An introduction to the European Interoperability Reference Architecture v0.9.0 (EIRA)

EIRA

EUROPEAN
INTEROPERABILITY
REFERENCE
ARCHITECTURE

This study was prepared for the ISA Programme by:

PwC EU Services

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1 INTRODUCTION

This document provides an introduction to the European Interoperability Reference Architecture (EIRA), which has been developed in the context of Action 2.1 of the Interoperability Solutions for European Public Administrations (ISA) Programme. The EIRA is a reference architecture focused on the interoperability of digital public services. It is composed of the most important architecture building blocks needed to promote cross-border and cross-sector interactions between public administrations. The latest release of the EIRA is available on Joinup[1].

1.1 Purpose of this document

This document introduces the reader to the EIRA.

1.2 Structure of this document

This document consists of the following sections:

- **Section 1** (this section) elaborates on the purpose and structure of this document;

- **Section 2** provides an overview of the EIRA. It includes background information and elaborates on its objectives, target users and use cases, expected benefits, user community and continuous improvement;

- **Section 3** provides further insight in a number of key concepts related to the EIRA. It also provides insight on how to use EIRA in combination with the ArchiMate [1] notation and Archi; and

- **Section 4** provides an overview of the EIRA views and its architecture building blocks.

- **Section 5** contains a glossary;

- **Section 6** contains references;

- **Section 7** provides the acknowledgement; and

- **Section 8** contains the EIRA views and the definitions of the EIRA ABBs.

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[1] https://joinup.ec.europa.eu/asset/eia/description

2 OVERVIEW OF THE EIRA

This section gives an overview of the European Interoperability Reference Architecture (EIRA).

2.1 Background

The modernisation of public administrations, fostered by technological advancements, leads to a rapidly growing amount of **information exchanges between public administrations** (across borders and sectors). To facilitate these information exchanges, the **need for interoperability** in Europe is higher than ever. Solution developers in all domains of the public sector often deem interoperability and reusability essential to a solution design. To attain interoperability, public administrations in Europe need **to coordinate** across borders and sectors **when developing digital solutions** to avoid the risk of creating new digital barriers for administrations, businesses, and citizens. They have the following needs:

- o **Need for a *common terminology* to design, assess, and communicate about e-Government solutions**: public administrations need a common terminology to design, assess, communicate about, and find solutions building blocks (frameworks, tools, services) used to deliver interoperable digital public services;

- o **Need for a *stable interfaces* for digital public services:** public administrations need to define stable interfaces between digital public services, so that others can rely on them to build new, aggregated digital public services;

- o **Need for an *overview of already existing solution building blocks***: public administrations need to be aware of already existing solution building blocks that have been developed by others.

The ISA Programme is providing concrete interoperability solutions that contribute to making the modernisation of public administrations a success story. It, among others, developed the **European Interoperability Reference Architecture (EIRA)** [2] to guide public administrations in their work to provide interoperable European public services to other public administrations, businesses and citizens.

The EIRA is a four-view reference architecture for delivering interoperable digital public services across borders and sectors. It defines the required capabilities for promoting interoperability as a set of architecture building blocks (ABBs). The EIRA has four main characteristics:

1. **Common terminology to achieve a minimum level of coordination:** It provides a set of well-defined ABBs that provide a minimal common understanding of the most important building blocks needed to build interoperable public services.

2. **Reference architecture for delivering digital public services:** It offers a framework to categorise (re)usable solution building blocks (SBBs) of an e-Government solution. It allows portfolio managers to rationalise, manage and document their portfolio of solutions.

3. **Technology- and product-neutral and a service-oriented architecture (SOA) style**: The EIRA adopts a service-oriented architecture style and promotes ArchiMate as a modelling notation. In fact, the EIRA ABBs can be

seen as an extension of the model concepts in ArchiMate, as explained in Section 3.1.

4. **Alignment with EIF and TOGAF:** The EIRA is aligned with the European Interoperability Framework (EIF) [3] and complies with the context given in the European Interoperability Strategy (EIS) [4]. The views of the EIRA correspond to the interoperability levels in the EIF: legal, organisational, semantic and technical interoperability. Within TOGAF and the Enterprise Architecture Continuum, EIRA focuses on the architecture continuum. It re-uses terminology and paradigms from TOGAF such as architecture patterns, building blocks and views.

2.2 Objectives

The EIRA has the following objectives:

1. **Designing:** accelerate the design of e-Government solutions that support the delivery of interoperable digital public services (across borders and sectors);
2. **Assessing:** provide a reference model for comparing existing architectures in different policy domains and thematic areas, to identify focal points for convergence and reuse;
3. **Communicating and sharing:** help documenting the most salient interoperability elements of complex solutions and facilitate the sharing of (re)usable solutions.
4. **Discovering and reusing:** ease the discovery and reuse of interoperability solutions through the Cartography Tool[2].

2.3 Target users and use cases

The EIRA targets the following users within public administrations of Member States or EU institutions:

- **Architects** responsible for the design of solution architectures;

- **Business analysts** responsible for assessing and to study the impact of changes in the (external) environment on IT systems;

- **Portfolio managers** responsible for maintaining the catalogue of assets related to the design and implementation of e-Government solutions and for making investment decisions on these assets.

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[2] The Cartography Tool is a companion to the EIRA for searching for documented solutions. Currently the Cartography Tool is a proof-of-concept and can be accessed online following an access-demand procedure on https://joinup.ec.europa.eu/asset/eia/issue/accessing-cartography-tool. This document focuses only on the EIRA. The Cartography Tool is out of scope for this document.
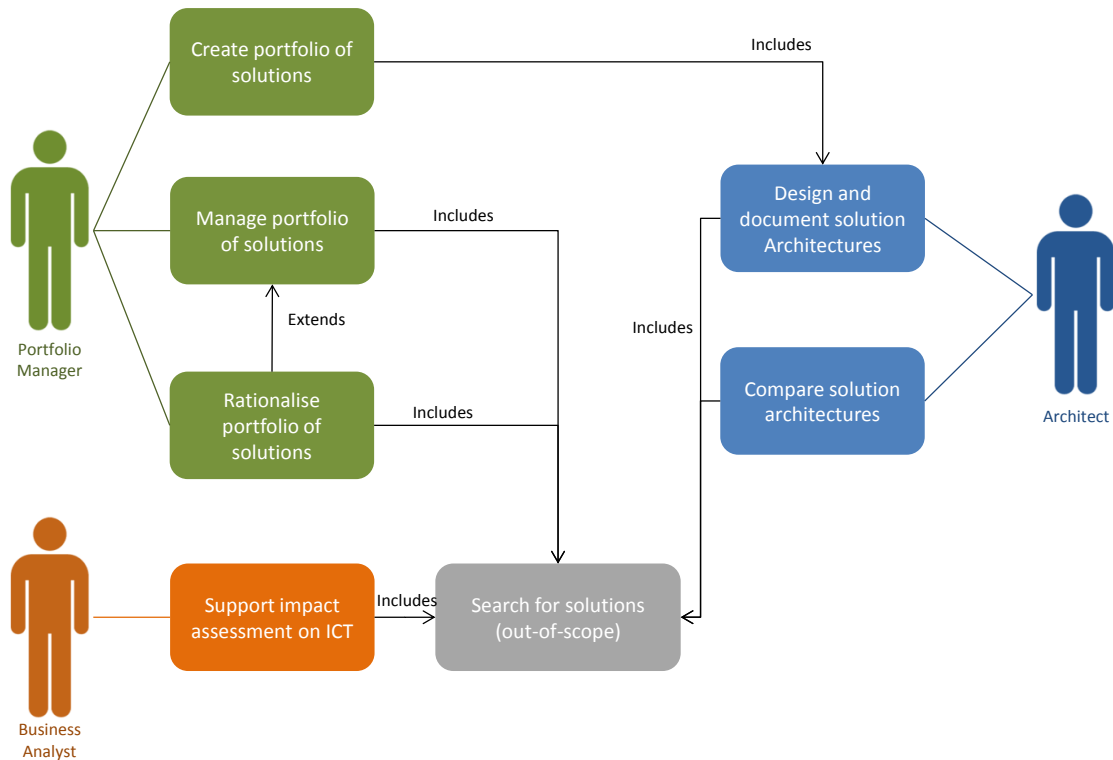
Figure 1 - Target users and their use cases within the EIRA

Figure 1 above depicts the target users and use cases. Each use case has the following motivation and outcome:

- **Design and document solution architecture use case**

  - **Motivation:** the user needs to design the solution architecture of a new solution that must support interoperability with Member States and/or EU institutions and document existing solution building blocks.

  - **Outcome:** a solution architecture is created, as a collection of interoperable SBBs (optionally) mapped to a solution architecture template.

- **Compare solution architectures use case**

  - **Motivation:** the user has already a solution architecture in place (SBBs of the architecture are already operational in his/her organisation) and needs to assess and increase the interoperability maturity level.

  - **Outcome:** the interoperability maturity of the solution architecture is assessed (per SBB). The solution architecture is updated by including new solutions discovered on the Cartography Tool or by upgrading the existing solutions to be compliant with the interoperability requirements.

- **Create portfolio of solutions use case**

  - **Motivation:** the user wants to create a portfolio of the applications/solutions of his/her organisation, and needs a structured model that can facilitate the share and reuse of these solutions with other European partners.

  - **Outcome:**

    1. A new portfolio of solutions is created, mapped to the EIRA ABBs.

2. "Interoperable" solutions are identified, and (optionally) shared with other partners.

- **Manage portfolio of solutions use case**

  - **Motivation:** due to new circumstances (e.g. budget constraints, new interoperability needs etc.), the existing IT portfolio of the user's organisation needs to be managed by adding, updating or phasing out solutions.

  - **Outcome:**

    1. The existing IT portfolio is mapped to the EIRA.

    2. New re-usable interoperability solutions (from the Cartography Tool) are added to the portfolio.

    3. The solutions in the existing portfolio to be updated, merged or phased out are identified.

- **Rationalise portfolio of solutions use case**

  - **Motivation:** Multiple SBBs in the portfolio of the organisation are mapping to the same BB of the EIRA. The user wants to reduce the number of solutions in the portfolio while increasing the average interoperability maturity level of the portfolio.

  - **Outcome:**

    1. The IT portfolio in the organisation is rationalised; "superfluous" and "to be merged" solutions are identified in the portfolio.

    2. The most interoperable solutions are kept in the IT portfolio.

- **Structure impact assessment on ICT use case**

  - **Motivation:** the user wants to describe the architecture and interoperability implications of a new or existing policy or thematic domain.

  - **Outcome:** the architecture and interoperability implications of a policy or thematic domain are structured according to the EIRA. The ABBs and relationships that are impacted whenever a change occurs are identified.

2.4 Expected benefits

The common use of the EIRA when developing, assessing, and communicating about e-Government solutions will result in **network effects**, enhancing the coordination between public administrations at EU level and within the Member States. The common use of the EIRA will result in the following benefits:

- **Development of more interoperable e-Government solutions**: The consistent use of the EIRA when developing e-Government solutions will make them more interoperable, for the following reasons:

  o The EIRA provides a *common language* of architecture building blocks for the design and comparison of the solution architectures of e-Government solutions;

  o The EIRA promotes the identification and use of **common interoperability specifications**, which hare to provide a basis for **stable interfaces** between digital public services;

- o The EIRA will contribute to an increased awareness and usage of EIF principles and recommendations.

- o Increased application of the principles of service-oriented architecture (SOA).

- **Cost-savings due to better assessment of solution portfolios**: The EIRA will contribute to realising cost-savings related to rationalisation of the portfolio of solutions and solution building blocks (e.g. phasing out superfluous SBBs; or making building blocks more generic to be more generally applicable.);

- **Cost-savings via increased findability**: the EIRA and EU Cartography provide a consistent way to document and classify reusable solution building blocks, allowing reusable and interoperable solution building blocks to be found and understood more easily.

2.5 User community on Joinup

The ISA Programme created a user community for the EIRA on Joinup, the online collaborative platform of the ISA Programme. This EIRA user community is accessible via the following link: https://joinup.ec.europa.eu/asset/eia/description.
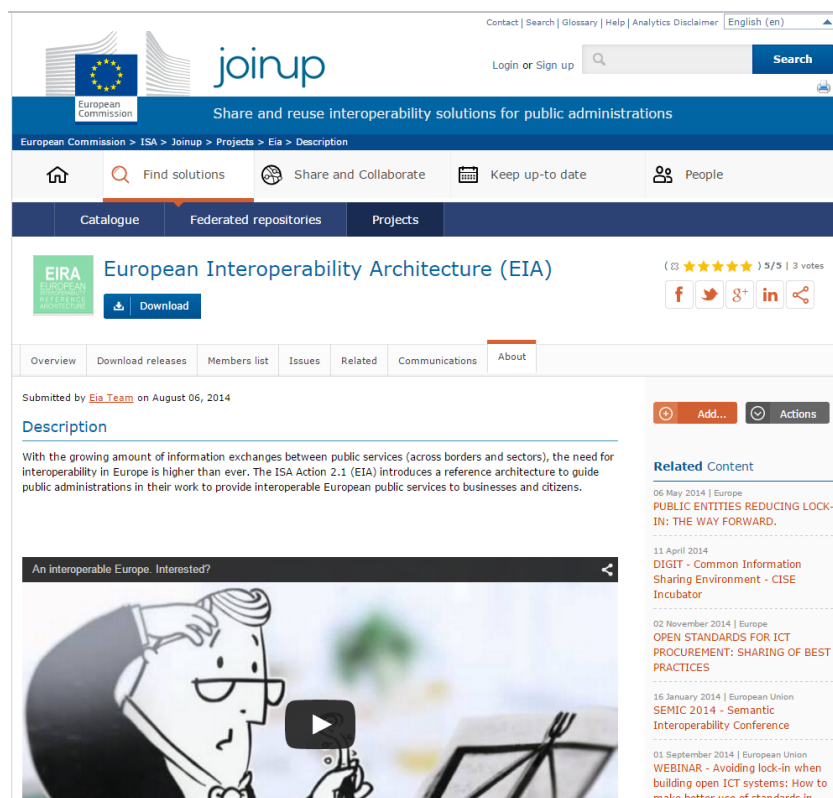
Figure 2 – Screenshot of the EIRA community on Joinup

The community supports the use of the EIRA. It allows visitors to do the following:

- **Background material:** find background material and general introductory material on how to use the EIRA;

- **EIRA releases:** find and download the latest release of the EIRA;

- **Comments and issues:** discuss the EIRA and submit and track EIRA issues; and

- **Peers:** identify other users of the EIRA.

