature Service	SE – 2.26 SE – 5.9	e-Signature solution (XML signature); Digital signature using a personal smartcard

## Business Needs Met by Another Initiative (5/7)



Initiative	BN name	Building block	Solutions	Description of other initiatives' solution*
ELRA	Need for fast and secure transmitting of legal data cross-border; Need for a Notification Service	Digital Public Service	SW - 1.9 SE - 4.2 SE - 4.3 SE - 4.4 SW - 5.6	ECRIS IS (ECRIS Reference Implementation); Search functionality on the e-Justice Portal; Testing of the Information System; Maintenance and development of IS; Web-based platform
	Need for instant messaging & audio-visual service	Communication Enablers		Unmet
	Need for a common data policy across Member States (security, charging, licencing and/or privacy policy)	Data Policy	O - 2.15 O - 2.16 O - 2.17 O - 2.18 O - 3.6	Licencing policy; Charging policy; Security policy of the data exchange; Use of restricted data, the Prüm Treaty; Data protection and access rules
	Need to implement more Reference Data, among which unique identifiers	Reference Data	SA - 1.1 SA - 1.5 SA - 3.4 SA - 3.10 SA - 5.1	ECRIS list of terminology and concepts; Reference Tables; EULIS Glossary of key terms and template for reference data; Reference data; The Hague Convention - multilingual pre-defined forms

## Business Needs Met by Another Initiative (6/7)



Initiative	BN name	Building block	Solutions	Description of other initiatives' solution*
BRIS	Need for a payment service	e-Payment Service		Unmet
	Need for an identification and access method for users	Access Management Service	SW - 5.8	STORK authentication platform
	Need for a common understanding of terminology and concepts within the business domain	Reference Data	SA - 1.1 SA - 1.5 SA - 3.4 SA - 3.10 SA - 5.1	ECRIS list of terminology and concepts; Reference Tables; EULIS Glossary of key terms and template for reference data; Reference data; The Hague Convention - multilingual pre-defined forms
	Need for a payment service; Need for a charging policy	Charging Policy	O - 2.16 SE - 3.3	Charging policy; Click-wrap license policy
	Need for collecting log files	Logging Services	SE - 1.6 SE - 2.25 SE - 3.2	Monitoring service; Logging services; Logging & Billing
	Need for a platform	Machine-to-Machine Interface	SW - 1.8 SW - 3.9	sTESTA network services; Platform to interconnect land registries

## Business Needs Met by Another Initiative (7/7)



Initiative	BN name	Building block	Solutions	Description of other initiatives' solution*
BRIS	Need for a search facility; Need for a notification functionality and to set rules for the use of notifications	Digital Public Service	SW - 1.9 SE - 4.2 SE - 4.3 SE - 4.4 SW - 5.6	ECRIS IS (ECRIS Reference Implementation); Search functionality on the e-Justice Portal; Testing of the Information System; Maintenance and development of IS; Web-based platform
	Need for ensuring the privacy and security of data	Security & Privacy Policy	O - 2.17 O - 2.18 O - 3.6	Security policy of the data exchange; Use of restricted data, the Prüm Treaty; Data protection and access rules
	Need for Reference Tables and maintenance of these	Metadata Management Policy		Unmet
	Need for data transformation, validation, and transmission	Data Exchange Enablers	SA - 2.21 SE - 2.23 SE - 2.24 SA - 3.5	Standard web client; Data validation services; Data exchange enabler services; Interface in English and EULIS Common Terms Translation Tool
	Need for a standard electronic signature method	e-Signature Service	SE - 2.26 SE - 5.9	e-Signature solution (XML signature); Digital signature using a personal smartcard



# CHAPTER VII – Proposed Priority Solutions

## Proposed priority solutions



- “Priority solutions”:

As part of this project we describe 2 identified priority solutions.

- “Proposed new solution”:

We describe 1 priority solution that could be potentially developed or elaborated to address the business needs of various initiatives that are not met by a solution existing in any of the 7 initiatives.

## Identifying the gaps



- 2 clusters of unmet business needs without planned solutions have been identified:
  - 4 initiatives have expressed their need for upgrading their data model, for example by using (more) reference data
  - 3 initiatives have expressed a need for a secure, standardised method of authenticating a signer, i.e. an e-Signature service which is used for the generation, verification and extension of interoperable electronic signatures
- Based on these clusters of unmet business needs, we have looked at existing solutions that may address this business need
- Following this gap-analysis we provide a direction how to further develop, promote or expand existing solutions

## Priority Solution 1: Data Entities (1/4)



The following table represents a cluster of unmet business needs related to a common understanding of data entities.

Unmet BN ID	Building Block	Description
BN – 2.20	Data Model	Need for controlled vocabularies to be obligatory to use
BN – 3.7	Data Model	Need for a model of land registries including a semantic model for the key land registries
BN – 3.11	Reference Data	Need for reference data for query services
BN - 6.4	Reference Data	Need to implement more Reference Data, among which unique identifiers
BN – 7.9	Reference Data	Need for code lists and identifiers

## Priority Solution 1: Data Entities (2/4)



The following solutions were mapped to the aforementioned business need regarding a common understanding of data entities.

Solution ID	Name	Building block	Solution Description
SA - 1.1	ECRIS list of terminology and concepts	Reference Data	A common list of terminology and concepts regarding the criminal records
SA - 1.3	Code list for offences and penalties	Controlled Vocabulary	A common list of codes of criminal offences and penalties
SA - 1.4	Domain model	Data model	A domain model for criminal records
SA - 1.5	Reference Tables	Reference Data	Reference tables for criminal records
SA - 2.19	Code lists	Controlled Vocabulary	A list of codes for the vehicle registers to exchange data cross border to meet the requirements of the legislation

## Priority Solution 1: Data Entities (3/4)



Solution ID	Name	Building block	Solution Description
SA - 3.4	EULIS Glossary of key terms and template for reference data	Reference Data	A common glossary of terms and templates for reference data
SA - 3.10	Reference data	Reference Data	Standard required information (e.g. pre-defined codes or definitions) for the data requests and response messages
SA - 4.5	Rendering Catalogue	Controlled Vocabulary	A list of allowed terms and their definition regarding insolvency registers
SA - 4.6	Insolvency Glossary	Controlled Vocabulary	A glossary
SA - 5.1	The Hague Convention - multilingual pre-defined forms	Reference Data	A multilingual form recognising the documents in various language to avoid translation and authentication of documents in the receiving country

## Priority Solution 1: Data Entities (4/4)



- The identified solutions reveal different levels of potential reusability. Reusability should however be treated with caution as the assessment does not focus on the content of the solutions.
- In order to address the need for a data model that includes reference data:
  - The use of standardised documents and multilingual forms with reference data, including code lists, should be formally enforced (e.g. not legally binding - memorandum of understanding, letter of agreement; or legally binding such as INSPIRE's Directive on spatial data specifications), since it is not common practice in all analysed initiatives to use them. This way Member States are incentivised to implement a standard, facilitating common understanding.
  - Further promotion of existing reusable and extensible data models, such as Core Vocabularies (Business, Person, Location, Public Service), is required.
    - Core Person: chaired by EUROJUST; potential for ECRIS and ECRN
    - Core Business: chaired by DG MARKT; potential for BRIS and IRI
    - Core Location: chaired by EC Joint Research Centre; potential for EULIS/ELRA

## Priority Solution 2: Electronic Signature (1/4)



The following table represents a cluster of business needs related to the need for mechanisms to ensure secure data exchange, more specifically a standard electronic signature to ensure the authenticity of the signer and non-repudiation of **digitally signed documents and forms**.\*

Unmet BN ID	Building Block	Description
BN – 1.10	e-Signature Service	Need for mechanisms for a secure exchange of criminal records
BN – 3.19	e-Signature Service	Need for a service for the generation, verification and extension of interoperable electronic signatures
BN – 7.13	e-Signature Service	Need for a standard electronic signature method. A study is being conducted on this, namely DIGIT's "BRIS system wide requirements".

\* Note that this is different from eIdentification and eAuthentication, a service that is provided to European public administrations by STORK's European eID interoperable platform. STORK 2.0 pilots are now building further on this success. For more information please see <https://www.eid-stork.eu/>

## Priority Solution 2: Electronic Signature (2/4)



The following existing solutions have been identified.

Solution ID	Name	Building Block	Solution Description
SE – 2.26	e-Signature solution (XML signature)	e-Signature Service	All messages exchanged between Member States are signed using a certificate. The EUCARIS server will verify the signature of all incoming messages and by this ensures who the requester is and that he is authorised. The EUCARIS server supports certificates from multiple PKI providers. Currently, the EUCARIS states run their own managed PKI that makes use of Verisign certificates.
SE - 5.9	Digital signature using a personal smartcard	e-Signature Service	Requirement for ECRN system to guarantee secure data exchange. The Civil Status Officer signs the documents with his personal smartcard, compliant with international standards. ECRN is compatible with national ID cards issues in different countries.

## Priority Solution 2: Electronic Signature (3/4)



- The identified e-Signature solution is of reusability level 2, meaning that there is enough documentation available on the electronic signing service to assess its reusability for other initiatives.
- The next step would be to incite stakeholders, i.e. ECRIS, EULIS, and BRIS, to discuss their requirements for the functionalities for the generation, verification and extension of interoperable electronic signatures
- The most mature and generic solutions in the market are the Digital Signature Service tool developed by the European Commission and the Pan-European Public e-Procurement On-Line (PEPPOL) project (EU co-funded).

## Priority Solution 2: Electronic Signature (4/4)



- While the DSS tool is an open source software that Member States can use at national level allowing for automated creation and validation of signatures (based on trusted lists as established under Decision 2009/767/EC), the PEPPOL e-Signature validation infrastructure is a server-and-service based approach, enhancing validation with quality criteria.\*
- e-Signature is one of the top items on the Digital Agenda for Europe with the revision of the eSignature Directive (1999/93/EC) being Key Action 3.

\* For more information and technical specifications on the DSS tool and PEPPOL please refer to the software repository Joinup:  
<https://joinup.ec.europa.eu/>

## Proposed New Solution: Electronic Payment (1/3)



The following table represents a cluster of business needs related to the need for a mechanism to enable a secure electronic payment. This need has been identified within the EULIS and BRIS initiatives.

Unmet BN ID	Building Block	Description
BN – 3.1	e-Payment Service	Need for a common charging method
BN – 7.7	e-Payment Service	Need for a payment service

## Proposed New Solution: Electronic Payment (2/3)



- Charging fees are typically depending on charging policies in the Member States, the nature and level of detail of data requested, and on the type of users (e.g. professional users versus citizens);
  - BRIS for example is driven by a Directive which ensures free access to certain data within the business domain (Directive 2012/17/EU): company name, registration number, legal form and address
  - On the contrary, EULIS leaves the charging policy up to the individual Member States, which is why different fees are charged by different Member States
- Either way, an interoperable payment solution must be developed such that users can be charged for accessing data from a register cross-border, and according to the charging fees for that type of data or for the country of origin of that register.

## Proposed New Solution: Electronic Payment (3/3)



- It is important to note that the requirements for such a solution may differ across Member States. For example:
  - the verification of a minimum sum of money on a national bank account;
  - access for non-EU countries.
- An e-Payment module has to take all current practices into account, as well as whether access for non-EU countries is available.



# CHAPTER VIII — Legal Context



- The general trend in the legislative roadmap is the advancement of the digital single market. Especially high-ranking on the Digital Agenda for Europe are standardisation and trust services, which feed into digital services cross-sector, such as eHealth, Intelligent Transport Systems (ITS) and card, internet and mobile payments.
- Two important Directives that influence all Member States cross-sector and hence influence the interconnection of base registries are:
  - European Directive on Electronic Signatures (1999/93/EC). Revision of this Directive and thus of electronic identification and authentication can have important effects on the use of online cross-border services.
  - European Services Directive (2006/123/EC), demanding Member States to set up an electronic government single point of contact for cross-border service delivery.
- Moreover, the Action Plans on e-Government and e-Procurement further promote interoperability of systems and key enablers such as e-Signatures and e-Identification.
- The next slide explains how three other Directives impact base registries.

## Legal Context (2/2)



Legal act	Impact on base registries	Building block
Directive 2003/98/EC on the re-use of public sector information	Provides guidelines to the Member States on how to enhance the re-use of the public information resources	<ul style="list-style-type: none"> <li>• Legislation (Business view)</li> <li>• Licensing and charging policy (Data view)</li> </ul>
Directive 96/9/EC on the legal protection of databases	Provides a legal framework for the protection of databases. In particular it protects schema (copyright) and content of databases (sui generis rights)	<ul style="list-style-type: none"> <li>• Legislation (Business view)</li> <li>• Data policy (Data view)</li> <li>• Security and privacy policy (Data view)</li> </ul>
Directive 95/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data	Sets strict limits on the collection and use of personal data by public administrations within the Member States, and demands that each Member State sets up an independent national supervisory body responsible for monitoring the application of the directive within its territory.	<ul style="list-style-type: none"> <li>• Legislation (Business view)</li> <li>• Security and privacy policy (Data view)</li> <li>• Data policy (Data view)</li> <li>• Organisational structure (Business view)</li> </ul>



# CHAPTER IX – Conclusions

## Key Conclusions (1/2)



### The current landscape

- The value of the Catalogue of Reusable existing solutions can be seen in two ways:
  - To provide a consolidated view of potentially reusable solutions
  - To point out unmet business needs for which solutions can be developed
- To this end, we have analysed 7 initiatives across four types of base registries, namely Land, Business, People, and Vehicle
- A total of 88 business needs were identified, 54 of which are met by an existing solution while 34 business needs are unmet
- A total of 71 solutions could be identified, of which 29 have a level of reusability, 12 are non-reusable, 17 are planned solutions, and 13 are of the type 'Other'\*
- The gap-analysis allowed us to find a number of unmet business needs that could be addressed by other initiatives' existing reusable solutions
- 2 proposed priority solutions are identified for further development or promotion and 1 solution is proposed to be developed

\* All solutions that could not be assessed for reusability, are classified as 'other'. These are: agreements, business rules, service delivery models, policies, legislation, and frameworks.

## Key Conclusions (2/2)



### Regarding reusable solutions

- Most existing solutions exhibit some level of reusability potential and are clustered in the Application and Data View
- Solutions in the Application View are centered around Presentation and Access Enablers, Security Enablers and Digital Public Services
- Solutions in the Data View are centered around Reference Data
- In interpreting the reusability of the existing solutions, caution should be taken since the assessment is based on content-neutral reusability criteria thus further analysis is required to ensure fit-for-purpose
- Despite the fact that many solutions are of the 'Other' type\* their value cannot be understated because they facilitate the sharing of lessons learned and best practices, particularly in less mature initiatives

### Integration or interconnection?

- The initiatives all have a decentralized architecture with the aim of interconnecting rather than integrating the Member States' registers, as such there is no central repository.

\* All solutions that could not be assessed for reusability, are classified as 'other'. These are: agreements, business rules, service delivery models, policies, legislation, and frameworks.



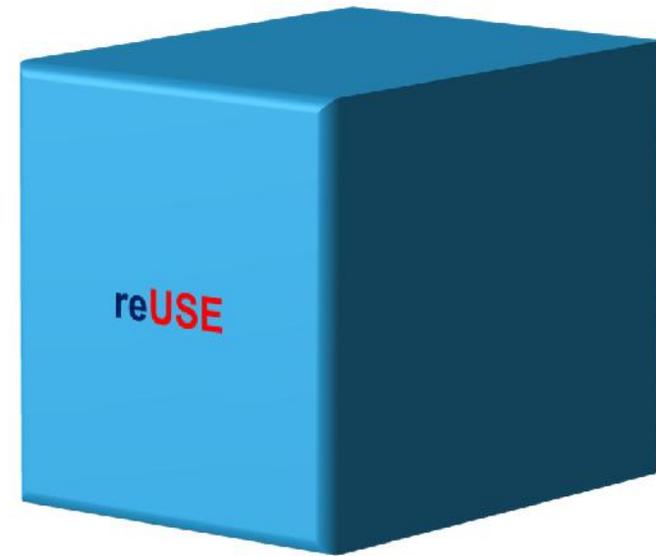
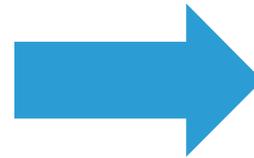
# CHAPTER X – Recommendations

## Recommendations (1/7)



**Base Registries IV**

Reus**ability** is the **potential** of a solution to be reused for a different purpose based on generic criteria about its documentation and the way it is built.



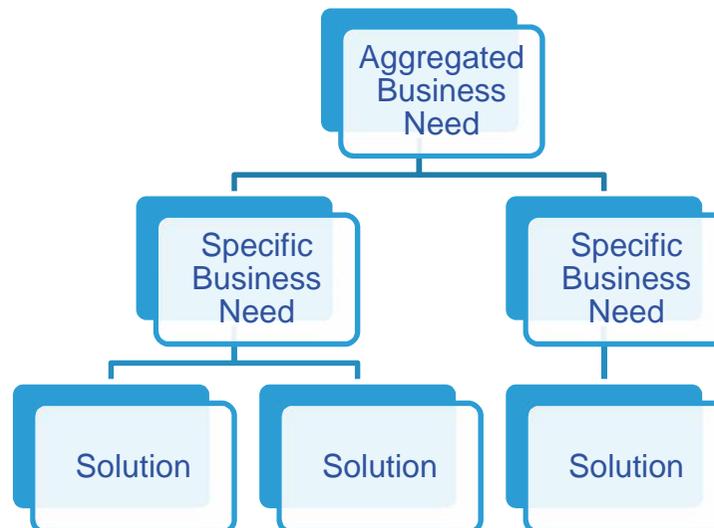
**Future Base Registries actions**

A solution is a candidate for re**use** if it is **fit-for-purpose** in the context in which it will be reused. Reuse is assessed against more specific criteria based on functional and technical specifications.



## reusABILITY – Base Registries IV

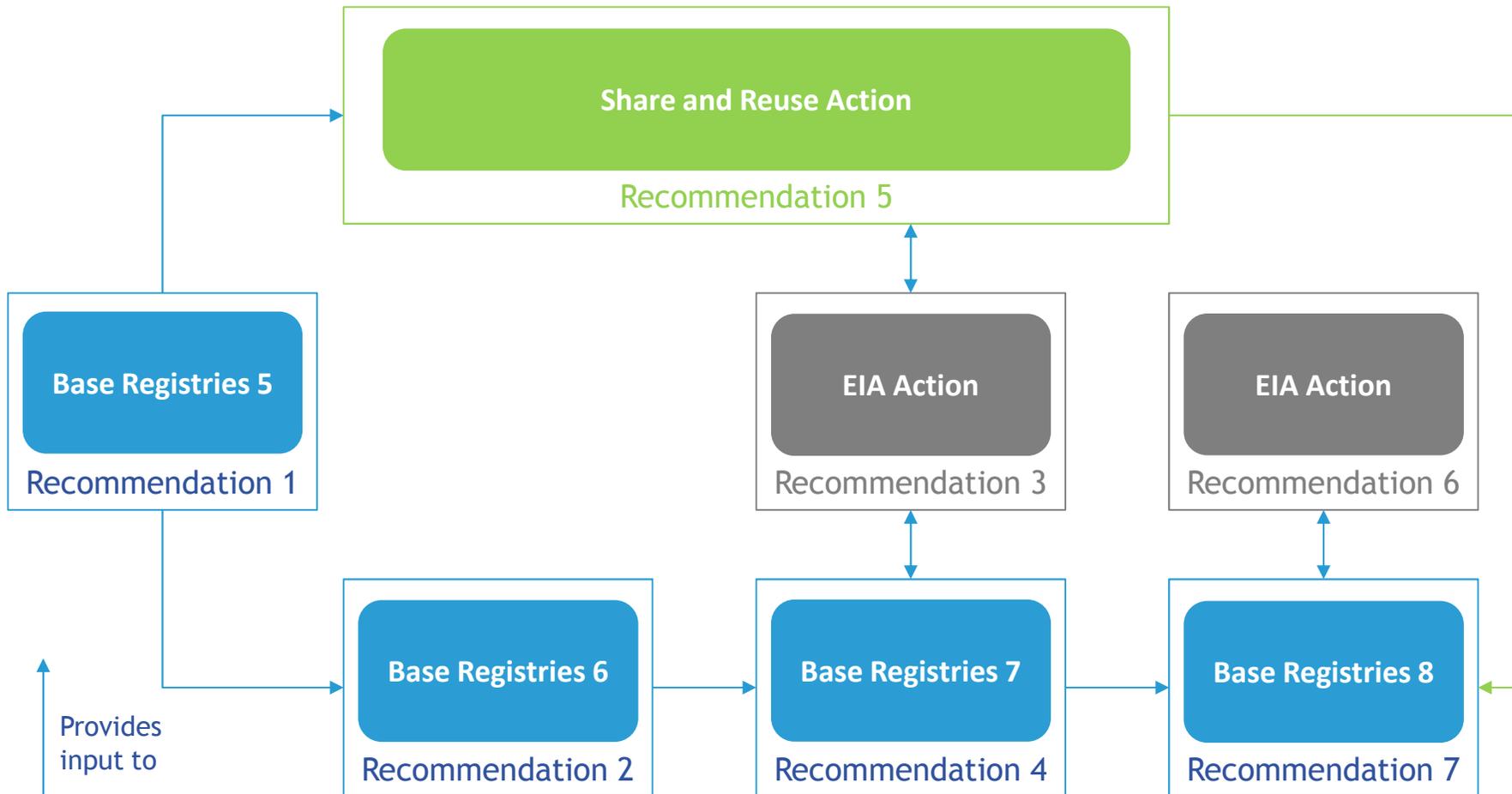
- The current study focused on generating a catalogue of solutions assessed against criteria to indicate **reusability**.
- The catalogue of solutions by reusability can be used as a practical tool to identify potentially reusable solutions, which must then be assessed for reuse or fit-for-purpose.
- These potentially reusable solutions are also mapped against a set of business needs:



# Recommendations (3/7)



## A Roadmap to reUSE Future Base Registries Actions



## Recommendations (4/7)



### Recommendation 1

Facilitate discussions between initiatives to understand the potential reuse of solutions owned by one initiative that address unmet business needs of another initiative, for example:

- EUCARIS and BRIS: Some EUCARIS solutions in the Application view cover several building blocks where BRIS currently has unmet needs (Data Exchange Enablers, Logging Services, e-Signature).
- ECRIS and EULIS/ECRN/BRIS: Facilitate a sharing of best practices from ECRIS around Reference Data.
- EULIS and BRIS: BRIS is considering a licencing and charging policy and dealing with the same issues that are being tackled by EULIS who is developing their solution around the building block.

