# Interoperability Solutions for European Public Administrations

## EIRA and EIC pilot

The Hague, Netherlands

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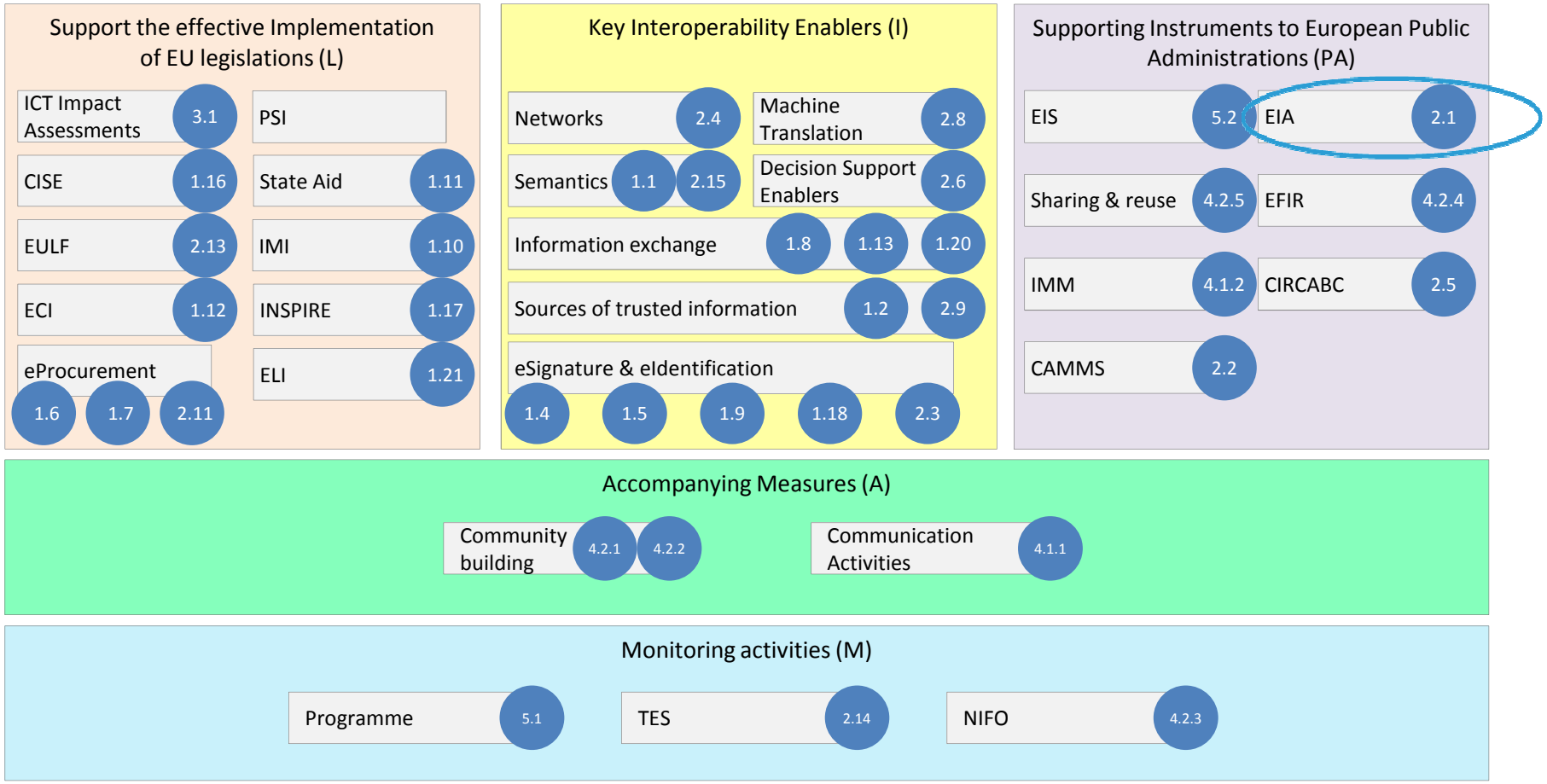
# ISA portfolio




Source: ISA Legal Decision Art. 1, 2, 3 , Kurt Salmon analysis

# Objectives of the EIA action

European Commission

| | |
|---|---|
| Designing | Accelerate the design of systems that support the delivery of interoperable digital public services (across borders and sectors). |

| | |
|---|---|
| Assessing | Provide a reference model for comparing existing architectures in different policy domains and thematic areas, to identify focal points for convergence and reuse. |

| | |
|---|---|
| Communicating and Sharing | Help documenting the most salient interoperability elements of complex systems and facilitate the sharing of reusable solutions. |

| | |
|---|---|
| Discovering and Reusing | Ease the discovery and reuse of interoperability solutions through the **E**uropean **I**nteroperability **Cart**ography – **EICart** in **Joinup** website. |

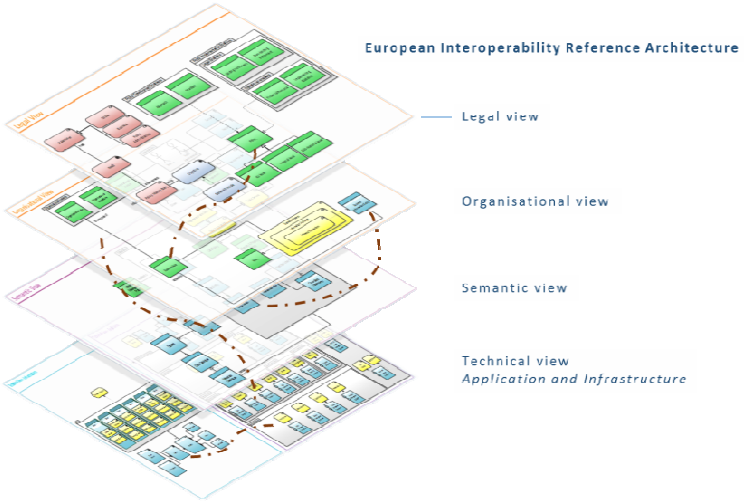
# Main work products of the EIA action

European Commission

## EIRA

**European Interoperability Reference Architecture**

A four-view reference architecture for delivering digital public services (across borders and sectors).




## EICart

**European Interoperability Cartography**

A mapping of solutions to the Building Blocks of the EIRA.