2.6 Continuous improvement

As the EIRA is being applied, new challenges and ideas for the EIRA arise and need to be managed. Therefore the ISA Programme welcomes feedback, additional thoughts, and open dialog on the idea of advancing the EIRA. To facilitate this, the ISA Programme set up a) an open change and release management process for the EIRA. Stakeholders working for public administrations in the field of architecture and interoperability can provide their comments on the EIRA release page on Joinup (registration and/or login is required). More information about this process can be found in the EIRA community on Joinup. The EIRA community on Joinup also contains the latest releases of the EIRA and change logs.

3   KEY CONCEPTS AND USED ARCHIMATE NOTATION

This section elaborates on the key concepts behind EIRA. It also explains how the ArchiMate language is used by the EIRA and how ArchiMate modelling tools can be used to design solution architectures and document solutions.

3.1 Key concepts in EIRA

Figure 3 illustrates the key concepts of the EIRA and their relationships. The terminology is based on TOGAF [5].
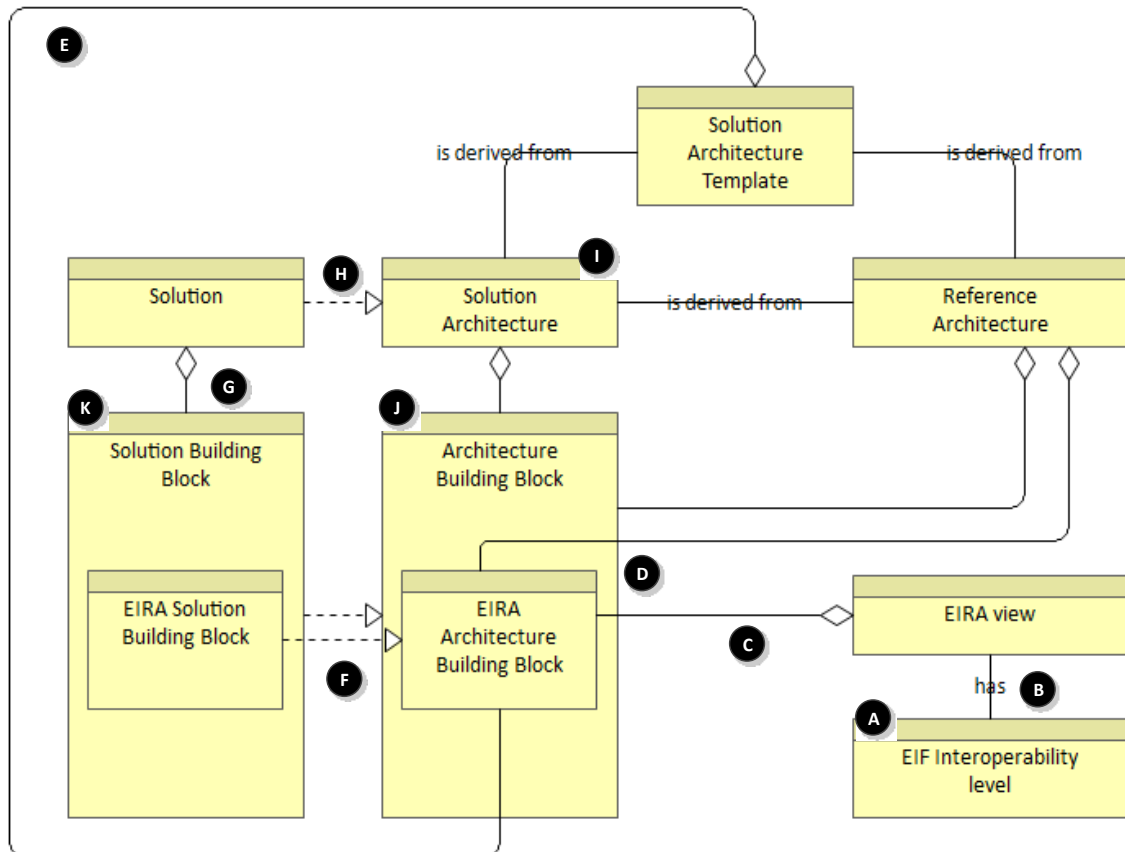
Figure 3 – Key concepts in EIRA

The following list explains the different relationships depicted in Figure 3:

A. The EIRA is derived from the European Interoperability Framework (EIF);
B. The EIRA has one view for each EIF interoperability level;
C. Each EIRA view contains several EIRA ABBs;
D. EIRA ABBs can be used to create reference architectures;
E. A SAT addresses a certain interoperability need. It consists of a sub-set of the most important EIRA ABBs and is derived from a reference architecture;
F. An EIRA SBB realizes one or more EIRA ABB;
G. A (interoperable) solution consists of one or more SBBs;
H. A (interoperable) solution realizes a solution architecture;
I. A solution architecture can be derived from a SAT or directly from a reference architecture;
J. As the EIRA focuses only on the most important ABBs needed for interoperability, other ABBs (= non-EIRA ABBs) can exist;

K. Similar to ABBs, non-EIRA SBBs can exist next to EIRA SBBs.

The key concepts of the EIRA are defined as follows:

1. **EIF interoperability level:** The European Interoperability Framework (EIF) [3] is a set of guidelines for developing public services. Figure 4 depicts the interoperability levels of the EIF. They cover, within a given political context, the legal, organisational, semantic and technical interoperability. Each level deserves special attention when a new European public service is established.

Cooperating partners with compatible visions, aligned priorities, and focused objectives — **Political Context**

Aligned legislation so that exchanged data is accorded proper legal weight — **Legal Interoperability** — **Legislative Alignment**
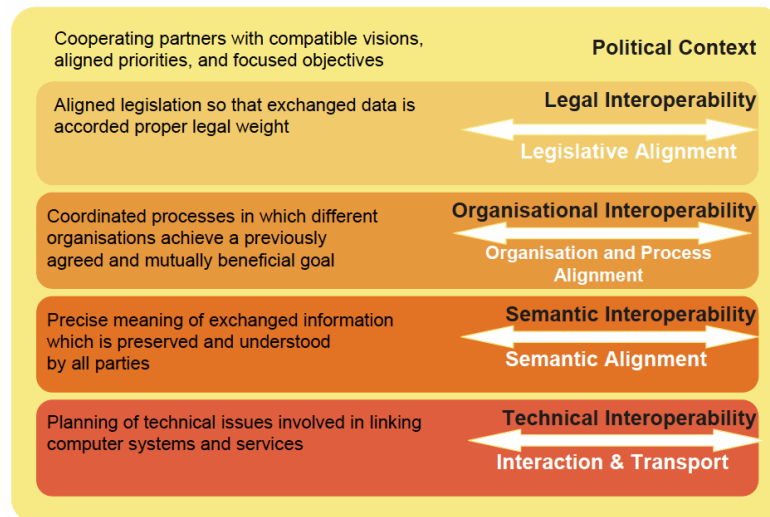
Coordinated processes in which different organisations achieve a previously agreed and mutually beneficial goal — **Organisational Interoperability** — **Organisation and Process Alignment**

Precise meaning of exchanged information which is preserved and understood by all parties — **Semantic Interoperability** — **Semantic Alignment**

Planning of technical issues involved in linking computer systems and services — **Technical Interoperability** — **Interaction & Transport**

Figure 4 - Interoperability levels of the EIF [3]

2. **EIF principle:** The European Interoperability Framework outlines 12 underlying principles of European public services. These general principles of good administration are relevant to the process of establishing European public services. They describe the context in which European public services are decided and implemented. They complement one another regardless of their different natures, e.g. political, legal or technical. More information on the EIF interoperability levels and principles can be found in the European Interoperability Framework [3].

3. **EIRA view:** The EIRA consists of several views, including one view for each of the EIF interoperability levels.

4. **Architecture Building Block:** Based on the TOGAF definition [5], an architecture building block is an abstract component that captures architecture requirements and that directs and guides the development of solution building blocks. An ABB represents a (potentially re-usable) component of legal, organisational, semantic or technical capability that can be combined with other architecture building blocks. An architecture building block describes generic characteristics and functionalities. Architecture building blocks are used to describe reference architectures, solution architecture templates or solution architectures of a specific solutions.

5. **Solution Building Block:** Based on the TOGAF definition [5], a solution building block is a concrete element that implements the required capabilities of

one or more architecture building blocks. On the technical view, a solution building block is a specific product or software component.

6. **Solution Architecture Template (SAT):** A solution architecture template (SAT) is a *sub-set* of architecture building blocks of the EIRA. It focuses on the most salient building blocks needed to build an interoperable solution addressing a particular interoperability *need*.

   A solution architecture template can include additional interoperability specifications. It is usually applied within a community. Acting as a template for solutions (and their specific architectures), it guides the development of a certain kind of solutions (and their specific architectures). A solution architecture template can exist on different levels of details. For example, it can be used to describe a template for national portals offering e-services to its citizens. It can also be used to describe a template on how to securely exchange files among public administrations.

   A solution architecture template consists of the following:

   - A description of the particular interoperability need;

   - A sub-set of EIRA architecture building blocks;

   - A set of interoperability specifications;

   - A narrative for each EIRA view.

7. **Reference Architecture:** The EIRA is a sector-neutral reference architecture from where other reference architectures can be derived from. The EIRA consists of the following:

   - A description of the particular interoperability need;

   - Set of EIRA architecture building blocks to meet interoperability needs;

   - Set of *additional* architecture building blocks to meet functional or sector/domain specific needs;

   - Set of interoperability specifications;

   - A narrative for each view.

8. **Solution Architecture:** Based on TOGAF, a solution architecture is "a description of a discrete and focused business operation or activity and how information systems / technical infrastructure supports that operation. A Solution Architecture typically applies to a single project or project release, assisting in the translation of requirements into a solution vision, high-level business and/or IT system specifications, and a portfolio of implementation tasks". Within the context of the EIRA, the solution architecture describes the specific architecture of a solution. It can be derived from a solution architecture template.

9. **Solution.** A solution consists of one or more solution building blocks to meet a certain stakeholder need. Within the context of the EIRA, a solution is usually an Interoperable European Solution developed by public administrations that facilitate the delivery of electronic Public Services and cross-border exchange of information between public administrations (or Citizens) in support to the implementation and advancement of EU, national or local public policies.
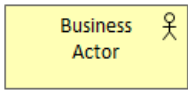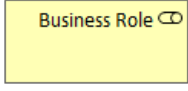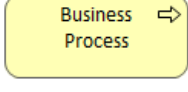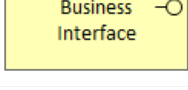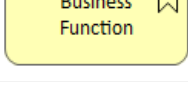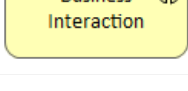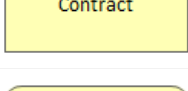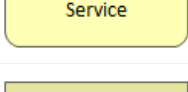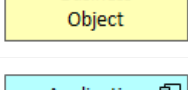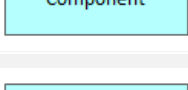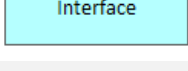
3.2 ArchiMate notation
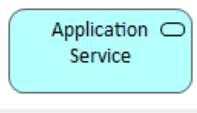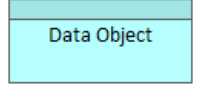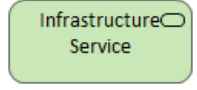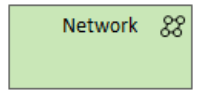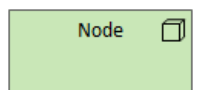
The EIRA uses the ArchiMate language as a notation. In fact, the EIRA can be considered as an *extension* of the ArchiMate language, using two of the extension mechanisms foreseen by ArchiMate [1]: specialisation (stereotyping) and attributes. This section first provides an overview of the ArchiMate model concepts that are used by the EIRA. It then elaborates on how EIRA ABBs can be seen as a specialisation of ArchiMate model concepts. Finally, it elaborates on the attributes on model concepts that are predefined by the EIRA.

3.2.1 ArchiMate model concepts

The EIRA uses the following ArchiMate model concepts [1]:
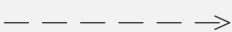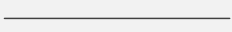
Table 1 - ArchiMate model concepts used in EIRA [1]

Model concept	Definition
Business Actor	A *business actor* is defined as an entity that performs behaviour in an organisation such as *business processes* or *functions*.
Business Role	A *business role* is defined as a named specific behaviour of a *business actor* participating in a given context. The actor performs the behaviour of the role.
Business Process	A *business process* is defined as a unit of internal behaviour or collection of causally-related units of internal behaviour intended to produce a defined set of products and services.
Business Interface	A *business interface* declares how a *business role* connects with its environment.
Business Function	A *business function* describes internal behaviour performed by a *business role* that is required to produce a set of products and services. It is performed by a single role within an organisation.
Business Interaction	A *business interaction* is defined as a unit of behaviour performed as a collaboration between two or more *business roles*.
Contract	A *contract* is defined as a formal or informal specification of an agreement that specifies the rights and obligations associated with a *product*.
Business Service	A *business service* is defined as the externally visible ("logical") functionality, which is meaningful to the environment and is realized by business behaviour (*business process, business function, or business interaction*).
Business Object	A *business object* is defined as a unit of information that has relevance from a business perspective.
Application Component	An *application component* is defined as a modular, deployable, and replaceable part of a system that encapsulates its contents and exposes its functionality through a set of interfaces.
Application Interface	An *application interface* declares how a *component* connects with its environment. An *application interface* specifies how the functionality of a component can be accessed by other components. An *application interface* exposes an *application service* to the environment. The *application service* may be exposed through different interfaces.

