

ISA² WORK PROGRAMME

2016

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1.KEY AND GENERIC INTEROPERABILITY ENABLERS

1.1 ACCESS TO BASE REGISTRIES (2016.28)

1.1.1 IDENTIFICATION OF THE ACTION

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

1.1.2 EXECUTIVE SUMMARY

The DSM strategy underlines that only in 48% of cases do public administrations reuse information about citizens and businesses that they already possess. This figure justifies the emphasis put in the implementation across administrations of the once-only principle, meaning that instead of asking the citizen for information that they have already provided, public administrations will reuse the information they already have. The access and exchange of information contained in base registers is a necessary condition for the implementation of this principle.

Another essential condition for the modernisation of the public sector is the implementation of end-to-end services. And here again, the access and exchange of information in base registers is a key enabler.

Base registries are authentic sources of data for public administrations. As such, they are one of the basic building blocks of public services and the key to making the once-only principle and the provision of end-to-end services to citizens and businesses a reality.

The situation on access and interconnection of base registries is varied. It depends on the degree of digitalisation of the public sector, on the organisational and administrative context of each Member State and also on specific legislation.

On the European level, some important initiatives are in the process of being developed. The Directive on the Interconnection of Business Registries (Directive 2012/17/EU) mandates the interconnection of the business registries of all the Member States. The e-Justice Portal also serves as an important point for the interconnection of different types of registries. An interconnection of the Insolvency Registries with the e-Justice Portal has already been achieved and currently plans for the interconnection of other types of registries are proceeding.

The work developed under the ISA programme, with the identification of a set of best-practices and recommendations will be continued with the following steps:

1. A detailed picture and analysis of the current state of affairs on base registry access and exchange of information in each individual Member State. This picture will be developed taking into account also the implementation of the best practices and recommendations mentioned above and will cover technical, organisational, semantic and legal perspectives. It

will also identify the difficulties facing today European administrations in this area and their needs.

2. Based on this analysis, the action will identify missing solutions and areas where further work should be undertaken so as to improve the implementation of the once-only principle and the provision of end-to-end services across the various administration levels.
3. The action will also extend the cartography of the existing solutions in this area and publish it on Joinup, structured according to the EIRA. Raising awareness and promotion of best practices and existing solutions through various means

The initiatives in this area must take into account the particular situation of each Member States. The ways to achieve the objective of interconnection and access to base registers and the information they contain, may differ depending on the particular institutional context of each Member State.

1.1.3 OBJECTIVES

The action will support and facilitate the access and exchange of information from Base Registries in Europe notably through studying the current state-of-play at European level and by developing the necessary tools.

1.1.4 SCOPE

Any Base Registry in Europe is potentially in scope of the action subject to budget availability. The action will deliver three important elements, which will be further expanded in future phases:

1. A state-of-play of access and exchange of information between/with Base Registries in the EU;
2. A Cartography of reusable Solutions for Base Registries information exchange;
3. Guidelines for a successful Base Registries information exchange.

1.1.5 PROBLEM STATEMENT

Public administrations store their authentic data e.g. about citizens, businesses, properties, vehicles and other items in large databases called Base Registries. This data is often duplicated in other databases.

This results in a suboptimal delivery of public services and higher costs. Citizens are often asked to provide their data multiple times to different public administration entities which causes significant burden for all parties and raises dissatisfaction.

The solution to this problem lies in the formalised exchange of information from Base Registries, which will allow citizen to provide their data only-once, reduce data duplication (consequently avoiding data incoherence) and allow the public sector to deliver end-to-end services.

1.1.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States' public administrations	<ul style="list-style-type: none"> • More efficient and effective access to information across administrative and geographical borders when establishing European Public Services.
European Commission Services	<ul style="list-style-type: none"> • Development of a software toolset and accompanying blueprint on integration knowledge management will facilitate future automation and integration projects by providing blocks of generic and reusable components.
Citizens and businesses	<ul style="list-style-type: none"> • Reduction of administrative burden; • Easier cross-border access to Base Registries information (e.g.. through the generic search engine, through open data services); • Increased transparency at EU level regarding companies; • Increased users' satisfaction of public services.

1.1.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation
Directive 2012/17/EU	Covers interconnection of business registers and single European access to information on companies
Directive 2003/98/EC + June 2013 revision	Covers the reuse of public sector information and Open Data
Regulation 1346/2000	Commission proposal for revision of the regulation covers the interconnection of insolvency registers
Revised Directive 2004/109/EC	Covers transparency requirements for listed companies and the establishment of European access point for the interconnection of officially appointed storage mechanisms
Directive 95/46/EC	Covers the protection of individuals with regard to the processing of personal data and on the free movement of such data
Directive 2007/2/EC establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)	Land registries, made available in the framework of INSPIRE will be considered by the action
Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	The once-only principle and the interconnection of (Business) Registries are specifically mentioned in the DSM.

Action / Policy	Description of relation
ISA Action 1.1 – Promoting semantic interoperability amongst the European Union Member States	The re-usable semantic solutions developed by ISA Action 1.1 (Core Vocabularies, ADMS) will be assessed by ISA action 1.2 in order to facilitate the exchange of data.
ISA Action 2.1 – Elaboration of a common vision for an European Interoperability Architecture (EIA)	The European Interoperability Architecture developed by ISA Action 2.1 will be taken into consideration when developing the tools in the pilot domains. On the other hand, ISA Action 1.2 has explored interconnecting architectures for Base Registries which could be an input for the EIA.
ISA Action 2.13 – Development of a European Union Location Framework (EULF)	ISA Action 2.13 provided an input to the EIA in terms of mapping INSPIRE to the EIA.

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

The main aim of the action is to promote the reuse of already existing solutions, as well as the promotion of existing best practices. As such, different aspects of many EU-level and MS-level initiatives will be reused.

The action will:

- assess solutions that could be re/used to support the exchange of information between/with Base Registries on the basis of criteria developed under the Sharing and reuse action;
- benefit from the EIRA building blocks to classify the above solutions;
- reuse guidelines from the action on Semantics and Metadata Management to deal with the semantic aspects of the format, exchange and overall management of data;
- consider information coming from the NIFO factsheets to identify the situation in the MS in relation to Base Registries;
- display and make publicly available its deliverables on the Joinup portal.

1.1.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Updated Cartography of Reusable Solutions for
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	information exchange between/with Base Registries
Description	This will be a catalogue of various reusable solutions to support any Base Registry exchange of information.
Reference	
Target release date / Status	Q4 2016

Output name	State-of-play of Base Registries access and exchange of information in the EU
Description	Inventory and analysis of the situation at EU level
Reference	
Target release date / Status	Q4 2016

1.1.10 ORGANISATIONAL APPROACH

1.1.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States	Representatives of the departments managing Base Registries interconnection at MS level and eGovernment matters. ISA ² representatives from the various working groups and committees.
End-users	Citizens Representatives of companies
European Commission	DG DIGIT

1.1.10.2 Communication plan

Event	Representatives	Frequency of meetings / absolute dates of meetings?
Member States presentation	MS representatives	Twice a year

1.1.10.3 Governance approach

The action will be managed by DIGIT with the support of an external contractor. Whenever major deliverables are to be published, the validation of the MS representatives will be sought.

1.1.11 TECHNICAL APPROACH

The action has produced 3 main deliverables (Cartography of reusable solutions, Guidelines for access and exchange of information between/with Base Registries.

In 2016, the action will:

- publish a report on the state-of-play in the MS also taking advantage of synergies and input from other ISA actions (as described before);
- extend the cartography of re-usable solutions in the domain and publish it on Joinup according to the EIRA (European Interoperability Reference Architecture);
- update deliverables already produced under the ISA programme as described above;
- promote the use of outputs, such as the cartography tool and the guidelines. A marketing and dissemination plan will established and deployed to promote this material and raise the awareness of policy makers, developers and other interested parties;
- make the outputs easily accessible. A practical tool (dashboard) will be put in place on Joinup to allow stakeholders having acces in an interactive way. All three deliverables become available to end-users in a central place on Joinup. The dashboard will serve as the main hub of a community that will promote the interconnection and access to Base Registries.

1.1.12 COSTS AND MILESTONES

1.1.12.1 Breakdown of anticipated costs and related milestones

Split the inventory output from the rest in the table below

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)
	Update of actions' deliverables and dashboard creation and maintenance	250	ISA ²	Q2/2016	Q1/2017
	Total	250			

1.1.12.2 Breakdown of ISA funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016		250	

1.2 CATALOGUE OF SERVICES (2016.29)

1.2.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common frameworks
Service in charge	DG DIGIT.B6
Associated Services	DG GROW.R4 E3 and R3

1.2.2 EXECUTIVE SUMMARY

A large number of public administration portals have been/ are being implemented throughout Europe with no harmonisation among them in terms of the description of public services and associated information. This lack of harmonisation makes it difficult to link or federate them. Furthermore, public services are often not organised in a user-centric perspective making more difficult the search of the information and the integration of several services around business or live events.

The action is oriented to deliver a set of specifications and solutions to achieve a certain level of interoperability around national and European public services descriptions as well as to facilitate the federation of public services and the creation of national and European catalogues and contribute to the "Single Digital Gateway" action established in the Digital Single Market Strategy.

Under the ISA programme, in collaboration with the representatives of the Point of Single Contacts of the Services Directive in several Member States, a Core Public Service Vocabulary Application Profile was defined as an extension of the ISA Core Public Service Vocabulary in order to cover business events.

Under the current proposal action, the Core Public Service Vocabulary Application Profile (CPSV-AP) will be extended to cover all public services in order to support also life events.

First of all, it will be analysed carefully what are the needs of different stakeholders to make the CPSV-AP applicable to public service descriptions in other domains outside the Services Directive (e.g. public services for citizens, other public services for businesses) and how this action can contribute to the "Single Digital Gateway" action identified in the DSM strategy action plan.

Software tools answering the requirements identified in previous phases for the federation of public services will be assessed for potential re-use (use as the YEST tool developed in the context of the Your Europe portal), newly developed and tested. To this end, a number of interested Member States and European portals will be engaged in order to launch a series of real life pilots in order to test and prove the benefits of adopting the CPSV-AP and the software tools as means to: harmonise the descriptions of public services at national PSCs (Points of Single Contact) and the Single Digital Gateway; federate public services at the national portals and also at the European level; and create ultimately harmonised catalogues of public services.

In parallel, and as a result of the pilots, the data model for public service descriptions will be updated and production releases of the software applications will be implemented. Also, further steps in this action will be planned according to the obtained results and the analysis done previously.

A marketing and dissemination plan will be set up in order to promote this material and raise the awareness of policy makers, developers and other interested parties.

1.2.3 OBJECTIVES

The main objective of the action is to achieve interoperability around national and European service descriptions that would help European public administrations build national as well as cross-border harmonised catalogues of public services.

The action will work towards the fulfilment of these objectives:

- implement some interoperability specifications that will help European public administrations to describe public services a group them under life and business events
- implement solutions to enable the link and federation of national and European public service into a Single Digital Gateway in order to foster them as one-stop-shops;
- test in real life how those solutions can provide the expected benefits and based on the practical results improve them
- promote the federation and in some cases aggregation of the public services offered by the various levels of public administrations into the Single Digital Gateway. This would lead at a later stage to the creation of a European catalogue of public services in various domains;

1.2.4 SCOPE

The objective of the present action will be served through implementing interoperability solutions and running pilots to link the Catalogues of public services existing throughout the EU. Initially the scope was limited to the Services Directive but under ISA² it will be extended to other cross-domains as well.

The main target audience are public administrations, in particular the entities in public administrations that are responsible for the implementation and provisioning of public services and the owners of the public service portals acting as one-stop-shops.

The action will deliver a set of specifications and solutions to achieve a certain level of interoperability around national and European public services descriptions as well as to facilitate the federation of public services and the creation of catalogues. This will help European public administrations to improve the discovery and the provisioning of national and cross-border services.

1.2.5 PROBLEM STATEMENT

Member State public administrations provide various types of public services to their citizens and businesses but in very few cases there is a national/ regional catalogue listing all of them. Different types of approaches are being adopted towards the building of public services and their catalogues

There is usually no standard way of describing and documenting these services. The understanding of services and service implementations are different and even the basic definition of what constitutes a public service differs. Furthermore, there is a lack of an overview of what types of services already exist, often resulting in redundant work and inefficiencies.

The above makes the identification of European public services hard or impossible and creates barriers in the interoperable delivery of public services to end users, citizens and businesses resulting to loss of time and underuse of already available public services.

Some MS have defined their own semantic models to define and describe public services. These semantic models are then followed by competent authorities resulting in a higher level of integration of the various public service portals.

This structured approach should be adopted at EU level in order to obtain Catalogue of Services, ultimately interconnected and federated to each other. It will further make possible the federation of European Catalogues as one-stop-shops of public services to boost the discovery and re/use of cross-border European public services.

1.2.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
National and European public portals and one-stop-shops providing information about public services for citizens and businesses (Point of Single Contacts of the Service Directive; eGovernment portals; other business portals)	For relevant European national authorities or agencies: the ability to federate public service descriptions from various sources and the creation of one-stop-shops; the efficient re-use of information available in other Member States and the creation of national and European catalogue of public services. Easier provision of national and cross-border public services following a user centric approach.
DG Grow	Your Europe portal and the future Single Digital Gateway can use the output of the action in order to harmonise the public service descriptions around life and business events and also federate the services at the various portals.
Citizens and businesses	Easier discovery and understanding of the available public services related to business or life events. This is materialised in time savings.

1.2.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	The action facilitates the creation of a one-stop-shop catalogue of public services thus contributing to the implementation of the "Digital Single Gateway" concept.
DG GROW- Services Directive and national PSCs	<p>Aims at establishing a single market for services within the EU. Within this Directive, each MS has implemented a Point of Single Contact (PSC) that are online e-government portals that allow entrepreneurs and business to:</p> <ul style="list-style-type: none"> • find out about the rules, regulations and formalities that apply to service activities. • complete the administrative procedures online (by submitting the necessary application forms and supporting documents electronically). <p>The PSC owners provide input to the action to understand which data models are in place to describe public services and what first and second level of business events could be harmonised to group public services.</p> <p>The PSCs could make use of the output of the action for the harmonisation of public service descriptions and the federation of the services at the PSCs.</p>
National catalogues/ portals of public services	<p>In some Member States there are national portals that aim at being one- stop-shops for the access to public services. In fact, these portals provide catalogue of public services containing information about the public services offered by various competent authorities and sometimes also the links to access to the electronic version of the services.</p> <p>The public service catalogues/ portals owners provide input to the action to understand which data models are in place to describe public services and what are the business or life events implemented to group public services.</p> <p>They could make use of the output of the action for the harmonisation of public service descriptions and the federation of the services at various portals and catalogue of services.</p>

Action / Policy	Description of relation, inputs / outputs
DG GROW – Your Europe and other European portals	<p>The life and business events descriptions used at the portal will be taken as input for the works towards the definition of a semantic classification for public services.</p> <p>The portals will provide input to the action to understand which data models are in place to describe public services and what are the business and life events implemented to group public services.</p> <p>Your Europe and other digital gateways could make use of the output of the action's outcome for the harmonisation of public service descriptions as well as for the federation of services at the portals.</p>
SPOCS	<p>SPOCS was one of the Large-Scale Pilots, which was to set up Single Points of Contact and help implement the Services Directive.</p> <p>Deliverables from the SPOCS large-scale pilot were consulted to identify what can be reused in the study on "Catalogue of public services".</p>
ISA Action 1.1 – Promoting semantic interoperability amongst the European Union Member States	<p>Semantic interoperability is one of the basic prerequisites for building public services and linking up service catalogues.</p> <p>The Core Public Service Vocabulary developed in the course of the ISA action 1.1 is used as the baseline to create a semantic interoperable data model based on the ISA Core Public Service Vocabulary.</p>
ISA Action 4.2.5 – Sharing and re-use strategy	<p>Catalogue of services makes use of the sharing and reuse criteria to assess existing solutions that could be reused to facilitate the federation of public services and the creation of catalogue of public services.</p>

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

- The Core Public Service Vocabulary developed in the course of the ISA Action 1.1 is used as the baseline to create a semantic interoperable data model based on the ISA Core Public Service Vocabulary;
- The action makes use of the sharing and reuse criteria to assess also existing solutions that could be reused to facilitate the federation of public services and the creation of catalogue of public services;

- Solutions to be developed by the action are mapped to the building blocks of the European Reference Interoperability Architecture (EIRA) as the first step for their inclusion in the EUCart;

1.2.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Analysis on the current situation at MS and European level and on the main needs to federate public service descriptions and create catalogue of public services. Contribution to the Digital Single Gateway action of the DSM strategy.
Description	The analysis will look at the current situation at MS and European level and the main interoperability needs to federate public service descriptions and create catalogue of public services (in terms of interoperability solutions) The analysis will also look at how this action can contribute to the Digital Single Gateway action of the DSM strategy
Reference	
Target release date / Status	The analysis will be completed in the course of 2016

Output name	Extension and promotion of the use of the core Public Service Vocabulary Application Profile
Description	Extension of the data model to facilitate the harmonisation and the interoperability of machine readable descriptions of any type of public service and the grouping of them also around life events. Extension of the CPSV-AP for the provision of multi-lingual labels as well as the definition of taxonomies for life events, for the second level of business events and for services output will be implemented to facilitate the creation of catalogue of public services in all domains. Promotion of the use and adoption of the CPSV-AP by national and European administrations, through the launch of various pilots and other actions.
Reference	https://joinup.ec.europa.eu/asset/cpsv-ap/home
Target release date / Status	The extended version also counting for life events is foreseen in 2016

Output name	Open source tools
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Description	Implementation of open source tools for the automated federation of public service descriptions and for the creation of interoperable catalogue of public services. Among the functionalities provided by those tools, it can be listed the following ones: CPSV-AP mappings, public service description editor, public service description harvester, CPSV-AP validator.
Reference	
Target release date / Status	The pilot implementations foreseen in 2016. Fully production releases expected in 2017

1.2.10 ORGANISATIONAL APPROACH

1.2.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States	ISA ² representatives from the various working groups and committees.
Member States	Points of Single Contact (EUGO Network) owners; other public service portals and national catalogues at Member State Level
DG GROW	replace by GROW's units in charge and in parenthesis the area)

1.2.10.2 Communication plan

The progress of this action will be communicated on a regular basis to ISA² representatives from the various working groups and committees.

The current technical working group composed of several PSCs owners will be extended. Some meetings by videoconference will be held and also a distribution list will be created to communicate and exchange working documents and other information with the various participants in the working group. All the deliverables and related info to the action will be available in a workspace set-up on Joinup.

Some dissemination and communication material will be produced to raise awareness on the works carried out in this action and in order to engage all interested public administrations.

1.2.10.3 Governance approach

The action will be managed by DIGIT with the support of an external contractor. Whenever major deliverables are to be published, the validation of the MS representatives will be sought.

The current technical working group composed of several Member States from the EUGO Network will be extended in order to hold the technical discussions and build consensus related to the implementation and the piloting of interoperability solutions. This group will count on relevant European and Member States' stakeholders responsible for the provisioning of one-stop-shops of public services and for the creation of national catalogue of public services

1.2.11 TECHNICAL APPROACH

The technical approach will build upon the previous phases carried under Action 1.3, namely:

- Study on the feasibility of building a European Catalogue of Public Services and the potential federating of national catalogues at European level;
- Analysis on existing key business events used across the PSCs of the 28 MS and proposal for a list of first level business events that can be used for harmonisation across-borders;
- Definition of a data model, the core Public Service Vocabulary Application Profile (CPSV-AP) that can be reused by all PSC to federate services under business events that are offered by different competent authorities in order to facilitate the search of info by the end users.
- **An analysis and proposal for a harmonised list of key business events** that can be used across the PSCs to group public services and facilitate the discovery and execution of them.
- Identification of what are the technical solutions used by the PSCs of the participating Member States to facilitate the federation of public services and what others that are missing could be implemented;
- Analysis of public service portfolio management methodologies and ways for modelling and representing them;
- Functional requirements for the implementation of some software applications, open source tools, to facilitate the federation of public services and the creation of catalogues at the national public service portals.

Under the current proposal, the Core Public Service Vocabulary Application Profile (CPSV-AP) will be extended to all public services in order to support also life events.

This way, it will be analysed carefully what are the needs of different stakeholders to make the CPSV-AP applicable to public service descriptions in other domains outside the Services Directive (e.g. public services for citizens, other public services for businesses) and how this action can contribute to the "Single Digital Gateway" action identified in the DSM strategy action plan (what other steps and interoperability solutions could be implemented).

All of this will be discussed in the context of an extended CPSV-AP Working Group that will count on relevant Member States' stakeholders responsible for example for the provisioning of one-stop-shops of electronic services and for the creation of national catalogue of public services.

Software tools answering requirements identified in previous phases for the federation of public services will be developed. To this end, a number of interested Member States and European portals will be engaged in order to launch a series of real life pilots in order to test and prove the benefits of adopting the CPSV-AP and the software tools as means to: harmonise the descriptions of public services at national and European PSCs and thus contribute to the implementation of the "Single

Digital Gateway" action of the DGSM strategy; federate public services at the national portals and also at the European level; and create ultimately catalogues of public services..

In parallel, and as a result of the pilots, the data model for public service descriptions will be updated and production releases of the software applications will be implemented. Also, further steps in this action will be planned according to the obtained results and the analysis done previously.

A marketing and dissemination plan will be set up in order to promote this material and heighten the awareness of policy makers, developers and other interested parties.

1.2.12 COSTS AND MILESTONES

1.2.12.1 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, ISA ² / others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Inception/ execution	Analysis of the current situation and ways to contribute to the Digital Single Gateway action of the DSM strategy. Extension of the public services data model. Implementation, test and pilot of solutions for the federation of public services descriptions.	250	ISA ²	Q2/2016	Q3/2017
Operation	Pilot operation with some national and European portals	150	ISA ²	Q3/2016	Q2/2017
	Total	400			

1.2.12.2 Breakdown of ISA funding per budget year

Budget	Phase	Anticipated allocations	Executed budget (in
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Year		(in KEUR)	KEUR)
2016	Inception, Execution, Operation	200	
2017	Execution, Operation	200	

1.2.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
CPSV-AP	https://joinup.ec.europa.eu/asset/cpsv-ap/home	First release of the Core Public Service Vocabulary application profile

1.3 DATA COMMUNICATION NETWORK SERVICE (TESTA / TESTA NG) (2016.02)

Type of Activity	Common Services
Service in charge	DIGIT.C.4
Associated Services	

1.3.1 EXECUTIVE SUMMARY

The TESTA network was born from a need to consolidate a number of sectorial applications that were being developed in the 90s and early 2000. A study by GARTNER in 2010 confirmed that TESTA stakeholder still see this project as delivering a value added service and should continue.

TESTA-ng, the 4th evolution of the network, is currently in its final phase of rollout after a public call for tender awarded to T-Systems in 2013. sTESTA, the current active configuration, will be decommissioned by Q1 2016.

1.3.2 OBJECTIVES

The TESTA network service is the continuation of an existing action of the ISA Programme. A number of sectorial networks are currently using the TESTA services for their sectorial applications (OLAF, DG MOVE, DG EMPL, DG ESTAT, DG HOME, DG SANTE, CDT, DG MARE, and DG TRADE). The network is also used by the European Institutions and the European agencies. In addition, the TESTA framework is also extensively used by DG HOME for the implementation of the SIS II and VIS networks, by EUROPOL for the implementation of their own dedicated EUROPOL network. DG TAXUD also plans to use the TESTA NG network. Recently also the General Secretariat of the

Council is using the TESTA Framework Contract for the implementation of their Integrated Network for Council Applications (INCA) that includes FADO, the Council Extranet and the Courtesy networks.

TESTA is also used in the context of non-Community projects by Member State administrations or organisations acting on their behalf under certain conditions as described in the TESTA Memorandum of Understanding. One of the most successful non-community programmes is the trans-border police cooperation in the context of the Prüm treaty and the Financial Intelligence Unit network in the context of money laundering.

TESTA is currently focusing on the following objectives:

- (1) **Connectivity:** The provision of a highly available, extendable, flexible and secured communication infrastructure between public administrations in Europe, so that current and future communication needs between these administrations can be covered;
- (2) The consolidation of existing data networks currently spread over different contracts and independently managed by other Institutions or European bodies.
- (3) **Security:** The provisioning of a secured, RESTREINT UE accreditable (if required) communication infrastructure;
- (4) **Support:** Provision of a single support infrastructure that can act as a single entity for trouble shooting, support to sectors and administrations, alert management and reporting;
- (5) **Management:** The overall project management as well as service management and administrative management of the TESTA networking services;
- (6) **Assistance:** The provision of assistance services dedicated to control and audit of the operational networking services.

1.3.3 SCOPE

The objective of TESTA (Trans European Services for Telematics between Administrations) is to exchange electronic data between administrations in Europe in a secure, reliable and efficient way. It is foreseen that both unclassified and classified (if required by) information can be exchanged. It is dedicated to inter-administrative requirements and is providing guaranteed performance levels and security.

Facilitate cooperation between public administrations, create interoperability at the EU level through shared generic solution, consolidating existing parallel networks by providing a secure reliable and flexible building, cost reduction are the main driving forces for the new TESTA new generation call for tenders. In preparation of the TESTA-ng network, a study was carried out to determine the requirements of existing and potential future stakeholders. The main requirements expressed by the TESTA stakeholders were:

- **Network Services:** 77% of the stakeholders expressed the need for new network services e.g. Secure Email, Audio Teleconference (ATC), Video Teleconference (VTC), Collaboration, etc.
- **Internet as a Transport Alternative:** 68% of the stakeholders suggested using the public Internet to improve availability and scalability and especially to lower costs.

- Differentiated Network Services: 58% of the stakeholders (89% of the users) request different combinations of (guaranteed) availability, bandwidth and latency as required for applications interoperability, for audio conferences, video conferences, collaboration, etc.
- Security: 55% of the stakeholders state the current TESTA security levels must be preserved.
- Application security services A2A: 52% of the stakeholders expressed the need for application level security services (A2A), e.g. identification, authentication, authorization (through a service catalogue) certification, logging and non-repudiation.
- Dedicated Network Security must be Kept: 32% of the stakeholders are of the opinion that encryption is sufficient to preserve confidentiality.

These requirements were taken into account in the tendering specifications for TESTA-ng. As a result of a restricted call for tenders procedure, a new Framework Contract has been awarded to T-Systems International GmbH (<http://ted.europa.eu/udl?uri=TED:NOTICE:263766-2013:TEXT:EN:HTML>) who submitted the best value for money offer (quality / price). The call for tenders was organised by DG DIGIT but was also opened for other EU Institutions and EU Agencies. In this new Framework Contract, the recurring costs of TESTA-ng will be reduced by 60% compared to the current sTESTA costs.

TESTA-ng will be operated as a fully resilient network always having a look into confidentiality, integrity and availability.

1.3.4 PROBLEM STATEMENT

The current sTESTA Framework Contract ended in September 2013 and was extended until September 2014. The new TESTA-ng Framework Contract has been signed on 12 July 2013. The migration of sTESTA to TESTA-ng is ongoing. Initially it was estimated that the migration of the complete sTESTA network (Security operation centre, central services, all sTESTA connections to all stakeholders including also SIS II, VIS, EUROPOL and Council networks) would last for 18 to 24 months. Due to delays in the awarding process of the TESTA-ng and the delays incurred in rolling out the new project, DIGIT had to do a negotiated procedure with OBS/HP for a 2 years' period (up to September 2016).

1.3.5 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Specific sectors	Ability for sectors and agencies to use a secured trans-European network service for the exchange of data with specific availability or security requirements over a shared quality solution. Prevents proliferation of uncontrolled networks.
Member States' public administrations	Ability for MS administrations to use a secured trans-European network service for the exchange of data with specific availability or security requirements, with EU Institutions, EU agencies and other MS administrations. The provided solution is managed and the access points are under control of the MS administrations.
EU institutes and	Avoids the unnecessary implementation of costly shadow network

agencies	infrastructures.
Non-community programs	TESTA can be used in the context of a non-Community project by Member States administrations or organisations acting on their behalf under certain conditions described in the TESTA Memorandum of understanding. It stimulates the re-usage of an existing infrastructure.
Citizens and enterprises	Citizens and enterprises are out of the scope of the TESTA networking services but are indirectly benefiting due to the protection of the personal data on the level of the network.

1.3.6 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation
Eurodac	Council Regulation No 2725/2000 of 11 December 2000 concerning the establishment of 'Eurodac' for the comparison of fingerprints for the effective application of the Dublin Convention. Eurodac Legal Basis
CARE	Council Decision of 30 November 1993 on the creation of a Community database on road accidents CARE Legal Basis
FIDES	COUNCIL REGULATION (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy FIDES Legal Basis
HOLIS	Council Regulation (EC) No 1257/96 of 20 June 1996 concerning humanitarian aid HOLIS Legal Basis
SIS II	Regulation (EC) No 1987/2006 of the European Parliament and of the Council of 20 December 2006 on the establishment, operation and use of the second-generation Schengen Information System (SIS II). SIS II Legal Basis
CECIS	Council Decision 2007/779/EC, Euratom of 8 November 2007 establishing a Community Civil Protection Mechanism. CECIS Legal Basis
SIGL	COUNCIL REGULATION (EEC) No 3030/93 of 12 October 1993 on common rules for imports of certain textile products from third countries. SIGL Legal Basis
Prüm	Council Decision 2008/615/JHA of 23 June 2008 on the stepping up of cross-border cooperation, particularly in combating terrorism and cross-border crime.

FIUNET	Financial Intelligence Network (non-community programme)
VIS	Council Decision 2004/512/EC of 8 June 2004 establishing the Visa Information System (VIS).

1.3.7 ORGANISATIONAL APPROACH

1.3.7.1 Expected stakeholders and their representatives

Stakeholders	Representatives
EU institutions, Member States gov., EEA countries, Candidate countries, EU Agencies	TESTA representatives

1.3.7.2 Communication plan

TESTA-ng strategic' objectives are as follows:

- TESTA-ng to act as a trusted service provider which ensures business continuity and a safe and secure transition to the next generation systems.
- TESTA-ng as the only tool to be used for secured exchange of information between the public administrations.

TESTA-ng needs a coherent and adequate communication strategy through which it will inform of its activities, promote its profile and present the value added that it can bring to its members.

The communication strategy will focus on contributing more effectively to:

- Ensuring proper levels of awareness and engagement by Members States, applications owners and high level EC representatives to the programme's initiatives.
- Assuring user's on the capacity of TESTA-ng to deliver high quality results in terms of organization, people, expertise, transparency and process excellence.
 - Providing the users a reliable roadmap and details of the actions and processes that need to be implemented.

- Addressing the different needs and levels of implementation between users / Member States.
- Increasing the trust on TESTA-ng to be able to offer state-of-the-art and high performance, reliable and secure services to the users.
- Raising awareness of the project and its additional services to future relevant stakeholders.
- TESTA-ng incorporating stakeholder's feedback in the design of the implementation strategy and future operations.
- Creating amongst the TESTA-ng users a feeling of belonging to one community.

The main pillars on which the Communication Strategy will be based are the following:

1. TESTA-ng awareness and engagement to the programme's initiatives.
2. Collection of user's feedback.
3. Knowledge management.
4. Promotion of current and future services under TESTA-ng.

Event	Representatives	Frequency of meetings / Absolute dates of meetings?
TESTA workshop	TESTA national experts/EU Institutions/EU Agencies/	2 times a year
TESTA stakeholders	EU Institutions / EU Agencies/ national governments / National, Regional, Local Administrations / European Commission services	On demand
TESTA SAP	EU Member States NSA representatives	On hold up until activation on request

1.3.7.3 Governance approach

The sTESTA / TESTA-ng approach is collaborative: it builds on national efforts to establish national, regional or local administrative networks by forging these to a trans-European network. In this so called domain based approach, every connected domain will have to fulfil the necessary security, performance and organisational requirements in order to obtain a full access to the TESTA network. In addition to the default setup, administrations might decide to implement additional access points and closed user groups or secured network services on the existing TESTA infrastructure. The budgetary impact of such a decision will fall under their responsibility. The TESTA network is controlled and supported by a central support and operation service, responsible for all operational issues, including the security management of encryption devices.

DIGIT C4 responsible for network infrastructure services at the European Commission has the organisational and contractual control over the execution of the TESTA Framework Contract. This organisational approach guarantees the operational and technical sustainability.

1.3.8 TECHNICAL APPROACH

The sTESTA contract ended in Q3 2013. Due to the complexity of the provided services and the multiple communities that are served, a migration period of more than 18 months starting in 2013 was foreseen. During the migration period, the continuity of the current sTESTA services has to be guaranteed. Therefore critical service elements of sTESTA and TESTA-ng will have to coexist. The financing that is required for this parallel operation was already budgeted in previous work programmes.

1.3.9 COSTS AND MILESTONES

1.3.9.1 Breakdown of anticipated costs and related milestones

Phase:	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)
Operational	Continuation of TESTA-ng Services + Service Evolution	2.500	ISA ²	Q4/2016	Q3/2017

1.3.9.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Operational	2.500	

1.4 IPV6 FRAMEWORK FOR EUROPEAN GOVERNMENTS (2016.09)

1.4.1 IDENTIFICATION OF THE ACTION

Type of Activity	“Common Frameworks “
Service in charge	CONNECT.E4
Associated Services	

1.4.2 EXECUTIVE SUMMARY

Almost all relevant data networks today are operating with the Internet Protocol - IP. Thus, every European digital cross-border communication is based on IP. The Internet Protocol Version 4 has around 4 billion addresses available, which officially run out. The lack of available IPv4 addresses is one of the main reasons why the change from IPv4 to IPv6 (which has a significantly greater address space) is without alternative.

The adoption of IPv6 in Europe, in particular within European public administrations, is still low, but the availability of IPv6 communication is vital for the economic development and the digitisation of European public administrations. The goals of the Digital Agenda for Europe and the Digital Single Market Strategy are based on stable and reliable data networks.

This project will create a common framework for European public administrations on how to procure addresses, organize the address space and adapt IPv6.

The first step to accomplish this is to create a detailed guide to implement a Local Internet Registry (LIR) to act as an address provider on national level within the public administration. Further steps are to create technical IPv6 profiles for the Network equipment and to introduce an IPv6 Transition Guide. Furthermore, this project will create Training Material for IPv6 Workshops that will help to enable the public administration of the EU Member states (MS) to cope with the IPv4 to IPv6 Transition.

1.4.3 OBJECTIVES

To ensure the cross-border interoperability of online services and the digitisation of European public administrations IPv6 is a must-have for the ISA² goals. MS as for instance Germany could bring strong support to the deployment of IPv6 within the European public administrations. Experience from certain Member States, e.g. Germany and other GEN6 participants should be reused and be made available and usable for all MS and the EC itself. Existing local IPv6 concepts and guidelines for public administrations shall be merged and adapted for a European-wide usage. These concepts and guidelines consider technical as well as organizational aspects.

This will help to create a common framework to support all EU Member States in managing the transition from IPv4 to IPv6.

1.4.4 SCOPE

The aim is to deliver a clear blueprint for public administrations within Europe on how to procure and organize IPv6 address space and implement it within their organisations. The results will be derived

from research and transition experience from MS that already derived concepts and guidelines like Spain, Slovenia, Switzerland (non-EU) and Germany. For the creation of these blueprints and guidelines, tangible experiences already made by European countries will be used. For example why and how to operate a so-called government LIR for the public administration of a MS. Therefore, the results can be the basis for a standardisation of the IPv6 introduction in the EU.

1.4.5 PROBLEM STATEMENT

In context of the lack of IPv4 addresses, the ability for a successful transition to IPv6 is crucial. The low deployment rate and a lack of experience and proven concepts for public administrations in Europe hinder cooperation within the EU.

Technically IPv6 is the only available solution on the network layer which has the ability to fulfil the requirements resulting from the sum of EU initiatives related to information technology.

1.4.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member states' public administrations	Every Member state faces technical and organizational challenges in the transition to IPv6. A Common IPv6 framework will help to share best practices among the European public administration.
European Commission	A common European IPv6 framework will help the Commission to coordinate the development of next generation networks throughout Europe.
Member states' public administrations, vendors, ISPs, public users, universities	As a buyer and user of network infrastructure and applications, public administrations play an important role in the European market. With the introduction of IPv6, the demand for IPv6-capable products will rise. A support of IPv6 will create greater transparency and make planning for participating interest groups easier. At the same time, the stimulus package will help to motivate the IT sector to adopt IPv6.
governments, vendors, ISPs, public users, universities	IPv6 is a new technology. With professional guidance on how to use it, the security and the reliability of IT infrastructures across Europe will rise.
European citizens / universities	Support within the EU public administration of IPv6 will create greater transparency and make planning for participating interest groups easier.

1.4.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
GEN6	http://www.gen6-project.eu The project described here is based on the results of the GEN6 project.
Digital Agenda for Europe and Digital Single Market Strategy	http://ec.europa.eu/priorities/digital-single-market/ http://ec.europa.eu/digital-agenda/en/digital-agenda-europe-2020-strategy IPv6 is the essential precondition for a digital Europe. This work will enable the public administrations of the MS to communicate safe, secure and cross-border. The adoption of IPv6 in the public sector will reinforce business in the European ICT market
Digitisation of the EU	http://ec.europa.eu/digital-agenda/en/digitisation-digital-preservation Digitisation of the EU will need more addresses for the additional digitised systems and applications. This is only possible by the usage of IPv6, which needs support to be deployed in the EU public administrations. To push this, the EU administration itself has to be a pioneer.
European eGovernment Action Plan 2011-2015	http://ec.europa.eu/digital-agenda/en/european-egovernment-action-plan-2011-2015 The basis of a successful European e-Government strategy is a European communications network. A “Common IPv6 Framework” will help to achieve this for the near future. This is also valid for the upcoming follow up plan “new EU eGovernment Action Plan 2016-2020” http://ec.europa.eu/digital-agenda/en/news/workshop-new-eu-egovernment-action-plan-2016-2020

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

This project will be based on the results of the GEN6 project (<http://www.gen6-project.eu/>). The work will also take into account the relevant documents of the RIPE (<http://www.ripe.net>). In addition, the extensive results of the local German governmental IPv6 research and development project (http://www.bva.bund.de/DE/Organisation/Abteilungen/Abteilung_BIT/Leistungen/IT_Beratungsleistung_gen/IPv6/best_practice/bestpractice_node.html) will be extended and adapted for an EU level usage. The content is already partly translated to English and available free under a creative commons licence for everyone over the Internet.

1.4.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	1. Guide to setup IPv6 in the public administration - LIR setup and processes
Description	A detailed guide on how to order address space, to set up and implement a Local internet Registry
Reference	
Target release date / Status	4 / 2016

Output name	2. IPv6 Profile for public administrations of the EU
Description	A detailed technical profile with recommendations, to implement IPv6 options within IPv6 components for public administrations.
Reference	
Target release date / Status	6/ 2016

Output name	3. IPv6 Transition Guide for public administrations of the EU
Description	A guideline on how to migrate a public authority of a MS to IPv6/IPv4 dual-stack. It includes step-by-step instructions, security recommendations and project organisation guidelines.
Reference	
Target release date / Status	12/ 2016

Output name	4. IPv6 Workshop material for public administrations of the EU
Description	Slide sets and usage instructions to enable public administrations of the EU to start with a cost efficient IPv6 planning phase.
Reference	
Target release date / Status	12 / 2016

Output name	5. Description and discussing document of IPv6 related EU infrastructures, especially TESTA-NG for public administrations of the EU
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Description	This document creates the link between the guidelines and the technical profile to the actual network-infrastructure.
Reference	
Target release date / Status	09 / 2016

1.4.10 ORGANISATIONAL APPROACH

1.4.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
ISA ² coordination group	The ISA ² coordination group is expected to be one of the first and most important stakeholders
EU Member states' national authorities	CIO's, decision makers of national authorities
Some former GEN6 members	Former GEN6 representatives of the MS
RIPE NCC (in cooperation with)	Representatives of RIPE who developed the IPv6 RIPE profile document

1.4.10.2 Communication plan

The scope and the current project status will be published on a dedicated project homepage. In addition, all partners are encouraged to place articles in the media. Presentations on conferences including RIPE meetings or related events (Mobile World Congress Barcelona, CeBIT Hannover) will produce project attention.

1.4.10.3 Governance approach

The action will be carried out by CONNECT.E4 and supervised by the ISA² Coordination Group.

Cross Relations:

Cooperation with RIPE NCC, Member states, GEN6 Participants

Regular meetings and written correspondence

1.4.11 TECHNICAL APPROACH

All documents described above will be proven by results from a lab environment, so all statements are accompanied by relevant evidence.

Technical Approach:

- Organizational and Process LIR Definition
- Assessment of relevant IT devices
- Identification of relevant IPv6 standards
- Definition of requirements to IPv6 enabled devices within European public administrations
- Definition of minimal mandatory IPv6 capabilities

1.4.12 COSTS AND MILESTONES

1.4.12.1 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)
Inception	Project Charter	30	ISA ²	Q1/2016	Q1/2016
Execution	output 1	80	ISA ²	Q1/2016	Q1/2016
	output 2	120	ISA ²	Q1/2016	Q2/2016
	output 3	80	ISA ²	Q1/2016	Q4/2016
	output 4	40	ISA ²	Q1/2016	Q4/2016
	output 5	80	ISA ²	Q2/2016	Q4/2016
operational	pilot -output 3	35	ISA ²		
	pilot -output 5	35	ISA ²		
	Total	500			

1.4.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Inception	30	
2016	execution, operational	470	
2017			
2018			
2019			
2020			

1.4.13 ANNEX AND REFERENCES

Description	Reference link	Attached

		document
GEN6	http://www.gen6-project.eu/	
Spain's' transition to IPv6 strategy	http://administracionelectronica.gob.es/pae_Home/pae_Estrategias/pae_Interoperabilidad_Inicio/pae_Transicion_a_IPv6.html?idioma=en	
The Government of the Republic of Slovenia, Ministry of Higher Education, Science and Technology Study: Transition to IPv6 (Guideline for Deliberation on the National IPv6 Strategy)	http://go6.si/docs/Study_MVZT_IPv6_en.pdf	
Federal Ministry of the Interior and "Deutschland Online Infrastruktur", presentation IPv6 Workshop - creating a constructive Dialogue, European Commission, April 2010. Presentation in the NL	https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/20114.pdf https://www.forumstandaardisatie.nl/fileadmin/os/presentaties/10mei12_constanze-buerger.pdf	
All Documents from Germany	http://www.bva.bund.de/DE/Organisation/Abteilungen/Abteilung_BIT/Leistungen/IT_Beratungsleistungen/IPv6/best_practice/bestpractice_node.html	

1.5 TRUSTED EXCHANGE PLATFORM (E-TRUSTEX) (2016.19)

1.5.1 IDENTIFICATION OF THE ACTION

Type of Activity	Reusable generic tools
Service in charge	DIGIT B.4
Associated Services	DIGIT B.2, SG A.1, JUST B.2, COMP R.3, TAXUD C.5

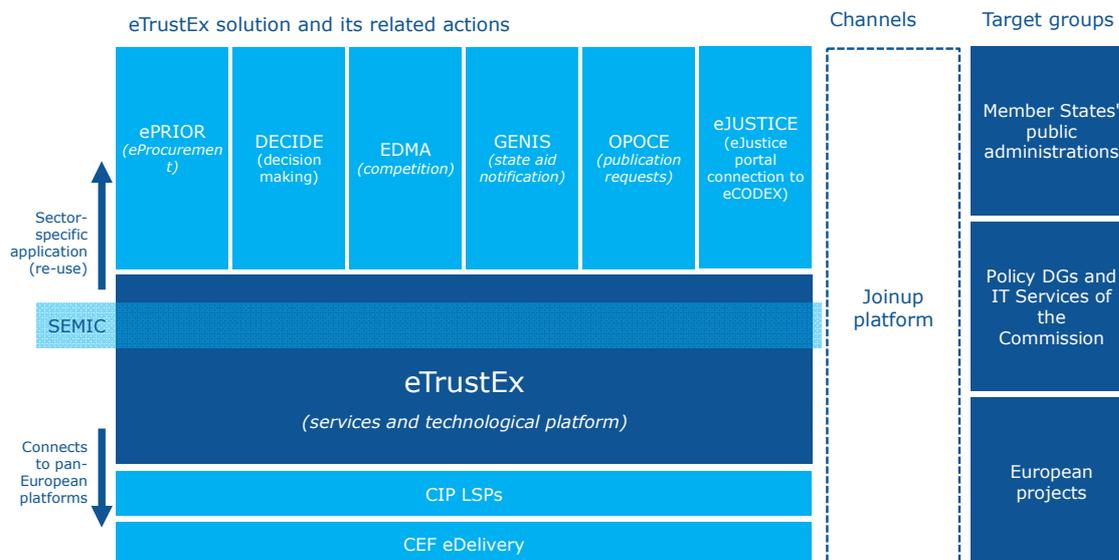
1.5.2 EXECUTIVE SUMMARY

More and more data is exchanged between administrations. According to our estimates European policy additionally increasingly requires the data to be exchanged electronically (see *Problem Statement* section). This action aims to support public administrations in their implementation of these policies, enabling them to exchange data electronically in a secure, reliable and interoperable way through re-use.

In parallel, the CEF programme and the Large Scale Projects funded under the CIP programme provide pan-European exchange platforms. They, however, require integration with the back-end systems of their re-users in order to achieve end-to end coverage and interoperability. To address the above problem, e-TrustEx also helps public administrations to link their national systems to the pan-European exchange platforms.

The e-TrustEx solution is already operational and the platform is offered to the EU Institutions as a service and to the Member States as an open source software tool.

This action intends to keep the operation and the maintenance of the platform live, to provide support to re-users and improve the service offering.



1.5.3 OBJECTIVES

The main objective of this action is to support the secure, electronic exchange of documents and information between public administrations through the use of the e-TrustEx software. e-TrustEx enables the automation of document exchange and offers value added services such as validation and routing of documents as well as the ability to send large messages. Thanks to the Open Source policy, Member States will be able to re-use and extend it themselves for their own specific needs at national, regional or local level.

By fulfilling these objectives, the action will not only stimulate trusted information exchange, but also a cohesive interoperability architecture founded on re-use of work and reduction of redundancy, in line with the priorities of the European Interoperability Strategy and the Digital Single Market Strategy.

1.5.4 SCOPE

In scope: The e-TrustEx platform is offered to the EU Institutions as a service and to the Member States as a tool. This action covers:

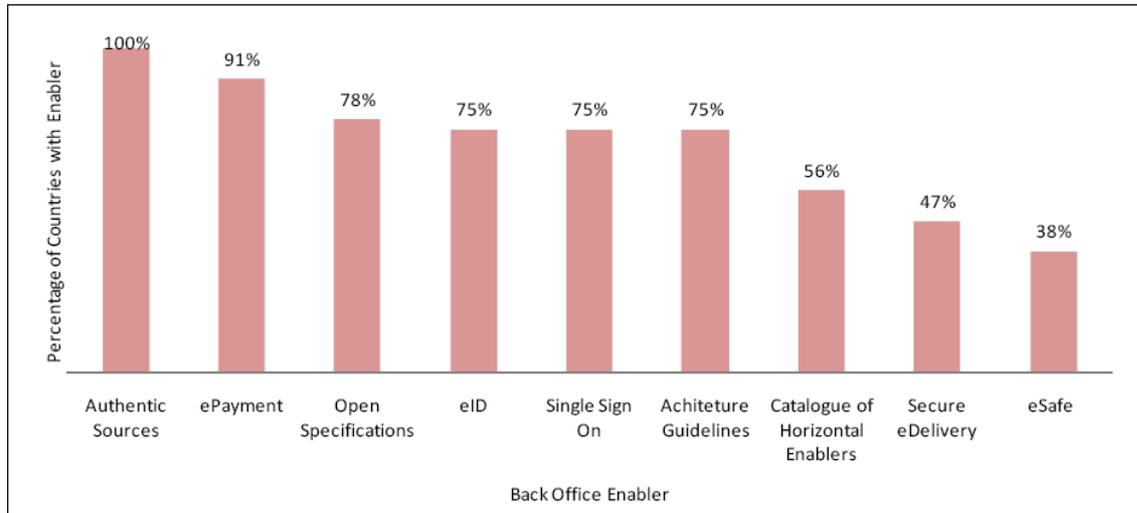
- Development of additional features and improvements within the e-TrustEx platform, increasing its value in both cases;
- Operations of the platform for the EU institutions that reuse it in service delivery mode; and
- Support on technical aspects both to its existing users and for Member States willing to re-use the platform. This includes activities such as support of deployment, integration, specifications of the technical interface and of the several components of the platform, debugging and testing, etc.

Out of scope: Implementation of back-office integration is not covered by this action and should be complemented by Policy DGs using their own budget. The Policy DGs should additionally fund the provision of specific support to their users and the development of custom (non-generic) functionality and extensions. Member States' administrations adopting the platform should equally manage the hosting, the specific support and the development of specific functionality and extensions. The exchange of classified documents is also out of the scope of this action.

1.5.5 PROBLEM STATEMENT

Public administrations exchange increasing amounts of information and the current ways of exchange are often unreliable and unsecure (e.g., via e-mail or via paper documents, CDs or DVDs exchanged via postal mail, faxes, etc.). This is confirmed by the "9th Benchmark Measurement of European e-Government services"¹ which shows that there is an increasing need of the Member States for a secure electronic delivery platform.

¹ https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/eqov_report.pdf



A survey carried out by the e-TrustEx project team in 2010 confirms the same trend. The survey also shows that the Member States believe the European Commission should promote the re-use of a common set of building blocks for cross-border data exchange. In addition, European policy increasingly requires information between public administrations in the EU Member States to be exchanged electronically. This action supports the implementation of these policies by public administrations in the European Union and introduces interoperable, secure and reliable exchange possibilities.

The e-TrustEx architecture and its components are also re-used by the CEF² e-Delivery project to allow greater ease of connectivity of back-end systems to the CEF and the e-SENS e-Delivery solutions and of directly submitting documents to such networks through a graphical user interface. e-TrustEx already provides integration with CEF e-Delivery which includes the e-Delivery framework coming from the eCODEX³ Large Scale Project (EBMS3/AS4) as well as the PEPPOL⁴ Large Scale Project. These integrations are integral to achieving a pan-European interconnection among existing information exchange communities. Each of these pan-European exchange platforms offers generic and highly reusable components and services; however, if not integrated, the lack of “end-to-end” coverage (including the “last-mile”) and interoperability between them may hinder their actual re-use. Therefore the components developed by this action are reused to provide a connector, helping public administrations to link their national systems to the pan-European exchange platform CEF eDelivery.

1.5.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States' public administrations and	- Switching from registered post to digital exchange of information reduces the cost of these exchanges (as an example, in France around 25 to 40 million letters with delivery receipt are exchanged by

² <http://ec.europa.eu/digital-agenda/en/connecting-europe-facility>

³ <http://www.e-codex.eu/home.html>

⁴ <http://www.peppol.eu/>

EU institutions	<p>public administrations – around 4€ to 5€ each).</p> <ul style="list-style-type: none"> - Enable the creation of a European ecosystem of electronic message exchange which can serve several sectors requiring cross-border exchange of information. This will create economies of scale avoiding that each sector develops a specific solution, - Increase the security and reliability of information exchange and in the same time reduce the manual work involved in the process. - Cost savings and improved efficiency by ensuring interoperability of information exchange at European, national, regional or local level. - Provide free-to-use open source tools for national parliaments and permanent representations to send and receive electronic legal documents and metadata. - Experience, lessons learnt specifications, tools and components published as open source reusable by any Member State or EU Institution.
Policy DGs and IT services of the Commission	The European Commission, because of its trans-national position, is more and more called upon to develop systems to coordinate political actions in various fields. Having a generic system, like e-TrustEx, in place and widely used would be a very big progress for the whole interoperability issue in Europe and would also represent important cost savings.
European projects	Cost and time savings to connect to pan-European infrastructures

1.5.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Digital Agenda	<p>Action 27: Member States to implement Malmö and Granada declarations</p> <p>Member States should implement commitments on interoperability and standards in the Malmö and Granada Declarations by 2013.</p> <p>Action 26: MS to implement European Interoperability Framework</p> <p>Member States should apply the European Interoperability Framework at national level by 2013.</p> <p>http://ec.europa.eu/information_society/digital-agenda/index_en.htm</p>
DSM Strategy	<p>The e-TrustEx action contributes to boosting competitiveness through interoperability and standardisation, which is explicitly mentioned in the communication "A Digital Single Market Strategy for Europe"</p> <p>http://ec.europa.eu/priorities/digital-single-market/docs/dsm-communication_en.pdf</p>
The eGovernment	Action 33 "Exchanges of expertise, promotions of the re-use and sharing solution to implement interoperable eGovernment services"

Action Plan 2011 – 2015	<p>The Commission will organise exchanges of expertise and promote the re-use and sharing of solutions to implement interoperable eGovernment services. This includes establishment of interfaces to gain access to and use authentic national sources.</p> <p>Action 40 Pilot projects for innovative architecture and technologies in eGov</p> <p>The Commission will launch pilot projects to demonstrate how public administrations can deliver eGovernment services in a more flexible and efficient way by using innovative architecture and technologies.</p> <p>http://ec.europa.eu/information_society/activities/egovernment/action_plan_2011_2015/index_en.htm</p>
eIDAS Regulation	<p>Regulation on electronic identification and trust services for electronic transactions adopted at end of 2014 which will further foster interoperability and will reduce barriers in the internal market.</p> <p>http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.257.01.0073.01.ENG</p>
DECIDE	<p>The eTrustEx platform is used to send the documents issued from the decision making process to the National Parliaments, permanent representations and to the other EU Institutions.</p>
ISA Action 1.11 – GENIS	<p>The e-TrustEx platform will be used when developing the GENIS Information System, to provide efficient, trusted and transparent exchange of data (structured and unstructured) between the Commission (COMP, AGRI, and MARE) and Member States administrations within the State Aid Notification Process.</p>
ISA Action 1.7 – ePrior	<p>The e-TrustEx platform is used within the ePrior ISA Action 1.7</p>
eJustice portal of DG JUST	<p>The eTrustEx platform is used to connect the eJustice portal to the eCodex eDelivery network.</p>
ISA Action 4.2.4 – Joinup	<p>The e-TrustEx platform is made available via the ISA Collaborative Platform (Joinup) Action 4.2.4</p>
ISA Action 1.1 – Promoting Semantic interoperability Amongst the European Union Member States	<p>IMMC Metadata (Interinstitutional standard metadata defined in the context of the decision making process) files are transferred to EU stakeholders and Members States through eTrustEx.</p>
ISA Action 2.9 – Document repository services for EU policy support	<p>eTrustEx will be integrated with the existing open source document repository services.</p>
CEF eDelivery	<p>The eTrustEx is integrated with the CEF eDelivery network and can be</p>

DSI of DG CONNECT and ISA Action 1.6 – 1.19, CIPA	used by the Member States as a connector to link national systems to the network.
CIP LSPs – DG CONNECT	eTrustEx is integrated with the solution deriving from the convergence of the eDelivery solutions of the CIP Large Scale Pilots.

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

This action was originally initiated to make best use of the components developed under the e-PRIOR ISA Action 1.7 by generalising, customising and extending them in order to allow automated document exchanges in different domains, such as legislative and competition related documents. Through the activities undertaken to generalise the components of e-PRIOR, the platform now provides a solid basis for exchanging information and automated document exchange choreographies. This resulting platform is now instead reused by e-PRIOR, where e-PRIOR implements the business specific layer on-top of generic exchange services offered by eTrustEx and represents therefore an instantiation of eTrustEx services in a specific business context.

Reuse of solutions developed by the ISA action "CIPA - Common Infrastructure for Public Administrations Sustainability" (ISA action 1.6 and 1.19) by integrating the software components of eDelivery to the eTrustEx platform.

Planned reuse of ISA Action 2.9 "Document repository services for EU policy support", integrating the upcoming open source document archiving system with eTrustEx.