### Recommendation 2

The action should, in collaboration with the initiatives, define the functional and technical requirements to either develop the proposed solutions necessary to cover the unmet business needs, or to assess the fit-for-purpose of existing solutions.

## Recommendations (5/7)



### Recommendation 3 (EIA Action)

Define interoperability requirements for each building block of the EIRA with the aim of facilitating the interconnection of base registries, as well as to guide future solution development. The Base Registries landscape is cross-border and the landscape is already somewhat mature (there are existing solutions and overlaps in EIRA building blocks). As a result, the interconnection of base registries must be facilitated by improved interoperability.

### Recommendation 4

Focus on the analysis and development of solutions for building blocks that facilitate the interconnection of base registries even when Member States do not seem to want to go in the direction of an integration of their databases. For example, developing harmonised data model and charging policies that facilitate the reuse of solutions and exchange of information in a cross-border context.

## Recommendations (6/7)



### Recommendation 5 (Share and Reuse Action)

Drive actual reuse in addition to reusability (from a design/suitability point of view towards implementation - reuse in practice) by defining a framework around the assessment of the fit-for-purpose of a solution, and working directly with the initiatives in the previous recommendation to conduct the assessment on existing relevant solutions.

Hence, in collaboration with the Share and Reuse Action, develop a set of standard criteria to indicate reuse based on generic sets of:

- a. Functional requirements,
- b. Technical requirements, and
- c. System requirements.

## Recommendations (7/7)



### Recommendation 6 (EIA Action)

Define reusability criteria and technical requirements for each EIRA building block in order to arrive at a set of practical and concrete reusability criteria that bridge the gap better between reusability and reuse. As it stands today, reusability criteria provide a very high level indication of reusability potential, and do not provide an indication as to actual reuse potential or fit-for-purpose potential.

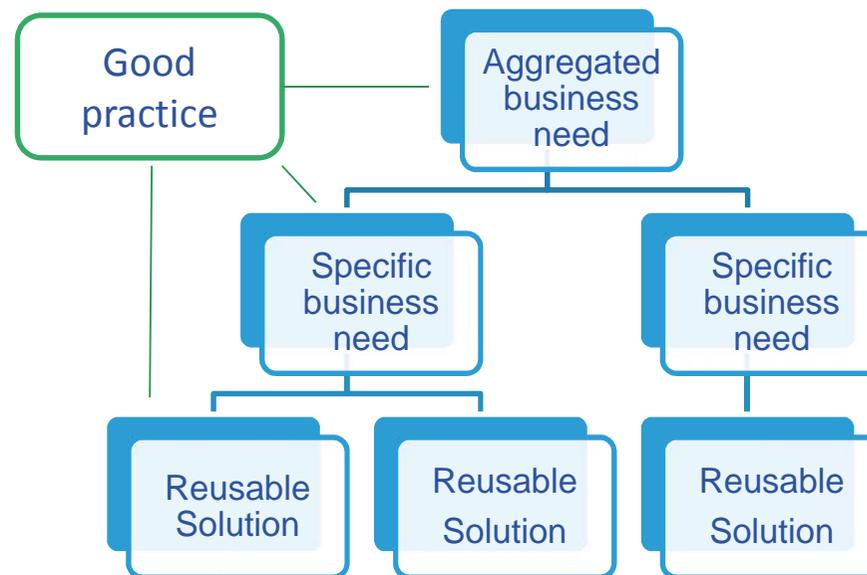
### Recommendation 7

Use the outcome of Recommendation 5 and 6 to develop a catalogue of solutions assessed against these criteria above, and which can be used to drill down on potential candidates for reuse by selecting, per EIRA building block, functional, technical and system requirements that address the specific unmet business need.

# Recommendations on the Use of Good Practices (1/10)



- In the previous phase of the Access to Base Registries project, a set of 17 good practices to interconnect base registries was identified. The good practices related to the legal, organisational, semantic and technical aspects.
- From the conceptual point of view, a link between a relevant good practice, a business need and/or a solution can be made (see figure below). This link provides context when searching for a reusable solution.

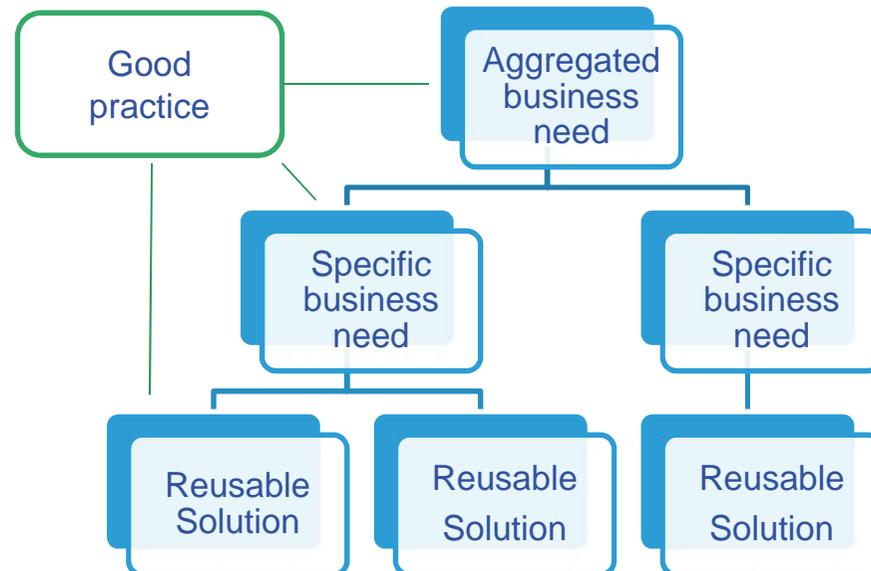


# Recommendations on the Use of Good Practices (2/10)



- In the European initiatives' search for solutions to their business needs, the registries' owners should use the catalogue of the aggregated business needs as the first step in their search of a reusable solution. The process should thus be as follows:
  1. Identification of an aggregated business need
  2. Identification of a specific business need
  3. Identification of a potentially reusable solution

- During this process the good practices should be taken into account to the largest extent possible for Member States to advance in their interoperability.



# Recommendations on the Use of Good Practices (3/10)



The table below shows for which good practice we have identified existing solutions for the 7 analysed initiatives.

In the following slides, more details will be given on each of the good practices, starting with the good practices that are evidenced by solutions identified within the 7 initiatives.

Good Practice	Good Practices
Evidenced by solutions	#3, #5, #7, #8, #11, #13, #14, #17
No specific solution has been identified	#1, #2, #4, #6, #9, #10, #12, #15, #16

# Recommendations on the Use of Good Practices (4/10)



Good Practice	ABN	Implementation of the good practice	Solution ID
#3: European initiatives provide legal support to ensure that personal data is processed in accordance with individuals' fundamental rights and freedoms	ABN - 2 - Need to comply with legislation on data exchange	<p><b>EUCARIS:</b> Security policy (encryption, message signing, authorization); Use of restricted data according to Prüm Treaty</p> <p><b>EULIS:</b> Data privacy policy (data protection and access rules) is compliant with the Member States and the EU legislation</p> <p><b>ECRIS:</b> The privacy policy is defined in the Data Protection Directive (Directive 95/46/EC).</p>	<ul style="list-style-type: none"> <li>• O – 2.17</li> <li>• O – 2.18</li> <li>• O – 3.6</li> <li>• BRIS: planning a common data policy based on Member States' individual policies</li> </ul>
#5: When a common interconnecting infrastructure for base registries is available, legislation is used to force its use	ABN - 2 - Need to comply with legislation on data exchange	<p><b>ECRIS:</b> Council Decision 2009/316/JHA</p> <p><b>BRIS:</b> Directive 2012/17/EU, Implementing Acts</p> <p><b>EUCARIS:</b> Collaboration within the legal framework of the EUCARIS Treaty, the Prüm Treaty or bilateral agreements. Semantic rules should be derived from EU directives and guidelines (e.g. Directive 2007/46/EC)</p>	<ul style="list-style-type: none"> <li>• SE – 2.6 (EUCARIS data exchange services)</li> <li>• O – 7.2</li> </ul>

# Recommendations on the Use of Good Practices (5/10)



Good Practice	ABN	Implementation of the good practice	Solution ID
#7: Collaborative processes are put in place to design interoperable interfaces used for interconnecting base registries	ABN - 16 - Need for collaboration rules	<p>Grunddata (Denmark) – Data Hunters online group</p> <p>Grunddata (Denmark) – Public Data in Play initiative</p>	None identified within the 7 European initiatives
#8: The conditions for exchanging data between base registries are formalised in interoperability agreements which are respected	ABN - 16 - Need for collaboration rules	<p><b>EUCARIS:</b> There are bilateral agreements between the Member States exchanging vehicle data, as well as a service delivery model.</p> <p><b>EULIS:</b> There is a contract with each participating Member State.</p>	<ul style="list-style-type: none"> <li>• O – 2.1</li> <li>• O – 2.4</li> <li>• O – 3.12</li> </ul>

# Recommendations on the Use of Good Practices (6/10)



Good Practice	ABN	Implementation of the good practice	Solution ID
#11: The owners of base registries have a business model for basic data that promotes its re-use	ABN - 6 - Need for coordination of charging policies	<b>ECRIS:</b> Data is for free (for Member States administrations) <b>BRIS:</b> basic data is for free (also for professional users). Free access to data promoting (re-)use	<ul style="list-style-type: none"> <li>• O – 2.16</li> </ul>
#13: EU-wide projects make use of coded values to reduce semantic conflicts	ABN - 1 - Need for common understanding of data entities	<b>ECRIS:</b> Code list for offences and penalties <b>BRIS:</b> Study on existing semantic assets <b>EUCARIS:</b> Code list for offences	<ul style="list-style-type: none"> <li>• SA – 1.3</li> <li>• SA – 2.19</li> </ul>

# Recommendations on the Use of Good Practices (7/10)



Good Practice	ABN	Implementation of the good practice	Solution ID
#14: Entities can be unequivocally identified within the Member States and across borders	ABN - 3 - Need for unique identifiers to identify data elements	<p><b>EUCARIS:</b> European-wide registration certificate for unambiguous vehicle identification</p> <p><b>BRIS:</b> According to recital 14 of Directive 2012/17/EU companies and their branches should have a unique identifier allowing them to be unequivocally identified within the European Union.</p>	<ul style="list-style-type: none"> <li>SA – 2.5</li> <li>Identifiers for land (INSPIRE Directive) are currently unique on national level</li> </ul>
#17: A set of security principles is guaranteed via the appropriate trust-based mechanisms	ABN - 5 - Need for mechanisms to ensure secure data exchange	<p><b>EUCARIS:</b> A secured EC network for a defined limited number of users; data encryption, message signing (XML signature)</p> <p><b>ECRIS, EULIS, ECRN, and BRIS</b> are considering or planning a Digital Signature Service.</p>	<ul style="list-style-type: none"> <li>SE – 2.26</li> </ul>

# Recommendations on the Use of Good Practices (8/10)



Good Practice	Justification
#1: Equivalence of paper and electronic base registries records is formalised in legislation	The cartography of identified reusable solutions does not cover the legal recognition of equivalence of paper and electronic base registries at EU level . However, this equivalence is required for the delivery of European digital public services.
#2: Principles of data sharing across sectors are formalised to bridge differences in legislation	The cartography of identified reusable solutions does not cover cross-sector principles of data sharing.
#4: Legislation regulating base registries uses technology-neutral terms or standards and specifications which are not proprietary	The cartography of identified reusable solutions does not cover legal aspects of interconnection of base registries. The identified reusable solutions focus on the implementation of the legal acts.

# Recommendations on the Use of Good Practices (9/10)



Good Practice	Justification
<p>#6: Cross-organisational committees, with decision-making power, coordinate the interconnection between base registries</p>	<p>The cartography of identified reusable solutions does not cover organisational structures that can be shared and reused among initiatives to interconnect base registries.</p>
<p>#9: Stakeholder engagement is an integral part of the lifecycle of the interconnection of base registries</p>	<p>The cartography of identified reusable solutions does not cover stakeholder engagement. Though Member States, relevant base register owners, and technical and business experts are sometimes brought together through a Committee or less formal organisation, this has not been identified as being a solution.</p>
<p>#10: All base registries have data management in place</p>	<p>The cartography of identified reusable solutions does not cover data management since the European initiatives do not own or manage data.</p>

# Recommendations on the Use of Good Practices (10/10)



Good Practice	Justification
#12: Base registries are slowly moving towards the re-use of semantic assets	The cartography of identified reusable solutions does not cover the re-use of existing semantic assets. The identified solutions are all developed by the initiatives themselves. BRIS is however looking to re-use existing semantic solutions.
#15: Modular, loosely coupled service components are used for interconnecting base registries	The cartography of identified reusable solutions does not cover the EIRA technology view.
#16: User and application access management is based on a federated structure of authorised users and applications	The cartography of identified reusable solutions does not cover the federated user access management.



# Annex 1 – Cartography and Analysis by European Initiative



## Section I – ECRIS

# Introducing ECRIS

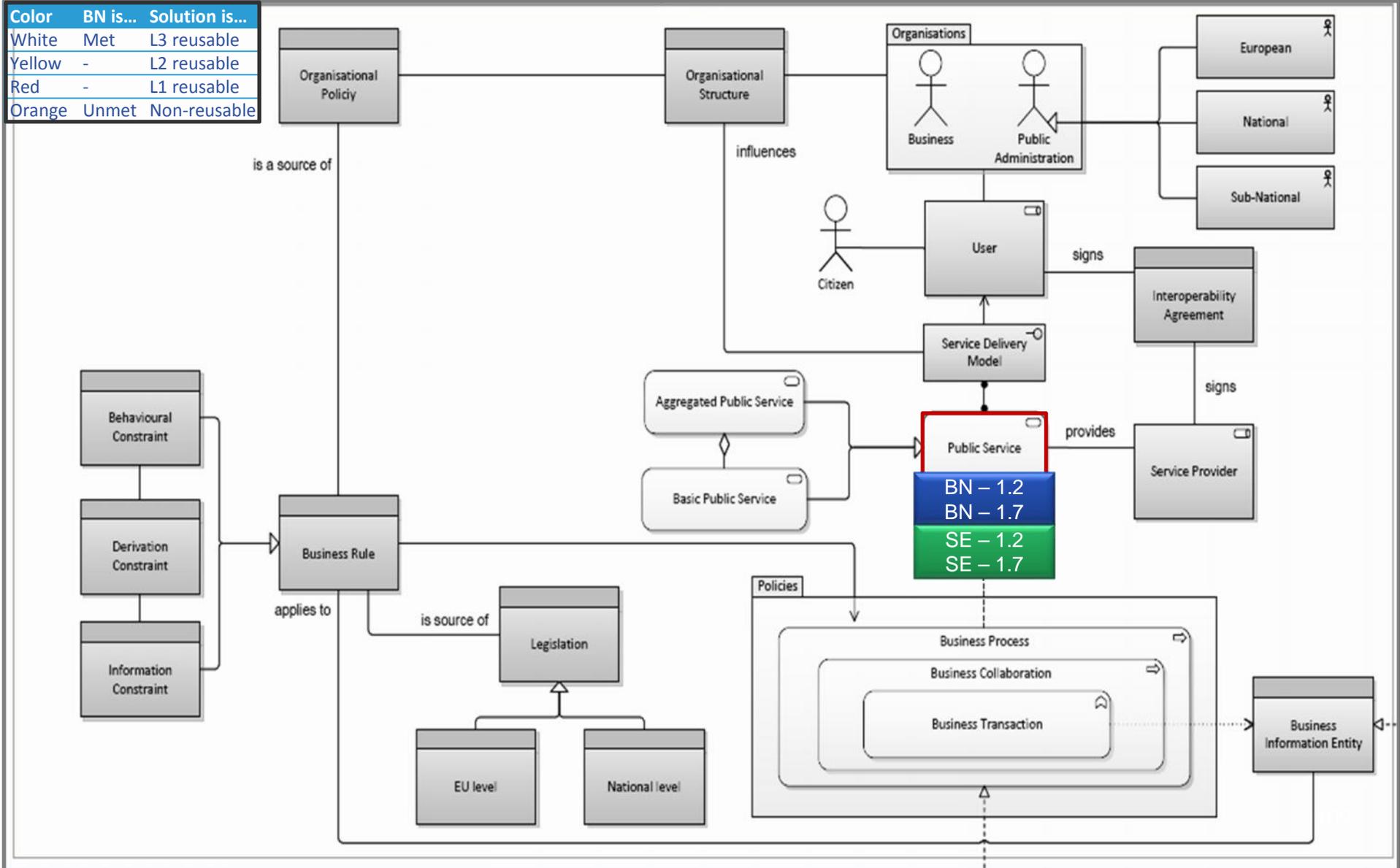


<b>What</b>	Exchange of data about criminal convictions and offences across Member States.
<b>Why</b>	The system establishes an electronic interconnection of criminal record databases across the EU to ensure that criminal records can be exchanged in a uniform, efficient way. Thanks to ECRIS, judges and prosecutors can easily access information on the offending history of any EU citizen, no matter in which EU countries that person has been convicted in the past.
<b>When</b>	The ECRIS system was established in April 2012.
<b>Who</b>	All EU countries
<b>Future</b>	A creation of a European index of convicted third – country nationals is planned, since the ECRIS system is only relevant to the EU nationals only. At present, it is not possible to verify if a third country national was convicted in other EU countries without checking this information in all of them.

