ISA Coordination group meeting

13 March 2014
Project Officer: Dr. R. Abril

Status Update – European Interoperability Architecture (EIA) action of ISA
The European Interoperability Reference Architecture (EIRA) and the European Interoperability Cartography (EICart) is work-in-progress. **No part of this document should be reproduced or transmitted**, in digital or paper form, without the prior permission of the ISA Programme of the European Commission.
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Positioning towards other architecture development resources
Introduction to the EIA action
The European Interoperability Architecture action (EIA) is in the process of developing a reference architecture for classifying and organising the most salient building blocks, relevant to interoperability, used in the delivery of digital public services.
Main work products of the EIA action

EIRA
European Interoperability Reference Architecture

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

EICart
European Interoperability Cartography

A mapping of solutions to the Building Blocks of the EIRA.
Crafting the EIRA and the EICart

The sequence of validation activities is for illustration purpose only

Initial draft

January

Review by DGs

Review by Academia

December

Review by Standardisation Bodies

May

Review by Other EU initiatives

March

Review by Private entities

Validation by Member States

Validated version

Updated EIRA and EICart

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Objectives of the EIA action

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

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

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

**Discovering and Reusing**
Ease the discovery and reuse of interoperability solutions through the European Interoperability Cartography – ElCart in Joinup website.
Use cases of the EIA action

Designing
- Design solution architectures
- Design reference architectures

Assessing
- Compare reference architectures
- Compare solution architectures
- Rationalise portfolio
- Manage portfolio

Communicating and Sharing
- Structure the architectural implications of policy or thematic domains (to the extent of the four views of the EIRA)
- Document interoperability solutions

Discovering and Reusing
- Search for interoperability solutions
Status update on the EIA action
Planning Highlights

**T2**
Completion of EIRA

- Interviews and workshops with stakeholders
- Interviews with 18 TES owners
- Positioning of EIRA 6th Mar
- Use cases 14th Mar
- Updated EIRA 20th Mar
- Draft version of EICart (Excel) 26th Feb

**T3**
Definition of EICart environment

- Range of tools 14th Mar
- EICart Storage and access req. 24th Apr
- Implementation of the IOP Cart. Tool 24th Apr
- Update and validation of EICart 6th May

**Legend:**
- Online meeting (O) / Workshop (W)
- No specific input from other actions
- Input received from EIS and EIF
- Input received only from EFIR action
- Input received from EFIR action and TES owners

**Timeline:**
- Feb '14
- Mar '14
- Apr '14
- May '14

- ISA WG meeting Prep. 1st Apr
- EIRA Storage and access req. 24th Apr
- Roadmap of architectural solution templates 6th May
- Pilot of architectural solution template 6th May
- ISA Interoperability WG 13th May

**Input received from EFIR actions and TES owners:**
- No specific input from other actions

**Legend:**
- Online meeting (O) / Workshop (W)
- No specific input from other actions
- Input received from EIS and EIF
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**Legend:**
- Online meeting (O) / Workshop (W)
- No specific input from other actions
- Input received from EIS and EIF
- Input received only from EFIR action
- Input received from EFIR action and TES owners
Approach for the endorsement from Member States

Podcast
- 20-minute videocast available to all Member States

Conference Calls
- Conference calls with Member States

Presentation Working Group
- Request for comments on the EIA action - 13 May 2014
Help us validate the EIRA

At this point the EIA action aims at working with key stakeholders (i.e. ISA actions, Public Administrations, Standardisation Bodies, Commission services, other EU bodies and relevant Experts) towards the validation of the EIRA and its use in the EICart. One of the main goals of the EIA action is to validate and update the EIRA. This will be performed by receiving your input on:

- missing building blocks;
- missing relationships between building blocks;
- superfluous building blocks or relationships;
- other possible ‘errors’ in the EIRA; and
- any other comment on the positioning of the EIRA and of the EICart.
European Reference Architecture (EIRA) explained
European Interoperability Reference Architecture

Legal view

Organisational view

Semantic view

Technical view
Application and Infrastructure
Generic Organisational View

Organisational View

Organisational Enablers

Organisational Policy
Organisational Procedure
Organisational Structure

Organisations

Business
Public Administration

User
Interoperability Agreement

Service Provider

Citizen

Aggregated Public Service

Basic Public Service

Public Service

Business Process
Information Exchange
Business Transaction

Policy

Business Information Entity

European
National
Sub-National

Information Exchange

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## Narrative of the Organisational View

**Generic**

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

**IMI**

[DIGIT is the system supplier and DG MARKT the system owner of IMI, both play] the role of Service Provider supplying [electronic notifications and information request services] to the [competent authorities of the Member States] and [citizens] in the role of Users, according to a [Single Point of Contact model]. [Competent authorities] belong to [specific sectors defined in the Directive on services in the Internal Market] and to [every geographic location]. The delivery of this service is realised through the [Notifications and information request processes], which support the [Recognition of professional qualifications Directive, posting of workers Directive, Services directive and e-Commerce Directive]. The business processes enclose [information requests and notifications transactions] of defined [Professional qualifications, posted workers, cross-border and e-commerce services].