1.5.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Updated e-TrustEx open source software package
Description	The e-TrustEx open-source software package is offered to Public Administrations at European, national and regional level to set up secure exchange of digital structured and unstructured documents from system to system via standardised interfaces.
Reference	https://joinup.ec.europa.eu/software/openetrustex/description
Target release date / Status	continuous updates

Output name	e-TrustEx instance hosted at the EC
Description	e-TrustEx can be reused in a service delivery mode within the EU Institutions. The following projects are reusing it: <ul style="list-style-type: none"> • e-PRIOR (DIGIT) • DECIDE (SG)

	<ul style="list-style-type: none"> • EDMA (DG COMP) • eJustice portal (DG JUST) • CEF eDelivery connector (DG CONNECT) • OPOCE (OP) • GENIS (DG COMP)
Reference	DIGIT-eTrustEx-Support@ec.europa.eu
Target release date / Status	Released

1.5.10 ORGANISATIONAL APPROACH

1.5.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
ISA ² Committee/Coordination Group	The ISA ² Committee and coordination group assists the Commission in translating priorities into actions and to ensure continuity and consistency in their implementation.
DIGIT – Directorate General for Informatics of the European Commission	<p>Unit DIGIT.B.4 (<i>Corporate financial, Procurement and Policy solutions</i>)</p> <p>This unit is the main service in charge of this action and responsible for the development coordination and maintenance of e-TrustEx. It ensures the development and re-use of the e-PRIOR related modules and services and coordinates the interaction between the different stakeholders.</p> <p>Unit DIGIT.B.2 (<i>Corporate knowledge and Decision making solutions</i>)</p> <p>This unit is in charge of developing the e-TrustEx GUI, adapter and of the DECIDE project.</p>
Secretariat general Of the European Commission	<p>Unit SG.A1 (<i>Advice, developments and logistics</i>)</p> <p>This unit is the system owner and business project manager of DECIDE and represents the interests of the DECIDE users.</p>
DG CONNECT – Directorate General for Communication Networks, Content and Technology of the European Commission	<p>Unit CONNECT.H3 (<i>ICT for Government and Public Services</i>)</p> <p>The cooperation with CONNECT is key given its role as the primary link between CIP pilots, the provision of building blocks through the CEF programme and the Commission.</p>
DG COMP - Directorate General Competition of the European Commission	<p>Unit COMP.R.3. (<i>Information Technology</i>)</p> <p>This unit is in charge of the EDMA project and will be responsible of the development of the EDMA and GENIS specifically related modules.</p> <p>Unit COMP.R1 (<i>Document Management</i>)</p>

	<p>This unit is the system owner and business project manager of EDMA and represents the interests of the EDMA users.</p> <p>COMP.H (State aid: Cohesion, R&D&I and enforcement)</p> <p>This Directorate is the system owner of the GENIS project.</p>
Organisations in Member States	Members States representatives of administrations either working on similar initiatives or interested in adopting eTrustEx.
Other DGs of the European Commission (as required)	Representatives of other DGs / EU Institutions either working on similar initiatives or interested in adopting eTrustEx.

1.5.10.2 Communication plan

Event	Representatives	Frequency of meetings / absolute dates of meetings?
ISA ² group – successor of the TIE Working Group	eTrustEx team members, Member States representatives, ISA unit members, ISA ² Coordination Group	Quarterly
Project Coordination Group	Team leaders and HoUs of development teams of eTrustEx	Monthly
Extended Coordination Group	Team leaders and HoUs of development teams of eTrustEx and system owners (business stakeholders) of the involved pilots	Only when issues cannot be solved in the Project Co-ordination Group.
Bilateral meetings with Member States	DIGIT representatives, Member States representatives	These meetings are arranged by DIGIT on ad hoc basis.
Bilateral meetings with Policy DGs	DIGIT representatives, Policy DGs representatives	These meetings are arranged by DIGIT on ad hoc basis.
Relevant conferences and events	DIGIT with any other project stakeholder	DIGIT is invited to participate in meetings organised by Member States, the LSPs, e-Practice, etc.
Joinup	DIGIT representatives	(online channel)

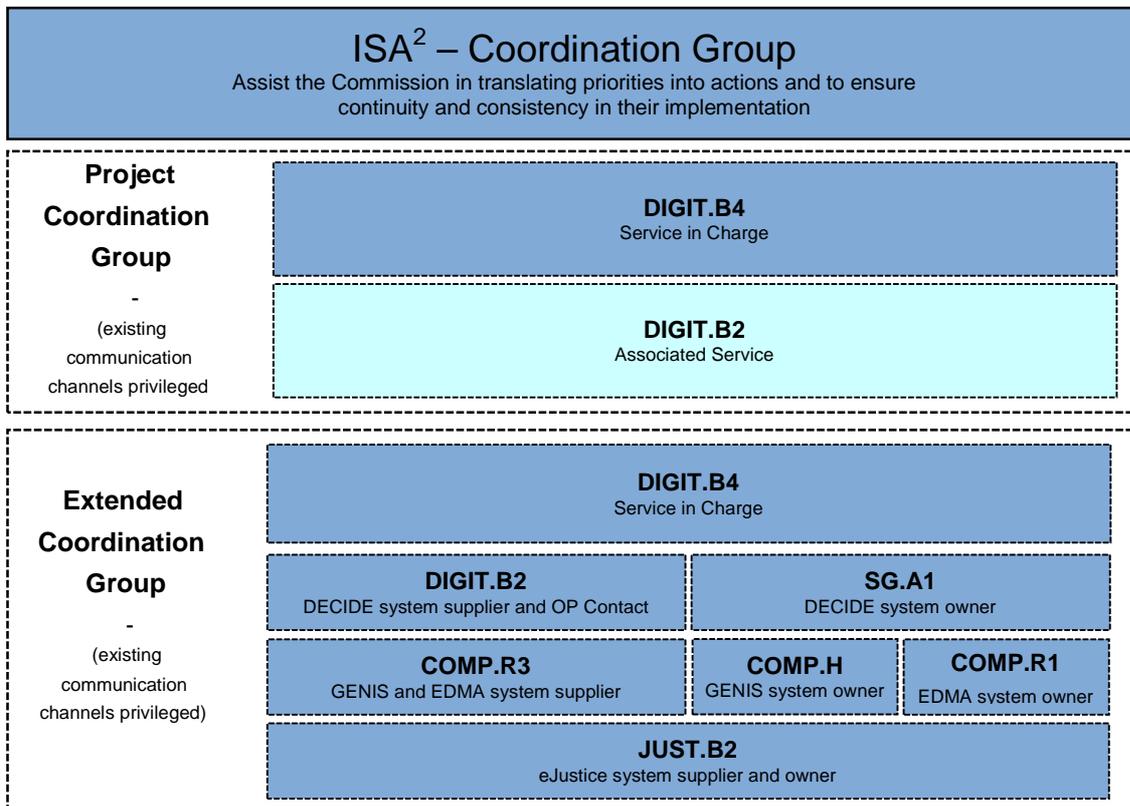
1.5.10.3 Governance approach

First and foremost, the e-TrustEx project is an action of the ISA² programme and therefore, it follows the ISA² governance structure.

To achieve the aforementioned objectives, this project will collaborate with several DGs of the European Commission and with several other stakeholders (e.g. participants of CIP pilots, Member States).

The Project Coordination Group ensures coordination and involvement of each of the associated services. The coordination with the system owners of the systems connected to e-TrustEx is assured by their system providers. Decisions and other important information are communicated to all involved entities through the Project Coordination Group. In addition to the scheduled meetings, these groups meet when necessary and they should be versatile and empowering with minimal bureaucracy.

Based on the actual needs and to better bridge the technical and the business aspects, an Extended Coordination Group could be set-up to also involve the “business” stakeholders (system owners) of the back-end systems. The system owners would represent the interests of the final users of the exchange platform that are external to the Commission. Meetings of the Extended Co-ordination Group would take place exceptionally: only when issues cannot be solved in the Project Co-ordination Group.



1.5.11 TECHNICAL APPROACH

This action is not a new initiative, but rather execution and operation building on already ongoing work funded under the ISA Work Programme. The platform has, as part of the earlier ISA Work Programmes implemented several phases of architecture roadmap enhancement, making the platform

scalable, reliable and supporting additional functionalities. During the last ISA Work Programme a number of pilots in cross-border information exchange have been implemented in several sectors using the same e-TrustEx platform.

The project will now focus on leveraging on the experiences collected during the work that has been done. This includes implementing essential needs identified by users and keeping the services operational. The various activities of the project are executed in three sub-phases:

- Execution; and
- Operational; along with a parallel
- Monitoring and control phase.

The activities involved in each execution sub-phase will contribute towards the development of further functionality in order to support the objectives of the phase, whereas the activities for the operational parts will contribute towards providing the necessary support and roll-out, and cooperation with MS and policy DGs in order to facilitate their adoption of the tool. In order to encourage the stakeholders to move from awareness to action, DIGIT.B4 will define and execute an adoption plan, leveraging its own experiences to facilitate user adoption and provide advice to public administrations.

The outputs and results of the execution sub-phase will be available in the following phases:

Phase 1

Main focus: Additional functionalities and improvements

Details: The activities of this phase are contained in 6 Work Packages (WPs):

	Scope	Identified objectives
WP1	Integration with other services	<ul style="list-style-type: none"> ▪ Integrate to evidence handling of CEF eDelivery ▪ Start work on integrating eTrustEx adapter with archiving/cleaning service (with retention policy) of the Node ▪ Start work on integrating with smart card readers for signing ▪ Complete work on integration with the document repository services of ISA action 2.9.
WP2	Adapt to evolution of browsers	<ul style="list-style-type: none"> ▪ Start work on redevelopment of the e-TrustEx web applet using HTML5
WP3	Support of new protocols	<ul style="list-style-type: none"> ▪ Implement support for additional protocols (such as FTP) ▪ Implement interoperable queue protocol ▪ Implement new interface with improved genericity (SBDH)
WP4	Configuration and notification	<ul style="list-style-type: none"> ▪ Implement centralised configuration mechanism ▪ Implement notification mechanism
WP5	Mobile access	<ul style="list-style-type: none"> ▪ Start work to make an e-TrustEx user interface version which offers the best experience to mobile users
WP6	eIDAS compliance	<ul style="list-style-type: none"> ▪ eIDAS impact assessment

Phase 2

Main focus: Mobile access and compliance with legislation

Details: The activities of this phase are contained in 6 Work Packages (WPs):

	Scope	Identified objectives
WP1	Integration with other services	<ul style="list-style-type: none"> ▪ Complete work on integrating eTrustEx adapter with archiving/cleaning service (with retention policy) of the Node ▪ Complete work on integrating with the CCN network (tbc)⁵ ▪ Complete work on integrating with smart card readers for signing
WP2	Adapt to evolution of browsers	<ul style="list-style-type: none"> ▪ Complete work on redevelopment of the e-TrustEx web applet using HTML5
WP3	Improvement of logging and monitoring features	<ul style="list-style-type: none"> ▪ Improved decisional logs (data warehousing, reporting) ▪ Improved monitoring (active monitoring, alerts)
WP4	Improved deployment	<ul style="list-style-type: none"> ▪ Facilitate deployment of eTrustEx (docker) ▪ Make eTrustEx compatible with cloud computing
WP5	Mobile access	<ul style="list-style-type: none"> ▪ Complete work to make an e-TrustEx user interface version which offers the best experience to mobile users
WP6	eIDAS compliance	<ul style="list-style-type: none"> ▪ Implementation of actions identified by eIDAS impact assessment

Methodology:

The project teams use the RUP@EC methodology for software development, PM2 for project management and ITIL for service management.

The key point of the chosen approach consists in:

1. incremental development which progressively makes available the support of complex interactions and exchange of additional business documents;
2. re-use of best practices and existing implementation as well as the reference to existing standards that have been developed already.

1.5.12 COSTS AND MILESTONES

1.5.12.1 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 1 –	Additional functionalities	950	ISA ²	Q2/2016	Q1/2017

⁵ No budget implication, this integration will be funded by DG TAXUD

Execution	and improvements				
Phase 1 – Operational	Operation phase 1	250	ISA ²	Q2/2016	Q1/2017
Phase 2 – Execution	Mobile access and compliance with legislation	950	ISA ²	Q2/2017	Q1/2018
Phase 2 - Operational	Operation phase 2	250	ISA ²	Q2/2017	Q1/2018
	Total	2400			

1.5.12.2 Breakdown of ISA funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Phase 1 – Execution	950	
	Phase 1 – Operational	250	
2017	Phase 2 – Execution	950	
	Phase 2 – Operational	250	

1.5.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
Digital Agenda	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF	
Digital Single Market	http://ec.europa.eu/priorities/digital-single-market/docs/dsm-communication_en.pdf	
CEF	https://ec.europa.eu/digital-agenda/en/connecting-europe-facility	
eIDAS regulation	http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.257.01.0073.01.ENG	

1.6 INTEROPERABILITY AGREEMENTS ON ELECTRONIC DOCUMENT AND ELECTRONIC FILE (2016.26)

1.6.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common Frameworks
Service in charge	DIGIT B6
Associated Services	DG GROW, SG, DIGIT.B2, EU Publications Office, DG CONNECT

1.6.2 EXECUTIVE SUMMARY

Administrative activity is distinguished by its documentary character, in the sense that the administrative documents are evidences of their activity and the external form of such acts.

The need to exchange the above documents and files in an electronic format make necessary the establishment of interoperability guidelines about their exchange. Special consideration should be given to the context in which the object of exchange is the electronic document and not just the data it carries.

Preliminary work has been done under the ISA programme, to explore what Member State administrations try to achieve when using electronic documents and how they do it.

This will, under the ISA² programme, be extended to get a full overview and serve as the basis for the categorisation of requirements, possible solutions and interoperability issues related to these solutions, with the goal to identify areas where interoperability agreements would be useful, and consequently establish such agreements.

1.6.3 OBJECTIVES

The objective of the action is the definition of common specifications (interoperability agreements) in relation to the electronic documents and the electronic files:

- An interoperability agreement for electronic documents would define a common approach describing e-documents, including contents, e-signatures, and minimum required metadata;
- An interoperability agreement for e-files would define a common approach to the structure of e-files (being a collection of electronic documents grouped into a common context, e.g. a case), including e-documents, e-indexes, e-signatures, and minimum required metadata, and specifications on how to send and make them available.

The action aims to first establish a complete picture of solutions and standards for electronic documents and electronics files, covering the whole lifecycle of e-electronic documents and electronic files, including bundling (containers), exchange (e-Safe and others) and archiving.

This picture should be at EU and national level and in various domains (e.g. social security, taxation and maritime affairs), taking into account security, privacy and data protection and the citizen's right to data preservation. It will then serve to identify the needs / requirements and best practices, and eventually propose interoperability agreements to fulfil these requirements.

1.6.4 SCOPE

Building on the reference architecture for electronic documents that was developed under the ISA programme, the action will consider various aspects related to e-documents and identify interoperability issues where further action is needed. Different types of solutions to similar problems will be compared and their advantages and disadvantages elaborated. Where common specifications are lacking, the action will draft such specifications, building as much as possible on existing standards, and aiming at a wide range of consensus.

1.6.5 PROBLEM STATEMENT

Administrative activity is distinguished by its documentary character, in the sense that the administrative documents are evidences of their activity and the external form of such acts.

The need to establish some guidelines for interoperability in the exchange of electronic documents and electronic files is assumed, well known, and a key for interoperability. Special consideration needs to be given to a context in which frequently the object of exchange is the electronic document (with its documentary character preserved) and not just the data it carries.

Lessons learned from existing experience in establishing relevant specifications shall be taken into account.

1.6.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Commission Services	Better European Public Services especially those which are document-based.
Public Administrations	Reduction of administrative burden. Electronic documents allow for shorter processing, fewer errors, reduced printing and postage costs and, most importantly, fully integrated processing.
Business and citizens	Reduction of administrative burdens, improved users' satisfaction

1.6.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	The need that "... the use of electronic documents should be promoted across the EU to reduce costs and administrative burden for business and individuals" is clearly mentioned in the DSM. Also EIF (subject to revision as per DSM roadmap) includes the notion of Interoperability Agreements as a necessary element to achieve interoperability.
Services Directive	Electronic documents play an important role in the implementation of the Services Directive.
ISA Action 1.1 – Promoting semantic interoperability amongst the European Union Member States	The SEMIC action promotes semantic interoperability. The standardized document formats will therefore contribute to this direction. Specifications and recommendations identified in the context of this action will take into account SEMIC results
ISA Action 1.2 – Access to base registries	Very often e-documents are exchanged in processes related to Base Registries. The work carried out by the action has to be considered.
LSPs and other funded projects	The e-Documents building blocks from some of the "Large Scale Pilots" and other initiatives have been assessed during the first phase of the action.

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

The e-documents engineering method put forward in the first phase of the action was developed in cooperation with the ISA action 1.1 (SEMIC). Any future work on standardised formats will have to take into account the instruments created by the SEMIC action. Core Vocabularies in particular can play a role in the definition of e-document formats (side by side with international standards such as Dublin Core, SBDH, UN/CEFACT and UBL). Specifications developed in the Member States and coming from other funded projects (e.g. LSPs), as well as the analysis done in the context of the Services Directive will serve as input for any draft interoperability agreements.

1.6.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Updated study on state of the art of eSafe solutions in Europe
Description	The inventory and analysis of what exists in this area in terms of existing standards and solutions actually in use in Member States and at EU level will be extended to

	cover eSafe solutions in Europe, too.
Reference	To be published on Joinup
Target release date / Status	2016

Output name	Updated and extended Reference Architecture for e-Documents
Description	Under the ISA programme, the e-Documents action has produced a reference architecture for electronic documents, based on the European interoperability Reference Architecture (EIRA). Under ISA ² , this will be finished and maintained. It is meant to enable public administrations to make informed architecture decisions when building e-document solutions.
Reference	To be published on Joinup
Target release date / Status	2016 / Status: first version published in 2015

Output name	Interoperability agreements (context dependent) for the exchange of electronic documents and electronic files.
Description	Interoperability agreements can occur on all EIF layers: organisational (e.g. agreement about mutual acceptance), semantic (e.g. minimal set of document metadata, or content schemas, technical (e.g. signature formats and containers). The format will vary accordingly.
Reference	To be published on Joinup
Target release date / Status	Q2 2017 / Status: not started

1.6.10 ORGANISATIONAL APPROACH

1.6.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States	ISA ² Committee, ISA ² Coordination group (or ISA CG equivalent) and working groups
Commission Services	A representative from each concerned Commission service.

ICT	Representatives of ICT industry, SMEs
Standardisation bodies	Representatives from standardisation organisation fora and consortia.

1.6.10.2 Communication plan

Under the ISA programme, MS solutions for electronic documents and electronic files were examined. This inventory will continue under ISA² – targeted communication with experts takes place through e-mail and telephone interviews, so as to achieve a complete picture of the situation in Member States. The reference architecture for electronic documents that was also created under the ISA programme will be finalised and then further disseminated, through presentations and webinars. Draft interoperability agreements will be created with the help of a working group and be subject to a public consultation – an effort will be made to engage here specifically the owners of standards and specifications for electronic documents in Member States.

Already while drafting these interoperability agreements, the action will actively search for cooperation partners to identify specific pilots according to the recognised needs. This will help to pinpoint obstacles on the organisational layer early on.

1.6.10.3 Governance approach

The action will be managed by DIGIT with the support of an external contractor. Whenever major deliverables are to be published, the validation of the MS representatives will be sought.

This action will be run in close collaboration with the relevant ISA² working group and with the concerned Commission services. Once interoperability agreements are established, they will require a more formal governance – this will be created in a later stage of the action, depending on the nature of the agreements (based on existing work for similar types of interoperability agreements, e.g. SEMIC), and taking into account the participation of relevant stakeholders.

1.6.11 TECHNICAL APPROACH

During the inception phase, the inventory and analysis of what exists in the Member States (started under the ISA programme) will be completed as a basis to scope the next steps towards, for example, the identification of overlaps and gaps and the needs/requirements.

The e-documents reference architecture that has been created in parallel will enable identification of requirements on the different interoperability layers, including in particular aspects that are relevant to the documentary character of electronic communications, like integrity, confidentiality, non-repudiation etc.

This work will then be used to identify where definition and agreements on common templates of interoperability agreements (specifically oriented towards electronic documents and electronic files) could contribute to increase interoperability amongst EU systems.

Once some clarity about the need for agreements on the different interoperability layers has been achieved, a working group will be established to draft these agreements. The planning of pilots will begin in parallel, to ensure real-life relevance of this work.

1.6.12 COSTS AND MILESTONES

1.6.12.1 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)
Inception	Definition of scope for interoperability agreements	100	ISA ²	Q2 2016	Q3 2016
Execution- 1	Draft interoperability agreements	150	ISA ²	Q4 2016	Q2 2017
Execution-2	Pilots	200	ISA ²	Q3 2017	Q4 2017
	Total	450			

1.6.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Inception Execution-1	250	
2017	Execution-2	200	

1.6.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
Updated Reference Architecture for e- Documents	To be published	

2. SEMANTIC INTEROPERABILITY

2.1 SEMIC: PROMOTING SEMANTIC INTEROPERABILITY AMONGST THE EUROPEAN UNION MEMBER STATES (2016.07)

2.1.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common Services
Service in charge	DG DIGIT
Associated Services	EU Publications Office, DG CNECT, ESTAT, Secretary General

2.1.2 EXECUTIVE SUMMARY

Within the ISA Programme, the Action has produced specifications, created communities, and supported policy domains, DGs and MSs in improving semantic interoperability.

In the new Programme the Action will continue to develop specifications in the form of data standards and reference data with close collaboration with the domain owners and addressing needs from DGs and MSs. Candidate areas include – amongst others - financial reporting (in close collaboration with DG FISMA), eProcurement (together with DG GROW and the PO) and employment related data standards (with DG EMPL). Work in all these new areas has already started in 2015.

The existing semantic interoperability solutions produced by the Action and other EC initiatives will be further promoted to be used in operational systems, a process that has also started in 2015. Examples include the successful use of the Core Business vocabulary in the DG JUST Business Registers Interconnection System (BRIS), the DCAT-AP specification in the DG CNECT pan-European Open Data Portal (part of the CEF DSIs), the Core Vocabularies for the DG COMP State Aid Notification system and the Core Public Service Vocabulary in Estonia. Moreover, resources will be invested to exploit these core data model in base registries, with the aim to develop the missing common semantic layer to allow exchange of basic data amongst the MSs, contributing to the "once-only" vision.

Furthermore, aiming at addressing the lack of a mature and interoperable tool for the management and publication of controlled vocabularies, the Action, in close collaboration with the Publications Office of the EU, will deliver a new major version of the open-source thesaurus management tool VocBench. VocBench 3.0 will offer a ready solution for the management, alignment and publication of controlled vocabularies as Linked Open Data, thus taking away the burdens for public administrations to maintain and publish their controlled vocabularies in an open and interoperable way.

In addition, the Action together with DG EMPL, will develop open metadata schemata for job vacancies and job applicants (CVs). Together with the semantic assets that are already under development, this will lead to better interoperability across systems of various actors (platforms of public and private employment services, job boards, social media, our European tools such as EURES, EU Skills Panorama, Europass), stimulate the emergence of a Semantic Web in the labour market and create conditions for public and private actors on the labour market to develop interoperable and interlinked solutions.

At the same time, the Action will continue investing towards innovative approaches to achieve application and data integration by applying semantic technologies and linked data. This will take the

form of pilots to be organised with the active participation of MSs checking amongst others efficient ways to decrease the costs and increase the efficiency for bringing together systems that have been developed independently but need to exchange information.

Last, the Action will elaborate and update as needed the semantic layer of the European Interoperability Reference Architecture (EIRA) working closely and contributing to the relevant ISA² Action.

2.1.3 OBJECTIVES

The objective of this action is to promote semantic interoperability amongst the EU Member States (MSs) and the EU Institutions. This is achieved by:

- Supporting alignments and agreements on common definitions and specifications at the semantic layer for the MSs and the EU Institutions;
- Increasing the visibility of existing data (aka semantic) standards;
- Promoting the use of the ISA Core Vocabularies, the ADMS and DCAT-AP specifications at the European, national and local level;
- Identification of areas for new Core Vocabularies and/or common data models. Checking maturity and opportunities for developing specifications with communities. New vocabularies development. Sustainability of the existing specs.
- Supporting policy and projects executed by DGs and MSs for promoting semantic interoperability with pilots and policy advice.
- Using core data models in base registries to achieve semantic interoperability across different base registries.
- Supporting DGs and MSs for using the ISA data models in operational systems.
- Supporting metadata management policies, including documenting existing policies and tools, drafting guidelines, architectures, providing direct support to MSs and DGs, aligning and coordinating relevant initiatives.
- Initiating an analysis on information management strategy: good practices, guidelines, recommendations, tools.
- Promoting open and linked data approaches and technologies for improving the interoperability of public administration systems;
- Promoting best practices, experiences and lessons-learnt in the area of semantic interoperability and raising awareness on the importance of semantic interoperability and appropriate metadata management policies;
- Supporting the development of a new major version of VocBench (version 3.0) that will offer EU institutions and bodies as well as national authorities the necessary toolbox to create, to maintain, to link and to publish their controlled vocabularies, metadata or glossaries as Linked Open Data.
- Supporting the development of two open metadata schemata for publishing and exchanging labour market documents (covering the demand and the supply side of the labour market respectively), which together with the standardised vocabulary for the labour market (European Skills, Competences, Qualifications and Occupations, ESCO), can be the starting point for a Semantic Web on the labour market.
- Continuation of the promotion and dissemination work including the SEMIC conference.

2.1.4 SCOPE

This action covers activities to promote semantic interoperability across MSs and EU Institutions. The emphasis will be on cross-domain interoperability but single-domain, cross-border and/or cross-EU institutions initiatives remain with the scope of the Action.

The Action defines and maintains, in close collaboration with the relevant Action, the semantic/information layer of the European Interoperability Architecture (EIRA) taking into account the overall architectural design principles, direction and approach.

Support services are provided by the Joinup platform which makes available the necessary infrastructure for the sharing and re-use of semantic assets and brings administrations together to collaborate.

The Action also revises the architecture of the collaborative thesaurus-editing platform, VocBench, initially developed by the Food and Agriculture Organization (FAO) of the United Nations for specifically managing their thesaurus Agrovoc and also used by the Publications Office for the maintenance of EuroVoc. It enhances VocBench with a number of new functionalities and extensions/pluggable customizations identified by the ISA consortium partners as relevant for their respective scenarios and enabling more interaction with Linked Open Data.

Regarding the development of open metadata schemata for job vacancies and job applicants, within scope is the creation of an options paper covering i) a review of existing initiatives and schemata, ii) options for the scope of the schema, and iii) options for measures to support the market acceptance of the schema, followed by the metadata schema itself, specifying in particular mandatory and optional metadata elements with their name, the semantics (the meaning of the element), content rules, representation rules, allowed element values and an approach to versioning and historical data. For explaining how to publish data according to the produced schema, a set of manuals and documentation is expected to be published, together with specifications for tools that can support the use of the schemata, such as validators and tools to automatically generate semantic annotations.

The following activities are not considered within the scope of this Action:

- All technical development related to the Joinup platform including the implementation of the federation of interoperability solutions.
- General community animation and communication activities.
- Software development for supporting the open metadata schemata for job vacancies and job applicants and also the publishing of data according to those schemata.

Consequently, there are links between this Action and the Action for the European Federated Interoperability Repository (action 4.2.4 EFIR) as EFIR develops and maintains the federation of semantic solutions available via the Joinup platform. Links also exist with Actions on communities building and communication activities. Last, the Action provides also input to the European Interoperability Reference Architecture (action 2.1).

2.1.5 PROBLEM STATEMENT

The environment in which data exchange and service execution takes place amongst MSs is very complex contributing many barriers and challenges to the exchange of data during the execution of European Public Services. These barriers include divergent interpretations of the data, lack of commonly agreed and widely used data models, absence of universal reference data (e.g. code lists, taxonomies), from which only few are publicly available and even less as Linked Open Data, lack of interoperable tools/formats for the management and publication of reference data, the multilingual challenge. Last, in the sensitive area of labour markets, we currently experience fragmented European labour markets which hinders European mobility as the data of jobseekers and the matching job vacancies are kept in different systems due to the existing digital segmentation etc.

Due to these pressures, semantic interoperability becomes an important element in many eGovernment and interoperability national agendas and interesting experience and lessons-learnt can already be shared at a European level.

2.1.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States' Public Administrations	<ul style="list-style-type: none"> ○ Forum to identify opportunities for harmonization at European level ○ A virtual place to share best practices and experiences ○ Core Vocabularies, reference data, XML schemata and thesauri ready to be used in public administration information systems development. ○ Linked data best practices. ○ Reduced development costs <ul style="list-style-type: none"> ● due to reuse during the initial development phase ● due to less interoperability conflicts while integrating systems or providing cross-agency/domain/country services ○ Use VocBench for the maintenance of their controlled vocabularies and metadata, for the alignment of their national and regional controlled vocabularies with EuroVoc. ○ Enrich the EU-level semantic of EuroVoc with in-depth national and regional coverage responding to the need of the Member States.
IT Services Industry	<ul style="list-style-type: none"> ○ Reduced development costs, as explained above. ○ Reuse and integrate controlled vocabularies and metadata produced by Member States and Public Administrations or EU institutions and bodies.
European Commission Services	<ul style="list-style-type: none"> ○ A set of specifications in the form of Core Vocabularies and other relevant tools, such as reference data (e.g. authority tables), XML schemata and thesauri that can be reused by the EC services to facilitate interoperability among different applications and systems

	<ul style="list-style-type: none"> ○ Reduced development costs, as explained above. ○ Use VocBench for: a) the maintenance and dissemination of the glossaries and ontologies (e.g. EuroVoc, JRC Inspire themes, Gemet thesaurus, Glossaries produced by DIGIT, Thesaurus of the Institute for Gender Equality, European Training Thesaurus from Cedefop etc.), b) the re-use the concepts and their translations in the different controlled vocabularies but also to extend the coverage with most specific or generic concept, c) the management of semantic relations with remote controlled vocabularies such as Gemet, AgroVoc, JRC Inspire Feature Concepts or UNBIS (United Nations Thesauri).
Employers	Employers will be able to publish their job vacancies with metadata (semantically enriched) or to transfer them to service providers, e.g. employment services. The potential reach of their job vacancies will be increased as the data will become reusable. Integration with their HR software systems will become easier. At the same time the quality of applications will increase: First, the metadata allows software and jobseekers to better assess the fit between candidate and job before the application process starts. Second, employers will be able to indicate in real time, if a job vacancy is filled – including the republished versions of the vacancy. This will reduce the number of applications for jobs that are already filled.
Jobseekers	Jobseekers will find it easier to search job vacancies and to match them with their own profile. Thanks to the metadata they can use faceted search, display a foreign job vacancy in their own language and use automated matching algorithms of job board or employment services to find interesting jobs for them. Jobseekers will also be able to publish or exchange their CVs in a reusable manner. This way they do not need to re-enter and re-format the same data over and over again. Their social media profile will become interoperable with companies' online application forms, with EURES, with Europass, etc.
Labour market intermediaries (public employment services, job boards, private employment services, social media)	Labour market brokers will find it easier to exchange data with others (e.g. other labour market brokers or employers). Furthermore, it will be easier for them to re-use information on the web and thus to offer aggregation or metasearch services.
EURES	Based on the open metadata schema for job vacancies EURES could replace the current error-prone system using web services with a web crawler. Employment services (or any other organisations) would publish job vacancies in compliance with the open metadata schema. EURES (or any other service provider) can directly obtain the information from the Web. Before displaying the information to the user, EURES could even verify in real time, if the job vacancy is already filled.
EU Skills Panorama	The EU Skills Panorama could use information published according to the open metadata schema in order to deliver real time trends on skills demand (job vacancies), skills supply in the labour market (professional profiles) and training offers. This information can be used for real time big data analysis e.g. building on the experience of DG CNECT with their monitoring of ICT job vacancies, MOVIP. Results could be stored, further analysed and visualised via a data warehouse, e.g. in form of an OLAP cube.
Europass	A metadata schema for professional profiles and CVs could become

	the core of a new common CV application bringing together Europass and EURES CV Online.
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2.1.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Digital Single Market	<ul style="list-style-type: none"> ○ The Action contributes to "better public services" in the Digital Single Market strategy. ○ Copying from the DSM strategy "<i>The lack of open and interoperable systems and services and of data portability between services represents another barrier for the cross-border flow of data and the development of new services.</i>" The Action contributes to better interoperability and data portability. ○ The DSM promotes the "Free flow of data" and identifies interoperability as an important issue for achieving this. ○ The DSM strategy asks for a revision of the European Interoperability Framework. One of the interoperability levels there refers to "semantic interoperability". ○ The DSM discusses about the interconnection of base registries and the Once-Only principle. Semantic interoperability is a prerequisite for achieving these targets.
Standardisation activities and organisations	<p>The work foreseen in this Action, especially the part relevant to the identification of alignment opportunities relates to standardization activities. The main goal and scope of the Action is to influence the National Interoperability Frameworks and to recommend common specifications to the MSs. This includes the area of labour market where currently lack of data standards hinders interoperability and the creation of a truly European market.</p> <p>More generally, close links with standardization organizations guarantee that duplication of work is avoided, while existing standards are taken into account and promoted for reuse.</p> <p>As an indication of the relevance and importance of the conducted work, W3C has already taken ISA Core Vocabularies, the DCAT-AP and ADMS into its standardization process. This results in increased visibility of the above-mentioned specification in EU and beyond.</p>
Large Scale CIP Pilots, and EU-funded initiatives to create semantic assets	<p>There are several ongoing and concluded EU-funded initiatives that have created and are creating important semantic assets.</p> <p>The Action intends to identify and promote these assets. Examples include the INSPIRE Directive, Gemet thesaurus from the European Environmental Agency, Eurovoc, the European Training Thesaurus, ESCO, and results from Large Scale CIP Pilots including SPOCS, STORK, PEPPOL, ePSOS and eSENS.</p>

PSI and Open Data	<p>In line with the EC objectives in the area of the PSI Directive, the Action promotes policies towards both open data and open metadata by the MSs and the EU services as a support measure for the more general Open Data policy.</p> <p>One of the concrete measures developed to implement this policy entails the setting up of the EU Open data Portal which is operated by the Publications Office of the EU. Close collaboration and common activities with the Publications Office of the EU have already started in 2013 and continues to secure alignment of efforts and concrete results. The creation of the pan-European Open Data portal is also part European open data policy. The portal has started its operation in 2015, and the DCAT-AP specification is used as the metadata standard for the description of the datasets coming from over 70 Open Data portals from 34 countries (situation in November 2015). The Action closely collaborates with the relevant EC service (DG CONNECT/G3).</p> <p>In 2014, a revision of the DCAT-AP has been concluded. Moreover, two extensions of the specifications are being developed to cover description of geospatial (GEO/DCAT-AP) and statistical (STAT/DCAT-AP) data.</p>
ESCO and other controlled vocabularies	<p>ESCO is the multilingual classification of European Skills, Competences, Qualifications and Occupations. ESCO is part of the Europe 2020 strategy. Together with other controlled vocabularies (e.g. NACE, NUTS, EQF, CEFR, ISCO, e-Competence Framework) it can be used to describe the content of job vacancies and CVs.</p>
EQF/ESCO Qualifications metadata schema	<p>DG EMPL is currently developing an open metadata schema for Member States and awarding bodies to publish data on their qualifications. This information will be integrated into the ESCO and the Learning Opportunities and Qualifications in Europe portal.</p> <p>Once we developed the metadata schema, we will encourage Member States to publish their national qualification databases in compliance with this standard. Furthermore, the EC will publish the open metadata schema and invite awarding bodies of international sectoral qualifications to apply the standards when describing their qualifications on the Web.</p> <p>Information published in this manner can be reused by all market actors in manifold ways: in online search, in professional networks, for job matching, in online applications, etc.</p>

EURES	<p>The EURES Job Mobility Portal provides access to 1.5 million job vacancies on average on stock every day covering all Member States. It helps those who wish to find a job abroad and offers European employers a variety of services and information covering every aspect of recruiting from other European countries. EURES also offers its services on mobile platforms through its app, which can be downloaded for free. Users can:</p> <ul style="list-style-type: none"> • Search jobs posted by all Public Employment Services in Europe, in any language. • Mark jobs as 'Favourites' and easily access them later, or share them with friends. • Find and contact EURES Advisers, who can provide personalised information and advice for job moves • Browse through upcoming events happening in Europe and add them to calendars.
EU Skills Panorama	<p>The EU Skills Panorama is a central access point for data, information and intelligence on skill needs in occupations and sectors. It provides a European perspective on trends for skill supply and demand and possible skill mismatches, while also giving information about national data and sources.</p>
Europass	<p>Europass is a set of five documents to make skills and qualifications of individual citizens clearly and easily understood in Europe. Europass CV is the most frequently used of these documents. By using an open metadata schema in Europass, the interoperability of Europass documents can be increased.</p>
ISA Action 1.2 – Access to base registries	<p>The core vocabularies developed by ISA Action 1.1 (Core Vocabularies, ADMS) can be used as data standards by base registries in order to facilitate the exchange of data.</p>
ISA Action 1.3 – Catalogue of Services	<p>Semantic interoperability is one of the basic prerequisites for building public services and linking up service catalogues.</p> <p>The Core Public Service Vocabulary developed in the course of the ISA Action 1.1, on 11 February 2013, is already used by ISA Action 1.3 in order to develop a Catalogue of Services. A specific application profile (CPSV-AP) has been developed by Action 1.3. This specification has already been adopted and used in Estonia.</p>
ISA Action 1.13 – Legislation Editing software - LEOS	<p>Reusable semantic interoperability assets in the area of legislation could be shared with other Public Administrations, at both EU and Member States level. Moreover, Action 1.1 intends to create a high level landscape overview in the area of the EU legislative process. The goal is to identify opportunities for alignment especially in the area of data models and metadata standards used by the different EU Institutions. The Action also supports the work to define a Common Vocabulary for describing legal documents in the context of the Inter-institutional Formats Committee chaired by the Publications Office.</p>

ISA Action 1.15 – Open Government Data	The ADMS (Asset Description Metadata Schema) developed by the ISA Action 1.1 has been reused by the Open Government Data portal. The DCAT-AP is used by the new pan-European Open Data portal and will become the native metadata schema for the next release of the EU Open Data Portal.
ISA Action 1.17 – Reusable INSPIRE Reference Platform	Action 1.1 evaluates the tools developed by Action 1.17 to identify opportunities for reusability in other areas.
ISA Action 1.21 – European Legislation Identifier	ISA Action 1.1 provides support, in particular regarding the specification of the semantic attributes and relationships with other existing specifications in the field.
ISA Action 2.1 – European Interoperability Architecture	The Action defines and maintains in close collaboration with the relevant Action the semantic layer of the European Interoperability Architecture (EIRA) taking into account the overall architectural design principles, direction and approach.
ISA Action 2.13 – Development of a European Union Location Framework	EULF aims to review semantic interoperability case studies from a spatial perspective, help define cross-border examples and re-use case studies.
ISA Action 2.15 – Interoperability agreements on electronic document and electronic file	ISA Action 1.1 promotes semantic interoperability. The standardized document formats contribute to this direction. Action 2.15 provides also opportunities for the use of the core vocabularies.
ISA Action 4.1.1 – Communication activity	ISA Action 4.1.1 will promote the benefits of semantic interoperability amongst the European Union Member States, using appropriate non-technical language, and different channels e.g. Communication of the results of the action through support of the annual SEMIC conference, and the core vocabularies and provision of communication advice.
ISA Action 4.2.1 – ISA Integrated Collaboration Platform	Joinup acts as a platform to support the objectives of the ISA Action 1.1 e.g. to publish the catalogue of semantic assets, the core vocabularies specifications, etc.
ISA Action 4.2.2 – Community building and effective use of the collaborative platforms	ISA Action 4.2.2 hosts and manages the SEMIC and CESAR communities of the ISA Action 1.1.

ISA Action 4.2.3 – National Interoperability Framework Observatory (NIFO)	As semantic interoperability is one of the components of the National Interoperability Frameworks (NIFs), the two actions collaborate closely together to provide feedback to each other accordingly.
ISA Action 4.2.4 – European Federated Interoperability Repository (EFIR)	EFIR builds on the work conducted in the course of the ISA Action 1.1, as ADMS is used and extended to cover other types of interoperability assets from other EIF layers, e.g. legal, technical and organisational assets.
ISA Action 5.2 – EIS Governance support	ISA Action 1.1 represents one of the building blocks of the EIF and has a link with EIS.

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

One of the most important design principles for all the solutions (mainly data models) developed in Action 1.1 is the reuse of existing specifications and models. To this end, the proposed specifications use several specifications developed by other institutions and organisations. Examples include the Publications Office Authority Tables and Eurovoc, the Dublin Core specification, the W3C DCAT standard, the Government Enterprise Architecture (GEA) public service model, etc. For the publication of controlled vocabularies inside the EU institutions, the recommendations elaborated in the context of the ISA action towards a Common approach for the management of persistent URIs in the EU institutions will be followed.

With regard to the open metadata schemata for the labour market, first, existing metadata schemata will be analysed and assessed for evaluating whether they can be (partly) re-used when developing the open metadata schemata ("schema crosswalks"). To this end, the action will (as part of the options paper) take stock of existing initiatives, metadata schemata or (de facto) syntactic standards. This overview will inter alia include initiatives like schema.org, HR Open Standards and the ISA Core Vocabularies. Second, for the content of the metadata fields, the development will build on existing semantic standards. These could in particular include the European and international standards for describing occupations (ISCO, ESCO), knowledge/skill/competences (ESCO, e-Competence Framework, CEFR), qualifications (EQF, ESCO, ISCED), sectors of economic activity (NACE) and geographical information (NUTS).

2.1.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Data models
Description	Specific data models are being developed for the Tenders Electronic Daily (TED) with the PO, EU budget (PO) and State Aid Notifications (DG COMP).

Reference	All specifications can be found via the Joinup page: https://joinup.ec.europa.eu/community/semic/og_page/studies
Target release date / Status	All the general specifications will be released available on Joinup.

Output name	VocBench 3.0
Description	The main outcome of the work. A fully fledged collaborative platform for management of RDF thesauri (in SKOS / SKOSXL) and ontologies (OWL) with particular emphasis on controlled collaboration, extensibility and scalability
Reference	http://VocBench.uniroma2.it/
Target release date / Status	V2.3 stable. Planned 3.0 for the end of the project (at most, or intermediate release and further features added by the end).

Output name	Metadata Registry and Retriever (temporary name)
Description	<p>The Metadata Registry and Retriever is a separate open-source project adopted in VocBench as an embedded software component of the system. The purpose of this module is to edit metadata descriptions of datasets available online.</p> <p>The Metadata Registry shall handle the standard formats such as DCAT, VOID or ADMS. There are three main intended usage scenarios for this module:</p> <ol style="list-style-type: none"> 1. First it will allow describing the datasets that are being created with VocBench. 2. Second It will provide a pertinent mechanism to handle external resource descriptions for the Vocabulary Alignment Module (used to link the created vocabulary to other existing vocabularies hosted at places and described by their metadata). 3. Third, this module also acts as a single interface for accessing the remote resources wrapping various ways of access. For example the resources can be available via http dereferencing (at the concept level) or via SPARQL endpoint.
Reference	N.A.
Target release date / Status	M6/2016

Output name	MAPLE
Description	MAPLE is being developed as a separate open-source project adopted in VocBench as an embedded software component of the system.

	<p>It is built on the lexical metadata vocabulary LIME, developed by UNITOV and contributed to the OntoLex W3C community group.</p> <p>MAPLE will automatize the alignment capabilities in VocBench, providing dataset-access facilities and lexical resource provisioning to alignment systems.</p>
Reference	http://art.uniroma2.it/maple/ http://art.uniroma2.it/lime/
Target release date / Status	<p>Intermediate release with partial capabilities at M12/2016.</p> <p>Planned integration by the end of the project.</p>

Output name	Open Metadata schema for job vacancies
Description	<p>An open metadata schema suitable for data exchange and for publication. It will cover all important metadata of a job vacancy, allow pointing to the original source in case of re-publication, and including licensing information. Furthermore it should enable employers to indicate in real time if a vacancy is filled. It should make use of our classifications and vocabularies (ESCO, EQF, NACE, NUTS, etc.) and be compatible with HR Open Standards.</p>
Reference	<p>Joinup</p> <p>EMPL Portal on labour market interoperability (TBC)</p>
Target release date / Status	01/12/2016

Output name	Open Metadata schema for CVs/professional profiles
Description	<p>An open metadata schema suitable for data exchange and for publication. It will cover all important metadata of a CV, professional profile and might include elements of a job application. It should be possible to point to the original source in case of re-publication, and to include licensing information.</p> <p>The standard could support the validation of professional experience or qualifications by awarding bodies or employers through digital signature. This way, applicants could proof their competences to employers in one digital document. In an application process, a candidate would only need to send one document, e.g. his/her CV in pdf. All metadata would be embedded in the document including the proof of their qualifications and professional experience. Employers could directly import this information into their HR management software.</p>
Reference	<p>Joinup</p> <p>EMPL Portal on labour market interoperability (TBC)</p>
Target release date / Status	01/12/2016

2.1.10 ORGANISATIONAL APPROACH

2.1.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States	<ul style="list-style-type: none"> ○ ISA² Committee ○ ISA² Coordination Group or ISA CG equivalent ○ Persons/units in charge of National Interoperability Frameworks and/or metadata standards catalogues/repositories, etc. ○ Persons/units in charge of governmental portals ○ ESCO Member States' Expert Group ○ EURES Committee under the future EURES Regulation ○ Network of the Heads of PES under Decision 573/2014/EU⁶ ○ Network of the Advisors for European PES Affairs
Standardization bodies	<ul style="list-style-type: none"> ○ W3C ○ OASIS ○ GS1 ○ CEN ○ UN/CEFACT ○ Dublin Core Metadata Initiative ○ EU Interinstitutional Metadata Maintenance Committee (IMMC)
DIGIT	<ul style="list-style-type: none"> ● DIGIT/B2, DIGIT/01 ● Unit (s) responsible for promoting common specifications in new and existing systems
EU Publications Office	<p>The unit responsible for metadata management</p> <p>The unit responsible for the EU Open Data portal</p> <p>The unit responsible for the Common Vocabulary for legal documents</p>
Other EC DGs and EU Institutions	<p>Representatives from the DGs who work as IT coordinators (IRMs)</p> <p>Representatives from DGs and EU Institutions (e.g. JRC, EEA etc.) who work in the area of metadata management.</p> <p>DG CNECT units H.3 (public services) and G.3 (open data and PSI)</p> <p>The EU Council, the European Parliament.</p>

⁶ Decision No 573/2014/EU, of the EP and the Council on enhanced cooperation between Public Employment Services (PES), OJ L159, 28.5.2014, p.32

FAO	The unit responsible for metadata management using VocBench.
University of Rome	Representatives involved in the development of VocBench.
ESCO community	EMPL E2 ESCO Board ESCO Maintenance Committee
EURES community	EMPL D1 EURES Coordination Group EURES Interoperability Working Group
Europass and EU Skills Panorama communities	EMPL E2 Cedefop

2.1.10.2 Communication plan

The Action will create the necessary links with the Communication Action 4.1.1 to coordinate the promotion and dissemination of results to several types of recipients. The Action includes within its plan communication activities which are of technical nature, while Action 4.1.1 will promote the results to a broader audience, using appropriate non-technical language, and different channels.

Event	Representatives	Frequency of meetings / absolute dates of meetings?
The Action tries to disseminate its work with presentations, posters and panels in the major eGovernment and semantic technologies conferences and events		
The Action will try to raise awareness for the importance of metadata management, data standards and alignment in MSs and internally in the EC		
The Action will try to disseminate and promote the use of the Core Vocabularies and linked data best practices in the EU MSs		2 MSs visits per year
The Action will continue organising its annual conference which has been very successful so far		1 conference per year

Regarding VocBench, which is already a mature open-source project, communication about its further releases, support and discussion are given and held through different channels, covering different needs with the most appropriate solution, and exhibiting redundancy to some extent. By first, the official site of VocBench: <http://vocBench.uniroma2.it> represents an entry point for people/organizations willing to approach the system. Secondly, two mailing lists/discussion groups: *Users*⁷ and *Developers*⁸ provide assistance to, respectively, the community of users and of those willing to contribute the project or develop independent extensions for it. Finally, the Agricultural Information Management Standards (AIMS) portal, managed by FAO, reports on news about VocBench and associated systems and tools.

The Publications Office of the EU will reserve a space on its future corporate EU vocabularies website for information on VocBench. The Publications Office offers access to an instance of VocBench to other EU institutions and bodies through the Testa network. It will organise information and training sessions for services interested in managing their controlled vocabularies in VocBench.

The open metadata schemata should be developed in a cooperative manner, involving the main stakeholders and the Member States. Once the schemata finalised they can be disseminated through various channels. These include in particular: a) the Joinup platform, b) the conference for the launch of ESCO v1 (end of 2016), c) DG EMPL portal on labour market interoperability (TBC) bringing together standards, documentation and resources such as auxiliary tools and APIs and d) the various stakeholder and Member States groups.

2.1.10.3 Governance approach

The Action is run by the European Commission, DG DIGIT, B.6 (ISA Unit).

For the work expected in this Action, collaboration with MSs and other stakeholders (e.g. DG EMPL, the EU Publications Office, other DGs, EU institutions, agencies and bodies, standardisation bodies) is considered of critical importance. For this reason, communication with the MSs and third parties will be frequent and their active involvement will be encouraged via invitations for participation in ad hoc groups discussing specialised issues related to the content of the Action.

For the design and development of a new major version for VocBench (version 3) a project Steering Committee will be established to provide overall guidance and to ensure the consistency of the project regarding the roadmap, the technical specifications and the programme actions. The Committee will be made of representatives from the Publications Office, University TorVergata (Roma), Digit (European Commission), Joint Research Centre (Inspire Registry), Food and Agricultural Organisation (FAO), European Environment Agency (EEA) and representatives from the Member States' national or regional authorities.

2.1.11 TECHNICAL APPROACH

Overview for work so far

The Action tries to overcome semantic interoperability problems by:

⁷ <http://groups.google.com/group/VocBench-user>

⁸ <http://groups.google.com/group/VocBench-developer>

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- documenting what is available in each MS with regards to metadata policies and the management of semantic interoperability assets;
 - identifying opportunities for alignment;
 - promoting share and reuse of semantic assets, experiences and tools and facilitating agreements in key areas;
 - raising awareness on the importance of metadata management;
 - identifying and promoting successful practices and tools for linking governmental data;
 - developing and promoting common specifications.

Through this action, the ISA programme sets to achieve a better collaboration between European public administrations towards creating new and promoting existing agreements on the meaning of the exchanged information and on the common use of metadata. Joinup provides the necessary infrastructure for this collaboration while a broad network of stakeholders including several EU bodies like JRC, DG SANTE, DG EMPL, DG FISMA, DG GROW, the PO, DG TAXUD, DG MARE, DG CONNECT, DG COMP, DG COMM and DG JUST actively participate and/or follow the work.

The Action maintains communication links with relevant initiatives to promote semantic interoperability around the world (e.g. USA, Japan) to exchange views and share experiences.

Below an overview of the results of the Action during the last 5 years is provided.

In 2011, an assessment of the Action results for the period 2008-2010 took place. Based on this evaluation, recommendations were provided to identify areas where the Action could contribute. Following these recommendations, the Action produced the following results:

a) In the period 2011-2012, the Asset Description Metadata Schema (ADMS) was developed as a common vocabulary to describe semantic assets. ADMS has been extended to describe any type of interoperability solution. Based on this specification, a federation of semantic assets repositories has been developed and is available via the Joinup platform. This federation went live in January 2013. Currently, more than 20 repositories participate in the federation making available over 2.000 specifications. The Action will continue providing support to MSs to participate in the federation and use ADMS for describing their own assets. Nevertheless, the EFIR Action (action 4.2.4) remains the focal place for the federation maintenance and support in Joinup.

b) In the period 2011-2013, the Action has developed four Core Vocabularies, namely Core Business, Core Person, Core Location, and Core Public Service in close collaboration with other EU bodies including DG MARKT, Eurojust, and the JRC. These specifications (together with ADMS) have been endorsed by the ISA Coordination Group. In 2013-2014, implementations of the vocabularies have been implemented in 5 pilots with data coming from MSs and different EC/DGs.

c) In 2013, the DCAT Application Profile (DCAT-AP) as a specification to describe open data catalogues and datasets was developed in close collaboration with DG CONNECT and the EU Publications Office.

d) During the period 2011-2014 several case studies, surveys and recommendations have been published trying to raise awareness on issues related to semantic interoperability, open and linked data, metadata management and persistent Unique Resource Identifiers (URIs).

e) In 2014, the Action has tried to promote the use of core vocabularies both at national and at European level. Issues related to sustainability, governance, publication and persistence for these specifications were also identified and work has started to set up relevant policies. During the same year, the Action produced guidelines and support for the publication of high-value datasets, and initiated cross-institutional work to draft metadata and URI policies for the EU institutions which are reusable by the MSs. Work to create a stack of tools for metadata management with the participation of DG MARE, JRC, DG COMP and the PO has been also initiated.

f) In 2015, the Action delivered: a revision of the DCAT-AP and two extensions to describe geospatial and statistical data; drafted a specification for publishing State Aid Notifications as open data working closely with DG COMP; supported the work to develop the Common Vocabulary for describing legal documents in the context of the IFC; drafted a specification for publishing the EU budget as open data with the PO; run a pilot with ESCO and DG Employment; run a pilot with the Core Public Service Vocabulary in Estonia; supported the creation of the data model for the Business Registers Interconnection System (BRIS) for DG Justice; provided the semantic layer for EIRA.

Activities in the new WP

Activities promoting semantic interoperability at horizontal level

In the new ISA² Programme WP2016, the Action will continue to maintain, update whenever necessary, and promote the above-mentioned specifications. It will also try to identify and develop more Core Vocabularies, promote the real usage of the existing specifications, make available a robust toolset for metadata management, further elaborate on policies for metadata and URI management. More specifically the Action will deliver the following results:

- Core Vocabularies
 - Identification of areas for new Core Vocabularies and/or common data models.
 - Checking maturity and opportunities for developing specifications with communities.
 - New vocabularies development.
 - Sustainability of the existing specs.
- Policy and project support to DGs and MSs for promoting semantic interoperability with pilots and policy advice including the areas of open and linked data.
- Use of core data models in base registries.
- Support for using the ISA data models in operational systems in DGs and MSs
- Work for metadata management, including documenting existing policies and tools, drafting guidelines, architectures, providing direct support to MSs and DGs, aligning and coordinating relevant initiatives.
- Information management strategy: good practices, guidelines, recommendations, tools.
- Support work for open data interoperability with the creation and animation of a community of practice for DCAT-AP implementation.
- Continuation of the promotion and dissemination work including the SEMIC conference, identification of good practices, case studies, recommendations.

VocBench 3.0

The objective of the quantum leap to a completely revised version of VocBench with respect to its predecessor VocBench 2.0 lies in the removal of all those technological barriers which version 2.0 inherited from version 1.0, in the effort to provide a first usable release in a short time (i.e. around 12 months of development). This concerns the following layers:

- Workflow Management
- User Authentication and Management
- Controlled Collaboration
- History
- Web Application, based on the GWT (Google Web Toolkit) framework

VocBench 3 will build on the lessons learned from the move from VocBench 1.0 to 2.0, by rewriting these layers with proper technologies and adopting more flexible solutions for the history and validation, based on proper serializations of the content changes expressed in RDF itself and removing class-citizenship to the user-actions, which will become only labels for these general RDF-changes. Development will follow the already established modalities, based on planning through JIRA, bug reporting, unit testing and possibly adding continuous development and deployment through a dedicated server.

The planned features are:

- Completely revised architecture: not really a feature, but a mandatory step for the others to come. It will include revised components, embedded inside the Semantic Turkey OSGi server, for:
 - o User management
 - o Change management (History) : Still to assess if to be stored in a DB, or in a triple store (and in case, if together with the edited data or in a separated dataset)
 - o Controlled collaboration and validation
- Versioning (being able to track the status of single concepts/terms/whole thesaurus, to different extent)
- Include automatic/semi-automatic management of provenance in the RDF data, by also reusing standard vocabularies such as PROV-O⁹
- Further enhancement of alignment feature:
 - o interaction with LOD
 - o more automatism
- Development of extension point for connectors to collaboration platforms (e.g. JIRA, and specifically one connector will be developed for it)
- Metadata producer (generate metadata descriptions of vocabularies, such as ADMS, DCAT-AP, VoID [1] / LIME [2])
- Excel import (building up on Sheet2RDF¹⁰, developed by UNITOV)
- Management of all editorial notes in the RDF data (In VB2.0 some of them are currently in the database, and thus out of the RDF content), including those related to the validation

⁹ <http://www.w3.org/TR/prov-o/>

¹⁰ <http://art.uniroma2.it/sheet2rdf/>

- Export
 - o Development of an extension point for the export, so that third parties can add arbitrary exporters to the platform, fitting their specific export/publication needs
 - Development of a specific instance of this extension point, with an exporter for a rich RDF format conformant to SKOS-AP-EU

Plain SKOS export, with various export/filter options.

Labour market metadata schemata

Publishers of job vacancies and jobseekers' profiles want the information to be known and used by other actors in the labour market. Therefore, they have an interest that it can be processed by search engines, job feeds, aggregators, HR systems, matching software and the like. However, these documents are often published as simple web pages with little structured metadata or annotations. This makes it difficult to use of the information in an automated way. Furthermore, job vacancies are often published through different channels: the recruiting company, employment services, job boards, etc. This leads to a duplication of information that cannot always be identified by technical means. Consequently, results from search or online job matching processes might show the same job several times or include outdated information so that jobseekers apply for a job vacancy that has already been filled.

RDFa¹¹, Microformat¹² and Microdata¹³ are approaches that can be used for a semantic markup of websites. This allows structuring the information in a website in a machine-readable format, while the user is presented a normal website. Such open and machine-readable formats and can help to publish information in a manner that allows users and IT applications to access it easily and to understand the structure of the information.

By using linked data, data records can be interlinked and duplicates can be made visible. Republished job offers can refer to the original source, e.g. the corresponding company website. This allows applications or users to collect all relevant information and to verify if the job vacancy is still up-to-date. In addition, standards can be used to express legal limitations, licenses and agreements for reuse. This helps publishers to increase the coverage of a job vacancy and reduces barriers for cooperation.

