



Set of feasibility criteria for solutions which meet the information requirements described in D.2.1.a

Study on semantic interoperability for representation powers and mandates

03/07/2017

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Document characteristics

Property	Value
Release date	03/07/2017
Status:	Accepted
Version:	1.0
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1. Executive Summary

In the context of 'D.2.1.c Set of feasibility criteria for solutions which meet the information requirements described in D.2.1.a' deliverable of Task 02 – Production of requirements and good practices under framework contract DI/07171-00 - Lot 2 for “Study on Semantic interoperability for representation powers and mandates” project, this report proposes **a set of feasibility criteria to assess potential solutions for cross-border electronic powers and mandates**.

Representation powers and mandates are an essential element for businesses establishing relationships with other businesses, governments and customers, because legal persons can only act legally by means of natural persons in most countries. Currently, there are important barriers that hinder the adoption of an EU wide solution for cross-border transfer of representation information, being one of the most relevant the lack of a common legal and semantic framework. Representation is complex, and electronic mandates schemes and policies are basically national and usually do not contemplate the possibility to use those mandates in cross-border scenarios.

The proposed set of feasibility criteria will support the creation of an interoperable ecosystem of electronic powers and mandates by:

- Allowing to **assess and rank existing solutions** which contribute or can potentially contribute to powers and mandates interoperability at national and European levels and can be re(used) in cross-border and cross-sector scenarios at European level.
- Allowing to **develop solutions** which will contribute to powers and mandates interoperability and can be re(used) in cross-border and cross-sector scenarios at European level.

In the present document, it is assumed that to achieve cross-border interoperability, interoperability should be in place at each of the four interoperability levels recommended by the European interoperability framework¹ (EIF): legal, organisational, semantic and technical. Consequently, the feasibility criteria have been proposed at the **four interoperability levels recommended by the EIF**.

Several frameworks, set of criteria and tools which aim at assessing interoperability have already been developed by different European initiatives and programmes (e.g. ISA² Programme), such as the EIF, the Interoperability Maturity Model² and the Interoperability assessment criteria, methodology/ tools and guidelines³. The proposed feasibility criteria are based on these frameworks and tools. They have been adapted and extended to assess cross-border and cross-sector interoperability of powers and mandates at European level.

¹ http://eur-lex.europa.eu/resource.html?uri=cellar:2c2f2554-0faf-11e7-8a35-01aa75ed71a1.0017.02/DOC_3&format=PDF

² https://ec.europa.eu/isa2/solutions/imm_en

³ https://joinup.ec.europa.eu/sites/default/files/interoperability_quick_assessment_toolkit.pdf

Feasibility criteria

To this end, 24 feasibility criteria have been proposed. These criteria not only aim to assess interoperability but also other aspects such as European regulations and initiatives compliance, user centricity, scalability, reusability, cost-benefit or security-risk assessments.

In addition, the criteria have been divided into two categories: **hard criteria (9 criteria)**, to which the solutions needs to adhere in order to be considered in scope of this study, and **soft criteria (15 criteria)**, which allows to measure the degree of interoperability of a given solution and their mutual comparison. These criteria cover, among other aspects, regulation compliance, reusability, identification and representation of natural and legal persons as well as mandates, use of existing semantic definitions and standards for the exchange of information, confidentiality, availability and integrity of the data and the use of common technical standards and reference architectures.

2. Introduction

The following report proposes a set of feasibility criteria to assess potential solutions for cross-border electronic mandates. More formally, it is the **'D.2.1.c Set of feasibility criteria for solutions which meet the information requirements described in D.2.1.a'** deliverable of Task 02 – Production of requirements and good practices under framework contract DI/07171-00 - Lot 2 for “Study on Semantic interoperability for representation powers and mandates” project. This project is framed within Action 2016.12 - Semantic interoperability for representation powers and mandates of the Interoperability Solutions for Public Administrations (ISA²) Programme.