# ECRIS – Business View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable



# ECRIS – Business View – Legend

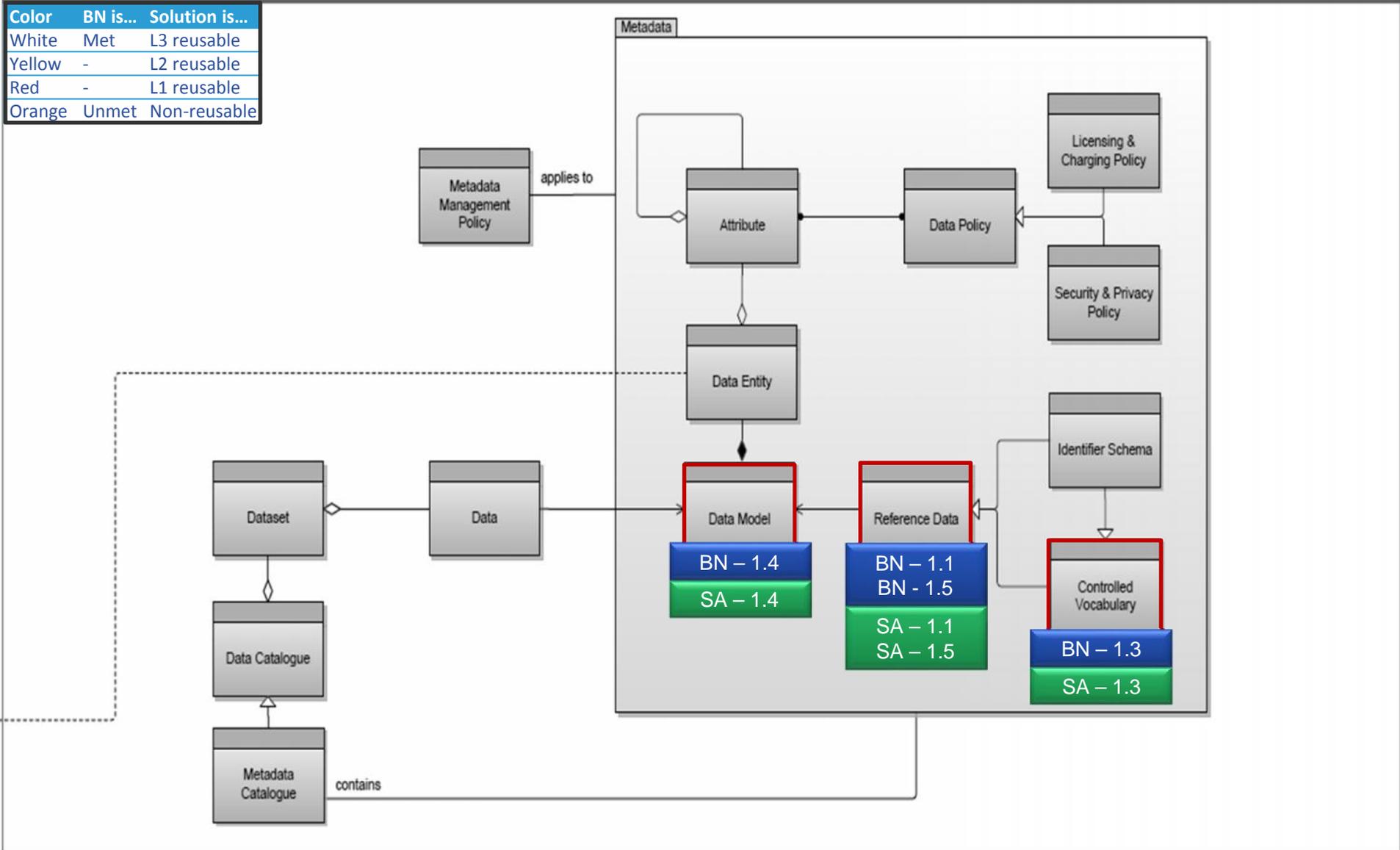


Solution ID	Solution name	Specific business need ID	Specific business need
SE - 1.2	<b>ECRIS Services</b>	BN - 1.2	Need for a service to enable exchange of criminal records as defined according to Council Framework Decision 2009/315/JHA and Council Decision 2009/316/JHA
SE - 1.7	<b>Maintenance and Development of IS</b>	BN - 1.7	Need for a service for maintenance and development of a solution to exchange criminal records

# ECRIS – Data View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable

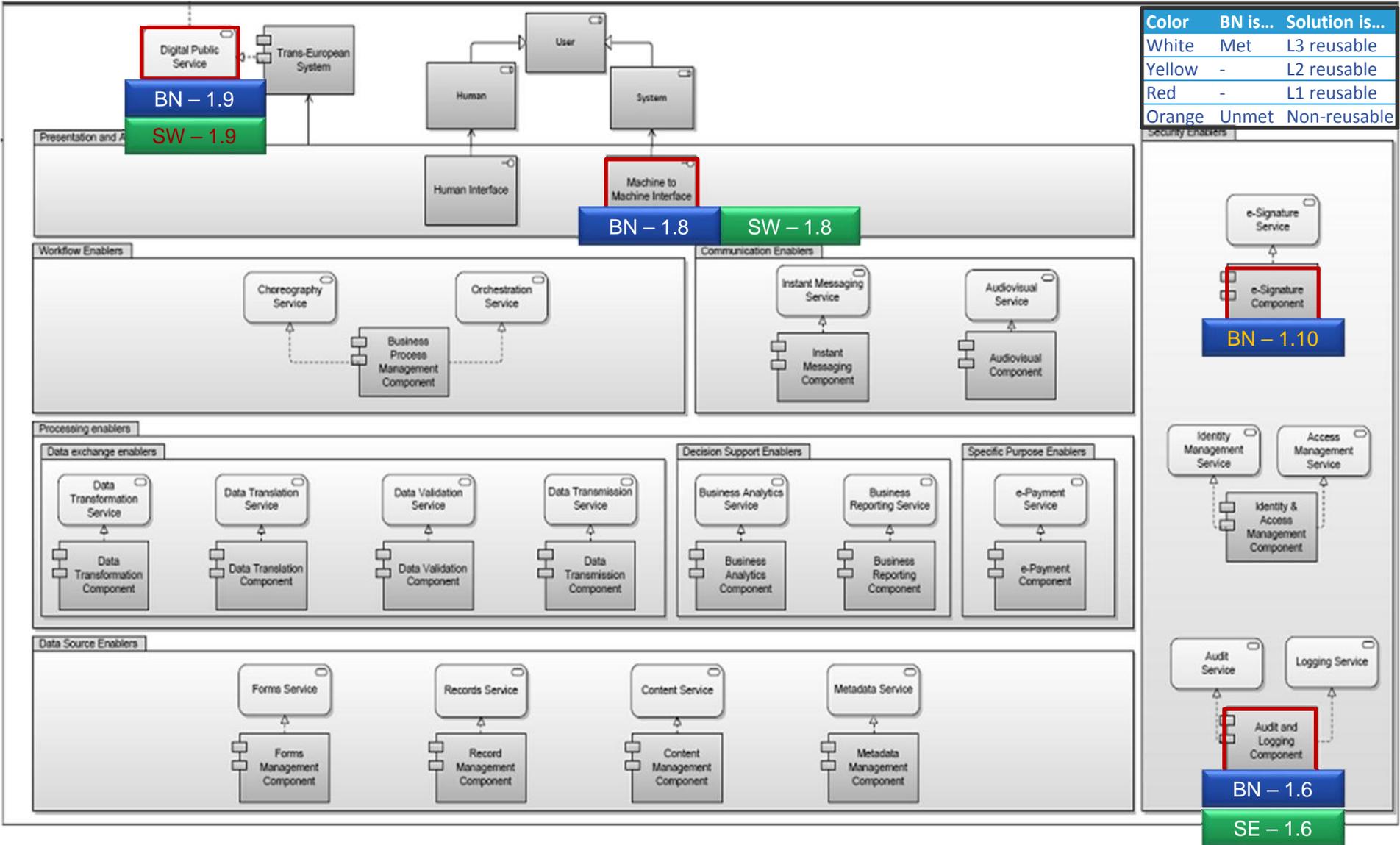


# ECRIS – Data View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SA - 1.1	<b>ECRIS list of terminology and concepts</b>	BN - 1.1	Need for a common list of terminology and concepts regarding the criminal records
SA - 1.3	<b>Code list for offences and penalties</b>	BN - 1.3	Need for a common list of codes of criminal offences and penalties
SA - 1.4	<b>Domain model</b>	BN - 1.4	Need for a domain model for criminal records
SA - 1.5	<b>Reference Tables</b>	BN - 1.5	Need for reference tables for criminal records

# ECRIS – Application View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable

# ECRIS – Application View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SE - 1.6	<b>Monitoring service</b>	BN - 1.6	Need for a service to monitoring the use statistics about the exchange of criminal records
SW - 1.8	<b>sTESTA network services</b>	BN - 1.8	Need for a machine-to-machine interface supporting the exchange of criminal records
SW - 1.9	<b>ECRIS IS (ECRIS Reference Implementation)</b>	BN - 1.9	Need for a software reference implementation for ECRIS
	No solution exists	BN - 1.10	Need for mechanisms for a secure exchange of criminal records

# ECRIS – Business Needs



Business Needs Type	Number of Business Needs	Business Needs IDs
Accompanied by a solution	9	BN - 1.1, BN - 1.2, BN - 1.3, BN - 1.4, BN - 1.5, BN - 1.6, BN - 1.7, BN - 1.8, BN - 1.9
Unmet business needs	1	BN – 1.10
Business needs met by another initiative's solution	1	BN – 1.10



Reusability Level	Number of Solutions	Solution IDs
L3	8	SA - 1.1, SE - 1.2, SA - 1.3, SA - 1.4, SA - 1.5, SE - 1.6, SE - 1.7, SW - 1.8
L2	0	
L1	1	SW - 1.9
None	0	



## Section II – EUCARIS

# Introducing EUCARIS

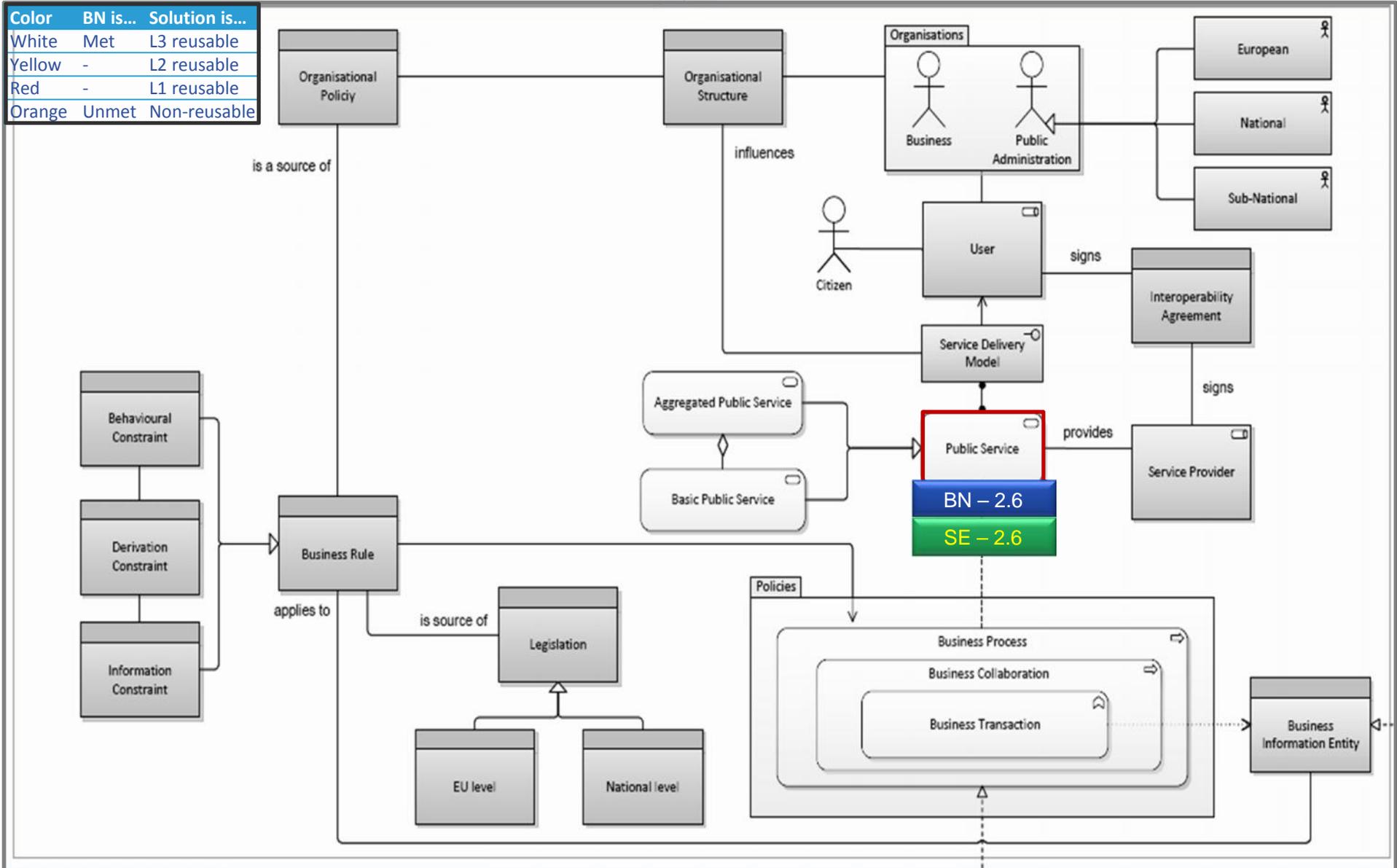


<b>What</b>	Exchange of car and driving licence registration data and/or other transport related data
<b>Why</b>	EUCARIS not only contributes to the prevention, detection and prosecution of violations of the law (car theft and registration fraud), the system also plays a part in keeping the national vehicle and driving licence records accurate and up-to-date
<b>When</b>	Since 1994 the system has been operational. Members have different levels of data exchange as there exist three legal bases: EUCARIS Treaty, Prüm Treaty, and bilateral agreements.
<b>Who</b>	Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Federal Republic of Germany, Finland, France, Gibraltar, Greece, Guernsey, Hungary, Iceland, Isle of Man, Italy, Jersey, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Republic of Ireland, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, the Netherlands, Northern Ireland, United Kingdom
<b>Future</b>	The future foresees more participating countries and higher levels of data exchange (i.e. for more than only the Prüm Treaty). Challenges for EUCARIS may be to remain financially viable (currently done by charging Member States to the extent of their membership) and keep it politically attractive (run three levels of data exchange within the same system instead of implementing other parallel systems).

# EUCARIS – Business View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable



# EUCARIS – Business View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SE - 2.6	<b>EUCARIS Services</b>	BN - 2.6	Specific business needs are detailed below
	<b>Vehicle registration service</b>		Need for a service to exchange vehicle registration information
	<b>Data exchange service between the MS regarding vehicle data</b>		Need for a service to exchange driving license information
	<b>Enforcement of traffic fines</b>		Need for a service to enforce the exchange of information about the traffic fines
	<b>Police investigation service</b>		Need for a service to exchange information about crime investigation
	<b>Rescue operations service</b>		Need for a service to exchange the vehicle data to support rescue operations
	<b>Sanctions and infringements data exchange service</b>		Need for a service to exchange information on infringements and sanctions
	<b>Exchange of tachograph card information service</b>		Need for a service to exchange tachograph card information
	<b>Exchange of data on certificates of conformity</b>		Need for a service to exchange information on the vehicle certificates of conformity

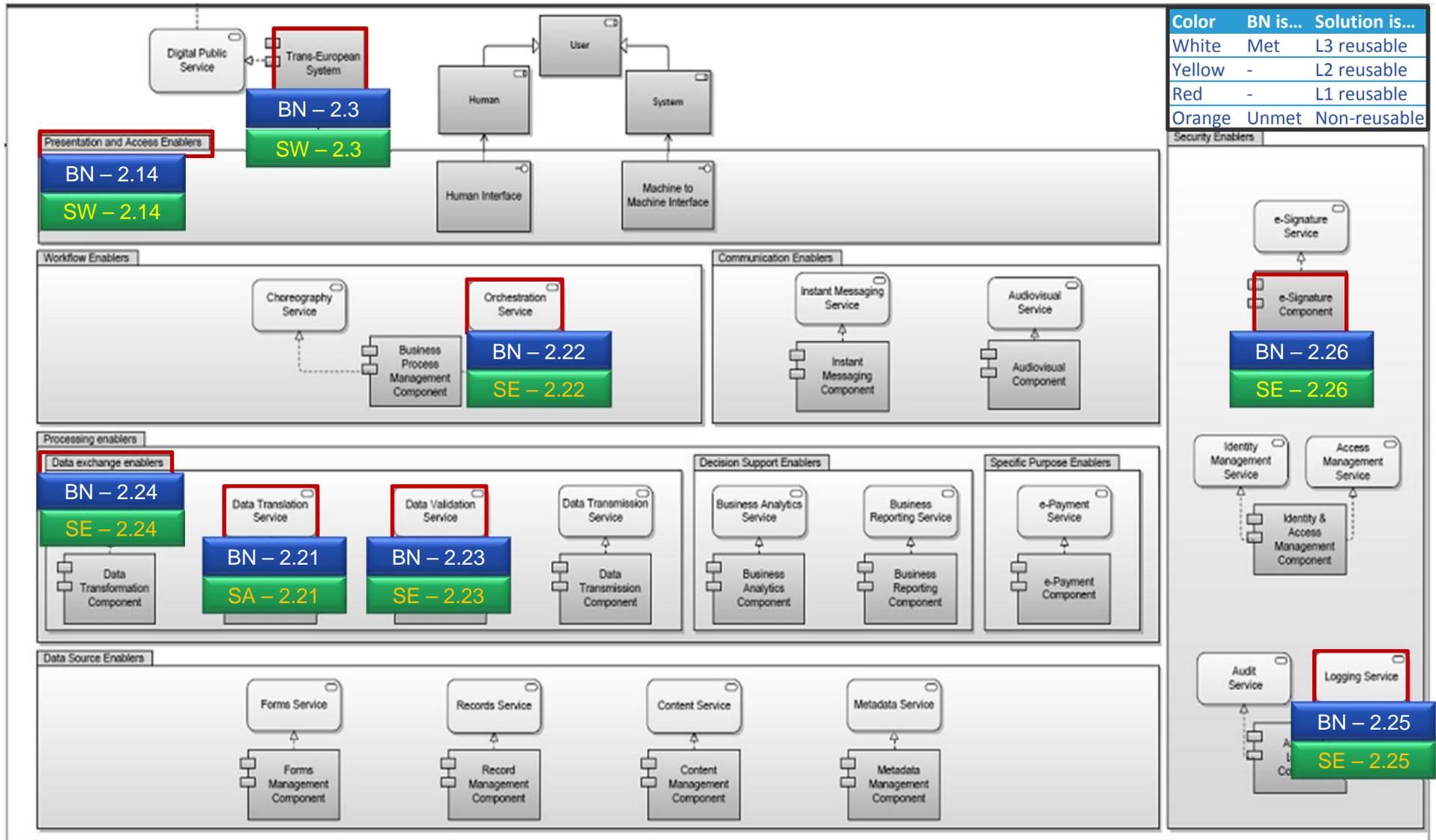


# EUCARIS – Data View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SA - 2.5	<b>Dataset of the vehicle documentation</b>	BN - 2.5	Need for a European-wide unambiguous vehicle identification
SA - 2.19	<b>Code lists</b>	BN - 2.19	Need for a list of codes for the vehicle registers to exchange data cross border to meet the requirements of the legislation
P - 2.20	<b>Data model (semantic rules and data requirements)</b>	BN - 2.20	Need for controlled vocabularies to be obligatory to use

# EUCARIS – Application View



# EUCARIS – Application View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SW - 2.3	<b>Platform to exchange vehicle registries data</b>	BN - 2.3	Need for a platform to search for data, to notify and to transfer specific files
SW -2.14	<b>Standardised interface</b>	BN - 2.14	Need for a standardised interface for the Member States to map the vehicle data according to the legislation
SA - 2.21	<b>Standard web client</b>	BN - 2.21	Need for a standard web client to code and translate exchanged messages
SE - 2.22	<b>Message orchestration services</b>	BN - 2.22	Need for a service to exchange a series of messages with not a standardised content
SE - 2.23	<b>Data validation services</b>	BN - 2.23	Need for validation data fields and content validation services
SE - 2.24	<b>Data exchange enabler services</b>	BN - 2.24	Need for services to enable data exchange regarding: communication, translation, help files, versioning, authentication and logging
SE - 2.25	<b>Logging services</b>	BN - 2.25	Need for logging services for the audit and business analysis purposes
SE - 2.26	<b>e-Signature solution (XML signature)</b>	BN - 2.26	Need for an e-signature service