2.1.12 COSTS AND MILESTONES

2.1.12.1 Breakdown of anticipated costs and related milestones

Phase:	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA ² /	Start date (QX/YY YY)	End date (QX/YYY Y)
Inception					
Execution					
Operational					

¹¹ <http://www.w3.org/TR/xhtml-rdfa-primer/>

¹² <http://microformats.org/>

¹³ <http://www.whatwg.org/specs/web-apps/current-work/multipage/microdata.html#microdata>

			other s (spec ify)		
Operational	Identification of areas for new Core Vocabularies and/or common data models. Checking maturity and opportunities for developing specifications with communities. New vocabularies development. Update and sustainability of the existing specs.	225	ISA ²	Q2/2016	Q12/2016
	Policy and project support to DGs and MSs for promoting semantic interoperability, linked and open data with pilots and policy advice.	225	ISA ²	Q2/2016	Q12/2016
	Use of core vocabularies in base registries.	100	ISA ²	Q2/2016	Q12/2016
	Support for using the ISA data models in operational systems in DGs and MSs	100	ISA ²	Q2/2016	Q12/2016
	Work for metadata management, including documenting existing policies and tools, drafting guidelines, architectures, providing direct support to MSs and DGs, aligning and coordinating relevant initiatives.	100	ISA ²	Q2/2016	Q12/2016
	Support to define information management strategies: good practices, guidelines, recommendations, tools.	50	ISA ²	Q2/2016	Q12/2016
	Support work for open data interoperability with the creation and animation of a community of practice for DCAT-AP implementation.	50	ISA ²	Q2/2016	Q12/2016
	Continuation of the promotion and dissemination work including country visits, the annual SEMIC conference, one international workshop and webinars.	100	ISA ²	Q2/2016	Q12/2016
	Total	950			

VocBench 3.0

Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budg et line ISA ² / other s (spec ify)	Start date (QX/YY YY)	End date (QX/YYYY Y)
Inception	Study, testing and comparison of state of the art technologies that are suitable for the design of VB3.0 and its technological innovation.	10	ISA ¹⁴	Q3/2015	Q4/2015
Inception	Definition of the new technological stack	5	ISA ¹⁵	Q4/2015	Q4/2015
Execution	Designing and Developing the Semantic Turkey architecture as the core system of VB3.0.	80	ISA ²	Q1/2016	Q2/2016
Execution	Enabling all user aspects (authentication, permissions etc..) in ST	25	ISA ²	Q1/2015	Q2/2016
Execution	Action History: completely rewritten wrt old module in VB2.0.	15	ISA ²	Q1/2016	Q2/2016
Execution	Controlled Collaboration & Validation: completely rewritten wrt old module in VB2.0.	25	ISA ²	Q1/2016	Q2/2016
Execution	Versioning	25	ISA ²	Q3/2016	Q3/2016
Execution	Provenance Management	15	ISA ²	Q4/2016	Q4/2016
Execution	Metadata Registry and Retriever and integration in VB	20	ISA ²	Q1/2016	Comp :Q2/2016 Integr : Q1/2017
Execution	MAPLE Finalization and integration in VB	20	ISA ²	Q4/2015	Comp :Q1/2016 Integr : Q2/2017
Execution	Lexical Linked Data Registry, starting and managing the Service and making VB compliant with it	30	ISA ²	Q3/2016	Service:Q4/2016 VBClient : Q2/2017
Execution	Improved Alignment: access and interaction with LOD data	20	ISA ²	Q1/2016	Q1/2016
Execution	Improved Alignment : more automatism/support for validation of externally loaded mappings	20	ISA ²	Q2/2016	Q2/2016
Execution	Metadata producer: generators for ADMS/DCAT-AP/VoID/LIME metadata	10	ISA ²	Q2/2016	Q2/2016
Execution	Development of extensions points for : - customized export	15	ISA ²	Q3/2016	Q4/2016

¹⁴ may be included in the current SEMIC action (09) implementation

¹⁵ may be included in the current SEMIC action (09) implementation

	- connectable collaboration frameworks				
Execution	JIRA connector as an instance of a collaboration framework connector	8	ISA ²	Q1/2017	Q2/2017
Execution	Dedicated SKOS-AP-EU exporter as an instance of the export extension point	5	ISA ²	Q1/2017	Q1/2017
	Total	348			

Labour market metadata schemata

Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA ² / others (specify)	Start date (QX/YY YY)	End date (QX/YYYY Y)
Inception	Identify stakeholders and set up steering committee	-	-	Q3/2015	Q1/2016
Execution	Options paper (job vacancies)	40	ISA ²	Q2/2016	Q2/2016
Execution	Options paper (applicants)	40	ISA ²	Q2/2016	Q2/2016
Execution	Develop metadata schema in cooperation with stakeholders and Member States (job vacancies)	60	ISA ²	Q3/2016	Q4/2016
Execution	Develop metadata schema in cooperation with stakeholders and Member States (applicants)	60	ISA ²	Q3/2016	Q4/2016
Execution	Develop manuals, documentation and specifications for auxiliary tools (job vacancies)	50	ISA ²	Q4/2016	Q4/2016
Execution	Develop manuals, documentation and specifications for auxiliary tools (applicants)	50	ISA ²	Q4/2016	Q4/2016
	Total	300			

2.1.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Operational	950	
2016	Execution (VocBench)	348	

2016	Execution (Labour market metadata schemata)	300	
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2.1.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
Federation of Semantic Assets Repositories	https://joinup.ec.europa.eu/catalogue/all?filters=bs_current_version:true	
Core Vocabularies (Core Person, Core Business, Core Location, Core Public Service)	https://joinup.ec.europa.eu/community/core_vocabularies/description	
The DCAT Application Profile	https://joinup.ec.europa.eu/asset/dcat_application_profile/description	
Towards Open Government Metadata	http://www.semic.eu/semic/view/documents/towards_open_government_metadata.pdf	
Similar project in another, related domain: Specifications for the development of an open metadata schema for qualifications	 20150717 Specifications.pdf  20150717 Annex to the Specifications.pdf	

2.2 SEMANTIC INTEROPERABILITY FOR REPRESENTATION POWERS AND MANDATES (2016.12)

2.2.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common frameworks and reusable generic tools
Service in charge	DIGIT B1, B6
Associated Services	CNECT.TFSEC-LEG.EIDAS

2.2.2 EXECUTIVE SUMMARY

STORK 2.0 project was initiated with the aim, among others, of developing an operational framework and infrastructure encompassing eID for secure electronic authentication of legal persons, including facilities for the management of representation powers and mandates.

In that sense, the project has achieved significant results, evolving STORK specifications to include attributes for legal persons and representation powers and mandates, and adapting the software building blocks to allow cross-border transfer of this kind of information. The feasibility of the developed solution has been verified by means of the STORK 2.0 pilots, in which use cases that require cross-border access to information about representation capabilities have been successfully tested.

However, the project has also found important barriers that currently hinder the adoption of an EU wide solution for cross-border transfer of representation information, one of the most relevant being the lack of a common semantic framework. Representation is complex and the national solutions are often too much focused on country specific details. Therefore, although there are some similarities among countries, there is not a shared European taxonomy about representation powers and mandates, what prevents powers/mandates information originated in one country from being directly machine processable in other.

Additionally, the need for service providers of having powers/mandates information together with the data regarding the represented and representing persons in order to properly assess the scope of the transactions that the representing person is allowed to perform on behalf of the represented one, has been steadily highlighted in the discussions of the eIDAS expert group.

Taking into account that the goal of the European Commission ISA² programme is the promotion of interoperable electronic public services, and that it includes specific actions about semantic interoperability like the ISA core vocabularies, there is an opportunity for continuing the work done in STORK 2.0 regarding representation powers/mandates under the scope of the ISA² programme and, that way, keep progressing towards the single digital market and the semantic harmonisation Europe-wide. In that sense, an evolution of the ISA Core Vocabularies to extend the Core Person and Core Business vocabularies with a common taxonomy for representation powers/mandates linked to legal entities may be one of the potential initiatives to be taken over by the ISA² programme.

2.2.3 OBJECTIVES

The main objective is **to create a shared European data model about representation powers and mandates**, which allows powers/mandates information originated in the information systems of one country to be directly processed automatically by the information systems in other country. The data model will be tested in real life through pilots with some MS and the technical specification will be put forward to the CEF eID Operational Management Board for endorsement and proposed to be incorporated in the CEF eID sample implementation and extension of the CEF eID technical specifications.

2.2.4 SCOPE

The action will provide a common data model for representation powers / mandates linked to legal entities, aligned with the Core Person and Core Business vocabularies, as well as some tools for integrating that data model into business applications.

2.2.5 PROBLEM STATEMENT

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. 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 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.

2.2.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
EU institutions and Member States	More efficient transmission of information about representation powers and mandates between governments Reduction of the administrative burden imposed to legal persons for performing transactions with the governments Creation of a trusted environment for performing fully online transactions between companies across Europe, fostering the single market
Citizens and business in Europe	Reduction of the transaction costs by automating identification processes for online interaction Prevention of fraud by having more reliable information about representation when conducting business

2.2.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
eIDAS regulation	The eIDAS regulation established the obligation of mutual recognition of eID for natural and legal among EU countries. However, in the case of legal persons, there is a need for service providers of having powers/mandates information together with the data regarding the represented and representing persons, in order to properly assess the scope of the transactions that the representing person is allowed to perform on behalf of the represented one.
CEF and the eID DSI	<p>The electronic identity (eID) building block helps public administrations and private online service providers to easily extend the use of their online services to citizens from other EU Member States. It allows cross-border authentication, in a secure, reliable and trusted way, by making existing national electronic identification systems interoperable.</p> <p>Once this building block is deployed in a Member State, the mutual recognition of nationally issued eIDs becomes possible between participating Member States, in line with the eIDAS (electronic Identification and Signature) legal framework and with the privacy requirements of all the participating countries.</p> <p>The eID solution provides a strong technical foundation for secure electronic interaction across borders and sectors.</p>
eSENS	<p>e-SENS (Electronic Simple European Networked Services) e-SENS is a large-scale project that embodies the idea of European Digital Market through innovative ICT solutions. It faces technical and legal challenges by providing solutions for seamless public service delivery across borders. e-SENS consolidates, improves and extends existing technical solutions to develop a coherent and sustainable European Interoperability Architecture. This will in turn affect the quality of public services in the EU making them easily accessible across borders.</p> <p>After the end of STORK 2.0, eSENS has taken over the outputs.</p>
Digital Agenda	<p>The proposed action is directly related to the Digital Single Market Strategy, impacting its three pillars:</p> <ul style="list-style-type: none"> - Better access for consumers and businesses to digital goods and services across Europe, by increasing the scope of services that can be provided completely in digital form - Creating the right conditions and a level playing field for digital networks and innovative services to flourish, by enhancing trust in the online world - Maximising the growth potential of the digital economy, by establishing a foundation for developing new online services
eGovernment Action Plan 2011-2015	The plan aims to optimise the conditions for the development of cross-border eGovernment services provided to citizens and businesses regardless of their country of origin. This includes the development of an environment which promotes interoperability of systems and key enablers such as

	eSignatures and identification. In that sense, interoperability of representation powers and mandates can be seen also as a key enabler directly linked to eID and eSignature, complementing identification information with the capacity of acting on behalf of a legal persona in a particular transaction
ISA Action 1.18	The action aims to extend federated authentication (i.e. verifying if the user is the one he claims to be) by using STORK for federated authorisation (i.e. verifying if the user is entitled to use the requested information or functionality). It allows users to log in to EC applications and to be granted access based on their role or position. For example in case the user is a public official and the application aims at usage by an administration.
Services Directive	The objective of the Services Directive is to realise the full potential of services markets in Europe by removing legal and administrative barriers to trade. By facilitating the electronic exchange of reliable information about representation powers and mandates, this goal can be more easily achieved.

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

The proposed action will build basically on the results achieved in the STORK 2.0 project, continuing the work the work done in STORK 2.0 regarding representation powers/mandates.

It will reuse also the work performed in other ISA actions related to interoperability, mainly action 1.1 Promoting Semantic Interoperability amongst the European Union Member States (as a general framework for interoperability and provider of the Core Vocabularies), and action 1.2 Access to Base Registries (since access to base registries is needed to obtain the source information about representation), of the ISA Work Programme 2015.

2.2.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Shared European data model about representation powers and mandates
Description	Common semantic framework regarding representation powers and mandates, that allows to process automatically in one country information about representation coming from a different country
Reference	
Target release date / Status	Q2 2018

2.2.10 ORGANISATIONAL APPROACH

2.2.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States	<ul style="list-style-type: none"> • ISA² Committee • ISA² Coordination Group (or ISA CG equivalent) • CEF governance: eID DSI Operational Management Board; eID DSI expert group • Persons/units in charge of National Interoperability Frameworks and/or metadata standards catalogues/repositories, etc. • o Persons/units in charge of business registers, public procurement and taxation applications, representation powers/mandates registries, etc.
Standardization bodies	W3C, OASIS, GS1, CEN , UN/CEFACT, etc.
European Commission	DG JUST, DG GROW, TAXUD, DG DIGIT Unit (s) responsible for promoting common specifications in new and existing system, DG CONNECT as building block owner for eID
End users	Citizens Representatives of companies

2.2.10.2 Communication plan

Due to the strong link of the proposed action with action 1.1 Promoting Semantic Interoperability amongst the European Union Member States and action 1.2 Access to Base Registries, it is suggested that the communication plan for the proposed action leverages the dissemination activities already foreseen in the actions current under execution.

2.2.10.3 Governance approach

Again, due to the link of the proposed action with the two mentioned actions, it is suggested to follow a similar approach to the one followed in those actions: Action run and coordinated by DG DIGIT B1, under the CEF governance for the eID DSI; i.e. Operational Management Board and the eID DSI expert group. Also with strong collaboration with other units of the Commission involved in managing information about representation (e.g. DG JUST as representation information is frequently managed by Business Registers; DG GROW for eProcurement applications; DG TAXUD in relation to the UUM&DS Project). DIGIT B6 will provide support for the development of the semantic data model.

2.2.11 TECHNICAL APPROACH

STORK 2.0 project has developed an operational framework and infrastructure encompassing eID for secure electronic authentication of legal persons, including facilities for the management of representation powers and mandates. In that sense, it has evolved STORK specifications to include attributes for legal persons and representation powers and mandates, and has adapted the SW building blocks to allow cross-border transfer of this kind of information.

The feasibility of the developed solution has been verified by means of the STORK 2.0 pilots, in which use cases that require cross-border access to information about representation capabilities have been successfully tested.

To support this use cases, the project has developed a set of tools, which include a basic taxonomy for powers and mandates, that allows to obtain information about representation in one country, map this information to a common semantic model, and transfer it to another country so that it can be interpreted by an electronic service provider that needs it in order to perform a transaction with a natural person acting on behalf of a legal person.

The aim of the action is therefore to generalise this basic data model and related tools, now oriented to solve the specific needs of the STORK 2.0 project, so that it can cover any potential cross-border transfer of information about representation.

To do so, the action proposes four different phases:

- An initial phase or feasibility study analysing the current situation on how electronic powers and mandates are managed in the individual Member States and also by other European-related projects like the UUM&DS Project from DG TAXUD, and their cross-border interoperability: The study will scope the work needed in order to develop a common data model that could be used across-sector and across-borders for the electronic identification of legal entities and the representation and mandates of those action on behalf of that legal entity. Alignment with the eIDAS Regulation and the CEF specs on the eID DSI will be sought.
- A second phase of production of requirements and good practices like frameworks and solutions that could facilitate the interoperable interconnection of representation information across sectors and across borders.
- A third phase of designing and elaborating a generic technical specification for the interoperability of powers and mandates, including a common data model or vocabulary, with semantic metadata models and controlled vocabularies that can accommodate cross-domain and cross-border requirements. The action will consult with the CEF eID Expert Group in the context of phase 3.
- A fourth phase where some solutions for integrating that framework into business applications will be implemented and also where real-life pilots with the MS will be launched to test the specification.

- Finally, and as a result of the pilots the specification will be enhanced and presented to the CEF board for endorsement and proposed to be incorporated in the official specs of the CEF eID DSI.

2.2.12 COSTS AND MILESTONES

2.2.12.1 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)
Study	Study about cross-border interoperability of powers and mandates	150	ISA ²	Q1/2016	Q3/2016
Study	Production of requirements and good practices	100	ISA ²	Q3/2016	Q1/2017
Inception	Elaboration of the technical specification for interoperability	100	ISA ²	Q1/2017	Q2/2017
Execution	Design of reusable specifications and solutions and launch of pilots	400	ISA ²	Q3/2017	Q1/2018
	Total	750			

2.2.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Study	250	
2017	Inception + Execution	500	
2018			
2019			
2020			

2.2.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
STORK 2.0 project website	https://www.eid-stork2.eu/	
STORK 2.0 Deliverable D3.3 Mandate/Attribute Management Report	https://www.eid-stork2.eu/index.php?option=com_phocadownload&view=file&id=7:d33-mandateattribute-management-report&Itemid=175	
STORK 2.0 Deliverable D3.5 Legal Entities Identification Report	https://www.eid-stork2.eu/index.php?option=com_phocadownload&view=file&id=8:d35-legal-entities-identification-report&Itemid=175	

2.3 PUBLIC MULTILINGUAL KNOWLEDGE MANAGEMENT INFRASTRUCTURE FOR THE DIGITAL SINGLE MARKET (2016.16)

2.3.1 IDENTIFICATION OF THE ACTION

Type of Activity	Creation of a public multilingual knowledge infrastructure
Service in charge	Publications Office of the European Union
Associated Services	DG Connect DG DIGIT DG DGT European Parliament, DG TRAD, Terminology Coordination Centre de Traduction

2.3.2 EXECUTIVE SUMMARY

In their open letter to the European Commission the European Language (Technology) Community claims: Europe's Digital Single Market must be multilingual!¹⁶ EU cross-border online services represent only 4% of the global Digital Market and only 7% of small and medium sized enterprises (SMEs) in the EU are actually selling cross-border.¹⁷ Providing support for the EU economy and in particular to SMEs to overcome the language barriers will help to unlock the e-Commerce potential within the EU.

The objective of this action is to support enterprises and in particular the language technology industry with the implementation of the necessary multilingual tools and features in order to improve cross border accessibility of e-Commerce solutions. It will also be an input to the CEF Automated Translation Platform, a common building block implemented through the CEF programme to be used by European cross-border online public services.

The public multilingual knowledge infrastructure will be governed by a representative subgroup of stakeholders of the final system.

In this context multilingual tools and features refer to capabilities as machine translation, localisation and multilingual search. The public multilingual knowledge infrastructure should reduce the investments of enterprises for the creation of their individual knowledge management systems by providing an agreed, open, reliable and persistent public core knowledge management system. This would also create space for innovation instead of wasting resources for redundant activities.

Public administrations and public entities within the EU will largely benefit from this initiative, in particular regarding the internationalisation of their e-Services. They will be able to share and to

¹⁶ See <https://ec.europa.eu/futurium/en/content/european-language-and-language-technology-community-europes-digital-single-market-must-be>

¹⁷ See http://europa.eu/rapid/attachment/IP-15-4653/en/Digital_Single_Market_Factsheet_20150325.pdf

valorise existing taxonomies/terminologies and to extend their multilingual capabilities. This will also help to increase the interoperability between public administrations within EU in general.

To realise the public multilingual knowledge infrastructure the following aspects need to be addressed:

- Implementation of a technical infrastructure to expose existing multilingual taxonomies/terminologies in a standardised way based on semantic technology and Semantic Web standards;
- Implementation of existing alignments between terminologies and creation of further alignments and relations in order to enable interoperability;
- Creation and maintenance of meaningful supplements, i.e. of terms and relations that complete the coverage of the multilingual knowledge infrastructure and facilitate interoperability;
- Set-up of a community and a governance structure to extend systematically the coverage of the core infrastructure by the integration of supplementary public multilingual taxonomies/terminologies.

The cornerstone of the public multilingual knowledge infrastructure will be EuroVoc, the multilingual, multidisciplinary thesaurus covering the activities of the EU, which is managed by the Publications Office. The project will also benefit from already existing alignments of EuroVoc with other thesauri (Agrovoc, Eclas, Gemet, Anubis and Inspire¹⁸).

In addition, it should be investigated how the publication of the information as Linked Open Data (LOD) could be enhanced by introducing lexical semantic links between semantically equivalent and similar entities in an automatized way.

2.3.3 OBJECTIVES

The objectives of the proposed activity are:

- To provide an agreed, reliable, persistent and extensible public multilingual terminology platform for multiple purposes and for multiple stakeholders composed of open public multilingual resources.
- To increase the interoperability of existing multilingual terminologies, in particular by aligning and linking them with other existing terminologies. Linking will enable at the same time specialisation (for example by linking a concept of a more general taxonomy/terminology with the corresponding concept of a domain specific taxonomy/terminology) and broadening (for example by linking similar concepts at the same level of granularity).
- To establish the initial governance structure to support and to supervise the execution of the project as well as the implementation, the management and the evolution of the final

¹⁸ See <https://open-data.europa.eu/en/data/dataset/eurovoc>

system. Synergy with the governance structure, which is being set-up for the CEF.AT platform (see <http://www.lr-coordination.eu/anchor-points>) will be established.

- To contribute to the further standardisation of data models for thesauri and lexical knowledge database representations using latest semantic technologies.
- To support the contributing institutions with the transformation of their resources into adopted semantic format of the platform.
- To further develop the LOD capabilities of the system, in particular by enhancing the creation of semantic links between similar and related concepts.

2.3.4 SCOPE

The objective of the proposed activity in the scope of the ISA² programme is to verify the feasibility of the approach and to prepare the technical and the organisation aspects for the definitive and permanent implementation of an open public multilingual knowledge infrastructure managed by the EU Institutions.

Nevertheless, it will deliver already results, which could be used and applied by public administrations and bodies of Member States and EU Institutions independent from the public multilingual knowledge infrastructure project itself.

In scope

1. Adoption of a standard representation for multilingual terminologies (candidates include SKOS¹⁹, Lemon²⁰ ...)
2. Definition of a core data model based on the standard representation in order to facilitate the interoperability between different terminologies, i.e. through a shared set of metadata, and to harmonise the representation of the data, which will be made available through the platform
3. Specification of the technical architecture of the public multilingual knowledge infrastructure and the necessary services to access and to manage the system
4. Proof of concept – implementation of a first operational release of the system to demonstrate the core services of the system
5. Set-up/adoption of an adequate initial governance structure
6. Definition of an iterative implementation strategy, i.e. the specifications and the roadmap for the extension of the initial release of the system into a public service, which will be managed, further developed and maintain by the EU Institutions and governed by all contributors, i.e. in particular public entities within in EU. The result of the proof of concept should be reused for the implementation of the final system.
7. Feasibility study in order to analyse and to test the creation of lexical semantic links between semantically equivalent and similar entities in an automatized way.

Out of scope

¹⁹ See <http://www.w3.org/2004/02/skos/>

²⁰ See <http://lemon-model.net/index.php>

1. Implementation of the definitive, permanent platform, made available as a public service and free of charge.
2. Management, further development and maintenance of the definitive system.

2.3.5 PROBLEM STATEMENT

"Linguistic diversity is and must remain a cornerstone and treasured cultural asset of Europe. However, the language barriers created by our 24 official EU languages cause the European market to be fragmented and to fall short of its economic potential. Almost half of European citizens never shop online in languages other than their native tongue, access to public e-services is usually restricted to national languages and the richness of EU educational and cultural content is confined within linguistic communities. European SME's are at particular disadvantage, because the cost of providing services in multiple languages is prohibitive and has a negative impact on their competitiveness."²¹

This challenge needs to be addressed and a public multilingual knowledge infrastructure will contribute to reduce and to secure the investments of the different stakeholders in cross-border e-commerce solutions and related services because part of their implementation could really on an agreed, authentic and persistent set of multilingual terminology.

Because the contributions for public multilingual knowledge infrastructure will come from different stakeholders (essentially public administrations and bodies of EU Member States, EU Institutions and international organisations) the challenge is to build a system, which empowers the stakeholders to manage the development and evolution of their taxonomies/terminologies on an individual base, but at the same time enables interoperability through alignment and linking.

The only constraint should be that stakeholders have either to adopt the core data model proposed by the public multilingual knowledge infrastructure or, at least, have to be able to perform the necessary transformations to provide new releases in compliance with the core data model. Ideally, new releases have to be provided in a way that they can be integrated largely automatically.

²¹ See <https://ec.europa.eu/futurium/en/content/european-language-and-language-technology-community-europes-digital-single-market-must-be>

2.3.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
EU economy	<p>Many studies have already been conducted to evaluate the possible economic impact of an increase in cross-border e-commerce between EU Member States. The creation of a real EU digital single market has become a priority of the Commission.</p> <p>The initiative will provide a contribution on the technological level. It will help to reduce the localisation effort for e-commerce platforms, enhance the quality of the domain specific terminology and improve their harmonisation. It will also facilitate the implementation of multilingual search capabilities.</p>
EU language technology industry	<p>Cost reduction and faster implementation of services related to cross-border e-commerce (machine-translation, localisation software, cross-language search solutions...). This will also increase the usability and searchability of resources for the creation of new, innovative services.</p>
EU Member States	<p>Will benefit in the context of the internationalisation of their e-government services for example to facilitate foreign investments in the local market.</p> <p>Will be able to improve interoperability with other Member States and/or public entities based on shared or aligned taxonomies/terminologies.</p>
EU Institutions	<p>Valorisation of existing multilingual taxonomies/terminologies, spin-offs for EU translation services and other multilingual services.</p> <p>It will help to increase the interoperability of multilingual LOD, which are made available by the EU Institutions.</p>

2.3.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Digital Single Market	The slogan of the initiative is "Bringing down barriers to unlock online opportunities". The action contributes to overcome the language barriers within the EU.
ISA action 1.1	ISA action 1.1 is about promoting semantic interoperability amongst the EU Member States. The proposed initiative proposes to deepen the semantic interoperability in the domain of terminology and increase its impact by including non-governmental stakeholders (language technology industry, e-commerce companies...).
CEF.AT platform	CEF.AT platform is aimed to deploy mature language technologies for the public sector and public online services (see: https://joinup.ec.europa.eu/community/cef/og_page/catalogue-building-blocks#AT).

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

The action could really on existing work of the Publications Office in the domain of multilingual thesauri, multilingual control vocabularies and Linked Open Data (LOD), in particular in the scope of EuroVoc.

The EuroVoc dataset and the controlled vocabularies managed by the Publications Office are already today available in semantic format (SKOS)²² on the EU Open Data Portal and on the Publications Office's Metadata Registry²³. The data is also partially exposed as LOD on the Web (through the Publications Office's common repository, the Cellar).

The results of the current ISA action 1.1 "Improving semantic interoperability in European eGovernment systems" should be taken into account and the results should be reused wherever possible.

As described in chapter 1.1.7, a close collaboration with existing eTranslation initiatives, in particular regarding the CEF Automated Translation (AT) building blocks, has to be established.

2.3.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Core data model for multilingual taxonomies/terminologies
Description	<p>Formal definition of the core data model for multilingual taxonomies/terminologies and its necessary extensions that will be implemented by the public multilingual knowledge infrastructure.</p> <p>The approach should be flexible in the way that data providers would be able to define private extensions, which would allow the upload of supplementary data that is available on their side and that could be useful for re-users.</p> <p>The aspects "provenance" and "license" have also to be taken into account.</p>
Reference	PUB_MUL_TERM_FORMAT
Target release date / Status	Q1/2017

Output name	Technical architecture
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²² See <http://open-data.europa.eu/en/data/dataset/eurovoc>

²³ See <http://publications.europa.eu/mdr/>

Description	Technical design of the public multilingual knowledge infrastructure architecture including definition of all related services (ingestion of and access to data (including search), management of the infrastructure itself...).
Reference	PUB_MUL_TERM_ARCHITECTURE
Target release date / Status	Q2/2017

Output name	Governance structure
Description	Proposal for an adequate governance structure for the supervision of the public multilingual knowledge infrastructure.
Reference	PUB_MUL_TERM_ARCHITECTURE
Target release date / Status	Q2/2017

Output name	First release of the system
Description	Implementation of a first release of the system (repository and core services), which should be considered first of all as an operational proof of concept to demonstrate the core services of the platform and which will be reused to build the final system.
Reference	PUB_MUL_TERM_POC
Target release date / Status	Q2/2018

Output name	Implementation strategy
Description	Proposal of an iterative implementation strategy in order to prepare the political decision about whether the EU institutions will support the implementation of the public multilingual knowledge infrastructure and, if yes, how the system should be managed and financed.
Reference	PUB_MUL_TERM_STRATEGY
Target release date / Status	Q3/2018

Output name	Community building
Description	Proposal for implementation and organisation of a community (contributors, users...) to drive the further evolution of the system.
Reference	PUB_MUL_TERM_COMMUNITY
Target release date / Status	Q4/2018

Output name	Semantic links
Description	Feasibility study and prototype in order to explore the possibilities to enhance the semantic capabilities of the platform, in particular regarding the creation of lexical semantic links between semantically equivalent and similar entities in an automatized way
Reference	PUB_MUL_TERM_SEMANTIC
Target release date / Status	Q2/2017

2.3.10 ORGANISATIONAL APPROACH

2.3.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
EU Institutions	European Parliament DG TRAD, Terminology Coordination Commission DIGIT DG DGT DG CONNECT Publications Office of the EU Centre de Traduction
International organisations	FAO...
Member states	
Language technology industry	
Research community	

2.3.10.2 Communication plan

The following table presents a first rough idea of a communication plan based of the different beneficiaries/interest groups, which have been identified in a first phase.

The existing platforms of the ISA programme in the domain of language technology will be taken into account for the set-up of an adequate communication platform.

Beneficiaries	Communication channel	Frequency
EU economy	Web (information about the activity on the ISA ² website, publicity on the Publications Office and other EU Institutions websites)	Regular updates during the lifetime of the project.
EU language technology industry	Web (information about the activity on the ISA ² website, publicity on the Publications Office and other EU Institutions websites) Conferences (delivery of presentations)	Regular updates during the lifetime of the project. 1 to 5 conferences per year
Member States	Web (information about the activity on the ISA ² website, publicity on the Publications Office and other EU Institutions websites) Workshops (organisation of dedicated workshops with interested member states)	Regular updates during the lifetime of the project. 1 to 3 workshops per year
EU Institutions	Meetings Workshop (organisation of dedicated workshops with interested services)	Regular meetings of the EU institutional stakeholders 1 to 3 workshops per year
Terminology community	Conferences (delivery of presentations)	1 to 3 conferences per year
Semantic Web community	Conferences (delivery of presentations: Multilingual Web conference, SEMIC...)	1 to 3 conferences per

2.3.10.3 Governance approach

The implementation of a governance body is needed at different levels.

In the first phase the work to be done in the scope of the ISA² programme needs to be governed by a representative subset of the stakeholders of the final system. This group is considered as the implementation of the initial government structure. It should rely on governance structure, which is being set-up for the CEF.AT platform (see <http://www.lr-coordination.eu/anchor-points>).

If the implementation of the system has been decided, the governance structure has to be adapted to be able to support and to supervise the management and the further evolution of real production system.

2.3.11 TECHNICAL APPROACH

Aspects to be considered:

- Management of multilingual taxonomies/terminologies

The data structure for the public multilingual knowledge infrastructure will be defined by a core data model, which will be composed of two parts: a mandatory part (core metadata), which has to be respected by all data providers and optional part (private extensions) to allow the publication of additional data, which exist for a particular dataset and which are not covered by the core data model, if it represents an added value for the users of the system. I.e. additional data could be stored by the system but will eventually not be fully supported by the common services offered by the system.

All individual concepts have to be represented in the adopted (semantic) format. Each individual concept will be identified by a unique persistent URI.

The reuse/adoption of existing software components will be encouraged.

- Distributed infrastructure

The public multilingual knowledge infrastructure should be implemented as a distributed network of RDF triple stores in order to guarantee a maximum of availability of the system.

Adequate management capabilities are needed to guarantee the consistency of the data.

APIs and online access should be implemented in a way that the technical implementation is hidden. The user works on a virtual system, which is composed a set of federated RDF triple stores, physically hosted in different locations.

- Management of the system

Also the management services of the system should be implemented in a way that the technical implementation is hidden.

There will be different groups of services:

- Maintenance of data

 - Ingestion of new data sets (including validation processes)

 - Update of existing data sets

 - Management of supplementary concepts, i.e. concepts that only exist on the level of the public multilingual infrastructure (create, update, delete)

 - Search and visualisation

- Maintenance of data structure (core data model and extensions, relations, alignments...)

- Management of the platform itself

 - Administration interface (monitoring of services, configuration, user management (for contributors and administrators))

2.3.12 COSTS AND MILESTONES

2.3.12.1 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/ others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Inception	Project organisation has been set-up	60		Q2/2016	Q3/2016
Execution	Standard representation has been adopted	50		Q3/2016	Q4/2016
Execution	Core data model and a first set of extensions have been defined (including documentation)	100		Q4/2016	Q1/2017
Execution	Technical architecture has been defined	100		Q1/2017	Q2/2017
Execution	Proposal for an adequate government structure has been defined	50		Q1/2017	Q2/2017
Execution	First release of the system (operational proof of concept)	300		Q3/2017	Q2/2018
Execution	Proposal for the implementation strategy	60		Q1/2018	Q3/2018
Execution	Creation of the community	60		Q3/2017	Q4/2018
Execution	Feasibility study for the enhancement of the semantic capabilities of the platform	150		Q3/2016	Q2/2017
	Total	930			

2.3.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Inception/execution	160	
2017	Execution	445	
2018	Execution	325	

3. ACCESS TO DATA / DATA SHARING / OPEN DATA

3.1 SHARING STATISTICAL PRODUCTION AND DISSEMINATION SERVICES AND SOLUTIONS IN THE EUROPEAN STATISTICAL SYSTEM (2016.06)

Type of Activity	Common services
Service in charge	ESTAT.B3
Associated Services	ESTAT.B1 ESTAT.B5

3.1.1 EXECUTIVE SUMMARY

European statistics are produced by the European Statistical System (ESS) which is a partnership between the Commission (Eurostat), and the public administration responsible for production and dissemination of official statistics in each Member State²⁴ (mainly national statistical institutes (NSIs) as well as other national authorities. Member States collect data and compile statistics for national and EU purposes. The ESS functions as a network in which Eurostat's role is to lead the way in the harmonization of statistics in close cooperation with the national statistical authorities. EU statistics focus mainly on EU policy areas - but, with the extension of EU policies, harmonization is growing and concerns nearly all statistical fields. Other statistics on more specific domains may be also produced by Commission DGs.

The ESS members broadly shared the same challenges and drivers: they have to embrace the digital transformation and to produce new innovative and high quality standard statistical products based on the new available data sources under the pressure of limited and decreasing resources.

Based on a long tradition of sharing information, standard and tools, Eurostat and the other members of the ESS jointly developed a common vision: the "ESS Vision 2020".

The ESS Vision 2020²⁵

- aims at further developing the cooperation between ESS members;
- strives for setting up more collaborative production processes based on shared architecture in ESS, which should enable addressing new business requirements with a reduced time to market and strengthen quality while increasing efficiency at the same time;
- aims in particular at a future-proof dissemination and communication strategy that satisfies divergent and ever-changing user needs at both national and European level, is flexible enough to adapt to emerging technologies and offers a variety of output channels and services.

Eurostat and Member States will work together on the implementation of the ESS Vision 2020: a programme is defined consisting of concrete projects which all together should help realising the objectives of the ESS Vision 2020.

²⁴ and EEA and EFTA countries

²⁵ The statistical dissemination has received as well special attention at EC level as external communication is listed as a key domain for cross sector and cross policy IT rationalisation in "Communication from VP Šefčovič to the Commission: Follow up to the Communication "Getting the best from IT in the Commission" of 7 October 2010 - First decisions in the IT rationalisation process".

The objective of the action is to make the leap of sharing statistical services and solution in operational mode in the European Statistical System with in particular a focus on statistical dissemination.

It builds on three VISION 2020 implementation initiatives which are closely related:

1. ESS Enterprise Architecture (ESS EA) – a joint effort to create a comprehensive target state ESS architecture considering both Member States and Eurostat. This allows harmonisation of business processes and bridging the gap between business and IT;
2. “Shared SERVices” (SERV) – a project to create the conditions for sharing technical statistical services (including dissemination) and supporting their integration in the statistical production processes at national, ESS and Commission level;
3. Digital Communication (DIGICOM) – a programme to further develop and modernise key functions such as user analytics, communication, dissemination, data visualisation, mobile solutions etc.

Part of those initiatives are already funded by Eurostat and some other parts require additional funding – potentially from ISA². ISA² funding is necessary to:

- 1) Finalise and extend the current ESS statistical production reference architecture to get it closer to implementation integrating the information sharing and the interoperability aspects;
- 2) Develop a sustainable release of the common infrastructure elements such the ESS catalogue of shared services;
- 3) Perform a thorough benchmark of as is architecture in MS to identify components which can be readily transformed into shared services as well as mapping the needs and gaps and tentatively define roadmaps for benefiting from shared development;
- 4) Provide new reusable services and solutions based on existing components or certified open source statistical library/components and to allow statistical producer to upgrade their architecture. For dissemination, a reusable solutions will be derived from the "renovated Eurostat dissemination chain for statistical dissemination";
- 5) Set up reference implementations of processes using shared services suitable to various environments and to propose technical architecture patterns and open source environments suitable for integration of service in statistical production.

Beyond the Eurostat and the ESS dimensions, the project can serve *European Commission services that produce other statistics*;

- The statistical services for the production and dissemination of statistics delivered by the project will be publicly available and could thereby also be reused by any Commission DG and Agencies of the European Union or by any public administration, should they need so.
- Cost of integration should be relatively low as the reusable components should operate as well on the generic EC infrastructure.
- Packaged solutions will be produced for EC context allowing the plug in of dissemination solution in several EC Services.

3.1.2 OBJECTIVES

The overall objective of the proposed project is to realise the conditions and implement the sharing of statistical services among organisations contributing to the production and dissemination of European statistics building on the early developments initiated by two ESS Vision implementation initiatives, namely the ESS Enterprise Architecture initiative and the Shared Service project.

The objectives of the proposed project are the following:

1. Provide a detailed reference architecture for statistical production processes and information systems allowing the efficient integration of shared statistical services based on work conducted already;
2. Develop the common infrastructure necessary to support sharing of components such as the multi-tenant version of the ESS Service Catalogue;
3. Improved alignment to ESS Reference Architecture and adoption of Shared Services standards for at least 5 ESS members;
4. Support and guide statistical organisations to upgrade their architecture to align better to the target state architecture and to benefit from services sharing;
5. Identify and build shared services based on existing components in use or certified open source statistical libraries;
6. Implement new statistical production processes using shared services;
7. Deliver a reusable packaged solution for statistical dissemination.

3.1.3 SCOPE

The project will deliver:

- Extended and consolidated version of the Statistical Production Reference Architecture;
- Multi-tenant version of the ESS Service Catalogue and related common infrastructure;
- Support to statistical production organisation to upgrade and align their infrastructure to benefit from shared statistical services;
- A list of certified and existing components or libraries suitable for the compilation of shared services;
- A whitelist of architecture patterns and open source components for realising the integration and usage of shared services;
- Implementation of new statistical production processes using shared services providing reference implementations adapted to different contexts;
- A reusable packaged solution for statistical data dissemination.

Out of scope for the project (*what the project will not deliver*):

- Development of statistical methodologies, libraries and code (that is in the scope of separate business projects such as the "renovated Eurostat dissemination chain");
- Production of statistical data;
- Standardisation of metadata repositories used by EC statistical data producers.

3.1.4 PROBLEM STATEMENT

Historically, statistical organizations have developed their own business processes and IT-systems for producing statistical products. Therefore, although the products and the processes conceptually are very similar, the individual solutions are not (as represented by the different shapes in Figure 1). Every technical solution was built for a very specific purpose with little regard for ability to share information with other adjacent applications in the statistical cycle and with limited ability to handle similar but slightly different processes and tasks. This can be referred to as 'accidental architecture' as the process and solutions were not designed from a holistic view.

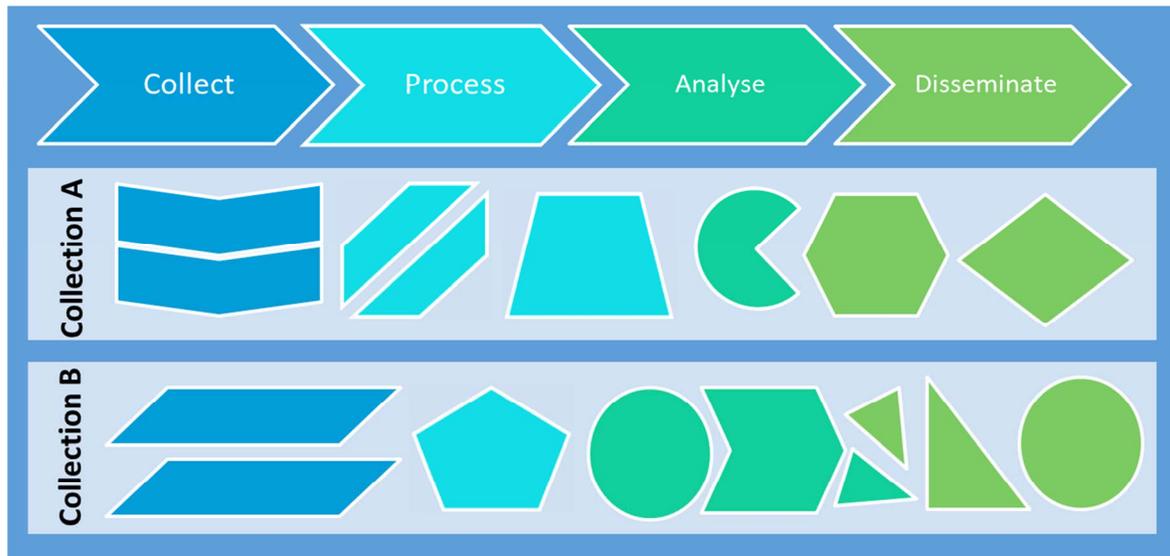


Figure 1: Accidental Architectures

Often it is difficult to replace even one of the components supporting statistical production. Use of these processes, methods and an inflexible and aging technology environment mean that statistical organizations find it difficult to produce and share data and information aligned to modern standards (for example, Data Documentation Initiative (DDI) and Statistical Data and Metadata eXchange (SDMX)). Process and methodology changes are time consuming and expensive resulting in an inflexible, unresponsive statistical organization.

Enterprise architecture is more and more used by statistical organisation to underpin their vision and change strategy. An enterprise architecture aims to create an environment which can change and support business goals. It shows what the business needs are, where the organization wants to be, and ensures that the IT strategy aligns with this. Enterprise architecture helps to remove silos, improves collaboration across an organization and ensures that the technology is aligned to the business needs. Enterprise architecture work enables to standardize organisation and processes. This is shown in Figure 2 where, as opposed to Figure 1, the countries have standardized their components and interfaces.

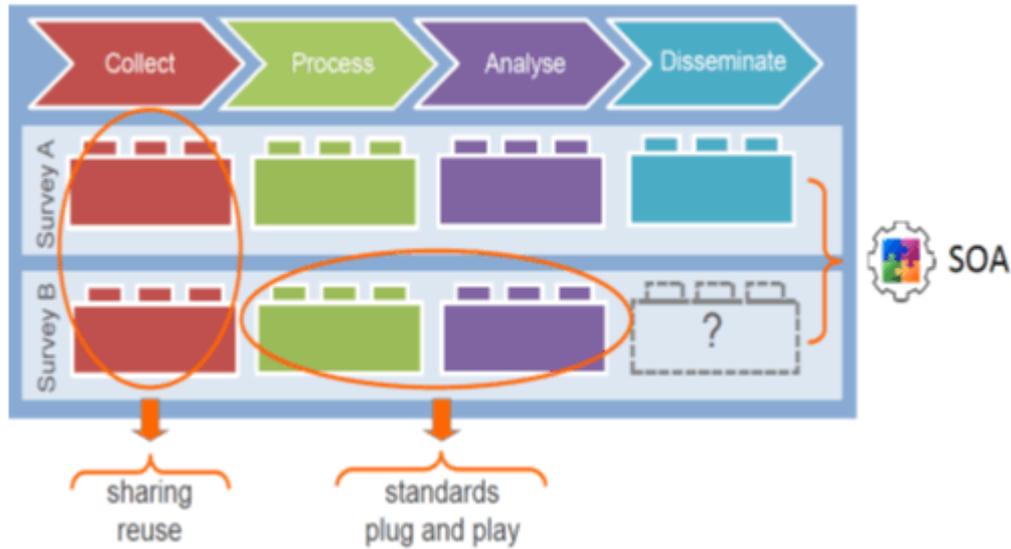


Figure 2: The result of standardization within an organization

The challenges of statistical production have a lot in common in different countries. The developed processes and IT tools do not correspond to the similarities; in most cases countries developed their own specific solutions. This model is highly costly and came under challenges as a result of new business needs and the need for cost savings.

A common reference architecture will allow the statistical organisation in the ESS to share development cost and to provide new statistical products in a cost efficiency manner.

3.1.5 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Eurostat	<ul style="list-style-type: none"> • Harmonization of processes and methodologies for the production of EU statistics • Capability to promote statistical standardisation and related best practices • Increased quality of statistical data • Technical interoperability, by providing standardized interfaces for statistical dissemination
European Statistical System – National Statistical Institutes in Member States	<ul style="list-style-type: none"> • Support the cost-efficient modernization of architectures • Improved statistical processes by sharing best practices and services • Delivery of new statistical products based on new data sources • Cost savings via reusable services and solutions (e.g. as the reusable dissemination solution to be made available through Joinup) • Capability to share further statistical services

<p>Other European Commission services</p>	<ul style="list-style-type: none"> • Reuse statistical services for the production of European-level statistics (e.g. data validation services) • Reuse architecture patterns for statistical production based on corporate EC platform • Reuse the statistical dissemination solution, achieving <ul style="list-style-type: none"> ○ Cost-efficiency and economies of scale. To illustrate the scale of an investment on a single DG basis into a dissemination solution, a potential benchmark could be a recent statistical dissemination project launched by DG REGIO for the dissemination of cohesion policy data where the TCO for the period 2014 to 2018 was estimated to 252K EUR with the choice of a 3rd party cloud solution vendor. Economies of scale at Commission level can be achieved as soon as 4 DGs or services start to reuse the solution, as the investment into a reusable dissemination solution will then be lower than individual project expenditures on silo implementations ○ IT rationalisation, i.e. systematic reuse of a set of systems for same business processes (statistical data dissemination) ○ Integration with EU Open Data Portal, preparation for open data and semantic web ○ Integration with NE-CMS <p>Currently, as to the reuse of dissemination tools</p> <ul style="list-style-type: none"> ○ DG COMP is reusing legacy Eurostat dissemination systems for disseminating State Aid Scoreboard statistical data, as part of the project DG COMP should be transitioned to use the future reusable dissemination solution ○ DG GROW is about to start reusing legacy Eurostat dissemination systems for the dissemination of postal statistics, as part of the project DG GROW should be transitioned to use the future reusable dissemination solution ○ DG EMPL²⁶ is reusing legacy Eurostat dissemination systems, for the dissemination of Labour Market Policies, as part of the project DG EMPL should be transitioned to use the future reusable dissemination solution <p>Then</p> <ul style="list-style-type: none"> ○ DG ECFIN expressed its interest²⁷ in a future solution for the scopes of the Business and Consumer Surveys, and
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²⁶ See also <http://ec.europa.eu/social/main.jsp?catId=1143&intPageld=3227&langId=en>

²⁷ See also [Ares\(2015\)1945099](#), page 4

	<p>the annual macro-economic database which is publicly available through Ameco online. Eurostat built a prototype of future dissemination solution based on Ameco²⁸</p> <ul style="list-style-type: none"> ○ DG TAXUD is looking for a solution to disseminate effective tax levels. ESTAT.B3 is analysing dataset samples provided by TAXUD to investigate how these could be disseminated by means of the reusable dissemination tools ○ DG EAC would be interested to use the ESTAT provided dissemination tools for making student mobility data which is ad interim hosted on the Open Data Portal: ○ Agency EACEA would be interested to use the ESTAT provided dissemination tools for the scope of Eurydice indicators ○ DG COMM is looking for a long term solution to disseminate survey data for the Eurobarometer (survey data) ○ Agency FRA (and DG JUST) could be interested in the solution for the dissemination of fundamental rights survey data
European citizens (data consumers)	<ul style="list-style-type: none"> ● New and higher quality statistical products ● Increased cost-efficiency of official statistics ● Easier and smarter access to EU official statistic products through <ul style="list-style-type: none"> ○ better interoperability of the multiple statistical data scopes ○ multi-dimensional statistical datasets access by means of standardized interfaces, supporting cross-sector & cross-policy data reusability, consequently openness

The following measurements will be used to evaluate the success of the project:

- The Statistical Production Reference Architecture and the related architecture artefact are used for the development and governance of Shared Service in the ESS;
- A majority of ESS members have understood the ESS reference architecture and have benchmarked their local architecture against it identifying potential for reuse and needs and a possible transition roadmap for benefiting from shared services;
- A series of common resources are provided and managed for the Official statistical community in order to realise benefits from shared services:
 - The ESS Service Catalogue will contain conceptual description of a significant number of potential statistical services and resources candidate for sharing;
 - The catalogue will link to at least 5 new reusable services including dissemination services designed following guidelines based on existing component and library to be

- hosted on a service oriented IS architecture in a Member State (e.g. by replication) or centrally on an ESS/Eurostat SOA infrastructure;
- A whitelist providing reference and description of certified open source statistical library and routine to perform key ESS business functions;
- A whitelist providing reference and guidance for the use of open source components for realising the SPRA in particular service exposure and integration.
- At least 5 ESS members have upgraded where necessary their architecture and re-use services of the service catalogue. This will result in a significant cost-saving for those ESS members – instead of developing a certain functionality they can re-use the functionality developed by another ESS member. A few standard implementations are referenced as good practices for other NSIs;
- A reusable dissemination solution is made available through Joinup and will be reused by at least 4 European Commission services. It allows to
 - Expose interfaces based on established standards such as the SDMX information model, and paves the way for open data / semantic web (statistical content made available in RDF);
 - Provide consistent interfaces for data consumers irrespective of the data publisher, the statistical domains and across sectors and policies (by means of the same standardized statistical dissemination (API) interface).

3.1.6 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Commission decision on Eurostat	<p>Commission Decision of 17 September 2012 on Eurostat (2012/504/UE), which appoints Eurostat as the leader for European Statistics within the Commission</p> <p><i>Relation: policy, responsibilities</i> <i>Inputs: Article 1 subject matter, Article 2 definitions, Article 6 tasks of Eurostat</i> <i>Outputs: -</i></p>
Production of European Statistics	<p>Regulation (EC) n° 223/2009 of the European Parliament and of the Council of 11 March 2009 on European statistics and repealing Regulation (EC, Euratom) No 1101/2008 of the European Parliament and of the Council on the transmission of data subject to statistical confidentiality to the Statistical Office of the European Communities, Council Regulation (EC) No 322/97 on Community Statistics, and Council Decision 89/382/EEC, Euratom establishing a Committee on the Statistical Programmes of the European Communities</p> <p><i>Relation: policy, responsibilities, governance</i> <i>Inputs: Article 3 definitions, Article 4 the European Statistical System, Chapter 3 Production of European Statistics</i> <i>Outputs: -</i></p>
IT rationalisation	<p>Communication from VP Šefčovič to the Commission of 01/08/2012 : "Delivering user-centric digital services"</p>

	<p><i>Relation: strategy, IT Vision, Enterprise Architecture</i></p> <p><i>Inputs: Centre of Excellence on Enterprise Architecture</i></p> <p><i>Outputs: -</i></p>
IT rationalisation	<p>Communication from VP Šefčovič to the Commission: Follow up to the Communication "Getting the best from IT in the Commission" of 7 October 2010 - First decisions in the IT rationalisation process</p> <p><i>Relation: governance</i></p> <p><i>Inputs: 3.2 Domain-specific conclusions, "Rationalisation of external communication"</i></p> <p><i>Outputs: -</i></p>
Production of European Statistics	<p>European Statistical System Vision 2020</p> <p><i>Relation:</i></p> <p><i>Inputs: 3.4 Efficient and robust statistical processes & 3.5 Dissemination and communication on European statistics</i></p> <p><i>Outputs: -</i></p>

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

3.1.8 The project will be based on a significant number of solutions available

Solution	Description	Annotation
SDMX – Statistical data and Metadata eXchange	An initiative to foster standards for the exchange of statistical information, and is sponsored by BIS - ECB - EUROSTAT - IMF - OECD - UN - World Bank. SDMX is approved by ISO as an International Standard (ISO 17369:2013); SDMX information model can be used to standardize information exchange between standards	
Joinup	The reusable statistical services delivered by the project will be made available to anyone by means of Joinup. Joinup will serve as a repository for the ESS shared services catalogue where interfaces and service description will be make available in a standard way.	
EIRA - European Interoperability Reference Architecture	ISA programme of the European Commission for classifying and organising building blocks relevant to interoperability, which are used in the delivery of digital public services. The goal is to facilitate interoperability and reuse when developing public services. EIRA will be used to upgrade the ESS Statistical Production Reference Architecture.	