2.1 Context

Representation of powers and mandates are an essential element for businesses establishing relationships with other businesses, governments and customers, because legal persons can only act legally by means of natural persons in most countries. Currently, there are important barriers that hinder the adoption of an EU wide solution for cross-border transfer of representation information, being one of the most relevant the lack of a common legal and semantic framework. Representation is complex, and electronic mandates schemes and policies are basically national and usually do not contemplate the possibility to use those mandates in cross-border scenarios.

To this end, the ISA² Programme has launched the Action 2016.12, “Semantic interoperability for representation powers and mandates”, whose main goal is to create a shared European data model about representation powers and mandates, which allows powers of representation and mandates information originated in the information systems of one country to be directly processed automatically by the information systems in other country.

Different phases and activities are foreseen under ISA² Action 2016.12 in order to achieve this goal. Recently, a study has been conducted as part of 'D01.1 Study about cross-border interoperability of powers and mandates' deliverable of Task 01 – Study about cross-border interoperability of powers and mandates. This study analyses the current situation on how electronic powers and mandates are managed in the individual MS and at EU level, identifying and prioritising those services, projects and/or domains with potential cross-border interoperability needs within this field.

Linked to this study and based on the aforementioned information, common information requirements of the services/projects/domains which allow to use interoperable interconnection of representation information will be defined. In addition, solutions fitting the defined common information requirements will be analysed and ranked, by using a set of feasibility criteria, in order to present a comprehensive overview of the cross-border representation powers and mandates landscape at a European level.

Figure 1 illustrates the information stated above.

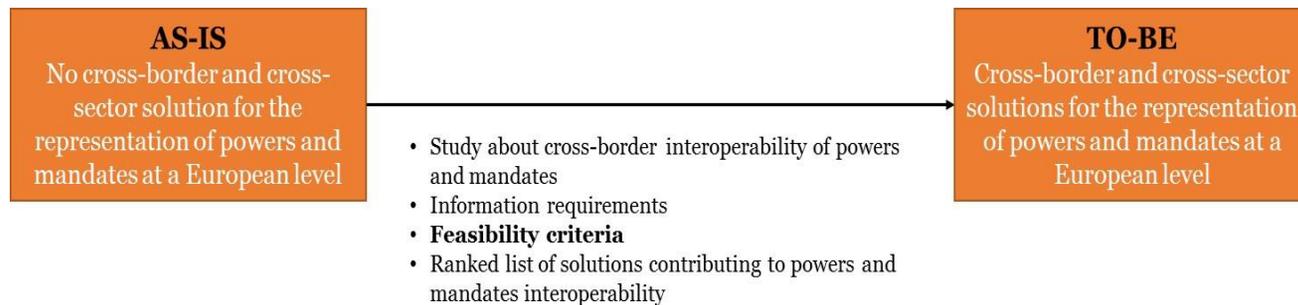


Figure 1: Situating the feasibility criteria

2.2 Document objectives

The objective of this report is to propose a set of feasibility criteria in order to:

- Define to what extent a solution fits an information requirement (described in 'D.2.1.a List of common information requirements of the prioritized services/projects/domains'); and
- Select the most suitable solutions out of the long list of potential solutions presented in 'D.2.1.b and d Long list of solutions which fulfil the identified information requirements'.

2.3 Scope

The feasibility criteria will be proposed at the different interoperability levels recommended by the European Interoperability Framework (EIF): legal, organisational, semantic and technical.

2.4 Intended audience

This document intends to reach out to DIGIT project officers for 'a study on Semantic interoperability for representation powers and mandates' project as well as other external stakeholders such as European institutions, Member States, public administrations or technology consultants, who:

- Need a comprehensive set of feasibility criteria to define at what extend a solution fits an information requirement (described in 'D.2.1.a List of common information requirements of the prioritized services/projects/domains'); and
- Need a comprehensive set of feasibility criteria to select the most suitable solutions contributing to cross-border interoperability of power and mandates at European level.