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Generic Semantic View

Semantic View

Metadata

Metadata Management Policy

Attribute

Data Policy

Data Entity

Data Model

Reference Data

Licensing & Charging Policy

Security & Privacy Policy

Identifier Schema

Controlled Vocabulary

Dataset

Data Catalogue

Data

Metadata Catalogue

contains

applies to
**Narrative of the Semantic View**

<table>
<thead>
<tr>
<th>Generic</th>
<th>IMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>The [Data Entities] are described according to the [Data Model] and [Reference Data]. These are managed according to the [Metadata Management Policy]. This data is classified according to the [Security &amp; Privacy Policy], in terms of Confidentiality the data is [Level] in terms of Integrity and Availability the data is [Level]. A [Licensing &amp; Charging Policy] is applied/ not applied. The data is published/ not published in a [Data Catalogue] and its metadata is available/ not available in a [Metadata Catalogue].</td>
<td>The [notifications and the questions and answers], along with the specific business entities treated by IMI ([professional qualifications, posted workers, services]), are described according to the [IMI 1.0 data model]. This data is classified according to the [general security policy for the EC Information Systems]. The data are published in [specific IMI directories] and the metadata of its services are formalised according to [WSDLs].</td>
</tr>
</tbody>
</table>
Semantic View of IMI

- **Notifications**
- **Questions and Answers**
- **Data Catalogue**
- **Metadata Catalogue**
- **IMI 1.0**

**Notifications data model**
- **Questions and Answers data models**
- **Professional qualifications, posted workers, services data model**

**General security policy for the EC Information Systems**
- **Licensing & Charging Policy**
- **Security & Privacy Policy**
- **Identifier Schema**
- **Controlled Vocabulary**
- **Reference Data**
- **Data Policy**
- **Attribute**

**Specific IMI directories**

**Metadata** contains:
- **Metadata Management Policy**

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

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

Marco can use the EICart to find reusable solutions for the building blocks he needs.

KEY BENEFITS

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

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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.
Christine can use the EIRA to understand her DG’s architecture and identify missing building blocks.
Christine can map the current applications to the EIRA building blocks, and plan which ones have to be dismissed, merged or replaced.

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

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Positioning towards other architecture development resources
From the EIF to the EIA

**European Interoperability Framework**

- Cooperating partners with compatible visions, aligned priorities, and focused objectives
- Aligned legislation so that exchanged data is accorded proper legal weight
- Coordinated processes in which different organisations achieve a previously agreed and mutually beneficial goal
- Precise meaning of exchanged information which is preserved and understood by all parties
- Planning of technical issues involved in linking computer systems and services

**Political Context**

- Legal Interoperability
- Legislative Alignment
- Organisational Interoperability
- Organisation and Process Alignment
- Semantic Interoperability
- Semantic Alignment
- Technical Interoperability
- Interaction & Transport

**European Interoperability Architecture**

**European Reference Architecture**

- *Political context*
- Legal View
- Organisational View
- Semantic View
- Technical View – Application
- Technical View – Infrastructure
Zoom in the architectural resources of the Commission

CEAF

DIGIT 01

EIRA

European Interoperability Reference Architecture

DIGIT B2 - ISA

EICart

European Interoperability Cartography

Reference Architecture Project

DIGIT B

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EIA bridges EA and System Architecture

ENTERPRISE ARCHITECTURE
How to go from As-Is to To-Be

INTEROPERABILITY ARCHITECTURE
How to organise & discover BBs
Assess & communicate architectures

SYSTEM ARCHITECTURE
How to implement BBs

Context neutral architecture development resources

- TOGAF
  Framework, Toolbox, Method
- EIF
  Framework
- OASIS SOA RM
  Framework
- OASIS TGF
  Framework, Toolbox, Method
- EIRA
  European Interoperability Reference Architecture
  Toolbox
- IPCIS
  Framework, Toolbox

Context specific architecture development resources

- e.g. TEMPO
  Framework, Toolbox, Method
- e.g. Germany – SAGA
  Framework, Toolbox, Method
- e.g. Netherlands – NORA
  Framework, Toolbox, Method
- e.g. CEAF
  Framework, Toolbox, Method

EICart
European Interoperability Cartography

Collections of Solutions

JoinUp

Focus on Building Blocks (BBs) and how they relate to one another

Mapping of existing solutions to the BBs of the EIRA

For example:

Architectures

Solution Space

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Annex
Example of complementarity with CEAF

<table>
<thead>
<tr>
<th>Function</th>
<th>Application</th>
<th>Technical</th>
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CEAF

Architecture lifecycle

EIRA

- Describe current architecture
- Describe target architecture
- Describe transitional process
- Select Architectural standards
- Create descriptions of systems
- Create reference architectures
- Compare reference architectures
- Compare solution architectures
- Search for reusable solutions
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEAF</td>
<td>Commission Enterprise IT Architecture Framework</td>
</tr>
<tr>
<td>CIO</td>
<td>Chief Information Officer</td>
</tr>
<tr>
<td>EIA</td>
<td>European Interoperability Architecture</td>
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<tr>
<td>EICart</td>
<td>European Interoperability Cartography</td>
</tr>
<tr>
<td>EIRA</td>
<td>European Interoperability Reference Architecture</td>
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<tr>
<td>ISA</td>
<td>Interoperability Solutions for European Public Administrations</td>
</tr>
<tr>
<td>SOA</td>
<td>Service Oriented Architecture</td>
</tr>
<tr>
<td>TES</td>
<td>Trans-European System</td>
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<tr>
<td>TOGAF</td>
<td>The Open Group Architecture Framework</td>
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