DCAT Application Profile for data portals in Europe	The DCAT Application Profile for data portals (DCAT-AP) provides a common specification for describing public sector datasets in Europe to enable the exchange of descriptions of datasets among data portals.	
EUPL - European Union Public Licence	The EUPL is the first European Free/Open Source Software (F/OSS) licence The expected applicable license scheme used for the delivery of this project is likely to EUPL (solution derived from existing open source software component, licensed under the EUPL)	
EIC - European Interoperability Cartography	The EIC is an instrument to map and analyse the interoperability landscape in Europe and to identify solutions that are available	
Open data Support	Open Data Support is a 36 month project of DG CONNECT of the European Commission to improve the visibility and facilitate the access to datasets published on local and national open data portals in order to increase their re-use within and across borders.	
Catalogue of Services - Service attributes	A2A Catalogue of Services- list of common service attributes or service descriptors to identify web services across different MS	
IPSIS	EC interoperability platform consisting of core tools and technologies, reference solutions and a competency centre for use by information system builder's to integrate IT services.	
CSPA	The Common Statistical Production Architecture developed under the coordination of the High Level Group on Modernisation of Official Statistics (HLG-MOS). It is an industry architecture for the official statistics industry i.e. set of agreed common principles and standards designed to promote greater interoperability within and between the Official Statistics producers	
ESS EA RF	The ESS Enterprise Architecture Reference Framework developed for the implementation of the ESS Vision 2020. It serves as a reference for describing and articulate project outcomes and contributions to ESS "to be state". The ESS EA RF will be publicly released by end 2015.	
GSBPM and GSIM	The Generic Statistical Business Process Model and the Generic Statistical Information model developed	

	and maintained by UNECE. They provide reference frameworks (definitions, relations, attributes) for describing statistical production process and the piece of information used in these processes. It strive for greater interoperability and cooperation among statistical organisation	
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3.1.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Statistical Production Reference Architecture V1.0 and subsequent
Description	Based on the ESS EA RF developed by the ESS, this (ISA ²) project will provide a fully fledged and ready for implementation set of artefacts to standardise EU statistic production processes including information and interoperability aspects. Subsequent releases will be enriched by reference to standard solution and reference implementations. Organisation should use it to benchmark their production architecture, develop services to be shared and integrate shared service in their production of statistics. This reference architecture can be re-used by the ESS Members and also by other Commission DG's dealing with official statistics.
Reference	European Interoperability Reference Architecture (EIRA)
Target release date / Status	First release 31/12/2016

Output name	Multi-tenant version of the ESS Service Catalogue
Description	Multi-tenancy is an architecture in which a single instance of a software application serves multiple customers. A central ESS Service Catalogue is required to publish the statistical services that are available for re-use in the European Statistical System. This service catalogue should use the same solution as the global (UN sponsored) service catalogue of statistical services (CSPA Service Catalogue). These catalogues shall be based on the same system, but shall clearly indicate the level of availability of the offered statistical services (e.g. ESS level or global level). It shall be also analysed how the ESS Service Catalogue – that contains statistical services according to international standards – can be integrated with the Service Catalogue of the Joinup

	platform.
Reference	
Target release date / Status	31/12/2017

Output name	Reference implementations of statistical and dissemination processes using shared services adapted to different contexts
Description	The project will identify and prioritise development of shared services within ESS. 5 new shared services based on existing components or statistical libraries will be implemented during the project and reference point in the ESS catalogue. The shared service will be implemented in the statistical processes of multiple ESS members and bring them process improvements. Furthermore the implementation and integration of those statistical services in several ESS members will lead to improvement of those services, which will allow easier adoption by further organisations.
Reference	TF Shared Services Mandate
Target release date / Status	31/12/2017

Output name	White list of open source packages for statistical production business functions and for integration and orchestration of statistical productions
Description	<p>Re-using services can be based on services developed by other statistical organizations and also on open source. This work package will leverage the open source solutions for statistical production and for process orchestration.</p> <p>Commercial statistical production systems (e.g. SAS or ORACLE) have sophisticated functionality; however they require high license fees. On the other hand open source packages (e.g. packages in language R) are offering similar functionality. The price of open source is much lower, however it is not clear if the applied algorithms can be trusted at the same level and provide the same level of integration and interoperability of solutions as the ones in the commercial packages. Some NSI's are using the open source statistical packages, however some others</p>

	<p>refrain using them with the rationale that verifying the open source packages would require at least as much resources as the licence fees of the commercial packages. However, if we consider the ESS as whole, and its economy of scale, the verification of open source software can already pay off. This deliverable will provide a verified set of open source packages that can be safely used for statistical production.</p> <p>Similarly the open source packages for process orchestration can facilitate the implementation of service oriented architectures in statistical organizations.</p>
Reference	
Target release date / Status	31/12/2017

Output name	Technical architecture patterns for realising the ESS EA
Description	<p>The analysis of open source software packages and the benchmark of MS architectures will produce a number of technical architecture patterns for realising the target state architecture. This will enable MS's to make practical decisions to start implementing the architecture in full scale. These architecture patterns will also be available and beneficial to other producers of statistics such as parts of the Commission.</p>
Reference	
Target release date / Status	31/12/2016

Output name	Fit/Gap Analysis and roadmaps for the transition to a target state architecture
Description	<p>As part of the project, at least 5 ESS members use the benchmarks to evaluate their fit to the defined architecture. The members will perform a fit/gap analysis, define roadmap to target architecture, and implement measures to improve alignment with the target architecture.</p> <p>The roadmaps can be used by other organizations as examples for transitioning to a modernised architecture, which should lower barriers and increase the likelihood of successful realisation of the ESS EA.</p>
Reference	
Target release date / Status	31/12/2016

Output name	Inventory of reusable software components for statistical production
Description	The benchmark of the Member State architectures will identify and qualify a various solutions and services that can be made available to the ESS community and potentially outside the ESS
Reference	
Target release date / Status	31/12/2017

Output name	Reusable solution for statistical dissemination
Description	<ol style="list-style-type: none"> 1. CSV import The tool to load <ul style="list-style-type: none"> • Data Structure Definition (DSD)²⁹ defining a data collection • Statistical data that is part of a data collection to be disseminated 2. Data store 3. API i.e. web services for machine-to-machine automated data consumption in multiple formats (SDMX, RDF, JSON, tab separated ...). 4. Web based data browser, i.e. interface for the access to the data and metadata, including the <ul style="list-style-type: none"> • Navigation in data collections, • Consultation of data and metadata, • Filtering on data dimensions, the visualisation of data (charts, maps), • Capacity to compare indicators and geo areas, • Capacity to download data in full or to query the API for filtered dimensions (data query)
Reference	SDMX Information Model Generic Statistical Business Process Model - GSBPM
Target release date / Status	1st half of 2017 <ul style="list-style-type: none"> • The reusable dissemination solution should be available for use in production (cfr. Scope description above) by a first batch of Directorates General in the 1st semester of 2017. At the moment of writing this document, most probably this would be a group consisting of

²⁹ The Data Structure Definition (DSD) describes the structure of a particular set of data through a list of descriptor concepts. It defines which concepts are dimensions (identification and description - for example: Frequency, country, variable/topic, time period), and which are attributes (just description / qualification - for example the unit of measure, confidentiality flag or the data status flag). See also [SDMX self-learning package No. 1 Student book Introduction to SDMX](#)

	<ul style="list-style-type: none"> ○ ECFIN ○ TAXUD ○ One or more of the following :EMPL / GROW / COMP ○ Possibly EAC /EACEA (to be assessed) <ul style="list-style-type: none"> • Sharing of the solution by means of Joinup, i.e. the solution can be reused by other institutions, public administrations, members of the European Statistical System, etc. <p>As from mid-2016 & beyond</p> <ul style="list-style-type: none"> • Further iterative extensions in terms of reuse at ESS level
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3.1.10 ORGANISATIONAL APPROACH

3.1.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Eurostat	Eurostat Architecture (extended) Team Eurostat B3, B4, B5
NSI's	Members for the Task Force Shared Service
Other Commission DGs	Other statistics - network of statistical correspondents
Information Resource Managers (IRMs)	<ul style="list-style-type: none"> • List of Information Resource Managers • Digital Stakeholder Forum - chaired by DIGIT and assures inter-service communication and coordination for all matters relating to IT in the Commission
DIGIT	<ul style="list-style-type: none"> • DIGIT.B1 (Architecture centre of excellence) • DIGIT Hosting services • DIGIT IPSIS team

3.1.10.2 Communication plan

Being part of the ESS Vision 2020 implementation the project will benefit from a broad communication plan designed and monitored by the ESSC and the VIG (ref). Specific component targeting Commission services producing statistics will be added.

The main list of stakeholders for ESS Vision 2020 and tentative related communication channels are:

European Commission	MyIntraComm
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	Ad hoc seminar and workshops Digital Stakeholder Forum Leaflets
Eurostat staff	Cybernews Eurostat-Infos Lunchtime presentations Ad hoc seminar and workshops
NSI staff	European Statistical Training Program Ad hoc seminar and workshops
NSI management	Regular presentation (joint events) ESS Website Dedicated European Statistical Training Program courses Circabc Leaflets
General Public	Eurostat website (ESS vision dedicated section)
Official statistics Community	Conferences Leaflets

3.1.10.3 Governance approach

The project is

- owned by the Deputy Director General of Eurostat, Ms. M. Kotzeva;
- compliant with PM2 project management methodology.

The project will report about the generic tools for the reusable dissemination solution for internal Eurostat governance to the

- Eurostat Dissemination Chain Steering Group;
- Eurostat IT Advisory Committee, and finally to
- Eurostat Director's Meeting

The project will report to the related ESS governance bodies:

- The ESS Task Force Shared Services that will also act as a Steering Group for the project;
- ESS IT Director's Group (ITDG) will review project progress and its main deliverables;
- The Vision Implementation Group established by delegation of ESSC (The European Statistical System Committee) will provide strategic guidance for the project.

At EC level, involved governance bodies are the following

- IT Governance: the [IT Board](#)

3.1.11 TECHNICAL APPROACH

The project builds on a service-oriented paradigm to establish the cooperative architecture for ESS and for sharing statistical services among organisation. This approach leans on the SOA strategy of the Commission and on the Common Statistical Production architecture developed at industry level

facilitated by UNECE. The reusable solution for dissemination leans on the future renovated Eurostat dissemination chain (see task 8 description)

Task 1: Develop detailed ESS EA.

Activities: Detail the existing ESS EA to provide an operationalization of the sharing of services, the orchestration of these services in production processes and the management of data and metadata in the process. Communicate the ESS EA and facilitate the discussion and agreement in the ESS community on the ESS EA.

Deliverables: The ESS EA incorporating EIRA and operationalizing the sharing and orchestration of services and the management of metadata.

Task 2: Benchmark ESS architectures.

Activities: Analyse the ESS member architectures (as-is and target architectures) and benchmark the implementations and usage of technology to support the ESS EA. Identify potential components and services for sharing in the community.

Deliverables: Best practice architecture patterns, list of sharable services/solutions, sample roadmaps for realising the ESS EA based on specific as-is architectures and business requirements. List of possible candidates for shared services.

Task 3: Develop multi-tenant version of the ESS Service catalogue.

Activities: Develop an ESS Service catalogue for federated use in the ESS with requirements that support a flexible adoption and supporting easy discovery, test, and implementation of usage of a shared service which is preferably built on existing software.

Deliverables: An ESS service catalogue, which can be deployed in a federated manner including both service shared in the ESS as well as MS specific services.

Task 4: Develop statistical and dissemination services for sharing.

Activities: To select and develop existing functionality into shared services that can be used by the community.

Deliverables: Three services developed and made available to the community either at ESTAT or an NSI.

Task 5: Produce white-list of open source software.

Activities: Analyse existing open source software packages and produce a white-list of components to be used in the technical architectures

Deliverables: The white-list of open source packages and guidance on its usage in the ESS EA.

Task 6: Support architecture alignment.

Activities: Support the architecture alignment in ESS member to be carried out by a group of experts from ESS members e.g.: support for implementing an open source software package, detailed guidelines for exposing a shared service to the community.

Deliverables: Active support function to architecture alignment with established KPI (e.g. number of early adopters of the target architecture in the ESS) .

Task 7: Implement shared services in production processes.

Activities: Support the implementation of the shared statistical services within ESS members.

Deliverables: The integration of shared statistical services in 7 ESS members production processes.

Task 8: deliver a reusable statistical dissemination solution.

Activities: derive a simplified version from the future renovated Eurostat dissemination chain.

Deliverables: generic tools for reuse, i.e.

a) Software layers

This is derived from the architecture retained for the renovation of Eurostat's own dissemination chain (which is more sophisticated and not detailed in full here³⁰).

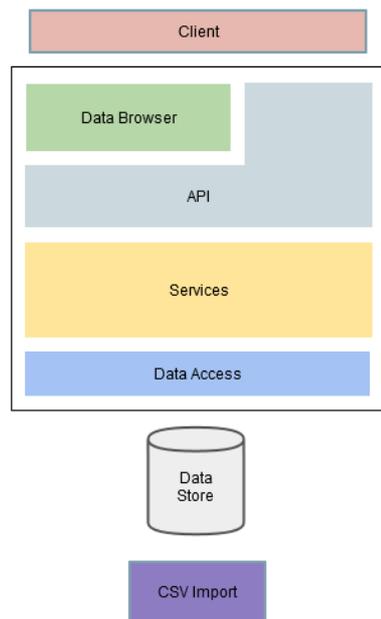


Figure 3: software layers of the reusable statistical dissemination solution

The client has access to both the data browser and the API. Note that the data browser is in itself a client of the API. The API delegates the work to the services which in turn use the data access layer to communicate with the data store. A separate (standalone) application provides the ability to import CSV data into the data store.

b) Data access

The default data store shall be a mix between flat files and a MySQL database. The default data access layer shall reflect this. However, if the data provider has the need for a more responsive and robust solution, an Oracle XML-based data store may be used and in this case a compatible data access layer shall be provided.

c) Packaging

The reusable solution for statistical dissemination will consist of a simple war file, containing the following:

- A web archive (war) containing the data browser and associated resources
- The individual services packaged as ejb files
- Any libraries which are not provided by the container
- A simple jar file which contains the data access layer.

³⁰ See the architecture documentation available in [CircaBC](#)

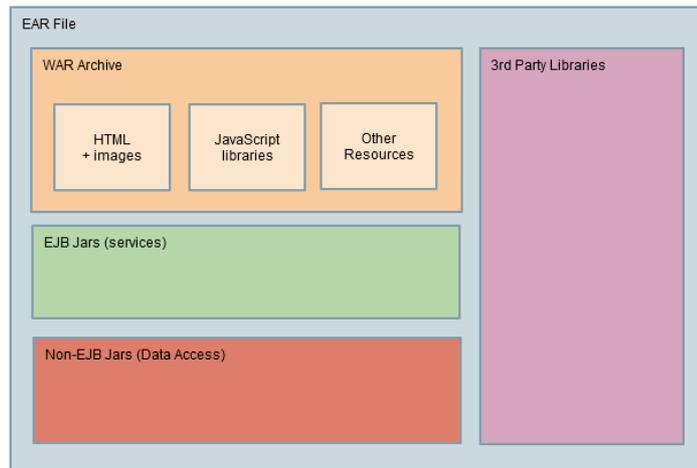


Figure 4: packaging of the reusable statistical dissemination solution

The CSV import module shall be packaged separately as an executable jar file.

d) Infrastructure requirements and system configuration for the reusable statistical dissemination solution

The delivered package is deployable on a LAMT (Linux, Apache, MySQL, **Tomcat**) environment.

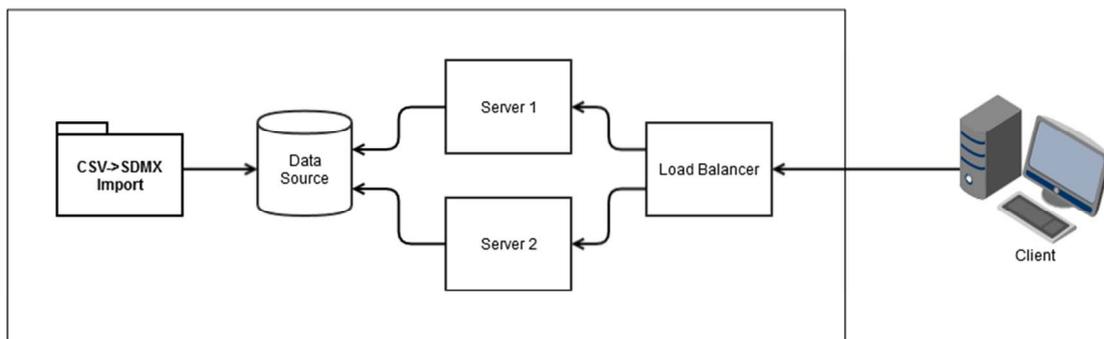


Figure 5: infrastructure requirements for the reusable statistical dissemination solution

The hosting requirements are thus:

- Two Tomcat servers (for failover)
- Data source, when necessary this is a XML enabled database
- A load balancer

Task 9: Upgrade of dissemination solution and services for the ESS in synergy with DIGICOM

Activities: extensions to the reusable statistical dissemination solution in a ESS context and further development of synergies with the Work Package 3 of DIGICOM³¹, in particular

1. For Linked Open data (LOD)

- Contribution to the DIGICOM WP3 stocktaking exercise on Linked Open Data at ESS level, i.e. what does the solution include in terms of support for RDF – Data Cube Vocabulary data delivery
- Potential technical evolution(s) of the reusable solution for the dissemination of statistics to contribute to the development and maintenance of ontologies
- Potential technical evolution(s) of the reusable solution for the dissemination of statistics in order to have seamless integration with the Pan-European Open Data Portal
- Provision of the semantic format conversion service from SDMX 2.1 to RDF-Data Cube Vocabulary

³¹ See also <http://www.cros-portal.eu/sites/default/files/TFDIGICOM-2015-0910-02.pdf>

2. For the facilitation and harmonisation of APIs to European data
 - Contribution(s) to the definition of ESS standard for APIs in the area of dissemination of statistics extending experience with standard API of the reusable dissemination solution

Deliverables: generic tools and services for reuse

3.1.12 COSTS AND MILESTONES

3.1.12.1 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)
Inception	Project charter discussed and agreed with stakeholders	0	ESTAT	15/09/2015	31/12/2015
Execution	Task 1: Develop detailed ESS EA.	200	ISA ²	01/01/2016	31/12/2016
Execution	Task 2: Benchmark ESS architectures.	300	ISA ²	01/07/2016	30/06/2017
Execution	Task 3: Develop multi-tenant version of the ESS Service catalogue.	200	ISA ²	01/01/2017	31/12/2017
Execution	Task 4: Develop statistical services for sharing.	250 (50 per service)	ISA ²	01/01/2016	31/12/2018
Execution	Task 5: Produce white-list of open source software.	200	ISA ²	01/01/2017	31/12/2017
Operational	Task 6: Support architecture alignment.	500	ISA ²	01/07/2017	31/12/2018
Operational	Task 7: Implement shared services in production processes.	400	ISA ²	01/07/2017	31/12/2018
Execution & Operational	Task 8: Deliver a reusable statistical dissemination solution.	920	ISA ²	01/01/2016	30/06/2017
Execution & Operational	Task 9: ESS extensions to reusable statistical dissemination solution.	500	ISA ²	01/06/2016	31/12/2018

	Total	3470			
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3.1.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Initiation & Execution	1.050	
2017	Execution & Implementation	1.720	
2018	Implementation & Operation	700	

3.1.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
SERV Business Case	https://circabc.europa.eu/sd/a/0ffc64b1-5d5c-4a61-a030-4acd897779e0/SERV%20Business%20case%20v0.7.pdf	-
SERV TF Mandate	-	Version 1.1
ESS EA RF	-	Version 0.5 (draft)
ESS Vision 2020	http://ec.europa.eu/eurostat/web/ess/about-us/ess-vision-2020	-
DISSCHAIN RENOV Business Case	https://circabc.europa.eu/w/browse/a21ebeea-7491-4806-8306-2ace57894218	

3.2 FISMA: FINANCIAL DATA STANDARDISATION (2016.15)

3.2.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common frameworks
Service in charge	DG FISMA.PA
Associated Services	DG CONNECT, DG DIGIT, DG ECFIN, EUROSTAT

3.2.2 EXECUTIVE SUMMARY

Many stakeholders from the financial sector, including private companies such as banks and public administrations or such as National Regulatory/Supervisory Agencies, need to report or act on financial data as requested by current EU law. Since 2009, the EC (DG MARKT, now DG FISMA) has been part of international initiatives to improve data reporting in support of financial stability.

The huge amount of level 2 measures expected in 2015 and 2016, together with a recent initiative launched by the U.S. Office for Financial Research (OFR) and a call launched by financial industry for further data (reporting) standardisation, are among drivers for the definition of a business case for further standardisation in financial data reporting. The main issues identified are related to the difference in data formats and in the lack of modelling and reporting standards allowing to trace financial risk on an instrument-by-instrument and transaction-by-transaction basis in the financial system especially when instruments and transactions involve different jurisdictions and several public (supervisory) authorities that need to be able to rely on sufficiently robust data standards so as to arrive at comparable assessments of risk in the system. The lack of a common financial language together with the lack of interoperability between public risk data infrastructures increases on one side the costs related to legal reporting requirements while making it difficult on the other side to aggregate risk data and to ensure a complete market monitoring.

The first part of this business case is a "stock-taking" exercise in order to map out all requirements in term of reporting, together with the identification of stakeholders involved, data standards and IT systems used; this will also allow the identification of any overlapping requirements. Based on this full picture, areas should be flagged where further standardisation could bring benefits, and possible synergies between data reporting requirements should also be identified.

The second step consists in identifying the costs of "standardisation" versus the costs for "non-standardisation". In the case further standardisation would be applied, what would be the cost to all affected stakeholders to implement it? What would be the expected benefits/drawbacks and the potential risks? On the other hand, if the current situation is kept as is, what would it cost industry compared to an ideal situation, and what are the benefits/drawbacks with the related risks? Alternative scenarios could be investigated.

Based on the business case, a priority area will be identified and a pilot will be launched to standardise data reporting.

3.2.3 OBJECTIVES

This action aims to investigate the opportunity to standardise financial data reporting.

It has two main objectives: firstly analyse the current situation in terms of reporting and secondly analyse possible scenarios for further standardisation. If the impact of financial data standardisation reveals to be positive, a roadmap for standardisation should be proposed.

Subsequently a pilot will be carried out in a priority area to test the feasibility and measure the impact of standardisation.

3.2.4 SCOPE

This task covers the analysis of existing financial data reporting defined in the legislation from DG FISMA, together with the definition of a business case for standardisation. Measures in different financial sectors (pensions, OTC derivatives, securities, ...) are covered but the task targets other sectors connected to the finance as well, for example taxation.

It includes the following activities:

- taking stock of the inter-operability implications of reporting requirements in proposed and adopted Union legislation;
- review of existing studies already carried out on EU Financial Data
- identification of synergies with other DGs and with existing global initiatives
- identification of stakeholders involved
- identification of IT tools and electronic formats used, if applicable, to implement this reporting
- identification of areas where standardisation could bring savings, with an estimate of savings which could be achieved
- definition of a draft data dictionary (in coordination with ongoing initiatives in this area, e.g. the Banking Data Dictionary (BDD) at the ECB)
- definition of a roadmap for standardisation

3.2.5 PROBLEM STATEMENT

Many stakeholders from the financial sector, including private companies such as banks or public administrations such as National Regulatory/Supervisory Agencies, need to report on financial data as requested by current EU law.

Since 2009, the EC (DG MARKT, now DG FISMA) has been part of G20 initiatives to improve data reporting in support of financial stability. In January 2015, in addition to the ongoing FSB Data Gaps project with its focus on GSIBs, an initiative in the form of two research workshops³² has been taken

³² "Setting Global Standards for Granular Data"; see the full programme here: <http://www.bankofengland.co.uk/research/Pages/conferences/0115.aspx>

by the U.S. OFR³³, the BoE and the ECB. It is a voluntary effort to get a wider set of standard setters involved. This complementary initiative reflects (i) a shared understanding of data standards' impact on the entire financial sector and the economy, (ii) the awareness that a number of fundamental semantic and IT issues are still unresolved, and (iii) that the financial sector is falling behind compared to other sectors in terms of interoperability in a digitized economy.

In the meantime U.S. and EU authorities have both received the June 11th letter by global financial industry representatives calling for further data (reporting) standardisation as a matter of urgency.

The lack of a common financial language has the following negative impacts on all stakeholders involved:

- Need to provide data in different formats reflecting different mandates of national and European financial supervisory structures
- Need to ensure interoperability of different IT reporting systems, at national and European level
- Difficulty to aggregate the data
- Difficulty to follow the life-cycle of a financial instrument

This creates difficulties to monitor the markets on behalf of public authorities but also increases costs for all stakeholders involved.

In the context of the Better Regulation, the complexity and variety of reporting requirements from the financial sector has also been mentioned as an area where standardization could reduce regulatory costs³⁴.

3.2.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

The expected beneficiaries are identified in the table below, as well as quantifying the expected benefits by being part of this study.

Beneficiaries	Anticipated benefits
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³³ The OFR had been established by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 to support the Financial Stability Oversight Council, the Council's member organizations. The OFR has a Director appointed by the US President and confirmed by the Senate, and an organisation built around a Research and Analysis Centre, and a Data Centre. The OFR is part of the US Treasury; two of its three strategic goals for 2015-19 are built around the adoption and further improvement of financial data standards.

³⁴ Better regulation for a better results – an EU agenda, page 12

(http://ec.europa.eu/smart-regulation/better_regulation/documents/com_2015_215_en.pdf)

"For example, the Commission will launch a broad review of reporting requirements to see how burdens can be alleviated. This review will have a particularly strong focus on areas where stakeholders have recently indicated their concerns, such as agriculture, energy, environment and **financial services**"

Financial institutions	Reduction of compliance costs related to reporting requirements; incentive to abolish legacy data and legacy IT systems by switching to a robust common data standard; increased transparency for internal risk reporting; safer and more competitive environment as data standards allow the transition to a fully digitized reporting framework avoiding the risk attached to manual handling of risk data and allowing third party providers to device solutions (including APIs) based on a transparent (open source) standard
National Supervisory Agencies (NSAs)	Improved capacity to aggregate and monitor risk data as well as to share analysis of such data among authorities including European ones
National Regulatory Agencies (NRAs)	Improved capacity to aggregate and monitor risk data as well as to share analysis of such data among authorities including European ones; increased clarity and precision in drafting/amending regulation thanks to improved and more comprehensive data dictionaries
European Central Bank (ECB)	Same as for national authorities with the supplementary need to aggregate, monitor and simulate risk data for the euro area as a whole
European Securities and Markets Authority (ESMA)	Same as for national authorities with the supplementary need to aggregate, monitor and simulate risk data for the EU as a whole; ESMA directly supervises trade repositories (TRs) and credit rating agencies (CRAs), two types of agents that deal with some of the most complex financial instruments where the data standards issues are particularly relevant
European Insurance and Occupational Pensions Authority (EIOPA)	Same as for national authorities with the supplementary need to aggregate, monitor and simulate risk data for the EU as a whole
European Banking Authority (EBA)	Same as for national authorities with the supplementary need to aggregate, monitor and simulate risk data for the EU as a whole

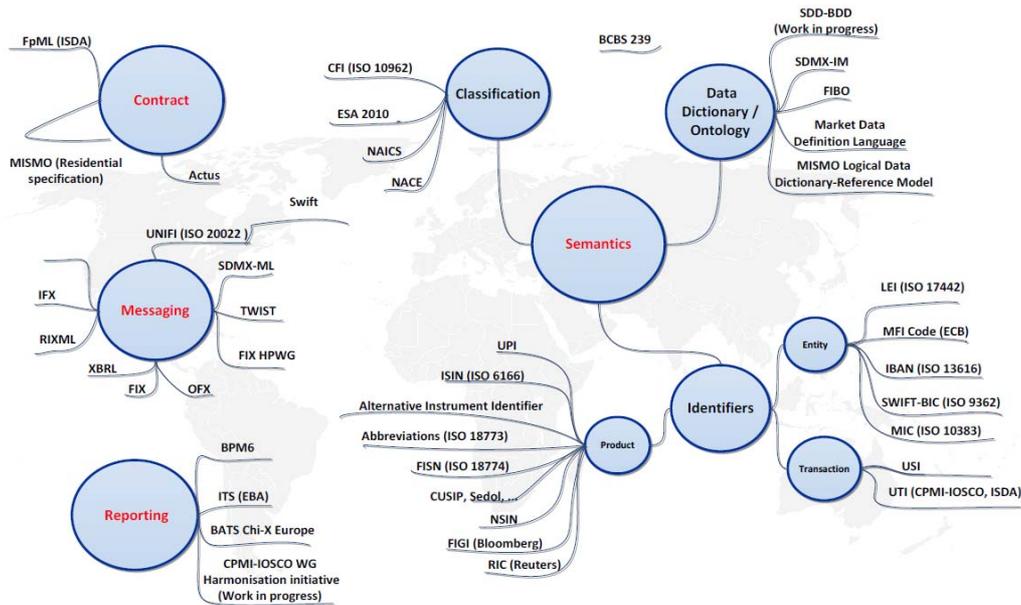
3.2.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Digital Single Market	The financial sector has been an early adopter of ICT in the 1990s developing many proprietary data systems and data infrastructures; these legacy data and legacy systems, two decades later, are costly to maintain and create barriers to competition; in the absence of fully machine readable financial data (including contractual information) the sector will not realise the full potential contained in interoperability and data sharing solutions and is falling behind sectors such as the automotive sector where (digital) interoperability between many users is well advanced.

Digital Agenda	
data4policy.eu	The data4policy.eu initiative is dealing with semantic interoperability issues to realize the potential of Big Data and Advanced Data Analytics for EU policy design
ESAs, international fora	<p>Significant work is under way with the aim of setting global standards for financial data reporting. For example, in OTC derivatives, the FSB, CPMI and IOSCO have made progress to define a number of key reporting elements such as the UPI, UTI, and the LEI.</p> <p>Also, in the area of securities financing transactions, the FSB Data Expert Group is working on the harmonisation of data fields and content (including definitions) required in order to allow global harmonisation and aggregation ahead of the implementation by jurisdictions of the FSB Recommendations.</p> <p>It is crucial that any efforts at financial data standardisation are undertaken by those bodies which are best suited to do so, and that they take into account all of the work which has already been accomplished and which is currently underway.</p> <p>The FSB publishes progress reports under the Data Gaps project and on the implementation of risk data aggregation.</p> <p>The OFR has published an excellent overview of the various remaining challenges attached to (international) financial data standards in its 2014 Annual Report (Chapter 5) as well as on the ongoing Data Gaps agenda (Chapter 6).</p>
Better Regulation	In the communication from the Commission on "Better regulation for better results - An EU agenda", the REFIT section clearly identifies areas where implementation can be improved in order to reduce administrative burden. It is clearly identified that the <i>"Commission will launch a broad review of reporting requirements to see how burdens can be alleviated. This review will have a particularly strong focus on areas where stakeholders have recently indicated their concerns, such as agriculture, energy, environment and financial services."</i>
Business registers	Interoperability in the identifiers used for companies will need to be achieved, establishing a link with the Legal Entity Identifier (LEI) or with identifiers set up in Business Registers Interconnection System (BRIS)

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

Different standards already exist for reporting, standards issued by international organisations (ISO, UN/CEFACT) or by the European Commission.



An important part of the study will consist in making an inventory of existing standards and mapping the standards to reporting requirements. When multiple standards could be used for the same requirements, a comparison between these standards should be carried out.

Following existing initiatives should be investigated (non-exhaustive list):

- FINREP Taxonomy 1.3.2: the FINREP-Taxonomy provides an XBRL representation of the European Banking Authority (EBA) Financial Reporting Framework.
- International Financial Reporting Standards (IFRS)
- Core vocabularies

3.2.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Data dictionary
Description	Inventory of all data elements subject to data reporting, together with the semantic(s) and legal instruments in which the data element is mentioned. The data dictionary will contain references to existing standards and business rules defined in legislative instruments. The data flows concerned will be included, with identification of stakeholders involved.
Reference	
Target release date / Status	Q4 2016

Output name	State of play and Business Case
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Description	<p>The Business Case captures the reasoning for the project, provides a justification for the investment in time and effort and establishes its budgetary needs. It provides contextual information to the decision makers on the project's benefits and is used to determine whether the project is worth doing or not.</p> <p>The Business Case typically contains an analysis of the necessary effort and costs to be incurred in the project as well as the benefits that the project will bring. In the case of larger projects addressing a political context, the Business Case will have to take into account an impact assessment, risks and a cost-benefit analysis.</p> <p>The Business Case is a living document and is therefore re-examined at critical project milestones to verify if the expected benefits are still achievable, the cost/schedule within the budget/timeline, and whether the project remains relevant to the organisation and therefore should continue.</p>
Reference	
Target release date / Status	Q1 2017

Output name	Standardisation framework and roadmap.
Description	<p>In case the business case identifies clear benefits for financial data standardisation, a draft roadmap identifying priority areas for financial data standardisation will be delivered. This roadmap needs to take into account the need for a general financial data reporting framework and specialised reporting in sectors. The framework must cover the interdependency between sectors and the implementation status of ICT systems used for reporting.</p>
Reference	
Target release date / Status	Q1 2017

3.2.10 ORGANISATIONAL APPROACH

3.2.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
FISMA	Units 01, 02, A3, B2, B3, C2, C3, D1, E4
ECFIN	
European Central Bank (ECB)	
European Supervisory Market Authority (ESMA)	
European Insurance and Occupational Pensions Authority (EIOPA)	
Single Resolution Board (SRB)	

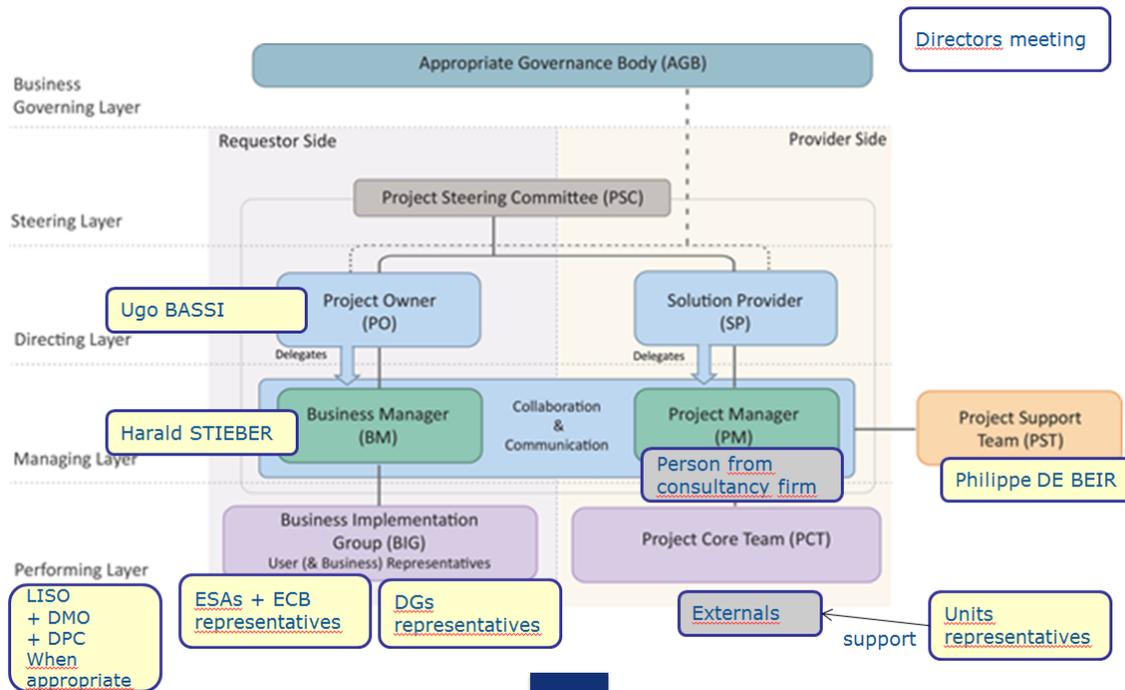
3.2.10.2 Communication plan

A WIKI will be set up as a central point to collect and share information on the project. Each unit will keep the information updated in the WIKI regarding the policies it manages. Access will be provided to agencies and to the external contractor in charge of the study.

For discussions, emails and video-conferencing will be used. In the case of stakeholder's consultation, the EUSurvey tool will be used when appropriate.

3.2.10.3 Governance approach

The project will be coordinated by a Project Steering Committee with representatives from different DGs and agencies involved.



The action will be led by a Project Steering Committee (PSC) chaired by Director B being the Project Owner. Unit B2 will be the Business Manager and responsible for coordination inside the DG. The PSC will meet at least once every two months but could meet more regularly if necessary. The PSC will be responsible to decide on the scope of the study.

This governance structure can be modified based on the project evolution.

At project level, the Project Core Team will be mainly composed by externals from the consultancy firm, supported by unit representatives. These unit representatives will provide to consultants, all necessary documents and answer potential questions.

The BM, PM, PST will meet on a regular basis (minimum once per month), including unit representatives concerned.

3.2.11 TECHNICAL APPROACH

to be developed later.

3.2.12 COSTS AND MILESTONES

3.2.12.1 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)
Inception	Business case: state of	200	ISA ²	Q1 2016	Q2 2016

	play				
Execution	Business case finalisation, including standardisation roadmap	300	ISA ²	Q2 2016	Q1 2017
Inception	Pilot in priority area	200	ISA ²	2016	2017
Execution	Pilot in priority area	500	ISA ²	2017	2019
	Financial Data reporting framework + standards		ISA ²	2018	
	Total				

3.2.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Business case : state of play	200	
2016	- Business case finalisation - Start of pilot in priority area	300 200	
2017	Pilot in priority area	500	
2018	Pilot in priority area + standardisation		
2019			
2020			
2021			

3.3 DEVELOPMENT OF AN OPEN DATA SERVICE, SUPPORT AND TRAINING PACKAGE IN THE AREA OF LINKED OPEN DATA, DATA VISUALISATION AND PERSISTENT IDENTIFICATION (2016.18)

3.3.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common Services and Reusable Generic Tools
Service in charge	Publications Office of the European Union
Associated Services	JRC, ESTAT ³⁵

3.3.2 EXECUTIVE SUMMARY

The action aims at providing data providers (institutions, agencies and other bodies) of the Open Data Portal (ODP) and other stakeholders of the Open Data Portal (Pan-European Data Portal including affiliated MS portals) with an open data service package in order to enable them to further open up their data and increase data interoperability in view of better data reusability and data visualisation.

It has been triggered by the needs expressed by EC DGs, institutions and agencies during workshops and individual meetings with ODP teams and additionally brought to evidence by the interinstitutional survey on data visualisation needs (carried out between May and July 2015), namely

- for a **structural approach for sharing knowledge about open data management** (Guidelines, consultancy, assistance, training, awareness raising, etc.), reusable data structures, data visualisation and the development of shareable tools.
- for significantly **mutualising and rationalising efforts** towards the identification, development and sharing of modern **data processing and visualisation tools** (i.e. a corporate visualisation solutions pool).
- to **raise awareness** about the dependency of easily reusable visualisation tools on interoperable data structures, and to put in place structural measures in order to achieve this alignment.
- To support further opening of data namely by assistance in transforming data into Linked open data (LOD) and persistent identification.

³⁵ Services involved in the elaboration of this proposal. The exact nature of the collaboration with these services is still subject to formal agreement.

Through its different action strands (implementing guidelines, consultancy and hands-on assistance, workshops and training sessions, development of toolsets, etc.), the project will deliver an

- interinstitutional **knowledge base** on open data publishing, open data treatment and processing, data visualisation
- interinstitutional **pool of reusable** data processing and data visualisation **tools**
- governance structure, **implementation guidelines** and development of a toolset for unique and **persistent identification based** upon the sub-domain data.europa.eu and accompanied, where suitable, by the Digital Object Identifier (DOI).

Moreover, it will contribute to building up an intra-institutional community of practice in the domains of open data and data visualisation (a network of open data and data visualization stewards) and an increased data publishing maturity of participating institutions, agencies and bodies.

The project will be implemented with existing key partners of the Open Data Portal (data providers, stakeholders) as well as with new partners to be identified during the follow-up phase of the interinstitutional survey on visualisation needs (September - December 2015)

3.3.3 OBJECTIVES

The project aims at providing data providers (institutions, agencies and other bodies) of the Open Data Portal and other stakeholders of the Open Data Portal (Pan-European Data Portal including affiliated MS portals) with an open data service package in order to enable them to further open up their data and increase data interoperability in view a better data reusability and data visualisation.

3.3.4 SCOPE

The project covers

- open data publishing, open data treatment and processing, data modelling in view of linked open data, data visualisation (setup of an interinstitutional knowledge base)
- the set-up of an interinstitutional pool of reusable data processing and data visualisation tools
- the implementation of a toolset for unique and persistent identification based upon the sub-domain data.europa.eu and accompanied, where suitable, by the Digital Object Identifier
- community building in all abovementioned areas

It entails activities in the areas of:

- consultancy and conceptual assistance,
- development of training material, delivery of training sessions/workshops,
- development of toolsets (including catalogues of tools)
- development of interoperability guidelines and documentation

3.3.5 PROBLEM STATEMENT

a) EU institutions, agencies and other bodies need a structural approach for sharing knowledge about open data visualisation and a pool of reusable data visualisation tools

Raw data can be hard to interpret even by professionals with advanced computational skills. One of the best ways to convey a message is to use visualisations to quickly draw attention to key findings. Furthermore, by visually representing data it is possible to uncover patterns and observations that are not apparent from looking at the raw data alone or even at a few summary statistics.

Given the growing amount of data produced, gathered, processed and published by the EU institutions, there is a need to develop effective tools for visualising data. This has to be done in a cost-effective and mutualised way, building where possible on existing experiences, interoperable standards and tools used in the institutions.

In view of these aspects, in its February 2015 meeting, the Commission's Information Systems Project Management Board (ISPMB) asked the Publications Office to conduct a survey in view of producing a global overview of visualisation needs and visualisation tools of the Commission services. Another goal was to assess the possibilities of sharing data visualisation tools and of developing new tools which would enable data consumers to better explore EU data. Considering its interinstitutional role, the Publications Office carried out the survey between April and July 2015 across EU institutions, agencies and other bodies. The survey was developed and implemented by the EU Open Data Portal. Participants were selected based on job function and/or unit: webmasters, information and/or communication specialists, IT support specialists, data specialists, publication officers, and heads of sector/unit. In total, 99 respondents from 26 DGs, 25 agencies and 9 other EU institutions and other bodies participated in the survey.

The report will be made available as of September.

The survey results indicate that:

- more than 50% of the participants in the survey use visualisation tools, equally across Commission DGs, Institutions and agencies.
- approximately 50% of the respondents which use visualisation tools indicated that they have tools which are not shared yet, but which can be shared. Approximately one-fifth indicated that they already share all of their visualisation tools.
- almost 70 % of the participants in this survey indicated that they publish data for which they do not have appropriate visualisation tools yet. 37% have already carried out research on new data visualisation tools that may be suitable for their data. 41% have special categories of data that need to be visualised. Approximately two-thirds would like to visualise linked data or geospatial data. There is also an interest in visualising big data, data illustrating processes or flows and visualising networks.

- Some respondents are noticeable for their initiative to develop in-house tools³⁶ and/or to share the associated source code. Several DGs and agencies, including DG CNECT, DG DIGIT, DG ESTAT, EEA and DG JRC indicated that they have developed in-house tools or tools that are a combination of open-source tools and developed in-house tools (³⁷) and that they publish or intend to publish the source code of the data visualisation tools that they use (³⁸).
- The most important requirements for data visualisation tools in the EU institutions are tools that are platform-independent and accessible via phone, tablet and personal computer, tools that are reusable, tools that are easy to be handled internally, and tools enabling data export in various formats.

In conclusion, the key message conveyed by the survey responses is that the participating DGs, institutions and agencies have common visualisation needs, that currently there is little sharing of knowledge and tools, and that several participants have started working independently on the development of data visualisation solutions.

b) EU institutions, agencies and other bodies need a structural and reuse-oriented approach for sharing knowledge about open data management and publishing, data models, data identification, and the development of shareable tools

The survey and repeatedly expressed requests by EC DGs, institutions and agencies during workshops and individual meetings with the ODP brought to evidence that **there is a need:**

- for a structural approach for sharing knowledge about open data management (Guidelines, consultancy, assistance, training, awareness raising, etc.), reusable data structures, data visualisation and the development of shareable tools.
- for significantly mutualising and rationalising efforts towards the identification, development and sharing of modern data processing and visualisation tools (i.e. a corporate visualisation solutions pool).
- for **raising awareness** about the dependency of easily reusable visualisation tools on interoperable data structures, and to put in place structural measures in order to achieve this alignment.
- for further opening of data namely by assistance in transforming data into Linked open data (LOD) and the set-up of a framework service for unique and persistent identification via URIs.

Preparatory work to be done via ISA 1.1 in view of the ISA² project

The results of the visualisation survey and the actions to be derived from it will be ready to be discussed with ISPMB and the stakeholders' community not earlier than late September 2015. This

³⁶ Approximately two-thirds of the respondents using data visualisation tools indicated that they use commercial tools, while approximately 45% use open source visualisation tools. Approximately two-thirds indicated that they have tools developed in-house or tools that are a combination of open source tools and tools developed in-house.

(³⁷) DG AGRI, DG CLIMA, DG CNECT, DG DIGIT, EACEA, EASME, ECDC, EEA, EIGE, EFSA, DG EMPL, EU-OSHA, Eurofound, EP, DG COMM, ESTAT, FRONTEX, JRC, OHIM.

(³⁸) DG CNECT, DG DIGIT, EAC, ECB, ESTAT, EU-OSHA, EEA, DG JRC, REA, SG.

process will require a structured approach over 2-3 months in order to properly define the follow-up strategy and measures to be taken.

Against this background, it is proposed to use an action within ISA 1.1. as a platform for bringing together the stakeholders and define the requirements, priorities and workplan for a subsequent implementation within an ISA² action as of May 2016.

- Definition – in close cooperation with the key stakeholders – of the priorities and actions of the envisaged corporate approach for sharing knowledge about data visualization.
Based on the defined requirements (i.e. in terms of consultancy, assistance, training, development of reusable tools, etc.), this activity is expected to deliver a detailed work plan for a follow-up activity to be implemented within ISA² as of May 2016. Special attention in this preparatory work shall be given to an alignment with the needs of the Pan-European Portal (via DG CONNECT), in order to make the envisaged outcomes fully reusable by the Member States.
- Definition of the requirements for the elaboration of:
 - guidelines for data providers (Open Data Portal, Pan European) on data management with reuse and visualization in mind. Special attention shall be given to the visualization and data exploration opportunities provided by linked data. This is a recurrent request by data providers and the final deliverable is expected to cover – in the light of the "Reflection Paper on Information Management" of July 2015 – hands-on guidelines on formats, data structure definitions for different content types, data and metadata management, data quality, dataset identification, etc.
 - related toolsets (methodology, develop libraries for data conversion and for visualisation, data-mining and comparative analysis that enables presentation of data with different granularity and modality (spatial, temporal, organizational, etc.)
 - provision of related consultancy and training.

The implementation of those recommendations by data providers are expected to significantly facilitate visualizations via common libraries, aggregation and sharing of data through common tools, interoperability between platforms, and reusability by data consumers. This activity within ISA 1.1 is expected to deliver detailed requirements for a follow-up activity to be implemented within ISA² as of May 2016.

- Definition of the requirements for the creation of a catalogue of shareable visualisation tools (and hosted by the EU Open Data Portal), as a first step towards a corporate visualisation solutions pool. The basic input concerning tools in use and their owners is being provided by the abovementioned survey.

3.3.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Commission, all other institutions, agencies and bodies interested in participating in the projects	<ul style="list-style-type: none"> ○ Single point of access to a catalogue of shareable visualisation tools (hosted by the EU Open Data Portal), as a first step towards a corporate pool of visualisation solutions. ○ Interoperability guidelines in the domains of data visualisation, data treatment for reuse and visualisation, open data publishing, in particular as Linked Open Data ○ Possibility to obtain training, share knowledge, obtain conceptual support ○ Increased data publishing maturity of participating institutions, agencies and bodies ○ Building up an interinstitutional community of open data and data visualisation experts, evangelists and quasi-contact points
Users of the Open Data Portal and the Pan-European Portal (diverse reuse communities)	<ul style="list-style-type: none"> ○ Better data quality, including better documentation ○ More and better visualisations ○ More open datasets published on the Open Data Portal
Member States Portals and other portals	<ul style="list-style-type: none"> ○ Reuse of the developed guidelines and toolsets

3.3.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Open data policy	The project will directly foster open data portals via improved open data publishing and portal services (preview, visualisation, etc.), enhanced reusability, etc.
Commission corporate Information management	Fostering interoperability of metadata and data through guidelines, promotion of standards and common authority list; internal reuse of data; unique and persistent identification;
Better Regulation	Enhanced transparency, improved data communication and interpretation,
Open Science	Fostering the publishing of more research related datasets

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

- DCAT AP, DCAT AP STAT, DCAT AP GEO (2015)
- Methodologies of modelling linked open data and outcomes developed in projects TED as LOD and EU BUDGET as LOD (2014-2015)
- Identification of high-value datasets (2013)
- Unique and persistent identification (2014)

3.3.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Knowledge base and the reuse-oriented data management and data treatment (in particular towards LOD) and data visualization
Description	<p>Knowledge base consisting of:</p> <ul style="list-style-type: none"> ○ Implementation guidelines ○ Training material, footage of training sessions, ○ briefings on conceptual assistance, ○ development of interoperability guidelines and documentation
Reference	
Target release date / Status	As of project inception, continuously enriched and improved

Output name	Common toolset in the domains data visualization and the reuse-oriented data management and data treatment (in particular LOD)
Description	Toolset (presented most probably as a catalogue of applications, libraries, etc.) consisting of reusable tools for data visualization and data treatment and conversion (methodologies, develop common libraries for data conversion and for visualisation, enabling the presentation of data with different granularity and modality (spatial, temporal, organizational, etc.).
Reference	
Target release date / Status	To be defined

Output name	Governance structure, implementation guidelines and development of a toolset for unique and persistent identification based upon the sub-domain data.europa.eu
Description	<ul style="list-style-type: none"> • Setup of URI governance model • Development of a toolset for decentralised URI generation and management • Development of a central URI Register
Reference	
Target release date / Status	To be defined

Output name	Data models, ontologies and content of pilots treated within the project
Description	<ul style="list-style-type: none"> • Transformation of some data into LOD (CORDIS, TED, ESTAT, BUDGET, other interested DGs) and publishing them on ODP • Visualizations produced and listed on ODP
Reference	
Target release date / Status	To be defined

3.3.10 ORGANISATIONAL APPROACH

3.3.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Publications Office	Open Data Portal (Norbert Hohn, Agnieszka Zajac) Common repository (Cellar) : Peter Schmitz Metadata registry : Willem van Gemert
Eurostat	Marc Vanderperren (Renovation of the ESTAT dissemination chain)
CONNECT	Daniele Rizzi (Pan-European Data Portal)
JRC	Andrea Perego, Anders Friis Christensen
DIGIT	TBD
Others	Other key stakeholders identified further to the presentation of the visualisation survey and of the ISA ² project layout within September-December 2015

3.3.10.2 Communication plan

The results of the visualisation survey and the actions to be derived from it will be ready to be discussed with ISPMB and the stakeholders' community not earlier than late September 2015. This process will require a structured approach over 2-3 months in order to properly collect input, and to define the follow-up strategy and the measures to be taken.

For this, it is proposed to use an action within ISA 1.1. as a communication platform for bringing together the stakeholders and define the requirements, priorities and work plan for a subsequent implementation within an ISA² action as of May 2016.

During the lifetime of the ISA² project, communication of the project will be ensured through the following channels:

- Open Data Portal network and the Publications Office's publishing officers network towards institutional data providers
- Pan-European Data portal towards affiliated MS portals
- Open Data Portal social media and other channels towards reuser communities

3.3.10.3 Governance approach

The Publications Office will ensure the chairmanship and the project management.

All key stakeholders shall be members of the project steering committee.

3.3.11 TECHNICAL APPROACH

The nature of the works to be executed will require different approaches:

- the knowledge transfer and capacity building tasks (consultancy/conceptual support, assistance, training, and the production of guidelines for data providers) will be done by domain experts on-demand. It will not contain technical implementation tasks.
- the tasks related to elaborating the toolset will require technical analysis of data and tools, their categorization, and the development of required adaptations

The action will deliver:

- 1) Implementation guidelines for successful open data management and publishing with reuse and visualization in mind. In the light of the "Reflection Paper on Information Management" of July 2015, it shall provide a blueprint for organisation, governance and processes and hands-on guidelines on formats, Identification and definition of domain specific data structure definitions, data and metadata management, data quality, etc.
A specific project strand will be dedicated to developing the governance structure, the implementation guidelines and a toolset for unique and persistent identification based upon the sub-domain data.europa.eu
- 2) Actions to further opening-up data, in particular towards Linked Open Data, in terms of:

- providing training and tailored project oriented workshops
 - conceptual counselling
 - support in the identification and creation of ontologies and data models
 - support in data conversion, in particular towards RDF (via pilots in cooperation with associated project partners)
- 3) Provide support in the visualisation of data:
- Create a catalogue of existing shareable visualisation tools (hosted by the EU Open Data Portal), as a first step towards a corporate pool of visualisation solutions. The crucial challenge in this activity will consist in designing the catalogue around the institutional reuse needs, in order to ensure easy shareability and fitness for purpose. It is expected to cater for different categories of data (e.g. numerical/statistical, geospatial, network/graph, process/flow).
 - Develop/adapt a toolset of reusable tools for data visualization (methodology, develop common libraries, etc.)
 - Provide training and tailored project oriented workshops
 - Conceptual counselling and support

The actions will lead to the following results:

- Interinstitutional knowledge base on open data publishing, open data treatment and processing, data visualisation (via training materials, guidelines and project briefings)
- Interinstitutional pool of reusable data processing and data visualisation tools (toolset)
- Intra-institutional community of practice in the domains of open data and data visualisation (a network of open data and data visualization stewards).
- Increased data publishing maturity of participating institutions, agencies and bodies
- Governance structure, implementation guidelines and development of a toolset for unique and persistent identification based upon the sub-domain data.europa.eu

3.3.12 COSTS AND MILESTONES

3.3.12.1 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)
	Project Management	140	ISA ²	Q2/2016	Q4/2017
	Development of documents	30	ISA ²	Q2/2016	Q4/2017

	Consultancy, training, assistance	100	ISA ²	Q2/2016	Q4/2017
	Development of toolsets	150	ISA ²	Q2/2016	Q4/2017
	Total	420			

3.3.12.2 Breakdown of ISA² funding per budget year

A more precise breakdown can be established only on base of the elaborated requirements and workplans; (around January 2016).

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016		300	
2017		120	
2018			
2019			
2020			

3.4 AUTOMATIC BUSINESS REPORTING (2016.11)

3.4.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common Frameworks
Service in charge	DIGIT.B6 (tbc)
Associated Services	TAXUD, FISMA, ECFIN

3.4.2 EXECUTIVE SUMMARY

Automation and data exchange between companies and authorities is relevant for many European countries as well to increase productivity. Thus for the European countries to become particularly strong in the digital area, there is a need for a good infrastructure, sound public data and a willingness to develop digital solutions that can create jobs and economic growth.

The project will work to investigate the potential of establishing ways of automating data exchange between companies and authorities in the European Union. The idea is that this project will help to strengthen the region as a digital forerunner and greatly improve the digital inner market in Europe.

Automatic business reporting is an ambitious vision that potentially can revolutionize the way companies do accounting. Key to fulfilling the vision is to replace the burden of reporting on companies with a digital infrastructure that involves a greater use of automation and data reuse between authorities and companies. Automatic business reporting is a paradigm shift from the current state of reporting where businesses report data to the authorities again and again, to a new state where the authorities can “pull” or “harvest” relevant data from the companies through the use of a central data repository. The goal is to harvest data at the lowest level possible in the companies to enable full automation of the reporting.

Automatic business reporting is a new concept where production data from the companies are stored in a central solution. The central infrastructure can be accessed by public institutions and private organizations. Access and privacy issues are managed by a user authentication system to regulate the distribution of data. The software needed to deliver the data is developed by private companies according to specific standards specified by the government. Once the standardized format is settled the market can develop and modify existing systems to the new standards.

Ideally, once the user authentication, the standardized format and the central repository is developed the following outputs will happen:

- Business reporting to public institutions will cease to exist. Instead public institutions will harvest the necessary data using the central repository
- Documentation requirements in the form of financial statements and budgets are replaced by granting access to the data in the repository
- Automatic business reporting facilitates new and innovative ways of linking sales, inventory management, supplier management and bookkeeping in the individual company

- The Danish government cut spending on controlling the companies for tax fraud and etc. as the quality of the data improves both by the increased mass of data and the level of detail.
- The individual companies will have much better business intelligence (BI) options as the general level of digitization is increased and systems providers can develop new BI solutions and improve the growth potential.

While Automatic business reporting is very advantageous for the government in terms of better control mechanisms and more accurate reports, the real benefits of Automatic business reporting are actually reaped in the companies. Fully implementing Automatic business reporting will eventually increase the digitization level in the companies by a large margin. Having better technologies and a more detailed insight in the company will strengthen the company's business intelligence and improve B2B-relations due to more accurate information about the individual companies as well as entire business sectors.

This project is a study of the potential of establishing Automatic business reporting in the European countries. The primary actions will be analysis and the outputs will be extensive knowledge about the subject at hand and executable results on how to proceed with the Automatic business reporting vision.

3.4.3 OBJECTIVES

- Investigate the potential of data sharing and reuse in the European region.
- Investigate the possibility of increased automatic and standardized reporting in the European countries.
- Investigate the potential and possibilities of efficient business intelligence and business-to-business relations for SME's in European countries.

3.4.4 SCOPE

The scope of the project is to:

- Define the vision and scope for an Automatic Business Reporting.
- Identify and analyse the potential of automatic business reporting in terms of public savings and benefits for private businesses. Deloitte has made a rough estimate of the potential savings of automated reporting in Denmark. The estimate concludes that automatic business reporting has the potential of saving businesses 5-7 billion DKK every year. This estimate has to be further qualified in a more detailed analysis. Similar analysis can be initiated in the other European countries
- Initiate a range of technical, legal, cultural, organizational and political analyses to evaluate the potential of automatic business reporting in the European countries and identify solutions to overcome these barriers in close coordination with the other two European case studies.

3.4.5 PROBLEM STATEMENT

Big data and data-driven companies will be essential if the European Union wants to maintain a key role in the global economy. Automatic business reporting incentivises SME's to become more data-driven and reduces the burdens of administrative reporting by introducing automatic data collection.

3.4.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

This initiative will strengthen the competitiveness and create growth for small and medium enterprises, which will be the expected beneficiaries. The companies spend a lot of time and resources on administrative reporting – a cost that is estimated to 1 billion euros in Denmark alone. Deloitte has made a rough estimate of the potential savings of automated reporting in Denmark. The estimate concludes that automatic business reporting has the potential of saving businesses 1 billion euros every year in Denmark. The potential savings in the European Union are not calculated, but similar results can be expected.

Beneficiaries	Anticipated benefits
Small and medium enterprises	1) Fewer administrative burdens 2) Higher degree of digitization in the individual companies 3) Increased business intelligence and easier business-to-business relations

3.4.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
ISA2: Specific activities in the field of financial reporting and auditing	In a global economy, there is a need for a global accounting language. Automatic business reporting requires a standardized accounting language to pull the data from the ERP-systems, so the two policies synergizes well.

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

Data standardization in the European union
Digitization strategies in the European countries
Development and use of digital reporting in other countries (Netherlands, Australia, etc.)

3.4.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	State of the art report
Description	The report will assess already existing building blocks, solutions, identify users, needs to assess the feasibility of the proposal.

Reference	To be published on Joinup
Target release date / Status	2016

3.4.10 ORGANISATIONAL APPROACH

3.4.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
The Danish Business Authority	Rasmus Eskild Jensen, Nils-Bro Müller
Agency for Digitisation in Denmark	n/a
Business authorities in MSs	The action will identify further stakeholders in the course of the project

3.4.10.2 Communication plan

The Automatic business reporting project requires legal adaption to become a success. As such the project is much more a political and administrative complex project rather than a technical issue. Thus, the communication plan will be built around this assumption and will rely heavily on gaining political support in the member states. Automatic business reporting can be introduced in different tempi and is thus flexible in the adaption phase.

3.4.11 TECHNICAL APPROACH

The action will first analyse the current state of affairs in the MS and on the EU level. The report will serve as a basis for potential further actions.

