Use Cases

European Interoperability Architecture (EIA) action of ISA

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Introduction

Use cases of the EIA action

Project context

The European Interoperability Architecture action (hereafter referred to as the EIA project) is part of the ISA programme, and it aims at developing, together with the Member States and the relevant European Commission departments, a joint vision for an Interoperability Architecture for European public services. The main work products of the action are:

- The European Interoperability Reference Architecture (EIRA), a reference architecture for classifying and organising the most salient BBs, relevant to interoperability, used in the delivery of digital public services.
- The Cartography tool (Cart), a mapping of existing solutions to the BBs of the EIRA.

Scope and Objective

The scope of this document is nested inside the project's scope of the action 2.1 – European Interoperability Architecture. The objective of the document is to highlight how different types of users can leverage the European Interoperability Reference Architecture (EIRA) and Cartography tool to fulfil the interoperability needs of their organisations. The document includes two fictional user stories as instantiation examples of the use cases.

Target audience

The use case document will be made available to the stakeholders of the EIA project and to the potential users of the European Interoperability Reference Architecture and the Cartography tool.

Use Case diagram

Use cases of the EIA action

EIRA

Cart

Designing

Design solution architectures

Design reference architectures

Create portfolio

Communicating and Sharing

Structure the architectural implications of policy or thematic domains (to the extent of the views of the EIRA)