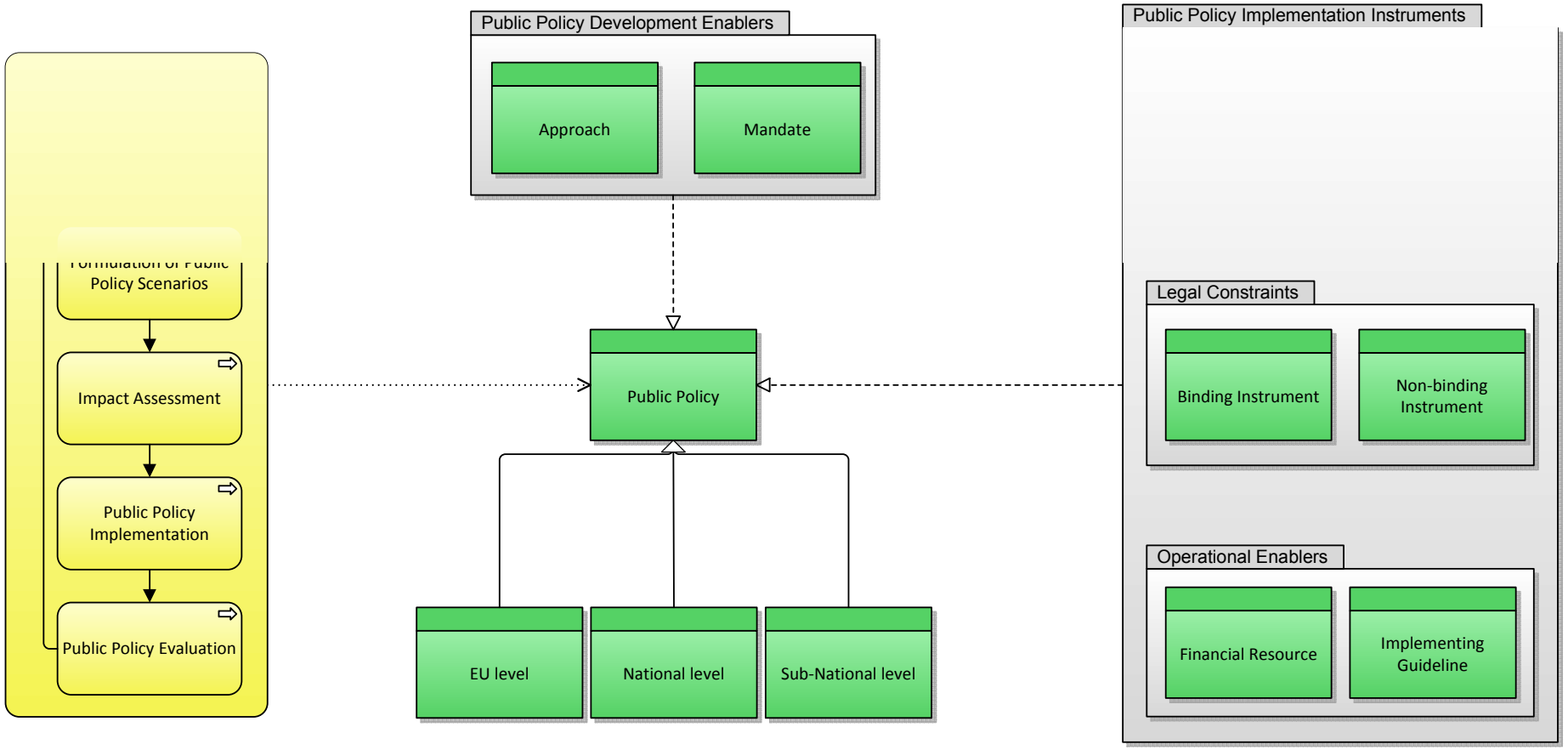
| Trans-European System | Workflow Enablers | | Data Exchange Enablers | | | | Security Service | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Choreography Service | Orchestration Service | Data Transmission Service | Data Transformation Service | Data Translation Service | Data Validation Service | e-Signature Service | Identity Management Service | Access Management Service | Audit Service |
| e-PRIOR | No | No | Yes | E-PRIOR provides data transformation components (XSLT transformations). | No | E-PRIOR provides data validation services (XSD validation, Schematron validation) | No | No | No | Capability of e-Prior |
| GENIS IS | No | No | e-TrustEX e-Delivery | No | Multilingual Building Block (manages translation of multilingual application) | No | No | ECAS | No | No |
| e-Trustex | No | No | Yes | e-Trustex provides data transformation components (XSLT transformations). | No | e-Trustex provides data validation services (XSD validation, Schematron validation) | No | No | No | Capability of e-Trustex |
| sTESTA | No | No | Yes, digital network infrastructure. | No | No | No | No | No | No | No |
| CCN/CSI | No | No | Yes, digital network infrastructure. | Yes, electronic exchange of structured and unstructured data IOP. | No | No | No | Yes, authenticate users. | Yes, authorize access. | No |

# Legal view

European Commission

Archimate modelling notation legend : active structure element | behaviour element | passive structure element

## Legal View

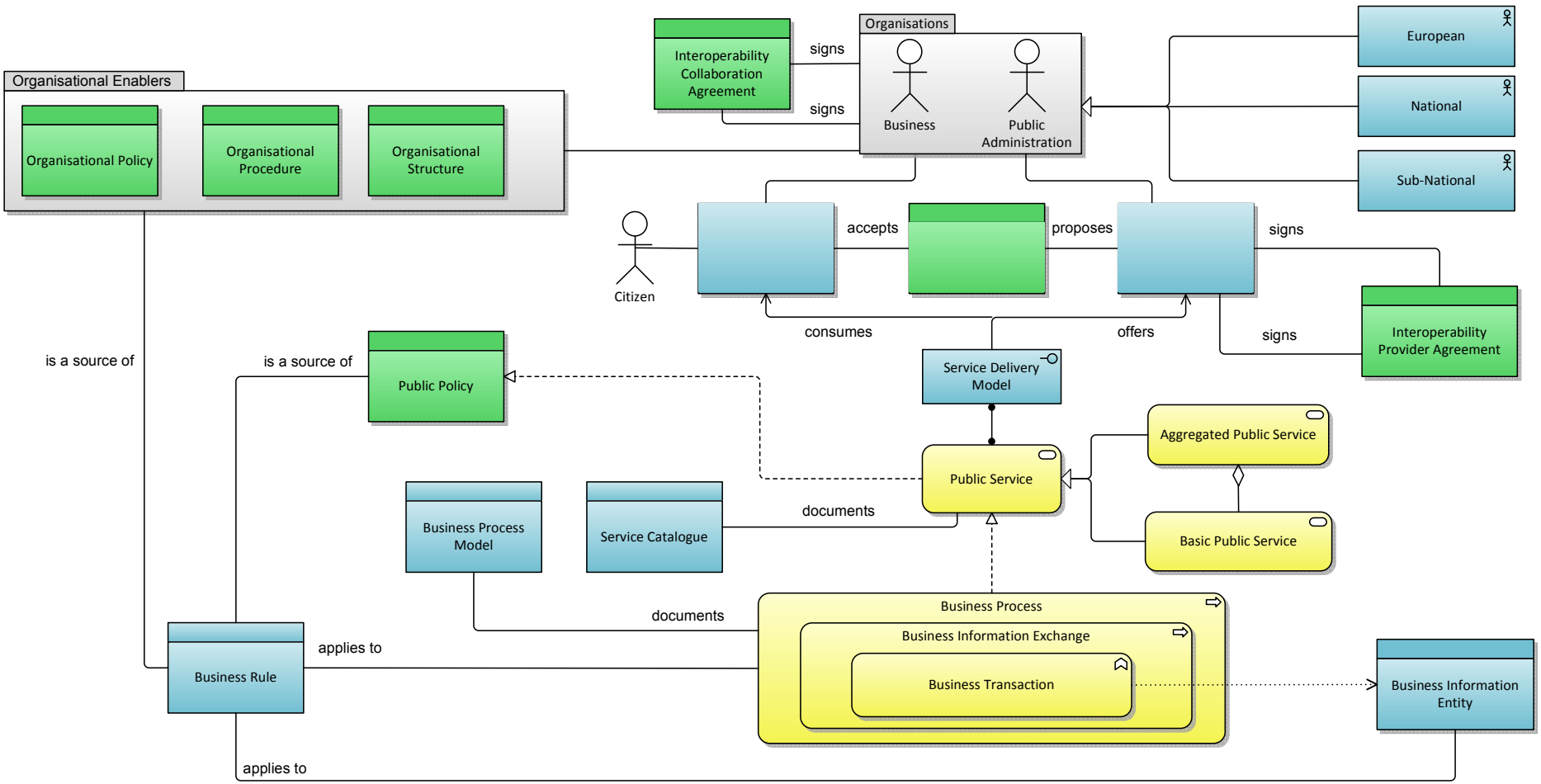


# Organisational view

European Commission

Archimate modelling notation legend : active structure element | behaviour element | passive structure element