3.4.12 COSTS AND MILESTONES

3.4.12.1 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/ others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Inception	Analysis of the state of affairs in the MS and on the EU level (including existing accounting standards)	150		Q2/2016	Q4/2016

	and potential barriers				
Inception	Creation of a data taxonomy for financial data	200		Q1/2017	Q3/2017
	Total	350			

3.4.12.2 Breakdown of ISA funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Inception	150	
2017	Inception	200	
2018			
2019			
2020			

3.6 BIG DATA FOR PUBLIC ADMINISTRATIONS (2016.03)

3.6.1 IDENTIFICATION OF THE ACTION

Type of Activity	Study and reusable generic tools
Service in charge	DIGIT B4
Associated Services	DIGIT.B2, DIGIT.B6, DG RTD.E2, DG CNECT.R3, DG CNECT.F4, CNECT.02

3.6.2 EXECUTIVE SUMMARY

The amount of data generated worldwide increases at an astounding pace - by 40% annually and will increase 30 fold between 2010-2020. Due to the segmentation of public services and due to using non-interoperable means to describe data, most of the data generated in the public sector is not available for re-use.

This action, titled 'Big Data for Public Administrations', aims at addressing the use of big data within public administrations' as a means for enabling wiser decision making. With recent technologies such as big data, data mining, social media, cloud etc. organisations have greater potentials in generating, creating and storing data, information and knowledge thus providing greater opportunities for wisdom.

Consequently, the main objectives of this action are to identify concrete big data opportunities and requirements in public administrations and in specific policy contexts through which a number of kick-off pilots are to be undertaken as a means for creating or compiling tool sets that can be generalised and further extended in order to be used in different contexts. Finally, the action will continuously work towards launching new cooperation with policy DGs and the MSs through the execution of new pilots in order to accelerate the data driven transformation.

Phase 1 of this action was funded by the ISA programme and was executed in 2015. It aimed at carrying out a landscape analysis in order to identify (i) the requirements and challenges of public administrations in Europe and the Commission in the context of big data (ii) on-going initiatives and best practices in these areas including an assessment of the tools and solutions that these initiatives have implemented (iii) synergies and areas of cooperation with the policy DGs and the MSs in this domain. Furthermore, phase 1 also intends to execute some pilots that showcase the usefulness and policy benefit that big data can bring.

This action will continue to build upon the results of phase 1, focusing on the following activities:

- Track 1: continue with the identification of further opportunities and areas of interest whereby the use of big data could help improve working methods as well as ensure better policy making for policy DGs as well as Member States' public administrations.
- Track 2: continue the implementation of already identified pilots through generalising the developed functionalities and thus extending its use to policy agnostic contexts in order to maximise the benefit and return on investment of the proposed solution. As an example, the National Statistics Office of the Netherlands has already shown great interest in collaborating on one of the identified pilots, with a good potential of reuse of the generated outputs (more information in the Technical Approach section).

- Track 3: launch a new wave of pilots in specific domains which hold a potential of later being generalised and scaled-up to be made available to different services agnostic of their specific policy area.

3.6.3 OBJECTIVES

The **digital economy, innovation and services** feature high on the priority list of the EU as they are considered as driving elements for the growth of the economy in particular providing opportunities for growth and jobs. In an effort to push further these priorities the European Commission is currently in the process of identifying several actions that are considered as key features for a data-driven economy. Commission has presented a Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions titled '**Towards a thriving data-driven economy**'³⁹. This communication focuses on the need for framework conditions that enable a single market for **big data and cloud computing**. The ability to handle and analyse big data is elementary in different areas particularly **scientific research, public sector and innovation**.

In the European Commission and in the Member States' contexts (as elsewhere) the purpose for **capturing data, information, and knowledge** is a vital element in being able to **make wise decisions**. More specifically, big data can help in the challenge of making sense of large data sets thus making sure that data that is most relevant to the organisation is **optimised and used** when taking critical decisions.

The **cross fertilization** of data, information and knowledge with big data technologies provides opportunities for the **exploitation of resources** that would otherwise not be available for influencing decision making processes within the organization and which would thus lead to inefficiencies or poor decisions. The use of big data allows for making **best use of new means of acquiring and spreading knowledge**. Traditional means of data collections are considered to be ineffective and expensive when dealing with a large population of participants, such as the EU citizens.

As a consequence to all this, the **main objectives** of this action are:

- 1) To further identify concrete big data opportunities and requirements in public administrations and in specific policy contexts. The action shall explore the requirements in at least 3 specific areas that shall be chosen based on the best practices identified through phase 1.**
- 2) To generalise and extend further the solutions produced through the already launched pilots, thus ensuring that they can be used by different policy areas and offer at least 25% of new functionality.**
- 3) To launch new co-operations with policy DGs and the MSs through the execution of at least 3 new pilots in order to accelerate the data driven transformation.**

Potential areas of action, where big data could have a real and direct impact are:

- 1) Foresight and agenda setting.** Making best use of available but unexploited data as a means for setting agendas and strategic foresight is possible through the use of big data technologies. The vast amount of data that is available to consider when developing a plan or

³⁹ <https://ec.europa.eu/digital-agenda/en/news/communication-data-driven-economy>

taking an action is massive and in most instances, the limited human resources available do not provide enough manpower to execute such resource intensive work.

2) Improve evidence for evaluation assessments. Current evidence data used in evaluation assessments are based on small data sources (desk research, surveys, interviews, expert groups, case studies etc.). These methods increase the risks of inaccurate estimations, inadequate extrapolations and false perceptions. The use of big data could bring more accuracy by detecting complex and subtle patterns in bigger, all-encompassing datasets and by increasing the capability to analyse short term patterns.

3) Monitoring of legislative transpositions. Whenever a new regulation or directive is adopted it is the obligation of Member States to ensure the correct transposition through appropriate implementation measures. The validation of the timely and correct transpositions into national legislation is a resource-intensive procedure for the European Commission and it is therefore foreseen that big data technologies, particularly text analytics, could considerably facilitate the monitoring process.

3.6.4 SCOPE

The details of the activities to be performed through this action are provided in the "Technical approach" section of this proposal. The following is a brief overview detailing the scope of the main activities to be performed:

- To **analyse the impact of big data on the policy making life-cycle**;
- To **identify best practices and lessons learnt** in the area of public administrations, more specifically in the areas of policy life-cycle and big data, including an assessment of the **benefits, risks and impacts** of these initiatives;
- To analyse the technical **tools and solutions** that these initiatives have implemented;
- To **identify the requirements and challenges** of public administrations in Europe and the Commission in the context of big data;
- To **identify synergies and areas of cooperation** with the **policy DGs** and the **MSs** in the this domain;
- To **execute some pilots** that showcase the usefulness and policy benefit that big data can bring;
- To **identify areas of interests for the ISA² program** to lead and fund future **initiatives** that will allow **practical implementations** that will answer the requirements of the public administrations in Europe.

3.6.5 PROBLEM STATEMENT

The amount of data generated worldwide increases at an astounding pace - by 40% annually and will increase 30 fold between 2010-2020. Due to the segmentation of public services and due to not using interoperable means to describe data, most of the data generated in the public sector is not available

for re-use. According to one report⁴⁰, making use of big data techniques could lead to a potential annual savings of 150-300 billion EUR by means of creating more transparency, enabling experimentation to discover needs, segmenting target audience for customised actions, replacing or supporting human decision making and lastly by new, innovative business models and products. The Communication from the Commission titled 'Towards a thriving data-driven economy'⁴¹, highlights that the annual **growth of the big data sector is equivalent to 40%**, making it one of the strongest assets for economy growth, posing substantial opportunities that have so far not been reaped by the European market players. It identifies **a number of key actions for the EU** to help seize the opportunities of this sector amongst which is the **provision of the enabling technologies and underlying infrastructures and skills** as well as the **provisioning of public data resources and research data infrastructures**.

The **opportunity for public service transformation is real**. Whereas one aspect of big data is the ability to handle the data itself, another aspect is the ability to analyse the data allowing for better results, processes and decisions. Big data analytics can be an immensely powerful tool for helping organizations to learn about how they work. Traditionally, managers and public sector leaders have looked at a relatively small set of key performance indicators to assess the health and efficiency of their organisations. Digitisation has massively increased the quantity of management information available, the resolution and frequency at which it is captured, and the speed at which it can be processed. Data on inputs, outputs, productivity and processes can all be captured and recalled in more comprehensive detail than ever before. So far most organisations have been unable to consume such large data sets, despite being at their disposal either because consuming the data without the appropriate tools is too time consuming or in certain instances even not possible. One particular instance is the difficulty for organisations to be able to analyse research results coming from different domains related to a common topic. In this case the amounts of data to be analysed can be considerably large and in most instances not feasible to be done manually through human resources. In an attempt to tackle such challenges this action is executing a proof of concept in order to demonstrate the use of text mining techniques used on large amounts of unstructured research papers as a means of identifying areas of interest that a particular research area should consider prior to launching calls for new grants.

Furthermore, **big data opens up the realm of reliable predictive analytics**. By examining the relationships embedded in large datasets it is possible to build a new generation of models describing how things are likely to evolve in the future. This approach can be combined with scenario planning to develop a series of predictions of how a system will respond to different policy choices. The state of the art in **predictive analytics** can deliver forecasts for some domains with a very high degree of precision, providing an auditable, scientific basis for making decisions in complex systems. These techniques could be used to improve evidence in the context of the evaluation assessment process.

3.6.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
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⁴⁰ McKinsey Global institute - Big data: The next frontier for innovation, competition, and productivity

<p>- EU institutions - Member States public administrations (national, regional, local levels)</p>	<p>The development of an action which will give a background basis for the development of open-government initiatives in a coherent way will provide Member States public administrations, DGs at the European Commission, EU institutions, and European agencies at all levels with the following benefits:</p> <ul style="list-style-type: none"> • A harmonised ways to manage big data resulting in more effective and informed actions by public administrations. • Support public administrations to become more modern, adaptive, responsive, dynamic, flexible organisations and meet better the expectations of their stakeholders. • Reach out to citizens through consideration of opinions and data sources beyond the traditional means. This will ensure a more effective process for open government activities. • An increase of the efficiency, e.g. by: <ul style="list-style-type: none"> ○ Reducing time to make the right decisions; ○ Getting the right knowledge at the right time; and ○ Making use of tacit knowledge to support policy making. • Building cost-efficient solutions implementing the actions based on “lessons learnt” and “risks to avoid” highlighted on the framework, thus reducing the “time to market”.
<p>- Citizens and business in Europe</p>	<ul style="list-style-type: none"> • Innovate through the reuse of open source software for knowledge discovery.

3.6.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Digital Agenda	<p>Pillar I: Digital Single Market pillar Within this pillar there is an action that promotes government bodies at all levels: local, regional, national, European and international, to open up and disseminate the vast amounts of information that is collected as part of their tasks in order to allow for the reuse of such information as well as a means for improving transparency of organisations.</p> <p>Pillar II: Interoperability & Standards This pillar addresses the need for interoperability and standards as a means for allowing for data originating from different sources to be interoperable.</p>
COM(2014) 442	<p>Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions.</p> <p>This action addresses the need to provide the right framework conditions for a single market for big data and cloud computing as a means for helping accelerate the transition towards a data-driven economy.</p>

ISA Action 4.2.5.- Sharing and reuse strategy	The reusable practices and guidelines as well as the reusable software solutions delivered through this proposed action can adopt the strategy defined in Action 4.2.5 in order to ensure that the outputs are shared and re-used with public administrations in Europe.
ISA Action 4.2.1.- Integrated collaborative platform – Joinup	The Joinup collaborative platform shall be used as a means for sharing the experiences as well as the deliverables of this action with the Member States' public administrations.
ISA Action 1.1.- Improving semantic interoperability in European eGovernment systems	Reusable interoperability solutions, core vocabularies, the linked data pilots, studies (e.g. on the business value of linked data) and other resources made available through Joinup and which might be relevant to this action shall be explored and reused as much as possible in order to ensure interoperability as well as continuation of existing efforts.

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

The final output of phase 1 will greatly impact the choice of solutions that might be reused by this action. Currently, the reuse of the following initiatives can be identified:

- European Classification of Skills/Competences, Qualifications and Occupations (ESCO) developed by the European Commission and linked to ISA Action 1.1 detailed in Section 1.1.7 above. This initiative shall be necessary in the implementation of the pilot within the job vacancies domain defined for phases 2 and 3 in the Technical Approach Section.
- Joinup, developed under ISA Action 4.2.1, shall be used as the platform for sharing the deliverables of this action to the various stakeholders.

3.6.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

All outputs generated by each of the pilots shall be provided in a re-usable format. The following are concrete re-usable outputs that can be identified at this stage:

Output name	RTD Pilot Software Components
Description	The software components that shall be developed or re-used as part of the RTD proof of concept to be implemented in phase 1 of this action shall be referenced and/or made available for re-use by other actions.
Reference	This output shall be made available through the Joinup platform.

Target release date / Status	Q2 2016 / currently under development
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Output name	MOVIP Pilot Software Components
Description	The software components that shall be developed or re-used as part of the MOVIP pilot to be implemented in phases 2 and 3 of this action shall be referenced and/or made available for re-use by other actions.
Reference	This output shall be made available through the Joinup platform.
Target release date / Status	2017 / currently under development

3.6.10 ORGANISATIONAL APPROACH

3.6.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Interoperability solutions for European public administrations (ISA)	The ISA ² Committee will oversee the project, with the assistance of the ISA ² Coordination Group. The ISA unit (DIGIT.B6) is an associated service of this project, participates in the definition of requirements and guarantees continuation and exploitation of work conducted in other ISA Action and particularly Action 1.1 on semantic interoperability.
DIGIT.B4 Digital Business Solutions – Corporate Financial Procurement & Policy Solutions Unit	This unit is the service in charge of this action. It will coordinate the interaction between the different stakeholders within the European Commission and MSs which may express an interest for a more active involvement in the work.
DIGIT.B2 Corporate knowledge and decision making solutions Unit	This unit is the service in charge of Information System development supporting document management and corporate decision making processes. This unit an associated service of this project in the context of the execution of the pilot for briefing preparations, taking part in the definition of requirements, the development and deployment of the solution.
DG RTD.E2	This unit is an associated service of this project and will take part in the definition of the requirements, the performance and the guidance

	of the proof of concept planned to be executed in the context of research paper analysis through text mining within phase 1 of this action.
DG CNECT.R3 Support Systems and Tools Unit	This unit is an associated service of this project and will take part in the definition of the requirements, the performance and the guidance of this action. This unit will liaise with other relevant units within DG CNECT.
DG CNECT.02 Knowledge Sharing Unit	This unit is an associated service of this project and will take part in the definition of the requirements, the performance and the guidance of this action.
DG CNECT.F4 European Semester and Knowledge Base	This unit is an associated service of this project and will take part in the definition of the requirements, the performance and the guidance of the job vacancies pilot project (MOVIP) planned for phases 2 and 3 of this action.

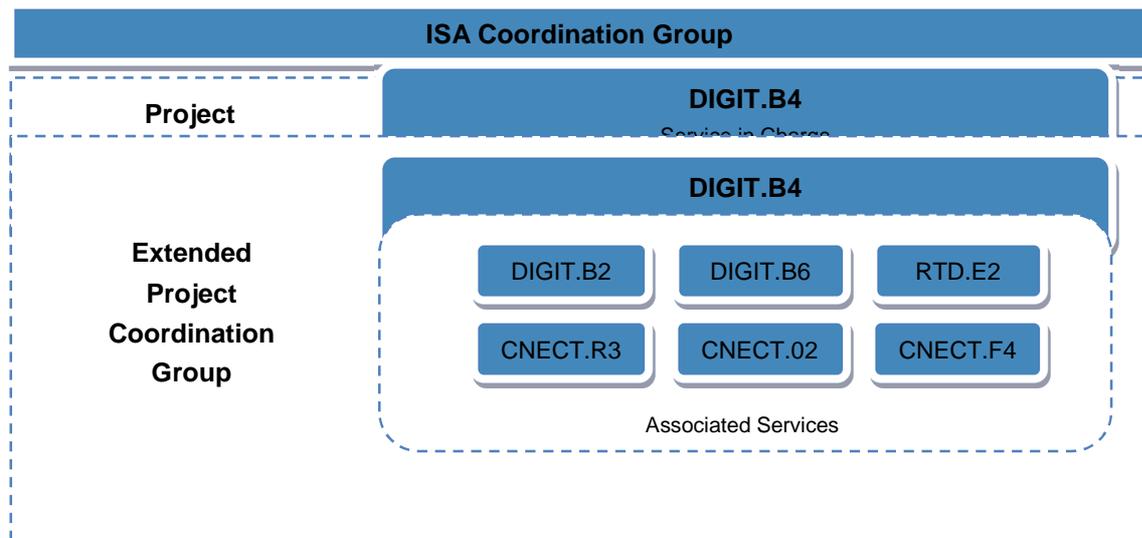
3.6.10.2 Communication plan

Event	Representatives	Frequency of meetings / absolute dates of meetings?
Bilateral meeting with Member States	DIGIT.B4 representatives, Member States representatives	These are arranged by DIGIT B4 on ad hoc basis.
Bilateral meetings with Policy DGs	DIGIT.B4 representatives, Policy DGs representatives	These are arranged by DIGIT B4 on ad hoc basis.
Relevant conferences and events	DIGIT.B4 representatives with any other project stakeholder	On occasions whereby DIGIT is invited to participate in meetings organised by Member States, policy DGs etc.
ISA Trusted Information Exchange Cluster	DIGIT.B4 team members, Stakeholder's representatives, ISA unit	These meetings are arranged by the ISA unit.
Joinup	(online)	

3.6.10.3 Governance approach

This action is part of the ISA programme and therefore it follows the ISA governance structure with the action reporting back to the Member States' representatives pertaining to the ISA working groups.

This action will actively involve all associated services at each of the different stages. The governance structure for this action is depicted in the diagram below.



In order to achieve its objectives this project will work closely together with primarily identified associated DGs to better define the business needs and challenges, bearing in mind the need of potentially other services in order to come up with generic and extendable software solutions.

Particular attention will be given to the coordination activities in order to ensure a successful undertaking of the different activities.

3.6.11 TECHNICAL APPROACH

During 2015 this action focused on the execution of a **landscape analysis** in Europe, in the areas of big data. The analysis assesses current good practices including an assessment of tools and solutions used as well as the identification of future plans in Member States and EU institutions and their relations to policy actions.

The purpose of the analysis, which has been defined as **Phase 1** of the action, is to:

- identify the **requirements and challenges** public administrations in Europe are confronted with in the area of big data and identify opportunities;
- identify **best practices** by public administrations and/or organisations which could be used as **lessons learnt** including an assessment of the **tools and solutions** that these best practices have implemented;
- identify **synergies** and **areas of cooperation** with the **policy DGs** and the **MSs** in the big data domain;

- execute a **proof of concept** that showcases the use of big data in the EC research domain, in cooperation with DG RTD, in order to prove the usefulness and policy benefit that big data can bring. This proof of concept shall demonstrate the use of text mining techniques used on large amounts of unstructured research papers as a means of identifying areas of interest overlap that a particular research area should consider prior to launching calls for grants;
- identify **areas of interests** whereby the ISA² programme and its proposed successor could have an **active role in launching initiatives** for enabling **practical concrete implementations** that will answer the requirements of the public administrations in Europe.

The work performed during 2015 shall be continued in 2016 and 2017, through phases 2 and 3, in order to ensure that the benefits of using big data in different policy areas are continued and further explored. The following are the planned phases and the respective planned activities:

Phases 2 and 3 shall be composed of **3 tracks** each:

- **Track 1:** continue with the identification of **further opportunities and areas of interest** whereby the use of big data could help **improve working methods** as well as ensure **better policy making**. These efforts shall be done in close **cooperation** with both policy DGs as well as with Member States' public administrations and shall cover the further **assessment of not only tools and solutions but also standards and vocabularies** that are identified to be mature enough to be considered as potential enablers to be reused by either MSs or Commission Services;
- **Track 2:** continue the implementation of already identified pilots through **generalising the developed functionalities** and thus **extending** its use to **policy agnostic contexts** in order to maximise the benefit and return on investment of the proposed solution. This track shall also ensure that further analysis of the needs derived from these pilots is performed and that further functionality is provided whereby future potential of generalisation and re-use is identified. Such extension of efforts shall be performed on the following pilots:
 - o the proof of concept within the EC research domain executed in cooperation with DG RTD;
 - o the pilot within the job vacancies domain, executed in cooperation with DG CNECT. This pilot aims at using web sources in order to identify information related to ICT vacancies and their related skills in different geographical areas. This information is to be used as a basis for funding training targeting any shortage in specific ICT skills in a specific geographical area. The first phase of the project is being funded by DG CNECT but the inclusion within this action shall ensure that the work performed is generalised beyond the ICT domain and made available for national public administrations, such as National Statistics Offices, to be reused within their local contexts. DIGIT.B4 has presented this action to the National Statistics Offices during the Big Data Taskforce meeting organised by ESTAT and which was held in June in The Hague. The National Statistics Office of the Netherlands has shown great interest in future collaborations on this pilot with a good potential of reuse of the outputs generated through this pilot.
- **Track 3:** launch a **new wave of pilots** in specific domains which hold a **potential** of later being **generalised** and **scaled-up** to be made available to different services **agnostic of their specific policy area**. The following are a number of potential areas of interest that could be explored:
 - o A number of business cases whereby big data could play an important role are to be identified through the work executed by DG CNECT.02 titled 'Big data and other innovative data-driven approaches for evidence-informed policy making'.

- Monitoring of legislative transpositions is an area currently being assessed by DG GROW as part of the Single Market Strategy. This area could greatly benefit from the exploitation of big data and big data technologies such as text analytics as a means of facilitating the work of monitoring the timeliness and correctness of legislative transpositions.
- Currently all briefings preparations within the European Commission are prepared manually with the knowledge that an individual or a service has on the topic. Investigation on related documents needs to be done manually and in most instances this can be relatively time consuming. Consequently, this stream shall look into the option of using big data technologies in assisting individuals preparing briefings by providing the appropriate references to related material and documentation. This activity shall be done in cooperation with DIGIT.B2.
- Analysis of open procurement data using data analytics tools for the early detection of actual or prospective anomalies.
- Finally, further areas of interest may be identified through the work executed in phase 1 of this action, which is further detailed in the first part of this section.

These different sources could provide information on opportunities for pilots either with Member States' public administrations or else with different policy DGs.

3.6.12 COSTS AND MILESTONES

3.6.12.1 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)
Execution	<u>Phase 2.1</u> D.1.- MS and EC requirements assessment D.2.- Inventory of tools and solutions, standards and vocabularies available for reuse	100	ISA ²	Q2/2016	Q1/2017
	<u>Phase 2.2</u> D.3.- Specification definition D.4.- Generalisation of core platform and modular components D.5.- Extension of core and modular components in the	250	ISA ²	Q2/2016	Q1/2017

	context of the pilots				
	<u>Phase 2.3</u> D.6.- Pilot requirements assessment D.7.- Specification definition D.8.- Implementation of core and modular components in the context of the pilots	250	ISA ²	Q3/2016	Q1/2017
Execution	<u>Phase 3.1</u> D.1.- MS and EC requirements assessment D.2.- Inventory of tools and solutions, standards and vocabularies available for reuse	100	ISA ²	Q2/2017	Q1/2018
	<u>Phase 3.2</u> D.3.- Specification definition D.4.- Generalisation of core platform and modular components D.5.- Extension of core and modular components in the context of the pilots	400	ISA ²	Q2/2017	Q1/2018
	<u>Phase 3.3</u> D.6.- Pilot requirements assessment D.7.- Specification definition D.8.- Implementation of core and modular components in the context of the pilots	400	ISA ²	Q3/2017	Q1/2018
Operational					
	Total	1500			

3.6.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Execution	600	
2017	Execution	900	

3.6.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
A vision for Public Services	http://ec.europa.eu/digital-agenda/en/news/vision-public-services	
Data for Policy - A Study for big data and other innovative data-driven approaches for evidence-informed policy making	http://www.data4policy.eu/	

4. GEOSPATIAL SOLUTIONS

4.1 EUROPEAN LOCATION INTEROPERABILITY SOLUTIONS FOR E-GOVERNMENT (ELISE) (2016.10)

4.1.1 IDENTIFICATION OF THE ACTION

Type of Activity	Solutions
Service in charge	JRC
Associated Services	DIGIT, ENV, ENER, MARE, MOVE, ESTAT, CNECT
Responsible Action manager name	To be confirmed
Responsible Action manager email	To be confirmed

4.1.2 EXECUTIVE SUMMARY

The European Location Interoperability Solutions for e-Government (ELISE) Action is a package of legal/policy, organisational, semantic and technical interoperability solutions to facilitate efficient and effective electronic cross-border or cross-sector interaction between European public administrations and between them and citizens and businesses, in the domain of location information and services, supporting Digital Single Market (DSM), Better Regulation (BR) and Public Sector Modernisation (PSM) goals. It is aligned with the proposed focus of ISA² on European public administrations, businesses and citizens, and the need to ensure that best practice interoperable solutions are deployed across the European Union (EU).

Location-related information underpins an increasingly large proportion of EU and national governmental policies and digital services, and applications used by public administrations, businesses and citizens. Although various studies point to the tremendous potential value of publicly and privately held location information, there are many obstacles to the efficient sharing and re-use of this information. The PSI Directive, INSPIRE and ISA have started to remove barriers and some Member States (MSs) have introduced important initiatives in this field, for instance related to “base registries” and “open data”. However, the potential of interoperable location information is only just beginning to be tapped: the implementation of INSPIRE is progressing continuously, new thematic policies are emerging that will benefit from a more harmonised approach, and the relationships with businesses and citizens are key in achieving wider EU goals. Figure 1 summarises the main thrust of the ELISE Action in terms of drivers,

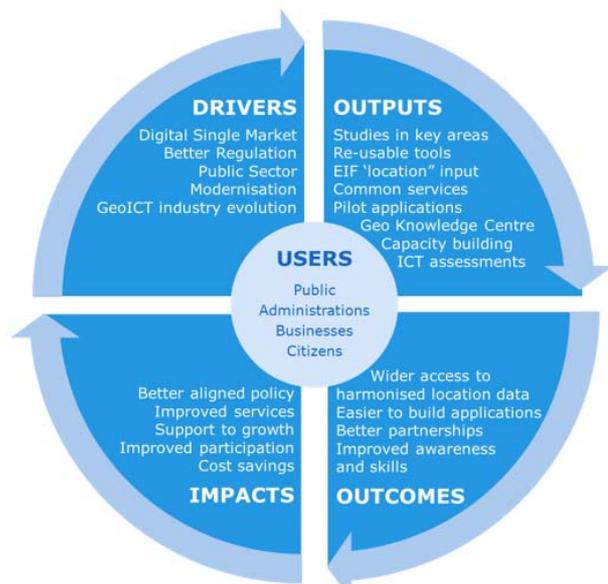


Figure 1 – Drivers, outputs, outcomes and anticipated impacts of the ELISE Action

outputs, outcomes and anticipated impacts. In pursuing its aims, the Action will collaborate closely with stakeholders to determine needs and priorities develop and test solutions and demonstrate benefits.

The interoperability solutions produced by ELISE will include guidance and tools for data publication and access, building where possible on INSPIRE (e.g. approaches to improve the free flow of data envisaged in the Digital Single Market strategy), “ready for operation” pilots in different sectors (e.g. energy, transport, marine) or cross-sector location-based statistics, and “common services” that address key priorities (e.g. gazetteer of geographic names, address register). It will also act as the “geo knowledge base” for ISA² and Commission services for aspects of legal, organisational, semantic and technical interoperability, where “location” is an important characteristic. This will include ensuring that the “location” aspects in the revised EIS and EIF are duly taken into account, providing “location” inputs to the assessments of ICT implications of new policies and the solution architecture being created with the EIC, and giving “location” advice to other ISA2 actions where relevant.

ELISE continues and builds on the work of the European Union Location Framework (EULF) and A Reusable INSPIRE Reference Platform (ARE3NA) Actions in the ISA programme, that have already partially addressed the challenges and opportunities in location-related interoperability. EULF has developed frameworks and pilots, addressing important “policy” aspects (e.g. procurement), helped to improve data sharing between the public and private sector (e.g. road navigation systems), and developed a “fit for purpose” benefits approach. ARE3NA, meanwhile, has focused on semantic and technical aspects, developing an initial version of a reference platform for INSPIRE assets, including inventories of tools, projects, applications, and videos. It has developed valuable software and service components to fill gaps (e.g. the Re3gistry, available on Joinup) and carried out studies in key areas that will lead to better solutions. ELISE will build on these, and other, solutions and provide the step-change that is needed, in particular, to spatially enable the DSM.

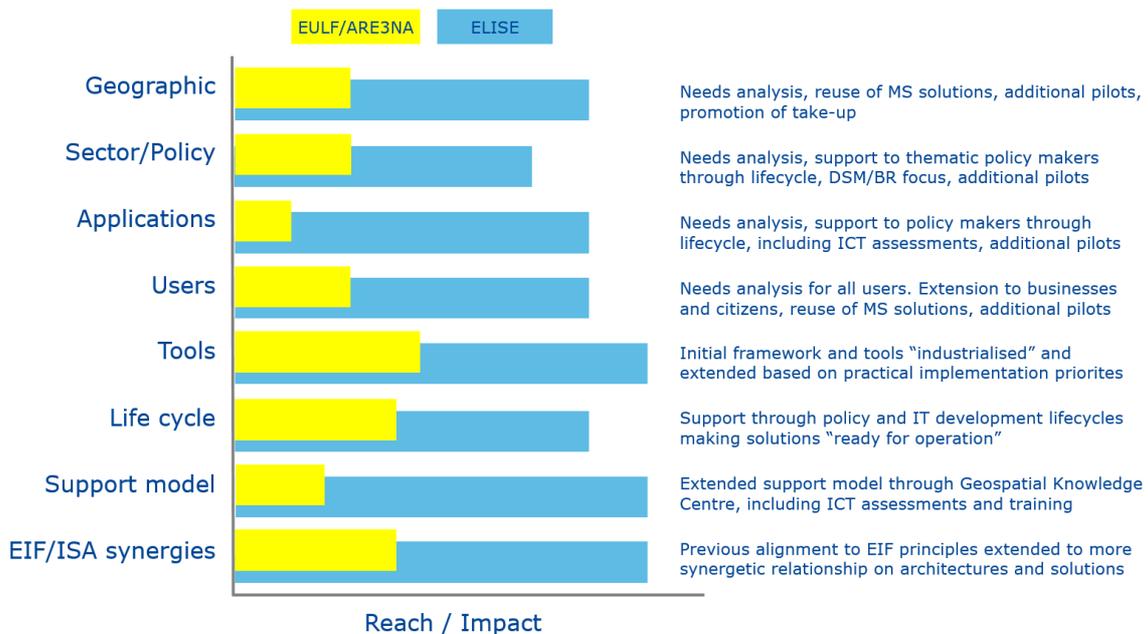


Figure 2 -. “Raising the bar” from EULF and ARE3NA to ELISE.

4.1.3 OBJECTIVES

Objective	To provide guidelines and tools for the implementation of the revised and extended European Interoperability Framework (EIF) regarding location information and services.
Relation to ISA2 objectives and criteria	Through the ISA2 Programme, the Union shall identify, create and operate interoperability solutions implementing Union policies. Being anchored onto the revised and extended EIF, the guidelines and tools foreseen in ELISE promote a consistent and holistic approach to “location” interoperability.
Link to DSM roadmap	DSM roadmap III - maximise the growth potential of the Digital Economy. Under this heading, the DSM roadmap foresees the revision and extension of the EIF in 2015. ELISE builds on this, thus promoting and supporting the implementation of the new EIF for location-related items.

Objective	To help European public administrations remove barriers to the free flow of interoperable location data, and build more effective location enabled e-government services.
Relation to ISA2 objectives and criteria	ELISE facilitates efficient and effective electronic cross-border or cross-sector interaction between European public administrations and between them and citizens and businesses, in the domain of location information and services. It brings new interoperability services and tools to maturity, as well as maintaining and operating existing interoperability services and tools on an interim basis
Link to DSM roadmap	DSM roadmap III - maximise the growth potential of the Digital Economy. Under this heading, the DSM roadmap foresees the removal of barriers to the free flow of information in 2016.

Objective	To support Better Regulation goals by promoting a coherent and consistent approach to the sharing and re-use of location information in EU policies.
Relation to ISA2 objectives and criteria	The Action supports the development, maintenance and promotion of a holistic approach towards interoperability in the Union in order to eliminate fragmentation in the interoperability landscape in the Union; the assessment of the ICT implications of proposed or adopted Union legislation; and the identification of legislation gaps that hamper interoperability between European public administrations.
Link to the Better Regulation Strategy	The Geospatial Knowledge Base supports the Better Regulation strategy for aspects related to location (e.g., Better Regulation Toolbox, tool #23: ICT assessment, the digital economy and society). Pilots are envisaged that will implement interoperability solutions based on the guidelines and tools.

4.1.4 SCOPE

In scope:

- a) Acting as the “geospatial knowledge base” for Commission Services and other actions in ISA2 for aspects of legal, organisational, semantic and technical interoperability;
- b) Establishment of pre-operational “common services” that address key priorities (e.g. addresses, gazetteer of geographic names);
- c) Development of harmonised data and data publishing services (building where possible on INSPIRE);
- d) Development and re-use of tools to access and use location data;
- e) Studies on key topics, such as the Digital Single Market, which includes a focus on open data;
- f) Guidance in key areas across all levels of interoperability, e.g. DSM guidance on licensing, privacy, open data, public private partnerships; spatial data modelling guidance; guidance on the adoption of INSPIRE in different sectors; guidance on linking geodata and statistical data; and documentation on using specific tools;
- g) Location pilots (solution incubators and bridges) in different sectors (e.g. energy, transport, marine), to integrate location and statistics, to share Member State best practices between public administrations, and to support Digital Single Market goals through the use of open data;
- h) Providing “location” inputs to assessments of ICT implications of new policies and interoperability maturity assessments of key location-related services;
- i) ‘Location’ inputs to the European Interoperability Reference Architecture (EIRA) and to the cartography of location-based interoperability solutions (EIC) based on “patterns” of common processes, services, applications, data, and tools;
- j) liaison with European and international de-facto and de-jure standardisation bodies to develop and maintain relevant standards;
- k) Training and awareness raising in best practice location interoperability solutions;
- l) Promotion of re-usable solutions in the INSPIRE Maintenance and Implementation Group;

Out of scope:

- a) INSPIRE Geoportal;
- b) Generic interoperability solutions produced by ISA2 or elsewhere that are required for ELISE applications and tools. These will be re-used within the ELISE solutions;
- c) Location interoperability solutions produced by other initiatives. Best practice solutions will be promoted and re-used by ELISE.

4.1.5 PROBLEM STATEMENT

The ELISE Action aims to address the following challenges and opportunities that are cutting across DSM, Better Regulation, and Public Sector Modernisation goals:

1. Policy and strategy alignment

-
- a) Location-related information is important in many policy areas but a coherent and consistent approach to remove policy, organisational, semantic and technical barriers for sharing and re-use is only currently being implemented for environmental policies and policies or activities which may have an impact on the environment (through INSPIRE);
 - b) There is a need for public administrations to improve the sharing and re-use of all their data, including geospatial data;
 - c) Open location data benefits are recognised but measures to implement open location data have not been widely adopted;
 - d) When thematic policies are using INSPIRE, it is often done partially or not fully taking into account interoperability as a requirement, thereby not removing completely the barriers to sharing and re-use;
 - e) The impact of technological developments such as big data, linked open data, cloud, and Internet of Things that can lead to divergent approaches in data-sharing and interoperability; the increased focus on mobile solutions in most web-based solutions; and the potential for significant market disruption by big (e.g. Google) and new (e.g. Uber) industry players need to be understood and taken into account to ensure organisations can make readily reusable data available for a range of purposes;
 - f) There is an important link between location and statistics that requires a more coherent cross-sector and cross-border approach;
2. Governance and effective partnerships
 - a) More effective public private partnerships may be required to enable the free flow of data envisaged by the Digital Single Market strategy that are necessary for job creation and growth;
 - b) Common frameworks and solutions set a context for discussion and endorsement but they risk either not being applied or not helping to improve services. These need to be contrasted with the needs and priorities of stakeholders/users, engaging them in the data-sharing process and, in turn, delivering benefits;
 - c) Collaboration is key to delivering and getting benefits from wide scale “location interoperability” – this requires strong governance, integration across ISA² and effective relationships with partners;
3. Standardisation and interoperability
 - a) Differing standards and quality of data exist across the EU for core reference location data and location data in different thematic areas, making it difficult to achieve cross-border and cross-sector harmonisation;
 - b) INSPIRE has an important role in underpinning location interoperability in different thematic sectors. It provides the core data models and the generic framework to extend for a given topic, where specific thematic standards and requirements then come into play. Alignment of thematic standards and INSPIRE or provision of new compatible standards will create benefits in interoperability and the reusability of data, including in cases where more dynamic data are needed;
 - c) More consistent and relevant approaches are needed to link geospatial information and statistics at increased levels of detail and to support more dynamic statistical data requirements;
4. Knowledge and Skills Availability

- a) Improved sharing and re-use is not just about common data formats and interoperable technologies. Other issues need to be addressed such as licensing (including open data), data quality and quality standards, funding, knowledge and skills;
- b) There is still a lack of “spatial literacy” amongst those responsible for policy and public services other than strictly location-related. Understanding, valuing and making best use of geographic information is increasingly becoming important for modernising government, including in the EC. Communications that aim to bridge this gap tend to be technically focused and simple guides are needed to manage geospatial data ready for interoperability in optimal ways.

4.1.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

The recent INSPIRE mid-term evaluation demonstrated a strong business case for “location interoperability” on environmental policy. INSPIRE is relevant in many domains, given the scope of the Directive, and, provided an approach is developed that meets specific thematic requirements, the benefits of data harmonisation can be achieved in multiple situations using and reusing the INSPIRE framework documents, technical guidelines, and the infrastructural components (geoportal, registry) and (open source) tools.

The DSM Strategy has highlighted the importance of removing barriers to the free-flow of data and in the need for data interoperability. The EIF is mentioned as an important element. Various studies have shown the potential value of access to public data in support job creation and growth, including in particular open, accessible location data. The ELISE project places a strong emphasis on actions in these areas, with actions to evaluate DSM barriers, plan solutions, support innovation, and develop open approaches to share important geospatial datasets.

The table below summarises some of the main benefits of ELISE for the different beneficiaries.

Beneficiaries	Anticipated benefits
EU and MS policy makers	<p>More effective policy development where location is a feature (better evidence and analysis, cross policy alignment)</p> <p>Improved policy outcomes (location-enabled policy implementation)</p> <p>Better links between public authorities nationally and internationally on location matters</p> <p>Constituents receive location-based better services with reduced burdens</p> <p>Cost savings in policy development and implementation involving location information</p>
Public sector location data users	<p>Better business processes, systems and access to location data (cross-sector and cross-border)</p> <p>Effective skills (including spatial literacy)</p>

Beneficiaries	Anticipated benefits
	<p>Cost savings in time spent to find and use location data</p> <p>Access to more relevant location data</p>
Public sector location data providers	<p>Access to best practices, standards and guidelines</p> <p>Knowledge sharing with peers across the EU</p> <p>More effective partnering between related organisations and initiatives</p> <p>Cost savings from re-use and interoperability</p>
Businesses	<p>More effective partnering with government in the use of location data and services</p> <p>Impact on profitability and growth (easier to introduce new location-based products and services)</p> <p>Access to wider markets through removal of barriers</p>
Citizens	<p>Better location-enabled services (designed around user needs)</p> <p>Cost and time savings (location-enabled services, avoiding duplication)</p> <p>Increased transparency and participation</p> <p>Wider socio-economic benefits</p>
Research and academia	<p>More innovative and authoritative research (better access to location data, richer data sources, reusable software)</p> <p>Better links with businesses potentially creating new businesses</p>
EU and international standardisation bodies	<p>Feedback on fitness for purpose of location data standards</p> <p>Requirements for new work, improved standards in thematic domains</p> <p>Increased take-up of standards</p>

4.1.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)	Legal basis for a spatial data infrastructure (SDI) to support EU environmental policy. The SDI can also be used to support other policy areas.
6.5.2015 COM(2015) 192 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the	Support the Digital Economy aspects of the Digital Single Market strategy, in particular in helping improve the free-flow of data through actions to remove barriers and improve

Action / Policy	Description of relation, inputs / outputs
Committee of the Regions : A Digital Single Market Strategy for Europe	interoperability. These actions will include promoting and supporting the implementation of the new EIF.
19.5.2015 COM(2015) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Better Regulation for Better Results – an EU Agenda and other elements of the Better Regulation package, e.g. Better Regulation guidelines and toolbox, REFIT platform	The ELISE Geospatial Knowledge Base supports the Better Regulation strategy for aspects related to location (e.g., Better Regulation Toolbox, tool #23: ICT assessment, the digital economy and society). Pilots are envisaged that will implement interoperability solutions based on the guidelines and tools.
Directive 2013/37/EU on the re-use of Public Sector Information	Geospatial data is one of the five categories of datasets in highest demand from re-users that should be given priority in being made available for re-use. Geospatial data also underpins the other four priority dataset categories, namely earth observation and environment, transport, statistics and companies (see the “Guidelines on recommended standard licences, datasets and charging for the reuse of documents” – 2014/C 240/01).
26.6.2014 COM(2014) 367 Proposal for a Decision of the European Parliament and of the Council establishing a programme on interoperability solutions for European public administrations, businesses and citizens (ISA2) - Interoperability as a means for modernising the public sector	<p>“Location” input to EIS, EIF, EIRA, EIC and ICT assessments of new EU policies.</p> <p>Alignment with other actions, e.g. semantic interoperability, base registries, sharing and re-use strategy</p> <p>Focus on all levels of interoperability, legal, organisational, semantic and technical</p> <p>Use of Joinup for sharing interoperability assets</p> <p>Participation in programme governance and input to approaches on working with business, supporting citizens, benefit realisation etc.</p>
Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010	To be taken into account as a hosting option when addressing the sustainability of ready-for-operation ‘location’ solutions.

Action / Policy	Description of relation, inputs / outputs
<p>Directive 2010/40/EU of the European Parliament and of the Council, 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport</p> <p>Commission Delegated Regulation (EU) 2015/962 of 18 December 2014 supplementing Directive 2010/40/EU of the European Parliament and of the Council with regard to the provision of EU-wide real-time traffic information services</p>	<p>The project will continue supporting INSPIRE-related actions within the context of the ITS Directive including: priority action a) provision of EU-wide multimodal travel information services; and priority action b) provision of EU-wide real-time traffic information. A new development anticipated is the provision of open road navigation data using ITS and INSPIRE data standards.</p>
<p>European ITS Platform (EIP), funded by the Connecting Europe Facility</p>	<p>A series of pilots are funded in 2016 to implement road safety data exchange in different MSs using the TN-ITS protocol. These pilots extend the principles of the EULF transportation pilots across the EU and will provide additional learning, operational services and evidence of benefits.</p>
<p>Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)</p>	<p>This project will facilitate the rollout of interoperable solutions developed within the EULF Marine Pilot in the current ISA programme</p>
<p>Directive 2002/91/EC Energy Performance of Buildings (EPBD)</p> <p>Directive 2012/27/EU Energy Efficiency Directive (updated EESD)</p> <p>Covenant of Mayors initiative</p>	<p>The EULF project has developed a feasibility study to explore how these different buildings-related energy efficiency policies can be supported with the help of INSPIRE. An initial pilot study is underway. This will be extended under ISA2 and roll out of solutions supported.</p>
<p>Other thematic policies collecting or using location information</p>	<p>There are opportunities for better alignment in the collection and use of location information in different policy areas, including transport, health marine, agriculture, energy, and others, without excluding the environment. The project will proactively assess policy opportunities, work with DIGIT to support the ICT implications assessments, and support policy officers where needed through the life cycle.</p>

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

EULF and ARE3NA

ELISE will promote, re-use and build on the solutions developed in the ISA programme under the EULF and ARE3NA Actions, focusing on how they can be re-used to support the ELISE objectives. The EULF and ARE3NA solutions are summarised in Figure 3 below. Existing work under the ISA programme will be completed in 2016.

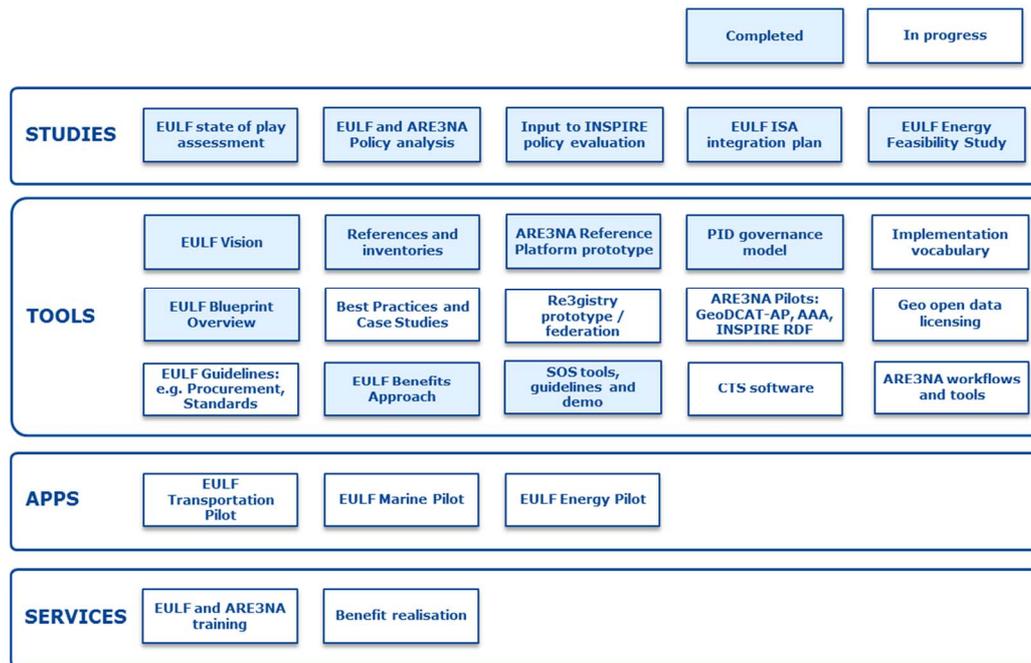


Figure 3 – ARE3NA and EULF solutions developed as part of the ISA programme.

Key outputs from EULF include:

- A Member State survey and state-of-play assessment that confirmed the need for an EULF;
- The EULF Strategic Vision based on a series of “focus areas” confirmed in the state-of-play assessment;
- A compendium of references and best practices to show what MS and various initiatives are doing to location-enable their e-government services;
- An EULF Blueprint overview containing recommendations in the different focus areas;
- Detailed guidance in the form of “Procurement Guidelines for spatial technologies and services” and a review of “Standards and Architectures for SDIs and e-Government”
- An EULF Benefits Approach that demonstrated a realistic approach to dealing with the complexity of “infrastructure” justification;
- A plan for integration with other ISA actions;
- Studies and pilot applications in key policy areas:

- i. A Transportation pilot sharing road safety data between public authorities and private sector map providers in support of the Intelligent Transport Systems (ITS) Directive;
- ii. A Marine pilot addressing the requirements of the Marine Strategy Framework Directive (MSFD), based on INSPIRE;
- iii. An Energy Feasibility Study has outlined an approach to support the energy efficiency data requirements of the Energy Performance of Building Directive (EPBD), the Energy Efficiency Directive (EED), and the Covenant of Mayors (CoM) Sustainable Energy Action Plans, using INSPIRE.

Key outputs from ARE3NA include:

- a) Inventories of policies, platforms and tools at a European level that share geospatial data;
- b) The INSPIRE Resource Description (RDF) Vocabulary, a methodology to create a cross-sector, pan European base-map reusing investments in INSPIRE data modelling;
- c) A governance approach for location Persistent Identifiers;
- d) The GeoDCAT Application Profile, to share INSPIRE metadata through geoportals and open data portals in a consistent way, developed alongside the update of DCAT in the ISA SEMIC Action (1.1);
- e) A series of Reuse Assessments to understand what components of INSPIRE may be reusable and how these could fit with the wider ICT landscape covered by ISA;
- f) A review of interoperability solutions for authentication, authorisation and accounting (AAA) and development of an Access Control Federated Testbed. Ongoing work is exploring how European solutions, such as STORK, could be used;
- g) Creation of OGC Sensor Observation Services tools, demo and guidelines;
- h) Development of the Re3gistry, an open source reference data management and publication tool, which will be important in federated contexts. Ongoing work is increasing its reuse and reusability in the EC and MSs, including the creation of a federation of the systems the software supports;
- i) The ARE3NA reference platform is currently being developed to store, organise and present many of these solutions and those available in the wider geospatial community in a common technical framework, helping INSPIRE implementation and its reuse in other sectors.

ISA and ISA2

ELISE will re-use and promote other ISA and ISA² solutions, including:

- a) embedding the revised EIS and EIF into its implementation approach;
- b) contributing interoperability solutions at all levels to the EIC, and recommending and applying the EIRA as a reference approach where possible;
- c) using the Interoperability Maturity Model for assessing selected location-related services;
- d) applying the recommendations in the sharing and re-use strategy;
- e) publishing documents and solutions on Joinup;
- f) promoting the assessment of ICT implications of new legislation process in discussions with policy makers;

- g) promoting the guidelines on base registries and applying these in developments of location 'common services';
- h) re-use of SEMIC generic approaches on vocabularies, metadata and data modelling;
- i) incorporating ISA and ISA2 guidelines and solutions, where relevant in the ELISE pilot applications.

Other Initiatives

ELISE will also re-use and promote solutions from other EU and national initiatives, including:

- a) identifying best practice re-usable components, applications or services and sharing either information about the solutions (e.g. through factsheets) or the solutions themselves;
- b) reusing solutions in pilot applications and common services, building on other EU-funded or national projects (e.g. European Location Framework services and tools, GeoSmartCity developments in energy efficiency, Belgian approach to OpenStreetMap, Danish and Czech Republic approaches to core registries, Danish cross-border addressing approach);
- c) combining approaches in other projects and initiatives with ELISE activities to establish user-focused, sustainable solutions (e.g. working with ELF on feasibility studies and pilots for common services; reusing methodologies from UN-GGIM: Europe and Geostat2 to integrate statistical and geospatial information in ELISE guidance and a statistical pilot application);
- d) re-using legal and organisational assets, e.g. licensing frameworks, open data frameworks, business cases, public private partnership models, training modules, videos.

4.1.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

ELISE will prepare a large number of reusable solutions and instruments. Some key outputs are shown below.

Output name	DSM assessment and plan
Description	Assessment of barriers impacting the free flow of location based data and inhibiting the achievement of the DSM and plan to address these barriers. Topics are likely to include open data, licensing, privacy, data interoperability (e.g. consistency of standards and levels of detail), skills, and public private partnerships.
Reference	D1.1
Target release date / Status	Q3/2017

Output name	Pilot feasibility studies
Description	Studies to assess requirements, potential options, possible data transformation and implementation costs, and benefits for stakeholders ahead of relevant pilot implementations (i.e. both the "common services" pilots and the "application" pilots". This will include the assessment of the pre-operational ELF

	services in the pilots.
Reference	D1.2
Target release date / Status	Q2/2017 - Q1/2019

Output name	Location guidance: DSM location framework
Description	Package of recommendations and guidance to address the DSM barriers outlined in the assessment, including open data
Reference	D2.1.1
Target release date / Status	Q1/2018 – Q4/2018

Output name	Location guidance: Geodata and statistics
Description	Package of recommendations and guidance to better link geodata and statistics in consistent ways, drawing on the work of UN-GGIM and other initiatives, and supporting requirements for increased levels of detail and dynamic statistics, whilst respecting privacy constraints.
Reference	D2.1.2
Target release date / Status	Q4/2017

Output name	References and Inventories: Solution 'patterns'
Description	Catalogue and description of standard processes, services, applications and tools in e-government using location data
Reference	D2.3
Target release date / Status	Q4/2017

Output name	'Location' solution cartography
Description	Reusable best practice components and solutions included in the EIC, based on the definition of solution patterns in 2.3
Reference	D2.4.1
Target release date / Status	Q1/2018 onwards

Output name	'Location' inputs to the EIRA
Description	Changes and additions to the EIRA relevant to location data and services taking into account, amongst other things, the

	revision of the EIF and the adoption of INSPIRE
Reference	D2.4.2
Target release date / Status	Q4/2017

Output name	Best practice factsheets
Description	Factsheets to describe best practice processes, services, solutions and components, including those registered in the EIC
Reference	D2.5
Target release date / Status	Q1/2018 onwards

Output name	ARE3NA Reference Platform
Description	Platform supporting and providing access to reusable location tools and associated guidance
Reference	D2.6
Target release date / Status	Q3/2016 onwards

Output name	Re3gistry operational service
Description	Re3gistry operational solution with supporting guidance and training
Reference	D2.7
Target release date / Status	Q3/2017

Output name	Common services: e.g. EU gazetteer, Open EU mapping, EU address registries
Description	Initial release of common services identified as priorities by stakeholders such as an EU gazetteer of geonames, an open seamless cross-border mapping 'common service', and an EU address registries service. These services will be based, where possible and following the appropriate assessments, on the pre-operational services resulting from the ELF project. The work will include an assessment of the sustainability of the resulting pre-operational services.
Reference	D2.9, D2.10, D2.11
Target release date / Status	Q2/2018 to Q4/2019

Output name	Better Regulation, Member State Public Sector Modernisation and Digital Single Market / Business pilot solutions
Description	A series of 'ready for operation' pilots addressing key policy, public authority, business and citizen priorities
Reference	D3.1, D3.2, D3.3, D3.4, D3.5
Target release date / Status	Q3/2018 – Q3/2020

Output name	Geospatial Knowledge Base: ICT implications assessments
Description	Location inputs to assessments of ICT implications of new legislation and digital checks
Reference	D4.2.1
Target release date / Status	Q3/2016 onwards

Output name	Geospatial Knowledge Base: Interoperability Maturity assessments
Description	Using the IOP maturity model for selected services and identifying any improvements, assessing the use of the model in the 'location' domain, and conducting an EU-wide assessment of interoperability of key location-related services
Reference	D4.2.2
Target release date / Status	Q1/2017 onwards

Output name	Geospatial Knowledge Base: 'Location' training and awareness raising package
Description	Package of awareness and training resources for public administrations, supporting policy awareness, publication and use of interoperable geodata, and development of applications. This will include recommendations for the use, promotion, and sustainability of the ELF knowledge base.
Reference	D4.2.3
Target release date / Status	Q1/2017 onwards

4.1.10 ORGANISATIONAL APPROACH

4.1.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Commission Services	ENV, ESTAT, CONNECT, DIGIT, MOVE, MARE, ENER. Commission Inter service group on Geographic information (COGI)
INSPIRE governance	Maintenance and Implementation Group (MIG) Member States National Contact Points (NCPs) Legally mandated organisations (LMOs)European Environment Agency
INSPIRE solution providers	Businesses including SMEs
ISA	ISA Working Group on Spatial Information and Services ISA Committees, Working Groups, and Actions established under the ISA Programme
ITS	ITS Committee ITS working groups
Other policy domains	Committees, working groups
Standardisation bodies (CEN, ISO, OGC, W3C, OASIS, etc.)	Coordination groups, including relevant focus groups on e-Government
UN-GGIM:Europe	This committee of experts is concerned with regional geospatial interests in Europe and provides input to the UN Committee on Geospatial Information Management. It aims to influence policy and promote good practices. EULF has contributed to the UN-GGIM:Europe priority setting and activities in its initial work programme. ELISE will contribute to and re-use UN-GGIM:Europe deliverables going forward (including a possible pilot activity for statistics and location, taking into account on-going ISA ² work in this area).
Member State organisations, groups and	Location / e-Government coordination bodies

Stakeholders	Representatives
projects	National mapping and cadastral agencies National and cross-border projects Business sector groups
Other pan-European interest groups, organisations and projects	Open source and open data communities, research / academic groups, thematic expert groups, industry groups EuroGeographics, EUROGI FP7 & CIP projects: European Location Framework (this CIP ICT-PSP project is developing seamless pan-European mapping and associated tools, making it easier to build cross-border applications; collaboration with ELF is envisaged in the development of thematic pilots and common services), eENVplus, smeSpire, SmartOpenData
EEA/EIONET, National environment agencies	EEA/EIONET national focal points (NFPs), National Reference Centres for Information Systems.

4.1.10.2 Communication plan

Documentation will be published on the ISA² website and on Joinup. Cross-references will be made to other communications resources, in particular the INSPIRE website and ‘partner’ websites. Training will be carried out in face-to-face events, webinars, and through access to online resources. Various key communications will be made through the use of videos, brochures, and the ARE3NA platform will be used and promoted whenever possible. Key governance and communications “events” are summarised in the table below.