2.5 Document structure and approach

The information presented in this report is based on the results and conclusions provided by:

- The study conducted during Task-01- Study about cross-border interoperability of powers and mandates with regards to services, projects and domains prioritized; and
- The common information requirements of the prioritized services/projects/domains listed in Task 02 deliverable - D.2.1.a List of common information requirements of the prioritized services/projects/domains.

This document is structured as follows:

- Section 1 gives an executive summary of the purpose of the report and the main aspects that are covered throughout the different sections of the document.
- Section 2 presents a brief description of what the report is about. It includes a brief explanation on the context of the project, the problem statement and the objectives of the report. It also defines the scope of the report, the structure and the approach followed as well as the intended audience.
- Section 3 defines what cross-border interoperability means in order to better understand when a service contributes to cross-border interoperability of powers and mandates at European level.
- Section 4 proposes the feasibility criteria for cross-border interoperability of powers and mandates for the four interoperability levels recommended by the EIF.
- Section 5 presents the conclusion and next steps of this report.

- Annex I. Glossary of terms and acronyms lists the glossary of terms and acronyms.

3. Defining what cross-border interoperability means

Electronic powers of representation and mandates allow natural and legal persons to act as representatives for other citizens or companies when using e-services. These services comprise any service exposed to a cross-border and cross-sector dimension and supplied by organisations either to one another or to citizens in the Union.

As stated by the European Interoperability Framework (EIF), “interoperability is the ability of organisations to interact towards mutually beneficial goals, involving the sharing of information and knowledge between these organisations, through the business processes they support, by means of the exchange of data between their ICT systems.”

For the purpose of this document, ‘organisations’ means public administrations, EU institutions and bodies as well as businesses. The domains covered by these organisations can be grouped into the financial, administrative, legal, banking, health, education, business, procurement and legal as listed in ‘Task-01- Study about cross-border interoperability of powers and mandates’.

Following EIF’s recommendations, four interoperability levels can be distinguished:

- **Legal interoperability:** ensuring that organisations operating under different legal frameworks, policies and strategies are able to work together. This might require that legislation does not block the establishment of European services within and between Member States and that there are clear agreements about how to deal with differences in legislation across borders, including the option of putting in place new legislation;
- **Organisational interoperability:** ensuring that organisations align their business processes, responsibilities and expectations to achieve commonly agreed and mutually beneficial goals. In practice, organisational interoperability means documenting and integrating or aligning business processes and relevant information exchanged. Organisational interoperability also aims to meet the requirements of the user community by making services available, easily identifiable, accessible and user-focused;
- **Semantic interoperability:** ensuring that the precise format and meaning of exchanged data and information is preserved and understood throughout exchanges between parties. This can include developing vocabularies and schemas to describe data exchanges; and
- **Technical interoperability:** covering the applications and infrastructures linking systems and services. This includes interface specifications, interconnection services, data integration services, data presentation and exchange, and secure communication protocols. Technical interoperability should be ensured, whenever possible, via the use of formal technical specifications.

In the present document it is assumed that to achieve cross-border interoperability, interoperability should be in place at each of these four levels.

4. Proposed feasibility criteria

This section establishes the feasibility criteria for cross-border interoperability of powers and mandates at European level. These criteria are proposed at the four interoperability levels recommended by the EIF: legal, organisational, semantic and technical. The proposed set of feasibility criteria are an important step on the path towards a cross-border and cross-sector interoperability landscape for representation of powers and mandates at European level.

They will support the creation of an interoperable ecosystem of powers and mandates by:

- Allowing to **assess** and **rank existing solutions** which:
 - **contribute** to powers and mandates interoperability at **national and European levels** and can be re(used) in cross-border and cross-sector scenarios at European level;
 - are not currently contributing but **can potentially** be adapted to **contribute** to powers and mandates interoperability and can be re(used) in cross-border and cross-sector scenarios at **European level**.
- Allowing to **develop solutions** which **will contribute** to powers and mandates interoperability and can be re(used) in cross-border and cross-sector scenarios at **European level**.