## Organisational View

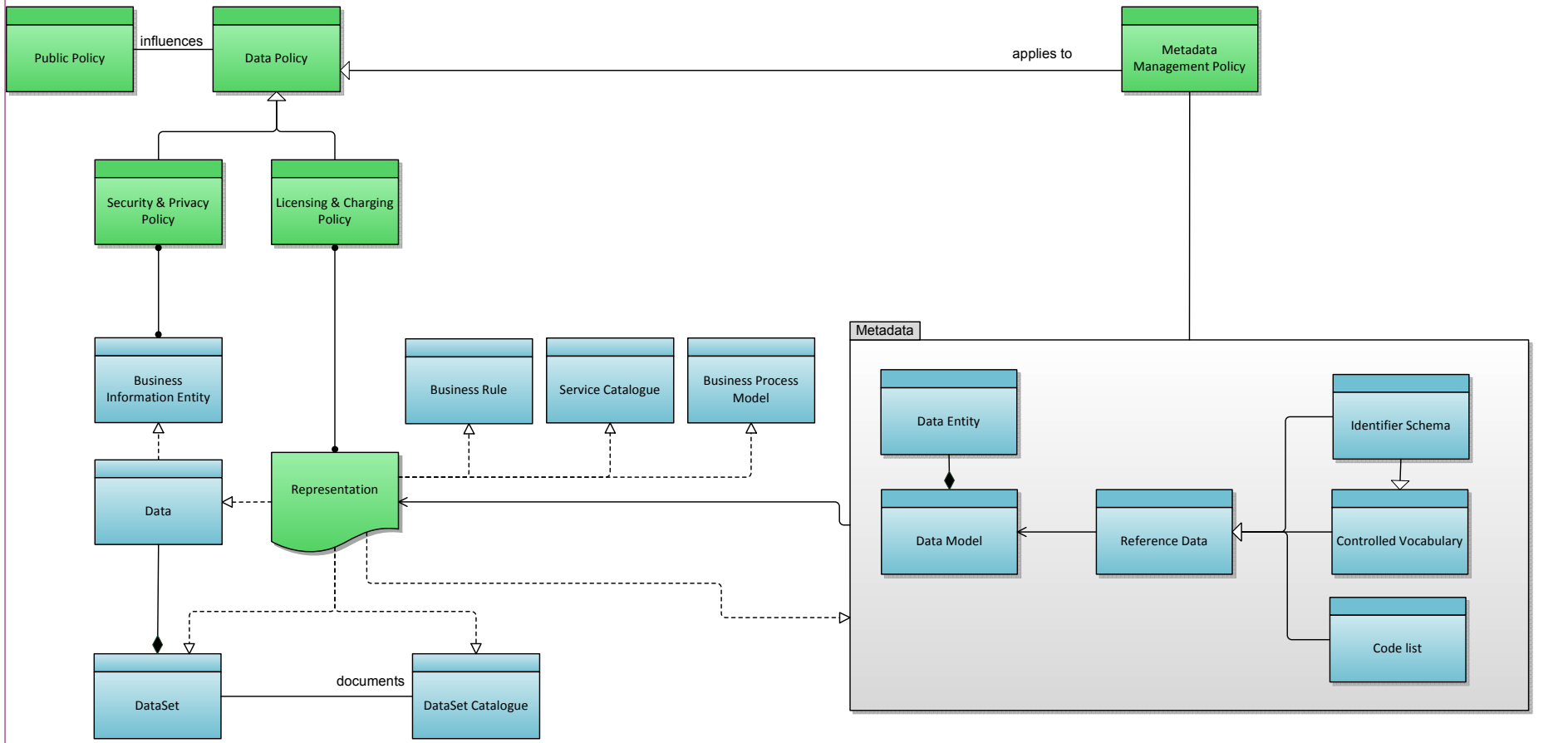


# Semantic view

European Commission

Archimate modelling notation legend : active structure element | behaviour element | passive structure element

## Semantic View

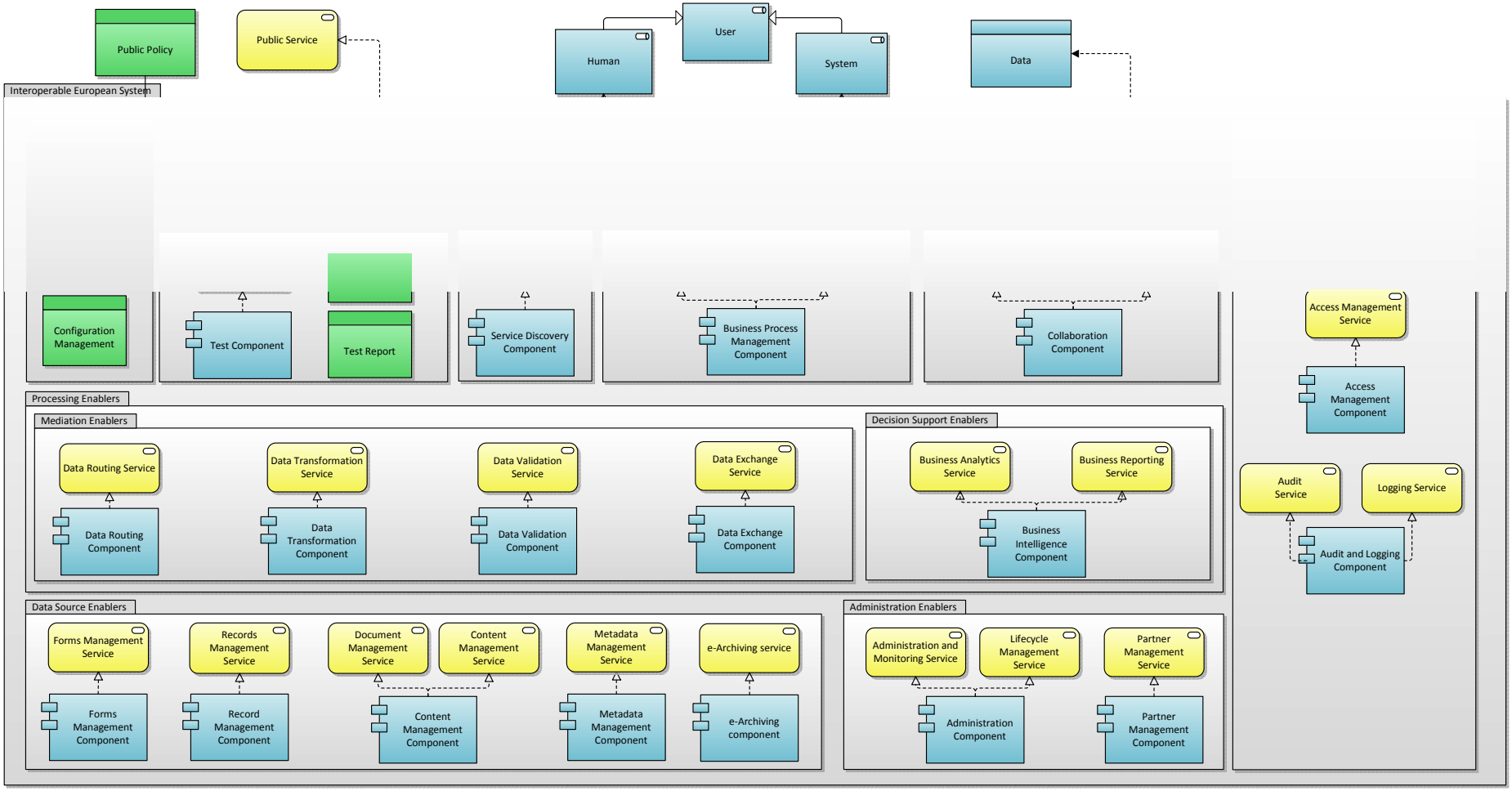


# Technical view – Application

European Commission

Archimate modelling notation legend : active structure element | behaviour element | passive structure element