Event	Representatives	Frequency of meetings / absolute dates of meetings?
ISA2 Committee and Coordination Group Meetings	MS representatives	Twice yearly
ISA2 Working Group on Spatial Information and Services	MS and Commission representatives	1-2 times per year
ISA2 Spatial Information and Services Business Forum	Business community representatives (possibly divided into thematic streams)	1-2 times per year
ELISE workshops	MS and Commission	1-2 times per year

Event	Representatives	Frequency of meetings / absolute dates of meetings?
	representatives, invited experts	
INSPIRE Conferences	INSPIRE stakeholders	Once per year
INSPIRE Maintenance and Implementation Group and Sub-Group meetings	MS representatives and invited experts	To be determined
Meetings of standardisation groups (CEN, ISO, OGC, W3C)	Standards experts	2 - 3 times per year
Business innovation events, e.g. apps incubators, hackathons, competitions	Web / mobile developers Geo ICT SMEs	1 per year
Stakeholder Consultation event(s)	General invite	Provisionally 2018
Meetings of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) Europe	UN-GGIM Europe members	Twice per year
Ad hoc partner events, e.g. EUROGI, ONE Conference, ELF, smeSpire, eENVplus, GeoSmartCity, SmartOpenData	Organisers and participants	As required to promote and obtain inputs to ELISE

4.1.10.3 Governance approach

The ISA Working Group on Spatial Information and Services (SIS) was established under the main ISA Committee in the ISA programme to help facilitate the dialogue between the e-government and geospatial communities, in particular between ISA and INSPIRE, and to play an important advisory role on the geospatial ISA actions. The Working Group has already provided valuable input in deciding priorities, helping shape the work programmes, reviewing deliverables and contributing best practices. The successor of the Working Group under the ISA² Committee will continue to have a vital role in ISA² in advising the ISA² programme – and the ELISE action – and ensuring new priorities are tackled effectively. In particular, it will be consulted on the yearly update of the ELISE Work Programme.

The Action is also strongly linked to the INSPIRE governance structure, and in particular the INSPIRE Maintenance and Implementation Group, which is a formal Commission expert group with MS representatives. Selected ELISE activities will contribute to the INSPIRE Maintenance and Implementation Work Programme.

A condition for success and sustainability of the ELISE Action is to become firmly embedded – both in terms of process and outcomes – in the stakeholder communities it aims to reach. This requires that the governance approach needs to be adapted, and that the said stakeholder communities will need to be offered shared ownership over the ELISE outputs, for example when developing “ready for operation” pilots. Based on the recommendations of the EULF Action in terms of governance and effective partnerships, and in close dialogue with the ISA SIS WG and the Commission Inter-service Group on Geographic Information (COGI), the ELISE Action will draw-up a governance action plan that addresses questions such as:

1. *How to engage more effectively with the e-government and user community;*
2. *How to enable the handover of “ready for operation” pilots;*
3. *How to engage with the rest of ISA² in decision making*
4. *How to ensure Member States and Commission services contribute to, and adopt, ELISE solutions?*
5. *With which DSM groups should ELISE engage, and how?*
6. *Should a Business Forum be established and how should it operate, e.g. as a sub-group of the ISA SIS WG. Such a group could comprise GeoICT technology companies and thematic business communities acting as end-users/beneficiaries of increased location interoperability*
7. *How to engage with particular businesses in determining what is needed?*

Whenever a consultation is planned, MS representatives will be encouraged to seek views in their countries, and to team-up with national representatives in other relevant general (e.g. UN-GGIM:Europe, Group on Earth Observations, standardisation) or thematic (e.g. MSFD WG DIKE, Covenant of Mayors) initiatives for improved communication and coordination. JRC.H06, as chair for the ISA Working Group on Spatial Information and Services, will ensure a proper link between ELISE and COGI.

4.1.11 TECHNICAL APPROACH

The proposed ELISE work packages and outputs are shown in Figure 4. ELISE builds on the work of EULF and ARENA but delivers a step change in the approach to extend the reach of the action in terms of geography, policy areas, applications and users and deliver greater benefit.

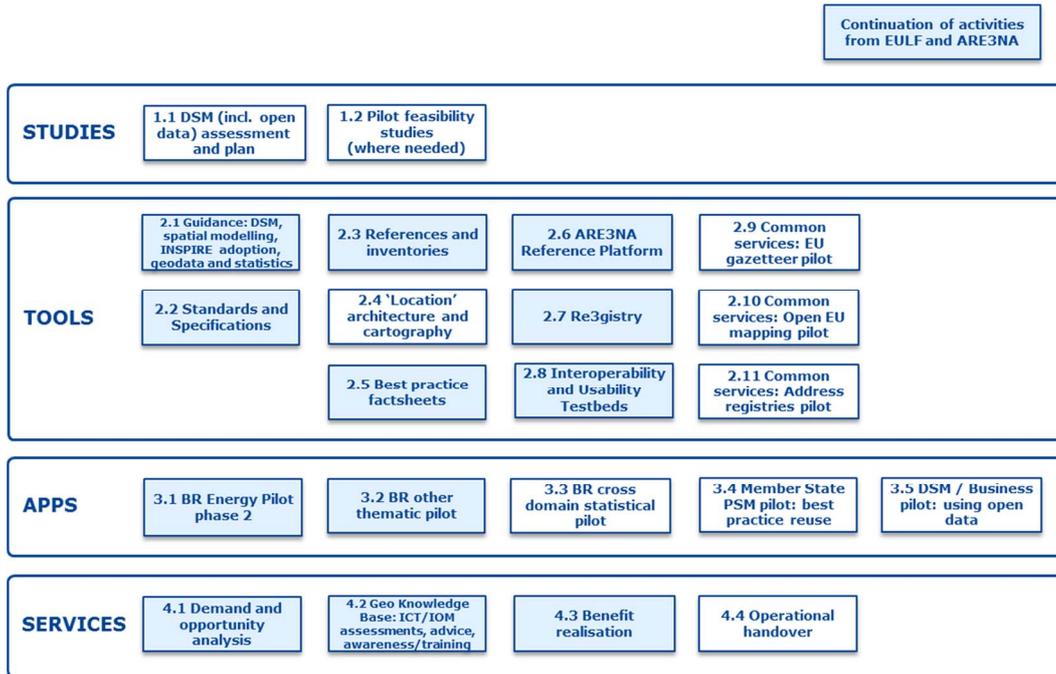


Figure 4 – ELISE work packages and outputs.

Driven by key policies

The work programme will be oriented to support the key policy drivers of DSM, BR and PSM, with in each case:

- a) assessments of demand and opportunities
- b) specific studies (e.g. assessment of DSM barriers and plan);
- c) relevant guidance (e.g. DSM framework, covering open data, licensing, privacy, data interoperability, skills, and public private partnerships) and tools;
- d) relevant pilots (e.g. “ready for operation” thematic pilots supporting specific legislative requirements in areas where location data interoperability is essential, e.g. energy, transport, marine, statistics)

There will be a particular focus on actions to enable the free-flow of data (DSM), align policies (BR), and enable better digital services, including supporting the “once-only” and “end-to-end digital services” goals (PSM), all in the context of ‘location’.

Support to businesses and citizens

The scope of ELISE will be extended to cover businesses and citizens, in line with the direction of ISA². Support to businesses and citizens will be addressed primarily through Member State public administrations and will consider successful models and solutions they have put in place (e.g. to support innovation, provide funding, establish public private partnerships, take on board citizen inputs) in devising “ELISE” proposals. However, more direct engagement approaches will be explored, under the guidance of the ISA SIS Working Group, e.g. involvement of business communities in a ‘Business Forum’.

Extending the framework and tools already delivering benefit

The EULF focus areas agreed with stakeholders in the ISA programme will continue as the framework for assessment and action. The frameworks, guidelines, and tools initiated in the previous EULF and ARE3NA actions will be extended to support the different requirements and enable wider adoption of solutions. The ARE3NA reference platform will be expanded to cover a more comprehensive set of re-usable tools (e.g. tools to support the specification, identification, and assembly of solutions based on re-usable semantic assets) and initial versions of tools created in the ISA programme will be turned into fully operational solutions with relevant support material (e.g. the Re3gistry, federated GeoDCAT-AP).

Developing priority common services to extend the range of applications significantly

Key “common services” for geonames, open mapping and addressing will be developed in conjunction with key partners in MSs and related initiatives such as the European Location Framework (ELF) project. These “common services” address priority needs already expressed and once confirmed and requirements refined will provide an infrastructure to support multiple cross-domain and cross-border applications.

Promoting and developing practical interoperability solutions that address priority needs

The shortlisting of policy interventions, tools and applications will be based on a rigorous process of evaluating demand and supply, involving assessments of user needs and priorities, identifying existing re-usable interoperability assets and determining where new solutions need to be created. New and existing solutions (tools, common services and thematic applications) will be ‘piloted’ within the ELISE action, taking inputs from thematic and technical experts in different MSs, and considering the requirements for cross-EU adoption. Where there is a significant degree of complexity in the possible solution, a feasibility study will be carried out to assess requirements, potential options, data transformation and implementation costs and stakeholder benefits ahead of any pilot implementation (e.g. in the case of each of the ‘common services’ for geonames, open mapping, and addresses. The business case assessments in the feasibility studies will draw on existing studies where possible, e.g. in the area of open data benefits. Developments will involve the creation of ‘sandbox’ solutions for rapid prototyping and development and ‘testbeds’ to assess interoperability, conformance to INSPIRE, and usability.

Increased synergies with other ISA² actions

There will be close collaboration with other ISA² actions, aligning with the EIS and EIF, providing “location” inputs to the EIRA, and EIC, supporting the assessments of the ICT implications of new legislation and the associated ‘digital checks’ and applying the Interoperability Maturity Model (IMM). Requirements for standards and specifications will be identified for both generic and thematic interoperability. A structured inventory approach will be developed through the specification of “patterns” of typical processes, services and applications, and identification and documentation of best practice interoperability solutions and use of component tools. Documentation will consist of factsheets to describe the best practices and support in populating the cartography of reusable and

interoperable geospatial solutions and building blocks (via EIC/EFIR/TES Actions). ELISE will also promote and explore joint opportunities with other ISA² actions, including possible actions on base registries, SEMIC, sharing and re-use etc. Opportunities will also be explored for shared approaches to developing and testing solutions.

The work of ELISE relates to all of the EIF interoperability levels, as shown in the diagram below.

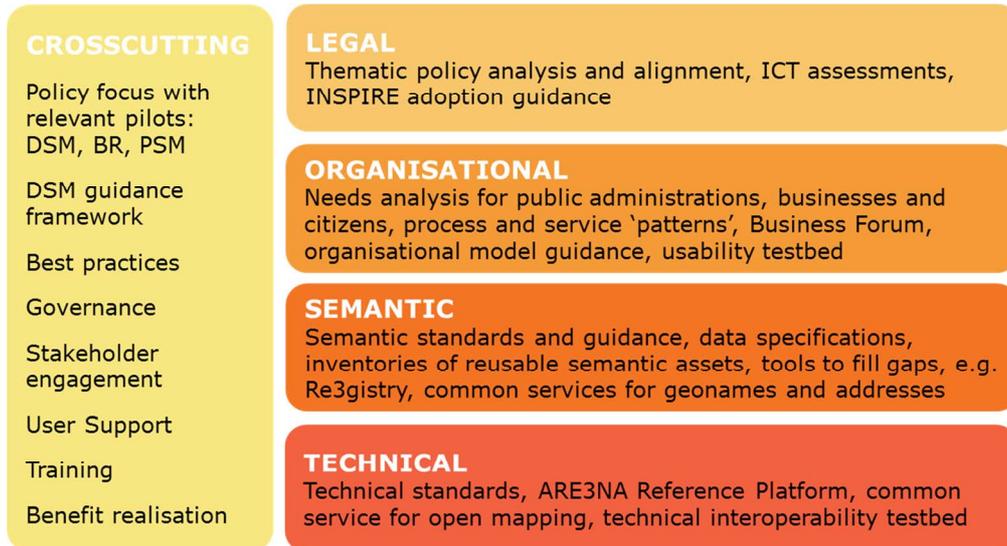


Figure 5 – ELISE work in relation to the EIF interoperability levels.

The full extent of possible ISA² synergies will only emerge when the broader set of proposals is delivered and accepted. Further opportunities will also need to be considered as the ISA² work programme evolves.

A user support model to facilitate take up of solutions

The emphasis will not just be on delivering solutions but in ensuring they meet user needs and in supporting users in adoption and take-up of the solutions. The “Geospatial Knowledge Base” will support policy makers in the ICT implications assessments and provide broader support through the policy cycle. Managers of e-government services will be supported through interoperability maturity assessments of selected services. Support will also be given to implementers of e-government services and developers through webinars, FAQs, helplines etc. Training and awareness-raising will be a key element of the work programme to bridge the “spatial literacy” gap and to help in ensuring solutions are used effectively. The Geospatial Knowledge Base will also advise whenever possible on the application of relevant new developments in using location data, linking with relevant reference entities. Coupled with this, there will be elements in the work programme to establish ‘ready for operation’ solutions that are capable of wide adoption, and to manage the successful handover of solutions to CEF, MSs public administrations, businesses etc.

A coherent set of implementable actions aligned with ISA2 scope and priorities

The ELISE work packages and outputs form a holistic proposal, with a defined approach to delivery, an understanding of the benefits (outcomes and impacts), and clear links to key ISA2 selection criteria. ELISE will act as a 'solution incubator' to develop and pilot new interoperability solutions (proposed new thematic "ready for operation" pilots and common services), a 'solution bridge' to further develop solutions and bring them to maturity (e.g. ARE3NA Reference Platform, Re3gistry) and a 'solution broker' to find new users for existing interoperability solutions:

Output name	1.1 DSM assessment and plan
How delivered?	Policy analysis of interoperability issues stemming from the DSM related to geospatial information-sharing, including SWOT and gap analyses. Consult with DSM policy specialists and MS representatives. Potential use of MS survey. Analyse business impacts of key issues and assess priorities for action. Secure business inputs and needs through research, consultation with MS and direct involvement through nominated contacts / Business Forum. Align plan to DSM timetable.
Beneficiaries and benefits	Businesses able to develop new products and services and enter into new markets through improved access to interoperable data
ISA2: eligible activities	The development, establishment, bringing to maturity, operation and re-use of new cross-border or cross-sector interoperability solutions
ISA2: prioritisation criteria	The link with Union initiatives to be measured by the collaboration and contribution level of the action to Union initiatives such as the (DSM) The identification of legislation gaps that hamper interoperability between European public administrations

Output name	1.2 Pilot feasibility studies
How delivered?	Some potential solutions identified as priorities may require feasibility studies ahead of development. These will involve research and stakeholder engagement to determine requirements and potential alignment with INSPIRE, an assessment of existing solutions that can be adapted or reusable components needed to fill gaps, and an assessment of benefits ahead of establishing a work package to develop the pilot solutions. A feasibility report will be produced and evaluated by the ELISE governance prior to developing the pilot.
Beneficiaries and benefits	ISA ² and stakeholders will have a clear understanding of the rationale and approach for meeting the particular needs identified. Public administrations can be potential pilot partners and contribute to the definition of problems and solution design, ensuring ready up-take. Barriers to interoperability can be documented across pilots to aid targeted investment in new solutions. Both findings and approach/methodology can be of

	interest to beneficiaries beyond the pilot context.
ISA2: eligible activities	The assessment, improvement, operation and re-use of existing cross-border or cross-sector interoperability solutions The development, establishment, bringing to maturity, operation and re-use of new cross-border or cross-sector interoperability solutions
ISA2: prioritisation criteria	The contribution to the interoperability landscape, to be measured by how important and necessary is the action to complete the interoperability landscape in the Union. The urgency of the action, based on its high potential impact and taking into account the lack of other funding sources.

Output name	2.1 Location Guidance, e.g. DSM framework
How delivered?	Guidance documents in key areas, complementing existing documentation with concise information. A key deliverable will be the DSM Framework, addressing the barriers assessed in 1.1. The likely areas of focus will be open data, licensing, privacy, data interoperability, skills, and public private partnerships. These will be tested with the Working Group and the Business Forum. It will be essential to align with recommendations and guidance in the core DSM implementation programme. Other guidance will be developed in accordance to priorities agreed by the Working Group and relevant stakeholders. Potential topics include spatial data modelling, adoption of INSPIRE in different sectors, and location-based statistics. The Reference Platform will be used to contextualise and share relevant assets linked to both INSPIRE and ISA's frameworks. This will bridge the gaps between legal obligations, technical guidance and possible solutions, while enabling reuse of the infrastructure in different sectors.
Beneficiaries and benefits	Policy makers, managers and practitioners will have practical help available to tackle important issues. Businesses able to develop new products and services and enter into new markets through improved access to interoperable data. As an interoperability tool, the platform will act as a means to readily communicate across stakeholder groups reference material that support (Geo-) ICT interoperability.
ISA2: eligible activities	The maintenance of a platform allowing access and collaboration on best practices. This platform functions also as a means for awareness and dissemination of the available solutions and helps avoid overlapping efforts
ISA2: prioritisation criteria	The reusability of the action, to be measured by the extent its results can be reused

Output name	2.2 Standards and specifications
How delivered?	A technology watch and the results of ongoing projects will enable a flow of relevant standards to be recorded in existing ISA infrastructures. There will be ongoing engagement with relevant standards bodies in the development and maintenance of relevant standards, by providing feedback from pilot implementations and new requirements. Existing coordination mechanisms between standards developing organizations will be used for this purpose.
Beneficiaries and benefits	Organisations responsible for standards and specifications will be able to engage through ELISE, creating a more complete picture of the interoperability landscape. The discrete and consistent referencing of standards will aid tasks such as tool design (e.g. to meet technical requirements) and broader interests such as eProcurement tools and guidance. Standards developing organizations will get feedback on the fitness for purpose of existing standards.
ISA2: eligible activities	The assessment, update and promotion of existing common specifications and standards and the development, establishment and promotion of new common specifications and standards through the Union's standardisation platforms and in cooperation with European or international standardisation organisations as appropriate
ISA2: prioritisation criteria	The geographical reach of the action, to be measured by the penetration of the action in the Member States (MSs)

Output name	2.3 References and inventories
How delivered?	Based on EULF and ARE3NA inventories, ELISE will provide a structured approach based on a catalogue ('patterns') of standard processes, services, applications and tools and cross-referenced to the EIRA and EIC. Solutions will be identified through desk reviews and inputs from stakeholders, together with inputs on needs.
Beneficiaries and benefits	Solution implementers will have ready access to quality-assured Geo-ICT solutions relating to their needs. New solutions can be developed more quickly and at less cost. Users will benefit as a result.
ISA2: eligible activities	The mapping and analysis of the overall interoperability landscape in the Union through the establishment, maintenance and improvement of the EIRA and the EIC as instruments to facilitate the re-use of existing interoperability solutions and to identify the areas where such solutions are still lacking
ISA2: prioritisation criteria	The contribution to the interoperability landscape, to be measured by how important and necessary is the action to

	complete the interoperability landscape in the Union
Output name	2.4 Location solution cartography and 2.5 Best Practice Factsheets
How delivered?	Best practice factsheets will be prepared by the ELISE team with inputs from those responsible. There will be factsheets for new solutions, where ELISE is a 'solution incubator' and externally created solutions, where ELISE is a 'solution broker'. A common document structure will be used tied in with the semantic vocabularies used in identifying the solution patterns. Solutions will be catalogued within the EIC based on the solution patterns defined in 2.3.
Beneficiaries and benefits	Solution providers will benefit from their good practices receiving wide recognition, including acknowledgement beyond the geospatial domain. This can also help to identify expertise for common multi-sector tool development for potential adoption in the CEF. Solution implementers will have ready access to best practice relevant to their needs. New solutions can be developed more quickly and at less cost. Users will benefit as a result.
ISA2: eligible activities	The assessment, improvement, operation and re-use of existing cross-border or cross-sector interoperability solutions
ISA2: prioritisation criteria	The contribution to the interoperability landscape, to be measured by how important and necessary is the action to complete the interoperability landscape in the Union The reusability of the action, to be measured by the extent its results can be reused

Output name	2.6 ARE3NA Reference Platform
How delivered?	An online resource will be maintained and extended as a specific development to provide access to reusable tools and support the guidance noted above.
Beneficiaries and benefits	Geo-ICT actors interested in interoperability issues, including INSPIRE implementers and those considering reuse of the infrastructure in other policy areas.
ISA2: eligible activities	The development, establishment, bringing to maturity, operation and re-use of new cross-border or cross-sector interoperability solutions The maintenance of a platform allowing access and collaboration on best practices. This platform functions also as a means for awareness and dissemination of the available solutions and helps avoid overlapping efforts

ISA2: prioritisation criteria	The contribution to the interoperability landscape, to be measured by how important and necessary is the action to complete the interoperability landscape in the Union The reusability of the action, to be measured by the extent its results can be reused
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Output name	2.7 Re3gistry
How delivered?	The maintenance and extension of the open source registry software to ensure a stable federation is created (under current ARE3NA planning). Plans will be developed to explore hand-over options, including as a full open source project and/or the CEF.
Beneficiaries and benefits	All parties interested in managing and sharing reference codes for reuse across systems. Specifically, this will include those implementing and using INSPIRE who will have consistent and harmonised geospatial data across Europe. Other sectors/policies can make use of the semantically rich content of the INSPIRE registry federation for reuse in their information infrastructures. Developments can also contribute to work in the Publication Office.
ISA2: eligible activities	Bringing new interoperability services and tools to maturity, and maintaining and operating existing interoperability services and tools on an interim basis
ISA2: prioritisation criteria	The contribution to the interoperability landscape, to be measured by how important and necessary is the action to complete the interoperability landscape in the Union The reusability of the action, to be measured by the extent its results can be reused

Output name	2.8 Interoperability and Usability Testbeds
How delivered?	Extended testing frameworks to ensure that reuse of INSPIRE and other geo-ICT data infrastructures provide reliable and appropriate content. Development of 'usability' checklist to complement the 'interoperability' checks.
Beneficiaries and benefits	Those developing interoperability testing infrastructures can follow the experience being gained in the geospatial domain. The users of geospatial data can have access to content based on reliable and readily integrated infrastructure components.
ISA2: eligible activities	The development, establishment, bringing to maturity, operation and re-use of new cross-border or cross-sector interoperability solutions
ISA2: prioritisation criteria	The contribution to the interoperability landscape, to be measured by how important and necessary is the action to

	complete the interoperability landscape in the Union
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Output name	2.9 - 2.11 Common services: EU gazetteer, Open EU mapping and address registries “ready for operation” pilots
How delivered?	Demand-driven developments of key geospatial data components that offer services for reuse in mainstream e-government practices and resources. The creation of the solutions will be based on pilots, previous work done (e.g., the European Location Framework project, ESTAT’s activities on the gazetteer, other existing implementations) as well as feasibility studies before development and initial operation. Conceptual references to location and real data examples through INSPIRE and other data sources will be explored.
Beneficiaries and benefits	Consistent representation of reference geography and geospatial data will enable an interoperable approach to reuse and link data across information systems via location. It will create new forms of geospatial data for information management and ensure European investments are focussing on critical elements to ensure consistency across borders, in turn reducing costs for technological design and implementation through common approaches. The EC itself can benefit from a modernised approach to geospatial information handling and use for a range of policy areas. The consistent reference to location conceptually and with actual data will enable the power of geography to support better decision-making and potentially new data products and services for businesses and citizens.
ISA2: eligible activities	The assessment, improvement, operation and re-use of existing cross-border or cross-sector interoperability solutions The development, establishment, bringing to maturity, operation and re-use of new cross-border or cross-sector interoperability solutions
ISA2: prioritisation criteria	The scope of the action, to be measured by the horizontal impact of the action, once completed, through sectors The urgency of the action, based on its high potential impact and taking into account the lack of other funding sources.

Output name	3.1 – 3.5 Better Regulation, Member State Public Sector Modernisation and Digital Single Market / Business “ready for operation” pilots
How delivered?	Scope based on key priorities identified through needs analysis. Some pilots may extend the work already started in EULF (e.g. energy, marine); others will tackle new opportunities (statistics). Each pilot will go through phases of mobilisation (project charter), development, evaluation, and operationalization.

	<p>Partners will develop relevant partnering agreements. Resources will come from the core ELISE team and appointed specialists, and will use results of other relevant activities such as the European Location Framework project. Training packages will be developed for partners and future adopters. Benefits will be assessed to help in promotion and understanding. Lessons learned will be documented. Pilot solutions will be made 'ready for operation' and handed over to relevant parties (e.g. CEF, public administrations, and businesses).</p>
Beneficiaries and benefits	<p>Policy makers will have solutions that implement and align policies effectively, public administrations will have access to co-developed best practice applications, businesses and citizens will have better public services and better access, where relevant to government data</p>
ISA2: eligible activities	<p>The assessment, improvement, operation and re-use of existing cross-border or cross-sector interoperability solutions The development, establishment, bringing to maturity, operation and re-use of new cross-border or cross-sector interoperability solutions</p>
ISA2: prioritisation criteria	<p>The geographical reach of the action, to be measured by the penetration of the action in the Member States The urgency of the action, based on its high potential impact and taking into account the lack of other funding sources The link with Union initiatives to be measured by the collaboration and contribution level of the action to Union initiatives such as the Digital Single market (DSM)</p>

Output name	4.1 Demand and opportunity analysis
How delivered?	<p>Desk survey plus inputs from stakeholders, covering policies, member state public administrations, businesses and citizens. Public administrations will be the conduit to business and citizen needs. Prioritisation criteria will be developed with the Working Group and used in assessments. Demand and supply will be matched to understand 'ease of delivery'. Existing solutions will be reused where possible.</p>
Beneficiaries and benefits	<p>Policy makers, public administrations, businesses and citizens will have their priority needs addressed where feasible.</p>
ISA2: eligible activities	<p>The assessment of the ICT implications of proposed or adopted Union legislation The identification of legislation gaps that hamper interoperability between European public administrations</p>

	The mapping and analysis of the overall interoperability landscape in the Union through the establishment, maintenance and improvement of the EIRA and the EIC as instruments to facilitate the re-use of existing interoperability solutions and to identify the areas where such solutions are still lacking
ISA2: prioritisation criteria	The contribution to the interoperability landscape, to be measured by how important and necessary is the action to complete the interoperability landscape in the Union The urgency of the action, based on its high potential impact and taking into account the lack of other funding sources.

Output name	4.2 Geospatial Knowledge Base
How delivered?	<p>Formalisation and extension of existing services offered by the JRC to other Commission Services and ISA(2) Actions. The Geospatial Knowledge Base will support policy makers through the policy cycle. The support function will include the provision of “location” input to thematic expert groups, and support to DIGIT in “location” inputs to ICT assessment of EU policies and DIGIT checks, and Interoperability Maturity assessments</p> <p>Support will also be given to implementers of e-government services and developers through webinars, FAQs, helplines etc. Training and awareness-raising will be a key element of the work programme to bridge the “spatial literacy” gap and to help in ensuring solutions are used effectively.</p>
Beneficiaries and benefits	Policy makers, managers and implementers of services, and developers will be able to decide on and develop appropriate location-based solutions more easily and develop better solutions, with benefits in terms of cost and effectiveness.
ISA2: eligible activities	<p>The development, establishment, bringing to maturity, operation and re-use of new cross-border or cross-sector interoperability solutions</p> <p>Bringing new interoperability services and tools to maturity, and maintaining and operating existing interoperability services and tools on an interim basis</p>
ISA2: prioritisation criteria	The contribution to the interoperability landscape, to be measured by how important and necessary is the action to complete the interoperability landscape in the Union The urgency of the action, based on its high potential impact and taking into account the lack of other funding sources.

Output name	4.3 Benefit realisation
How delivered?	Justification of all elements of the work programme. Reviewing

	before and after processes. Making the benefits as quantifiable as possible. Understanding potential benefits from the perspective of all stakeholders. Focusing on what is significant. Monitoring post initial implementation. Targeting actions that maximise benefits. Using case studies to promote best practice and benefits, including through promotional videos. Sharing best practice business cases.
Beneficiaries and benefits	Stakeholders understand the value of what is being delivered. Future actions are more likely to extend the benefits.
ISA2: eligible activities	The development of mechanisms that measure and quantify the benefits of interoperability solutions The development of methodologies for assessing the cost savings arising from implementing interoperability solutions
ISA2: prioritisation criteria	The contribution to the interoperability landscape, to be measured by how important and necessary is the action

Output name	4.4 Operational handover
How delivered?	The 'operational' package will contain through documentation of the solutions and how they should be set up in a typical operational environment. Specialists will be on hand to answer questions and, if required, participate in the handover process. Where solutions are implemented separately in different locations, ELISE will facilitate knowledge sharing within the community.
Beneficiaries and benefits	Public administrations can rely on operational interoperability services with known service levels Wider roll out in MS beyond the pilot communities can be supported.
ISA2: eligible activities	Bringing new interoperability services and tools to maturity, and maintaining and operating existing interoperability services and tools on an interim basis
ISA2: prioritisation criteria	The reusability of the action, to be measured by the extent its results can be re-used

4.1.12 COSTS AND MILESTONES

4.1.12.1 Breakdown of anticipated costs and related milestones (Inception phase)

The proposed ELISE work programme spans five years, with year 1 the "Inception" phase (containing inception activities and evolution of EULF and ARE3NA solutions), years 2-4 the "Execution" phase (containing largely execution activities) and year 5 the "Operational" phase (containing largely the readying of solutions for operation, support to handover of solutions, and transition to "operational governance"). The work programme will be based on the elements identified elsewhere in this

proposal, although precise details of the relevant costs and milestones will be identified on a rolling basis. The anticipated costs and related milestones for the Inception phase are shown in the table below.

Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA/ others (specify)	Start date	End date
	1. Studies				
Inception	1.1 DSM assessment and plan: Assessment of geo-DSM barriers to free-flow of data and adoption of 'once only' and 'digital by default' principles. Plan for addressing barriers and supporting relevant principles. Draft report in year 1. Final report envisaged Q3/2017.	165	ISA	Q3/2016	Q2/2017
Inception	1.2 Pilot feasibility studies (where needed): e.g. EU gazetteer, Open EU mapping, Address registries: Initial work on EU gazetteer study. Final report for first feasibility study envisaged Q3/2017	60	ISA	Q4/2016	Q2/2017
	2. Tools				
Inception	2.1 Location guidance, e.g. DSM (including open data), spatial data modelling, INSPIRE adoption, geodata and statistics. Rolling work programme agreed with stakeholders. Guidance on first topic completed Q4/2017.	59	ISA	Q4/2016	Q2/2017
Inception	2.3, 2.4, 2.5 EIF alignment, solution patterns and inventories: Integration of EIS and EIF changes into existing EULF and ARE3NA deliverables; first patterns of processes, services and applications and inputs to EIRA / EICart in year 1. Continued inputs in future years.	54	ISA	Q3/2016	Q2/2017
Inception	2.6 ARE3NA Reference Platform : Updates to platform agreed with stakeholders for year 1. Multi-year programme of updates envisaged.	90	ISA	Q3/2016	Q2/2017
Inception	2.7 Re3gistry update, federation, maintenance and support . Registry operational solution with supporting guidance and training available Q3/2017. Further upgrades	120	ISA	Q4/2016	Q2/2017

Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA/ others (specify)	Start date	End date
	envisaged.				
Inception	2.9 Common services: EU gazetteer. Analysis, design and initial phase of development in year 1. Expected duration of development around 24 months.	150	ISA	Q3/2016	Q2/2017
	3. Applications				
Inception	3.1 Better Regulation Energy Pilot phase 2 scoping and mobilisation. Expected duration of pilot phase 18-24 months in total.)	90	ISA	Q4/2016	Q2/2017
	4. Services				
Inception	4.1 Demand, opportunity and benefit analysis: Initial analysis of demand and opportunities in the EU policy landscape, in MS for improvement of location-enabled public services, for improved public private partnerships, and for improving services to citizens and involving them more extensively. Continued intelligence gathering and analysis in future years.	105	ISA	Q3/2016	Q2/2017
Inception	4.2 Geospatial Knowledge Base, training and user support: Evaluation of effectiveness of ISA SIS Working Group, assessment of ISA2 governance needs, reformulation of group, and initial meetings. Terms of reference and plan for Geospatial Knowledge Base. Plan for support to DIGIT on ICT and IOM assessments. User outreach events. Training assessment and plan. Continued support in future years.	75	ISA	Q3/2016	Q2/2017
Inception	4.4 Operational handover: Assessment of sustainability requirements for solutions and plan for fulfilment of these requirements	15	ISA	Q4/2016	Q2/2017
	Total	983			

Note: ELISE is a multi-year action. The above table shows only the milestones and required budget in the first year. In several work areas, there will continued activity and further milestones in subsequent years. See section 1.1.9 Expected Re-usable Outputs (target release dates).

The proposed work elements are also important to the JRC in supporting the evolution of INSPIRE and its wider scientific interests in data and technology. Consequently, resources from ISA will be complemented by JRC institutional staff resources, that will cover management and governance support, as well as more specific technical support on INSPIRE issues.

4.1.12.2 Breakdown of ISA funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Inception	983	
2017	Execution	2,700	
2018	Execution	2,900	
2019	Execution	2,000	
2020	Operation	1,100	

4.1.12.3 Planning for the tendering procedures to be launched for the action

Call for tenders foreseen Global amount in KEUR	Call for Tenders Duration in years	Indicative planning of publication (QX/YYYY)
-	-	-
-	-	-

4.1.13 ANNEX AND REFERENCES

Description	Reference link
INSPIRE Directive, Implementing Rules and Technical Guidelines	http://inspire.ec.europa.eu/
European Union Location Framework	http://ec.europa.eu/isa/actions/02-interoperability-architecture/2-13action_en.htm
ARE3NA	http://ec.europa.eu/isa/actions/01-trusted-information-exchange/1-17action_en.htm
UN-GGIM Europe website	http://un-ggim-europe.org/
European Location Framework (ELF) project website	http://www.elfproject.eu/
Covenant of Mayors initiative on energy sustainability	http://www.covenantofmayors.eu/index_en.html

5. E-PROCUREMENT / E-INVOICING – SUPPORTING INSTRUMENTS

5.1 EUROPEAN PUBLIC PROCUREMENT INTEROPERABILITY INITIATIVE (2016.05)

5.1.1 IDENTIFICATION OF THE ACTION

Type of Activity	Reusable generic tools, common frameworks
Service in charge	DIGIT B4/ GROW G4 / OP C
Associated Services	CNECT.H3, DIGIT B6, GROW F3

5.1.2 EXECUTIVE SUMMARY

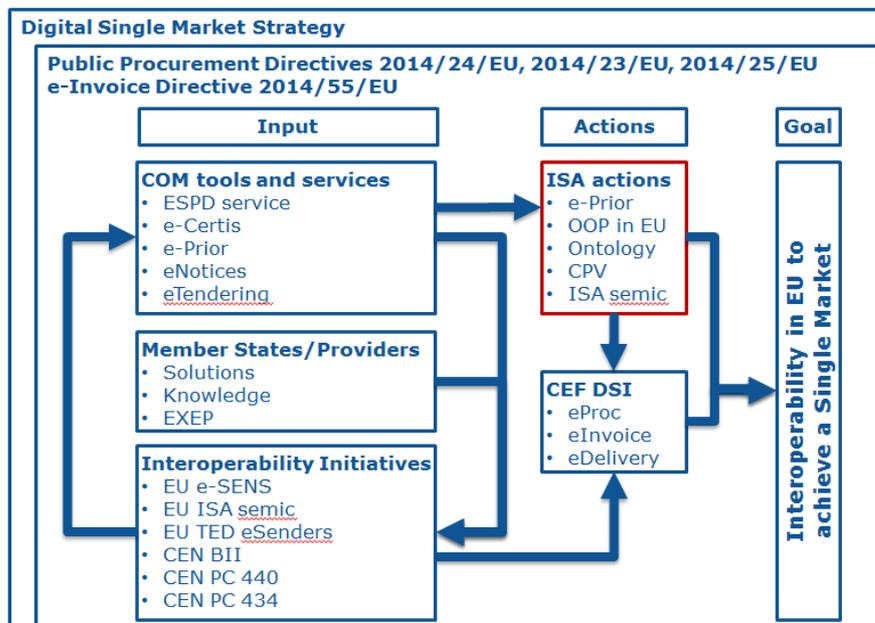
The window of opportunity to achieve a true digital single market in Europe for public procurement within the next few years is within reach. By combining the different elements contributing to electronic public procurement a strong basis is formed to reach this goal:

- The Digital Single Market Strategy (DSM) recognizes that Information and Communications Technology (ICT) is the foundation of modern economic systems and that public procurement plays an important role in promoting standards and interoperability.
- The new public procurement Directives [2014/23/EU](#), [2014/24/EU](#) and [2014/25/EU](#) specifically mention that tools and devices used for communicating electronically should be non-discriminatory, generally available, and interoperable. One of the consequences deriving from the directives is that e-Procurement will gradually become mandatory in the EU. From April 2016 eNotification and electronic access to tender documents will be mandatory. From April 2017 eSubmission will also be mandatory for Central Purchase Bodies and from October 2018 for all contracting authorities. In addition e-Certis (a mapping tool for evidences) and the European Single Procurement Document will become mandatory from April 2016 on. The eInvoice Directive [2014/55/EU](#) makes the reception and processing of electronic invoices mandatory by 2020.
- There are several interoperability/standardisation initiatives in Europe that have been working in the area of public procurement for several years, such as CEN BII. Due to their long history and experience their results are reaching a high level of maturity, especially in the area of post award. An important interoperability pilot on connecting eTendering⁴² systems throughout Europe is currently ongoing through the EU large scale pilot e-SENS.
- In some Member States a high degree of IT implementation has been reached in public procurement, where a lot of knowledge and solutions have been provided by both public and private service providers. These service providers generally participate in interoperability initiatives to share their knowledge and ensure that interoperability can be achieved. The services in charge of this action also participate in these initiatives.
- The European Commission provides tools and services for public procurement. The Publications Office is mandated to publish notices about procurement procedures above the thresholds mentioned in the Directives. The eTendering application of the Publications Office publishes tendering documents from the Commission and the European Institutions and

⁴² The eTendering systems may cover any combination of the different parts of the procurement chain and should not to be confused with the eTendering application of the Publications Office; which provides access to tender documents.

bodies. e-Certis and the ESPD developed by DG GROWTH will be a cornerstone to achieve the once-only principle in Europe. e-Prior, a procurement tool, covering Pre Award (from eSubmission) and Post Award business processes developed by DG DIGIT uses standards coming from for example CEN BII and is an important potential asset to improve and support interoperability on a European scale.

- The Connecting European Facility (CEF) is an important financial instrument to support public and private entities to help them make their solutions interoperable in the area of public procurement and other domains. CEF will help to implement the European standard on eInvoices, exploit the ESPD and ensure eTendering solutions become interoperable. CEF will be fed by the results from the ISA² programme and through interoperability initiatives.
- ISA² itself will not only help to update existing tools like e-Prior or e-Certis but it will also foster interoperability through a common public procurement ontology and will support the implementation of the once-only principle in Europe. Commission tools, solutions and services will play an important role in ensuring maturity is reached within eProcurement as they form a natural counterpart to standards within the domain. The figure below shows the overall relationship of the ISA² actions in relation with the other points mentioned above.



Combining the legal backing, the technical experience and financial instruments we have the possibility to implement interoperability in the EU to achieve a single market. We will work closely together with the expert group on eProcurement (EXEP) not only to disseminate the results but also to identify gaps that we need to address in the context of the ISA² programme. The ISA² programme and CEF will go on until 2020, the public procurement Directives will have to be fully implemented by 2018 and the eInvoice directive has to be implemented by 2020. Therefore action has to be taken fast to make full use of this window of opportunity.

5.1.3 OBJECTIVES

5.1.3.1 Context

CEF

The Connecting Europe Facility (CEF) Programme is part of a complex ecosystem where the interplay with Standard Development Organisations (SDOs), other EU programmes, the market and other stakeholders is crucial.

The CEF Telecom Guidelines specify that DSIs must:

- Have sufficient maturity to be deployed (both technically and operationally);
- Contribute to the Union's policies and activities in support of the internal market;
- Become sustainable in the long term with a defined strategy and plan;
- Comply with international and/or European standards or open specifications and orientations for interoperability.

The CEF Work Programme includes already 2 DSIs that are related to e-Procurement, e-Invoicing and e-Certis. Starting from 2017 the e-SENS services related to e-Procurement will be included in the CEF work programme, some of these services are related to e-Procurement (e.g.: Virtual Company Dossier and eTendering).

Digital Single Market

The support of standards is essential for the adoption of the e-Procurement solutions by Member States and fully in line with the Digital Agenda for Europe, one of the seven flagship initiatives of the *Europe 2020 Strategy*. The latter defines how wider deployment and more effective use of ICT will enable the delivery of the social and economic benefits Europe 2020 aims for. The **digital single market**⁴³ is one of the seven main topics of improvement defined in the digital agenda. In the political guidelines for the new European Commission, president Juncker also defines a connected digital single market as one of the 10 priorities. The guidelines state that a fully functioning digital single market could contribute as much as 250 billion additional EU GDP Growth in the course of the mandate of the new Commission.

Public Procurement Directives

The new directives 2014/23/EU, 2014/24/EU, 2014/25/EU entered into force in April 2014. The Member States have until April 2016 to transpose the new rules into their national law (except with regard to e-procurement, where the deadline for implementation is **October 2018**).

The main expected improvements deriving from the transposition of the directives are:

- Simpler and more flexible procurement procedures.
- Strategic use of public procurement in response to new challenges⁴⁴
- Higher participation of small and medium enterprises in public procurement and thus easier
- Sound procedures
- Governance

The new Directives specifically mention that **tools and devices used for communicating electronically should be non-discriminatory, generally available, and interoperable.**

⁴³ http://ec.europa.eu/priorities/digital-single-market/docs/dsm-communication_en.pdf

⁴⁴ e.g.: environmental protection, social responsibility, innovation, combatting climate change, employment, public health

One of the consequences deriving from directive 2014/24/EU is that **E-procurement will gradually become mandatory in the EU**. Practically this means that:

Deadlines	Description
April 2016	electronic notification and electronic access to tender documents (e-Access) will become mandatory for all contracting authorities
April 2017	electronic submission of offers (e-submission) will become mandatory for Central Purchasing Bodies;
October 2018	Adoption of electronic submission of offers (e-submission) will become mandatory for all contracting authorities

The **European Single Procurement Document (ESPD)**⁴⁵, a standard self-declaration form will facilitate this. The ESPD will be the document to ask economic operators information for the exclusion and selection criteria.

From **2018**, contracting authorities will have to ask primarily for certificates and other documents listed in **e-Certis**, which will become a sort of clearing house for these documents.

5.1.3.2 List of Objectives

This action has the following objectives:

1. Contribute to definition of standards for interoperability and support interoperability initiatives like eSens to bring software components to the level of maturity required by the CEF, to include them in the CEF eProcurement DSI and the CEF eInvoice DSI (alignment to the **European Interoperability Strategy**, the **Digital Single Market Strategy**).
2. Facilitate the implementation of eProcurement for European Public Administrations by building further on the results of the action 1.7 of the ISA programme to provide an open source software solution that is in line with the new Directive 2014/24/EU and with standards, in particular with interoperability standards issued by the CEN BII workshop, TC 434, TC 440 and eSens (alignment to the **European Interoperability Strategy**, the **Digital Single Market** and the **EU Procurement Legislation**).
3. Reduce the administrative burden and simplify procedures for buyers and suppliers to encourage cross border public procurement procedures. The implementation and introduction of the once-only principle (OOP) will allow a tenderer from a specific Member State to have an easier understanding, access of the required evidence of a foreign contracting authority and therefore the tenderer to provide the evidences through the respective e-Procurement system, and ultimately via full automation of this data exchange, when participating in a tender announced in another Member State,
4. Provide better means to enhance not only interoperability but also to improve the overall data quality and reusability in view of the European interoperability strategy and the **Digital Single Market strategy** good data quality plays a crucial role in reaping the full benefits for public procurement and helping economic operators find the right opportunities more easily

⁴⁵ Art 59 of 2014/24/EU Directive

By fulfilling these objectives, the project will not only stimulate trusted information exchange and semantic interoperability, but also a cohesive interoperability architecture founded on re-use of work and reduction of redundancy.

5.1.4 SCOPE

Following the defined objectives, the scope of this project is divided in activities grouped in 3 sub-actions:

Activity ID	Activity	Related Objectives	Sub-action
Act-010	Alignment of Pre-Award solution produced by ISA action 1.7 to Directive 2014/24/EU.	Objective 1 Objective 2	<i>e-Proc-01 (DIGIT B4)</i>
Act-020	Pilots and operations	Objective 1 Objective 2	
Act-030	Provide an alternative Open Source software solution	Objective 2	
Act-040	Develop interoperable services to be included then in CEF DSIs	Objective 1	
Act-050	Alignment of solution produced by ISA action 1.7 to standards evolution	Objective 1 Objective 2	
Act-060	Contribution to standards evolution	Objective 1	
Act-070	Support of European Single Procurement Document (ESPD) in Pre-Award solution	Objective 2	
Act-080	Assess e-SENS components and, if needed, complete them	Objective 1	
Act-090	Migrate Commission eSourcing application to Open Source	Objective 2	
Act-100	Instantiation of Procurement Open Data from e-PRIOR transactions	Objective 1	
Act-110	Connecting e-Certis, the exchange model based on the ESPD service and services of aggregators	Objective 3	<i>e-Proc-02 (GROW G4)</i>
Act-120	Update and Maintenance of e-Certis and the ESPD service.	Objective 3	
Act-130	Development of a public procurement ontology	Objective 4	<i>e-Proc-03 (OP C)</i>
Act-140	Modernisation of the CPV	Objective 4	
Act-150	Harmonized code lists in in eProcurement system	Objective 4	

Activity Description	
Act-010	<p>Align the deliverables of ISA action 1.7 (Pre-Award solution) to the new Directive 2014/24/EU and extend them. Major points to be considered:</p> <p>Central Purchasing bodies⁴⁶</p> <p>Related functionalities are <i>the execution of Framework agreements</i>⁴⁷. See entry about <i>Act-090</i> in this table) and <i>Joint procurement</i></p> <p>New and revamped procedures:</p>

⁴⁶ Article 37 of 2014/24/EU Directive: Centralised purchasing activities and central purchasing bodies

⁴⁷ Article 33 of of 2014/24/EU Directive: Framework agreements

	<p>Some procurement procedures have been reviewed by the directive (e.g.: simplification of <i>Dynamic Purchasing Systems</i>, greater freedom to use <i>Competitive Dialogue</i> and <i>Competitive Procedures with Negotiation</i>) or even new procedures types have been introduced ("<i>Innovation Partnership</i>"). However, due to the approval delays of the Directive, building blocks/architectural elements, essential to build the full support of some procurement procedures types, have been developed more than the full support for procedures (their rules were not stable and nor yet reflected in the transposition of the real Financial Regulation⁴⁸).</p> <p>Labels⁴⁹</p> <p>The new Directive introduces selection criteria related to social / labour / environmental obligations that might require certification via labels.</p> <p>Easier access to the market for SMEs</p> <p>Apart the simplifications deriving from the introduction to the ESPD⁵⁰ (see Act-070), splitting contracts into lots⁵¹ becomes now the rule. Some improvements to the support of lots are candidate to be developed.</p>
Act-020	Set an example, promote cross-border e-Procurement in Europe and at the same time assess the validity and maturity of the developed components in a significant cross-border context.
Act-030	Provide e-Prior as an alternative open source solution through Joinup, the helpdesk and through exhibitions. As stated in the scoping paper for the CEF elnvoice DSI: "The CEF will not support the development of new solutions. Member State administrations should, where possible, avoid developing new e-invoicing platforms and instead use an e-invoice solution existing in the market which fits their needs. The e-PRIOR platform could be an option if no suitable platform is found." This applies to the pre-award solution as well.
Act-040	Put the grounds for the sustainability and evolution of the core interoperability enablers defined by CEN BII both in the Pre Award and Post-Award e-Procurement business chain. Once a sufficient level of maturity is reached, some services are candidate to be included in a CEF DSI.
Act-050	<p>UBL and other formats:</p> <p>In the same line as Peppol BII, upgrade to latest UBL XML specification (currently 2.1) and support the other formats, which will be adopted by the CEN TC 434 CEN Project Committee on "Electronic Invoicing".</p> <p>CEN BII Profiles/ TC440⁵²:</p> <p>The alignment to new CEN BII profiles is key for the adoption of e-Procurement solutions by Member States and for interoperability, in particular in a cross-border context.</p> <p>CEN BII Profiles, documented and published as CEN Workshop Agreements (CWAs), are designed to facilitate interoperability and effective public e-procurement based on a modular approach for implementation. The on-going CEN WS/BII3 focuses on improving the specifications, including additional business requirements and ensuring wider adoption.</p> <p>Some of new / updated CEN BII Profiles for Pre-Award are:</p> <p><i>BII11/BII49 Qualification, BII53 Tender Withdrawal, BII50 Tender Clarifications, BII58 Notify Awarding, BII59 Contracting, BII56- Virtual Company Dossier, BII41-ESPD, BII37 and 39 Open and Restricted procedures.</i></p>

⁴⁸ eg: the EU Financial Regulation is still under review at the time this document is being drafted

⁴⁹ Article 43 of 2014/24/EU Directive

⁵⁰ Article 59 of 2014/24/EU Directive

⁵¹ Article 46 of 2014/24/EU Directive

⁵² " that will build upon CEN BII3 deliverables.

	<p><u>Remark:</u></p> <p>ISA action 1.7 is developing some of the exchange types between Contracting Authority and Economic Operators (Evaluation and Awarding modules of e-PRIOR Pre Award) but, since BII3 conclusions were not yet fully available when the development started, a simplified message exchange mechanism was adopted. As a consequence a "migration" towards the official new CEN BII Profiles is required.</p> <p>Evolution of client-side technology for e-Submission solution</p> <p>The new version of the HTML standard delivered in Oct 2014 (HTML 5) includes APIs that allow enriching the browsers with features (e.g.: "end-to-end") that, in the past, needed the use of Applet technology to be executed on a client workstation.</p>
Act-060	<p>ISA action 1.7 has continually fed the successive CEN.BII workshops with first-hand experience and improvement opportunities. It has been seen by the CEN.BII representatives as one of the few crucial initiatives for the success of their workshops. The aim of this activity is to pursue this successful collaboration.</p> <p>The CEN BII Profiles should support the exchange needs identified by the Business Process analysis and the requirements deriving from the new Directive.</p> <p>In particular at the moment when this document is being written, CEN BII profiles do not yet fully reflect some of the changes introduced by the Directive⁵³. This action will then foresee analysis aiming at contributing, via the active participation to CEN BII workshops, to the alignment of CEN BII profiles and its follower PC440 to the new Directive requirements.</p>
Act-070	<p>The proposed activity consists in supporting the e-Submission module of e-PRIOR to interoperate with the ESPD (see Act-110), either via the "central" service currently under development by DG GROW, or via variants developed by Service Providers whilst using the e-Certis services.</p> <p>Even if the point about ESPD support is actually part of activity Act-010, it deserves a specific activity due to the importance of this new element introduced by the Directive and aiming at simplifying the submission process of Economic Operators, of SMEs in particular.</p> <p>Links: <i>This activity has a link (dependency) with Act-110 and Act-120 (part of GROW G4 sub-action).</i></p>
Act-080	<p>The CEF Work Plan for 2016 will include services developed in the context of the e-Procurement activities of the e-SENS pilot. The level of maturity of some of these services might need an analysis and assessment phase. The conclusions might be that some of these services need further development before being included in a CEF DSI.</p>
Act 090	<p>DIGIT has invested in putting in place a Commission eSourcing solution to manage the implementation of framework agreements (Sourcing for re-opening competition and cascade) and implementation of low value contracts. This successful experience can be shared by creating an open source version of it.</p>
Act-100	<p>Instantiation of Procurement Open Data from e-PRIOR transactions</p> <p>Based on the CEN BII recommendations and guidelines on the Procurement Open Data, it is proposed</p> <ul style="list-style-type: none"> • To identify e-Prior data that qualifies to be published as Open Data. • To transform this data using data standards and vocabularies coming from the

⁵³ eg: support of criteria allowing to verify the respect of social / labour / environmental obligations – see Articles 43, 44, 70 of 2014/24/EU Directive

	<p>eProcurement Ontology ISA Action, and suitable formats and best practices (e.g. RDF, Linked Open Dataset (LOD^[1]). The final produced datasets should be published as open data and registered into the EU Open Data Portal and/or other Open Data Portals (e.g. the Pan-European Open Data Portal) using the experience from similar projects e.g. the EU Budget vocabulary.</p> <ul style="list-style-type: none"> To demonstrate the feasibility of consuming and visualising the Open Data with data analytics and visualisation tool based on results of other relevant ISA and ISA²Actions. <p>LOD is part of the more general Open Data initiatives to publish data from institutions and other bodies of the European Union (EU). The European Union Open Data Portal^[2] provides Linked Data^[3] from various sources which allows computer systems to gather and analyse this data. The importance of Open Data for innovation, competition and competitiveness has been highlighted in the Communication 882^[4] of 2011 from the Commission on Open Data. Open data as a basis for data analytics tools like red flag systems can also be important for the fight against corruption.</p> <p>Links: <i>This activity has a link (dependency) Act-130 (part of OP C sub-action).</i></p>
Act-110	<p>Connecting e-Certis, the exchange model based on the ESPD service and services of aggregators.</p> <p>The primary aim of this activity is to achieve OOP in public procurement by connecting the mapping service e-Certis, the exchange model based on the European Single Procurement Document (ESPD) service and services of aggregators based on services such as the Virtual Company Dossier, and piloting the connection in a selected number of Member States. The ISA-supported services provided by the European Commission such as e-Certis and the ESPD service will be updated and maintained.</p> <p>The main deliverables will be specifications on how to achieve the interoperability between the stakeholders for the bidding and "winning tenderer only" phase. Those two phases are relevant for the communication between suppliers and buyers in a public procurement procedure for dealing with the ESPD and evidences.</p> <p>This will have a direct spill over effect by demonstrating the possibility for all Member States to connect their systems to the framework developed within this action.</p> <p>Links: <i>Act-070 (part of DIGIT B4 sub-action) has a dependency link with this activity.</i></p>
Act-120	<p>Update and Maintenance of e-Certis and the ESPD service will be updated and maintained.</p> <p>The ESPD service and its artefacts were developed under the ISA programme (Action 2.16). The service and artefacts will be maintained and extended as part of this action. E-Certis, which was also developed under the ISA programme (action 2.17), will be maintained and extended as part of this action.</p> <p>Links: <i>Act-070 (part of DIGIT B4 sub-action) has a dependency link with this activity.</i></p>

^[1] <http://open-data.europa.eu/en/linked-data>

^[2] <http://open-data.europa.eu/en/about>

^[3] <http://open-data.europa.eu/en/linked-data>

^[4] <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0882:FIN:EN:PDF>

Act-130	<p>Development of a public procurement ontology</p> <p>This ontology will enable the rationalisation and interoperability within the public procurement workflow for the various actors concerned and thus will facilitate the creation, exchange, dissemination and reuse of the resulting data. It will cover both pre- and post-award. The ontology will ensure transparency and accountability. It will help to provide defined data in graphs allowing for better economic analysis, market research, business intelligence and therefore greater accuracy when reusing information.</p> <p>The basis for the ontology represented in the Web Ontology Language (OWL) will be a conceptual model which is part of this action. The OWL ontology will include specifications on how to use it in current systems and trainings or webinars are envisaged to disseminate its use.</p> <p><i>Links: Act-100 (part of DIGIT B4 sub-action) has a dependency link with this activity.</i></p>
Act-140	<p>Improvement of the CPV</p> <p>The CPV system will be modernised and provided through a Regulation. The modernisation of the current Common Procurement Vocabulary (CPV) will facilitate contracting authorities when initiating procedures to help economic operators to find the right opportunities more easily.</p>
Act-150	<p>Harmonisation of code lists</p> <p>During the exercise of developing the ontology (Act-130) and updating the CPV (Act-140) a side initiative will be providing harmonized code lists used within in the procurement chain and systems. The aim is to harmonise the code lists with other initiatives such as CEN BII and UBL and to make them publically available on the metadata registry.⁵⁴</p>

OUT OF SCOPE:

(1) Infrastructure elements/services (e.g.: communication services are provided by eTrustEx and/or e-Delivery, e-Signature services are provided by external services)

(2) In particular with reference to Act-110 and Act-120:

- Financial support for public and private entities (aggregators, service providers).
- Assistance to Member States with non-existing or insufficiently interconnected national registers or with non-existing aggregators

CEF will be used to support aggregators, service providers and national registers in integration of the specification

5.1.5 PROBLEM STATEMENT

- The **Connecting Europe Facility (CEF)** Programme includes 2 DSIs that are related to e-Procurement. Starting from 2016 the e-SENS services related to e-Procurement will be included in the CEF work programme; some of these services are related to e-Procurement. Since CEF DSIs

⁵⁴ The Metadata Registry registers and maintains definition data (metadata elements, named authority lists, schemas, etc.) used by the different European Institutions involved in the legal decision making process gathered in the Interinstitutional Metadata Maintenance Committee (IMMC) and by the Publications Office of the EU in its production and dissemination process.

must have sufficient maturity to be deployed, some e-Procurement software components still need to reach the level of maturity required by the CEF. This action will aim at bringing them to be included in CEF DSIs.