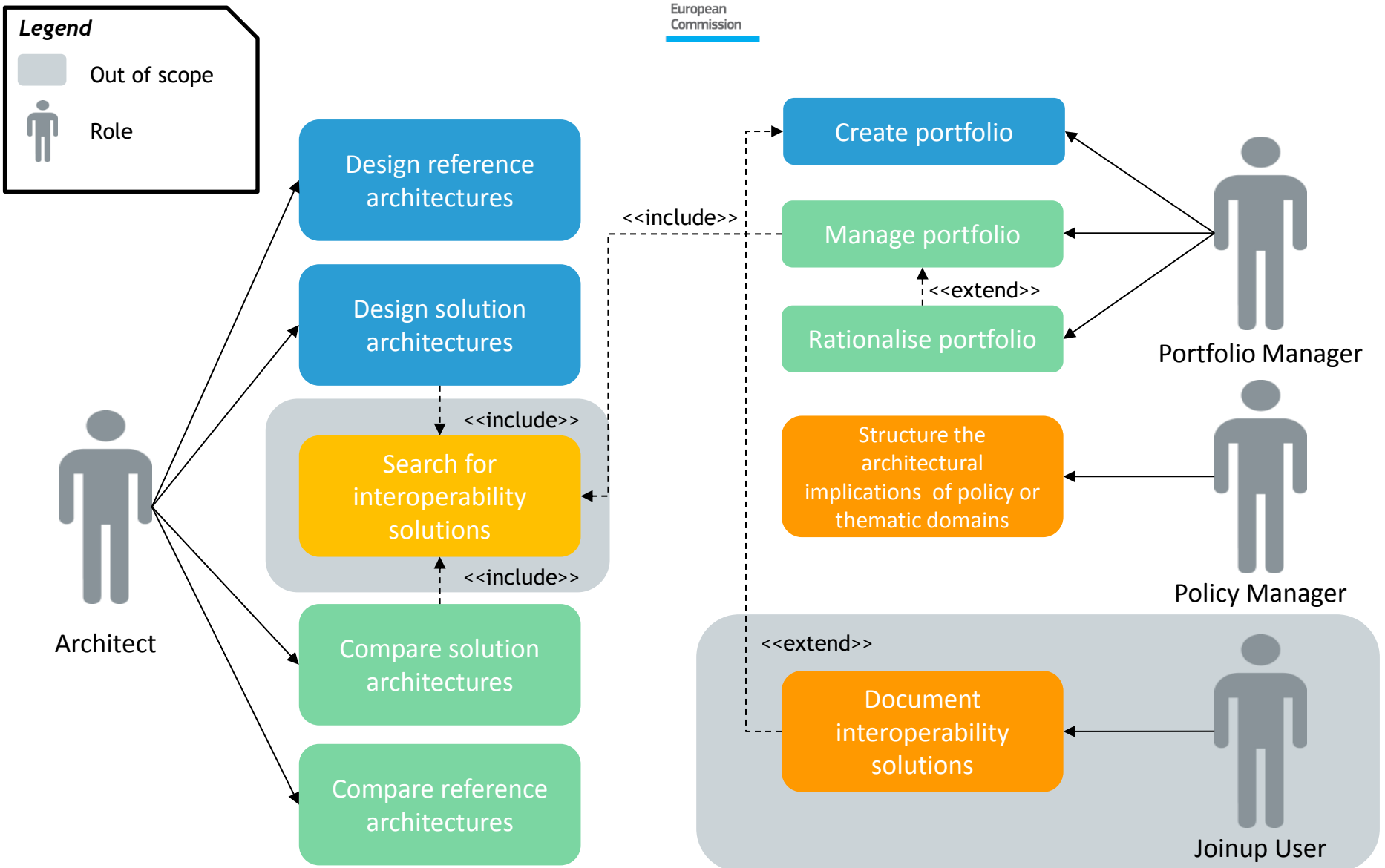Document interoperability solutions

Assessing

Compare reference architectures

Compare solution architectures

Rationalise portfolio

Manage portfolio

Discovering and Reusing

Search for interoperability solutions

Use Case diagram

Legend
- Out of scope
- Role

Design reference architectures

Design solution architectures

<<include>>

Search for interoperability solutions

<<include>>

Compare solution architectures

Compare reference architectures

Architect

Create portfolio

<<include>>

Manage portfolio

<<extend>>

Rationalise portfolio

Portfolio Manager

Structure the architectural implications of policy or thematic domains

Policy Manager

<<extend>>

Document interoperability solutions

Joinup User

Roles

Architect

The architect is responsible for the design of the reference and solution architectures of trans-European systems.

The portfolio manager is responsible for maintaining the catalogue of assets related to the design and implementation of a trans-European system and for making investment decisions on these assets.

Portfolio Manager

Policy Manager

The policy manager is responsible for the development, implementation and evaluation of policies fulfilling the needs of European stakeholders (European public administrations, businesses and citizens).

The Joinup user is any stakeholder who has an account on Joinup, and is interested in sharing existing interoperability solutions by publishing and documenting them on Joinup.

Joinup User

Use Case descriptions

Design reference architectures use case

European Commission

Motivation

- The user does not have a reference architecture in place to identify the ABBs needed to solve a set of architectural interoperability challenges of a group of stakeholders.

EIRA

Basic Flow

- **Step 1** – The user defines the scope of the reference architecture to be designed, by identifying the systems that need to comply to the reference architecture and the involved stakeholders.

- **Step 1** – The user captures the interoperability needs of the involved stakeholders.

- **Step 3 –** The user uses the different views of the EIRA to identify the most salient BBs and relationships needed to fulfil the interoperability needs of the stakeholders.

- **Step 4** - The user designs the reference architecture of the system by including all the identified EIRA BBs and relationships.

- **Step 5** – The user reviews the reference architecture with the involved stakeholders, and adapts it if needed.

Comments

At this moment in time, the architect (user) does not have a reference architecture in place. A reference architecture defines a common way to address a specific set of architectural challenges (e.g. a reference architecture to be used by all systems supporting a specific policy). The EIRA can help the architect building a reference architecture, by providing the most salient BBs needed to build an interoperable solutions.

Outcome

A reference architecture is created. The reference architecture includes the BBs that are addressing the identified interoperability needs.

Other related use cases

Design solution architectures use case

European Commission

EIRA

Cart

Motivation

- The user needs to design the solution architecture of a new system that must support interoperability with Member States and/or European Union Institutions.