## Technical View - Application

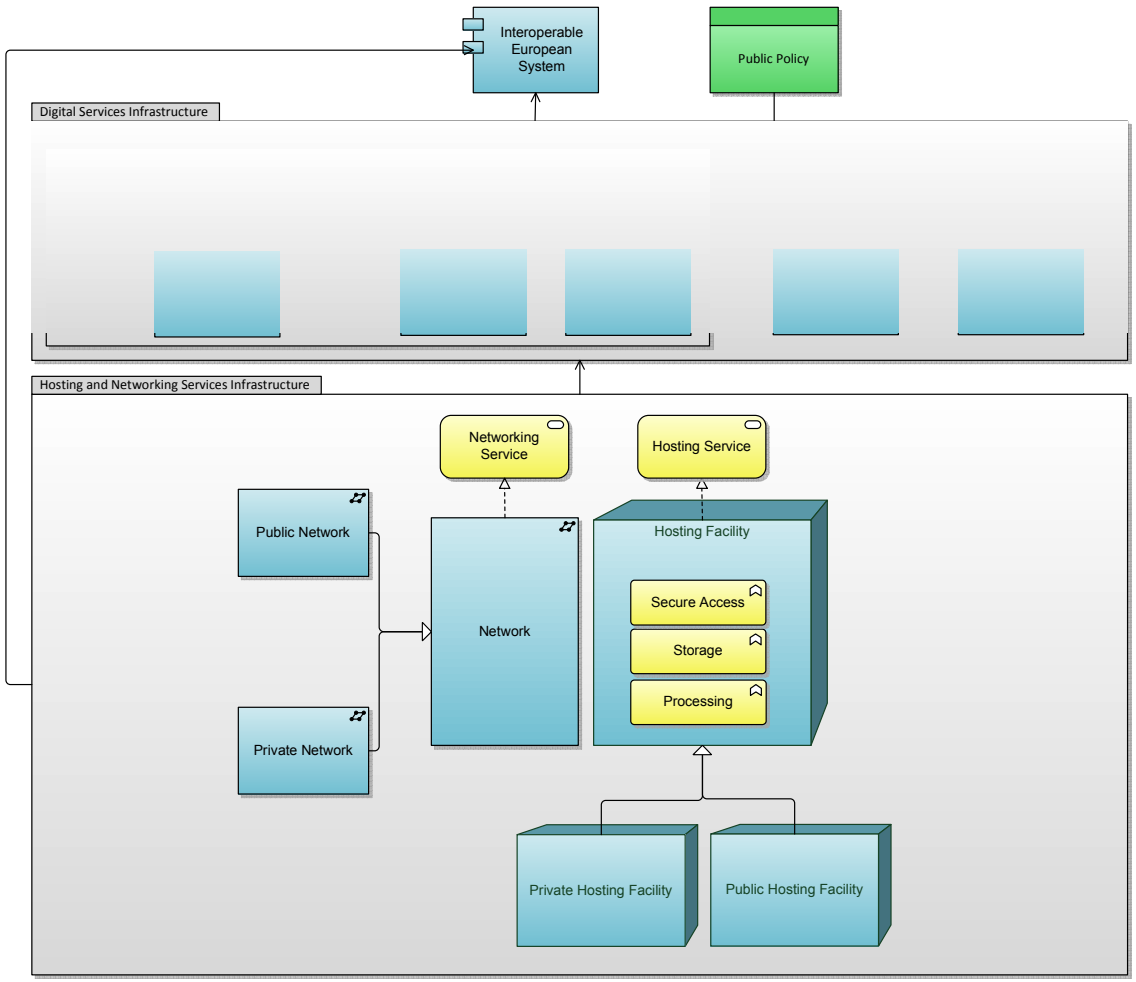


# Technical view – Infrastructure

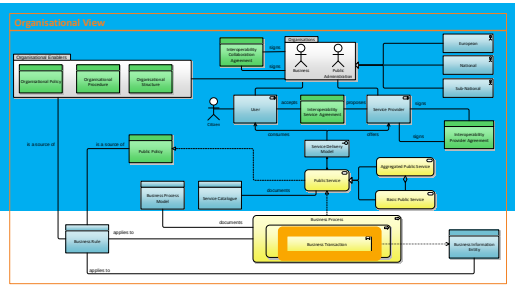
European Commission

Archimate modelling notation legend : active structure element | behaviour element | passive structure element

## Technical View - Infrastructure



# EIC. Identification of TES based on the EIRA Organisational view



The major **business transactions**[2] supported by a TES answer the business needs expressed in the legal basis and reflect the business purpose of a TES.

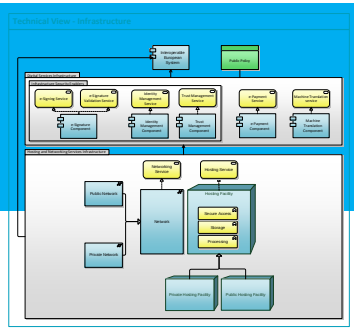
**The identification of TES supporting specific business needs can therefore be based on the business transactions supported.**

Examples of business transactions identified:

- **Alerts** for Crisis management needs
- **Electronic data entry** for Data collection, monitoring and reporting needs
- **Exchange of requests for information** for Administrative cooperation needs

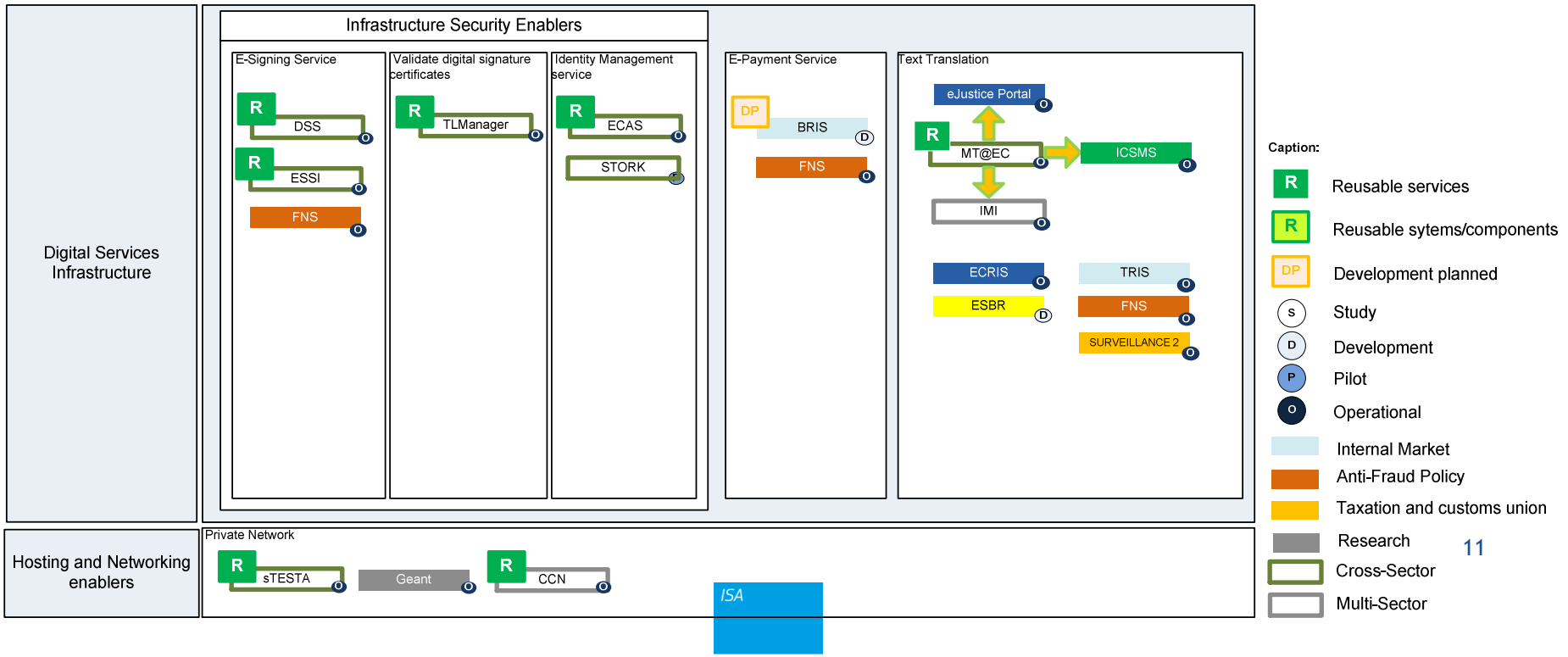
[2] Atomic unit of interaction between two or more public administrations, businesses or citizens, EIRA v 2.10

# EIC. Reuse of infrastructure services



## Seven reusable infrastructure services were identified:

- Two private networks – **CCN (DG TAXUD)** and **sTESTA (DG DIGIT)**;
- One identity management service – **ECAS (DG DGIT)**;
- Two e-signing services – **ESSI (DG DIGIT)** and **DSS (DG MARKT)**;
- One digital signature certificates validation service – **TLManager (DG MARKT)**;
- One text translation service – **MT@EC (DG DIGIT)**.



# Pilot

On the 12th of June 2014, the ISA Coordination Group endorsed the current versions of the European Interoperability Reference Architecture (EIRA) and the European Interoperability Cartography (EIC), stating they were mature enough to be used in pilots and to go to public consultation.

- We propose to apply one use case of the EIRA and the EIC to your situation. These use cases could include, for example:
  - the documentation of and search for interoperability solutions;
  - the design or comparison of solution architectures;
  - the design or comparison of reference architectures;
  - the rationalisation or management of a portfolio of solutions; or
  - the structuring of architectural implications of policies or thematic domains.