- **The new Directives adopted in 2014** have introduced changes about procurement procedures (new procedures, changes for some existing procedures) and introduced some measures to make access to the market easier. Moreover the consequences deriving from Directive 2014/24/EU is that e-procurement will gradually become mandatory in the EU and a series of deadlines have been established on the use of e-solution for some specific business processes (e.g.: e-submission). This requires an alignment of the solutions already implemented via the e-PRIOR action in the ISA programme and the new CEN WS/BII 3 profiles ePrior will first align with the profiles already existing in the ePrior PreAward solution and then introduce solutions for those profiles which still need to be covered.
- For the moment, **cross-border bidding** is difficult due to the fact that national procurement systems and national registers are not sufficiently integrated, interoperable and supportive of the once-only submission of data by the tenderers. This leads for example to the **problem of mutual recognition of evidences used in different Member States**. That a buyer in one Member State will access a database of another country to retrieve evidences that are not in his language will lead to defensiveness. An important success factor is the cooperation with aggregators of data evidences in Member States and standardization initiatives like CEN/PC 440. Aggregators like ROLECE in Spain, e-Attestations in France, DIHK in Germany or ANKÖ in Austria play an important expert role in the process of implementation of OOP in public procurement, given that they will provide further support services for provision of evidences to their clients - potential tenderers. Inclusion of aggregators from various Member States will enable implementation of the OOP on a cross-border basis.
- Although pre-award and post-award information are openly available on **Tenders Electronic Daily**:
 - the information only covers procurement procedures above the European thresholds, therefore information below the thresholds is not necessarily comparable unless the same concepts have been used;
 - the relations between the different concepts in the procurement chain and data flow are not fully documented, therefore data and data relationships cannot be reused directly in a flexible and comparable manner;
 - much of the data available has inherited formats from its paper origins leading to illogical business processes and incorrect conceptual models;
 - taxonomies like CPV are often not correctly used which creates severe problems like making it very difficult for SMEs to find correct business opportunities.

5.1.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States' Public Administrations - implementers of Public Services	<ul style="list-style-type: none"> • Free-to-use open source tool, e-PRIOR, for implementing electronic public services for both pre- and post-award e-Procurement. This system includes out-of-the-box functionality – the e-Delivery Connector – to connect to the e-Delivery infrastructure; • Free-to-use open standards for data and processes (CEN/ISSS WS/BII 3) that have been tested in a real-life environment ; • Shared experience in and support for setting up pre- and post-award e-Procurement; • Large cost savings and efficiency improvements, with reduced investment; • Provide example of a real-life implementation of the European Interoperability Framework (EIF); • Provide solutions in line with the new Directive 2014/24/EU
Stakeholders of the CEF Programme	This action will contribute to develop services that, once reached a sufficient level of maturity, can be included in the eProcurement DSI.
Companies, System Providers, System Integrators	The adoption by Public Administrators of services and component in line with open standards for data and processes will make easier the work of Companies having their system interacting with Public Authority procurement platforms and of System Providers and System Integrators.
Suppliers/SMEs	Suppliers and in particular small and medium enterprises will be the main beneficiaries of this action. It will cut the administrative burden related with provision of evidences for each public procurement procedure close to zero. As well it will be easier for them to find opportunities.
Contracting authorities	Contracting authorities will benefit from the discontinuation of any paper evidences and simplification of the evaluation procedures.
Aggregators	<p>Aggregators will play a key role in reaping full benefits of the Once-Only principle by providing much better tools and services for buyers and suppliers. They will be supported financially via the Connecting European Facility.</p> <p>NOTE</p> <p>A European Commission study on eGovernment and the reduction of administrative burden (see here) projected in 2014 that implementation of the OOP is likely to generate annual net savings of 5 BEUR at EU28 level by 2017 (p. VI). As the new public procurement Directive 2014/24/EU fosters the use of the mapping service e-Certis and the ESPD this is a good opportunity to take aggregators of evidences on board to achieve implementation of the "Once-Only Principle" in the public procurement procedures conducted in the EU</p>

National registers	The results of the Once-Only principle action will provide a very good basis for national registers on how to exchange information with aggregators or other entities.
Standardisation initiatives	The output of this action will be defined in collaboration with standardisation initiatives such as e-SENS, CEN BII and its successor CEN PC 440 as well as ISA. This will help to harmonize/standardize the exchange models for transaction in the domain of public procurement as well.
Government	The data will be more readily exploitable for both dissemination and reuse in a flexible manner. Thus the data will be transparent, open and reusable leading to much better policy making
Governmental Economists	Can access and analyse data easily on public spending
Information brokers	Business intelligence can be gathered more precisely
Journalists and researchers	Can reuse the data they want directly without needing to export all the data contained in all notices and then search on this information for the required data.

5.1.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Directives 2014/23/EU, 2014/24/EU and 2014/25/EU	The DSM Strategy and this is supported by the new public procurement Directives, which mandates the use of e-Certis and ESPD. e-PRIOR is seen as an important action to support e-Procurement in Europe http://ec.europa.eu/growth/single-market/public-procurement/modernising-rules/reform-proposals/index_en.htm
Directive on e-Invoicing (DG GROW)	The European Commission is leading by example by implementing e-Invoicing for its own public procurement purposes, through e-PRIOR.
Digital Single Market	The Digital Single Market Strategy for Europe provides the overall framework for this action: boosting competitiveness through interoperability and standardisation is explicitly mentioned in the communication "A Digital Single Market Strategy for Europe"
e-SENS	The e-SENS project is organising pilots in different business domains, including e-Procurement. They are mainly putting the e-Delivery layer to the test. As well, at the moment within e-SENS, an eTendering pilot among several Member States is ongoing. The main goal of this pilot is to achieve interoperability among eTendering solutions so that economic operators are able to use their favourite bidding tools to communicate with solutions all over Europe. Some building blocks within e-SENS such as eDelivery,

	eSignature and eID are candidate to be re-used for pilots. In particular e-SENS will support the definition of ESPD data exchange model and will integrate this model in their Virtual Company Dossier (VCD) reference implementation.
CEF	<p>Connecting Europe Facility. There is an e-Invoicing Digital Service Infrastructure, related to the e-invoicing directive and standardisation initiative, which will bring changes to the way an e-invoicing platform can be compliant. In 2015 a new DSI for eProcurement was included in the Work Programme and consisting of the e-Certis services to allow third parties to access the information electronically. e-Certis will be followed in 2016 by other actions to complete the eProcurement DSI. Mature results from the e-SENS eTendering pilot are expected in 2015 so that this will be one of the next elements in the CEF eProcurement DSI. Other services that may be considered for 2016 are the European Single Procurement Document (ESPD) and eOrdering.</p> <p>The CEF will be used to support to support aggregators, service providers and national registers in integration of the specifications via calls for grants</p>
eIDAS	<p>Regulation on electronic identification and trust services for electronic transactions adopted at end of 2014 which will further foster interoperability and will reduce barriers in the internal market.</p> <p>http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.257.01.0073.01.ENG</p>
CEN BII, TC 434 and TC 440 workshops	<p>The BII Workshop is a standardisation initiative within CEN (European Committee for Standardisation). It provides a framework for interoperability in pan-European electronic transactions expressed as a set of technical specifications.</p> <p>The BII specifications have been implemented in several institutions, including the European Commission, and government agencies in Norway, Sweden, Italy, Netherlands, Iceland, etc.</p> <p>http://www.cenbii.eu/</p> <p>Following the adoption of Directive 2014/55/EU on e-invoicing in public procurement and in accordance with the provisions of Article 3 within, the Commission issued standardisation request to the European standardisation organisations in December 2014. The work is being carried out by the CEN Project Committee on Electronic Invoicing (CEN/TC 434).</p> <p>CEN TC 440 will build upon CEN BII3.</p>
See also ISA actions mentioned in section 5.1.8 REUSE OF SOLUTIONS DEVELOPED BY ISA, ISA2 OR OTHER EU / NATIONAL INITIATIVES	

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

Solution	Description
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ISA action 1.1	<p><i>SEMIC (Semantic interoperability):</i></p> <p>Work carried out under Action 1.1 of ISA covering the pilot of TED as LOD, use cases and information requirements will be used as initial input for the ontology. In addition other existing public procurement and more general ontologies will be evaluated. <i>SEMIC</i> will support the definition of the core evidence and criteria vocabulary needed for the once-only principle sub action.</p> <p>Relevant activities in this action (see section 5.1.4 SCOPE): <i>Act -130 (OP C sub-action) and Act-100 (DIGIT B4 Sub-action)</i></p>
ISA action 2.16	<p><i>ESPD</i></p> <p>The ESPD is defined in Article 59 and e-Certis in Article 60 of Directive 2014/24/EU. The ESPD service and its artefacts were developed in alignment with the ISA SEMIC Action. The service and artefacts will be maintained and extended as part of this action led by DG GROW.</p> <p>ESPD has an influence on the pre-award process: less information required at submission time, the rest being required at a later stage. ESPD services are candidate to be included in the eProcurement DSI in 2016.</p> <p>- Note for the file (DG GROW – 11/02/2015) - ISA action on ESPD</p> <p>The e-PRIOR related activities will allow supporting in e-Submission the possibility to interoperate with the ESPD system, either the "central" one currently under development by DG GROW, or variants developed by Service Providers and using the e-Certis services.</p> <p>Relevant activities in this action (see section 5.1.4 SCOPE): <i>Act -110 + Act-120 (GROW G4 sub-action) and Act-070 (DIGIT B4 Sub-action)</i></p>
ISA action 2.17	<p><i>e-Certis,</i></p> <p>e-Certis is defined in Article 60 of Directive 2014/24/EU. It was also developed under the ISA programme, will be maintained and extended as part of this action.</p> <p>e-Certis will expose services in order to improve interoperability, with an influence on how the attestation process is organized.</p> <p>e-Certis is a free, on-line source of information designed to help economic operators and Contracting Authorities to compare and interpret different forms of documentary evidence required for cross-border tenders for public contracts. It covers evidentiary documents requested in the EU, Turkey, Iceland, and Norway (http://ec.europa.eu/markt/e-Certis/login.do).</p> <p>Relevant activities in this action (see section 5.1.4 SCOPE): <i>Act -110 + Act-120 (GROW G4 sub-action)</i></p>
ISA action 1.7	<p><i>e-PRIOR:</i></p> <p>The proposed action builds further on the results of the e-PRIOR action 1.7 of the ISA programme</p> <p>Relevant activities in this action (see section 5.1.4 SCOPE): <i>Act-010 + Act-020 + Act-030 +Act-040 + Act-050 + Act-060+ Act-070+ Act-090 + Act-100 (DIGIT B4 Sub-action)</i></p>
ISA action 1.8	<p><i>e-TrustEx</i></p> <p>The e-PRIOR related activities of this action re-use services developed by the</p>

	<p>e-TrustEx ISA action 1.8 in order to implement communication profiles allowing transmitting business messages/documents between the Economic Operators and Contracting Authorities both for the Pre-Award (e.g.: tenders) and Post-Award (e.g.: e-Invoices, e-Orders etc.) business chains. The e-TrustEx platform in fact originated from the generalisation of services that e-PRIOR initially developed for eProcurement exchanges.</p> <p>Relevant activities in this action (see section 5.1.4 SCOPE): <i>Act-010 + Act-020 + Act-030 + Act-040 + Act-060+ Act-090 (DIGIT B4 Sub-action)</i></p>
ISA action 1.22	<p><i>Big data and Open Knowledge for Public Administrations:</i></p> <p>For the Open Data related activity in ePrior (see Act-100 in "1.1.4 Scope" section) ISA action 1.22 could provide the necessary Open Source tools to consume and visualise the Procurement Open Data.</p> <p>Relevant activities in this action (see section 5.1.4 SCOPE): <i>Act-100 (DIGIT B4 Sub-action)</i></p>
ISA action 1.6 – 1.19	<p><i>"CIPA - Common Infrastructure for Public Administrations Sustainability"</i></p> <p>e-PRIOR has, via eTrustEx, an access point to the CIPA network: it can therefore be connected to the communication infrastructure developed by the CIPA action which implement cross-border public services over a common pan-European infrastructure</p> <p>Relevant activities in this action (see section 5.1.4 SCOPE): <i>Act-010 + Act-020 + Act-040 + Act-060 (DIGIT B4 Sub-action)</i></p>
ISA action 1.9	<p><i>"TSL and eSignature creation/verification tools"</i></p> <p>The e-PRIOR Pre-Award solution allows the Contracting Authority to validate e-Signatures applied to tenders by Economic Operators. In its Open Source version e-PRIOR can "plug" the DSS libraries developed in the context of ISA action 1.9.</p> <p>Relevant activities in this action (see section 5.1.4 SCOPE): <i>Act-010 + Act-020 + Act-030 + Act-050 + Act-060 + Act-070 (DIGIT B4 Sub-action) and Act-120 (GROW G4 sub-action)</i></p>
Study on CPV	<p>The work on the CPV's are based on the Review of the Functioning of the CPV Codes/System carried out for the European Commission</p> <p>http://ec.europa.eu/internal_market/publicprocurement/docs/rules/cpv/121219_report-review-cpv-codes-functioning_en.pdf</p> <p>Relevant activities in this action (see section 5.1.4 SCOPE): <i>Act-010 (OP C sub-action)</i></p>

5.1.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

The expected re-usable outputs of this action are presented as grouped around the objectives of the action presented in section 5.1.3.2 *List of Objectives*.

5.1.9.1 Related to Objective 1

Output name	Preparation of CEF e-Procurement DSI
Description	Selected e-Sens software components will be brought to the level of maturity required by the Connecting Europe Facility (CEF) Programme.
Reference	CEF Building blocks site https://joinup.ec.europa.eu/community/cef/og_page/catalogue-building-blocks
Target release date / Status	Progressive activity to be detailed at the end of Stage 0 (assessment of the e-SENS components related to e-Procurement)

5.1.9.2 Related to Objective 2

Output name	Software - Open e-PRIOR downloadable package
Description	<p>The downloadable package allows installing and configuring the e-PRIOR exchange platform implementing web services to exchange procurement documents. This allows setting-up, after tailoring and adaptations to the specific target environment (e.g.: interfaces with back-office systems of the Contracting Authorities), a node playing the role of intermediary between the back-office applications of the public administration and system connected to the CIPA network or between the back-office applications of the public administration and Economic Operators/Service Providers systems.</p> <p>For the Post Award solution:</p> <p>The e-PRIOR package includes also a web portal allowing suppliers, such as SME and individuals, to manually encode their invoices via a web form.</p> <p>About the Pre Award solution:</p> <p>It will contain also</p> <ul style="list-style-type: none"> • the Front Office component • the Back Office component <p>The Front Office is implemented by the "Supplier Portal" via which the Economic Operator can communicate with the Contracting Authority. It includes an applet allowing the Economic Operator to interact with the e-Prior platform, compose the tender and then submit it. The received tenders are routed to the Back Office via the e-PRIOR intermediary exchange platform.</p> <p>The Back-Office implements interfaces with the OP eTendering application (in charge of the publication of the Calls For Tenders) to get the Call For Tenders definition. It allows the Contracting Authority to execute the Opening Session for the tenders via the Front Office and enter the results of the Evaluation and Awarding steps (including the exchanges with the Economic Operators during these steps).</p>
Reference	https://joinup.ec.europa.eu/software/openeprior/home

Target release date / Status	New versions of e-Prior progressively available thanks to ISA ² funding starting from Q1/2017 (results of sub-action eProc-01 STAGE 1). Updates available by Q1/2018 (results of sub-action eProc-01 STAGE 2) and Q2/2019 (results of sub-action eProc-01 STAGE 3).
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5.1.9.3 Related to Objective 3

Output name	e-Certis
Description	e-Certis will be provided by the European Commission as a central service to Member States. The service provides a web service which can be accessed from solutions to offer added value for end users.
Reference	To be published on Joinup
Target release date / Status	Q1 2016

Output name	ESPD service
Description	The ESPD service will be provided by the European Commission. The source code will be made available under the European Union Public License v 1.1. Additional artefacts like the exchange data model or the results developed under Action 1.1 will be made available as well.
Reference	To be published on Joinup
Target release date / Status	Q1 2016

Output name	Specifications for the Once-Only principle in European Public Procurement (OOEPP)
Description	All information and specifications on how to achieve the OOEPP.
Reference	To be published on Joinup
Target release date / Status	Q4 2017

5.1.9.4 Related to Objective 4

Output name	Public procurement conceptual data model
Description	The conceptual data model will illustrate all data relations from pre-award to post-award. This model would provide a backbone of information when conceptualising platforms, systems and data exchange.
Reference	Not available so far
Target release	Q3 2017

date / Status	
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Output name	Formalised public procurement ontology and vocabularies and codes in OWL
Description	The public procurement ontology and codes will be the basis of creating linked data for the public procurement domain. It is envisaged to use this ontology for diffusing the data available on TED and could also be implemented across Europe by tendering platforms and governments with the support of CEF.
Reference	Not available so far
Target release date / Status	Q4 2017

5.1.9.5 Related to Objective 4

Output name	Updated and modernised Common Procurement Vocabulary codes and dissemination in the Metadata registry
Description	The CPV establishes a single classification system for public procurement aimed at standardising the references used by contracting authorities and entities to describe the subject of the procurement contracts. It is foreseen to integrate the CPV in the metadata registry which in turn will provide the reusable access to the vocabulary for tendering platforms and indeed any system that wants to integrate the codes.
Reference	Not available so far
Target release date / Status	Q4 2016

5.1.10 ORGANISATIONAL APPROACH

This action is actually composed of **three sub-actions** executing activities contributing to the objectives listed in section 5.1.3.2 *List of Objectives*. All sub-actions will be carried out in parallel by three distinct Services (DIGIT B4, GROW G4, and OP C) with mutual consultation.

5.1.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
ISA ²	ISA ² Committee/ Coordination Group
Member States	EXEP (Multi-stakeholder Expert Group on eProcurement), e-Certis editorial team, ISA ² expert group (or ISA equivalent) European Public Administrations
Aggregators	Established aggregators in several Member States
Standardisation initiatives	CEN BII, CEN TC 440, CEN TC 434, ISA Team
End users	End users
European projects	e-SENS, CEF
EU institutions	DG DIGIT, DG CONNECT, DG BUDG, OP, DG GROW, JRC
Service Providers and other procurement data users	EUPLAT: European Association of public eTendering providers Organisations identified in the TED LOD project eSenders
ERP Software Vendors	
CEF	CEF Telekom Committee
Economic Operators	For example through EXEP
European Multi-Stakeholder Forum on eInvoicing (EMSFEI)	The European Multi-stakeholder Forum on e-Invoicing takes the lead on all aspects of e-invoicing, and addresses actively the most closely related steps in the e-procurement post-award processes ranging from purchase orders to e-payments and e-archiving. The EMSFEI works in close cooperation with the EXEP and can contribute to work on any other element of e-procurement.
Multi-Stakeholders Expert Group on eProcurement (EXEP)	The EXEP is to take the overall holistic view and the responsibility regarding end-to-end e-procurement. Its work will take place in the context of the legislation in the domain of e-procurement, including the Directive on e-invoicing in public procurement'. With a view to further promoting the uptake of end-to-end eProcurement across the EU, including in the post-award phase, EXEP liaises closely with the European Multi-Stakeholder Forum on eInvoicing (EMSFEI) and with national forums.

	<p>The group is responsible for ensuring the coherence between the recommendations arising from the EMSFEI and broader policies on end-to-end eProcurement.</p> <p>It is composed of representatives of Member States' competent authorities. It also includes the key stakeholders in the area of eProcurement, e.g. representatives of European and international standardisation initiatives and European associations of users and providers.</p>
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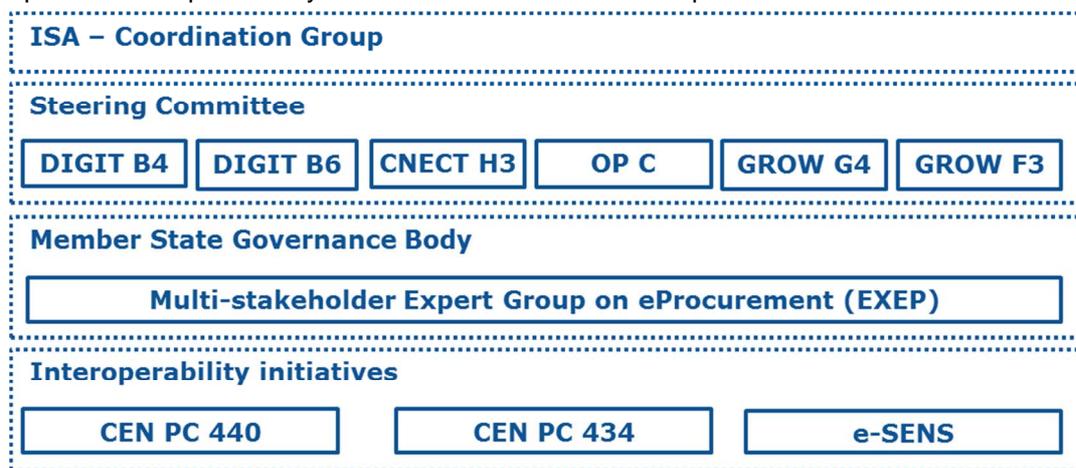
5.1.10.2 Communication plan

Event	Representatives	Frequency of meetings / absolute dates of meetings?
Multi-stakeholder forum on e-Procurement (EXEP)	Member States representatives, Standardisation initiatives, Associations	3 times a year
General events	For all stakeholders	Constantly
e-Certis Meeting	e-Certis editorial team	2 times a year
e-Certis Meeting	e-Certis service providers	3 times a year
eSender meetings	eSenders	Min 1 a year
ISA ² expert group	Meeting	2 times a year
e-SENS	Meeting	3 times a year
TC 440	Member States representatives	2 times a year
TC 434	Member States representatives	2 times a year
Workshops	Service Providers, Standardisation initiatives, EC	As necessary
EC Multi-Stakeholder Forum on e-Invoicing	DIGIT B.4 team members	Quarterly
Conferences on e-Procurement, e-Invoicing or e-Government	DIGIT B.4 team member	+/- Monthly
Websites of DG DIGIT, DG GROW, OP	For all stakeholders	Online
eProc Wiki	For all stakeholders	Online

e-Practice	For all stakeholders	Online
Joinup	For all stakeholders	Online
LinkedIn e-PRIOR Group	For all stakeholders	Online

5.1.10.3 Governance approach

A steering committee with members from DG DIGIT, OP, DG GROW and DG CNECT, will steer all ISA² and CEF eProcurement actions to make sure that the objectives are met. The main Member State governance body who will provide advice to the Commission will be the Multi-stakeholder Expert group on eProcurement (EXEP). We will work closely with the relevant interoperability initiatives to assure coherence. In addition, the communication and development of this project will be done in an open and transparent way with all stakeholders and at all possible events.



5.1.11 TECHNICAL APPROACH

This action is actually composed of **three sub-actions** executing activities contributing to the objectives listed in section 5.1.3.2 *List of Objectives*. All sub-actions will be carried out in parallel by three distinct Services (DIGIT B4, GROW G4, and OP C) with mutual consultation.

5.1.11.1 Sub-action e-Proc-01 - DIGIT B.4

This sub-action **contributes to Objectives 1 and 2** will be realized in stages: a high-level project plan, provided in the section "5.1.12 COSTS AND MILESTONES" currently covers the first three years but it will be extended via a future proposal update.

The kick-off of the action will be the Inception phase whereby a *project charter* will be set up to define in more detail the activities within the scope of this project (see section 1.1.4) and their sequence.

Following the project charter phase (Stage 0), the project will then be executed in several separate stages including development and analysis activities.

The initial series of stages follows hereafter:

STAGE 0:

It covers the production of the Project Charter and the assessment of the e-SENS components related to e-Procurement (see Activity Type *Act-080*). This assessment will allow identifying e-SENS components ready to be included in a CEF DSI and other ones to be re-worked / adapted / enhanced, according a phased roadmap, in order to reach the adequate level of maturity required by CEF DSIs. The Project Charter will identify activities that have to be tackled with the highest priority taking into account in particular Directive deadlines and of pending external dependencies (e.g.: readiness of CEN BII deliverables, readiness of Forms for Contract Notice, readiness of linked external systems / services). In light of this prioritisation, "iterations" will be identified in order to cover in the early stage(s) the most important functions and to enhance or complete them in the subsequent stages of the action.

STAGE 1:

TRACK A

It will focus on activities related to Standards and CEF:

Activity Type	Activity Details
Act-080	Continue (see <i>STAGE 0</i>) assessment of e-SENS components related to e-Procurement to identify which ones are ready to be included in a CEF DSI and which ones need to be re-worked / adapted / enhanced,
Act-040	Upgrade of highest priority e-SENS components to take them to the required level of maturity to be included in a CEF DSI (related to Act-080, see also <i>STAGE 0</i> description).
Act-060	Contribution to align standards (CEN BII and CEN PC 440 Project Committee on "Electronic Public Procurement".) and new Standard Forms (e.g.: changes related to selection criteria concerning social / labour / environmental obligations, support of Central Purchasing Bodies)
Act-050	Alignment to the TC 434 Norm on eInvoicing Alignment to technical standards that are most critical for the adoption of the solution (candidate points: alignment to UBL 2.1, possible replacement of Applet technology for e-Submission client, support of HTML 5 standard). Security management based on use of PKI for public and private encryption keys.

TRACK B

It will focus on aligning the e-PRIOR solution delivered by ISA action 1.7 to the Directive 2014/24/EU (**Open Procedures** and **Restricted Procedures**) so that e-PRIOR can offer an Open Source solution by the deadline of April 2017 established by the Directive.

Activity Type	Activity Details
Act-010	Update of the interface with the e-Tendering application to support the new Standard Forms deriving from the new Directive (e.g.: changes in code list values, new selection criteria introduced by the Directive). Support in GUI and in data exchanges (Back Office, Front Office, e-PRIOR exchange platform) the new Standard Forms (e.g.: GUI impacts, code lists).
Act-070	High priority adaptations identified by Project Charter for ESPD support and Central Purchasing Bodies .
Act-030	Make then Opening Session in e-Submission module more automated.
Act-020	Pilot Deployment of the upgraded Pre Award solution.

STAGE 2:

It will focus on extending the scope of STAGE 1:

TRACK A

Activity Type	Activity Details
Act-040	Further actions deriving from the assessment of e-SENS (see STAGE 0 and STAGE 1): to take additional e-SENS components to the required level of maturity to be included in a CEF DSI .
Act-060	Continue contribution to CEN BII / CEN PC 440 standards
Act-050	Continue alignment to standards (candidate points: Support of additional and updated "profiles" delivered by CEN BII 3 such as Tender Withdrawal, Tender Cancellation, Qualification, activities deriving from our contribution to standards in STAGE 1)

TRACK B

Activity Type	Activity Details
Act-070	ESPD support – Iteration 2 (extension of STAGE 1 activity: smoother integration of ESPD into e-Submission)
Act-030	Support additional procedures based on the "Short List Management" building block developed in action 1.7 of ISA – Call for Expressions of Interest, Vendors List, Dynamic Purchase System
Act-090	Support of Central Purchasing Bodies : Migration of the Commission eSourcing application to open source
Act-100	Instantiation of Procurement Open Data – Iteration 1

Dependencies on activities executed in other sub-actions: Act-100 depends on results of Act-130 (part of OP C sub-action)

STAGE 3:

Even if it is not the only objective, it aims at respecting the alignment to deadline of October 2018 of the New Directive

TRACK A:

Activity Type	Activity Details
Act-040	Further actions deriving from the assessment of e-SENS (see STAGE 0, 1 and 2): to take additional e-SENS components to the required level of maturity to be included in a CEF DSI
Act-060	Continue contribution to CEN BII / CEN PC 440 standards
Act-050	Continue alignment to standards (e.g.: activities deriving from our contribution to standards in STAGE 1 and 2, replace use of simplified profiles with "official" CEN BII profiles like BII50 Tender Clarifications, BII56 Virtual Company Dossier, BII58 Notify Awarding, BII59 Contracting, BII37 and 39 Open and Restricted procedures)

TRACK B:

Activity Type	Activity Details
Act-010	Support of " innovation " aspects of the new Procurement Directive: iteration 1 - tenders with variants ⁵⁵ Further Improved support of Lots, e.g.: - Lifecycle at LOT level and not at CfT level, - Cancellation at LOT level granularity - Support distinct Opening Session per Lot - Distinct Evaluation of Tenders for Lots of the same CfT (1 or 2 step in two steps procedures) - Allow activating Step 2 for LOTx independently from LOTy within the same CfT.
Act-100	Instantiation of Procurement Open Data – Iteration 2

Dependencies on activities executed in other sub-actions: Act-100 depends on results of Act-130 (part of OP C sub-action)

FURTHER STAGES: To be detailed in the text of a future proposal update.

Candidate topics are:

- Support of pre-registration of Tenderers
- Support of "**innovation**" aspects of the new Procurement Directive - **iteration 2**: New procedure "**innovation partnership**",
- Support of **cross-border joint procurement**
- Support of **competitive dialogue**
- Support of **competitive procedure with negotiation**
- Support of **Negotiated procedure without prior publication**'
- Support of **Contracts between Contracting Authorities**.

⁵⁵ Articles 45 of 2014/24/EU Directive

- Support compatibility for **e-SENS** profiles.
- Further iterations on Generation of **Procurement Open Data** (depending on progress of **Act 130** – see sub-action managed by OP C)
- **ESPD support – further** extension of STAGE 1 and 2 activities: smoother integration of ESPD into e-Submission based on availability of results of sub-action focusing on the OOP (Once Only Principle – sub-action managed by GROW G4).

The Operational sub-phase will include the deployment of the solution to pilot it, the publication on Joinup of the Open Source version (part of Activity Type *Act-030*) and the support. In principle the same development tools and methodologies used for the *ISA action 1.7* will be used (RUP@EC for software development and ITIL for service management). The results of each development phase will be documented by an execution report.

5.1.11.2 Sub-action e-Proc-02 - DG GROW G.4

This sub-action contributes to Objective 3. The specifications will be developed together with standardisation initiatives (CEN PC 440), e-Certis aggregators and reported to the Member States (through the EXEP) and e-Certis editors.

In 2016, the first step will be to develop an overall concept on how the OOP can work in the domain of Public Procurement by connecting e-Certis, the ESPD and aggregators. There will be a consultation of the concept with the EXEP and the e-Certis editors group. On the foundation of the concept the specifications will be developed together with stakeholders including a limited number of aggregators. The specifications will be based on this concept and improved in an iterative approach. This approach combined with the implementation by the community will help to improve the system during the time frame of this ISA² action. We will as well provide support for pre-qualification systems in MS to check ESPD compliance and interoperability. By mid-2018 a stable set of specifications are to be expected which will be disseminated through a communication strategy (including a campaign, webinars, trainings etc.). Current versions of e-Certis and ESPD service will be maintained and operated during the whole life span of the action including providing support. It is planned that CEF will be used to support aggregators, service providers and national registers in integration of the specifications.

Activity Type	Activity Details
Act-110	<ul style="list-style-type: none"> • Develop overall Concept of OOP • Development of Specifications based on the developed Concept • Implementation by the community • Dissemination through a communication strategy (including a campaign, webinars, trainings etc.).
Act-120	<ul style="list-style-type: none"> • Maintenance of e-Certis and ESPD service

Links with activities executed in other sub-actions: Act-070 (DIGIT B4 sub-action) depends on progress and results of Act-110 and Act-120

5.1.11.3 Sub-action e-Proc-03 - OP C

This sub-action contributes to Objectives 4 and 5. As much work as possible will be carried out in parallel, for example the work on the CPV codes could be carried out at the same time as work on the conceptual data model and integrated into the model at a later stage. However, only work will be carried out in parallel which does not hamper the holistic approach covering the whole spectrum of public procurement.

Given the volume of data relations, the number of stakeholders, the various information inputs available and the different external usages of the ontologies a methodology on how best to meet the constraints will first have to be developed. A guideline to help on this aspect is the document on "Process and methodology for developing semantic agreements"

<https://joinup.ec.europa.eu/sites/default/files/Process%20and%20methodology%20for%20developing%20semantic%20agreements.pdf> .

The Inception Phase will define the methodology to be used and collect and analyse the different information available, such as user requirements data models, ontologies. A **Project Charter** will be produced with the detailed planning and description of the identified activities of the sub-action.

The requirements of the **ontology** along with its informal design will be produced taking into consideration the findings in the inception phase. The requirements will be documented, a conceptual model produced and vocabularies and **code lists** defined and where necessary created or adapted.

It is foreseen that the different code lists, the **CPV**, the conceptual data model and the OWL ontology will be made available on the metadata registry at the Publications Office for reuse of all stakeholders.

Activity Type	Activity Details
Act-130	<p><u>Ontology:</u></p> <ul style="list-style-type: none"> • Definition of the methodology to be used, and collection and analysis of the different information available, such as user requirements data models, ontologies • Conceptual data model • Requirements management and design. • Definition; and where necessary, creation or adaptation of vocabularies and code lists • Presentation of the ontology in OWL covering the conceptual data model, the vocabularies and codes to be used.
Act-140	<p>CPV: Review and modernise CPV codes based on the study and in discussion with stakeholders</p>
Act-150	<p>Code Lists: Provision of harmonized code lists used in eProcurement systems within the metadata registry</p>

Links with activities executed in other sub-actions: Act-100 (DIGIT B4 sub-action) depends on progress and results of Act-130.

5.1.12 COSTS AND MILESTONES

5.1.12.1 Breakdown of anticipated costs and related milestones

Sub-action e-Proc-01 (Objectives 1 and 2) – DIGIT B4					
Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA/ others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Stage 0: Inception	Project charter and eSENS assessment report	150	ISA ²	Q2/2016	Q2/2016
Stage 1: Execution	TRACK A and TRACK B Execution report	1100	ISA ²	Q2/2016	Q4/2016
Operational	<ul style="list-style-type: none"> • Support • Pilot Deployment • Publication in Joinup • Possible hand-over to CEF of some eSENS components 	250	ISA ²	Q2/2016	Q1/2017
Stage 2 Execution	TRACK A and TRACK B Execution report	1100	ISA ²	Q1/2017	Q4/2017
Operational	<ul style="list-style-type: none"> • Support • Pilot Deployment • Publication in Joinup • Possible hand-over to CEF of some eSENS components 	250	ISA ²	Q2/2017	Q1/2018
Stage 3: Execution	TRACK A and TRACK B Execution report	1000	ISA ²	Q1/2018	Q4/2018
Operational	<ul style="list-style-type: none"> • Support • Pilot Deployment • Publication in Joinup • Hand-over to CEF of additional eSENS components 	200	ISA ²	Q2/2018	Q1/2019
	TOTAL	4050			
Further Stages to be described in future updated Proposal					

Sub-action e-Proc-02 (Objective 3) – GROW G4					
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)
Operational	Operation and support of e-Certis and ESPD service	1000	ISA ²	Q1/2016	Q4/2018
Operational	Support for pre- qualification systems in MS to check ESPD compliance and interoperability	300	ISA ²	Q1/2016	Q4/2017
Inception	OOP in PP <ul style="list-style-type: none"> • Project initiation • Assessment of solutions in MS • Drafting concept • Alignment with CEF eProc DSI 	300	ISA ²	Q1/2016	Q4/2016
Execution	OOP development and implementation <ul style="list-style-type: none"> • Drafting specifications • Alignment with CEF eProc DSI • Technical support for interoperability/ interconnection between national systems and to EU systems • Implementation of results in e-Certis and in ESPD service • Dissemination and communication 	800	ISA ²	Q1/2017	Q4/2018
	Total	2400			

Sub-action e-Proc-03 (Objective 4) – OP C					
Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA2/ others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Inception/ planning phase	<ul style="list-style-type: none"> Definition of the methodology Analysis of available information Project Charter 	100	ISA2	Q2/2016	Q3/2016
Execution	Ontology: <ul style="list-style-type: none"> Requirements and design. Conceptual model Definition / creation/ adaptation of vocabularies and code lists 	150	ISA2	Q4/2016	Q3/2017
Execution	CPV: Updating the CPV codes	300	ISA2	Q3/2016	Q2/2017
Execution	Ontology: Presentation in OWL.	200	ISA2	Q4/2016	Q4/2017
	Total	750			

5.1.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Inception eProc-01	150	
	Execution eProc-01	1100	
	Operational eProc-01	250	
	Inception eProc-02	300	
	Operational eProc-02	350	
	Inception eProc-03	100	
	Execution eProc-03	150	
2017			
	Execution eProc-01	1100	
	Operational eProc-01	250	
	Execution eProc-02	400	

	Operational eProc-02	550	
	Execution eProc-03	500	
2018			
	Execution eProc-01	1000	
	Operational eProc-01	200	
	Execution eProc-02	400	
	Operational eProc-02	400	
TOTAL		7200	

5.1.13 ANNEX AND REFERENCES

description	Reference link
Directive 2014/24/EC	http://ec.europa.eu/growth/single-market/public-procurement/modernising-rules/reform-proposals/index_en.htm
eIDAS Regulation	http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.257.01.0073.01.ENG
Digital Single Market	http://ec.europa.eu/priorities/digital-single-market/docs/dsm-communication_en.pdf
Digital Agenda	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF
CEF	https://ec.europa.eu/digital-agenda/en/connecting-europe-facility

6. DECISION MAKING AND LEGISLATION – SUPPORTING INSTRUMENTS

6.1 PARTICIPATORY KNOWLEDGE FOR SUPPORTING DECISION MAKING (2016.04)

6.1.1 IDENTIFICATION OF THE ACTION

Type of Activity	Reusable generic tools
Service in charge	DG DIGIT B4
Associated Services	DG CNECT.R3, H3, DIGIT.01, SG.C4, Latvian Ministry of Environmental Protection and Regional Development, Parliament, Council, Publications Office

6.1.2 EXECUTIVE SUMMARY

Despite the large amount of opinions, needs and preferences expressed by citizens, governments' decision making processes are so far still not able to consume this unstructured and dispersed knowledge in order to extract meaningful knowledge and use it as input to decision making. Within this context, this action, titled 'Participatory Knowledge for supporting Decision Making Processes', aims at consolidating and integrating existing reusable tools that allow the electronic participation of stakeholders, the analysis of the captured opinions and the discovery and generation of knowledge. This knowledge will in turn be used to provide insights on existing decision making, making them data-driven processes.

In phase 1 of this action, executed in 2015, activities were focused on the identification of the requirements stemming from the public administrations in the different Member States in order to provide a panoramic view of the needs within the Member States and Commission Services. With a better visibility of these needs this action started exploring and assessing existing assets, reusable software solutions, standards and vocabularies that can address the identified needs. This action intends to consolidate and generalise the identified solutions in order to allow them to be used in different areas that aim to address a common challenge. The development effort shall focus on the generalisation of components or integration of components as well as the assessment of modular generic components and the subsequent consolidation into a framework of software solutions. Such modular generic components shall include, as an example, components for sentiment analysis techniques, data analytics, data mining techniques, opinion modelling, text mining techniques and components for visual analytics techniques and reporting (dashboards).

Within phase 1 of this action the above technologies shall be applied in three specific business contexts whereby for each business context a proof of concept will be executed and subsequently further elaborations shall be performed in phase 2 of this action. The three business contexts are (i) the improvement of services through the consumption of citizens' feedback in collaboration with the State Chancellery of Latvia who has developed a leading mobile application called 'Football' (ii) the open participation through perception and opinion elicitation in collaboration with DIGIT IT Governance and Communications Unit and (iii) the execution of policy making through participatory knowledge

through the reuse and further extension of the Futurium platform in collaboration with DG CONNECT Support Systems and Tools Unit.

A continuation of such exploratory activities, which were kicked off in phase 1 of this action, shall be continued throughout phase 2, to be executed in 2016. Phase 2 shall be composed of 3 tracks as follows: (i) continue with the further identification of the requirements stemming from the public administrations in the different Member States as well as Commission services (ii) continue the implementation of already identified pilots, details in the 3 business contexts of phase 1, through the development of further functionality as well as the generalisation of the developed functionalities, and (iii) launch a new wave of pilots in specific domains which hold a potential of later being generalised and scaled-up to be made available to different services agnostic of their specific policy area.

Through these efforts this action shall aim at contributing to making governments throughout Europe open and participatory through the implementation of a number of practical activities. These activities shall strive to make better use of data which is already being collected either internally or externally, thus making it the basis for generating knowledge that brings value to business contexts and contribute towards data-driven decision making processes.

6.1.3 OBJECTIVES

Citizens' participation in governments' decision making processes, through the ability to express their opinions, needs and preferences, is a valuable asset since it brings **insights** and additional **knowledge** to public administrations. Using this knowledge, public administrations can become **more efficient and effective**, offer **user-friendly services**, whilst **reducing costs and administrative burden**; resulting in a **positive impact** on individuals, society, economy, environment etc.

Within this context, the **main objective** of this action is **to consolidate and integrate existing reusable tools that allow the electronic participation of stakeholders, the analysis of the captured opinions and the discovery and generation of knowledge. This knowledge will in turn be used to provide insights on existing decision making, making them data-driven processes. It is not the objective of this action to replace existing stakeholder consultation tools, but to give additional value to them by providing further capabilities for gathering, integrating and analysing big quantities of semi-structured or unstructured information.** The proposed capabilities will in particular cross-fertilise with other existing tools such as EU Survey, Your Voice in Europe or the similar tools in the Member States.

To realise the proposed action the following specific objectives are set out:

- To **cooperate with Member States and related networks**, for instance EUPANⁱ, in order to better **identify the technology needs of public administrations** when acquiring stakeholders' opinions as a driving force for open governments. Similarly, this action shall also **cooperate with Policy DGs in defining their needs** in shifting towards data-driven decision making processes;
- To **assess different assets that are currently available** for making them accessible, thus allowing for collaboration, transparency and participation;
- To **consolidate and integrate open and reusable software solutions** that will support the interactive knowledge sharing and will allow the elicitation of citizens' opinions and perceptions which is hidden in tacit knowledge. By leveraging on participation and motivation

of citizens, such tools can contribute to better informed decisions and improved legitimacy of the policy making.

6.1.4 SCOPE

By enhancing the participation of stakeholders in decision making we enable governments to make more informed policies, legislative acts and internal decisions. This leads to a participatory type of government that relies strongly on the evidence and the collective knowledge that the various stakeholders bring in. This shall also contribute to inter-administration cooperation and better decision making processes taking into consideration different perspectives coming from different domains and Member States.

The proposed action has a clear focus on using, further extending and mainstreaming **reusable software solutions** to facilitate the capturing of elicited knowledge from unstructured content.

6.1.5 PROBLEM STATEMENT

Society is demanding public administrations in Europe to become more open, transparent, collaborative and participatory in their **pre-legislative consultations, internal decisions and policy-making processes**. Citizens, businesses and other key stakeholders expect their voice to be heard and taken into account. Decision makers on the other hand do not always have the means to reach out and listen to the opinions and perceptions of people. More specifically, acquiring the plethora of citizens' opinions is a challenging task since they are often expressed in an unstructured way on different platforms. It is even more difficult and expensive to **extract meaningful knowledge** that can be used as input to decision making. Data must be gathered, measured and analysed through discovery and analytics tools, which makes it possible to **identify trends, issues and challenges**. For instance, data coming from interactions on social media contribute towards factors other than evidence. Information that may be captured include personal opinions, corporate interests, lobbying, ideological values and other '**non-measurable**' factors that cannot be easily sensed and automatically captured⁵⁶. The collected information provides information that stakeholders and policymakers can use to reshape decisions. Decisions may also be inspired by desirable visions and aspirations that are not necessarily in line with current, short-term trends.

Although European institutions and Member States' public administrations have launched several initiatives to collect citizens' opinions when consulting stakeholders, these activities are often fragmented and developed in "isolation" with limited cross-organisational or cross-border cooperation.

There is a strong link between open government and knowledge - open knowledge that can be shared and reused in different context by different stakeholders and across public administrations. However, a number of roadblocks are currently preventing the opening up of knowledge namely at organisational, semantic, technical and legal level. This action aims to address the challenges around opinion elicitation in particular at the **semantic and technical implementation levels** with a main focus on **reuse of existing assets**.

⁵⁶ See: [The Futurium—a Foresight Platform for Evidence-Based and Participatory Policymaking](#), Springer, 2013

6.1.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
<ul style="list-style-type: none"> - EU institutions - Member States public administrations (national, regional, local levels) 	<p>The development of a toolbox will allow the collection of opinions from various digital sources in a standardised manner and support informed decision making. This will provide DGs at the European Commission, EU institutions, European agencies and Member States public administrations at all levels with the following benefits:</p> <ul style="list-style-type: none"> • A coherent way to manage open knowledge. • Support public administrations to become more modern, adaptive, responsive, dynamic, flexible organisations to better address the expectations of their stakeholders, • Reach out to citizens through e-participation and open knowledge sharing. This will ensure higher rates of collaboration as compared, for instance, to traditional expert consultations, thus resulting in more effective processes • An increase of the efficiency, e.g. by: <ul style="list-style-type: none"> ○ Reducing time to make the right decisions; ○ Getting the right knowledge/people as needed ○ Harnessing tacit knowledge to support policy making. • A major involvement of the users resulting in: <ul style="list-style-type: none"> ○ An increased generation of knowledge. ○ Maximum re-use of the knowledge. ○ Higher quality of the activities carried out through the sharing of the knowledge. ○ An easy clustering of the expertise of the users.
<ul style="list-style-type: none"> - Citizens, organisations and business in Europe 	<ul style="list-style-type: none"> • Voice their opinion and influence the decisions of governments (supporting e-participation). • Innovate through the reuse of open knowledge and reusable open source software for knowledge discovery. • Empowerment of individuals who have the possibility to build consensus around their own ideas and influence decision makers through a transparent process. • Support to civil organisations, including associations of citizens, youth, unions, and non-governmental organisations, etc. facilitating their open, transparent and efficient collaboration with governments in policy making matters.

6.1.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
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Digital Agenda	Action 3: Open data and re-use of public sector information This action promotes government bodies at all levels: local, regional, national, European and international, to disseminate and reuse the vast amounts of information that is collected as part of their tasks. Activity 5 of this action promotes the dissemination and reuse of information as a means for improving transparency of organisations.
Better regulation policy	One of the Smart Regulation's policy goals is to remove bottlenecks and streamline the Commission's policy making processes as well as to promote open participation through public consultations.
ISA Action 4.2.5.- Sharing and reuse strategy	The reusable practices and guidelines as well as the reusable software solutions delivered through this proposed action can adopt the strategy defined in Action 4.2.5 in order to ensure that the outputs are shared and re-used with public administrations in Europe.
ISA Action 4.2.1.- Bringing together the eGovernment platforms (Integrated collaborative platform – Joinup)	The Joinup collaborative platform shall be used as a means for sharing the experiences as well as the deliverables of this action with the Member States' public administrations.
EuroVoc	EuroVoc can be assessed as a potential multilingual, multidisciplinary thesaurus covering the activities of the EU to be used as a basis for the vocabulary used in "Futurium" model (see below).
ISA Action 1.1.- Improving semantic interoperability in European eGovernment systems (SEMIC)	Reusable interoperability solutions, core vocabularies, studies and other resources made available through SEMIC and which might be relevant to this action shall be explored and reused as much as possible in order to ensure interoperability as well as continuation of existing efforts.
Your Voice in Europeⁱⁱ	'Your Voice in Europe' is an existing platform that allows for public consultations to be carried out in order to collect structured data in the form of questionnaires. This platform will be explored as a data source of stakeholders' opinions.
EU Surveyⁱⁱⁱ	EU Survey is a platform provided by the European Commission under the ISA Funding programme with the intention of allowing Commission Services to easily create online surveys as a means of stakeholder opinion or other data collection for potentially any domain. This is also considered to be of potential interest to this action as an existing and complimentary source of data that could be consumed by certain business contexts.
'ISA ² Action ICT implications of EU legislation'	Results and conclusions related with the proper preparation and evaluation regarding the ICT implications will be taken into account for developing reusable solutions that allow the electronic participation of stakeholders, the

	analysis of the captured opinions and the discovery and generation of knowledge.
ISA ² Action 'Interinstitutional framework for digital OLP management'	The proposed interoperable ways of structuring the content of the documents that need to be exchanged between the institutions for the purposes of the ordinary legislative procedure will be taken into account for developing reusable solutions that allow the electronic participation of stakeholders, the analysis of the captured opinions and the discovery and generation of knowledge.
ISA ² Action 'Legislation interoperability tools (LEGIT)'	Existing or under development building blocks (i.e. software, tools etc.) that support and improve the electronic exchange of documents and metadata in the context of the legislative process and the transformation between different formats will be taken into account for developing reusable solutions that allow the electronic participation of stakeholders, the analysis of the captured opinions and the discovery and generation of knowledge.
ISA ² Action 'European Legislation Identifier (ELI)'	The proposed approach for identifying legislation documents and the supporting assets and solutions will provide input for developing reusable solutions that allow the electronic participation of stakeholders, the analysis of the captured opinions and the discovery and generation of knowledge.
ISA ² Action 'Application of EU law: provision of cross-sector communication and problem solving tools (THEMIS)'	Reusable tools and the underlying semantic structures and data standards for monitoring the application of EU law will be taken into account for developing reusable solutions that allow the electronic participation of stakeholders, the analysis of the captured opinions and the discovery and generation of knowledge.

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

The final output of phase 1, which shall amongst other things explore what tools are available for reuse by public administrations, will greatly impact the choice of solutions that might be reused by this action. Currently, the reuse of the following initiatives can be identified:

- The Football mobile application developed by the Latvian government shall be generalised in order to be made available for re-use by other Member States as well as extended with additional components to provide additional functionality.
- The Futurium platform, developed by DG CNECT.R3 and currently used by Commission's services, shall be further extended and generalised within the scope of this action in order to embed further data analytics as well as user interface and gamification capabilities and make them customisable for the governments.

6.1.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

All outputs generated by each of the pilots shall be provided in a re-usable format. The following are concrete re-usable outputs that can be identified at this stage:

Output name	Football Application and complimentary components
Description	The Football Application together with a set of optional and complimentary components that enhance the functionality of the software package shall be made available for reuse to other Member States' public administrations as well as Commission services.
Reference	
Target release date / Status	Q2 2016 / project currently being kicked-off

Output name	Futurium
Description	The Futurium Application shall be generalised and extended further with additional functionality and subsequently made available for re-use by other public administrations and Commission services.
Reference	
Target release date / Status	Q2 2016 / project currently being kicked-off

6.1.10 ORGANISATIONAL APPROACH

6.1.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
ISA ²	The ISA ² Committee will oversee the project, with the assistance of the ISA ² Coordination Group.
DIGIT.B4 Digital Business Solutions – Corporate Financial Procurement & Policy Solutions Unit	This unit is the service in charge of this action. It will coordinate the interaction between the different stakeholders within the European Commission.
DG CNECT.R3 Support Systems and Tools Unit	This unit is an associated service of this project and will take part in the definition of the requirements, the performance and the guidance of this proposal and will ensure collaboration with other units, such as F4, O2, H3, G3, D3, D4, etc. that have developed important policies or R&I related to this proposal.

DIGIT.01 Governance and Communication Unit	This unit is an associated service of this project and will take part in the definition of the requirements, the guidance and providing lessons learnt of this proposal.
Latvian Ministry of Environmental Protection and Regional Development	Latvia has developed the application "Football", whose aim is to collect citizen's feedback on the quality of the services provided by Latvian public institutions. The application allows citizens to locate the closest public institution, to find the related contact information and to provide comments about the quality of the service they received. Latvia is an associated Member State of this action.
SG.C4	This unit is an associated service of this project and will take part in the definition of the requirements, the guidance and providing lessons learnt of this proposal.

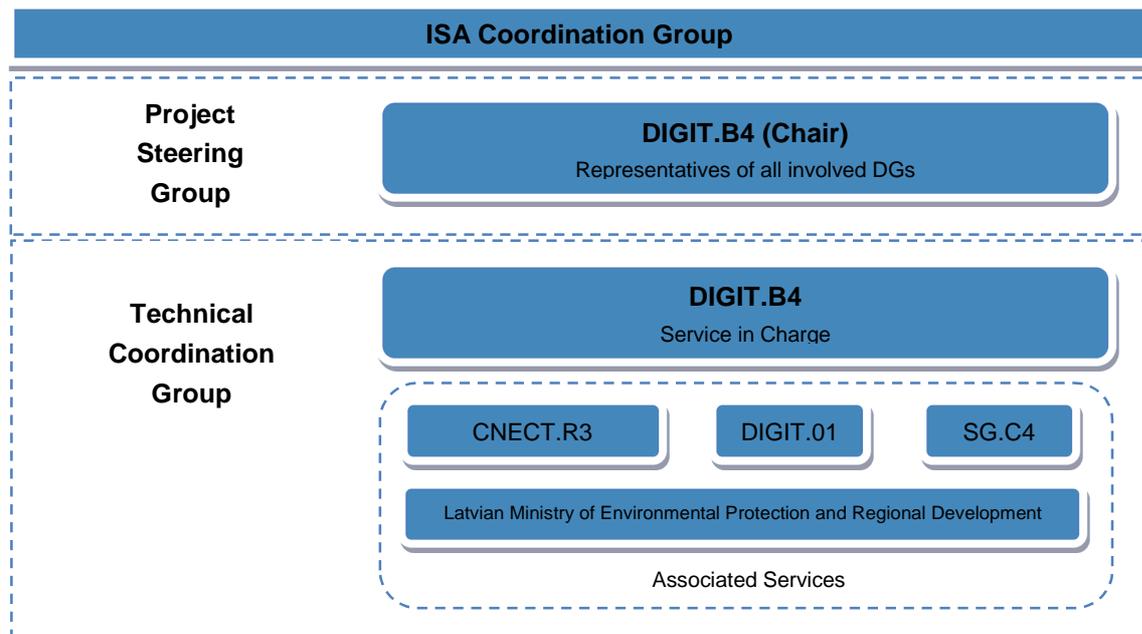
6.1.10.2 Communication plan

Event	Representatives	Frequency of meetings / absolute dates of meetings?
Project kick-off meeting	DIGIT.B4, CNECT, DIGIT.01	Once at the beginning of the project
Technical Coordination Group	Team leader and team members of DIGIT.B4 and CNECT.R3 technical teams	Bi-weekly
Project Steering Group	Team leader and HoU of DIGIT.B4 and team leaders and HoUs of associated services of each of the activities	Bi-monthly
Bilateral meeting with Member States	DIGIT.B4 representatives, Member States representatives	These are arranged by DIGIT B4 on ad hoc basis.
Bilateral meetings with Policy DGs	DIGIT.B4 representatives, Policy DGs representatives	These are arranged by DIGIT B4 on ad hoc basis.
Relevant conferences and events	DIGIT.B4 representatives with any other project stakeholder	On occasions whereby DIGIT is invited to participate in meetings organised by Member States, policy DGs etc.
Dedicated ISA ² group	DIGIT.B4 team members, Stakeholder's representatives, ISA unit	These meetings are arranged by the ISA unit.
Joinup	(online)	

6.1.10.3 Governance approach

This action is part of the ISA programme and therefore it follows the ISA governance structure with the action reporting back to the Member States' representatives pertaining to the ISA working groups.

This action will actively involve all associated services at each of the different stages. The governance structure for this action is depicted in the following diagram.



In order to achieve its objectives this project will work closely together with primarily identified associated DGs to better define the business needs and challenges, bearing in mind the need of potentially other services in order to come up with generic and extendable software solutions. Particular attention will be given to the coordination activities in order to ensure a successful undertaking of the different activities.

6.1.11 TECHNICAL APPROACH

This action shall aim at contributing to making governments throughout Europe open and participatory through the implementation of a number of practical activities. These activities shall strive to make better use of data which is already being collected either through existing internally provided platforms or else through external data collection sources. This data shall be the basis for generating knowledge that brings value to business contexts and contribute towards decision making processes which are more strongly data-driven.

In **phase 1** of this action, executed in 2015, activities were focused on the **identification of the requirements stemming from the public administrations in the different Member States**. The requirements were captured through a field exercise, primarily in cooperation with relevant networks such as the European Network of Public Administrations (EUPAN) and the results of which have provided a panoramic view of the needs within the Member States. In addition, this action also

cooperates with a number of Commission Services in order to identify the concrete needs and value added that the open and participatory government practices would bring to decision making processes.

With a better visibility of the needs of the Member States and the Commission Services this action started exploring and assessing **existing assets, reusable software solutions, standards and vocabularies** that can address the identified needs. The identified reusable software solutions shall be classified according to the type of participation platform that it belongs to in order to make it easier for public administrations and Commission services to identify which reusable software might be relevant for them to consider according to the type of challenge they wish to address.

The above mentioned activities are complemented by further activities within this action with the intention of consolidating and generalising the identified solutions in order to allow them to be used in different areas that aim to address a common challenge. These are subsequently integrated in a way that they can consume existing data sources, generate knowledge and present outputs. The **provision of a number of generic and customisable reusable software solutions** shall drive forward stakeholder engagement, enable perception and opinion elicitation and facilitate the generation of participatory knowledge in decision making processes.

The development effort for delivering a number of **software solutions** is foreseen to produce two main streams:

Generalisation of components or integration of components:

- In the context of policy making the existing **participatory platform Futurium** (developed by CNECT) will be further generalised and extended with functionalities such as more customisable **workflows, group/community management, access rights as well as user experiences**. The platform is currently used by DG CNECT and other DGs to support stakeholder engagement and evidence based policy for the Digital Single Market. Furthermore, several local governments and non-governmental organisations have shown interest or are willing to adopt the Futurium model to support their policy making processes⁵⁷. The extended platform should build on and extend the generalisation of the existing open source assets which needs to be consolidated to allow customisability as well as extensibility through the plug in of modular generic components, e.g. by adding graphical, ease-to-use configuration editors.
- **Link to social media and other collaborative work environments** in order to be able to explore different sources of information containing scientific evidence, users' perceptions, expectations and opinions.