Figure 2 illustrates the information presented above.

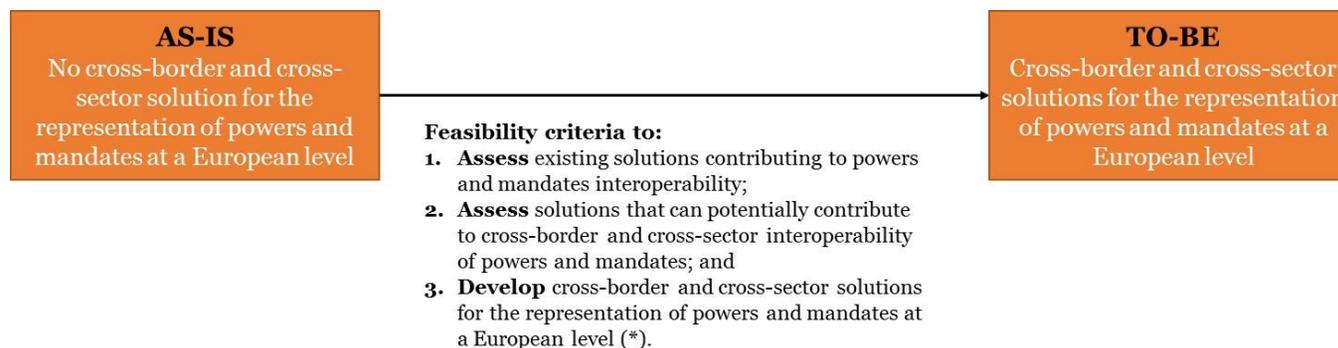


Figure 2: Role of feasibility criteria

Several frameworks, set of criteria and tools which aim at assessing interoperability levels have already been developed by different European initiatives and programmes, such as:

- European interoperability framework⁴ (EIF): commonly agreed approach to the delivery of European public services in an interoperable manner. It defines basic interoperability guidelines in the form of common principles, models and recommendations;
- Interoperability Maturity Model⁵ (IMM) – ISA² Programme: self-assessment tool that can provide the users with an analysis on the interoperability of their services and recommendations on how to improve them. The tool can be used to identify interoperability needs, bottlenecks and best practices; and
- Interoperability assessment criteria, methodology/ tools and guidelines⁶ - Assessment of Trans-European Solutions supporting EU Policies, ISA² Programme: quick Assessment Toolkit including a methodology for the assessment of the interoperability level of solutions. This toolkit aims at assessing the potential interoperability of software solutions, in general, and of Trans-European Solutions (TES) in particular.

Based on the above mentioned frameworks and tools, the proposed feasibility criteria have been adapted and extended to assess cross-border and cross-sector interoperability of powers and mandates at European level.

The proposed feasibility criteria are divided into two categories:

- **Hard criteria** are the criteria to which the solution needs to adhere in order to be considered as contributor to the cross-border and cross-sector interoperability of powers and mandates ecosystem. In case the solution does not comply with one of the hard criteria, it will be considered out of the scope of this study. As such, hard criteria are of utmost importance.
- **Soft criteria** are the criteria which allow to measure the degree of interoperability of a given solution. Non-compliance to these criteria do not lead to the exclusion of the solution, as the main purpose of these criteria is to allow the solutions to being ranked and compared to one another. As such, these criteria are not imperative of kind, but can rather be used as a guidance towards the most optimal solution.

⁴ http://eur-lex.europa.eu/resource.html?uri=cellar:2c2f2554-0faf-11e7-8a35-01aa75ed71a1.0017.02/DOC_3&format=PDF

⁵ https://ec.europa.eu/isa2/solutions/imm_en

⁶ https://joinup.ec.europa.eu/sites/default/files/interoperability_quick_assessment_toolkit.pdf

Table 1 presents the proposed feasibility criteria that allow to **assess** and **rank existing solutions** which contribute or can potentially contribute to powers and mandates interoperability at national and European levels and can be re(used) in cross-border and cross-sector scenarios at European level.