# Pilot. Use cases of the EIA action


EIRA ● Cart ●

## Designing

- ● ● Design solution architectures
- ● ○ Design reference architectures
- ● ● Create portfolio

## Assessing

- ● ○ Compare reference architectures
- ○ ● Compare solution architectures
- ● ● Rationalise portfolio
- ● ● Manage portfolio

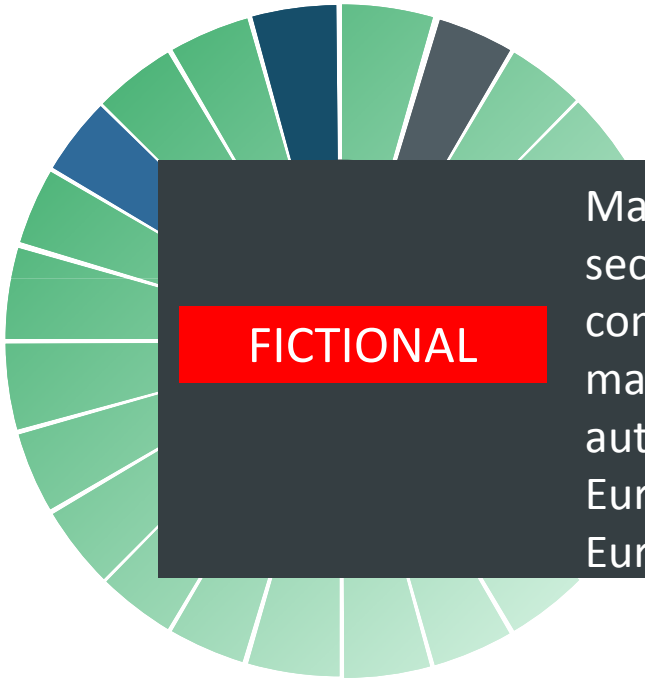
## Communicating and Sharing

- ● ● Structure the architectural implications of policy or thematic domains (to the extent of the views of the EIRA)
- ○ ● Document interoperability solutions

## Discovering and Reusing

- ○ ● Search for interoperability solutions

# Scenario 1 – Context



FICTIONAL

Marco Rinaldi is an Enterprise Architect, working in the social security sector for a public administration in Italy. In order to be compliant with a new EU directive, his organisation has the mandate to build a new information system that enables automatic exchange of social security information with the European Commission and other public administrations in Europe.

# Scenario 1 – Use cases

## CHALLENGE

How to ensure interoperability between a national system and the systems of the EC and of other MSs.

## EIA in PRACTICE

Marco can use the **technical view - application** of the **EIRA** to find the BBs that are relevant for interoperable message exchange.

Design solution architecture

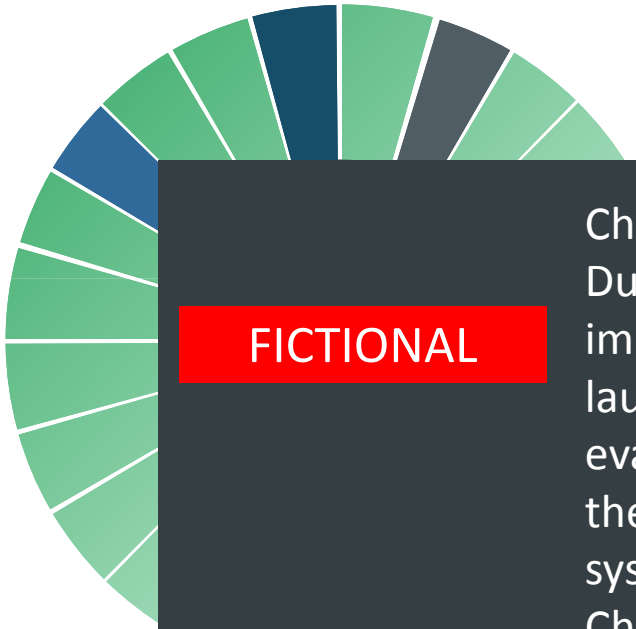
Marco can use the **Cartography tool** to find reusable solutions for the BBs he needs.

Search for interoperability solutions

## KEY BENEFITS

- Strong focus on cross-border interoperability from the outset
- Faster access to reusable solutions
- Alignment to a common reference model

# Scenario 2 – Context



FICTIONAL

Christine Dupont is working for DG AGRI, European Commission. Due to a change in the business processes supporting the implementation of rural development policies, her DG has launched an assessment of the current application landscape to evaluate the impact of the change. The DG has found out that there is an overlap between the functionalities of different systems, and the cost of implementing a change are significant. Christine has been asked to evaluate a strategy for rationalising application landscape and implement the new business process.

# Scenario 2 – Use cases

European Commission

## PROBLEM

How to rationalise the application landscape to support efficient business process implementation.

## EIA in PRACTICE

Christine can use the **organisational view** of the **EIRA** to organise the key business processes and related business rules, and explain this relationship to stakeholders.

Structure the architectural implications of a policy

Christine can use the **EIRA** to understand her DG's architecture and identify missing BBs.

Compare reference architectures

Christine can map the current applications to the EIRA BBs, and plan which ones have to be dismissed, merged or replaced.

Rationalise portfolio

## KEY BENEFITS

- Structured communication with stakeholders
- Accelerated assessment of architectures
- Simplified decision-making process for application portfolio rationalisation

European Commission


## Join ISA initiatives at: http://ec.europa.eu/isa/index_en.htm and @ http://joinup.ec.europa.eu

ADMS ASSET DESCRIPTION METADATA SCHEMA

CORE LOCATION VOCABULARY

CORE BUSINESS VOCABULARY

CORE PERSON VOCABULARY

CORE PUBLIC SERVICE VOCABULARY

http://goo.gl/eK1EY @SEMICeu http://joinup.ec.europa.eu

# Reuse examples - Mapped in to the EIRA

The caption below should ease the user comprehension of the EU Cartography, **3 main information are represented** :

## Reuse

- R — Reusable service
- R — Reusable component/functionality/module
- R — Reusable code
- Reused by

## Current state

- S — Study
- P — Pilot
- D — Development
- O — Operational
- DP — Development planned

## Policy domain[1]

- Health and consumer protection
- Humanitarian aid
- Internal Market
- Anti-Fraud Policy
- Home Affairs
- Justice
- Maritime affairs and fisheries
- Mobility and transport
- Environment
- Competition
- Employment and social affairs
- Trade
- Taxation and customs union
- Information society and media
- Research
- Energy
- Statistics
- Cross-Sector
- Multi-Sector

[1] A policy domain may have more than one Public Policy as referred to in the EIRA.

European Commission

# EICart

European Interoperability Cartography

Member States

National Interoperability Frameworks Observatory (NIFO)

Standardisation bodies

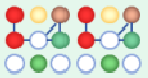
TES

Industry

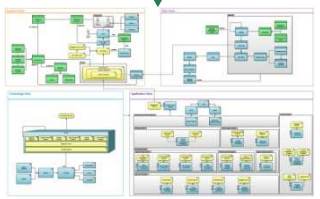
joinup

Sharing & reuse policy


EU Cartography



Alignment with the EIRA Reference Architecture



EIRA

European Interoperability Reference Architecture

*(make the link …)*

- What exists?
- What is still missing?