Basic Flow

- **Step 1** – The user uses the views EIRA to define the scope of the architecture to be designed, by identifying the ABBs that are needed to fulfil the interoperability needs of the system's stakeholders.

- **Step 2 –** A solution template is designed, which includes the needed sub-set of BBs of the EIRA. Existing solution templates can be used if their objective is in line with the interoperability needs of the solution architecture to be designed.

- **Step 3 –** For each of the ABBs part of the solution template, the user checks in his/her current IT landscape whether existing solutions of the organisation could be reused.
  - *Step 3.1 –* If a solution matches one of the ABBs, the user verifies if the solution is compliant with the interoperability (and other) requirements of that BB or if it can be updated to be compliant. If yes, the user maps the solution to the solution template.
  - *Step 3.2 –* If no matching interoperability solutions are compliant with the BB requirements, the user searches in the Cartography tool for re-usable solutions. The "Search for interoperability solutions" use case is included at this point. If a solution is found, the user maps the solution to the solution template.
  - *Step 3.3 –* If no matching solutions are found on the Cartography tool, the user initiates a project to develop a new SBB. The user maps the solution to be developed to the solution template.

Comments

The European Interoperability Reference Architecture can be used by architects to identify the most salient BBs needed to design a solution architecture supporting interoperability.

Outcome

A solution architecture is created, as a collection of interoperable SBBs mapped to a solution template.

Other related use cases

The use case "Search for interoperability solutions" is included in this use case.

Compare reference architectures use case

EIRA

Motivation

- The user needs to compare and evaluate an existing reference architecture (e.g. an architecture defined during the architecture vision phase or the architecture model of an existing system) to assess if it addresses specific interoperability needs.

Basic Flow

- **Step 1** – The user maps the BBs of the existing reference architecture to the BBs of the EIRA.

- **Step 2 –** The user checks the different views of the EIRA to verify if there are any missing BBs that are needed or that are relevant to solve the organisation's interoperability needs.

- **Step 3 –** The user adds to the existing reference architecture the missing BBs and the missing relationships with the existing BBs.

- **Step 4** – The user checks the different views of the EIRA to verify if there are any superfluous BBs (not needed to address any of the needs of its organisation) that can be removed from the existing reference architecture.

- **Step 5 –** If superfluous BBs are found, the user can remove the BBs from the reference architecture.

Comments

This use case is relevant when a reference architecture is already in place. The existing architecture might be already implemented through a solution architecture or still in the design phase.

Outcome

The existing reference architecture is compared to the EIRA and, where needed, updated by adding BBs or removing superfluous BBs in the different views. The revised reference architecture addresses the specific interoperability needs of the stakeholders.

Other related use cases

Compare solution architectures use case

EIRA

Cart

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.

Basic Flow

- **Step 1** - The user maps the SBBs of the existing solution architecture to the BBs of the EIRA (or to the BBs of a solution template, if available).

- **Step 2** - The user verifies if the interoperability (and other) requirements of the solutions mapped to the EIRA are satisfied by the SBBs of the existing solution architecture.

- **Step 3** - If all or a sub-set of SBBs are not fulfilling the requirements, the user can decide to upgrade the existing solutions to make them compliant.

- **Step 4** – If an upgrade is not possible, the user can search for interoperability solutions on the Cartography tool, and replace the existing solutions with re-usable solutions. The use case 'search for interoperability solutions' is included in this use case.

- **Step 5** - If no re-usable solutions are found, the user faces a need for developing a new solution. The user can start a development project by taking into account the interoperability (and other) requirements of corresponding BB in the EIRA.

Comments

This use case is relevant when a solution architecture is already in place (solutions are already in production), and a user faces a specific interoperability challenge that need to be addressed by its organisation.

Outcome

- The interoperability maturity of the solution architecture is assessed (per each 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.

Other related use cases

The use case 'search for interoperability solutions' is included in this use case.

Create portfolio use case

European Commission

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.