Application Service	An *application service* is defined as an externally visible unit of functionality, provided by one or more components, exposed through well-defined interfaces, and meaningful to the environment. An *application service* exposes the functionality of components to their environment.
Data Object	A *data object* is defined as a coherent, self-contained piece of information suitable for automated processing.
Infrastructure Service	An *infrastructure service* is defined as an externally visible unit of functionality, provided by one or more *nodes*, exposed through well-defined *interfaces*, and meaningful to the environment.
Network	A *network* is defined as a physical communication medium between two or more *devices*.
Node	A *node* is defined as a computational resource upon which *artifacts* may be deployed for execution.

The EIRA uses the following ArchiMate 2.1 relationships:

Table 2 - EIRA notation: relationships [1]

Relationship	Description	Relationship	Description
◆————	Composition	– – – – – →	Access
◇————	Aggregation	————▷	Specialisation
————→	Used by	————	Association
– – – –▷	Realisation	————▶	Triggering
●————●	Assignment		

3.2.2 Specialisation and stereotyping

The EIRA ABBs can be seen as a *specialisation* of ArchiMate model concepts. Specialisation is an extension mechanism for the ArchiMate language that is foreseen by the ArchiMate specification [1]. For example, Figure 5 models that the ABB 'Public Service' in EIRA is a specialisation of the ArchiMate model concept 'Business Service'.
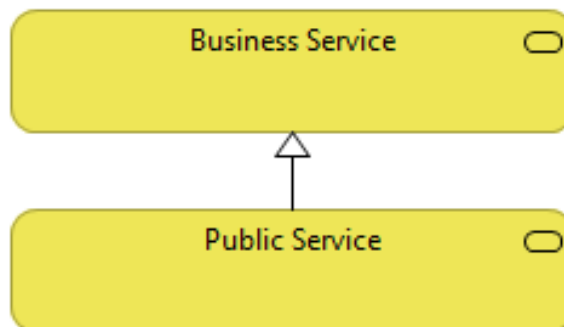
Figure 5 – Specialisation in the EIRA metamodel

The EIRA does not introduce a new graphical notation for a specialised ArchiMate model concept. However, when using EIRA in combination with ArchiMate to represent solution building blocks, it is recommended to use **stereotypes**, as indicated by <<stereotype>>. The word stereotype is replaced by the name of the architecture building blocks. For example, Figure 6 illustrates how a public service 'Declaration of birth' is represented as an EIRA 'Public Service' using stereotyping. In Section 4 an overview is given of the focal architecture building blocks in the EIRA. A solution architecture building block can relate to multiple architecture building blocks by delimiting the list as such : <<ABB_1, ABB_2, …, ABB_n>>.
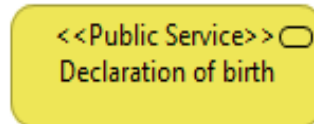
Figure 6 – Example: stereotyping of solution building blocks

3.2.3 Attributes

The ArchiMate language has another extension mechanism, which allows defining sets of types attributes (called profiles), which provide a means to express supplementary information [1]. The EIRA includes a set of attributes that stem from the following sources:

- **ADMS description metadata**: The Asset Description Metadata Schema (ADMS) [6] provides a standard way to *describe* solution building blocks. The ADMS is itself based on metadata standards like the Dublin Core metadata elements. Some attributes include for example:

  - **Description** (**dct:description)**: a description of the solution building block.

  - **Landing page (dcat:landingPage)**: A Web page that can be navigated to in a Web browser to gain access to the solution building block.

  - **Status (adms:status)**: The status of a solution building block. Suggested values[3] are 'completed', 'deprecated', 'underDevelopment', and 'withdrawn'.

  Describing solution building blocks using the ADMS attributes provides important descriptive metadata that can be used by others to better understand what a solution building block is about. This contributes to the 'Document interoperability solution' use case described in Section 2.3.

- **EIF principles**: The EIRA includes attributes that relate to the twelve principles of the European Interoperability Framework (EIF) [3]. The attributes indicate whether or not a solution adheres to a specific principle of the European Interoperability Framework. These attributes start with {eif_principlex} where X is the principle number.

The full set of attributes are included in the Archi (.archimate) file of EIRA releases [2].

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[3]

https://joinup.ec.europa.eu/svn/adms/ADMS_v1.00/ADMS_SKOS_v1.00.html#http://purl.org/adms/status/1.0

3.2.4 Use of colours

The default views of the EIRA leverage the standard colours of ArchiMate to depict the corresponding architecture building blocks: business (yellow), application (green) and infrastructure (green). However the EIRA recognises the architects' needs to leverage colour codes for communication purposes. It therefore does not impose any colouring rules.

3.3 Tool support

This section illustrates how architects can use ArchiMate modelling tools like Archi[4] to model solution architectures or to document solutions.

The EIRA release [2] contains an Archi file which contains the ArchiMate model of the EIRA. This Archi file can be opened with Archi, a free and open source modelling tool to create ArchiMate models and sketches.

The Archi file groups the different building blocks, relations and views into the following folders:

- Business

    o **Deprecated:** deprecated building blocks from pervious EIRA versions;

    o **Interoperability View Concepts:** building blocks from the interoperability view;

    o **Legal View Concepts:** building blocks from the legal view;

    o **Organisational View Concepts:** building blocks from the organisational view;

    o **Semantic View Concepts:** building blocks from the semantic view of ArchiMate business concepts type.

- Application

    o **Deprecated:** deprecated building blocks from pervious EIRA versions;

    o **Semantic View Concepts:** building blocks from the semantic view of ArchiMate application concepts type;

    o **Technical View – Application Concepts:** building blocks from the technical view application;

    o **Technical View – Infrastructure Concepts:** building blocks from the technical view infrastructure of ArchiMate application concept type.

- Technology

    o **Deprecated:** deprecated building blocks from pervious EIRA versions;

    o **Technical View – Infrastructure Concepts:** building blocks from the technical view infrastructure.

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[4] http://archimatetool.com/

- Relations
    - This folder contains all relations shown on the EIRA views;
    - **Relations only in the model:** relations between concepts that are needed in the model but not in the view. For example, all application services are specialisations of the Application Service building block.
- Views
    - This folder contains all default EIRA views, wich express the EIRA architecture content metamodel.

Note: It is possible to work directly within the standard EIRA views. However, best practice is to create new views to keep the integrity of the standard EIRA views. The standard EIRA views can then still be consulted for reference purposes.

To start creating a solution architecture in Archi, architects can create new views by right-clicking on the 'Views' folder and selecting 'New ArchiMate view' as seen in Figure 7 below.
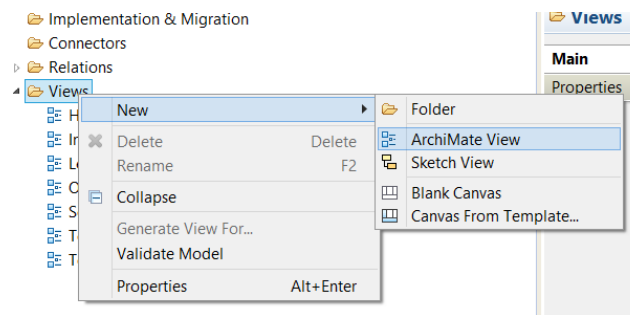
Figure 7 – Screenshot: creating a solution architecture in Archi

Architects can then copy the necessary building blocks from the standard EIRA views. A copied building block will retain its initial attributes and associations. It is recommended to use stereotyping as described in Section 3.2.2.

Information about solution building blocks can be captured with the help of attributes, as shown in Figure 8 below, showing the attributes of the European Commission Authentication Service (ECAS). Archi allows the creation of custom attributes to document additional information, if needed.
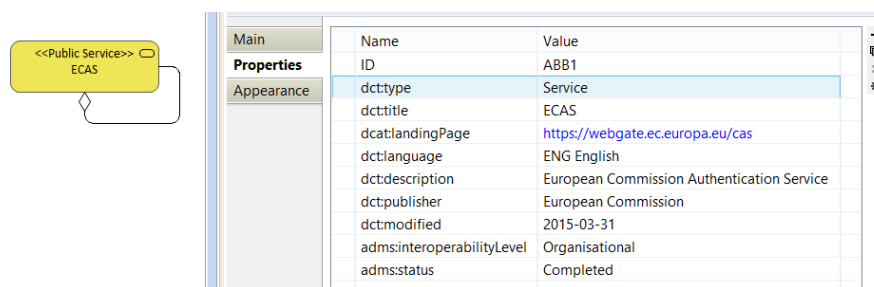
Figure 8 – Screenshot: attributes of the ECAS solution building block in Archi

Exporting to HTML: The model can be exported to HTML. To do so, select in Archi: File - Report - HTML. The resulting folder will contain a HTML mini-site.

4 VIEWS AND ARCHITECTURE BUILDING BLOCKS

This section provides a description of the views and most important (focal) architecture building blocks in the EIRA. Each architecture view has a visual diagram, a narrative, and a set of focal architecture building blocks:

- The **visual diagram** depicts the architecture building blocks in the EIRA. It can be conceived as a part of the EIRA architecture content metamodel, which extends the ArchiMate model concepts, as explained in Section 3.2.2. It shows how the EIRA architecture building blocks are related to each other, and which ArchiMate concepts are used to depict them.

- The **narrative** is a textual description of the view providing natural language statements.

- The **focal architecture building blocks** are building blocks that create the interconnections with architecture building blocks related to other views.

The remainder of this section introduces the architecture building blocks in the EIRA structured according to the following diagrams.

- The EIRA high-level overview;

- The legal view;

- The organisational view;

- The semantic view;

- The technical view (composed of an application and infrastructure part); and

- The interoperability specification underpinning view.

Given the size of the models, the images in this section had to be scaled down. However, full width images are available in the annex of this document together with the list of building blocks.

4.1 EIRA high-level overview

The EIRA high-level overview, depicted in Figure 9, visualises the focal architecture building blocks of each view. It provides an introductory overview of the most important EIRA ABBs. It aligns the EIRA with the service delivery model described within the Interoperability Maturity Model[5] (IMM) [7] and the EIF conceptual model for public services depicted Figure 6.
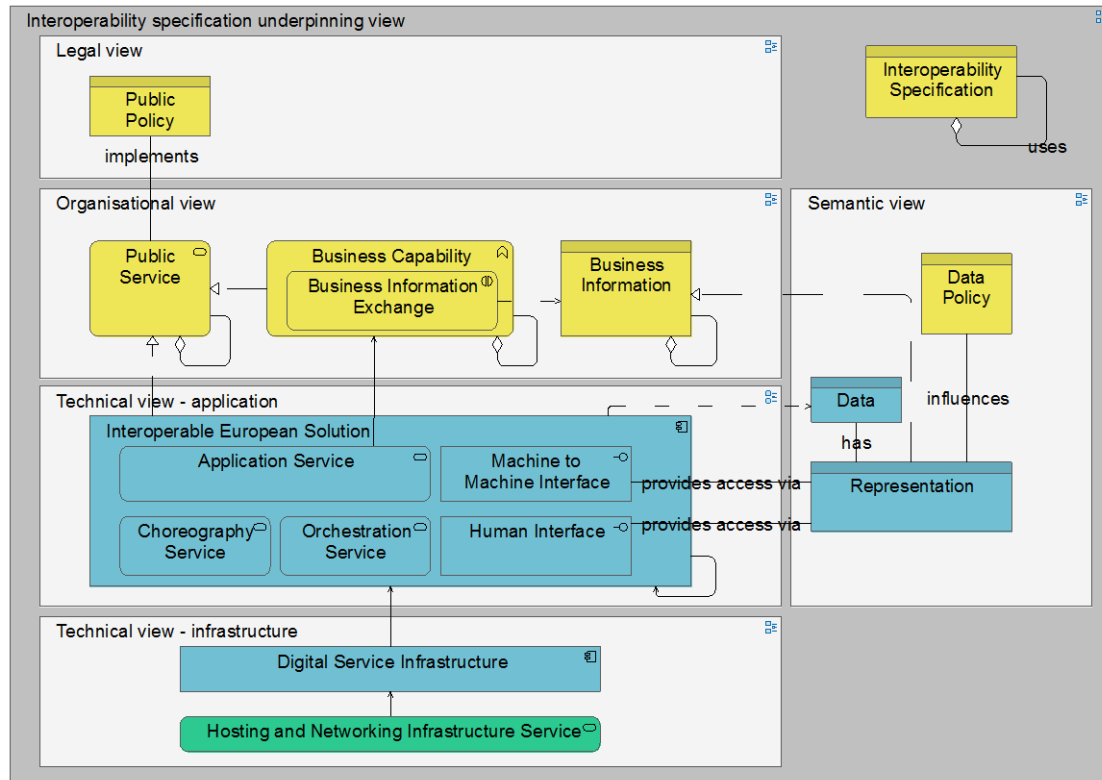
Figure 9 – EIRA high-level overview [2]

The EIRA embeds this alignment as follows:

On the organisational view, the users consume public services, which can be basic or aggregated public services, via a service delivery model.

An IES, which facilitates the delivery of a public service, has orchestration and choreography services on the technical application view.

On the technical application view, an IES has services for secure communications management and for secure data exchange and management.

