

8.2 INTEROPERABILITY MATURITY MODEL (2016.37)

8.2.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common frameworks
Service in charge	DIGIT.B6
Associated Services	

8.2.2 EXECUTIVE SUMMARY

The Digital Agenda for Europe has identified the lack of interoperability as a major obstacle for growth. More recently the Digital Single Market strategy promotes interoperability and standards as important enablers for the digital single market. Although EU Member States have accomplished significant work in this domain, it has proven difficult to assess the progress made so far by the different public administrations to reach higher levels of Interoperability (IOP). The Interoperability Maturity Model (IMM) helps verify the level of implementation of the vision laid out in the European Interoperability Strategy (EIS). Based on the IMM, a self-assessment IOP Maturity Tool (and an IOP checklist) has been developed. IMM measures how well a public service is able to interact with other organizations to realise mutually beneficial and agreed common goals through the exchange of information and reuse of services. The purpose for using IMM can be: a) descriptive, to describe the as-is interoperability maturity level of a Public Service, b) prescriptive to provide guidance based on the long standing experience of the European Commission and benchmark participants through recommendations to improve interoperability, and c) comparative to allow a benchmark based comparison amongst peers. IMM is in alignment with and has incorporated interoperability aspects and definitions stemming from other ISA Actions. Up to now, more than 30 public services, at European and national government levels, have been benchmarked. According to the feedback collected during those 'real-life' applications of the model, the self-assessment nature of the IMM can be further increased via the development of a supporting ecosystem that will facilitate the execution of the model. IMM will be updated based on the revised European Interoperability Strategy and European Interoperability Framework and the need for new IMM modules and/or configurations should be explored. More work is also to be done on how to exploit IMM for identifying common patterns of interoperability-related problems.

8.2.3 OBJECTIVES

The objective of this action is:

- a) To put in place a model that can measure the interoperability maturity level of public services. To maintain and revise the Interoperability Maturity Model (IMM) and the accompanying tools;
- b) To strengthen the self-assessment nature of the model;
- c) To promote and support the application of the IMM at European and/or national level;
- d) To draft conclusions for the best practices, bottlenecks, and challenges in achieving high levels of interoperability maturity; and
- e) To exploit IMM for identifying common patterns of interoperability-related problems.

8.2.4 SCOPE

Every European public service is in scope of this Action. More precisely, the Action will examine possible updates and extensions of the model to cover additional requirements, coming from different sources: a) the performed assessments and the received feedback, b) progress in other ISA/ISA² Actions (e.g. EIRA, SEMIC, Base registries, Catalogue of services etc.), c) relationship with other similar models developed elsewhere.

Moreover, the IMM attributes will provide input to the definition of the criteria for assessing the building blocks included in the European Interoperability Cartography (EIC) in coordination with actions such as the EIRA and Sharing and Reuse..

To strengthen the self-assessment nature of the model, a set of supporting tools (e.g. electronic user guide, wiki, communication of how other public service owners have used IMM and their experiences etc.) will be developed in order to facilitate the application of the IMM from user's perspective. Moreover, IMM will be aligned with the revised European Interoperability Strategy and European Interoperability Framework to include interoperability aspects not currently covered. A methodology for configuring the model to country or domain specific context will be proposed and tested and possible ways for further exploitation of the collected assessment data will be explored.

8.2.5 PROBLEM STATEMENT

The Digital Single Market strategy sees interoperability as a basic enabler for the single market. Although Member States have significantly worked in this domain, it is difficult to assess the progress made so far by each public administration.

An interoperability maturity model helps towards both raising interoperability awareness and providing a tool for public administrations to assess their interoperability readiness. In turn, this action will be complemented, so as to provide public administrations a tool for gap analysis of dos/don'ts when creating or establishing a European Public Service.

8.2.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States' public administrations	Assess their interoperability maturity against a common framework. In turn, this will also contribute to identify current interoperability gaps in public service provision. Use the model as a guide to develop interoperable services by design.
European Commission Services and MSs administrations	Assess the interoperability maturity of existing or new Trans European Systems owned by the EC and systems that are being used inside the EC in order to cover any internal business or operational needs. Use the model as a guide to develop interoperable services by design.