Table 1: Feasibility criteria for cross-border interoperability of powers and mandates

Legal hard criteria⁷
1. The solution MUST be compliant with the current European and/or National laws or regulations .
2. The solution MUST leverage the eIDAS regulation and its implementing acts .
Legal soft criteria⁸
3. The solution SHOULD be open-by-default (i.e. enabling reuse, participation/access and transparency).
4. The solution SHOULD fit within and contribute to the realisation of interoperability-specific or policy-specific initiatives at EU level , such as the Digital Single Market Strategy ⁹ , the European e-Government Action Plan 2016-2020 ¹⁰ , the ISA ² Programme ¹¹ , the CEF Digital ¹² , etc.
Organisational hard criteria
5. The solution MUST address powers and mandates interoperability at least at a National level (i.e. accessible for all citizens in the country) and not be limited to regions.
Organisational soft criteria
6. The solution SHOULD be cross-border-by-default (i.e. accessible for all citizens in the EU).
7. The solution SHOULD be cross-sector-by-default (i.e. accessible for different organisational domains).

⁷ For the remainder of this section the keyword "MUST" is to be interpreted as described in RFC 2119: <https://www.ietf.org/rfc/rfc2119.txt>

⁸ For the remainder of this section the keyword "SHOULD" is to be interpreted as described in RFC 2119: <https://www.ietf.org/rfc/rfc2119.txt>

⁹ https://ec.europa.eu/commission/priorities/digital-single-market_en

¹⁰ <https://ec.europa.eu/digital-single-market/en/european-egovernment-action-plan-2016-2020>

¹¹ https://ec.europa.eu/isa2/home_en

¹² <https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/CEF+Digital+Home>

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8. The solution SHOULD be user-centric-by-default (i.e. principles such as starting with user needs, usability, multi-channel service delivery, provision of the information that is absolutely necessary once only or having an identified governance and maintenance organisation, with a clear single point of contact, should be considered).
9. The solution SHOULD provide guidance documents to help organisations assess the compliance of their current infrastructure and facilitate reuse (e.g. intended use, functional and technical requirements, use cases, how-tos...).
10. A licence or Service Level Agreement (and related MoU) SHOULD be available. For cross-border actions, these should preferably be multilateral or global European agreements.
11. The implementation of the solution SHOULD be supported by a cost-benefit analysis .
12. The implementation of the solution SHOULD be supported by a security risk assessment analysis .
Semantic hard criteria
13. The solution MUST allow the identification and representation of natural and legal persons as well as mandates using clear and unambiguous meaning.
14. The solution MUST contain a formal data model with a data dictionary , describing the meaning of the entities, attributes and relationships used.
Semantic soft criteria
15. The solution SHOULD leverage existing semantic definitions such as public domain ontologies or core vocabularies (e.g. Common Core vocabularies ¹³) where relevant.

¹³ https://joinup.ec.europa.eu/community/semic/og_page/core-vocabularies

<p>16. The solution SHOULD implement one of the following type of standards used for the exchange of information to model powers and mandates in an interoperable and uniform way across-border and across-sectors:</p> <ul style="list-style-type: none"> • EU standards; • Technical specifications identified by MSP¹⁴; • ICT open specifications; and • International open standards (as long as they do not create a potential lock-in).
<p>17. The solution SHOULD take into account the multilingual EU environment when developing its standards, documents, IT infrastructure and interfaces. This means, it SHOULD support and provide documentation in multiple languages.</p>
<p>Technical hard criteria</p>
<p>18. The solution MUST protect the confidentiality and integrity of the data as well as ensure high availability of its data and services, as well as the privacy of the data subjects involved.</p>
<p>19. The solution MUST allow secure data retention, information storage and retrieval.</p>
<p>20. The solution MUST be implementable in a reasonable amount of time.</p>
<p>21. The solution MUST leverage the existing eIDAS nodes infrastructure to the extent possible.</p>
<p>Technical soft criteria</p>
<p>22. The solution SHOULD be digital-by-default (i.e. process of creating, updating and revoking cross-border electronic mandates can preferably be fully completed via digital channels).</p>
<p>23. The solution SHOULD be adaptable and scalable (i.e. it can be adapted for different specified environments as well as to an increased need in technical capability).</p>
<p>24. The solution SHOULD rely on the use of common technical standards and reference architectures as well as on the reuse of existing solutions.</p>