Note: BN = Business need / O = Other / P = Planned / SA = Semantic Asset / SE = Service / SW = Software

# EUCARIS – Business Needs



Business Needs Type	Number of Business Needs	Business Needs IDs
Accompanied by a solution	11	BN - 2.3, BN - 2.5, BN - 2.6, BN - 2.14, BN - 2.19, BN - 2.21, BN - 2.22, BN - 2.23, BN - 2.24, BN - 2.25, BN - 2.26
Unmet business needs	1	BN - 2.20
Business needs met by another initiative's solution	1	BN - 2.20



Reusability Level	Number of Solutions	Solution IDs
L3	0	
L2	5	SW - 2.3 SA - 2.5 SE - 2.6 SW -2.14 SE - 2.26
L1	0	
None	6	SA - 2.19 SA - 2.21 SE - 2.22 SE - 2.23 SE - 2.24 SE - 2.25



## Section III – EULIS

# Introducing EULIS

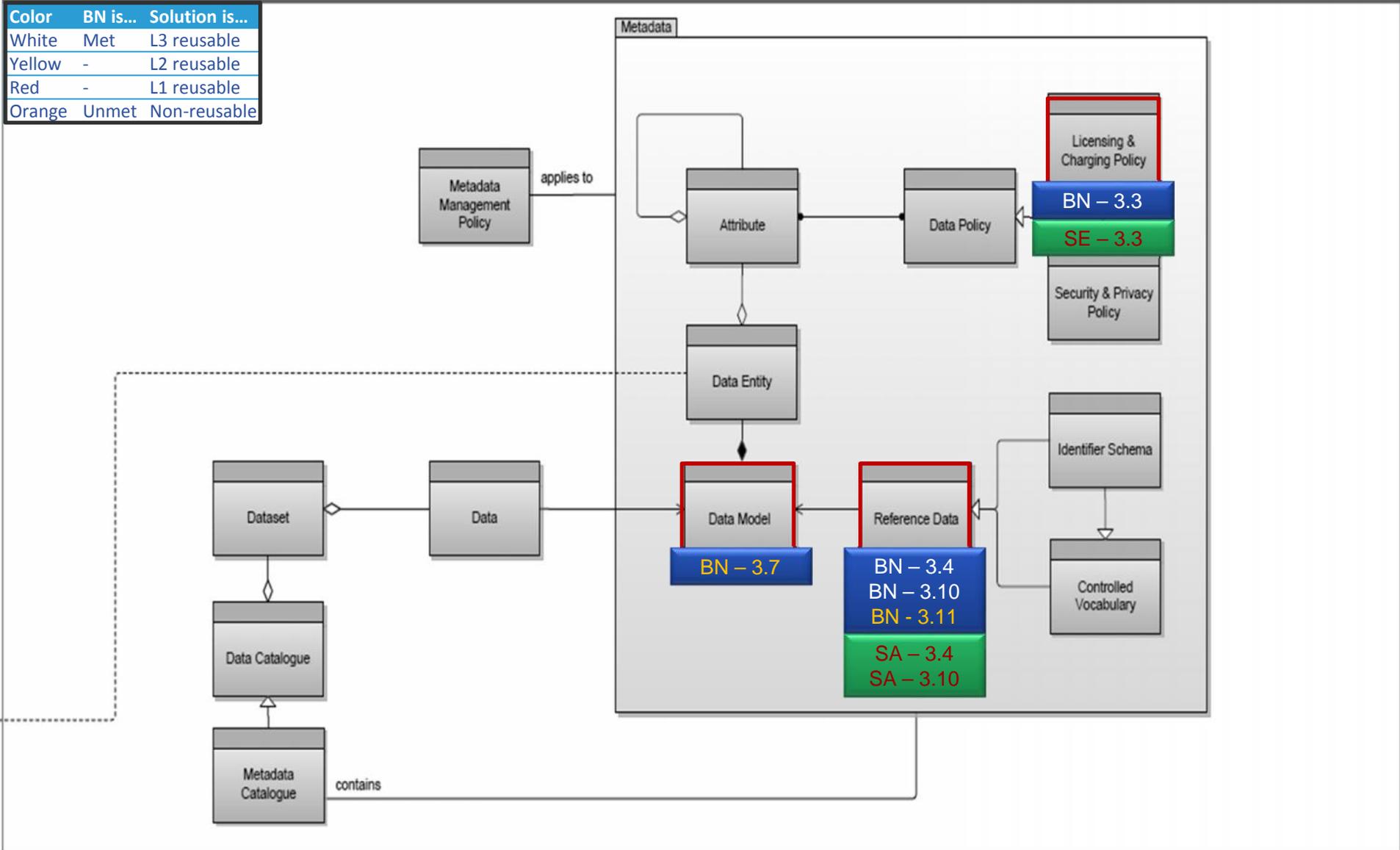


<b>What</b>	Online portal enabling access to land registry information across Europe for professional customers
<b>Why</b>	The EULIS glossary and reference information assist better understanding of the local environment, not only literally but also the meaning of terminology. By providing this service, EULIS aims to meet the information needs of professional customers such as banks, lenders, estate agents and lawyers.
<b>When</b>	2006
<b>Who</b>	Member countries with full live connection: Austria, Ireland, Lithuania, the Netherlands, Spain, Sweden. Member countries not or partly connected: Czech Republic, England and Wales, Finland, Macedonia, Scotland. Non-member countries partly connected: Slovak Republic. Pending: Iceland, Norway, Estonia, Latvia, Belgium, Slovenia.
<b>Future</b>	<ul style="list-style-type: none"> <li>• Crucial to have more members</li> <li>• Policy change: more connections per country to official registers (cadaster, municipality, legal register)</li> <li>• Access for citizens</li> <li>• Wider range of information and more types of information</li> <li>• Free of charge</li> <li>• Integration of EULIS portal with e-Justice Portal</li> <li>• New project proposals: IMOLA (Interoperability MOdel for LAnd registers), LARESDA (LAnd REgisters and Spatial Data), and BALCON (induce BALkan-region to CONnect to EULIS)</li> </ul>

# EULIS – Data View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable

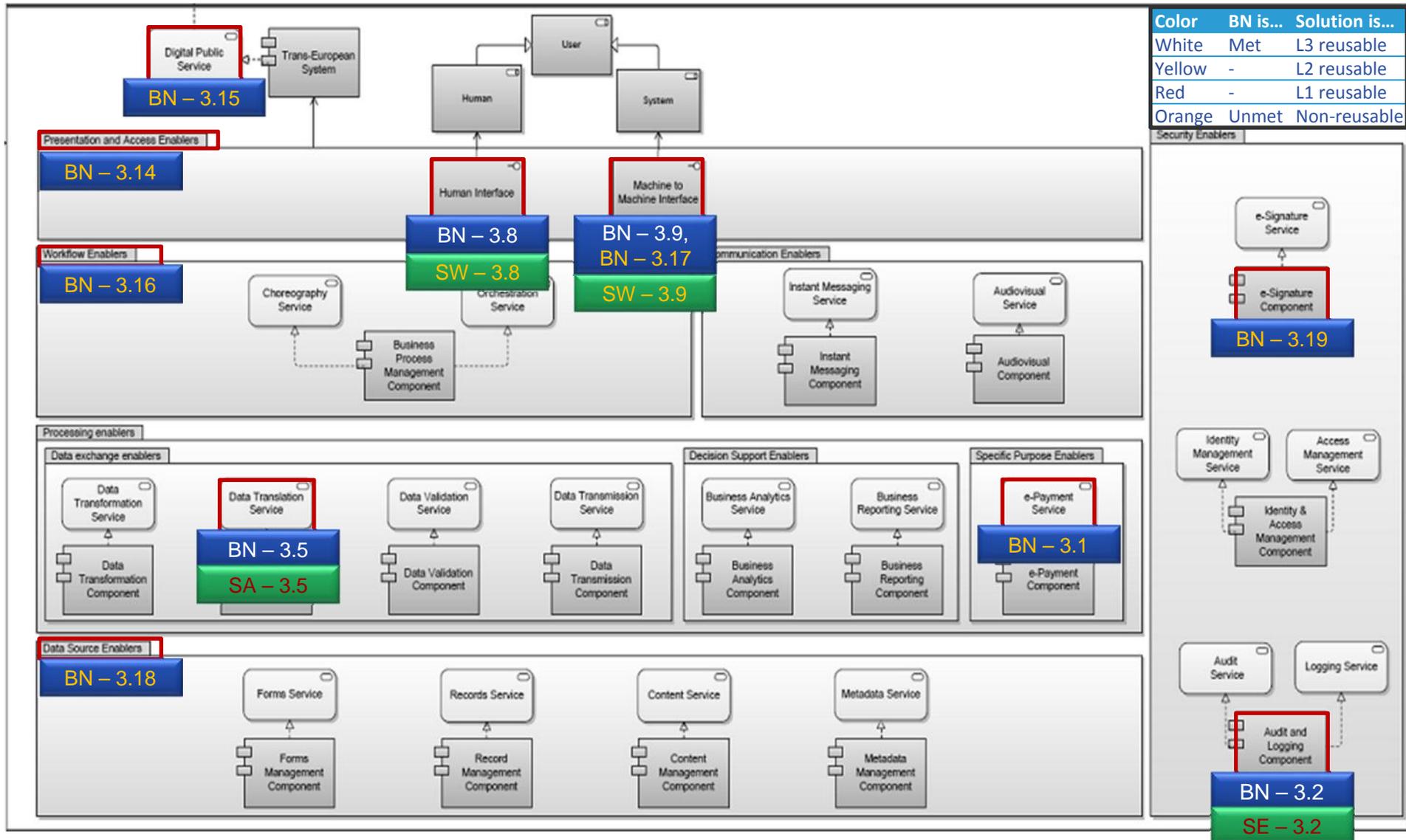


# EULIS – Data View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SE - 3.3	<b>Click-wrap license policy</b>	BN - 3.3	Need for a common policy for data licencing
SA - 3.4	<b>EULIS Glossary of key terms and template for reference data</b>	BN - 3.4	Need for a common glossary of terms and templates for reference data
P - 3.7	<b>Model for land registries, including a semantic model for key registers</b>	BN - 3.7	Need for a model of land registries, including a semantic model for the key land registries
SA - 3.10	<b>Reference data</b>	BN - 3.10	Need for standard required information (e.g. pre-defined codes or definitions) for the data requests and response messages
P - 3.11	<b>Standard Land Property Document</b>	BN - 3.11	Need for reference data for query services

# EULIS – Application View – Reusable solutions



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable



# EULIS – Application View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
P - 3.1	<b>e-Payment</b>	BN - 3.1	Need for a common charging method
SE - 3.2	<b>Logging &amp; Billing</b>	BN - 3.2	Need for a logging service monitoring the use of data exchange; need for a service to charge for the data usage
SA - 3.5	<b>Interface in English and EULIS Common Terms Translation Tool</b>	BN - 3.5	Need for a translated user interface
SW - 3.8	<b>EULIS Portal</b>	BN - 3.8	Need for a portal to exchange land registries data in a multilingual environment
SW - 3.9	<b>Platform to interconnect land registries</b>	BN - 3.9	Need for a technology solution to exchange land registries data
P - 3.14	<b>Integration of the IS with e-Justice Portal</b>	BN - 3.14	Need for an integrated one-stop-shop giving access to land registries
P - 3.15	<b>Search services</b>	BN - 3.15	Need for a search functionality enabling search for land registries information
	No solution exists	BN - 3.16	Need for choreography and orchestration services supporting the land registries data exchange
	No solution exists	BN - 3.17	Need for automation of data exchange for land registries
	No solution exists	BN - 3.18	Need for records and content services for land registries
	No solution exists	BN - 3.19	Need for a service for the generation, verification and extension of interoperable electronic signatures

Note: BN = Business need / O = Other / P = Planned / SA = Semantic Asset / SE = Service / SW = Software

# EULIS – Business Needs



Business Needs Type	Number of Business Needs	Business Needs IDs
Accompanied by a solution	10	BN - 3.2, BN - 3.3, BN - 3.4, BN - 3.5, BN - 3.6, BN - 3.8, BN - 3.9, BN - 3.10, BN - 3.12, BN - 3.13
Unmet business needs	9	BN - 3.1, BN - 3.7, BN - 3.11, BN - 3.14, BN - 3.15, BN - 3.16, BN - 3.17, BN - 3.18, BN - 3.19
Business needs met by another initiative's solution	8	BN - 3.7, BN - 3.11, BN - 3.14, BN - 3.15, BN - 3.16, BN - 3.17, BN - 3.18, BN - 3.19



Reusability Level	Number of Solutions	Solution IDs
L3	0	
L2	0	
L1	5	SE – 3.2, SE – 3.3, SA – 3.4, SA – 3.5, SA – 3.10
None	2	SW – 3.8, SW – 3.9



## Section IV – IRI

# Introducing IRI

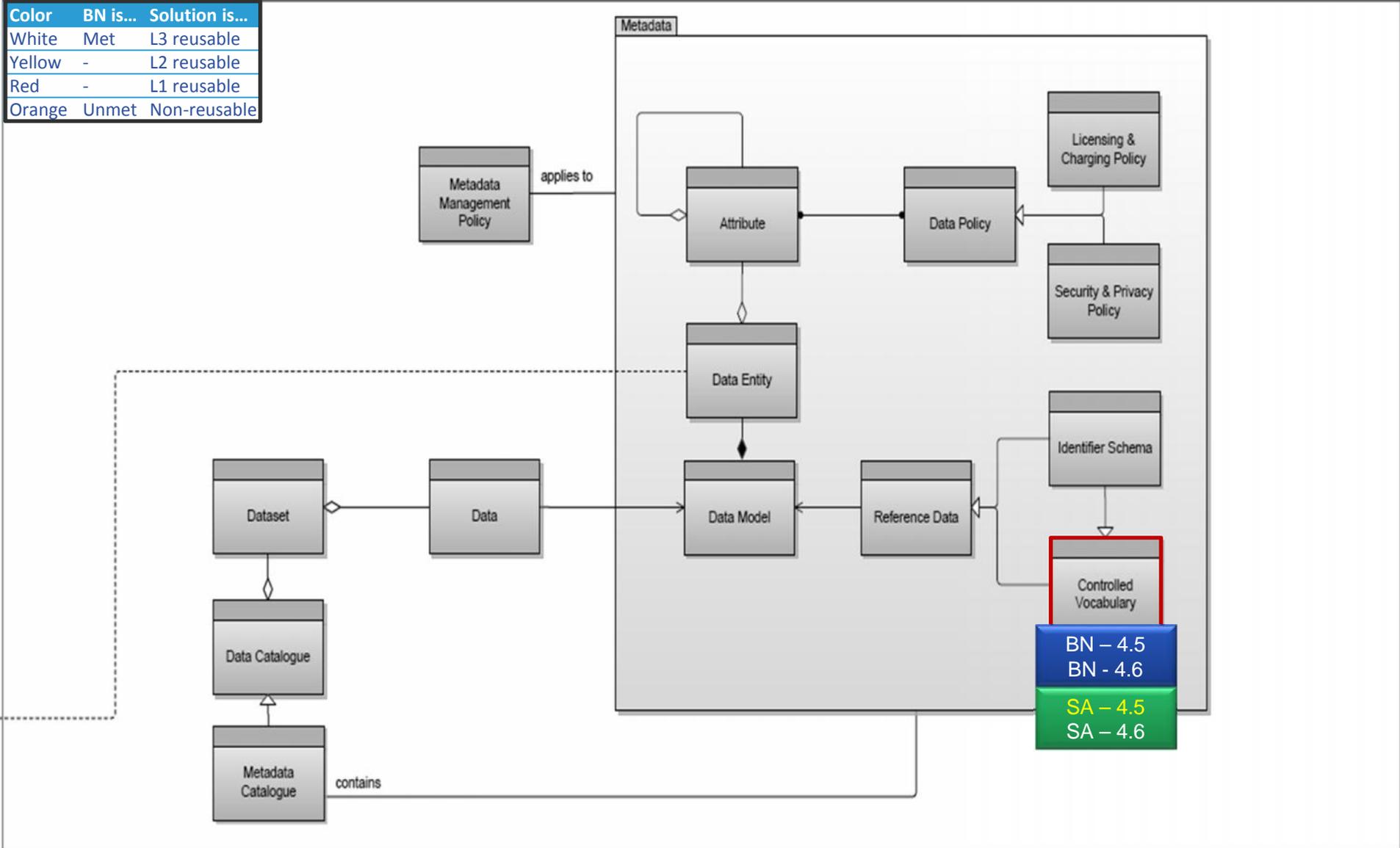


<b>What</b>	One-stop-shop access point to insolvency registers maintained and operated by Member State authorities.
<b>Why</b>	The insolvency registers provide legal information to all interested stakeholders such as citizens, legal professionals, state authorities or companies.
<b>When</b>	29 May 2000
<b>Who</b>	Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovak Republic, Slovenia, Finland, Sweden, United Kingdom
<b>Future</b>	No information

# IRI – Data View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable

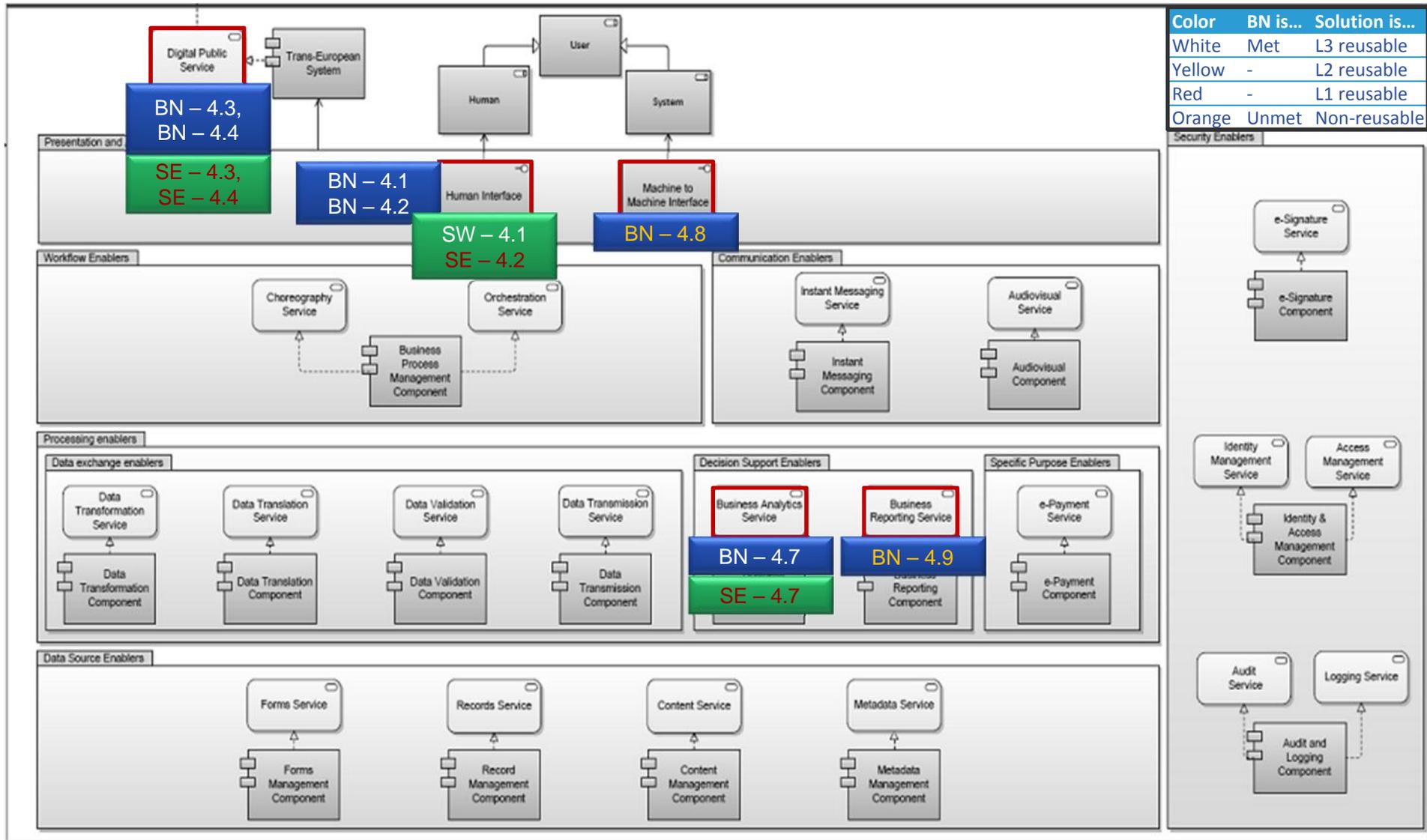


# IRI – Data View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SA - 4.5	<b>Rendering Catalogue</b>	BN - 4.5	Need for a list of allowed terms and their definition regarding insolvency registers
SA - 4.6	<b>Insolvency Glossary</b>	BN - 4.6	Need for a glossary