8.2.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	The development of interoperable applications is among the priorities of the newly established Digital Single Market. IMM is a tool that facilitates the assessment of the progress made so far inside Public Administrations, identifies interoperability areas where further improvement is needed and provides recommendation steps for achieving a higher maturity level.
Communication "Towards interoperability for European public services". Revision of the European Interoperability Framework	EIF was the basis for defining the interoperability attributes included into the IMM. To make this interrelation explicit, each interoperability attribute within IMM is linked with one or more EIF-layers (technical, semantic, organisational and legal interoperability).
ISA Action 1.1 Promoting semantic interoperability amongst European Public Administrations	IMM incorporated definitions and interoperability aspects defined in the context of the ISA Action 1.1
ISA Action 1.2 Access to Base Registries	IMM incorporated interoperability aspects defined in the context of the ISA Action 1.2
ISA Action 1.3 Catalogue of Services	IMM incorporated interoperability aspects defined in the context of the ISA Action 1.3
ISA Action 2.1 European Interoperability Architecture	IMM incorporated definitions and interoperability aspects defined in the context of the ISA Action 2.1. Action 2.1 will analyse the IMM interoperability attributes to define the assessment criteria for the European Interoperability Cartography (EIC)
ISA Action 2.2 Common Assessment Method for Standards and Specifications	IMM incorporated interoperability aspects defined in the context of the ISA Action 2.2
ISA Action 2.14 Assessment of Trans-European Systems supporting EU policies	IMM incorporated interoperability aspects defined in the context of the ISA Action 2.14
ISA Action 3.1 Assessment of ICT implications of EU legislation	IMM incorporated interoperability aspects defined in the context of the ISA Action 3.1
ISA Action 4.2.3 National Interoperability Framework Observatory	IMM incorporated interoperability aspects defined in the context of the ISA Action 4.2.3

ISA Action 4.2.4 European Federated Interoperability Repository	Action 4.2.4 will analyse the IMM interoperability attributes to define the assessment criteria for the European Federated Interoperability Repository (EFIR)
ISA Action 4.2.5 Sharing and Reuse	IMM incorporated definitions and interoperability aspects defined in the context of the ISA Action 4.2.5

8.2.8 REUSE OF SOLUTIONS DEVELOPED BY ISA, ISA² OR OTHER EU / NATIONAL INITIATIVES

The notion of reusability is at the heart of the IMM model: the model assesses if and how a public services automatically consumes other services and how efficiently it provides services to the external world. IMM includes a list of available reusable services and evaluate whether the assessed public service consumes or provides these services in an interoperable fashion. This list includes pan-European reusable services and other interoperability aspects as documented by the ISA Action 'Assessment of Trans-European Systems supporting EU policies' and services corresponding to architectural building blocks as defined in the ISA Action 'European Interoperability Architecture (EIA).

Moreover, all IMM definitions and interoperability attributes were refined based on their interrelations with other ISA Actions – including among others: 'Promoting semantic interoperability amongst European Public Administrations', 'Access to Base Registries', 'Catalogue of Services', 'EIA', 'Common Assessment Method for Standards and Specifications', 'Assessment of Trans-European Systems supporting EU policies', 'National Interoperability Framework Observatory', 'Sharing and Reuse' 'Assessment of ICT implications of EU legislation' – resulting in a model that is in line with interoperability aspects covered and promoted by other ISA Actions. Based on that analysis, either new interoperability attributes were introduced such as 'Service Catalogue', 'Architecture Framework' and 'Metadata Management Policy' or existing attributes where updated e.g. 'Type of semantic standards', 'Common protocol usage', 'Open Data', 'BPM standards' and 'Procurement'.

In addition, ISA Action 'European Interoperability Architecture' will analyse the IMM interoperability attributes to define the assessment criteria for the European Interoperability Cartography (EIC) and Action 'European Federated Interoperability Repository' will analyse the IMM interoperability attributes to define the assessment criteria for the solutions included in the relative repository.

8.2.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Updated Interoperability Maturity Model
Description	alignment of the model with the revised European Interoperability Strategy and European Interoperability Framework and the design and implementation of new modules in order to incorporate new interoperability aspects.
Reference	https://joinup.ec.europa.eu/elibrary/document/interoperability-maturity-model
Target release date / Status	2016

Output name	IMM as a service
Description	The development of the tool will continue during the ISA ² Work Programme 2016 and its planned provision on Joinup will pave the way for a more wide and intense dissemination of the IMM and allow for a more systematic processing of the results. The web-tool will be accompanied by an ecosystem of several supporting tools (e.g. electronic user guide, wiki, communication of how other public service owners have used IMM and their experiences etc.) which will further simplify the execution of the model from user's perspective.
Reference	https://joinup.ec.europa.eu/elibrary/document/interoperability-maturity-model
Target release date / Status	2016

8.2.10 ORGANISATIONAL APPROACH

8.2.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States	ISA ² Coordination Group or ISA CG equivalent
Member States' public administrations	Providers of public services, who used or are willing to use IMM in order to assess the interoperability maturity of their services
European Commission Services and MSs administrations	Providers of existing or new Trans-European services that are being used inside the Commission., who used or are willing to use IMM in order to assess the interoperability maturity of their services

8.2.10.2 Communication plan

The IMM structure together with the conclusions from real-life assessments have been presented to Member State representatives during various meetings of the ISA Coordination Group.