¹⁴ <https://ec.europa.eu/digital-single-market/en/european-multi-stakeholder-platform-ict-standardisation>

It is worth mentioning that the list of proposed feasibility criteria needs to provide the means to assess and rank the existing solutions contributing to powers and mandates interoperability. Consequently, this list has been developed by taking into consideration the current European landscape of powers and mandates, where few solutions exist and most of them are only available at local or national levels.

However, an exception must be considered when using the proposed feasibility criteria as a guide to **develop solutions** which will contribute to powers and mandates interoperability at European level. This exception is the following:

1. **Criterion 6:** The solution **MUST** be cross-border-by-default (i.e. accessible for all citizens in the EU).

It should also be noted that a detailed cost estimation has been excluded from the feasibility criteria. This means that solutions will not be ranked based on their configuration, integration and/or development costs. However, providing a cost-benefit analysis to support the development of the solution (see soft criterion 11) will be considered as an important feature to select the most suitable solutions contributing to cross-border and cross-sector interoperability for the representation of powers and mandates at European level.

5. Conclusions and next steps

In light of the study on Semantic interoperability for representation powers and mandates, this document has been created with the objective of proposing a set of feasibility criteria to assess the suitability of current and ongoing solutions contributing to the cross-border interoperability of powers and mandates at European level. In addition, the set of feasibility criteria proposed define the extent to which a solution fits an information requirement.

In section four, 24 feasibility criteria have been proposed, divided into different interoperability levels as recommended by the European Interoperability Framework (EIF), being legal, organisational, semantic and technical. As not all criteria are equally important nor absolutely compulsory, all EIF-levels have additionally divided into two categories: **hard criteria** (9 criteria), to which the solutions needs to adhere in order to be considered in scope of this study, and **soft criteria** (15 criteria), which allows to measure the degree of interoperability of a given solution and their mutual comparison.

These criteria not only assess interoperability but also other aspects such as European regulations and initiatives compliance, user centricity, scalability, reusability, cost-benefit or security-risk assessments.

In deliverable '**D.2.1.b and D.2.1.d Ranked long list of solutions which fulfil the identified information requirements**' of Task 02, a list of solutions are described and the proposed feasibility criteria were used to assess, rank and select the most suitable solutions contributing to powers and mandates interoperability at European level. After this, a ranking of the solutions was created.

6. Annex I. Glossary of terms and acronyms

Table 2 lists the glossary of terms and acronyms.

Table 2: Glossary of terms and acronyms

Term	Description
CEF	Connection Europe Facility
DSM	Digital Single Market
eIDAS	electronic IDentification and Authentication Services
EIF	European Interoperability Framework
Entity	Legal or natural person
EU	European Union
IMM	Interoperability Maturity Model
IR	Information Requirement
ISA	Interoperability Solutions for Public Administrations
Legal person	Entity constituted under, or governed by, the law of a Member State, irrespective of their legal form.
Mandate	Contract under which an entity (agent) undertakes to perform one or more legal acts in the interest of another person (principal); the mandate includes the acts for which it was awarded and those necessary for its completion.
Mandatee	Person who executes an activity in the name of the mandator; User of the mandate.
Mandator	Person who needs an activity executed in his name; Creator of the mandate.

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MS	Member States
Natural person	Entity that is an individual human being who has its own legal personality
OR	Other requirements having an impact on the information requirements
Role	Bundle of one or more authorisations linked to a specific type of entity in a specific context, such as doctor, lawyer, police officer, nurse, etc.
TES	Trans-European Solutions
US	User Story