# IRI – Application View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable

# IRI – Application View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SW - 4.1	<b>e-Justice Portal</b>	BN - 4.1	Need for a one-stop-shop solution to exchange data about the insolvency registries
SE - 4.2	<b>Search functionality on the e-Justice Portal</b>	BN - 4.2	Need for a search functionality
SE - 4.3	<b>Testing of the Information System</b>	BN - 4.3	Need for security, stress tests, and hosting of the IS
SE - 4.4	<b>Maintenance and development of IS</b>	BN - 4.4	Need for a maintenance and development of the solution by external contractors
SE - 4.7	<b>Business Analytics Services</b>	BN - 4.7	Need for analysing the usage of the data exchange service
N/A	<b>No solution exists</b>	BN - 4.8	Need for integrating systems: data transferring centralised
N/A	<b>No solution exists</b>	BN - 4.9	Need for provision of reports on the searches

# IRI – Business Needs



Business Needs Type	Number of Business Needs	Business Needs IDs
Accompanied by a solution	7	BN 4.1, BN 4.2, BN 4.3, BN 4.4, BN 4.5, BN 4.6, BN 4.7
Unmet business needs	2	BN - 4.8, BN – 4.9
Business needs met by another initiative's solution	1	BN - 4.8

# IRI – Solutions



Reusability Level	Number of Solutions	Solution IDs
L3	2	SW – 4.1, SA – 4.6
L2	1	SA – 4.5
L1	4	SE – 4.2, SE – 4.3, SE – 4.4, SE – 4.7
None	0	



## Section V – ECRN

# Introducing ECRN

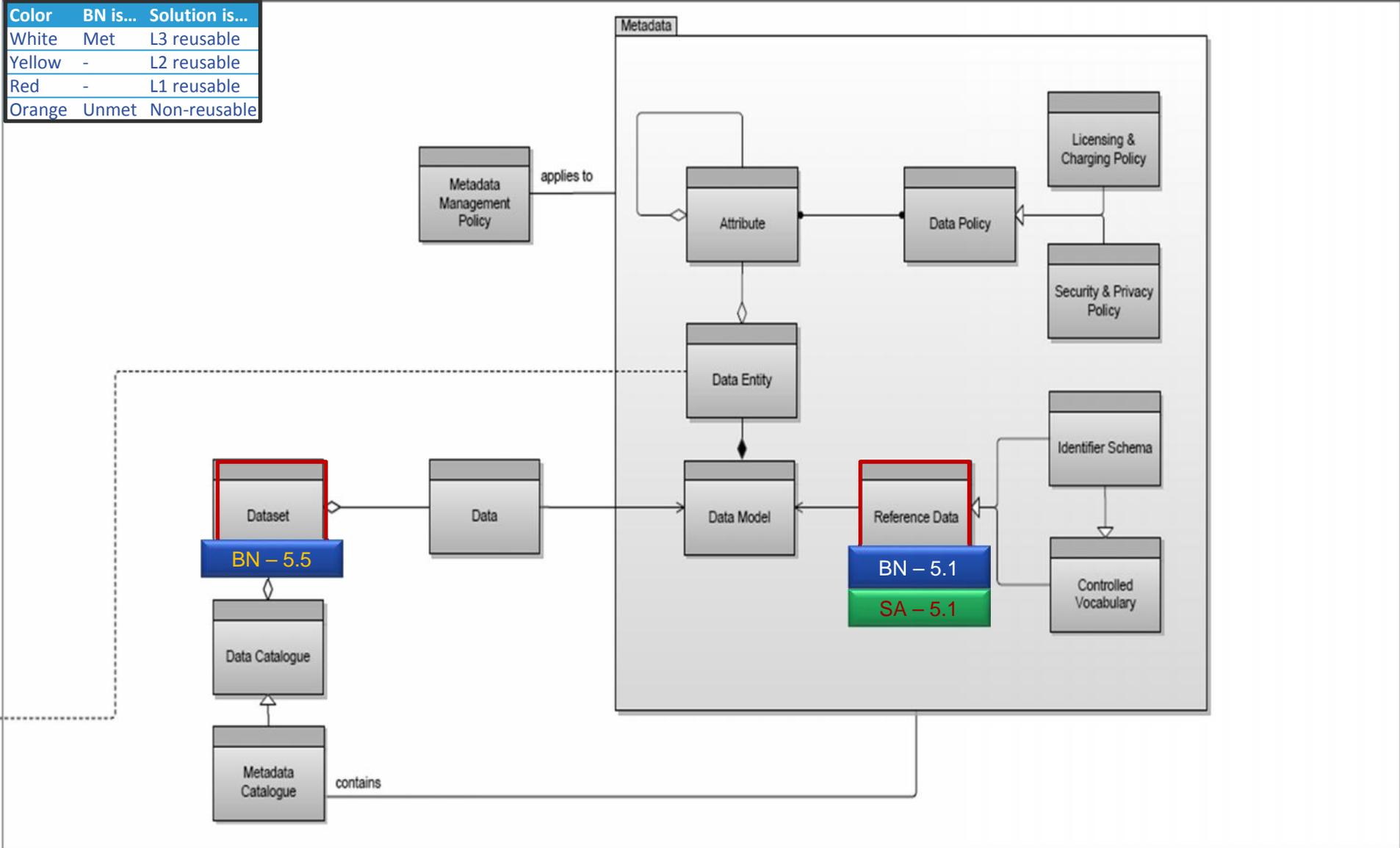


<b>What</b>	Network allowing civil registries of national administrations across the EU to exchange civil status data and documents in electronic form over the Internet in a fast, secure and certified way.
<b>Why</b>	Due to the growing number of European citizens living in countries different from their countries of origin, cooperation regarding the Civil State has today become a high priority for national administrations. The project aims at strengthening the administrations' ability to use new technologies, with a view to a major efficiency/effectiveness and cost-efficiency of the local administrative action in the European context.
<b>When</b>	2008
<b>Who</b>	Italy, the Netherlands, Romania, Slovenia, Belgium, Germany
<b>Future</b>	ECRN represents a successful case study that demonstrates the benefits coming from the integration of European eGovernment services and the STORK platform. The synergies can be considered the basis for a new generic platform for secure document exchange in Europe. The ECRN services used for civil status documents can easily be extended to new domains in which a secure document exchange is needed.

# ECRN – Data View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable

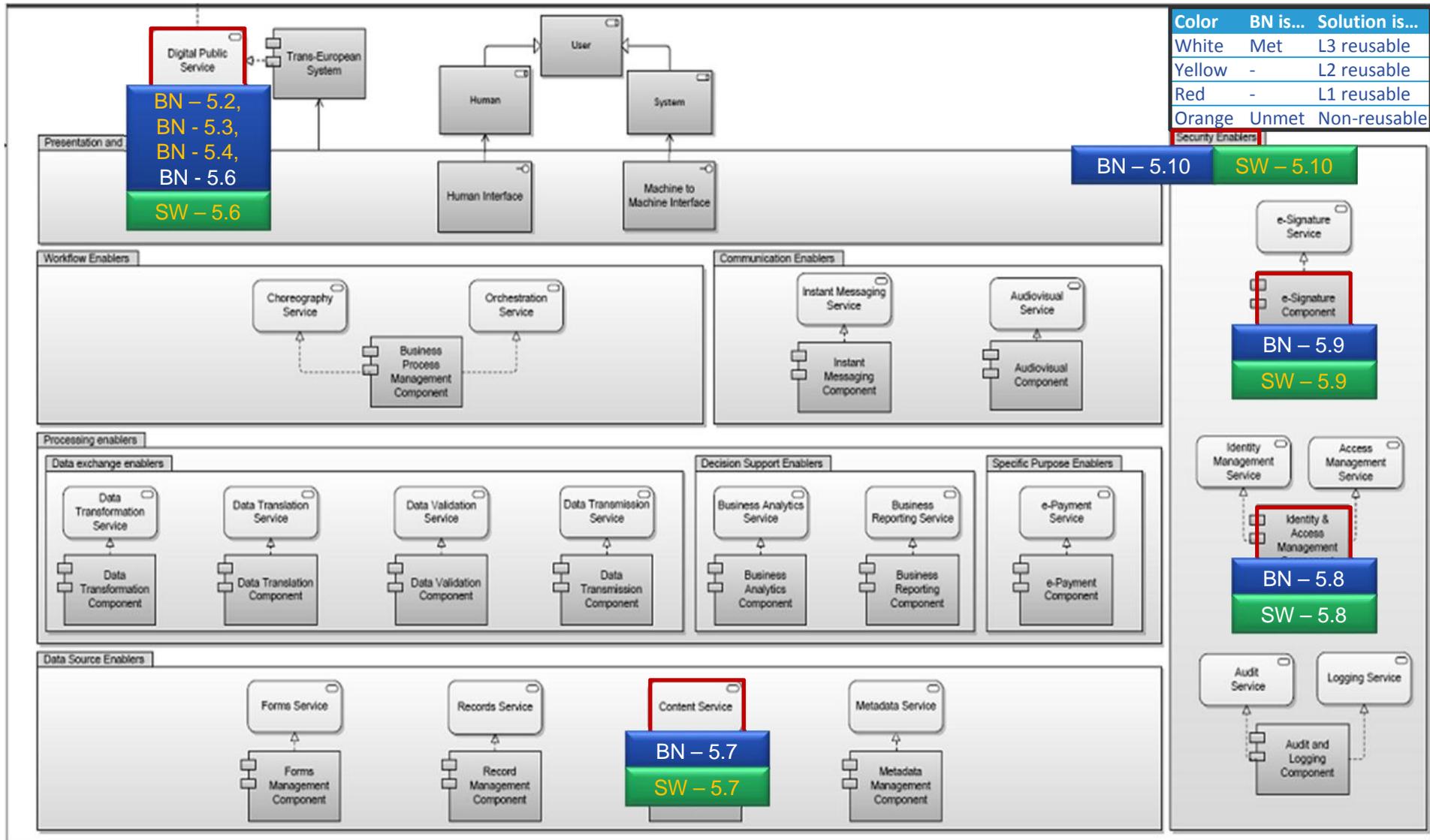


# ECRN – Data View – Legend



Solution ID	Solution name	Specific BN ID	Specific business need
SA - 5.1	<b>The Hague Convention - multilingual pre-defined forms</b>	BN - 5.1	Need for a multilingual form recognising the documents in various language to avoid translation and authentication of documents in the receiving country
	No solution exists	BN - 5.5	Need for an agreement about the details of data to be recorded for each life event

# ECRN – Application View



# ECRN – Application View – Legend



Solution ID	Solution name	Specific BN ID	Specific business need
P - 5.2	<b>Event based requested transmission</b>	BN - 5.2	Need for submitting an event based request "on the screen", that is with the use of an electronic submission and electronic signature.
P - 5.3	<b>Event based automatic transmission</b>	BN - 5.3	Need for a consistent automation of transmission of life event data between the Member States
P - 5.4	<b>Transmission between event based registries and central registers</b>	BN - 5.4	Need for transmission of life event data related to citizens whose life events have been recorded in several Member States
SW - 5.6	<b>Web-based platform</b>	BN - 5.6	Need for a web-based solution for the exchange of base registry documents
SW - 5.7	<b>ECRN container</b>	BN - 5.7	Need to temporarily store civil act data and metadata information
SW - 5.8	<b>STORK authentication platform</b>	BN - 5.8	Need to identify and authenticate users and signers, ensuring non-repudiation of exchanged documents
SE - 5.9	<b>Digital signature using a personal smartcard</b>	BN - 5.9	Need for the interoperability of a system of electronic signatures between the Member States for the civil status registration
SE- 5.10	<b>Confidentiality service</b>	BN - 5.10	Need for confidentiality of exchange information

Note: BN = Business need / O = Other / P = Planned / SA = Semantic Asset / SE = Service / SW = Software

# ECRN – Business Needs



Business Needs Type	Number of Business Needs	Business Needs IDs
Accompanied by a solution	6	BN - 5.1 BN - 5.6 BN - 5.7 BN - 5.8 BN - 5.9 BN - 5.10
Unmet business needs	4	BN - 5.2 BN - 5.3 BN - 5.4 BN - 5.5
Business needs met by another initiative's solution	4	BN - 5.2 BN - 5.3 BN - 5.4 BN - 5.5



Reusability Level	Number of Solutions	Solution IDs
L3	1	SW - 5.8
L2	0	
L1	1	SA – 5.1
None	4	SW - 5.6 SW - 5.7 SE - 5.9 SE- 5.10



## Section VI – ELRA

# Introducing ELRA

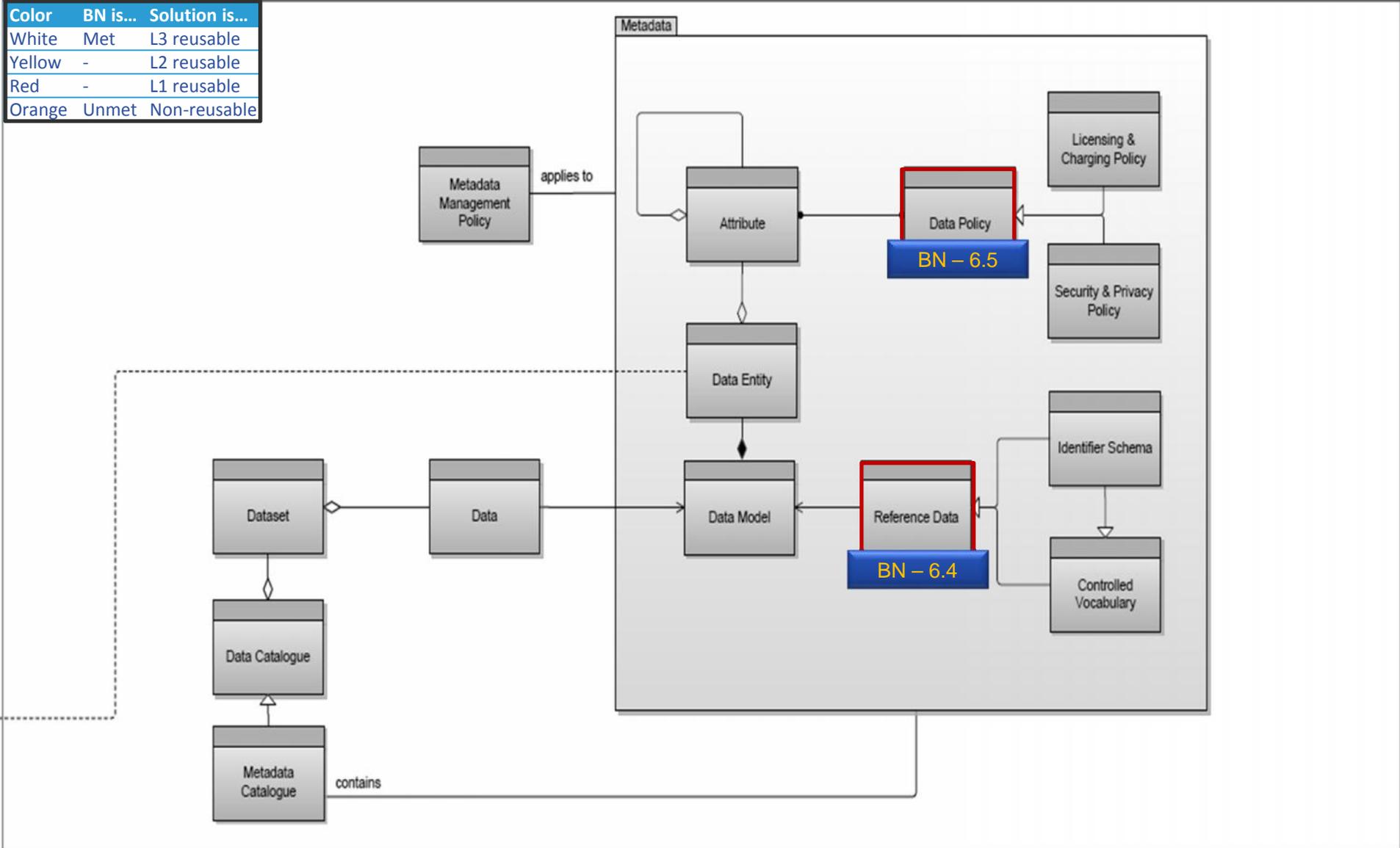


<b>What</b>	Support the market demand at a European level for land registry information.
<b>Why</b>	The mission and primary purpose of ELRA may be described as: “the development and understanding of the role of land registration in real property and capital markets”. ELRA represents the interests of land registries in the EU and aims to underline the significance of Land Registries in Europe as juridical institutions and the scope of the effects of registration pronouncements as a fundamental tool for progress and change in the rule of law in the field of property and rights on immovables.
<b>When</b>	2006
<b>Who</b>	<p>ELRA started off with 12 members; it now has 30 organisations representing land registries of 22 Member States.</p> <p>Members: Austria, Belgium, Bulgaria, Cyprus, England and Wales, France, Greece, Ireland, Italy, Lithuania, Luxembourg, the Netherlands, Northern Ireland, Poland, Portugal, Romania, Scotland, Spain</p> <p>Observer Members: Bosnia-Herzegovina, Croatia, Estonia, Finland, Latvia, Slovenia, Sweden</p>
<b>Future</b>	<ul style="list-style-type: none"> <li>• Advancement of CROBECO, a project on Cross-Borders e-Conveyancing carried out by ELRA.</li> <li>• Support INSPIRE development and implementation</li> </ul>

# ELRA – Data View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable

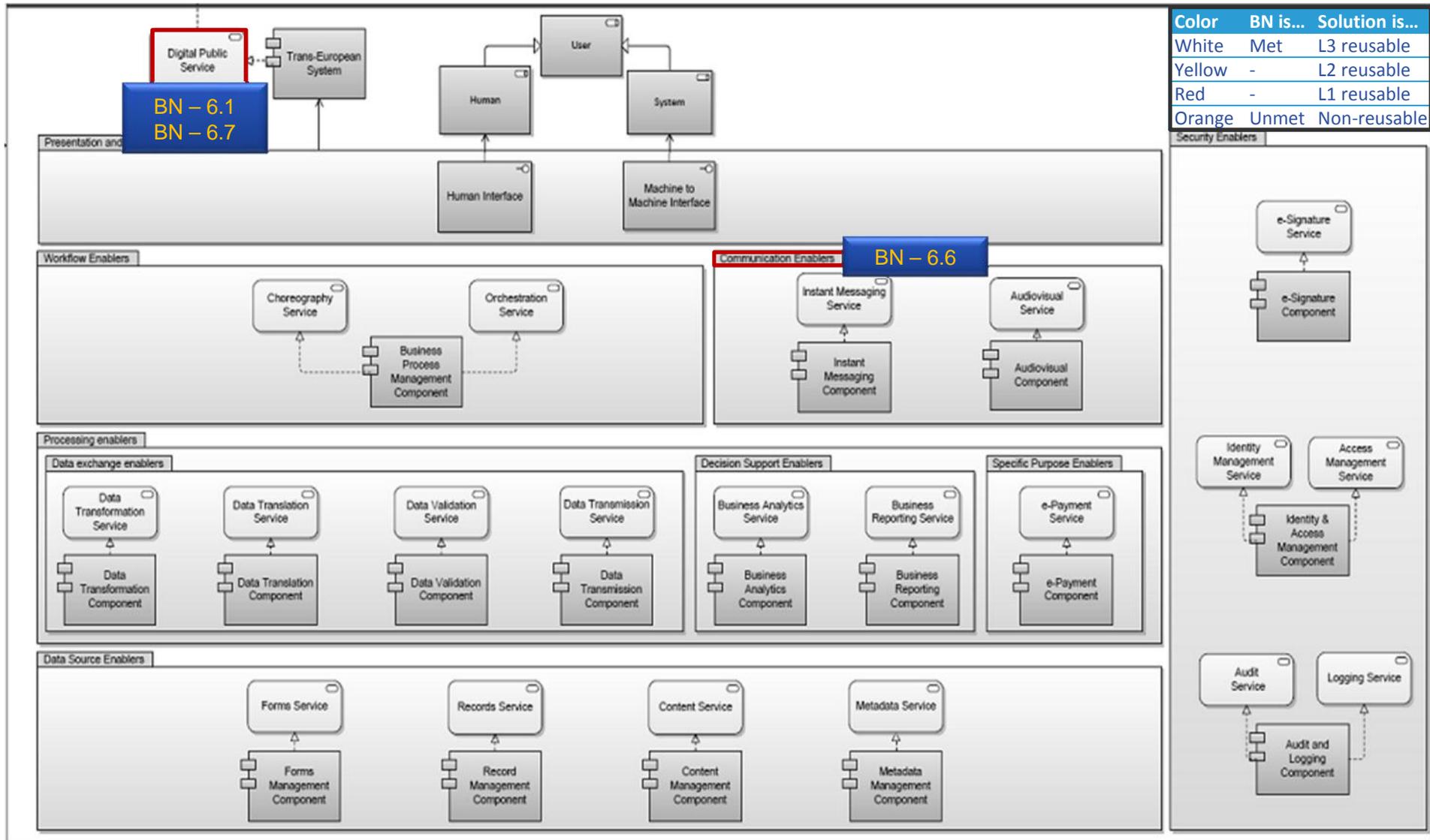


# ELRA – Data View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
	No solution exists	BN - 6.4	Need to implement more Reference Data, among which unique identifiers. This becomes especially important if the land registries would become linked with BRIS.
	No solution exists	BN - 6.5	Need for a common data policy across Member States