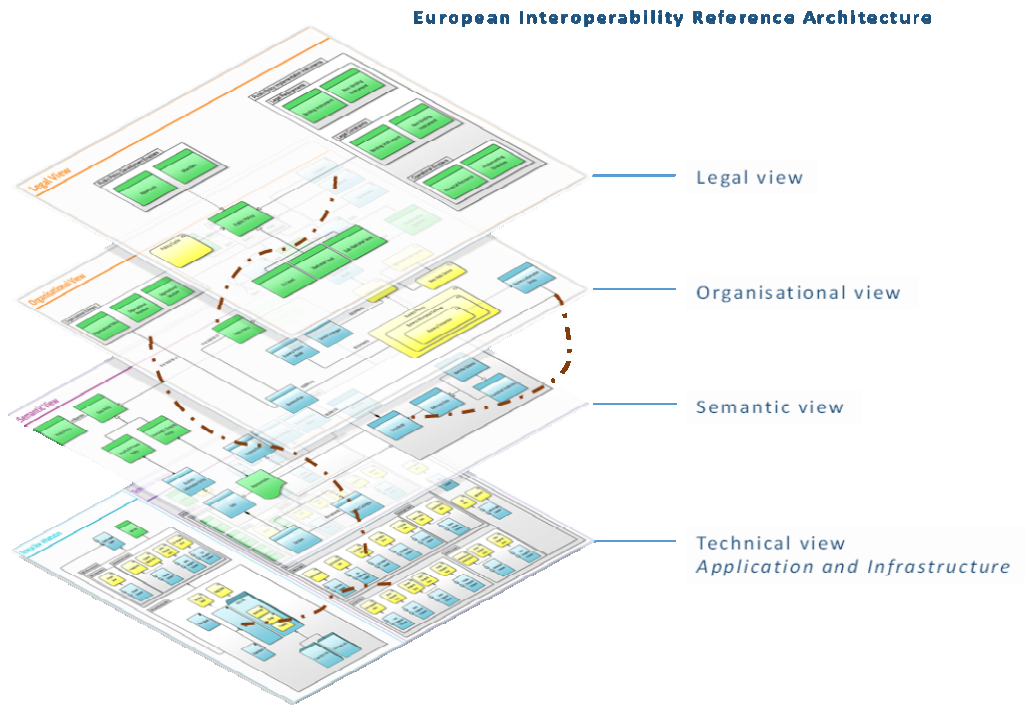
# Context view

## Context View

Information System Development Reference Architecture

National Reference Architecture

Other Reference Architectures



# Narrative of the Organisational View

European Commission

## Generic

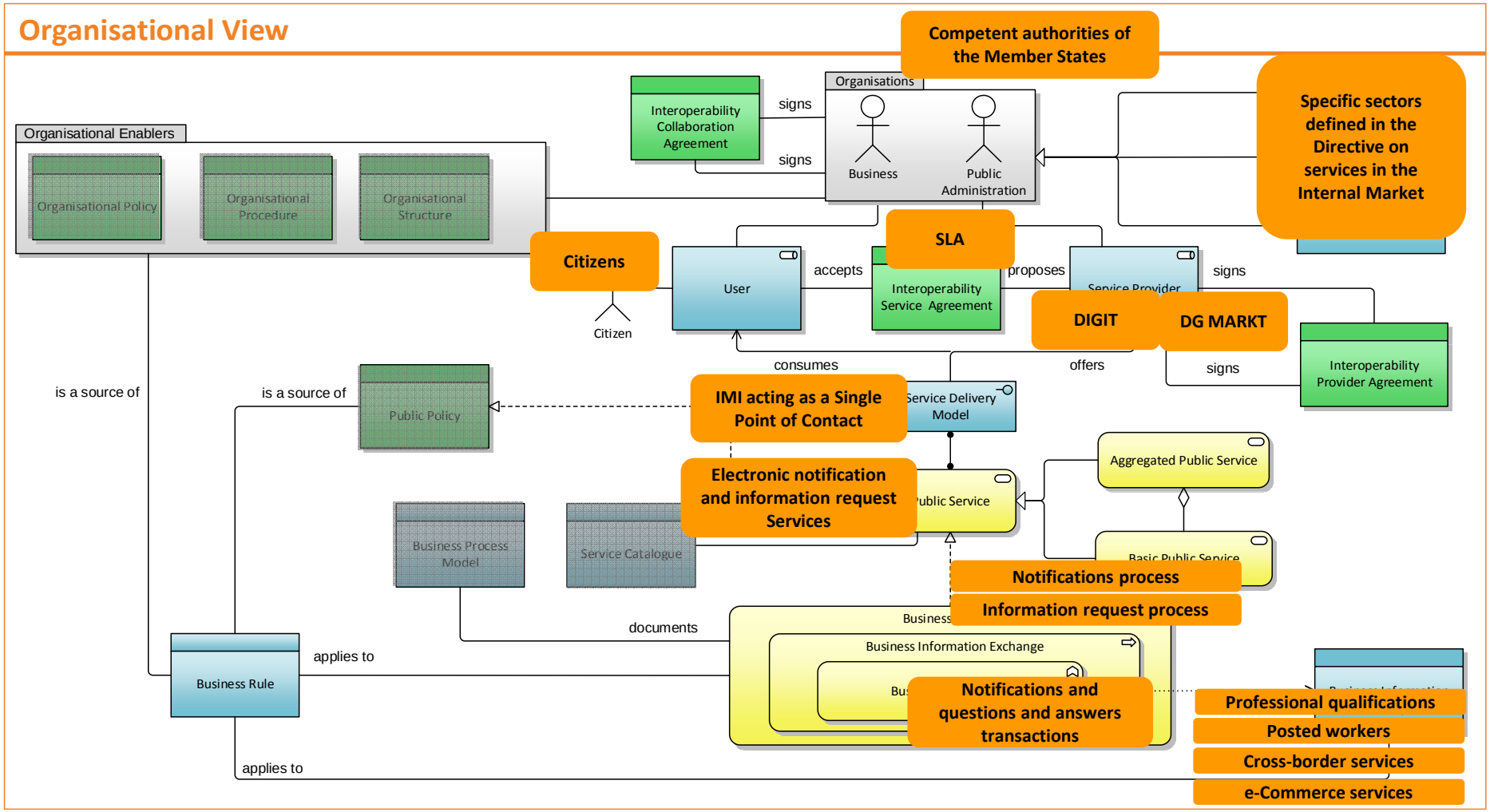
*[Organisations] in the role of Service Providers supply [Public Services] to [Public Administrations] and/or [Businesses] and/or [Citizens] in the role of Users according to a [Service Delivery Model], with a defined [sector scope] and [geographic scope]. The delivery of these services is realised through [Business Processes] containing [Business Collaborations] which enclose [Business Transactions] of defined [Business Information Entities]. All of these are subject to [Business Rules] originating from [Organisational Policies] which echo [Organisational Structures] of the [Organisations] involved.*

## IMI

*[DIGIT is the system supplier and DG MARKT the system owner of IMI, both play] the role of Service Provider supplying [electronic notifications services] to the [competent authorities of the Member States] and [citizens] in the role of Users, according to a [Single Point of Contact model]. [Competent authorities] belong to [specific sectors defined in the Directive on services in the Internal Market] and to [every geographic location]. The delivery of this service is realised through [information exchanges] which enclose [Requests or Alerts] of defined [Professional Qualifications, posting of Workers, Service Directive, Cash in transit and e-commerce].*

# Organisational View of IMI

## Organisational View



# Narrative of the Semantic View

European Commission

## Generic

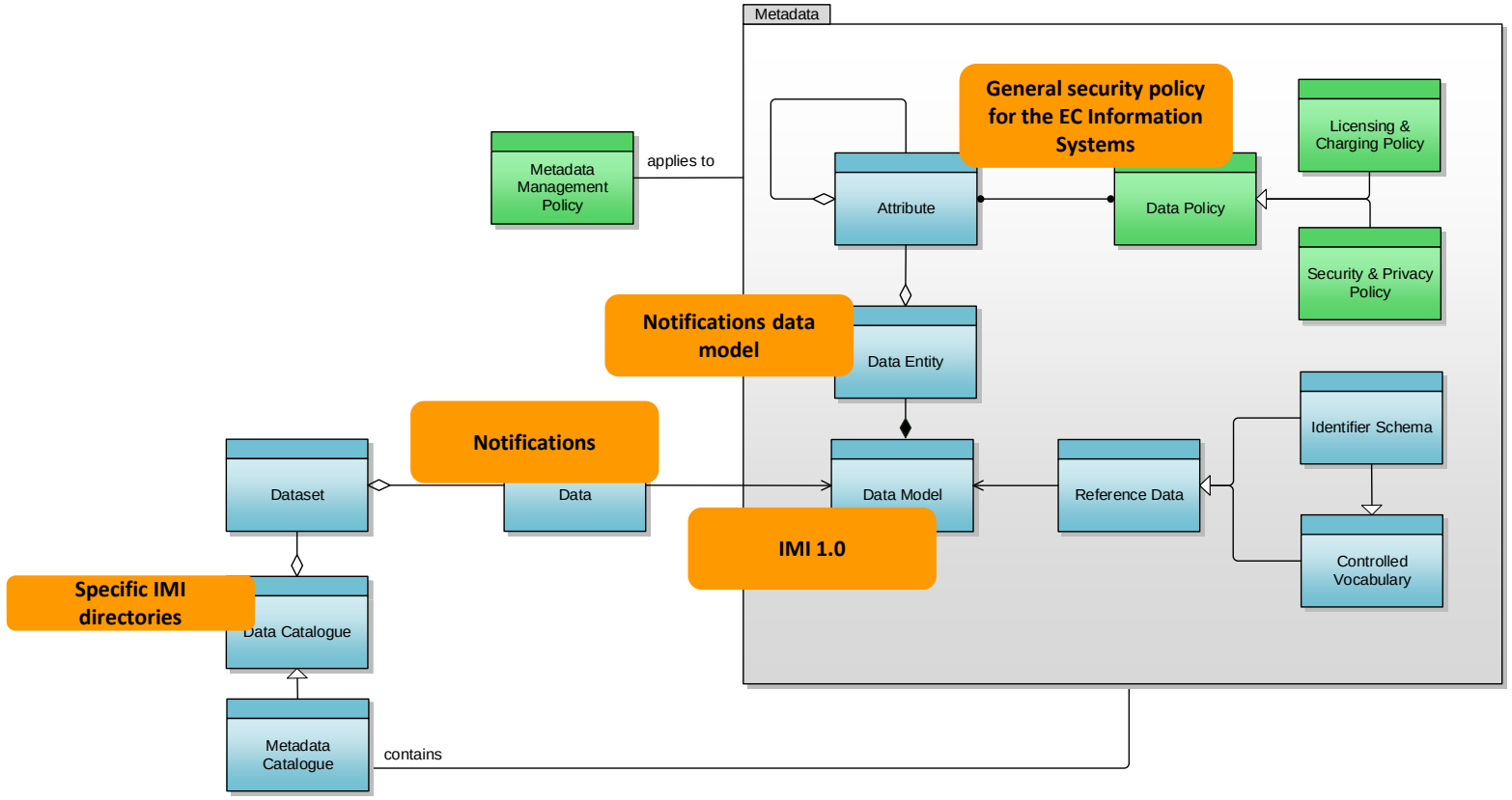
*The [Data Entities] are described according to the [Data Model] and [Reference Data]. These are managed according to the [Metadata Management Policy]. This data is classified according to the [Security & Privacy Policy], in terms of Confidentiality the data is [Level] in terms of Integrity and Availability the data is [Level]. A [Licensing & Charging Policy] is applied/ not applied. The data is published/ not published in a [Data Catalogue] and its metadata is available/ not available in a [Metadata Catalogue].*