On the technical application view, an IES has human or machine-2-machine interfaces to leverage external services.
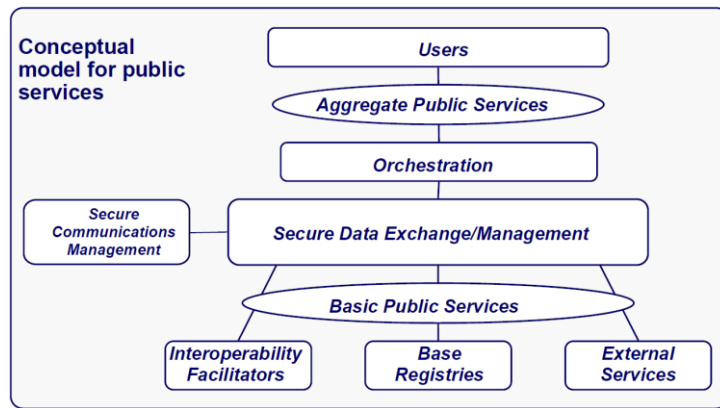
Figure 10 - EIF conceptual model for public services [3]

The overview embeds this conceptual model of a reusable Interoperable European Solution [3], depicted in Figure 11. It is modelled as:

- One or more software components provide services that are public service neutral (application component);

- One or more interfaces (human or machine-to-machine);

- One orchestration service specific to the supported public service;

- One or more IES services (such as application mediation enablers, workflow enablers);

- One or more DSI services (such as collaboration enablers and infrastructure mediation enablers); and

- One choreography services specific to the supported public service.
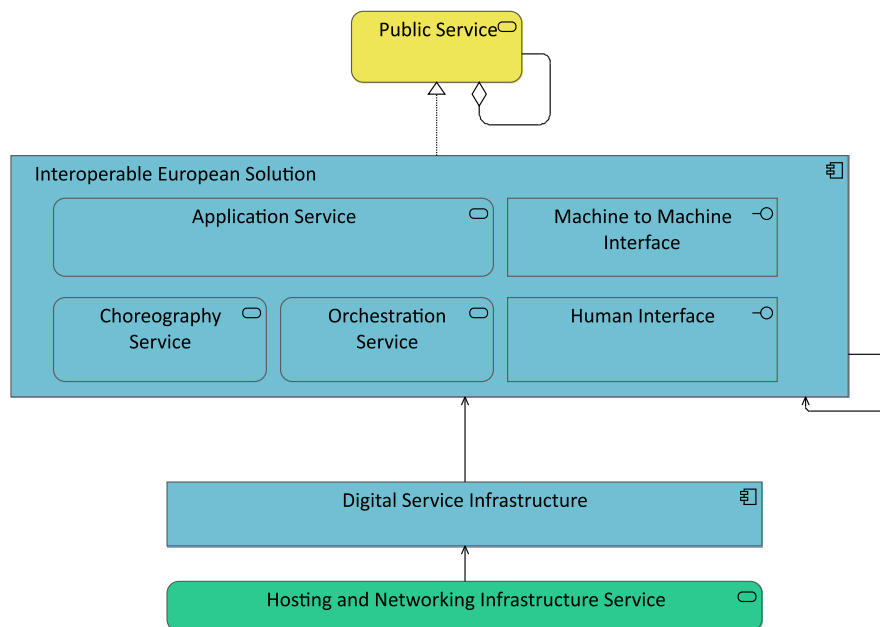
Figure 11 – EIRA's Interoperable European Solution [7]

The EIRA with its views provides a set of architecture building blocks, important to facilitate interoperability. Each view, one for each interoperability level, is represented with the Focal architecture building blocks needed to deliver an interoperable solution. These Focal architecture building blocks are indicated with an accented colour.

Narrative: A [Public Policy] is implemented by a [Public Service] which can be an aggregation of other [Public Services] . The [Public Service] is realised by [Business Capability] describing key functions supporting the service. A [Business Capability] can contain [Business Information Exchanges] which describe interactions between public administrations, businesses, and citizens. A [Business Information Exchange] accesses [Business Information] realized by a [Representation] of [Data]. The representation is influenced by [Data Policy], which may in turn be influenced by [Public Policy]. An [Interoperable European Solution] supports one or more [Public Services] and lets users access it via [Machine to Machine Interfaces] and [Human Interfaces]. An [Interoperable European Solution] exposes [Application Services] via its [Machine to Machine Interface] and Human Interface]. It makes use of [Orchestration Services] and [Choreography Services]. The [Interoperable European Solution] uses [Digital Service Infrastructure] and [Hosting and Networking Infrastructure Service]. It can also use other [Interoperable European Solutions].

4.2 Legal view

The Legal view models the most important public policy development enablers and implementation instruments that shall be considered in order to support legal interoperability.
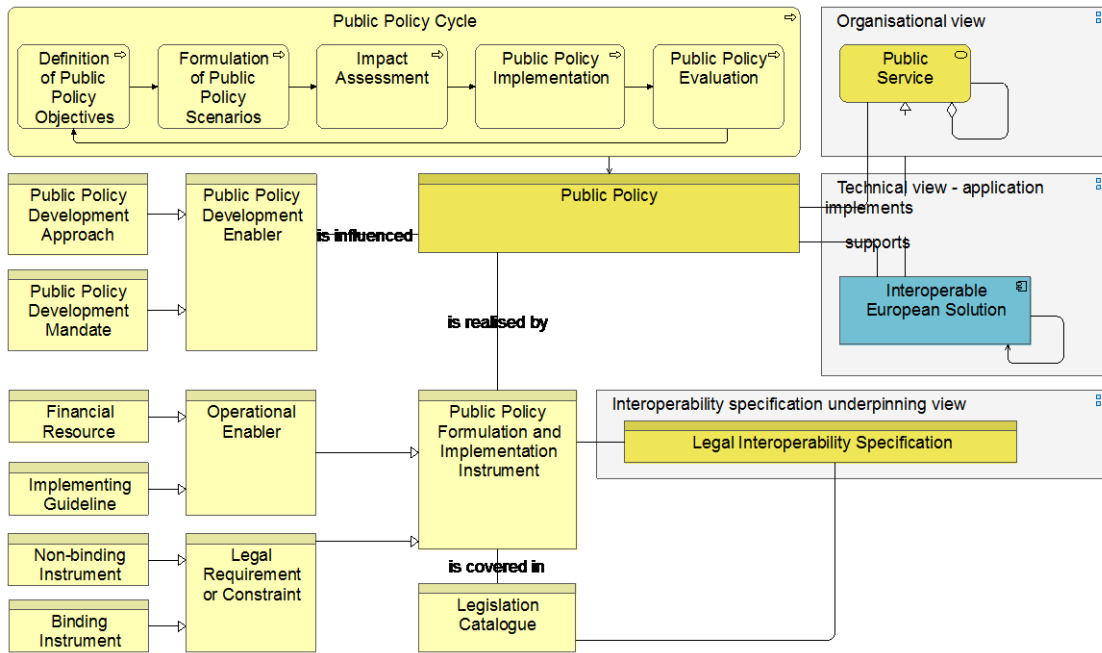
Figure 12 – Legal view of the EIRA [2]

Narrative: A [Public Policy] is the outcome of a specific [Public Policy Cycle] that aims at addressing the needs of a group of stakeholders. The Public Policy Cycle consists of the following subsequent steps: [Definition of Public Policy Objectives], [Formulation of Public Policy Scenarios], [Impact Assessment], [Public Policy Implementation], and [Public Policy Evaluation].

The [Public Policy] is developed taking into account [Public Policy Development Enablers], which include a specific [Public Policy Development Approach] and a [Public Policy Development Mandate]. The policy is formulated and implemented with the help of [Public Policy Formulation and Implementation Instruments], which can be [Binding / Non-Binding Instruments], [Legal Requirements or Constraints],

and/or [Operational Enablers], in the form of [Financial Resources] and/or [Implementing Guidelines].

Focal architecture building block: Public Policy.

- A **Public Policy** is the whole of actions under a policy domain taken by a public authority to bring about social change in the medium and long term. It is based on certain values and objectives and is implemented using a variety of methods. It applies on the territory within which the authority is authorised to act [Eurovoc].

4.3 Organisational view

The Organisational view models the most important building blocks that shall be considered in order to support organisational interoperability among providers and users of a public service.
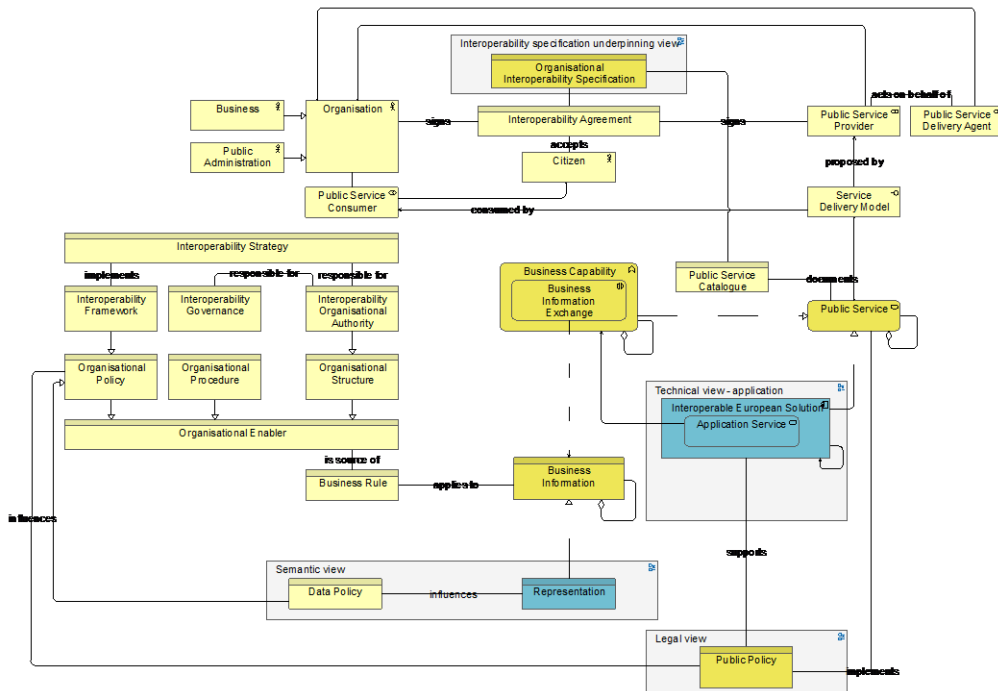
Figure 13 – Organisational view of the EIRA [4]

Narrative: [Organisations] in the role of [Public Service Providers] supply [Public Services] to [Citizens] and [Businesses] and/or [Public Administrations] which have the role of [Public Service Consumer]. The [Public Service] is delivered according to its [Service Delivery Model]. [Public Services] are documented in [Public Service Catalogues] that can be used among others for service portfolio management.

[Service Providers] can delegate the delivery of [Public Services] to [Service Delivery Agents] who will act on behalf of [Service Providers].

[Service Providers] can sign an [Interoperability Provider Agreement] to agree on how to deliver a [Public Service] to its users. The delivery of these public services is realised through [Business Capabilities] using [Business Information Exchanges] and [Business Information]. [Business Information] is subject to [Business Rules] originating from [Organisational Enablers] like [Organisational Structures], [Organisational Procedures] or [Organisational Policies] of the [Organisations] involved.

The [Interoperability Organisational Authority] is responsible for [Interoperability Governance] and the [Interoperability Strategy] which implements the [Interoperability Framework].

Focal architecture building blocks: Public Service, Business Capability, Business Information Exchange and Business Information.

- A **Public Service** are economic activities that public authorities identify as being of particular importance to citizens, businesses and public administrations and that would not be supplied (or would be supplied under different conditions) if there were no public intervention [DG Competition]. A public service is also the capacity to carry out a procedure and exists whether it is used or not. It is a set of deeds and acts performed by or on behalf of a public agency for the benefit of a citizen, a business or another public agency [CoreVoc].

- A **Business Capability** is the expression or the articulation of the capacity, materials and expertise an organization needs in order to perform core functions. Enterprise architects use business capabilities to illustrate the over-arching needs of the business in order to better strategize IT solutions that meet those business needs.

- A **Business Information Exchange** is a piece of business data or a group of pieces of business data with a unique business semantics definition in a specific business context [ISO15000-5, UN/CEFACT CCTS].

- **Business Information** is a piece of business data or a group of pieces of business data with a unique business semantics definition in a specific business context [ISO15000-5, UN/CEFACT CCTS].

4.4 Semantic view

The Semantic view models the most important building blocks that should be considered in order to support semantic interoperability of information exchanges between administrations, businesses and citizens.
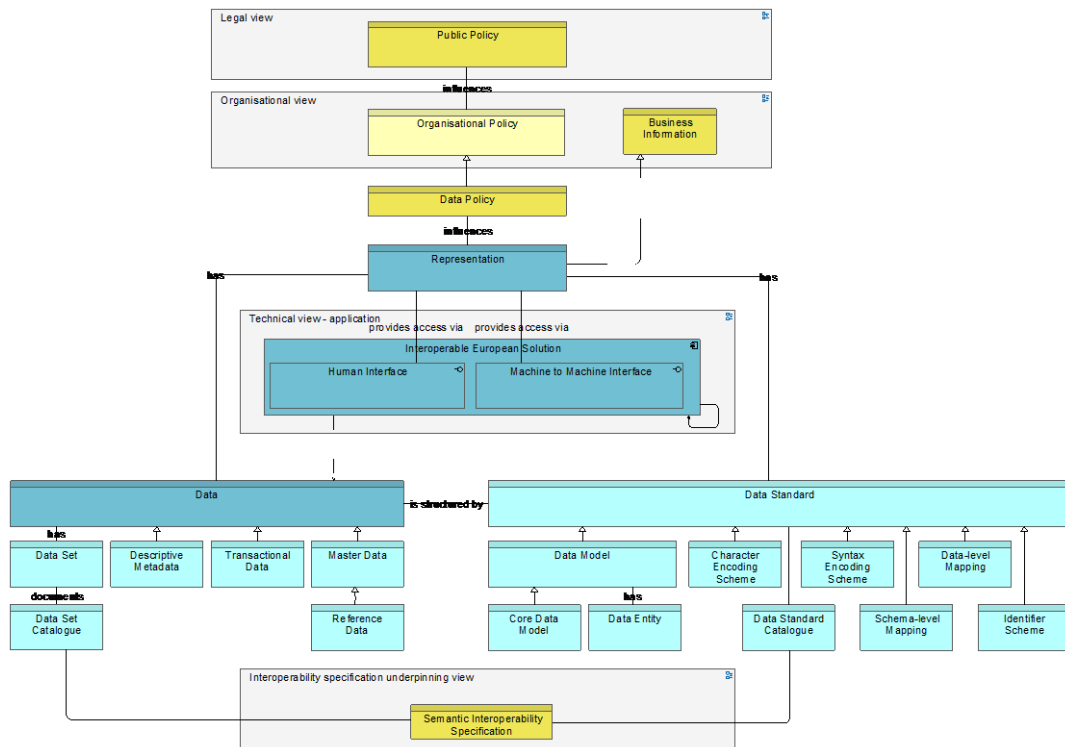
Figure 14 - Semantic view of the EIRA [2]

Narrative: [Business Information] is realised by a [Representation] of [Data] which is structured according to [Data Standards].