# ELRA – Application View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable

# ELRA – Application View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
P – 6.1	<b>Cross Border Electronic Conveyancing (CROBECO)</b>	BN - 6.1	Need for fast and secure transmitting of legal data cross-border
	No solution exists	BN - 6.6	Need for instant messaging & audio-visual service
	No solution exists	BN - 6.7	Need for a notification service

# ELRA – Business Needs



Business Needs Type	Number of Business Needs	Business Needs IDs
Accompanied by a solution	0	
Unmet business needs	5	BN – 6.1, BN – 6.4, BN – 6.5, BN – 6.6, BN – 6.7
Business needs met by another initiative's solution	3	BN – 6.1, BN – 6.4, BN – 6.7

# ELRA – Solutions



Reusability Level	Number of Solutions	Solution IDs
L3	0	
L2	0	
L1	0	
None	0	



## Section VII – BRIS

# Introducing BRIS

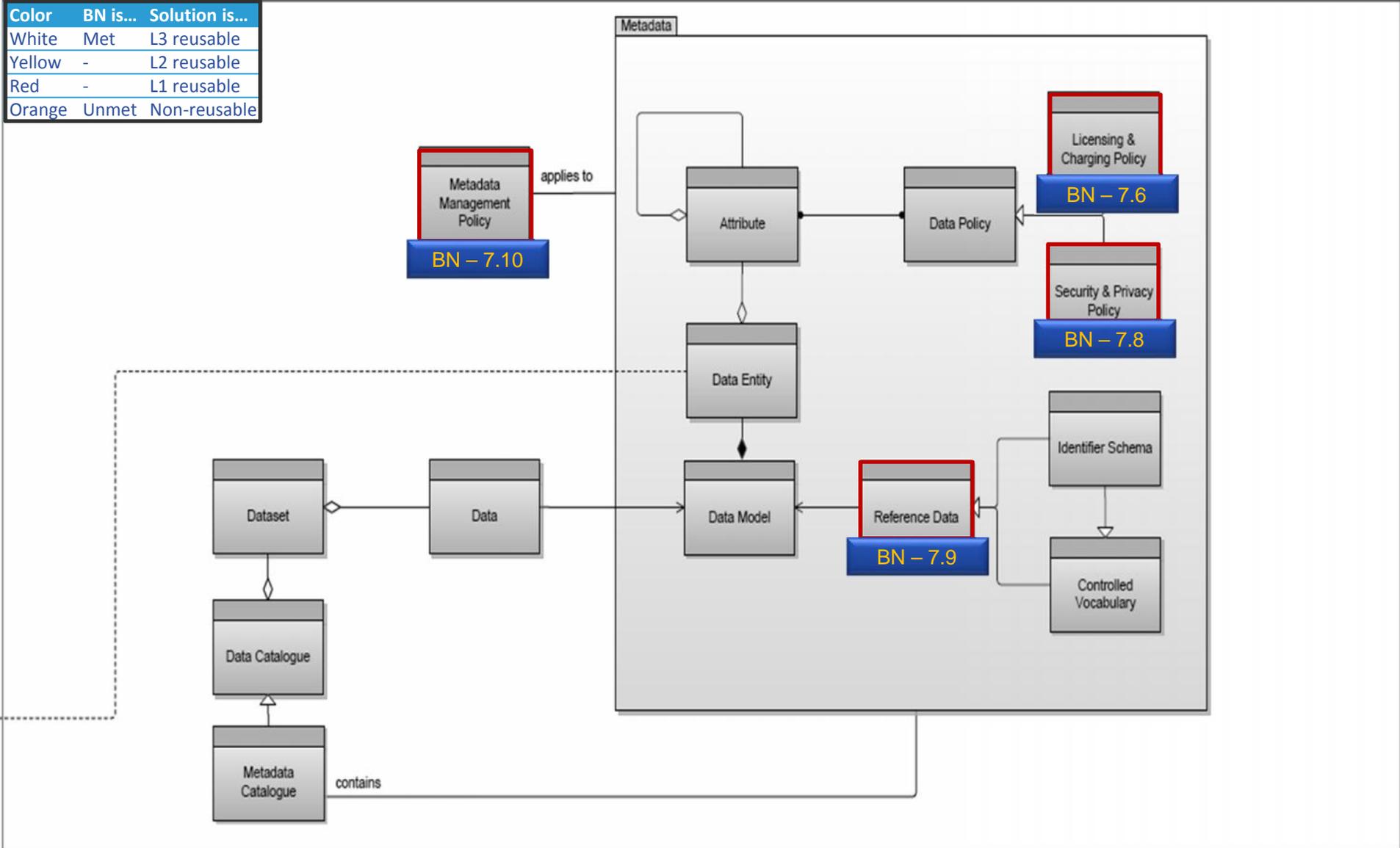


<b>What</b>	Transparency and exchange company data at the EU level
<b>Why</b>	<p>The objective of the BRIS initiative is to increase legal certainty and confidence in the internal market by:</p> <ul style="list-style-type: none"><li>• Improving transparency and access to company information at EU level</li><li>• Providing updated reliable information on companies and their foreign branches</li><li>• Facilitating cross-border communication between business registers</li></ul>
<b>When</b>	BRIS was established in 2012 via the directive 2012/17/EU
<b>Who</b>	All Member States
<b>Future</b>	<p>In 2014 BRIS will focus on taking strategic decisions regarding its future. These concern the adoption of the Implementing Acts, decisions concerning the system supplier and documents revision. From 2015 till 2016 it will focus on the development, testing and pilots of the system. The rollout of the system is planned for the beginning of 2017.</p>

# BRIS – Data View



Color	BN is...	Solution is...
White	Met	L3 reusable
Yellow	-	L2 reusable
Red	-	L1 reusable
Orange	Unmet	Non-reusable

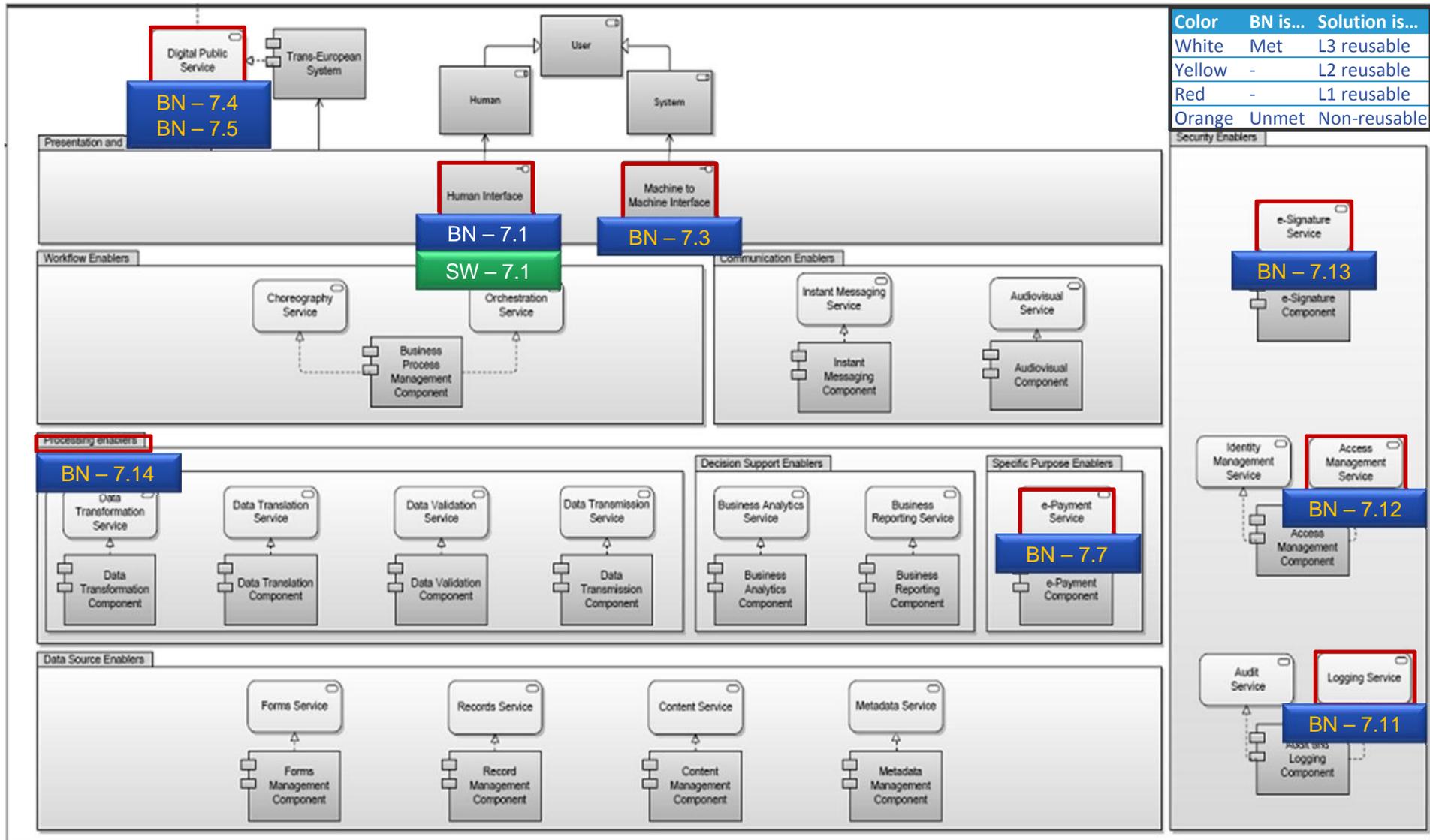


# BRIS – Data View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
P - 7.6	<b>Payment service</b>	BN - 7.6	Need for a charging policy agreed at the initiative level
P - 7.8	<b>An agreed Security &amp; Privacy Policy</b>	BN - 7.8	Need for ensuring the privacy and security of data
P - 7.9	<b>Reference data such as codes, descriptions, and definitions</b>	BN - 7.9	Need for a common understanding of terminology and concepts within the business domain
	No solution exists	BN - 7.10	Need for reference tables and maintenance of these

# BRIS – Application View



# BRIS – Application View – Legend



Solution ID	Solution name	Specific business need ID	Specific business need
SW - 7.1	<b>e-Justice Portal</b>	BN - 7.1	Need for a front-end interface
P - 7.3	<b>European Central Platform</b>	BN - 7.3	Need for a platform
P - 7.4	<b>Search engine on the e-Justice Portal</b>	BN - 7.4	Need for a search facility
P - 7.5	<b>Notification functionality on the European Central Platform</b>	BN - 7.5	Need for a notification functionality and to set rules for the use of notifications
P - 7.7	<b>Payment service</b>	BN - 7.7	Need for a payment service
	No solution exists	BN - 7.11	Need for collecting log files
	No solution exists	BN - 7.12	Need for an identification and access method for users
	No solution exists	BN - 7.13	Need for a standard electronic signature method
	No solution exists	BN - 7.14	Need for data transformation, validation, and transmission

Note: BN = Business need / O = Other / P = Planned / SA = Semantic Asset / SE = Service / SW = Software

## BRIS – Business Needs



Business Needs Type	Number of Business Needs	Business Needs IDs
Accompanied by a solution	1	BN – 7.1
Unmet business needs	12	BN - 7.3, BN - 7.4, BN - 7.5, BN – 7.6, BN - 7.7, BN - 7.8, BN - 7.9, BN - 7.10, BN - 7.11, BN - 7.12, BN - 7.13, BN - 7.14
Business needs met by another initiative's solution	9	BN - 7.3, BN - 7.4, BN - 7.5, BN – 7.6, BN - 7.9, BN - 7.11, BN - 7.12, BN - 7.13, BN - 7.14



Reusability Level	Number of Solutions	Solution IDs
L3	1	SW – 7.1
L2	0	
L1	0	
None	0	



## Annex 2 – Aggregated Business Needs

## Aggregated Business Needs



- The following slides map the identified specific business needs of the 7 initiatives to the aggregated business needs, hereinafter 'ABN'.
- It also shows for each aggregated business need to which level of the European Interoperability Framework it belongs, i.e. **L**egal, **O**rganisational, **S**emantic or **T**echnical.

# Aggregated and Specific Business Needs (1/7)



ABN ID	ABN description	EIF	Mapping to a specific business need
ABN - 1	Need for common understanding of data entities	S	<p><b>ECRIS:</b> Need for a common list of terminology and concepts regarding the criminal records; Need for a domain model for criminal records; Need for reference tables for criminal records;</p> <p><b>EULIS:</b> Need for a common glossary of terms and templates for reference data; Need for a model of land registries including a semantic model for the key land registries; Need for standard required information (e.g. pre-defined codes or definitions) for the data requests and response messages; Need for reference data for query services;</p> <p><b>ECRN</b> Need for an agreement about the details of data to be recorded for each life event;</p> <p><b>ELRA:</b> Need for easily available information on different legal systems in Member States on the portal;</p> <p><b>BRIS:</b> Need for reference tables and maintenance of these; Need for use of code lists and identifiers</p>

## Aggregated and Specific Business Needs (2/7)



ABN ID	ABN description	EIF	Mapping to a specific business need
ABN - 2	Need to comply with legislation on data exchange	L	<p><b>EUCARIS:</b> Need to comply with legislation on the exchange of data regarding vehicles and related data, i.e. exchange vehicle registration information; exchange of information about the traffic fines; exchange information about crime investigation; exchange the vehicle data to support rescue operations; exchange information on infringements and sanctions; exchange tachograph card information; exchange information on the vehicle certificates of conformity; Need for a standardised interface for the Member States to map the vehicle data according to the legislation;</p> <p><b>EULIS:</b> Need for a common data policy between the EULIS Members compliant with EU as well as national legislation;</p> <p><b>BRIS:</b> Need for business rules and base registries sharing principles;</p>

## Aggregated and Specific Business Needs (3/7)



ABN ID	ABN description	EIF	Mapping to a specific business need
ABN - 3	Need for the unique identifiers to identify data elements	S	<b>EUCARIS:</b> Need for a European-wide unambiguous vehicle identification; <b>ELRA:</b> Need to implement more Reference Data, among which unique identifiers. This becomes especially important if the land registries would become linked with BRIS (businesses registries).
ABN - 4	Need for monitoring the data exchange (statistics)	T	<b>ECRIS:</b> Need for a service to monitoring the use statistics about the exchange of criminal records; <b>EUCARIS:</b> Need for logging services for the audit and business analysis purposes; <b>EULIS:</b> Need for a logging service monitoring the use of data exchange; <b>IRI:</b> Need for analysing the usage of the data exchange service; <b>BRIS:</b> Need for collecting log files.
ABN - 5	Need for mechanisms to ensure secure data exchange	T	<b>ECRIS:</b> Need for mechanisms for a secure exchange of criminal records; <b>EUCARIS:</b> Need for an e-signature service; Need for a security and privacy policy at the initiative level; <b>EULIS:</b> Need for a service for the generation, verification and extension of interoperable electronic signatures; <b>ECRN:</b> Need to identify and authenticate users and signers, ensuring non-repudiation of exchanged documents; Need for the interoperability of a system of electronic signatures between the Member States for the civil status registration; Need for confidentiality of exchange information; <b>BRIS:</b> Need for an identification and access method for users; Need for a standard electronic signature method.

## Aggregated and Specific Business Needs (4/7)



ABN ID	ABN description	EIF	Mapping to a specific business need
ABN - 6	Need for coordination of charging policies	O / T	<p><b>EUCARIS:</b> Need for a charging policy agreed at the initiative level;</p> <p><b>EULIS:</b> Need for a common charging method;</p> <p><b>BRIS:</b> Need for a charging policy; Need for a payment service.</p>
ABN - 7	Need for a multilingual information exchange	S	<p><b>EUCARIS:</b> Need for a standard web client to code and translate exchanged messages;</p> <p><b>EULIS:</b> Need for a translated user interface; Need for a portal to exchange land registries data in a multilingual environment;</p> <p><b>ECRN:</b> Need for a multilingual form recognising the documents in various language to avoid translation and authentication of documents in the receiving country.</p>

## Aggregated and Specific Business Needs (5/7)



ABN ID	ABN description	EIF	Mapping to a specific business need
ABN - 8	Need for a technology solution enabling the data exchange	T	<p><b>ECRIS:</b> Need for a software reference implementation for ECRIS; Need for a machine-to-machine interface supporting the exchange of criminal records; Need for a service to enable exchange of criminal records;</p> <p><b>EUCARIS:</b> Need for a platform to search for data, to notify and to transfer specific files; Need for an information system to exchange data regarding vehicles and related data.</p> <p><b>EULIS:</b> Need for a search functionality enabling search for land registries information; Need for an integrated one-stop-shop giving access to land registries; Need for a technology solution to exchange land registries data;</p> <p><b>IRI:</b> Need for a one-stop-shop solution to exchange data about the insolvency registries; Need for a search functionality;</p> <p><b>ECRN:</b> Need for a web-based solution for the exchange of base registry documents; Need for transmission of life event data related to citizens who life events have been recorded in several Member States; Need for submitting an event based request "on the screen", that is with the use of an electronic submission and electronic signature;</p> <p><b>ELRA:</b> Need for fast and secure transmitting of legal data cross-border; Need for a notification service;</p> <p><b>BRIS:</b> Need for a front-end interface; Need for a platform; Need for a search facility; Need for a notification functionality and to set rules for the use of notifications;</p>

## Aggregated and Specific Business Needs (6/7)



ABN ID	ABN description	EIF	Mapping to a specific business need
ABN - 9	Need for controlled vocabularies	S	<p><b>ECRIS:</b> Need for a common list of codes of criminal offences and penalties;</p> <p><b>EUCARIS:</b> Need for a list of codes for the cross border data exchange to meet the requirements of the legislation; Need for controlled vocabularies to be obligatory to use;</p> <p><b>IRI:</b> Need for a list of allowed terms and their definition regarding insolvency registers; Need for a glossary;</p> <p><b>ELRA:</b> Need for a metadata management policy.</p>
ABN - 10	Need for services supporting data exchange, e.g. data transmission	T	<p><b>EUCARIS:</b> Need for a service to exchange a series of messages with not a standardised content; Need for validation data fields and content validation services; Need for services to enable data exchange regarding: communication, translation, help files, versioning, authentication and logging;</p> <p><b>EULIS:</b> Need for choreography and orchestration services supporting the land registries data exchange; Need for records and content services for land registries;</p> <p><b>ECRN:</b> Need to temporarily store civil act data and metadata information;</p> <p><b>ELRA:</b> Need for instant messaging &amp; audio-visual service;</p> <p><b>BRIS:</b> Need for data transformation, validation, and transmission.</p>
ABN - 11	Need for automation of data exchange	T	<p><b>EULIS:</b> Need for automation of data exchange for land registries;</p> <p><b>ECRN:</b> Need for a consistent automation of transmission of life event data between the Member States.</p>
ABN - 12	Need for governance of technology solutions	O	<p><b>EUCARIS:</b> Need for a service delivery model;</p> <p><b>EULIS:</b> Need for an incentive scheme to share and re-use the land base registries.</p>

## Aggregated and Specific Business Needs (7/7)



ABN ID	ABN description	EIF	Mapping to a specific business need
ABN - 13	Need for governance of different types of users (e.g. civil servants, professional users, citizens)	O	<b>EULIS:</b> Need for membership rules for EULIS Members and Associates regarding the exchange of land registries data.
ABN – 14	Need for maintenance and development of a technology solution	T	<b>ECRIS:</b> Need for a service for maintenance and development of a solution to exchange criminal records; <b>IRI:</b> Need for security, stress tests, and hosting of the IS; Need for a maintenance and development of the solution by external contractors.
ABN - 15	Need for common data sharing principles	O / L	<b>EUCARIS:</b> Need for a licensing policy at the initiative level; <b>EULIS:</b> Need for a common policy for data licensing; <b>ELRA:</b> Need for a common data policy across Member States; <b>BRIS:</b> Need for ensuring the privacy and security of data;
ABN - 16	Need for collaboration rules	O	<b>EUCARIS:</b> Need for bilateral agreements between the MSs setting the rules for collaboration; Need for business rules for data cost sharing, management of data exchange and the scope of the solution; <b>ELRA:</b> Need for an organisational structure with specification of roles and responsibilities

## Aggregated Business Needs



- The following slides provide a summary of the specific business needs and identified solutions per aggregated business need.
- There is also a short description after each aggregated business need on whether reusable solutions could or should be developed and whether these are specific to the context, e.g. a code list for offences versus a portal.