## IMI

*The [Notifications] are described according to the [IMI 1.0]. This data is classified according to the [general security policy for the EC Information Systems ]. The data are published in [specific IMI directories] and the metadata of its services are formalised according to [WSDLs].*

# Semantic View of IMI

## Semantic View



# Narrative of the Technical View - Application

European Commission

## Generic

*[Trans-European Systems (TES)] implement [Digital Public Services]. They can be accessed by [Users], which can be [humans] or [systems], through [Presentation and Access enablers]. TES provide access to data through [data source enablers]. Data can be exchanged cross-border and cross-sector with the support of [data exchange enablers], can be processed to make informed decisions with the help of [decision support enablers] or can be used in custom ways, for which [specific purposes enablers] are built. TES can execute complex business processes through [workflow enablers] and can support interaction among humans through [communication enablers]. Access control and data security are managed through the services offered by [security enablers].*

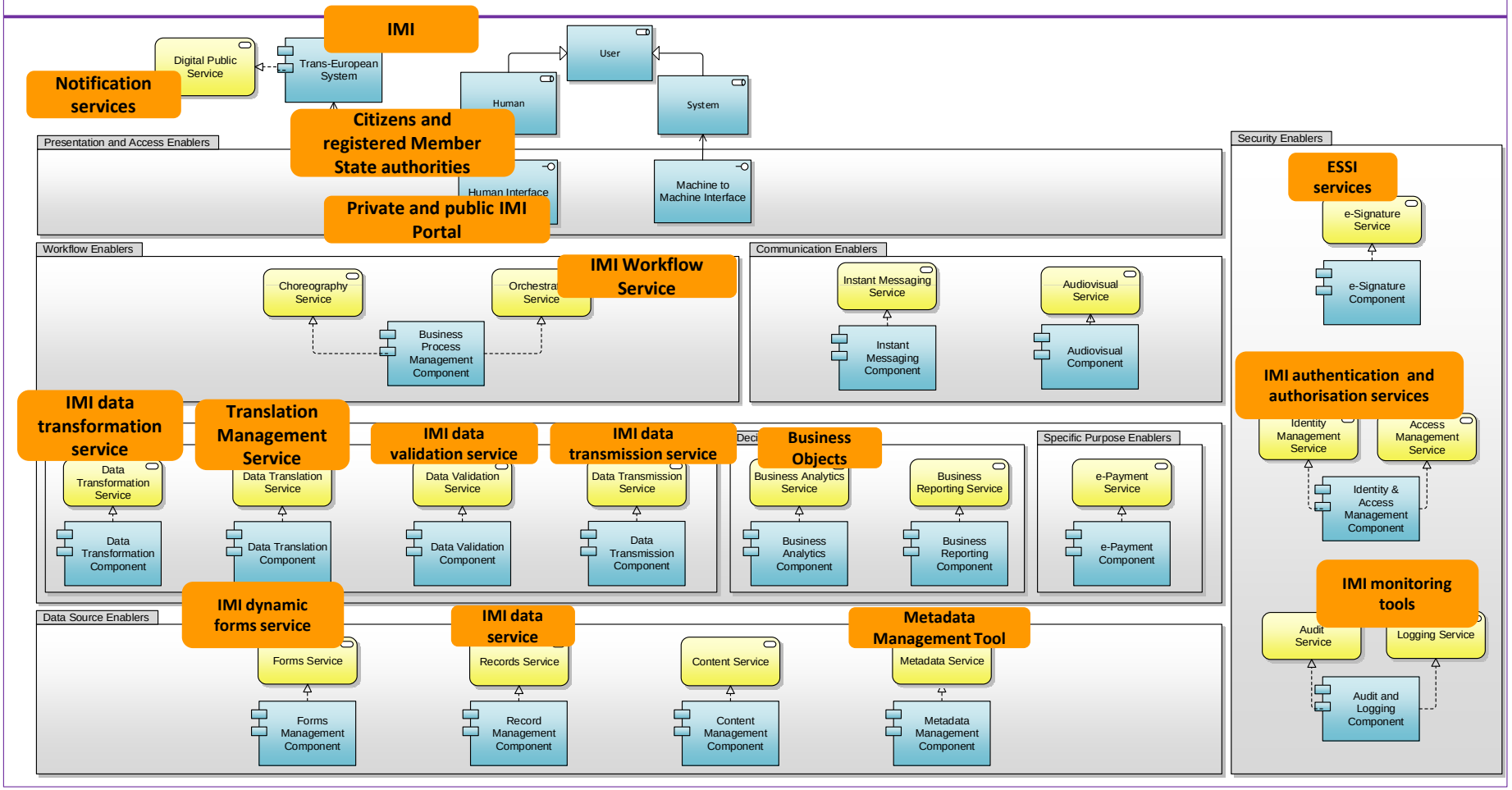
## IMI

*[IMI] implements [notification services], and can be accessed by [citizens and Member State authorities via a web Portal]. IMI provides access to data through [IMI data service and a Metadata Management Tool]. Data can be exchanged across-border with the support of [IMI data validation, transformation, translation and workflow services]. IMI can send out the notifications and data with the support of [IMI data transmission services]. IMI supports the dynamic creation of forms through the [IMI dynamic forms service]. IMI facilitates internal logging and log processing through the [IMI monitoring tools]. E-Signature is supported through the use of [ESSI services]. Access control is managed through the [IMI authentication and authorisation services].*

# Technical View of IMI – Application

European Commission

## Technical view - Application



# IMI as an example of TES for exchange of requests for information

European Commission

**IMI (Internal Market information System from DG MARKT) is a system that is prepared to support multiple policy domains and already does it today**. It implements several business processes, handle notifications and handle requests for information. IMI can be reused as:

**R**

**Service operated by DG MARKT for others wishing to reuse IMI.** In that case DG MARKT and DIGIT can configure existing generic modules to be used for new policy areas and without the need for development.