[Data] can be grouped in [Data Sets], which can be documented in [Data Set Catalogues]. [Master Data], [Transactional Data], and [Reference Data], and [Descriptive Metadata] are specialisations of [Data]. [Data] is structured according to [Data Standards]. [Data Standards] have the following specialisations: [Data Model] / [Core Data Model] consisting of among others [Data Entities], [Character Encoding Scheme], [Syntax Encoding Scheme], [Data-level Mapping], [Schema Level Mapping] or [Identifier Scheme]. [Data Standards] are documented in [Data Standard Catalogues].

[Representation] and [Data] are influenced by [Data Policies], which are [Organisational Policies], which is in turn are influenced by [Public Policies]. [Data Policies] can incorporate [Privacy Policies], [Licensing Policies], [Charging Policies], or [Metadata Management Policies].

Focal architecture building blocks: Representation and Data.

- **Representation** is the means through which the other building blocks (data, data sets, etc.) are physically realised. This can be done through modelling notations, schemas and other resources.

- **Data** is facts represented as text, numbers, graphics, images, sound, or video. Data is the raw material used to represent information, or from which information can be derived.

4.5 Technical - application view

The Technical - Application view contains the most important application building blocks that need to be considered in order to support technical interoperability when building an Interoperable European Solution. An Interoperable European Solution can support one or more public policies.
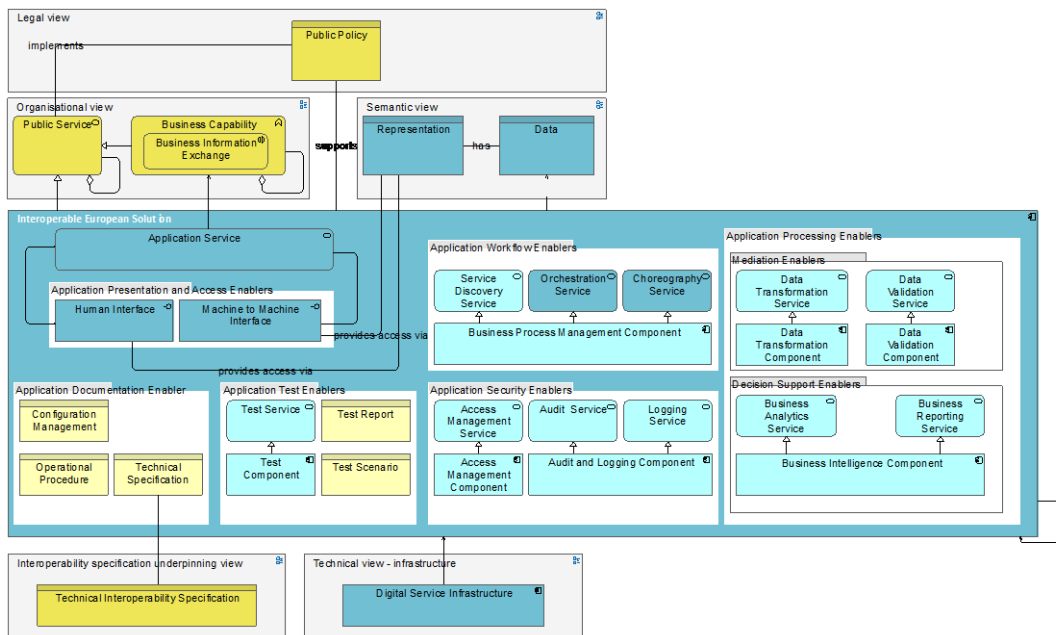
Figure 15 - Technical - application view of the EIRA [2]

Narrative: A [Interoperable European Solution] implements [Public Service] and is supporting a [Public Policy]. An [Interoperable European Solution] can be accessed through [Machine to Machine Interfaces] or [Human Interfaces] in the [Application Presentation and Access Enablers] assigned to [Application Services].

The [Interoperable European Solution] main documentation includes [Configuration Management], [Operational Procedure], and [Technical Specification] in the [Application Documentation Enabler] and is tested through the use of [Application Test Enablers].

Data can be exchanged, cross-border and cross-sector, with the support of [Application Processing Enablers] composed of [Mediation Enablers] containing the logic for data transfer and validation, and [Decision Support Enablers] to include business logic in the application. [Interoperable European Solution] can execute complex business processes through [Application Workflow Enablers].   Access control is managed through the services offered by [Application Security Enablers].

Focal architecture building blocks: Human Interface and Machine to Machine Interface, Interoperable European Solution, Application Service, Choreography Service and Orchestration Service.

- A **Human Interface** is a specific interface between the human users of an IT system and the programs providing screen or printed results. It is frequently regarded as a dedicated set of programs, separate from those which extract and process data. [DG TAXUD]

- A **Machine to Machine Interface** is a description of a boundary between a system and other systems, usually including the mechanisms by which information is transferred. [DG TAXUD]

- An **Interoperable European Solution** (IES) is a solution, developed by Public Administrations that facilitate the delivery of electronic Public Services and cross-border exchange of information between Public Administrations (or Citizens) in support to the implementation and advancement of EU, national or local Public Policies.

- An **Application Service** is an externally visible unit of functionality, provided by one or more application components. It is exposed through well-defined interfaces and is meaningful to the environment. An Application Service exposes the functionality of components to their environment. This functionality is accessed through one or more application interfaces.

- **Choreography Service**: The Choreography Service is the interplay among groups of services which, in turn, make up a larger, composite service, or which interact across organisational boundaries in order to obtain and process information.

- **Orchestration Service**: Orchestration identifies a sets of transactions involving use of other services and functionalities, according to business rules embodied in one or more documented business processes, with the ultimate goal of performing or providing some other value-added function or service. The Orchestration Service executes all the required transactions and routes the inputs and outputs of processes according to rules described in a standard language (i.e. BPEL).

4.6 Technical - infrastructure view

The Technical - Infrastructure view provides an architecture content metamodel for the most important *cross-sectorial* infrastructure services, along with the supporting hosting and networking facilities, which shall be considered in order to support technical interoperability when building an Interoperable European Solution. The difference with the application part of the Technical view (see Section 4.5) is that the building blocks in the infrastructure view are considered to be relevant for solutions in *any* sector of government.
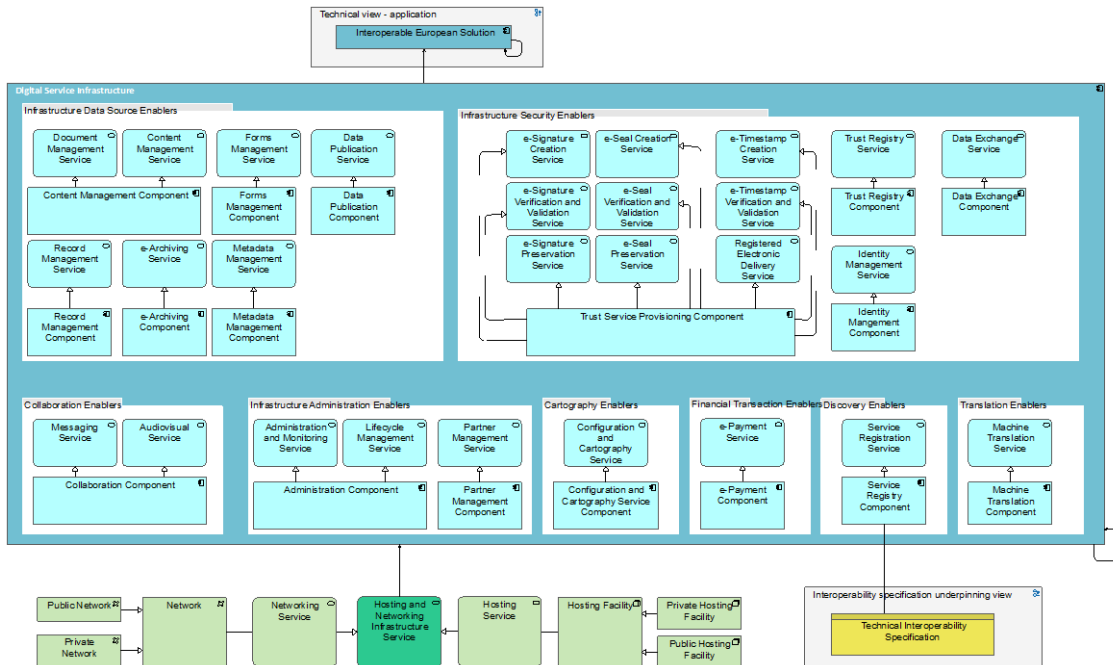
Figure 16 - Technical - infrastructure view of the EIRA [2]

Narrative: An [Interoperable European Solution] and its application components make use of cross-sectorial [Digital Service Infrastructures]. It provides access to data through [Infrastructure Data Source Enablers] such as [Forms Management Service], [Record Management Services], [Document Management Services], or

[Content Management Services]. The [Data] can be archived using [e-Archiving Services] and published to external data sources with a [Data Publication Service].

[Collaboration Enablers] can exchange messages between [Interoperable European Solutions] using [Messaging Services] and exchange multimedia using [Audiovisual Services]. The [Application Services] provided by an [Interoperable European Solution] can be discovered by users or systems through [Discovery Enablers]. The administration and operational management of an [Interoperable European Solution] is performed through [Administration Enablers].

Trust between systems is established with [Trust Service Provisioning Components] realised using Signature validation and verification such as [e-Signing Creation Service], [e-Signature Verification and Validation Service], [e-Signature Preservation Service], and through e-Seal services such as [e-Seal Creation Service], [e-Seal Verification and Validation Service], [e-Seal Preservation Service], and e-timestamping services such as [e-Timestamp Creation Service], [e-timestamp Verification and Validation Service]. Identity management is realised with [Identity Management Service]/[Identity Management Component]. Evidence of transaction between parties is realised using the [Registered Electronic Delivery Service.]

The [Interoperable European Solution] can register its architecture, and application documentation using a [Configuration and Cartography service].

The [Interoperable European Solutions] and the [Digital Service Infrastructures] are deployed and operated through [Hosting and Networking Services Infrastructures], provided by a [Public / Private Hosting Facility], and make use of a [Public / Private Network] to exchange data..

Focal architecture building blocks: Digital Service Infrastructure and Hosting and Networking Infrastructure Service.

- A **Digital Service Infrastructure** is a collection of cross-sectorial infrastructure services and components. They are decoupled from the business which a specific interoperable solution implements. They can be re-used with no or very minor changes by other interoperable solutions or in different policy contexts. [CEF].

- A **Hosting and Networking Infrastructure Service** is a collection of services for hosting Interoperable European Solutions and provides the necessary networks for operating these solutions.

4.7 Interoperability specification underpinning view

The interoperability specification underpinning view provides a metamodel of architecture building blocks from the different views, and depicts them as a taxonomy of interoperability specifications. Each EIRA view has architecture building blocks that support interoperability.
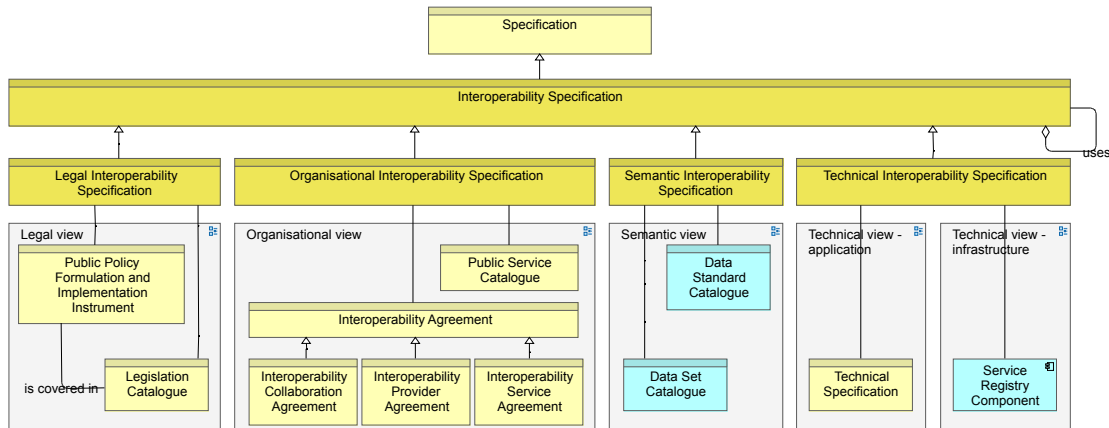
Figure 17 – Interoperability specification underpinning view of the EIRA [2]

Narrative: An [Interoperability Specification] is a [Specification]. An [Interoperability Specification] can depend on other [Interoperability Specifications]. It exists at the four levels of interoperability defined in the European Interoperability Framework:

- At the legal level a [Legal Interoperability Specification] is associated to [Public Policy Formulation and Implement Instrument] and/or documented in [Legislation Catalogue].
- At the organisational level an [Organisational Interoperability Specification] is described with the help of [Interoperability Agreements] and/or documented in [Public Service Catalogue].
- At the semantic level a [Semantic Interoperability Specification] has the form of [Data Set Catalogue] and/or [Data Standards Catalogue].
- At the technical level a [Technical Interoperability Specification] is a [Technical Specification] describing aspects of the underlying system. The [Service Registry Component] provides a mechanism to register technical services within a catalogue to be discovered by others.

Focal architecture building block: Interoperability Specification.

- An **Interoperability Specification** is an attribute which enables interoperability. It is defined in terms of existing standards and/or other specifications. An interoperability specification is a document reflecting an agreement to promote interoperability of one or more architecture building blocks. It is defined in terms of an existing standard or specification. An interoperability specification can exist at one or more levels of the European Interoperability Framework: legal, organisational, semantic and technical. It can be linked to zero, one or more architecture building blocks.

5 GLOSSARY

Table 3 provides an overview of the most common terms and acronyms used throughout this document. Further context to some of these terms can be found in Section 3.1.