# Aggregated Business Needs (1/4)



Aggregated BN ID	Specific BN	Solutions	Potential for reusable solutions?
<p>ABN – 1 Need for common understanding of data entities</p>	<p>■ Met ■ Unmet</p>	<p>■ L3 ■ L2 ■ L1 ■ None ■ Planned ■ Other</p>	<p>A common understanding of data entities is crucial for interoperability. The use of Core Vocabularies (e.g. Person Vocabulary) and open source Code Lists (e.g. ISO Country Codes) will aid in addressing this need but there will still be sector-specific needs such as the code list for offences and penalties (ECRIS).</p>
<p>ABN – 2 Need to comply with legislation on data exchange</p>			<p>All business needs to comply with legislation are met, though over half of the solutions are specific legislation on a certain data exchange which will not be reusable for other initiatives.</p>
<p>ABN - 3 Need for the unique identifiers to identify data elements</p>			<p>Unique identifiers facilitate unambiguous identification of subjects cross-border (good practice #14). A consistent approach should be taken in this, such that for example a person's as well as a vehicle's identifier begin with BE if it originates from Belgium.</p>
<p>ABN – 4 Need for monitoring the data exchange (statistics)</p>			<p>Most of the needs are met and most of the solutions are potentially reusable. This does not require a sector-specific approach.</p>

# Aggregated Business Needs (2/4)



Aggregated BN ID	Specific BN	Solutions	Potential for reusable solutions?
ABN – 5 Need for mechanisms to ensure secure data exchange	<p>■ Met ■ Unmet</p>	<p>■ L3 ■ L2 ■ L1 ■ None ■ Planned ■ Other</p>	This is important, especially when it concerns sensitive data such as criminal records. Solutions could potentially be reused for securing data exchange as these are context-neutral and could be enforced by legislation (strive for standardization). In accordance with the eSignature Directive* for example, the interoperability of electronic-signature products should be promoted.
ABN – 6 Need for coordination of charging policies	<p>■ Met ■ Unmet</p>	<p>■ L3 ■ L2 ■ L1 ■ None ■ Planned ■ Other</p>	A common charging policy will need to be driven by legislation at the European level as current charging policies differ from one Member State to another. An e-Payment component to facilitate the charging is not sector-specific and could be standardised.
ABN – 7 Need for a multilingual information exchange	<p>■ Met ■ Unmet</p>	<p>■ L3 ■ L2 ■ L1 ■ None ■ Planned ■ Other</p>	This business need is met by existing solutions, though potentially with a limited reusability. For example, while a translation software can be reused, sector specific multilingual glossaries may not easily be reused by initiatives in another sector.
ABN – 8 Need for a technology solution enabling the data exchange	<p>■ Met ■ Unmet</p>	<p>■ L3 ■ L2 ■ L1 ■ None ■ Planned ■ Other</p>	This is technology-driven and lies at the very foundation of exchanging data. There are however still unmet specific business needs, which mostly relate to a specific type of transmission (e.g. between event based registries and central registers) or a specific functionality (e.g. search engine or notification).

\* For more information on the eSignature Directive, please visit <http://ec.europa.eu/digital-agenda/en/trust-services>

# Aggregated Business Needs (3/4)



Aggregated BN ID	Specific BN	Solutions	Potential for reusable solutions?
<p>ABN – 9 Need for controlled vocabularies</p>	<p>■ Met ■ Unmet</p>	<p>■ L3 ■ L2 ■ L1 ■ None ■ Planned ■ Other</p>	<p>The resuability of the solutions addressing this business need is limited by the fact that the content of the vocabularies are sector specific. Nevertheless, there remain common attributes to e.g. a person or business for which Core Vocabularies can provide a solution.</p>
<p>ABN – 10 Need for services supporting data exchange, e.g. data transmission</p>	<p>■ Met ■ Unmet</p>	<p>■ None</p>	<p>The data exchange should be facilitated by services such as choreography / orchestration services or data translation and validation services. The identified solutions show a lack of documentation which made them unsuitable for reusability.</p>
<p>ABN – 11 Need for automation of data exchange</p>	<p>■ Unmet</p>	<p>■ Planned</p>	<p>The automation of data exchange is an important element contributing to the speed and thus efficiency of the data exchange. The reusability of this solution is limited by the need to create a sector specific semantic interface.</p>
<p>ABN – 12 Need for governance of technology solutions enabling the data exchange, e.g. a service delivery model</p>	<p>■ Met</p>	<p>■ Other</p>	<p>Governance of a technology solution relates to a service delivery model. The reusability of a service delivery model should be treated with caution since it is dependent on the organizational structure of the initiative.</p>

# Aggregated Business Needs (4/4)



Aggregated BN ID	Specific BN	Solutions	Potential for reusable solutions?
ABN – 13 Need for governance of different types of users (e.g. civil servants, professional users, citizens)	<p>1</p> <ul style="list-style-type: none"> <li>Met</li> <li>Unmet</li> </ul>	<p>1</p> <ul style="list-style-type: none"> <li>L3</li> <li>L2</li> <li>L1</li> <li>None</li> <li>Planned</li> <li>Other</li> </ul>	Management of different types users involving users' categorization, governance processes including contracts are independent from cross-border / cross-sector context. These solutions provide therefore governance models that have a potential for reuse.
ABN – 14 Need for maintenance and development of a technology solution	<p>3</p>	<p>1</p> <p>2</p>	Maintenance and development processes are independent from sector and Member State. However, they can differ with regards to technological specificities of a technology solution, e.g. frequency of maintenance, resources needed for the development.
ABN – 15 Need for common data sharing principles	<p>2</p> <p>2</p>	<p>1</p> <p>1</p> <p>1</p>	Common data sharing principles are of particular importance is a cross-sector and cross-border context since they provide a bridge between country and sector specific legislations and policies.
ABN – 16 Need for collaboration rules	<p>3</p>	<p>3</p>	Formalised collaboration rules are important to establish transparency resulting in trust between the involved parties. The rules are universal and can be applied in any context be it cross-border or cross-sector.

## LOST (1/3)



The following table maps the aggregated business needs to the so-called 'LOST'-levels, i.e. legal, organisational, semantic and technical.

Unmet business needs are clearly clustered in the semantic and technical level of the European Interoperability Framework. Within the technical level:

- 7 unmet business needs are in support services (monitoring (ABN – 4), maintenance (ABN – 14), and enablers (ABN – 10)), requiring some type of transmission enabler,
- 7 are in technical solutions for the data policy (security (ABN – 5) and charging (ABN – 6)), and
- 11 are in the interconnection and the functionalities (ABN – 8 and ABN – 11).

EIF level	ABN	Number of unmet BN
Legal	ABN – 2, ABN – 15	2
Organisational	ABN – 6, ABN – 12, ABN – 13, ABN – 15, ABN – 16	5
Semantic	ABN – 1, ABN – 3, ABN – 7, ABN – 9	7
Technical	ABN – 4, ABN – 5, ABN – 6, ABN – 8, ABN – 10, ABN – 11, ABN – 14	25

## LOST (2/3)



We highlight a selection of aggregated business needs which may provide a direction for the future.

- Semantic: common understanding of data entities (ABN – 1, ABN – 3, ABN – 7, ABN – 9)
  - There are 4 planned solutions while there exist already potentially reusable solutions for a common understanding of data entities. Although the context may be relevant for this particular EIF level, a basic standardisation on the most frequently used data entities and attributes can advance the interoperability of initiatives.
- Technical: implementing the data policy (ABN – 5, ABN – 6)
  - There are planned solutions for a payment service while at the same time no potentially reusable solutions seem to exist. This makes a strong case for working together on developing a reusable digital payment method as well as a common charging policy. As long as the access to data is not free of charge everywhere for every user, this remains a necessity.
  - Though there are unmet business needs for an e-Signature service (ECRIS, EULIS, BRIS), there are a number of existing solutions in the market (EUCARIS, ECRN). A next step could be to standardise the method used by initiatives for all types of users (i.e. civil servants, professional users, and citizens).

## LOST (3/3)



- Technical: technology solutions enabling data exchange (ABN – 8)
  - Though there are a number of planned solutions, there are also a number of potentially reusable solutions existing in the market. It is therefore recommended to check for existing reusable solutions, and if not found, to work together on functionalities such as a search engine (EULIS and BRIS are planning this) and a notification function (BRIS is planning to develop this).



## Annex 3 – Member State Solutions

## Member State Solutions



- The next slides provide an overview of the existing catalogue of solutions at the Member State level as identified in the previous study
- They are mapped to the building blocks of the EIRA
- Following this exercise we see that one of these solutions addresses a building block which constituted an unmet business need in the sample of 7 European initiatives, namely a “Metadata Management Policy”
  - Grunddata (Denmark) has a process to achieve a common data model.
  - This may be useful for the initiative that has unmet business needs in metadata policy, namely BRIS.

## Reusable Solutions at Member State Level



Member State	Solution	Type	Reusability	EIRA View	Building Block
Estonia	Intermediation platform enabling data exchange (X-Road)	Software	Yes	Application	Trans- European system
Spain	Intermediation platform enabling data exchange	Software	Yes	Application	Trans-European system
Denmark	Intermediation platform enabling data exchange (Grunddata)	Software	Yes	Application	Trans-European system

## Other Solutions at Member State Level (1/3)



Member State	Solution	Type	EIRA View	Building Block
Spain	Legal recognition of electronic records - Intermediation Platform	Other	Business	Legislation (national level)
Belgium	Decree concerning the establishment and organisation of the Flemish service integrator	Other	Business	Legislation (national level)
Denmark	Data sharing principles	Other	Business	Business rule
Germany	Guide on wording procurement documents - ITK Beschaffung	Other	Business	Business rule
Estonia	Public Information Act - X-Road	Other	Business	Legislation (national level)

## Other Solutions at Member State Level (2/3)



Member State	Solution	Type	EIRA View	Building Block
Belgium	Coordination commission coordinating base registry data exchange - Fedict	Other	Business	Organisational structure
Finland	Base Register Working Party - Registry Based Census	Other	Business	Organisational structure
Denmark	Online group - Data Hunters- for submission of requests for public data - Grunddata	Other	Business	Organisational structure
Denmark	Initiative - Public Data in Play - focusing on the public data	Other	Business	Organisational structure
Belgium	Service level agreement	Other	Business	Interoperability agreement

## Other Solutions at Member State Level (3/3)



Member State	Solution	Type	EIRA View	Building Block
Spain, Denmark	Interoperability agreement - Intermediation Platform - Grunddata	Other	Business	Interoperability agreement
Estonia	Promotion of interoperability - X-Road	Other	Business	Organisational structure
Denmark	Business case for digital base registries - Grunddata	Other	Business	Business rule
Denmark	Process to achieve a common data model - Grunddata	Other	Data	Metadata management policy
Austria	User access management - Central Register of Residence	Other	Application	Security enablers

## Trends Identified at Member State Level (1/5)



- The previous study, namely “Access to Base Registries III” identified a number of interoperability parameters or trends at the Member State level. These trends should be kept in mind when interconnecting base registries at the European level.

Legal	BRIDGING LEGISLATION	DATA SHARING PRINCIPLES	SERVICE TERMS AND CONDITIONS	COMPLIANCE WITH LEGISLATION	
Organisational	ORGANISATIONAL STRUCTURES	COLLABORATIONS	ORGANISATIONAL POLICIES	GOVERNANCE PROCESSES	BUSINESS MODELS
Semantic	VOCABULARIES	IDENTIFIERS	CODE LISTS	GLOSSARIES	
Technical	NETWORK FOR DATA TRANSPORT	INTERCONNECTION ARCHITECTURE	STANDARDS FOR DATA EXCHANGE	SECURITY	

## Trends Identified at Member State Level (2/5)



### *Interoperability Level*

Alignment of legislation  
across Member States



Public administrations should carefully consider all relevant legislation relating to data exchange, including data protection legislation, when seeking to establish a European public service.

BRIDGING  
LEGISLATION

DATA SHARING  
PRINCIPLES

SERVICE TERMS AND  
CONDITIONS

COMPLIANCE WITH  
LEGISLATION

## Trends Identified at Member State Level (3/5)



### *Interoperability Level*

Alignment of business processes across different organisations

***Organisational***



Business processes are documented

Agreement on how processes will interact

Clarification of organisational relationships

Agreement on change management processes

ORGANISATIONAL  
STRUCTURES

COLLABORATION

ORGANISATIONAL  
POLICIES

GOVERNANCE  
PROCESSES

BUSINESS  
MODELS

## Trends Identified at Member State Level (4/5)



### *Interoperability Level*

Alignment of the meaning of information

***Semantic***



Use of a common taxonomy of basic public services

Support to the establishment of sector-specific and cross-sector communities aiming to facilitate semantic interoperability

VOCABULARIES

IDENTIFIERS

CODE LISTS

GLOSSARIES

## Trends Identified at Member State Level (5/5)



### *Interoperability Level*

Alignment of technical issues

*Technical*



Formalisation of specifications to ensure technical interoperability when establishing European public services

NETWORK FOR  
DATA TRANSPORT

INTERCONNECTION  
ARCHITECTURE

STANDARDS  
FOR DATA  
EXCHANGE

SECURITY



## Annex 4 – Glossary

# Glossary



Term	Description	Source
<b>Basic data</b>	Base registries' data is sometimes referred to as 'basic data'.	Deloitte
<b>Base registry</b>	A base registry is a trusted authentic source of information under the control of an appointed public administration or organisation appointed by government. According to the EIF 2.0, base registries are: "reliable sources of basic information on items such as persons, companies, vehicles, licences, buildings, locations and roads" and "are authentic and authoritative and form, separately or in combination, the cornerstone of public services".	<a href="http://www.ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf">www.ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf</a>
<b>Business base registry</b>	A business base registry is a registry containing data related to a company. This registry may contain the following data: company name, type of enterprise (foundation, limited company, association, co-operative, public limited company etc.), accounting period, address, main operating sector, bank account number, etc.	<a href="http://www.ec.europa.eu/isa/">www.ec.europa.eu/isa/</a>
<b>Base registry owner</b>	Base registry owner refers to the organisation that is the appointed controller of the data in the base registry.	Deloitte
<b>Core Vocabulary</b>	Core Vocabulary is a simplified, reusable, and extensible data model that captures the fundamental characteristics of an entity in a context-neutral way. Well known examples of existing Core Vocabularies include the Dublin Core Metadata Set. E-Government Core Vocabularies are the starting point for developing interoperable e-Government systems as they allow mapping with existing data models. This guarantees that Public Administrations can attain cross-border and cross-sector interoperability.	<a href="http://www.joinup.ec.europa.eu">www.joinup.ec.europa.eu</a>

# Glossary



Term	Description	Source
<b>Comitology Decision</b>	The Commission's activities are assisted by the representatives of the Member States organised into committees chaired by the Commission. Relations between the Commission and the committees are based on models set out in the Council "Comitology Decision" established by Regulation No 182/2011 of the European Parliament and of the Council laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers.	<a href="http://www.europa.eu">www.europa.eu</a>
<b>Decision</b>	A "decision" is binding on those to whom it is addressed (e.g. an EU country or an individual company) and is directly applicable.	<a href="http://europa.eu/eu-law/decision-making/legal-acts/index_en.htm">http://europa.eu/eu-law/decision-making/legal-acts/index_en.htm</a>
<b>Digital Agenda</b>	The Digital Agenda for Europe (DAE) aims to reboot Europe's economy and help Europe's citizens and businesses to get the most out of digital technologies. It is the first of seven flagships initiatives under Europe 2020, the EU's strategy to deliver smart sustainable and inclusive growth.	<a href="http://www.europa.eu">www.europa.eu</a>
<b>Digital certificate</b>	A digital representation of information which at least: <ol style="list-style-type: none"> <li>1) identifies the certification authority issuing it,</li> <li>2) names or identifies its subscriber,</li> <li>3) contains the subscriber's public key,</li> <li>4) identifies its operational period, and</li> <li>5) is digitally signed by the certification authority issuing it.</li> </ol>	<a href="http://www.nvlpubs.nist.gov/nistpubs/ir/2013/NIST.IR.7298r2.pdf">www.nvlpubs.nist.gov/nistpubs/ir/2013/NIST.IR.7298r2.pdf</a>

# Glossary



Term	Description	Source
<b>Directive</b>	A "directive" is a legislative act that sets out a goal that all EU countries must achieve. However, it is up to the individual countries to decide how.	<a href="http://europa.eu/eu-law/decision-making/legal-acts/index_en.htm">http://europa.eu/eu-law/decision-making/legal-acts/index_en.htm</a>
<b>eGovernment</b>	eGovernment refers to the employment of the Internet and the world-wide-web for delivering government information and services to the citizens.	<a href="http://www.un.org">www.un.org</a>
<b>EIF</b>	The European Interoperability Framework is a set of recommendations organised into an enterprise architecture framework targeting all those involved in the definition, design and implementation of European Public Services.	Deloitte <a href="http://www.ec.europa.eu">www.ec.europa.eu</a>
<b>EIF Conceptual model</b>	EIF Conceptual model describes organising principles for European Public Services. It is based on a survey on the implementation of European Public Services in the Member States, and embodies the common elements and good practices observed. It is a blueprint for future implementations of European Public Services.	<a href="http://www.ec.europa.eu">www.ec.europa.eu</a>
<b>Electronic record</b>	An electronic record is a record which is in electronic form as a result of having been created by a software application or as a result of digitisation, e.g. by scanning.	Deloitte
<b>ESB</b>	Enterprise Service Bus is an architecture pattern that enables interoperability between heterogeneous environments, using service orientation.	<a href="http://www.oracle.com">www.oracle.com</a>
<b>Interconnecting infrastructure</b>	An interconnecting infrastructure is an IT infrastructure enabling base registry data exchange without the need to integrate base registries' data bases. This infrastructure is based on the concept of interconnection of base registries by a defined base registry data exchange layer.	Deloitte

# Glossary



Term	Description	Source
<b>Interoperability</b>	Interoperability is the ability of disparate and diverse organisations to interact towards mutually beneficial and agreed common goals, involving the sharing of information and knowledge between the organisations, through the business processes they support, by means of the exchange of data between their respective IT systems.	<a href="http://www.ec.europa.eu">www.ec.europa.eu</a>
<b>Interoperability agreement</b>	Interoperability agreements are means through which public administrations formalise collaboration with one another from an organisational, semantic and technical point of view.	<a href="http://www.ec.europa.eu">www.ec.europa.eu</a> <a href="http://www.webgate.ec.europa.eu">www.webgate.ec.europa.eu</a> CISE Architecture Visions Document
<b>ISO</b>	International Organization for Standardization is the world's largest developer of voluntary international standards.	<a href="http://www.iso.org">www.iso.org</a>
<b>Land base registry</b>	A land base registry is a registry containing data that can be related to land. This registry may contain the following data: owner's rights, value of property, boundaries etc.	<a href="http://www.ec.europa.eu/isa/">www.ec.europa.eu/isa/</a>
<b>Master-slave governance</b>	In the context of base registries, master-slave governance refers to a model where the master base registry is the primary source of data, while the slave base registry has to synchronise to it.	Deloitte
<b>Marginal cost</b>	Marginal cost is a change in the total cost resulting from an increase of an output by one unit	Deloitte