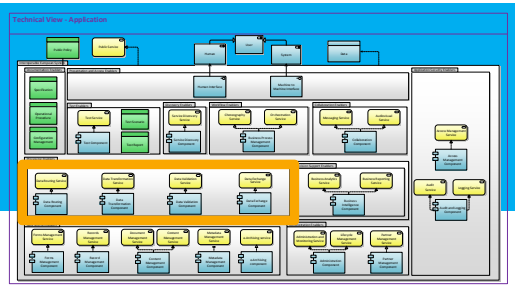
**Legal constraint:** reuse of the service is possible **within the internal market field only**

**R**

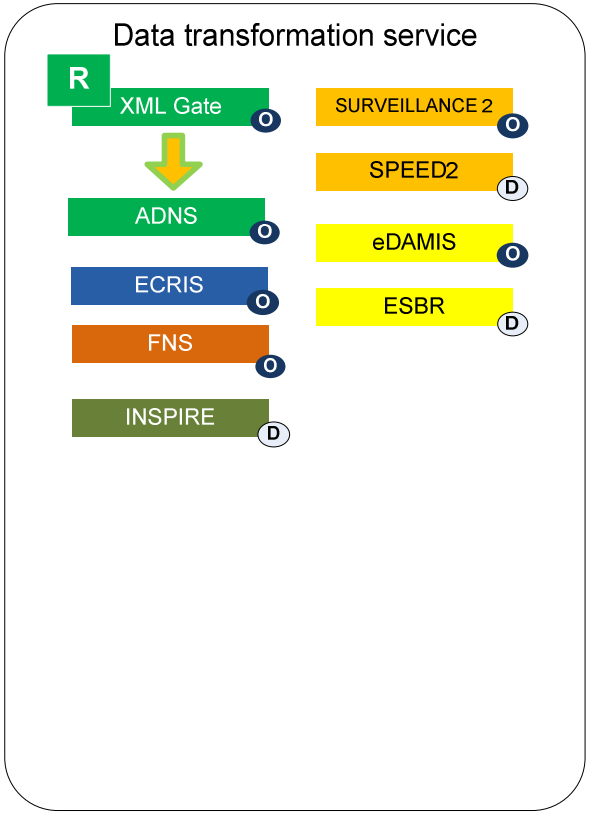
**The IMI source code can be offered for reuse to others** as a basis for their own administrative cooperation communities outside the internal market field

# EIC. Reuse a Data transformation service

European Commission



**8 TES relies on a data transformation component and 1 TES was built to support data format translation.**

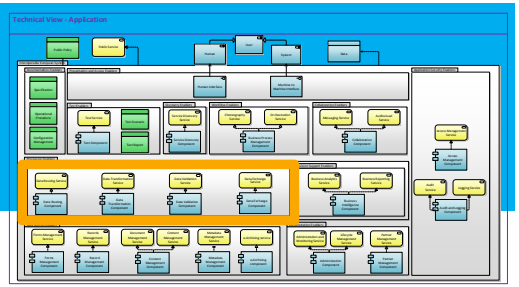



## Focus on

**XMLGate is a Web service application , used in DG SANCO, to validate an XML instance against a well-defined schema.**

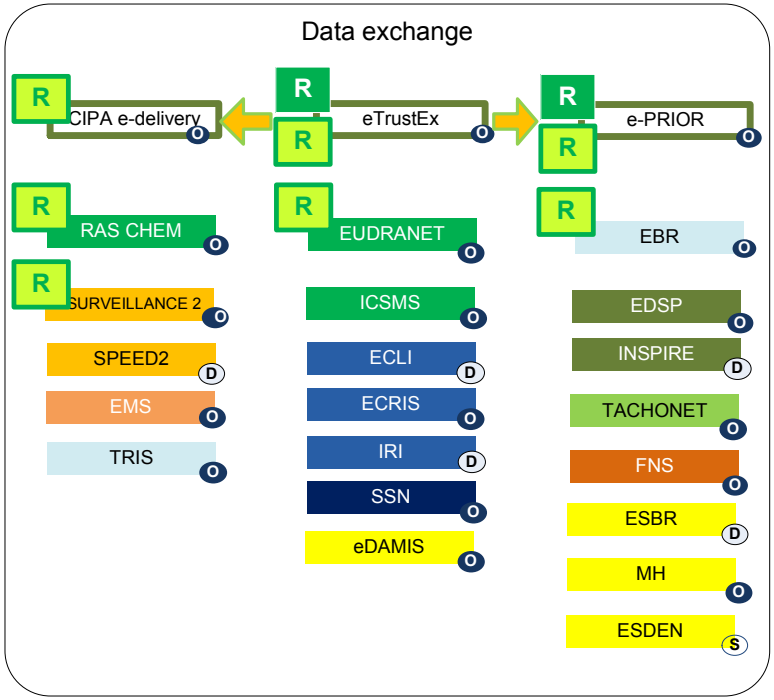
From a high level perspective XML Gate supports the collection of structured information and transfer to back-office systems in charge of the information processing.

# EIC.Reuse a Data exchange service



**21 TES relies on a data exchange component and 2 TES were built to support cross border data exchange.**

**4** reusable data exchange components **are part of a TES and can potentially be offered for reuse**



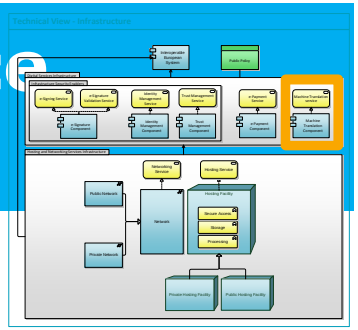

## Focus on

**2 were built specifically for data exchange purposes and are cross sectoral:**

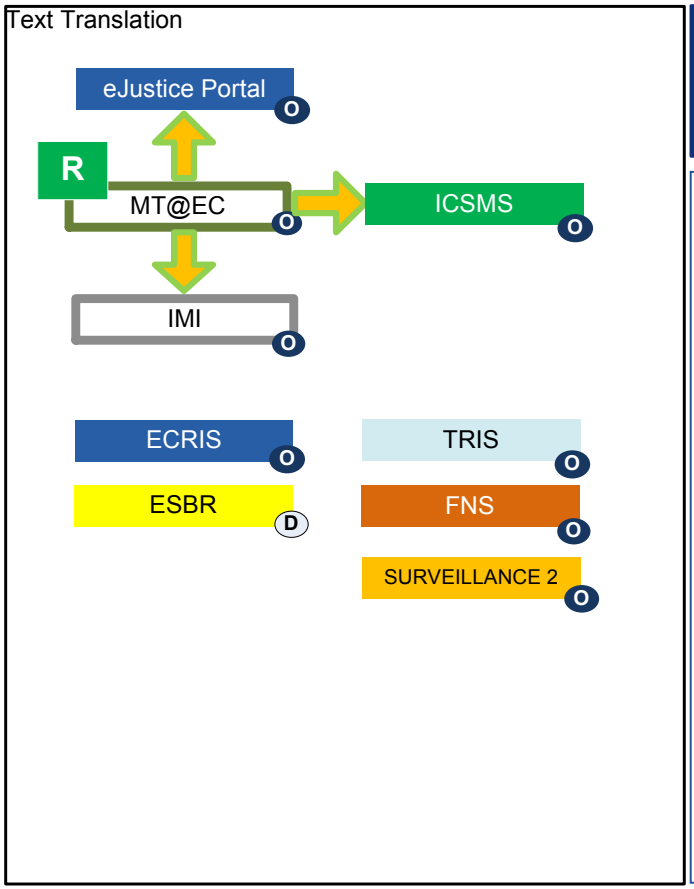
- **e-TrustEx** (reused by Cipa e-delivery and e-Prior)
- **Cipa e-delivery**

**e-TrustEx is available also as services.**

# EIC. Reuse a machine translation service



**8 TES relies on a text translation component and 1 TES is providing a text translation service to others.**




## Focus on

**MT@EC is a service operated by DGT.** Users can directly request a translation and have it delivered without any further intervention from a professional translator or the DGT translation workflow.

**Trans-European Solutions already reusing the MT@EC service are:**

- **IMI** (DG MARKT)
- **e-Justice Portal** (DG JUST)
- **ICSMS** (DG ENTR)

# Cartography Tool

- The EU Cartography is stored in the Cartography tool's database.
- The tool provides a graphical user interface that reproduces the European Interoperability Reference Architecture (EIRA) diagram
- Users of the Cartography tool can **perform queries** on the EU Cartography and visualise the queries results in a **tabular view** or in the graphical interface (EIRA Diagram and EIRA Views)**.**
- Users can add existing solutions building blocks to the EU Cartography, by using a structured excel file. This file can be parsed by the tool, which will update the EU Cartography accordingly.