EIRA

Cart

Basic Flow

- **Step 1 –** The user creates a list of solutions that are currently operational (or being designed/developed) in his/her organisation. The user organises the list by type of services that each solution is providing.

- **Step 2 –** The user maps the solutions in the list to the architecture BBs of the EIRA, based on the identified type of services.

- **Step 3 –** For each solution, the user verifies if the interoperability (and other) requirements for that specific BB are fulfilled by the solution.

- **Step 4 –** The user marks as "interoperable" the solutions that fulfil the interoperability requirements and as "non-interoperable" the remaining solutions.

- **Step 5 –** The user documents in the Cartography the "interoperable" solutions that he is willing to share with other European partners. The "document interoperability solutions" use case is called at this point.

Comments

This use case is relevant if the user (portfolio manager) does not have already in place a portfolio of solutions. Using the EIRA to create the portfolio will help:

- Classifying the solutions according to a common reference model
- Facilitate the share and re-use of solution
- Evaluate the interoperability level of each solution

Outcome

- A new portfolio of solutions is created, mapped to the EIRA ABBs.
- "Interoperable" solutions are identified, and (optionally) shared with other partners.

Other related use cases

- "Document interoperability solutions" extends this use case

- The new portfolio can be regularly managed and updated by following the "Manage Portfolio" use case.

EIRA

Cart

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.

Basic Flow

- **Step 1 –** The user uses the EIRA to identify solutions in the current IT portfolio that can be mapped to the architecture BBs of the EIRA, based on the type of services that each solution is providing.

- **Step 2 –** For each solution, the user verifies if the interoperability (and other) requirements for that specific BB are fulfilled by the solution.

- **Step 3 –** The user marks as "interoperable" the solutions that fulfil the interoperability requirements and as "non-interoperable" the remaining solutions.

- **Step 4 (add new solutions):**

  - **Step 4.1 :** The user uses the EIRA to verify which additional ABBs are needed in his/her organisation to fulfil the new needs.

  - **Step 4.2**: The user uses the Cartography Tool to discover and download existing SBBs related to the ABBs identified in step 4.1. The "search for interoperability solutions" use case is included at this point.

  - **Step 4.3**: The user adds the discovered solutions to the portfolio.

- **Step 5 (dispose existing solutions)** - The user marks as "to be phased out" the solution that are not anymore necessary within the organisation, according to the new circumstances.

- *[continues on the next page]*

Comments

Throughout the IT portfolio lifecycle, the portfolio manager (the user) will (1) create new services and solutions, (2) update existing services and solutions, and (3) dispose existing services and solutions in the current IT portfolio. The EIRA can be used as a supporting tool in order to deal with these alterations in the IT portfolio.

Step 1,2,3 can be skipped if the existing portfolio has been created by following the "Create Portfolio" use case.

Outcome

- The existing IT portfolio is mapped with the EIRA.
- New re-usable interoperability solutions (from the Cartography) are added to the portfolio.
- The solutions in the existing portfolio to be updated, merged or phased out are identified.

Other related use cases

- The "rationalise portfolio" use case extends this use case.

- The use case "search for interoperability solutions" is included in this use case.

European Commission

EIRA

Cart

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.

Basic Flow (continuation)

- **Step 5 (update existing solutions) –** The user verifies which existing "non-interoperable" solutions need to be updated to fulfil new interoperability needs (e.g. an existing application needs now to exchange messages with systems of other European countries). For each of these solutions, the user estimates the effort to be compliant with the interoperability requirements of the related EIRA BB:

  - *Step 5.1 –* If the required effort is acceptable according to the available budget and resources the user launches a project to make the solution compliant with the requirements. The solution is marked as "to be updated".

  - *Step 5.2 –* If the required effort is not acceptable

    - *Step 5.2.1* - The user marks the solution as "to be phased out".