The main communication channel is the Joinup collaborative platform where all supporting IMM documentation has been uploaded, including the IMM questionnaire, the IMM guidelines and the IMM recommendations, and also many relevant news items have been published. Moreover, a Wikipedia page was created with similar content.

In the context of the overall ISA² communication activities, IMM is and will be presented in several events and conferences. The development of the web-based assessment tool, the analysis of the collected results together with the completion of the fine-tuning process of the IMM (see Technical

Approach) are factors which allow putting emphasis on promotional activities. These activities can include organization of workshops and/or promotion of the IMM to national public service owners.

8.2.10.3 Governance approach

The organisational approach includes:

- a) The ISA² Coordination Group which sets the general strategic directions of the Action and ensures that all initiatives are coordinated and aligned with relevant actions at European and /or national level; and
- b) The ISA² Programme Management Team (DG DIGIT B6) that identifies the priorities, organises the activities, safeguards the proper execution of the IMM development and communication plan and reports the progress and the results of the Action to the ISA² Coordination Group.

8.2.11 TECHNICAL APPROACH

As the notion of subsidiary is important in this focus area, the role of the Commission is to coordinate efforts and to steer a possible common approach, taking also into consideration inputs from other stakeholders (industry and other organisations).

Under the ISA programme, a study has been conducted in the field of interoperability maturity models from national and international perspectives, focusing specially in those models that have been successfully applied in practice. While analysing a number of use cases and benchmarks, this action has validated the ease of use, relevance and completeness of a proposed maturity model.

This has led to the first version of the IMM that measures how well a public service is able to interact with other services to realise mutually beneficial and agreed common goals through the exchange of information and reuse of services. The proposed model, as a self-assessment method, has been made available after several refinements through a toolkit that is structured around: a) the IMM report explaining the methodology, how IMM was developed and how it can be used, b) the guidelines designed to help people filling in the questionnaire and c) an interoperability questionnaire.

A number of European Public Services, covering different domains and provided by different Trans European Systems, together with a significant number of national public services, were assessed during the last two years using the IMM model and based on the results gathered from these evaluations important recurring interoperability challenges and best practises in the provisioning of European public services were identified and the proposed model was fine-tuned.

In 2015, IMM was further refined based on the results from analysing the alignment of the model with a selected set of other ISA Actions and an interoperability checklist was published intended for those involved in designing a public service in order to raise awareness on how to design it by default in an interoperable way.

In addition, to strengthen the self-assessment nature of the IMM, the development of a web-tool was initiated in order to a) facilitate the public service owners to apply the model and b) support the statistical analysis of the collected data. The development of the tool will continue during the ISA² Work Programme 2016 and its planned provision on Joinup will pave the way for a more wide and intense dissemination of the IMM and allow for a more systematic processing of the results. The web-tool will be accompanied by an ecosystem of several supporting tools (e.g. electronic user guide, wiki, communication of how other public service owners have used IMM and their experiences etc.) which will further simplify the execution of the model from user's perspective.

The foreseen activities for the ISA² Work Programme 2016 include the alignment of the model with the revised European Interoperability Strategy and European Interoperability Framework and the design and implementation of new modules in order to incorporate new interoperability aspects. A methodology for configuring the model will be proposed and tested and possible ways for further exploitation of the collected assessment data will be explored. Among others, the identification of common patterns regarding interoperability-related problems and the identification of new IMM modules are directions that will be further investigated to extend the usefulness of the model in the European interoperability landscape.

8.2.12 COSTS AND MILESTONES

8.2.12.1 Breakdown of anticipated costs and related milestones

Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA ² / others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Phase 4	a) Development of an ecosystem for supporting the self-assessment nature of the model, b) alignment with the revised EIS and EIF, c) usage of the model in order to identify common patterns of interoperability-related problems and challenges among public services and, d) implementation of new IMM modules and/or configurations based on needs identified in all previous phases.	200	ISA ²	Q2/2016	Q1/2017
	Total	200			

8.2.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
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2016		200	
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8.2.13 ANNEX AND REFERENCES

Description	Reference link
IMM documentation	https://joinup.ec.europa.eu/elibrary/document/interoperability-maturity-model