# Glossary



Term	Description	Source
<b>Opinion</b>	An "opinion" is an instrument that allows the [EU] institutions to make a statement in a non-binding fashion, in other words without imposing any legal obligation on those to whom it is addressed. An opinion is not binding. It can be issued by the main EU institutions (Commission, Council, Parliament), the Committee of the Regions and the European Economic and Social Committee. While laws are being made, the committees give opinions from their specific regional or economic and social viewpoint.	<a href="http://europa.eu/eu-law/decision-making/legal-acts/index_en.htm">http://europa.eu/eu-law/decision-making/legal-acts/index_en.htm</a>
<b>Persons base registry</b>	Persons base registry is a registry containing data that can be related to a natural person. Data in a citizen registry can be the following: first name and family name, birth date, gender, citizenship, address, title of insurance (insurance context), record of mouth-map for Dental Benefit (healthcare context), etc.	<a href="http://www.ec.europa.eu/isa/">www.ec.europa.eu/isa/</a>
<b>Point-to-point connection</b>	Point-to-point connection refers to a communication between to end points (i.e. two base registries).	Deloitte
<b>Recommendation</b>	A recommendation is not binding. It allows the [EU] institutions to make their views known and to suggest a line of action without imposing any legal obligation on those to whom it is addressed.	<a href="http://www.europa.eu">www.europa.eu</a>
<b>Regulation</b>	A "regulation" is a binding legislative act. It must be applied in its entirety across the EU	<a href="http://europa.eu/eu-law/decision-making/legal-acts/index_en.htm">http://europa.eu/eu-law/decision-making/legal-acts/index_en.htm</a>

# Glossary



Term	Description	Source
<b>Semantic Asset</b>	A semantic asset is a collection of highly reusable metadata (e.g. xml schemata, generic data models) and reference data (e.g. code lists, taxonomies, dictionaries, vocabularies) which are used for e-Government system development.	<a href="http://www.joinup.ec.europa.eu">www.joinup.ec.europa.eu</a>
<b>Service</b>	A service is a means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks.	ITIL® V3 Glossary
<b>SOA</b>	<p>Service Oriented Architecture is an architectural style that supports service-orientation.</p> <p>Service-orientation is a way of thinking in terms of services and service-based development and the outcomes of services.</p> <p>A service: is a logical representation of a repeatable business activity that has a specified outcome (e.g., check customer credit, provide weather data, consolidate drilling reports), is self-contained, may be composed of other services, is a “black box” to consumers of the service.</p>	<a href="http://www.opengroup.org">www.opengroup.org</a>
<b>Software</b>	Software is an application that provides functions that are required by an IT Service. Each software may be part of more than one IT Service. A software runs on one or more servers or clients.	ITIL® V3 Glossary
<b>Standard</b>	A standard means a technical specification, adopted by a recognised standardisation body, for repeated or continuous application, with which compliance is not compulsory.	<a href="http://www.eur-lex.europa.eu">www.eur-lex.europa.eu</a> (Regulation on European Standardisation)

# Glossary



Term	Description	Source
<b>SLA</b>	A Service Level Agreement is an agreement between an IT service provider and a customer. A service level agreement describes the IT service, documents service level targets, and specifies the responsibilities of the IT service provider and the customer. A single agreement may cover multiple IT services or multiple customers.	<a href="http://www.itil-officialsite.com">www. itil-officialsite.com</a>
<b>Technical specification</b>	A technical specification means a document that prescribes technical requirements to be fulfilled by a product, process, service or system.	<a href="http://www.eur-lex.europa.eu">www.eur-lex.europa.eu</a> (Regulation on European Standardisation)
<b>UAM</b>	User Access Management is the process responsible for allowing users to make use of IT services, data or other Assets. Access Management helps to protect the confidentiality, integrity and availability of assets by ensuring only authorized users are able to access/modify the assets.	<a href="http://www.itilnews.com">www.itilnews.com</a>
<b>Vehicle base registry</b>	A vehicle registry is a registry containing data that can be related to a vehicle. This registry may contain the following data: engine capacity, colour, model, owner's details, VIN (Vehicle Identification Number), etc.	<a href="http://www.ec.europa.eu/isa/">www.ec.europa.eu/isa/</a>
<b>W3C</b>	The World Wide Web Consortium is an international community where member organizations, a full-time staff, and the public work together to develop Web standards.	<a href="http://www.w3.org">www.w3.org</a>

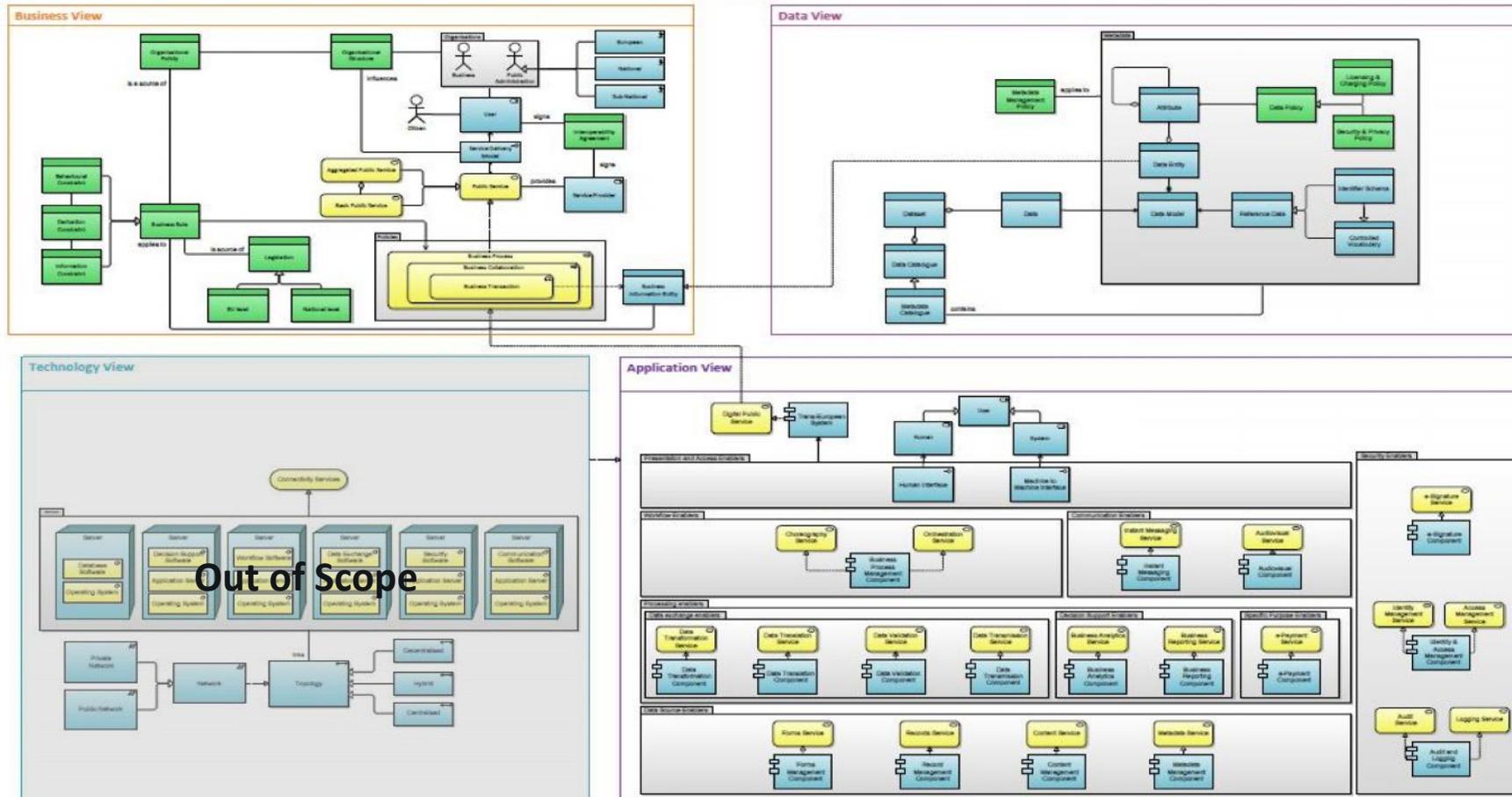


## Annex 5 – EIRA



Architecture modeling notation legend: active structure element behaviour element passive structure element

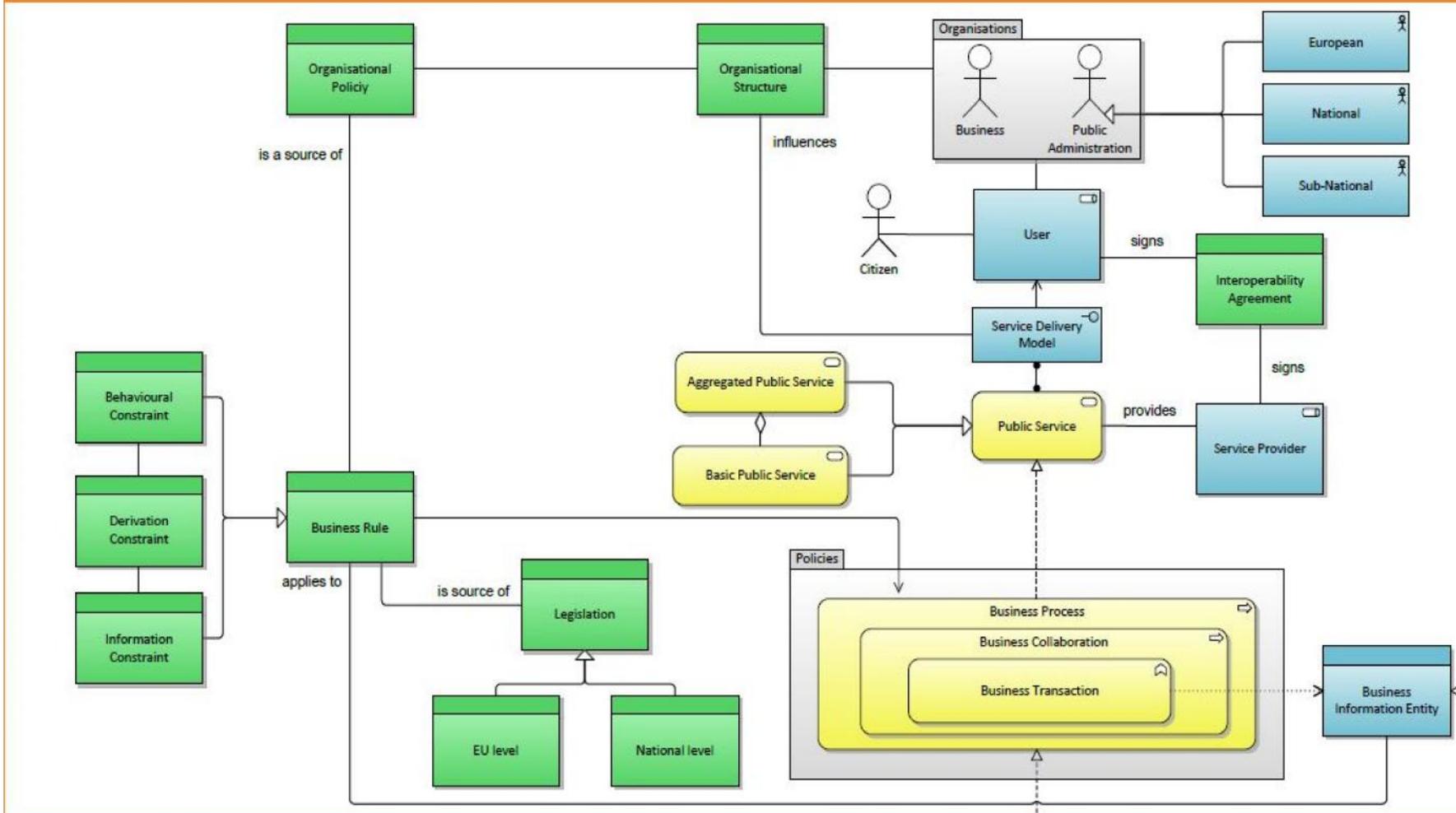
### European Interoperability Architecture (EIA) – Reference Architecture



## EIRA – Business View



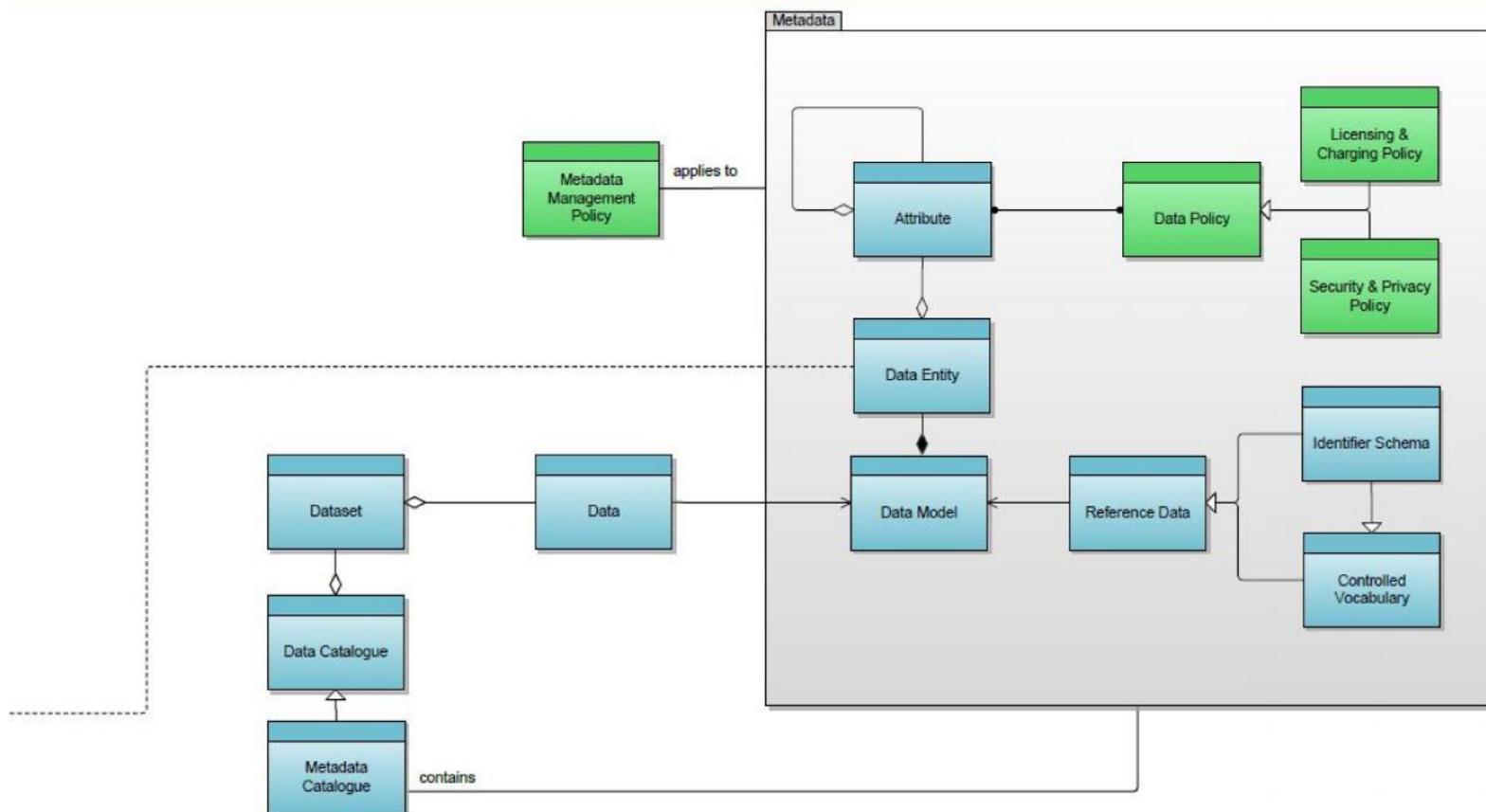
## Business View



## EIRA – Data View

European  
Commission

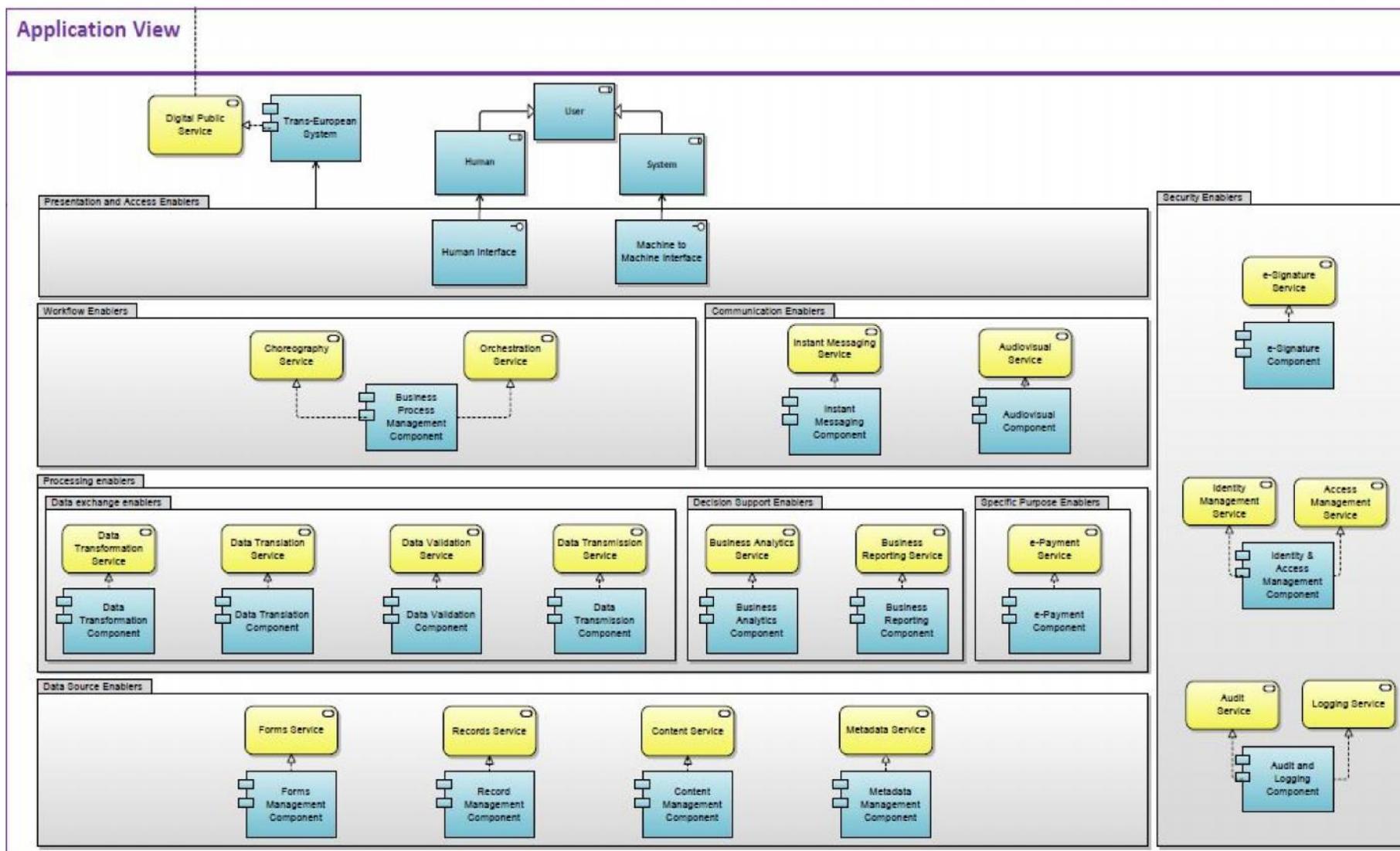
## Data View



# EIRA – Application View



## Application View





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