    - *Step 5.2.2 -* The user uses the Cartography Tool to discover and download existing solutions mapping to the same ABB of the EIRA. The "search for interoperability solutions" use case is included at this point.

    - *Step 5.2.3 -* The user adds the solution discovered at step 5.2.2. to the portfolio.

- **Step 6 (merge solutions) –** the user verifies if existing solutions in the portfolio mapping to the same ABB of the EIRA (if any) need to be merged to fulfil new needs (e.g. budget constraints). In this case, the "rationalise portfolio" use case is called.

Rationalise portfolio use case

European Commission

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.

EIRA

Cart

Basic Flow

- **Step 1** – The user conducts an assessment to decide which of the solutions, mapping to the same BB of the EIRA, need to be phased out. The interoperability maturity level of the solution is included among the criteria taken into account for the assessment. Other criteria, depending on the internal policies of the organisation, can be added to the assessment.

- **Step 2** – The user associates a score to each solution based on the defined criteria, and defines a minimum threshold that a solution needs to reach to justify further investments on the solution.

- **Step 3** – The user marks as "superfluous" the solutions that do not reach the defined threshold.

- **Step 4** - If two or more solutions can be merged in a single solution, by transferring some of the functionalities of a solution to another one, the involved solutions are marked as "to be merged".

- **Step 5** – The user considers for phasing out of the portfolio the solutions that are marked as "superfluous".

Comments

This use case is relevant when the user wants to rationalise the portfolio of solutions of its organisation, in case that multiple solutions are mapping to the same BB of the EIRA.

Outcome

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

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

Other related use cases

This use case is extending the 'manage portfolio' use case.

Structure architecture implications of a policy or thematic domain use case

European Commission

Motivation

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

EIRA

Cart

Basic Flow

- **Step 1 –** The user uses the EIRA to identify the different elements of the policy or thematic domain (e.g. stakeholders, legal assets, organisational assets, etc.) that can be mapped to the BBs of the EIRA.

- **Step 2 –** If the systems supporting the policy or the thematic domain are already described using the EIRA, the user investigates which other ABBs could be impacted by implementing or changing this policy or thematic domain.

- **Step 3** - The user uses the mapping of the policy or thematic domain with the EIRA to communicate in a structured way with the stakeholders involved in the project.

- **Step 4 –** If needed, the user can use the Cartography tool to verify if re-usable SBBs are available to fulfil the interoperability requirements of the policy or thematic domain.

Comments

The policy maker needs to take into account and clearly structure the elements that already exists or need to be developed during the lifecycle of a policy. By using the EIRA, the user can describe the current and desired state of a policy domain, discover different options for policy implementation and identify on which architecture BBs the policy has an impact.

Outcome

The architecture and interoperability implications of a policy or thematic domain are structured by using the EIRA model. The ABBs and relationships that are impacted whenever a change occurs are identified.

Other related use cases

Use Stories

FICTIONAL

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

Scenario 1 – Use cases

CHALLENGE

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

EIA in PRACTICE

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

Design solution architecture

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

Search for interoperability solutions

KEY BENEFITS

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

European Commission

FICTIONAL

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

Scenario 2 – Use cases

PROBLEM

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

EIA in PRACTICE

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

Structure the architectural implications of a policy

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

Compare reference architectures

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

Rationalise portfolio

KEY BENEFITS

- Structured communication with stakeholders

- Accelerated assessment of architectures

- Simplified decision-making process for application portfolio rationalisation

Acronyms

EIRA European Interoperability Reference Architecture

BB Building Block

ABB Architectural Building Block

SBB Solution Building Block

EIRA European Interoperability Reference Architecture

IES Interoperable European System

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EIRA
European Interoperability Reference Architecture

Cartography tool

For more information

EIA project collaborative space   https://webgate.ec.europa.eu/CITnet/confluence/display/EIA/EIA+Home

ISA website   http://ec.europa.eu/isa/index_en.htm

ISA FAQ   http://ec.europa.eu/isa/faq/faq_en.htm