Table 3 - Glossary

Term / acronym	Definition
Architecture building block (ABB)	An abstract component that captures architecture requirements and that directs and guides the development of solution building blocks (SBBs) (TOGAF [5]).
Architecture content metamodel	A model consisting of common architectural building blocks that describes how and with what an architecture is to be described in a structured way (TOGAF [5]).
Digital Service Infrastructure (DSI)	A Digital Service Infrastructure is a collection of cross-sectorial infrastructure services and components. They are decoupled from the business which a specific interoperable solution implements. They can be re-used with no or very minor changes by other interoperable solutions or in different policy contexts.
Directorate-General (DG)	European Commission Directorate-General is a department of the European Commission.
European Interoperability Framework (EIF)	The purpose of the European Interoperability Framework (EIF) is: • To promote and support the delivery of European public services by fostering cross-border and cross-sectoral interoperability; • To guide public administrations in their work to provide European public services to businesses and citizens; • To complement and tie together the various National Interoperability Frameworks (NIFs) at European level. [3]
European Interoperability Reference Architecture (EIRA)	European Interoperability Reference Architecture. It is the result of an enterprise architectural effort using TOGAF, SOA as the architectural style and ArchiMate as the reference model.
Interoperability Maturity Model (IMM)	The Interoperability Maturity Model measures how well a public administration interacts with external entities in order to organise the efficient provisioning of its public services to other public administrations, businesses and or citizens. The IMM helps owners of a Public Service to enhance the quality of the service delivery, reduce costs and overcome integration issues by reusing available services and orchestrate services in an effective manner to maximize service outcome and benefits for citizens and public administrations. [7]
Interoperability Solutions for European Public Administrations (ISA)	Interoperability Solutions for European Public Administrations is the programme executing the ISA decision.
Interoperable European Solution (IES)	An Interoperable European Solution (IES) is a solution, developed by public administrations that facilitate the delivery of electronic public services and cross-border exchange of information between public administrations (or citizens) in support to the implementation and advancement of EU, national or local public policies.

Member State (MS)	Member State of the European Union
Requirement	A requirement is a condition that must be met by a solution.
Service Oriented Architecture (SOA)	Service Oriented Architecture is an application pattern where application offer services to other application by means of interfaces.
Solution architecture template (SAT)	A solution architectural template (SAT) is a sub-set of architecture building blocks of the EIRA. It focuses on the most salient building blocks needed to build an interoperable solution addressing a particular interoperability need.
Solution building block (SBB)	A solution building block (SBB) can be defined as a concrete element that implements the required capabilities of one or more architecture building blocks (TOGAF [5]).
Specification	A Specification is a document that states requirements. A specification can be related to activities (e.g. procedure document, process specification and test specification), or products (e.g. product specification, performance specification and drawing). [ISO 9000:2005] Source: https://www.iso.org/obp/ui/#iso:std:iso:9000:ed-3:v1:en:term:3.7.3
The Open Group Architecture Framework (TOGAF)	The Open Group Architecture Framework (TOGAF) is a framework for enterprise architecture.
Trans-European Solution (TES)	An IES developed by the European Commission or other bodies (in some cases co-funded by MSs) in support to the implementation and advancement of EU policies.

6 REFERENCES

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8 EIRA VIEWS AND ABB DEFINITIONS

This section contains the EIRA views and ABB definitions.

EIRA

EUROPEAN
INTEROPERABILITY
REFERENCE
ARCHITECTURE

Version 0.9.0 beta

2015-05-29

ISA Action 2.1:
European Interoperability Architecture

EIRA high-level overview

Legal view

Public Policy Cycle

Definition of Public Policy Objectives → Formulation of Public Policy Scenarios → Impact Assessment → Public Policy Implementation → Public Policy Evaluation

Organisational view

Public Service

Technical view - application

implements

supports

Interoperable European Solution

Public Policy Development Approach → Public Policy Development Enabler

Public Policy Development Mandate

is influenced

Public Policy

is realised by

Financial Resource → Operational Enabler

Implementing Guideline

Public Policy Formulation and Implementation Instrument

Interoperability specification underpinning view

Legal Interoperability Specification

Non-binding Instrument → Legal Requirement or Constraint

Binding Instrument

is covered in

Legislation Catalogue

Organisational view

Semantic view

Technical – application view

Technical – infrastructure view

Technical view - application

Interoperable European Solution

Digital Service Infrastructure

Infrastructure Data Source Enablers

Document Management Service	Content Management Service	Forms Management Service	Data Publication Service

Content Management Component

Forms Management Component

Data Publication Component

Record Management Service	e-Archiving Service	Metadata Management Service

Record Management Component

e-Archiving Component

Metadata Management Component

Infrastructure Security Enablers

e-Signature Creation Service	e-Seal Creation Service	e-Timestamp Creation Service	Trust Registry Service	Data Exchange Service

e-Signature Verification and Validation Service	e-Seal Verification and Validation Service	e-Timestamp Verification and Validation Service	Trust Registry Component	Data Exchange Component

e-Signature Preservation Service	e-Seal Preservation Service	Registered Electronic Delivery Service	Identity Management Service

Trust Service Provisioning Component

Identity Mangement Component

Collaboration Enablers

Messaging Service	Audiovisual Service

Collaboration Component

Infrastructure Administration Enablers

Administration and Monitoring Service	Lifecycle Management Service	Partner Management Service

Administration Component

Partner Management Component

Cartography Enablers

Configuration and Cartography Service

Configuration and Cartography Service Component

Financial Transaction Enablers

e-Payment Service

e-Payment Component

Discovery Enablers

Service Registration Service

Service Registry Component

Translation Enablers

Machine Translation Service

Machine Translation Component

Public Network → Network → Networking Service → Hosting and Networking Infrastructure Service → Hosting Service → Hosting Facility ← Private Hosting Facility

Private Network

Public Hosting Facility

Interoperability specification underpinning view

Technical Interoperability Specification

Interoperability specification underpinning view

Architecture building blocks definitions

View	ID	Name	Status	Definition
Legal View Concepts	ABB165	Legislation Catalogue		A Legislation Catalogue is a set of legal documents.
Legal View Concepts	ABB9	Public Policy		A Public Policy is the whole of actions under a policy domain taken by a public authority to bring about social change in the medium and long term. It is based on certain values and objectives and is implemented using a variety of methods. It applies on the territory within which the authority is authorised to act. [Source: EuroVoc, http://eurovoc.europa.eu/drupal/?q=request&concepturi=http%3A%2F%2Feurovoc.europa.eu%2F8466&termuri=http%3A%2F%2Feurovoc.europa.eu%2F209598&language=en&view=pt&ifacelang=en].
Legal View Concepts	ABB102	Public Policy Cycle		A Public Policy Cycle is a cycle of stages in the creation and execution of a public policy. Source: Based on the concepts laid out in section 2.2 of http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/507457/IPOL-IMCO_ET(2013)507457_EN.pdf
Legal View Concepts	ABB111	Public Policy Development Approach		A Public Policy Development Approach is the delegation model used to enforce the policy (centralised vs. decentralised). [European Interoperability Strategy]
Legal View Concepts	ABB167	Public Policy Development Enabler		A Public Policy Development Enabler is an organisation or thing that make the development and implementation of the Public Policy possible. [Oxford Dictionary] Source: http://www.oxforddictionaries.com/definition/english/enabler
Legal View Concepts	ABB112	Public Policy Development Mandate		A Public Policy Development Mandate is the capacity and authority to carry out tasks within a specific policy domain. [European Interoperability Strategy]
Legal View Concepts	ABB107	Public Policy Evaluation		A Public Policy Evaluation is an assessment of how the public policy met its objectives (according to defined criteria). Source: Based on the concepts laid out in http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/507457/IPOL-IMCO_ET(2013)507457_EN.pdf

Legal View Concepts	ABB168	Public Policy Formulation and Implementation Instrument		A Public Policy Formulation and Implementation Instrument is an instrument that support the formulation and implementation of the policy.
Legal View Concepts	ABB106	Public Policy Implementation		A Public Policy Implementation is the process of putting a public policy into effect. [Oxford Dictionary]
Legal View Concepts	ABB17	Binding Instrument		A Binding Instrument is a legal instrument that expresses something which is obligatory. Source: Based on the concepts laid out in http://europa.eu/legislation_summaries/glossary/community_legal_instruments_en.html
Legal View Concepts	ABB103	Definition of Public Policy Objectives		A Definition of Public Policy Objectives is a stage where public policy objectives are defined. Source: Based on the concepts laid out in http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/507457/IPOL-IMCO_ET(2013)507457_EN.pdf
Legal View Concepts	ABB116	Financial Resource		A Financial Resource is money in the form of cash, securities, creditors, loan facilities, etc.
Legal View Concepts	ABB104	Formulation of Public Policy Scenarios		A Formulation of Public Policy Scenarios is a stage where a number of public policy options for addressing the problem and achieving the public policy objectives are developed. Source: Based on the concepts laid out in http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/507457/IPOL-IMCO_ET(2013)507457_EN.pdf
Legal View Concepts	ABB105	Impact Assessment		An Impact assessment is a key tool to ensure that the public policy process is carried out on the basis of transparent, comprehensive and balanced evidence, an Impact assessment is an aid to political decision-making. Source: Based on the concepts laid out in http://ec.europa.eu/smart-regulation/impact/commission_guidelines/docs/iag_2009_en.pdf
Legal View Concepts	ABB117	Implementing Guideline		An Implementing Guideline is a set of instructions that provides insight into how to implement a policy.
Legal View Concepts	ABB164	Legal Requirement or Constraint		A Legal Requirement or Constraint is a legal text that mandates and/or guides the creation of an Interoperable European Solution.

Legal View Concepts	ABB113	Non-binding Instrument		A Non-binding Instrument is a set of recommendations and opinions, as well as rules governing how EU institutions and programmes work, etc. Source: http://europa.eu/legislation_summaries/glossary/community_legal_instruments_en.htm
Legal View Concepts	ABB166	Operational Enabler		An Operational Enabler is an organisation, person, object or event that makes it possible to implement the policy. [Oxford Dictionary] Source: http://www.oxforddictionaries.com/definition/english/enabler
Organisational View Concepts	ABB169	Business		A Business is an organisational entity that provides and/or consumes Public Services. This includes non-governmental organisations and not-for-profit organisations. [European Interoperability Framework]
Organisational View Concepts	ABB12	Business Capability		A Business Capability is the expression or the articulation of the capacity, materials and expertise an organization needs in order to perform core functions. Enterprise architects use business capabilities to illustrate the over-arching needs of the business in order to better strategize IT solutions that meet those business needs.
Organisational View Concepts	ABB13	Business Information		Business Information is a piece of business data or a group of pieces of business data with a unique business semantics definition in a specific business context [source: ISO15000-5, UN/CEFACT CCTS].
Organisational View Concepts	ABB170	Business Information Exchange		A Business Information Exchange is an interaction between two or more public administrations, businesses or citizens. Source: Based on UN/CEFACT Modelling Methodology (UMM) http://www.unece.org/cefact/umm/umm_index.html
Organisational View Concepts	ABB16	Business Rule		A Business Rule is a statement that defines or constrains some aspect of the business. It is intended to assert business structure, or to control or influence the behaviour of the business. Source: Business Rules Group; http://www.businessrulesgroup.org/defnbrg.shtml
Organisational View Concepts	ABB8	Citizen		A Citizens is a consumers of Public Services
Organisational View Concepts	ABB6	Interoperability Collaboration Agreement		An Interoperability Collaboration Agreement is the means through which organisations (public administrations, or businesses) formalises the cooperation with one another. These agreements aim at the development of interoperability solutions, which meets the functional / technical requirements and needs of one another.

Organisational View Concepts	ABB118	Interoperability Provider Agreement		An Interoperability Provider Agreement is the means through which the service providers of public services formalise cooperation with one another. These agreements aim to have common way of providing the public service, which implies standardisation across service providers.
Organisational View Concepts	ABB161	Interoperability Service Agreement		An Interoperability Service Agreement is the means through which participants of ICT projects formalise cooperation with one another. These agreements aim at leaving each Member State with maximum internal autonomy, minimising the impact on their operational systems.
Organisational View Concepts	ABB171	Organisational Enabler		An Organisational Enablers consists of elements which describe the functions, principles, rules, and policies in an organisation. These enablers act as sources for the business rules of an organisation.
Organisational View Concepts	ABB18	Organisational Policy		An Organisational Policy defines a set of principles, rules, and guidelines in an organisation. [source: European Interoperability Framework http://ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf]
Organisational View Concepts	ABB207	Organisational Procedure		An Organisational Procedure is a step-by-step description of the tasks required to support and carry out organizational policies.
Organisational View Concepts	ABB14	Organisational Structure		An Organisational Structure is the pattern of the distribution of work, flow of communications and instructions in the organisation required to fulfil the organisational objectives. The way an organisation is set up: - matrix-organisation? - central/federated model? [Jayantee Saha - 2006 Management and Organizational Behaviour]
Organisational View Concepts	ABB7	Organisation		An Organisation is an entity that provides and/or consumes Public Services.
Organisational View Concepts	ABB172	Public Administration		A Public Administration is an organisational entity that provides and/or consumes Public Services.
Organisational View Concepts	ABB1	Public Service		A Public Service is an economic activity that public authorities identify as being of particular importance to citizens, businesses and public administrations and that would not be supplied (or would be supplied under different conditions) if there were no public intervention.

Organisational View Concepts	ABB124	Public Service Catalogue		A Public Service Catalogue is a repository, with information on all public services. It represents the collection of the offered public services. [ITIL v3]
Organisational View Concepts	ABB5	Public Service Consumer		A Public Service Consumer is a Public Administration, Business or Citizen consuming public services. [European Interoperability Framework] Source: Based on EIF 2.0 http://ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf
Organisational View Concepts	ABB173	Public Service Delivery Agent		A Public Service Delivery Agent delivers a public service on behalf of a Service Providers. An example of this would be pharmacies that deliver a service 'on the behalf of' the Ministry of Health. In this case the pharmacies would be captured as a Service Delivery Agent whereas the Service Provider would be the Ministry of Health.
Organisational View Concepts	ABB174	Public Service Provider		A Public Service Provider is a Public Administration or Business providing Public Services financed through public resource. [DG Competition] Source: http://ec.europa.eu/competition/state_aid/overview/public_services_en.html
Organisational View Concepts	ABB15	Service Delivery Model		A Service Delivery Model defines how the organisation arranges the delivery of its services to service consumers. This includes: - How will the service be delivered (e.g. multi-channel, SPOCs, only once)? - How will the interaction between the service provider and service consumer take place? - How will certain situations be handled (e.g. incident management)? - How will the support & maintenance look like? [ITIL v3]
Organisational View Concepts	ABB119	Interoperability Agreement		An Interoperability Agreement is the means through which organisations (public administrations, or businesses) formalises the cooperation with one another. These agreements aim at the development of interoperability solutions, which meets the functional / technical requirements and needs of one another. [European Interoperability Framework] The agreement should include purposes and goals, terms and conditions, governance, and the description of the channel(s). The EIRA differentiates the following Interoperability Agreements: - Interoperability Service Agreement (between Public Service Consumers and Public Service Providers;

				- Interoperability Collaboration Agreement (between Organisations); or - Interoperability Provider Agreement (between Public Service Providers).
Organisational View Concepts	ABB214	Interoperability Governance		Interoperability Governance is an organisational procedures for the governance of interoperability usually under the mandate/approach of a public policy. Examples are the comitology procedures for ISA at European level.
Organisational View Concepts	ABB205	Interoperability Organisational Authority		An Interoperability Organisational Authority is an organisation holding the responsibility for interoperability governance under the mandate/approach of a Public Policy. Examples are ISA at European level and CIO at national level.
Organisational View Concepts	ABB206	Interoperability Framework		An Interoperability Framework is a set of interoperability principles, rules, and guidelines in an organisation. Examples are EIF at European level and National schemas of IOP at national level.
Organisational View Concepts	ABB208	Interoperability Strategy		An Interoperability Strategy is a long term plan addressing interoperability strategic objectives. Example is the European Interoperability Strategy at European level.
Semantic View Concepts	ABB30	Data Policy		A data policy is a short statement of management intent and fundamental rules governing the creation, acquisition, integrity, security, quality, and use of data and information [source: DAMA DM_BOK, http://www.dama.org.]. A data policy can be among others the following: - information security policy; - privacy policy; - licensing and charging policy ; - data quality policy; and - metadata management policy.
Interoperability View Concepts	ABB162	Interoperability Specification		An Interoperability Specification is a document containing agreed normative statements for solution building blocks used in an information exchange context. It can refer to existing standards or specifications.
Interoperability View Concepts	ABB175	Legal Interoperability Specification		A Legal Interoperability Specification defines a necessary attribute that shall be fully met to support legal interoperability in the Public Policy Cycle.
Interoperability View Concepts	ABB176	Organisational Interoperabil		An Organisational Interoperability Specification defines a necessary attribute that shall be fully met to support organisational interoperability.

		ity Specification		
Interoperability View Concepts	ABB177	Semantic Interoperability Specification		A Semantic Interoperability Specification defines a necessary attribute that shall be fully met to support semantic interoperability.
Interoperability View Concepts	ABB163	Specification		A Specification is a document that states requirements. A specification can be related to activities (e.g. procedure document, process specification and test specification), or products (e.g. product specification, performance specification and drawing). [ISO 9000:2005] Source : https://www.iso.org/obp/ui/#iso:std:iso:9000:ed-3:v1:en:term:3.7.3
Interoperability View Concepts	ABB178	Technical Interoperability Specification		A Technical Interoperability Specifications defines a necessary attribute that shall be fully met to support technical interoperability.
Deprecated	ABB10	Business Process	deprecated	A business process is a sequence of linked activities that creates value by turning inputs into a more valuable output
Deprecated	ABB142	Business Process Model	deprecated	A model that defines the business process, by the definition of strict steps of the business processes, precise rules, and the description of the processed data.
Deprecated	ABB196	Data Quality Policy	deprecated	A Security Policy is a set of statements of management intent and fundamental rules governing the definition, monitoring, and improvement of data quality. [DAMA] Source: http://www.dama.org/
Deprecated	ABB160	Information Security Policy	deprecated	A Security Policy is a set of statements of management intent and fundamental rules governing the creation, acquisition, integrity, security, quality and use of data and information. [DAMA] Source: http://www.dama.org
Deprecated	ABB31	Licensing and Charging Policy	deprecated	A Licensing and Charging Policy is a statement of principles and guidelines for licensing and charging data. This may lead to an "open" data policy or a "closed" data policy. [DAMA] Source: http://www.dama.org/

Deprecated	ABB33	Metadata Management Policy	deprecated	Policy governing the creation, control, integration, access and use of metadata. [DAMA] Source: http://www.dama.org/
Deprecated	ABB32	Privacy Policy	deprecated	Statements of management intent and fundamental rules governing the creation, acquisition, integrity, security, quality and use of data and information. [DAMA] Source: http://www.dama.org
Deprecated	ABB11	Business Transaction	deprecated	Atomic unit of interaction between two or more public administrations, businesses or citizens.
Semantic View Concepts	ABB179	Character Encoding Scheme		A Character Encoding Scheme reflects the way a chosen character set is mapped to bytes for manipulation in a computer [W3C]. An example is the UTF-8 standard.
Semantic View Concepts	ABB22	Data		Data is facts represented as text, numbers, graphics, images, sound, or video. Data is the raw material used to represent information, or from which information can be derived [source: DAMA DM_BOK, http://www.dama.org].
Semantic View Concepts	ABB20	Data Entity		A classification of objects found in the real world described by the Noun part of speech – persons, places, things, concepts, and events – of interest to the enterprise [source: DAMA DM_BOK, http://www.dama.org].
Semantic View Concepts	ABB26	Data Model		A Data Model includes formal data names, comprehensive data definitions, proper data structures and precise data integrity rules [source: DAMA DM_BOK, http://www.dama.org].
Semantic View Concepts	ABB29	Identifier Scheme		An Identifier Schema defines the values of an identifier [source: CEN BII http://spec.cenbii.eu/].
Semantic View Concepts	ABB180	Data-level Mapping		A Data-level Mapping is a mapping between specific data elements (or data values) [source: ISO/DIS 25964-2].
Semantic View Concepts	ABB181	Master Data		Master Data is the authoritative, most accurate data that is available about key business entities, used to establish the context for business transactions and transactional data [source: DAMA DM_BOK, http://www.dama.org].
Semantic View Concepts	ABB27	Reference Data		Reference Data is any data used to organise or categorise other data, or for relating data to information both within and beyond the boundaries of the enterprise. Usually consists of codes and descriptions or definitions [source: DAMA DM_BOK, http://www.dama.org]. Reference data consists typically of a small, discrete set of values that are not updated as part of business transactions but are usually used to impose consistent classification. Reference data normally has a low update frequency. Reference data is relevant across more

				than one business systems belonging to different organisations and sectors [source: J. Jordan & C. Ellen (2009). Business need, data and business intelligence].
Semantic View Concepts	ABB183	Data Standard		A data standard is a structural metadata specification that describes or defines other data [ISO111179]. Structural metadata indicates how compound objects are put together [NISO]. It can consist of among others data models, reference data, and identifier schemas.
Semantic View Concepts	ABB184	Syntax Encoding Scheme		A Syntax Encoding Scheme indicates that the value is a string formatted in accordance with a formal notation [DCMI Glossary], such as '2000-01-01' as the standard expression of a date. Another example is CSV [Source: http://wiki.dublincore.org/index.php/Glossary/Encoding_Scheme].
Semantic View Concepts	ABB185	Transactional Data		Transactional Data is data that covers the business information related to business transactions and information exchanges [source: based on DAMA DM_BOK, http://www.dama.org].
Semantic View Concepts	ABB23	Data Set		A Data Set is a collection of data, published or curated by a single agent, and available for access or download in one or more formats [source: W3C, http://www.w3.org/TR/vocab-dcat/#class-dataset].
Semantic View Concepts	ABB24	Data Set Catalogue		A Data Set Catalogue is a curated collection of datasets [source: W3C, http://www.w3.org/TR/vocab-dcat/#class-catalog].
Semantic View Concepts	ABB182	Representation		A Representation is a physical embodiment or manifestation of data [based on the Functional Requirements for Bibliographic Records]. It is the perceptible form of information carried by a business object [based on ArchiMate].
Semantic View Concepts	ABB211	Data Standard Catalogue		A Data Standard Catalogue is a catalogue of Data Standards.
Semantic View Concepts	ABB212	Schema-level Mapping		A Schema-level Mapping is a mapping between related classes and properties [source: ISO/DIS 25964-2].
Semantic View Concepts	ABB194	Core Data Model		A context-neutral data model that captures the fundamental characteristics of an entity [Source: Core Vocabularies Handbook, https://joinup.ec.europa.eu/site/core_vocabularies/Core_Vocabularies_user_handbook/].
Semantic View Concepts	ABB195	Descriptive Metadata		Descriptive metadata describes a resource for purposes such as discovery and identification. It can include elements such as title, abstract, author, and keywords. Source:

				http://www.niso.org/publications/press/UnderstandingMetadata.pdf
Technical View - Application Concepts	ABB70	Access Management Component		An Access Management Component encapsulates the functionalities to authorize users exposed through the Access Management Service.
Technical View - Application Concepts	ABB57	Access Management Service		An Access Management Service provides the mechanisms to ensure that only authorized users can access and perform actions on IT resources.
Technical View - Application Concepts	ABB71	Audit and Logging Component		An Audit and Logging Component encapsulates the functionalities for auditing and logging of events.
Technical View - Application Concepts	ABB58	Audit Service		An Audit Service provides support for the principle of accountability that is holding users of a system accountable for their actions within the system and detection of policy violations. The audit policy defines the elements of an information system which need to be traced, for example to assure traceability of actions: what, how, when, where and with what. Inspired by: http://www.opengroup.org/security/das/xdas_int.htm
Technical View - Application Concepts	ABB46	Business Analytics Service		A Business Analytics Service enables the storage and manipulation of dimensional data models for the analysis of business trends and projections. [DAMA]
Technical View - Application Concepts	ABB66	Business Intelligence Component		A Business Intelligence Component encapsulates the functionalities exposed through the Business Analytics Service.
Technical View - Application Concepts	ABB186	Business Process Management Component		A Business Process Management Component encapsulates the functionalities for the orchestration/choreography of business processes.
Technical View - Application Concepts	ABB47	Business Reporting Service		A Business Reporting Service provides detailed reports using unified views of enterprise data. [DAMA]
Technical View - Application Concepts	ABB44	Choreography Service		The Choreography Service is the interplay among groups of services which, in turn, make up a larger, composite service, or which interact across organisational boundaries in order to obtain and process information. [W3C] Source: http://www.w3.org/TR/ws-cdl-10/
Technical View - Application	ABB127	Configuration		A Configuration management is the means of maintaining Interoperable European Solutions to safeguard the performance of these solution. This includes change management,

Concepts		Management		versioning, etc.
Technical View - Application Concepts	ABB61	Data Transformation Component		A Data Transformation Component encapsulates the data transformation functionalities exposed through the Data Transformation Service.
Technical View - Application Concepts	ABB40	Data Transformation Service		A Data Transformation Service converts data. This includes the conversion from one data format to another.
Technical View - Application Concepts	ABB63	Data Validation Component		A Data Validation Component encapsulates the data validation functionalities exposed through the Data Validation Service.
Technical View - Application Concepts	ABB42	Data Validation Service		A Data Validation Service is used to validate data against predefined semantic and syntactic constraints.
Technical View - Application Concepts	ABB60	Interoperable European Solution		An Interoperable European Solution (IES) is a solution, developed by Public Administrations that facilitate the delivery of electronic Public Services and cross-border exchange of information between Public Administrations (or Citizens) in support to the implementation and advancement of EU, national or local Public Policies. Source: This IES definition was derived from the Trans-European Systems definition.
Technical View - Application Concepts	ABB59	Logging Service	deprecated	A Logging Service traces all events and user actions impacting a data entity throughout its lifecycle (from its creation to its disposal). It can be used to reproduce a certain state of a data entity at a certain moment in time.
Technical View - Application Concepts	ABB126	Operational Procedure		An Operational Procedure defines the process of operating a solution, how the procedures are implemented and the rules for operating it.
Technical View - Application Concepts	ABB45	Orchestration Service		Orchestration identifies a sets of transactions involving use of other services and functionalities, according to business rules embodied in one or more documented business processes, with the ultimate goal of performing or providing some other value-added function or service. The Orchestration Service executes all the required transactions and routes the inputs and outputs of processes according to rules described in a standard language (i.e. BPEL). [European Interoperability Framework] Source: http://ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf

Technical View - Application Concepts	ABB37	Human Interface		A Human Interface is a specific interface between the human users of an IT system and the programs providing screen or printed results. It is frequently regarded as a dedicated set of programs, separate from those which extract and process data. [DG TAXUD]
Technical View - Application Concepts	ABB38	Machine to Machine Interface		A Machine to Machine Interface is a description of a boundary between a system and other systems, usually including the mechanisms by which information is transferred. [DG TAXUD]
Technical View - Application Concepts	ABB159	Service Discovery Service		A Service Discovery Service allows the automatic discovery of other services.
Technical View - Application Concepts	ABB129	Test Component		A Test Component encapsulates the functionalities for the testing processes.
Technical View - Application Concepts	ABB131	Test Report		A Test Report is the means of describing the results coming out of the Test Service, within this document the evaluation is made of the solution (based on the Test Scenario).
Technical View - Application Concepts	ABB130	Test Scenario		A Test Scenario defines the different test cases which needs to be performed by the Test Service. Each scenario (actual) outcome is validated against the pre-defined expected outcome.
Technical View - Application Concepts	ABB128	Test Service		A Test Service enables the execution of the test scenarios by follow a number of sequential steps to validate the performance of a service, the accuracy, etc.
Technical View - Application Concepts	ABB187	Application Service		An Application Service is an externally visible unit of functionality, provided by one or more application components. It is exposed through well-defined interfaces and is meaningful to the environment. An Application Service exposes the functionality of components to their environment. This functionality is accessed through one or more application interfaces.
Technical View - Application Concepts	ABB125	Technical Specification		A Technical Specification is a document describing the functional/technical specifications of a solution.
Technical View - Infrastructure Concepts	ABB137	Administration and Monitoring Service		An Administration and Monitoring Service enables the administration and monitoring of services offered by the different components. [SOA Backplane Reference Model of Gartner]
Technical View - Infrastructure	ABB139	Administration		An Administration Component encapsulates the functionalities for the administration, monitoring and lifecycle management of services. [SOA Backplane Reference Model of

Concepts		Component		Gartner]
Technical View - Infrastructure Concepts	ABB54	Audiovisual Service		An Audiovisual Service enables the broadcast of audio and video content over the internet or satellite.
Technical View - Infrastructure Concepts	ABB72	Collaboration Component		A Collaboration Component encapsulates the functionalities for transmission of text and broadcasting of audio and video content.
Technical View - Infrastructure Concepts	ABB75	Content Management Component		A Content Management Component encapsulates the functionalities for the organisation and categorization of information resources.
Technical View - Infrastructure Concepts	ABB51	Content Management Service		A Content Management Service enables the organisation and categorisation of information resources so that they can be stored, published and reused in multiple contexts. [DAMA] Source: http://www.dama.org/
Technical View - Infrastructure Concepts	ABB64	Data Exchange Component		A Data Exchange Component encapsulates the functionalities for secure data exchange.
Technical View - Infrastructure Concepts	ABB43	Data Exchange Service		A Data Exchange Service enables the secure exchange of messages, records, forms and other kinds of data between different ICT systems. This includes data routing, except endpoint discovery. [European Interoperability Framework] Technical View - Infrastructure Concepts Source: http://ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf
Technical View - Infrastructure Concepts	ABB188	Digital Service Infrastructure		A Digital Service Infrastructure is a collection of cross-sectorial infrastructure services and components. They are decoupled from the business which a specific interoperable solution implements. They can be re-used with no or very minor changes by other interoperable solutions or in different policy contexts. [CEF] Source: http://ec.europa.eu/digital-agenda/en/connecting-europe-facility
Technical View - Infrastructure Concepts	ABB136	Document Management Service		A Document Management Service enables the organisation and categorization of electronic documents in order to store, publish and reuse these documents in multiple contexts. For a differentiation between ERMS and EDMS visit section 10.3 of Moreq: http://ec.europa.eu/archival-policy/moreq/doc/moreq_en.

				The definition of a Record Management Service includes a differentiation towards record management and e-archiving.
Technical View - Infrastructure Concepts	ABB156	e-Archiving Service		An e-Archiving Service enables the permanent or long-term storage of selected (by an authority) electronic documents or information for preservation purposes. The EIRA differentiates between document management, record management and e-archiving as follows: - Document management is primarily about day-to-day use of electronic documents (create/update/delete/versioning) within the operational environment. - Record management is primarily about ensuring that information (e.g. in form of an electronic document or database record) is available for business and legal purposes (e.g. to prove and track the handling of contracts). If an electronic document or information is becoming a record (an authority declares it as a record) that electronic document or information needs to be handled by the record management service (based on specific business or legal reasons (e.g. contract negotiation)). - - e-Archiving is primarily about storing records which have been selected (by an authority) for permanent or long-term preservation due to their enduring research value and as a memory aid. An electronic document or information which a) is managed by the document management service or the record management service and b) is no longer needed for business or legal purposes or day-to-day activities, and c) still has value for research purposes or as a memory aid, the electronic document should be managed by the e-archiving service".
Technical View - Infrastructure Concepts	ABB157	e-Archiving Component		An e-Archiving Component encapsulates the functionalities for electronic archiving of documents.
Technical View - Infrastructure Concepts	ABB68	e-Payment Component		An e-Payment Component encapsulates the functionalities for execution or electronic payments.

Technical View - Infrastructure Concepts	ABB48	e-Payment Service		An e-Payment Service enables the execution of payment transactions where the consent of the payer to execute a payment transaction is given by means of any telecommunication, digital or IT device. [Directive 2007/64/EC] Source: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32007L0064:EN:NOT

Technical View - Infrastructure Concepts	ABB69	Trust Service Provisioning Component		A Trust Service Provisioning Component is a component that provides trust services.
				
				According to the eIDAS Regulation, a 'trust service' means an electronic service normally provided for remuneration which consists of:
				  a) the creation, verification, and validation of electronic signatures, electronic seals or electronic time stamps, electronic registered delivery services and certificates related to those services, or
				  b) the creation, verification and validation of certificates for website authentication; or
				  c) the preservation of electronic signatures, seals or certificates related to those services.
				
				Source: REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.

Technical View - Infrastructure Concepts	ABB144	e-Signature Verification and Validation Service		An e-Signature Verification and Validation Service is used for the verification of documents that are signed electronically. According to the eIDAS Regulation, an 'electronic signature' means data in electronic form which is attached to or logically associated with other data in electronic form and which is used by the signatory to sign. According to the eIDAS Regulation, 'validation' means the process of verifying and confirming that an electronic signature or a seal is valid. Source: REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.
Technical View - Infrastructure Concepts	ABB55	e-Signature Creation Service		An e-Signature Creation Service is used by a natural person to sign data in electronic form. According to the eIDAS Regulation, an 'electronic signature' means data in electronic form which is attached to or logically associated with other data in electronic form and which is

				used by the signatory to sign. Source: REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.
Technical View - Infrastructure Concepts	ABB77	Forms Management Component		A Forms Management Component encapsulates the functionalities for the management of forms.
Technical View - Infrastructure Concepts	ABB49	Forms Management Service		A Forms Management Service enables the dynamic creation, distribution and analysis of forms and online surveys.
Technical View - Infrastructure Concepts	ABB158	Identity Mangement Component		An Identity Management Component encapsulates the functionalities for the authentication of users. The eIDAS Regulation provides the following definitions: - 'electronic identification' means the process of using person identification data in electronic form uniquely representing either a natural or legal person, or a natural person representing a legal person; - 'authentication' means an electronic process that enables the electronic identification of a natural or legal person, or the origin and integrity of data in electronic form to be confirmed; - Source: REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.
Technical View - Infrastructure Concepts	ABB204	Identity Management Service		An Identity Management Service provides functionalities for the authentication of users. The eIDAS Regulation provides the following definitions: - 'electronic identification' means the process of using person identification data in electronic form uniquely representing either a natural or legal person, or a natural person representing a legal person; - 'authentication' means an electronic process that enables the electronic identification of a natural or legal person, or the origin and integrity of

				data in electronic form to be confirmed. Source: REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.
Technical View - Infrastructure Concepts	ABB138	Lifecycle Management Service		A Lifecycle Management Service supports the governance of services throughout their lifecycle. [SOA Backplane Reference Model of Gartner]
Technical View - Infrastructure Concepts	ABB62	Machine Translation Component		A Machine Translation Component encapsulates the machine translation functionalities exposed through the Machine Translation Service.
Technical View - Infrastructure Concepts	ABB41	Machine Translation Service		A Machine Translation Service enables the automatic translation of data in form of plain text from one EU language to another EU language (or to a set of other EU languages).
Technical View - Infrastructure Concepts	ABB53	Messaging Service		A Messaging Service enables real-time transmission of text over the internet.
Technical View - Infrastructure Concepts	ABB74	Metadata Management Component		A Metadata Management Component encapsulates the functionalities for the management of metadata.
Technical View - Infrastructure Concepts	ABB52	Metadata Management Service		A Metadata Management Service enables the creation, storage, categorisation and retrieval of metadata. [DAMA] Source: http://www.dama.org/
Technical View - Infrastructure Concepts	ABB141	Partner Management Component		A Partner Management Component encapsulates the functionalities for managing the consumers of services. [SOA Backplane Reference Model of Gartner]
Technical View - Infrastructure Concepts	ABB140	Partner Management Service		A Partner Management Service enables the management of the consumers of the services offered by the different components (i.e. the Partners) to ensure scalability. It enables the management of IES' interoperability agreements. [SOA Backplane Reference Model of Gartner]
Technical View - Infrastructure Concepts	ABB76	Record Management Component		A Record Management Component encapsulates the functionalities for the classification, storage, archiving, and destruction of electronic records.

Technical View - Infrastructure Concepts	ABB50	Record Management Service		A Records Management Service enables the classification, storage, access, and disposal of the records of an organization from the time they are captured (e.g. creation of an internal document or reception of an external document) up to their eventual disposal. Electronic records are document(s) in digital format produced or received by a person or organisation in the course of business, and retained by that person or organisation. The definition of a Record Management Service includes a differentiation towards record management and e-archiving. Source: Based on the archival policy of the European Commission http://ec.europa.eu/archival-policy/moreq/doc/moreq_en.pdf
Technical View - Infrastructure Concepts	ABB189	Service Registration Service		A Service Registration Service provides a mechanism to register the system service within a catalogue to be discovered by other services.
Technical View - Infrastructure Concepts	ABB133	Service Registry Component		A Service Registry Component encapsulates the service registration functionality.
Technical View - Infrastructure Concepts	ABB146	Trust Registry Component		A Trust Registry Component enables the discovery of essential information about e.g. supervised/accredited trust service providers issuing certificates for electronic signatures, for electronic seals or for website authentication; supervised/accredited trust services for eSignature, eSeal or TimeStamp creation and validation; supervised/accredited trust services for eSignature or eSeal preservation; supervised/accredited trust services for electronic registered delivery. Source: REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.
Technical View - Infrastructure Concepts	ABB145	Trust Registry Service		A Trust Registry Service enables the discovery of essential information about e.g. supervised/accredited trust service providers issuing certificates for electronic signatures, for electronic seals or for website authentication; supervised/accredited trust services for eSignature, eSeal or TimeStamp creation and validation; supervised/accredited trust services for eSignature or eSeal preservation; supervised/accredited trust services for electronic registered delivery. Source: REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE

				COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.
Technical View - Infrastructure Concepts	ABB210	Configuration and Cartography Service		A Configuration and Cartography Service allows the documentation of solution, including its configuration and architecture.
Technical View - Infrastructure Concepts	ABB213	Configuration and Cartography Service Component		A Configuration and Cartography Service Component encapsulates the functionalities for documenting the configuration and architecture of solutions.
Technical View - Infrastructure Concepts	ABB215	Data Publication Service		A Data Publication Service makes data available to other services or users.
Technical View - Infrastructure Concepts	ABB209	Data Publication Component		A Data Publication Component encapsulates the functionalities for data publication services.
Technical View - Infrastructure Concepts	ABB198	e-Seal Creation Service		An e-Seal Creation Service is used to sign data in electronic form on behalf of a legal person.
Technical View - Infrastructure Concepts	ABB200	e-Seal Preservation Service		An e-Seal Preservation Service is used for extending the trustworthiness of the qualified electronic signature beyond the technological validity period. According to the eIDAS Regulation, an 'electronic seal' means data in electronic form, which is attached to or logically associated with other data in electronic form to ensure the latter's origin and integrity. The 'creator of a seal' is a legal person who creates an electronic seal. Source: REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.
Technical View - Infrastructure Concepts	ABB199	e-Seal Verification and Validation		An e-Seal Verification and Validation Service is used for the verification of documents that are signed electronically.

		Service		

Technical View - Infrastructure Concepts	ABB197	e-Signature Preservation Service		An e-Signature Preservation Service is used for extending the trustworthiness of the qualified electronic signature beyond the technological validity period. According to the eIDAS Regulation, an 'electronic signature' means data in electronic form which is attached to or logically associated with other data in electronic form and which is used by the signatory to sign. Source: REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.
Technical View - Infrastructure Concepts	ABB201	e-Timestamp Creation Service		An e-Timestamp Creation Service is used for the verification of timestamps used for establishing evidence that a give piece of data existed at a given point in time. According to the eIDAS Regulation, 'electronic time stamp' means data in electronic form which binds other data in electronic form to a particular time establishing evidence that the latter data existed at that time.
Technical View - Infrastructure Concepts	ABB202	e-Timestamp Verification and Validation Service		An e-Timestamp Verification and Validation Service is used for the verification of timestamps used for establishing evidence that a give piece of data existed at a given point in time. According to the eIDAS Regulation, 'electronic time stamp' means data in electronic form which binds other data in electronic form to a particular time establishing evidence that the latter data existed at that time. Source: REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.
Technical View - Infrastructure Concepts	ABB203	Registered Electronic Delivery Service		According to the eIDAS Regulation, an Electronic Registered Delivery Service is a service that makes it possible to transmit data between third parties by electronic means and provides evidence relating to the handling of the transmitted data, including proof of sending and receiving the data, and that protects transmitted data against the risk of loss, theft, damage or any unauthorised alterations. Source: REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.

Deprecated	ABB135	Data Routing Component	deprecated	A Data Routing Component encapsulates the data routing functionalities exposed through the Data Routing Service.
Deprecated	ABB134	Data Routing Service	deprecated	A Data Routing Service routes data messages based on the content of the message (header). The messages are forwarded from a starting endpoint to a client endpoint. Standardised protocols can be used, e.g. REST, SOAP, etc. to support the routing.
Technical View - Infrastructure Concepts	ABB190	Hosting and Networking Infrastructure Service		A Hosting and Networking Infrastructure Service is a collection of services for hosting Interoperable European Solutions and provides the necessary networks for operating these solutions.
Technical View - Infrastructure Concepts	ABB191	Hosting Facility		A Hosting Facility is usually embodied in a building and the equipment supporting the hosting of Interoperable European Solutions and their components. [DIGIT C Infrastructure Services Provision]
Technical View - Infrastructure Concepts	ABB151	Hosting Service		A Hosting Service is a service provided by a hosting provider. [DIGIT C Infrastructure Services Provision]
Technical View - Infrastructure Concepts	ABB92	Network		A Network realises the physical communication layer among nodes participating in an Interoperable European Solution.
Technical View - Infrastructure Concepts	ABB150	Networking Service		A Networking Service is a service provided by a network provider. [DIGIT C Infrastructure Services Provision]
Technical View - Infrastructure Concepts	ABB192	Private Hosting Facility		A Private Hosting Facility is a Hosting Facility which is owned by or dedicated to one organization (e.g. data centre or private cloud).
Technical View - Infrastructure Concepts	ABB93	Private Network		A Private Network is a network that is used for the only purpose of realising the physical communication among Interoperable European Solution (e.g. sTESTA), and cannot be accessed by the public.
Technical View - Infrastructure Concepts	ABB193	Public Hosting Facility		A Public Hosting Facility is a Hosting Facility which is owned by a third party and shared between organizations (e.g. cloud services).
Technical View - Infrastructure Concepts	ABB94	Public Network		A Public Network is a network that can be accessed by the public (public administrations, businesses and citizens) without specific authorisations. Interoperable European Solutions can rely on Public Networks (e.g. the Internet) to realise the physical communication

| | | | | between nodes. |