Modular generic components to be assessed and consolidated into a framework of software solutions, in accordance with the requirements identified during phase 1 and phase 2 – track 1 (see below) of the action. Potential software components include:

⁵⁷ The Futurium will be discussed in several events where current and perspective users will be invited. This includes a networking session in the context of the annual [ICT2015 events in Lisbon](#).

- Components for **sentiment analysis techniques** in order to analyse the comments and co-created content posted by users on the platform and decide whether an input is pro or contra the topic/vision/idea discussed. Such techniques will also provide a means to calculate the overall sentiment of participants with regards to a topic debated on the core platform or other social media, thus building further upon the "likelihood", "feasibility" and "desirability" features that already exist in Futurium. Components to debate and analyse likely impacts of the proposed topics/visions/ideas will be added.
- Components for **data analytics**, in order to be able to classify the different topics discussed and establish some figures about them such as: relevance, periodicity, degree of participation, activity etc.
- Components for **data mining techniques** - in collaboration with action nr. 1.22 Big Data and Open Knowledge - to understand the correlations between variables, cluster data, detect hidden patterns in data, perform trend analysis (including time series), extract facts from evidence, link evidence to the other content types according to relevance, etc. This part of the work should re-use as much as possible existing components and data mining tools, possibly available as open source.
- Components for **opinion modelling and text mining techniques** in order to extract from the posts of users, on the core platform or other existing collaborative tools and/or social networking tools, the main topics of interest, the key opinions discussed and also the popularity (strength) of each one. Combined with social network analysis (e.g. types and number of connections, number and popularity of posts), this can also help identify the opinion leaders on the platform. Re-use and adaptation of open source Natural Language Processing (NLP) software will be explored, such as GATE^{iv}, Apache OpenNLP^v, Apache Mahout^{vi} or UIMA^{vii}.
- Components for **visual analytics techniques** for presenting opinions, sentiment or any other type of data in formats which can be understood both by participants but also by decision makers, who can then use them as input to legal, organisational or political decision making processes. This will include the graphical representation of various types of user inputs and their inter-relations (e.g. structuring topics/visions/ideas).
- Components for **reporting (dashboards)** will allow to build a more flexible and adaptable solution, since from the reporting area it is possible to focus on the interested domains (or dimensions for analysis) of the organisation. A multi-layer reporting involving different stakeholders will make it easier the decision making resulting in a more efficient organisation.

Within **phase 1** of this action the above technologies shall be applied in **three specific business contexts** whereby for each business context a proof of concept will be executed and subsequently further elaborations shall be performed in phase 2 of this action.

Business context 1: Improving services through the consumption of citizens' feedback

The analysis of citizens' feedback through data mining and visualisation tools allows for public administrations to **capture trends and knowledge that are able to provide insights** that would otherwise be difficult to obtain if analysis is only performed manually by individuals. Such tools allow the generation of knowledge that could provide an edge over manually generated knowledge.

The State Chancellery of Latvia has developed a leading mobile application called 'Football' that not only provides useful information to citizens on the services offered by public administrations but also allows the citizens to in turn provide feedback on the services received. The purpose of this application is to promote 'good football' which in Latvian terms reference to the provision of good and effective public services without bouncing citizens around different public administrations. The feedback captured through this mobile application is currently processed and analysed manually and this action therefore aims at providing data mining and visualisation tools that can digest the free-text form comments provided by citizens in order to complement the existing functionalities of this mobile application.

Business context 2: Open participation through perception and opinion elicitation

This activity will look into the provision of tools that make use of existing and well established collaborative tools within a public administration in order to **elicit users' and staff members' perceptions, expectations and opinions as a means of influencing internal decision making processes related to different domains such as human resources, service provisions as well as internal procedures**. Through this influencing mechanism the public administration would be allowing open participation for users and staff members without the need to introduce a new platform to which the participants need to be accustomed to or forced to use in order to communicate their opinions.

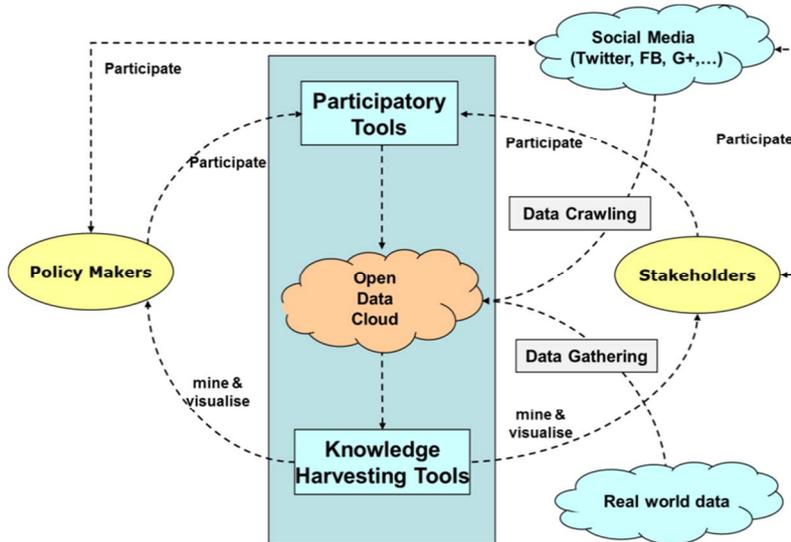
Business context 3: Policy making through participatory knowledge

This activity will reuse and extend Futurium in order to develop a **platform for open government through participatory knowledge combining people's opinions with scientific evidence**. [Futurium](#) was initially developed with the primary purpose of hosting and curating visions and policy ideas to support a participatory foresight project, Digital Futures. However, it has turned into a general platform on which to experiment with new **policy-making models based on foresight methodology, scientific evidence and participation**. Futurium is based on the open source content management system **Drupal**. The platform implements a data model that maps and co-relates typical policy making concepts (e.g. 'vision', 'desirability', 'evidence', 'impact', 'challenge', etc.) into Drupal content types and allows users to co-create visions and policies and their inter-relations as well as to provide scientific evidences and organise participatory events, just like popular social networks. Extending Futurium, as outlined above, will allow platform users (e.g. local governments, NGOs, Unions etc.) to capture explicit knowledge, but also make use of latent knowledge by employing sentiment and text analysis and opinion modelling techniques.

The Futurium is meant to provide a credible response to the need of running structured conversations with stakeholders and making sense of their input. This is currently difficult to achieve in popular social media because of their unstructured and uncontrolled approach vis-à-vis user's inputs. Conversely, traditional stakeholder surveys provide a fully framed approach to gather data but are usually less usable and attractive than social media. Futurium provides an optimal trade-off between the informal, unstructured and uncontrolled social media approach and the formal, structured and more traditional

approach of surveys. This allows broadening participation while providing more accurate and cost-effective feedback to policy makers.

By applying the extended Futurium platform to a policy making context, the knowledge generator will result in better decisions leading to improved accuracy and legitimacy of public administration actions particularly for actions involving multiple administrations. The interaction between the different entities in this action is as per the following diagram:



A continuation of such exploratory activities, which were kicked off in phase 1 of this action, shall be continued throughout **phase 2**, to be executed in 2016. Phase 2 shall be composed of **3 tracks** as follows:

- **Track 1:** continue with the further **identification of the requirements** stemming from the public administrations in the different Member States as well as Commission services. In addition this track shall also continue the exploration and assessment of **existing assets, reusable software solutions, standards and vocabularies** that can address the identified needs; inputs from early usages of the Futurium platform will be taken into account (we expect that by the time the new project will be launched we will benefit from the input of at least five Futurium instances).
- **Track 2:** continue the implementation of already identified pilots, details in the 3 business contexts of phase 1, through the **generalisation of the Futurium functionalities** and thus the **extension** of their use to **policy agnostic contexts** in order to maximise the benefit and return on investment of the proposed solution. Furthermore, this track shall also ensure that the software components developed for these pilots are extended further through new functionality, new user experience contexts (e.g. gamification, interactive and mobile use,...) which shall be driven by the needs identified;
- **Track 3:** launch a **new wave of pilots** in specific domains which hold a **potential** of later being **generalised** and **scaled-up** to be made available to different services **agnostic of their specific policy area**. One potential area of interest could be the **pre-legislative consultations through stakeholder engagement**. The consolidation and integration of different software solutions shall enable the generation of participatory knowledge through the

digestion of data coming from sources that are both internal and external to the public service/organisation.

Pre-legislative consultations will be more information-led by better exploiting evidence/data and opinions collected through existing platforms in a way that give a more accurate and wider consideration of stakeholder perceptions and opinions as well as to scientific evidence. Better digestion of feedback received through the **Better Regulation** initiative can also be considered as a new source of citizen participation that will require better analysis of the feedback received. The aim of this initiative is to ensure that policy is prepared, implemented and reviewed in an open, transparent manner and to ensure that the full process is fed with the best available evidence and as well as stakeholders' feedback. For this reason, after better analysis of the Member States' and the Commission's common needs through the activities defined in track 1 above, some reuse of existing software components, particularly those provided by the Futurium platform, will be pursued in this context.

The software solutions to be considered in this context would support the analytics and discovery of knowledge through methods such as automatic clustering based on the evaluation of structured or non-structured data sources. This is considered to be particularly key in policy areas where large number of consultation feedbacks are received and are required to be analysed and digested. Techniques to be used could include analytics and discovery as well as reporting and visualisation methods.

NOTE relevant to all activities - Personal Data Privacy

In this process, privacy and data protection rules will be respected and carefully analysed before implementing a solution. Data anonymisation practices, such as data scrambling will be applied if necessary.

6.1.12 COSTS AND MILESTONES

6.1.12.1 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)
Execution	<u>Phase 2.1</u> D.1.- MS and EC requirements assessment D.2.- Inventory of reusable software solutions, standards and vocabularies	80	ISA ²	Q2/2016	Q1/2017
	<u>Phase 2.2</u> D.3.- Specification	160	ISA ²	Q2/2016	Q1/2017

	definition D.4.- Generalisation of core platform and modular components D.5.- Extension of core and modular components in the context of the pilots				
	<u>Phase 2.3</u> D.6.- Pilot requirements assessment D.7.- Specification definition D.8.- Implementation of core and modular components in the context of the pilots	200	ISA ²	Q3/2016	Q1/2017
Operational					
	Total	440			

6.1.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Execution – Phase 2	440	

6.1.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
A vision for Public Services	http://ec.europa.eu/digital-agenda/en/news/vision-public-services	
The Futurium—a Foresight Platform for Evidence-Based and Participatory Policymaking	http://download.springer.com/static/pdf/620/art%253A10.1007%252Fs13347-013-0108-9.pdf?auth66=1410041623_02c8d634d5b06ca384c1cf468537d06d&ext=.pdf	

6.2 LEGISLATION INTEROPERABILITY TOOLS – LEGIT (2016.38)

cluster	
Service in charge	SG.A1
Associated Services	(DIGIT.B2, DIGIT B.6, Parliament, Council, Publications Office

6.2.1 EXECUTIVE SUMMARY

Smart use of technology and exploitation of information can help to address many of the challenges facing the ambitious digital society.

This action aims specifically at modernising and improving the efficiency and quality of the legislative process across the Union, promoting interoperability across its pan-European dimension and facilitating the cooperation between public administrations at EU, national, regional and local levels.

Given the high diversity of legislative traditions encountered across the Union, it is extremely ambitious to provide a universal single turnkey ICT solution that adapts to each specific context. Moreover the adoption of said solution would face several barriers, the strongest one being probably the fact that concerned administrations do not have the same level of maturity in the modernisation of the legislative process, advancing independently at their own pace.

Instead, this action proposes an evolutionary, incremental and easier adoption based on reusable fundamental building blocks. Such approach is optimal for addressing both organisational and technical diversity factors. It allows for sustainable delivery with minimum lead time, i.e. faster production of more useful and reliable custom ICT solutions.

The activities covered by this action are organised in three distinct and complementary clusters.

Cluster A: Development of a web-based legislation editor – Continuation of LEOS

The LEOS project (action 1.13 of the ISA program) stressed that drafting legislation in an open and standard XML format would pave the way to efficient interoperability between stakeholders and would enable to automate some legislation processing currently performed manually at each step of the process (translation, amendment phases, consolidation, publication...). After a study on tools currently used by EU and MS public administrations to write their legislation, a need for a new generation of authoring tools was raised and software was developed, currently in prototype status, and released under the EUPL licence at <https://joinup.ec.europa.eu/software/leos/description>. The LEOS Editor is a web-based authoring tool providing drafting features that enable to easily write legal texts in a controlled WYSIWYG environment, organise it in divisions (articles, chapters, sections...), compare versions, generate printable views, insert comments and track-changes, highlight some parts of the texts ... Stakeholders and key users evaluated the prototype, praised the achievements and

highlighted incomplete or missing capabilities required to properly support their business and ease adoption. This action is supporting development activities to evolve the existing software prototype into a stable, complete and mature product.

Cluster B: Interoperable and re-usable independent products (components, services or applications)

Exposure of the LEOS project and the web-based Editor prototype revealed substantial interest from a diversified audience that is facing some common problems, in one way or another. LEOS has devised and implemented solutions to those problems that could be extended in a more flexible or generic way, exposed as independent products (components or services) easily re-useable in different business applications or technical contexts. This action is supporting development activities to refactor the existing software prototype into more complete and re-usable building blocks.

The Management Board of the Publications Office has decided in March 2014 to create the “Inter-institutional Formats Committee” (IFC). The mandate of this group is to propose common semantic structures for legislative documents exchanged between institutions, and to document how specifications already in place at some institutions are addressing the representation of these semantic elements. This action is funding the development of software components or services for the validation and transformation of the semantic elements between the documented formats. It is following the official output of the IFC to plan the concrete development activities addressing specific content transformations.

Cluster C: Realizing the vision of the legislative process landscaping study

In September 2015 the ISA unit of the European Commission launched a study to draw a comprehensive view of the EU legislative IT environment, characterized by a high degree of complexity and by recent new initiatives. This study is made of:

- A description of the overall lifecycle of the inter-institutional legislative process (AS-IS), including the business processes and roles, the technologies, tools and systems used in each major legislative step by each of the institutions, the specifications used to facilitate the structuring and exchange of information, the governance bodies and committees involved, and any other relevant information;
- Identification of a first set of areas where intervention is considered beneficial (TO-BE). These include areas where opportunities for synergies and complementarities are present, mapping efforts could harmonise existing standards and specifications or tools could be reused or extended to cover new needs. Missing pieces and solutions to create a rationalised domain are also identified and proposed for further development.

This action is funding the development of parts of the missing software components detected and highlighted in the TO-BE vision defined in the study.

6.2.2 OBJECTIVES

The objectives of this action are:

- Making the legislation process more efficient, proposing new interoperability solutions and replacing repetitive manual tasks at the different actors by automatic processing wherever possible
- Develop solutions for common needs, and make them available for reuse under free licence
- Support the work of inter-institutional committees (e.g. IMMC and IFC), providing reference implementations after publication of their specifications
- Ensure the consistency of different initiatives in the area of the EU decision making process, providing pieces of software necessary for better convergence and efficiency
- Promote the usage of interoperability standards by proposing technical analysis, architecture designs and reference implementations

6.2.3 SCOPE

This action delivers software implementing specifications and standards defined by other bodies active in the legislation domain (e.g. standardisation committees,...).

In scope:

- Development of software supporting interoperability of the legislation process:
 - tools for drafting legislation in a structured format (XML)
 - tools for providing structured feedback on proposed legislation
 - tools for the transformation of legislation between different structured format
 - tools supporting the electronic exchange of documents and metadata in the context of the legislative process, containing workflow information and

Not in scope:

- semantic assets for the legislative process; the definition of common vocabularies and reference tables remains under responsibility of existing committees or initiatives (SEMIC, ELI, IMMC, IFC...)
- definition of new standard formats for supporting the legislation process interoperability; the action will propose tools supporting formats already available on the market.

6.2.4 PROBLEM STATEMENT

Drafting a new legislation is a complex process, involving many actors. Usually the process follows this sequence of tasks:

- Preparation phase: the "drafting" process is usually performed under the leadership of a specific public department, and the draft text is discussed with stakeholders and modified accordingly. The content and structure of the text can be continuously changed during this phase.
- Adoption phase: the draft legislation is submitted to the political entities responsible for its adoption, (Council of the European Union, European Parliament, National parliaments, institutional consultative bodies....) along clearly structured processes. The text is

progressively stabilising and the final version is generally emerging under the control of a central body, which takes care of the format, the legal and editorial quality of the text.

- Entry into force phase (when applicable): ultimately, the text is adopted and enters into force by its publication or its notification to the concerned parties.

The EU legislation process is similar but yet more complex by two additional factors:

- The EU-level processes interact with 28 independent Member state-level processes (e.g. : The Lisbon Treaty gives a.o. to the National Parliaments a greater ability to scrutinise proposed [European Union law](#) and to comment the draft legislation proposed by the European Commission);
- EU legislation addressed to citizens needs to be translated into 23/24 languages and all adopted languages have the same legal value.

The modernisation of the decision making process, taking into account its pan-EU dimension, is beneficial for Member States and citizens as it supports:

- Cost saving: decrease the number of repetitive manual tasks, decrease the volume of new text to be translated...
- Transparency: better traceability of directives implementation, building of consolidated views of legislation, follow-up of amendments and corrigenda...
- Quality of the legislation: control of the legislative drafting rules from early stages of the legislative process...
- Accessibility to legislation: standard open formats, open data, data mining, long-term preservation...

6.2.5 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States, National parliaments, public administrations and EU Institutions	<p>Re-use of best practices, standards and tools, in order to:</p> <ul style="list-style-type: none"> ▪ improve the quality of legislation, preventing drafters to go outside the applicable legislation drafting rules ▪ save costs, replacing manual tasks by automatic processing at different step of the decision making process: <ul style="list-style-type: none"> ○ review/amending phases ○ translation phases ○ consolidations ○ publication/notification ▪ ease interoperability between stakeholders ▪ facilitate the interconnection of legal databases and the performance of search engines <p>Tools and components developed in the context of this action are designed in a generic way and published under an open source</p>

	licence in order to ease their reuse by national public administrations and EU Institutions.
Citizens, civil society, businesses	Easier access to legislation, providing standards and good quality data facilitating data analytics

6.2.6 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Promoting Semantic interoperability Amongst the European Union Member States SEMIC – Action 1.1	Reusable semantic interoperability assets in the area of legislation can be shared with other public administrations, both at level of the EU and Member States.
Trusted Exchange Platform e-TrustEx - Action 1.8	At the EU decision-making level, the text being exchanged between Institutions, Member States and National Parliaments are sent using the e-TrustEx exchange platform.
European Legislation Identifier (ELI)	The structured representation of legislative content supports the extension of the European Legislation Identifier to additional elements.
DRS – Document repository services for EU policy support (ISA action 2.9)	The open source release of these services could be a solution for archiving/storing the drafted solution.
ISA ² Action 'Participatory knowledge for supporting decision making'	Reusable solutions that allow the electronic participation of stakeholders, the analysis of the captured opinions and the discovery and generation of knowledge will be taken into account for designing and developing building blocks (i.e. software, tools etc.) that support and improve the electronic exchange of documents and metadata in the context of the legislative process.
ISA ² Action 'Interinstitutional framework for digital OLP management'	The proposed interoperable ways of structuring the content of the documents that need to be exchanged between the institutions for the purposes of the ordinary legislative procedure will be taken into account for designing and developing building blocks (i.e. software, tools etc.) that support and improve the electronic exchange of documents and metadata in the context of the legislative process.
'ISA ² Action ICT implications of EU legislation'	Results and conclusions related with the properly preparation and evaluation regarding the ICT implications will be taken into account for designing and developing building blocks (i.e. software, tools etc.) that support and improve the electronic exchange of documents and metadata in the context of the legislative process.
ISA ² Action 'European Legislation Identifier (ELI)'	The proposed approach for identifying legislation documents and the supporting assets and solutions will provide input for designing and developing building blocks (i.e. software, tools etc.) that support and improve the electronic exchange of documents and metadata in the context of the legislative process.

ISA ² Action 'Application of EU law: provision of cross-sector communication and problem solving tools (THEMIS)'	Reusable tools and the underlying semantic structures and data standards for monitoring the application of EU law will be taken into account for designing and developing building blocks (i.e. software, tools etc.) that support and improve the electronic exchange of documents and metadata in the context of the legislative process.
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6.2.7 REUSE OF SOLUTIONS DEVELOPED BY ISA, ISA² OR OTHER EU / NATIONAL INITIATIVES

This action strives for an efficient and pragmatic vision by relying heavily in interoperable standards and re-usability of existing solutions, to avoid duplication of efforts and achieve sustainable business impact. The very open nature of the project is the first factor to consider when analysing the problems, designing the solutions and implementing the ICT products (components, services and applications) to be delivered under free public licenses.

A considerable number of existing solutions or ongoing efforts, under EU or other initiatives, were identified as important building blocks for the activities in the scope of this action:

- LEOS - Legislation Editing Open Software (ISA action 1.13)
 - LEOS Editor prototype
 - LEOS technical studies
- LegalDocML (OASIS)/ Akoma Ntoso (UN-funded project)
 - XML standard for legal documents
- IFC - Inter-institutional Formats Committee
 - Common Vocabulary working group
 - Formats Guidelines working group
- ELI - European Legislation Identifier (ISA action)
 - legislation URI - Uniform Resource Identifier
 - legislative resource metadata
 - information exchange format ontology
- DRS – Document repository services for EU policy support (ISA action 2.9)
 - potential solution for storing/archiving
- IMMC - Inter-institutional Metadata Maintenance Committee
 - IMMC Core Metadata exchange protocol
 - IMMC institution specific extensions
- Metadata Registry of definitions and specifications (Publications Office):
 - Named Authority Lists (Common Authority Tables/Value lists)
 - OP Core metadata element set
 - EuroVoc - thesaurus and alignments
 - Formex - Formalized Exchange of Electronic Publications

- SEMIC - Promoting Semantic interoperability Amongst the European Union Member States (ISA action 1.1)
 - Core Vocabularies (Core Person, Core Location, Registered organisation, Core Public service)
 - Interoperability of open data portals (DCAT-AP)
 - Linked Open Government Data (LOGD)
 - Asset Description Metadata Schema (ADMS)
 - Community of Interoperability Solution Repositories (CISR)

- Legislative process landscaping study (ISA-funded project):
 - AS-IS report
 - TO-BE vision

- Joinup Platform (ISA-funded project):
 - communication facilities
 - dissemination of materials
 - collaborative development

6.2.8 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Technical analysis
Description	Research activities, feasibility study, conclusions driving solutions' implementation
Reference	N/A
Target release date / Status	Yearly update

Output name	Architecture design
Description	Based on the conclusions of the technical analysis, architecture guidelines driving the implementation
Reference	N/A
Target release date / Status	Yearly update

Output name	LEOS Editor Reference implementation
Description	Software components following the architecture guidelines, released under open licence
Reference	N/A
Target release date / Status	Ad-hoc releases as of 2016

6.2.9 ORGANISATIONAL APPROACH

6.2.9.1 Expected stakeholders and their representatives

Stakeholders	Representatives
IMMC	Inter-institutional Metadata Maintenance Committee
IFC	Inter-institutional Formats Committee
Akoma Ntoso/LegalDocML Oasis Technical Committee	https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=legaldocml
ISA ² Coordination Group (or ISA CG equivalent)	The group assists the Commission in translating priorities into actions and to ensure continuity and consistency in their implementation.
Secretariat-General of the European Commission	Unit SG.A1 (Advice, developments and logistics) Unit SG.R3 (Information Technology)
Legal Service of the European Commission	LEG Team (Quality of Legislation) Unit SJ.RHIF.IT (Informatics)
Directorate-General for Translation of the European Commission	DGT.C (Translation) and DGT.S (Customer relations) Unit DGT R3 (Informatics)
Directorate General for Informatics of the European Commission	Unit DIGIT.B.2 (Information systems for document management and corporate decision making processes)
Organisations in Member States	Members States representatives of administrations either working on similar initiatives or interested in using produced software.

6.2.9.2 Communication plan

The project team will systematically drive development activities after consultation of interested parties. As example, committees like the IMMC and the IFC will be consulted before launching any development activities in the area of transformation between formats or the implementation of new metadata extension. The communication with these committees will be handled during the respective meetings (plenary or working group meetings) in which presentations for information or for discussion will be put on the agenda.

As regards the development activities related to the LEOS drafting tool, the Joinup platform will be used to support the communication and the dissemination of material (software, documents...) between interested stakeholders. In case a Community of interest is emerging (made of representatives of some national organisations and Institutions working on similar projects) some workshops could be organised in order to share experiences (lessons learnt, technical issues, change management strategies...) and also to identify and plan development synergies, the Joinup platform being also able to support collaborative development activities.

6.2.9.3 Governance approach

The coordination of the project is handled by 3 different groups:

- The steering committee, including representatives at head of unit level of:

- Secretariat-General of the EC (service in charge)
- DIGIT.B2 and DIGIT.B6 (associated services)
- The project management team, including project officers from:
 - Secretariat-General of the EC (service in charge)
 - DIGIT.B2 and DIGIT.B6 (associated services)
- The extended project management team, including project officers from:
 - Secretariat-General of the EC (service in charge)
 - DIGIT.B2 and DIGIT.B6 (associated service)
 - DGT (adviser service)
 - Legal Service of the EC (adviser service)

The project steering committee meets on a regular basis (2 times a year):

- to ensure the project is progressing satisfactorily
- to take strategic decisions

In case any critical risk or issue is raised, the steering committee may also meet on request of the project managers, in order to decide on actions to be launched.

Project status meetings (review of the project progress) are held between entities of the project management team, to ensure the timely delivery of the project. Project managers of the extended project management team may join the status meeting depending on the agenda.

6.2.10 TECHNICAL APPROACH

6.2.10.1 Strategy

The swift implementation and deployment of complementary, standardised and interoperable ICT solutions is a critical element to drive innovation, ensure sustainability, increase re-usability, reduce fragmentation and avoid duplication of efforts.

This action is driven by an agile, efficient and pragmatic technical approach by combining established and emerging standards, industry best practices and state of the art technologies to empower the delivery of high quality and highly reusable software products that can either be used in isolation or composed together to implement interoperable ICT solutions. Reliable and sound ICT solutions are essentially achieved by composing independent products (components, services and even applications), leading to strong architectures and resilient systems. These are better prepared to deal with failures by providing graceful degradation of the affected capabilities and guaranteeing overall system availability.

Independent products, complying with the principle of single responsibility, translate to sustainable evolution in both business and technical perspectives. Independent teams are masters of their own business specificities. Usually they are focused on a particular business domain inside an organization, easily coping with business changes, able to avoid the barriers and coordination overhead of dealing with a large and complex organizational structure, inevitable when addressing a

wider business domain. Independent products are supported by independent teams, which are establishing well-defined boundaries and focusing on contracts, interfaces, communication and data. These are key concepts to achieve unconstrained product evolution, responding to business changes by incorporating new features and capabilities or deprecating obsolete ones, but still maintaining backwards compatibility. Single responsibility products have clearly defined behaviour and are designed to be easy to understand, to test and to validate against predefined key metrics. Each product should be enriched with instrumentation capabilities to report meaningful usage and performance statistics as an added value.

Software components (frameworks or utility libraries) should be implemented at least in one mainstream programming language (e.g. Java), with the possibility to provide bridge application programming interfaces (APIs) for other languages. This strategy ensures sustainable development of a main reference implementation, high re-usability through thin bridge APIs and lower maintenance efforts.

Software services (SOAP web services, RESTful services or micro-services) should exchange data in well-defined open formats. The focus is on the exchange of rich data structures where data, together with its schema, is fully self-describing. Such principle is the strongest foundation to build reliable data exchange and processing systems where producers and consumers can exchange data schemas, facilitating the understanding of the exchanged data and enabling seamless data adaptation to comply with divergent schema versions or even disparate schemas altogether. This strategy ensures easier consumption and flexible composition of services, independently of programming languages and execution platforms.

The LEOS Editor is considered a single responsibility application, reusable in multiple stages of the legislative process workflow, as demonstrated by the delivered prototype implementation. Activities performed under the LEOS action focused on improving the drafting of legislation using open source tools and an open document format. Rapidly we faced several, apparently unrelated, hidden challenges for which solutions were found and implemented. Later we identified these as common problems, in different contexts, waiting for coherent solutions. We realized the opportunity and usefulness of exposing LEOS internal implementations in the form of reusable software components or services to support other efforts. The continuation of the LEOS development activities requires an adaptation of the current architecture to adhere to a design based on reusable components and services. Lessons learned from the LEOS action guide the re-evaluation of some design decisions and applied technologies, leading to the selection of suitable replacements, where needed. Stakeholders and key users evaluated the LEOS Editor prototype and highlighted missing capabilities required to properly support their business and ease adoption. Such capabilities should be delivered in new releases, involving technical analysis, design and implementation. Standards compliance is always a major concern in LEOS and the release of LegalDocML by OASIS (a.k.a Akoma Ntoso 3.0) must be covered by an upcoming release.

6.2.10.2 Programme

The governance board of the action will decide on the agenda and the priorities of the activities to be carried out. The following list gives a view on the kind of research and development tasks which will be

addressed. It is definitely not a final program as new products or trends will appear on the market as the action is being executed and the output of some items could simply discard some other ones.

Cluster A: Activities in scope of the continuation of LEOS:

Research activities:

- identify general document edition rules
- identify EC type specific document edition rules
- identify language specific document edition rules
- investigate declarative definition of document rules (e.g. LegalRuleML)
- identify EC type specific document templates
- investigate declarative definition of document templates (e.g. XML)
- investigate advanced PDF layout and rendering engines (e.g. SILE Typesetter)
- identify differences between Akoma Ntoso versions (2.0 vs 3.0)
- investigate advanced structured document comparison algorithms
- identify fundamental access control rules for EC documents
- investigate access control frameworks (e.g. CMIS ACL or Apache Shiro)
- investigate technologies and design the User Experience to provide document content quality enhancements:
 - dictionaries and thesaurus, available services and communication protocols (e.g. DICT, XDXF, ADL or EuroVoc)
 - archives of published documents, document formats and retrieval services (e.g. database of PO)
 - archives of translated documents, document formats and translation services (e.g. database of DGT)
 - user experience design, user interface prototype and usability studies
- investigate technologies and design the User Experience to provide document content semantic enhancements:
 - investigation of metadata standards (e.g. Dublin Core or FOF)
 - investigation of ontologies and datasets (e.g. DBpedia or Geonames)
 - investigation of semantic web and linked data (e.g. RDF, SPARQL or JSON-LD)
 - investigation of semantic engines (e.g. Apache Stanbol or Apache Marmotta)
- document archive, content indexation and search:
 - investigation of semantic content management systems (e.g. CKAN)
 - investigation of archiving technologies (e.g. CMIS standard open implementations)
 - investigation of indexing technologies (e.g. Apache Lucene)
 - investigation of search technologies (e.g. Apache Solr)
- integration of independent products (components, services or applications):
 - investigation of integration strategies
 - evaluation of integration frameworks and tools
 - documentation of integration guidelines and trade-offs
- evaluation of open-source remote telemetry solutions:
 - product performance statistics
 - product health monitoring
 - product usage reporting

Implementation activities:

- provide multi-language application user interface
- support multi-language document content edition
- create general and specific document edition rules
- create templates for EC document types
- implement advanced PDF export capabilities

- support for Akoma Ntoso 3.0 (LegalDocML)
- improve structured document comparison
- support extensible document metadata fields
- validation of content against document schema
- validation of content for correctness (e.g. invalid references)
- support reuse of content from existing documents
- support for images/tables in document editor
- allow cross-references between and inside documents
- support proposals for change (amendments)
- ensure access control of documents
- enable sharing of documents
- improve performance of key capabilities
- implement back-office for helpdesk users
- full support for modern browsers (IE, Firefox, Chrome, Safari)
- support document rendering and edition on mobile devices (tablets)
- integration with tools supporting EU's legislative process workflow
- implement computer assisted designer (CAD) for templates
- document content quality enhancements:
 - match content against language dictionaries and thesaurus for corrections and suggestions
 - match content against published documents for increased coherence and quality
 - match content against translated documents for reduced translation efforts
- document archive, content indexation and search:
 - development of proof-of-concept services based on selected technologies
- remote product telemetry:
 - development of proof-of-concept services based on selected technologies

Cluster B: Activities related to delivering re-usable independent products (components, services or applications)

Research activities:

- evaluate alternatives and trade-offs for modularization of LEOS prototype:
 - re-usable independent components
 - re-usable independent services
- investigate semantic related EU efforts:
 - SEMIC - Semantic interoperability Community (ISA Action):
 - Core Vocabularies (Core Person, Core Location, Registered organisation, Core Public service)
 - Interoperability of open data portals (DCAT-AP)
 - Linked Open Government Data (LOGD)
 - Asset Description Metadata Schema (ADMS)
 - Community of Interoperability Solution Repositories (CISR)
 - IKS - Interactive Knowledge Stack (EU-funded project):
 - VIE.js - Vienna IKS Editables for semantic web applications
 - Create.js - a comprehensive web editing interface for CMS
- XML document validation
 - investigation of Document Schema Definition Languages framework (DSDL)
 - evaluation of validation definition languages (e.g. DTD, XML Schema, Relax NG, Schematron, NVDL or CAM)
 - evaluation of validation engines (e.g. Probatron or CAMV)
- XML document transformation:
 - specification of transformations between formats identified by IFC working groups
 - investigation of transformation definition languages (e.g. XSLT or XProc)

- evaluation of transformation engines (e.g. Saxon XSLT, Apache Cocoon or xslsh)

Implementation activities:

- refactoring of LEOS prototype into components and services:
 - document text and table of contents viewer UI components
 - document metadata extraction library or management service
 - document transformation services for HTML, PDF and PDF/A
 - document comparison library or service
 - document comparison view UI component
 - document consolidation library or service
- XML document validation:
 - creation of schemas originating from IFC working groups
 - validation of document against schema with comprehensive error information
- XML document transformation:
 - creation of transformations between formats identified by IFC working groups

Cluster C: Activities that may emerge from the legislative process landscaping study:

Research activities:

- N/A (nothing was identified so far)

Implementation activities:

- development of IMMC extensions to support new metadata or data formats
- adaptation of existing tools in order to simplify the legislative process
- development of integration services to break application data silos
- development of automation services to reduce manual tasks in the workflow

6.2.11 COSTS AND MILESTONES

6.2.11.1 Breakdown of anticipated costs and related milestones

Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipate d Allocation s (KEUR)	Budget line ISA ² / others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Inception	Project charter, clusters A, B and C	100	ISA ²	05/2016	09/2016
Execution 1	Feasibility study, Technical analysis 1.0	100	ISA ²	09/2016	09/2017
	Architecture design 1.0 Reference Implementation V1.0	300	ISA ²	09/2016	09/2017
Execution 2	Technical analysis 2.0 Architecture design 2.0	240	ISA ²	09/2017	09/2018
	Reference Implementation V2.0	840	ISA ²	09/2017	09/2018

Execution 3	Technical analysis 3.0 Architecture design 3.0	240	ISA ²	09/2018	09/2019
	Reference Implementation V3.0	840	ISA ²	09/2018	09/2019
Execution 4	Technical analysis 4.0 Architecture design 4.0	240	ISA ²	09/2019	09/2020
	Reference Implementation V4.0	840	ISA ²	09/2019	09/2020
Execution 5	Technical analysis 5.0 Architecture design 5.0	240	ISA ²	09/2020	09/2021
	Reference Implementation V5.0	840	ISA ²	09/2020	09/2021
Total		4820			

The breakdown of research, technical analysis and development effort per cluster is expected as follow:

- cluster A: 50%
- cluster B: 30%
- cluster C: 20%

The governance board of the action will regularly review this allocation based on the decided business priorities.

6.2.11.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Inception	100	
2016	Execution 1	400	
2017	Execution 2	1080	
2018	Execution 3	1080	
2019	Execution 4	1080	
2020	Execution 5	1080	

6.2.12 ANNEX AND REFERENCES

Description	Reference link	Attached document
LEOS as-is study	https://joinup.ec.europa.eu/elibrary/document/isa-leos-final-results	
LEOS editor release	https://joinup.ec.europa.eu/software/leos/release/all	

Metadata registry of the Publication Office (IMMC, ELI, Formex...)	http://publications.europa.eu/mdr/	
Akoma Ntoso web site	http://www.akomantoso.org	
LegalDocMI technical committee	https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=legaldocmi	

6.3 ICT IMPLICATIONS OF EU LEGISLATION (2016.23)

6.3.1 IDENTIFICATION OF THE ACTION

Type of Activity	Assessment of ICT implications of EU legislation
Service in charge	DG DIGIT.B6
Associated Services	DG SG and any Commission DG wishing to assess the ICT impact of its legislation, especially those performing Impact Assessments and Evaluations, Parliament, Council, Publications Office

6.3.2 EXECUTIVE SUMMARY

The assessment of ICT implications of EU legislation is directly mentioned as a main activity in the ISA² and ISA decisions and contributes to their main objective notably through ensuring that EU legislation is prepared and evaluated with ICT in mind. The latter facilitates cross-border and cross-sector interoperability thus contributing to the realisation of the Digital Single Market (DSM) strategy. Given that ISA² special focus is on interoperability, it is also necessary that a mechanism is developed to measure the costs and benefits of interoperability not only when legislation is produced but also whenever it is necessary to justify new interoperability initiatives or promote existing ones.

The problem of not considering or underestimating ICT impacts when EU legislation is prepared or evaluated results into legislation that does not take advantage of new digital technologies, may impose unrealistic deadlines and be more costly in its implementation. Also the lack of a mechanism to prove the value of interoperability may slow down or undermine investments on interoperability.

The action has succeeded as part of the ISA programme to promote the ICT assessment concept within the Commission and produce the supporting tools (ICT assessment method) necessary for ICT impacts to be well analysed as part of the Impact Assessment and Evaluation process. It has also produced a draft mechanism to allow measuring the costs and benefits of interoperability, still pending testing.

The scope of the action includes that:

- ICT/digital checks apply to all new legislation through screening;
- New legislation is digital minded and ICT impacts are properly assessed in Impact Assessments and Evaluations as part of the policy cycle of the Commission;
- A hook is made with the ICT Governance of the Commission to ensure that an end-to-end governance process is in place;
- Support and training is provided to those involved in the law-making process;
- The ICT assessment method and all related tools are constantly refined as a result of gained experience;

- A proper mechanism to measure the costs and benefits of interoperability is developed and made publicly available.

Beneficiaries are the Commission DGs that will prepare coherent and interoperable ICT based legislation, as well as the legislation stakeholders, namely MS, business and citizens. MS public authorities involved in similar ICT assessments of national legislation could also use the action's ICT assessment method (possibly) refined to fit to their specific needs.

In 2016, the action will update the assessment methodology and conduct a number of assessments in relation to new legislations.

In addition, a method to measure the cost benefit of interoperability will also be developed.

6.3.3 OBJECTIVES

The objective is to ensure that ICT implications are well identified and assessed when EU legislation is prepared or evaluated and are properly and in due course taken into account to support the implementation of the concerned legislation effectively, timely and at reasonable cost. It is also to make available tools that could measure the value of interoperability and provide convincing arguments for its wide application.

The action is meant to support the DSM strategy by ensuring that EU legislation is digital minded, interoperable and fully exploits the benefits of ICT.

6.3.4 SCOPE

In scope:

- Monitoring of the pre-notifications (via Inception Impact Assessments and Evaluation Roadmaps) addressed by the Commission DGs about the preparation of new or evaluation of existing legislation to early identify possible ICT implications;
- Establish a service to support the Impact Assessment and Evaluation process of the Commission in relation to ICT;
- Constant update of an Impact Assessment/Evaluation method (based on an IDABC method published in 2010) used in the delivery of the above service;
- Except from the Commission services, the method could also be used by the MS as a tool to assess the impact of EU and national legislation;
- Promotion within the EU services of the need to produce digital minded legislation in support to the Digital Single Market (DSM) strategy of the Commission;
- Development of a mechanism to measure costs and benefits of interoperability.

Out of scope:

- It is only the method that is provided to the MS as a tool to help them in their ICT assessment process and not the service.

6.3.5 PROBLEM STATEMENT

In relation to the ICT implications method:

The problem of	not taking into account ICT implications of EU legislation during the legislative proposals' preparation stage or at legislation evaluation
affects	the Commission services involved in the preparation, adoption, implementation and evaluation of the concerned legislation and the legislation's target audience, usually EU Public Administrations, citizens and businesses
the impact of which is	moderate ICT implementation quality, at higher cost, unmet deadlines, lack of interoperability, possible sub-optimal implementation of the legislation due to insufficient ICT support, etc.
a successful solution would be	the early consideration of ICT impacts when EU legislation is prepared or evaluated to allow for efficient use of ICT technologies, timely identification of synergies with other IT systems, reusability and interoperability, provide guaranties of timely implementation and decrease the administrative burden/cost.

In relation to the measurement mechanism for costs and benefits of interoperability:

The problem of	not having tangible means to assess costs and benefits of interoperability
affects	the Commission and the MS wishing to invest on interoperability initiatives
the impact of which is	hesitation to make proper interoperability investments etc.
a successful solution would be	To develop such a mechanism and make it publicly available

6.3.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

A monetary benefit of running the specific action cannot be estimated upfront. The expected benefit will be cumulative:

- from all studies (Impact Assessment and Evaluation) that consider an ICT based approach as an integrated part of the EU legislation as opposed to having ignored or underestimated ICT and
- from savings due to applying interoperability principles in ICT developments.

Qualitative benefits can be identified and are listed below:

Beneficiaries	Anticipated benefits
European Commission services	<ul style="list-style-type: none"> • Legislation benefitting from ICT: it means legislation that applies both to the physical and digital worlds and makes ultimate use of ICT means to provide electronic, online and interoperable services; • Wider use of interoperability due to proofs that it can provide benefits (included monetary) <p>This will have positive impact to the modernisation of Public Administrations, will maximise growth through a European digital economy and enable an inclusive e-society.</p>
Public Administrations	
Businesses	
Citizens	

6.3.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	Legislation to be prepared or evaluated in various domain related to the DSM (e-health, e-government, e-transport, e-energy, etc.) can benefit from the action and the proposed ICT assessment method to assess ICT impacts.
Communication on "Better Regulation for better results", COM(2015) 215	It concerns an update to the Commission's guidelines on how to perform Impact Assessments and Evaluations. This new version requires explicitly the consideration of ICT as part of the process and includes a tool to help such assessment (tool No 23 on "ICT assessment, the digital economy and society" ⁵⁸). The action will align with the requirements set out by the new guidelines and will put in place a service to help targeted Impact Assessments and Evaluation in the identification and analysis of their ICT impacts.
Any other policy domain the action will be asked to support through Impact Assessments and Evaluations	
ISA ² Action 'Participatory knowledge for supporting decision making'	Reusable solutions that allow the electronic participation of stakeholders, the analysis of the captured opinions and the discovery and generation of knowledge will be taken into account for the properly preparation and evaluation of EU legislation regarding the ICT implications.

⁵⁸ http://ec.europa.eu/smart-regulation/guidelines/tool_23_en.htm

ISA ² Action 'Interinstitutional framework for digital OLP management'	The proposed interoperable ways of structuring the content of the documents that need to be exchanged between the institutions for the purposes of the ordinary legislative procedure will be taken into account for the properly preparation and evaluation of EU legislation regarding the ICT implications.
ISA ² Action 'Legislation interoperability tools (LEGIT)'	Existing or under development building blocks (i.e. software, tools etc.) that support and improve the electronic exchange of documents and metadata in the context of the legislative process and the transformation between different formats will be taken into account for the properly preparation and evaluation of EU legislation regarding the ICT implications.
ISA ² Action 'European Legislation Identifier (ELI)'	The proposed approach for identifying legislation documents and the supporting assets and solutions will provide input for the properly preparation and evaluation of EU legislation regarding the ICT implications.
ISA ² Action 'Application of EU law: provision of cross-sector communication and problem solving tools (THEMIS)'	Reusable tools and the underlying semantic structures and data standards for monitoring the application of EU law will be taken into account for the properly preparation and evaluation of EU legislation regarding the ICT implications.

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

Various ISA² actions such as the EIRA, EIC, EIS, EIF, TES, Semantics, Base Registries, Catalogue of Services, just to name some of them, inter-relate with the action in question. The idea is that whenever ICT implications are analysed, interoperability effects and reusability possibilities are always considered. ISA and ISA² actions provide the means (frameworks, services and tools) to achieve the above.

In case interoperability requirements are to be defined in proposed legislation, EIF should be named as the desired framework. If a high level architecture is to be included, then EIRA as such or a compatible one could be proposed. EIC, TES, Base registries and Catalogue of Services can be used as sources of reusability whereas Semantics can drive the definition of legislations' data models. The cost and benefit model used by the action in question will be enriched with the mechanism to measure costs and benefits of interoperability.

Liaison with the internal Commission ICT Governance is a must to ensure that ICT implications identified during the law-making process are well linked with the internal ICT Governance procedures when the Commission is amongst the concerned stakeholders. This way, reusability possibilities are highly increased.

6.3.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	ICT Implications Assessment method
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Description	It is a method to guide the ICT assessment process. It is based on an older method developed in 2010 by IDABC. The method was updated in Jun 2015 and will be formally published in 2016 following additional testing in a number of cases and consultation with the MS.
Reference	Older IDABC method: http://ec.europa.eu/isa/actions/documents/isa_3.1_description_of_the_method.pdf Draft updated method: http://ec.europa.eu/isa/documents/actions/ks-sc9-d04-03-ict-assessment-method_v5.00.pdf
Target release date / Status	Q2/2016 / Stable release Current status: Draft

Output name	Measurement mechanism for costs and benefits of interoperability
Description	It is a mechanism to allow measuring the exact cost and benefit of interoperability solutions
Reference	
Target release date / Status	Q1/2015 as draft (to pilot with the MS in 2016)

6.3.10 ORGANISATIONAL APPROACH

6.3.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
European Commission services	The Secretary General and any Commission DG in charge of preparing new or evaluating existing legislation.
Member States	MS representations to the ISA ² Committee and Coordination group and through them MS public administration authorities involved in similar studies at national level that may use the proposed method and/or give feedback on good practices applied nationally.

6.3.10.2 Communication plan

The communication plan includes:

- Promotion/consultation rounds with the Commission stakeholders namely, the IT heads, the Impact Assessment units and the concerned policy units of the Commission DGs;
- Communication with the ICT Governance of the Commission to better align the law-making and the ICT development processes within the Commission thus ensuring policy coherence and maximising ICT rationalisation effects;
- Active participation to the Impact Assessment Working Group and communication of the benefits resulting from the assessment of the ICT impacts;
- Communication with the MS representatives through the regular ISA² management meetings and through webinars and dedicated workshops.

6.3.10.3 Governance approach

The action will be managed by DIGIT with the support of an external contractor. Whenever major deliverables are to be published, the validation of the MS representatives will be sought.

6.3.11 TECHNICAL APPROACH

A good step forward has been done with the integration of ICT assessment in the policy cycle of the Commission and the update of the ISA assessment method. Also, a measurement mechanism for costs and benefits of interoperability will be in draft mode by the end of 2015.

Next major objective is to ensure that the use of the method is generalised. The method should be constantly maintained and refined with lessons learnt and its benefits should be measured and evaluated with feedback received from the policy makers. The measurement mechanism should also be made part of the method once tested with the MS.

Q2/2016 – Q1/2017:

- The updated method is foreseen to be used in a number of different cases (3–6). Communication activities to promote its use within the Commission DGs will be intensified. A good link should be established with the ICT Governance of the Commission and tested in practise;
- The mechanism to measure costs and benefits of interoperability will be tested in pilots with the Member and will be put on Joinup as a web tool. It should be noticed that this mechanism will be used for the 2017 work-programme as a means to assess candidate actions, in accordance with the ISA² decision.

6.3.12 COSTS AND MILESTONES

6.3.12.1 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)
	<ul style="list-style-type: none"> • Screen/Monitor all published Inception Impact Assessments and Roadmaps of the Commission to identify the need of ICT impact analysis; • Assess ICT implications of Impact Assessments and Evaluations as needed through a service provided by DG DIGIT; • Update the method as needed; • Pilot and finalise a measurement mechanism for costs and benefits of interoperability and make it available on Joinup. 	450	ISA ²	Q2/2016	Q1/2017
	Total	450			

6.3.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016		450	
2017			
2018			
2019			
2020			

6.3.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
IDABC existing method and Draft updated method	http://ec.europa.eu/isa/actions/documents/isa_3.1_description_of_the_method.pdf http://ec.europa.eu/isa/documents/actions/ks-sc9-d04-03-ict-assessment-method_v5.00.pdf	

6.4 EUROPEAN LEGISLATION IDENTIFIER (2016.08)

6.4.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common frameworks
Service in charge	Publications Office
Associated Services	Luxembourg, France, United Kingdom, Ireland, Denmark, Council of the EU, e-Law working group (e-law), Parliament, Council

6.4.2 EXECUTIVE SUMMARY

ELI is a basic building block for the interoperability and exchange of legislation data in Europe. It provides a practical and flexible system for naming legislation documents and for sharing metadata that is sufficiently standardised to realise the benefits of interoperable legislative data, while respecting each Member State's unique legislative and legal traditions.

ELI comes as a response to the problem of not being able to refer in a unique and commonly acceptable way to the EU and national legislation thus hindering the exchange and sharing thereof, although it is at large available in electronic format.

ELI proposes a unique identifier (HTTP URI), which should be recognisable, readable and understandable by both humans and computers. In addition, ELI proposes a set of metadata elements to describe legislation in compliance with a recommended ontology. ELI aims to take into account not only the complexity and specificity of regional, national and European legislative systems, but also changes in legal resources (e.g. consolidations, repealed acts, codes etc.). ELI has been carefully constructed to respect the legal and constitutional differences between Member States.

With the ISA funding received in the frame of ISA work program 2014-2015, a number of assets were developed in view of facilitating the implementation of ELI by Member States. Since the beginning of this initiative, ELI has been deployed by different stakeholders including a growing number of Member States, which are considering ELI as a solution to enrich their legal acts and improve interoperability

between systems. As the ELI initiative is starting to bear fruits, the present request aims to pursue the effort started in the context of ISA Action 1.21 (2014-2015).

6.4.3 OBJECTIVES

The objective of ELI is to enable a greater degree of semantic interoperability of legislation data in general and in particular between European and Member States systems. By promoting the access and exchange of legal information within and across borders, the ELI initiative supports cooperation between European public administrations, citizens and businesses. By putting forward recommendations specifying how administrations, businesses and citizens can improve interoperability within the EU and across borders, the ELI initiative is compliant with the ISA² objectives and in line with the European Interoperability Framework (EIF).

Further, the initiative is also compliant with the European Union commitment to open up legislation as part of the implementation of the G8 Open Data Charter which aims to promote, among others, transparency and governments' accountability and contributes to the development of the common area of freedom, security and justice.

Finally, by making legislation available on the web in a structured way, it will be easier to find, share and reuse legislation, as prescribed by the Public Sector Information (PSI) Directive.

To pursue the work initiated in the context of the ISA working program 2014-2015, and thus contribute to the wider adoption of ELI by Member States and beyond, funding is sought to conduct activities in line with the below list of operational objectives :

1. Provide assistance to Member States, candidate countries and EFTA states in implementing ELI;
2. Maintain ELI know-ledge base and facilitate information sharing;
3. Guarantee maintenance and evolution of existing ELI assets and solutions;
4. Develop additional added-value services and tools facilitating the deployment of ELI by stakeholders;
5. Standardisation activities/ cooperation with existing standards groups and communities in the EU and internationally;
6. Dissemination of results.

6.4.4 SCOPE

The below series of tasks would be conducted in the scope of the proposed ELI support action:

1) Provide assistance to Member States in implementing ELI

This task foresees delivering technical and organisational assistance to Member States who are interested in implementing ELI; assistance can be delivered in the form of workshops, trainings, technical meetings, consultancy, etc.

2) Maintain ELI know-ledge base and facilitate information sharing

As the number of Member States adopting ELI is growing, it is important to take on board the knowledge and expertise acquired by the new ELI implementers and update technical and general documentation (implementation guide, good practices, technical guidelines, etc.). Facilitating information exchange and peer review exercises via appropriate fora is an asset to share a common goal.

3) Guarantee maintenance and evolution of existing ELI assets and solutions

A number of generic assets have been developed since the beginning of the ELI initiative. Not only must these be maintained, but they must also evolve. This encompasses the adaptation to existing ELI assets to changes in formats, standards or platforms and further evolutions of the ELI CELLAR. This also includes possible adaptation/ configuration of developed solutions with the objective of making them more easily re-usable by Member States or other stakeholders;

4) Analyse and develop additional added-value services and tools:

Analyse, study and build services and tools to foster interoperability and create added-value between stakeholders and systems. Survey stakeholders in order to identify which services/ tools would best respond to actual user needs; Prospection and analysis of solutions in view of conceiving and deploying tools and services for Member States (ie. mutualisation of systems and resources, RDF transformations, visualisation tools, increased linking granularity...) Development, deployment, testing, hosting and related tasks to ensure the functioning of the services/ tools. Investigation on legal requirements as to licensing/ reuse.

The following components have already been identified:

- Visualisations tools
- Editing tool for semantic metadata
- RDF transformations
- Tools for preparation and conversion of legacy data at the Member State Level
- Tools for searching across semantic metadata and full-text of legal publications

5) Standardisation as well as synergies with existing initiatives in the EU and internationally.

This includes continuing to progress ELI as a standard in the EU and internationally as well as engaging with groups and communities working in areas that relate to ELI;

6) Dissemination of results

- Outreach to commercial and non-commercial re-users as well as to the academic community;
- Organisation of events to promote ELI;
- Drafting success stories; best practices, news or other editorial contents about ELI for various dissemination channels in various languages;
- Translation and editing activities;
- Reporting about progress on ELI and presenting ELI project to various types of audiences.

6.4.5 PROBLEM STATEMENT

The exchange of legal information is limited by the differences that exist in the various national legal systems, as well as the differences in their technical systems used to store and display legislation through their respective websites. This hampers the interoperability between the information systems of national and European institutions, despite the increased availability of documents in electronic format.

Prior to ELI there was no agreed approach for identifying legislation documents and exchanging information on them that was sufficiently uniform to achieve interoperability and sufficiently flexible to be consistent with each Member States constitutional and legal requirements and history.

ELI provides a flexible, consistent and reliable way to uniquely identify legislation documents from different jurisdictions, and to reference and share those documents. ELI achieves this by providing a unique and stable identifier for each legislative act in the European Union, while at the same time taking full account of the specific requirements of national legal systems.

The European Council in its Council Conclusions invites ELI as a voluntary scheme for Member States. Its flexible means and the support provided to adopt and implement ELI will benefit significantly Member States.

ELI is a foundational piece of architecture for this era of online legislation, therefore the benefits of ELI are very wide.

6.4.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

A Member State having implemented ELI, will be able to exchange legislative information more quickly, efficiently and reliably. ELI also facilitates efficient searching of legislation of other jurisdictions with cross border searches. It also enables a more precise investigation and understanding of the

transposition of directives. A concrete example thereof is France who successfully implemented in July 2015 a mechanism to link ELI references from <http://data.europa.eu/> ELI and display them on Légifrance: <http://www.legifrance.gouv.fr/>. The implementation of this interoperability feature by France demonstrates a concrete benefit of the ELI system.

ELI is cost effective because it is merely a specialisation of how resources are generally identified on the web. As ELI is targeted as being an extension to existing systems, the initiative can be implemented by Member States at a reasonable cost.

Finally, it is important to note that the approach to ELI benefits from the work that goes into technologies and standards for Linked Open Data and the semantic web.

Beneficiaries	Anticipated benefits
Member States	Facilitating access to legislation reduces burden for public administration. Structuring data and optimisation of production flows can lead to reduction of production cost for legal information publishers. Improved transparency
Member States - implementers	Member States can draw on the knowledge base which has been acquired based on the experience of the pioneering implementers to implement ELI. Technical documentation as well as training and assistance can be offered to facilitate the implementation of ELI by future implementers.
European Commission	Improved transparency and better integration and efficient exchange of information, e.g. transposition of Directives. Increased quality and reliability of data. Greater interoperability and improved cooperation.
Citizens and businesses	Effective, user-friendly and faster access to legislation as well as exchange of information between heterogeneous systems for citizens and legal professionals (legislators, judges ...). Improved discoverability of legal data, reducing costs for businesses. Smart use of data allowing the development of new value-added services on existing data. An improvement of metadata, through the ELI ontology, could lead to more informative summaries of legislation, especially for non-legal professionals.
Candidate countries, EFTA and other countries	Better integration and efficient exchange of legal information with the European Union.

6.4.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation
Directive 2013/37/EC	Re-use of public sector information
Interconnection and exchange of information	ELI guarantees a cost-effective public access to reliable and up-to-date legislation and allowing for a greater, faster and efficient exchange of information between national legal information systems and EUR-Lex
National implementing measures 'NIM'	Increase efficiency and information of national implementation measures "NIM"
ISA Action 1.1-Promoting semantic interoperability amongst the European Union Member States (SEMIC)	ISA Action 1.1 will provide support in the course of the ISA Action 1.21, in particular regarding the specification of the semantic attributes
ISA Action 1.13-LEOS	Open Source software for editing legislation would be of interest as an input tool for legislation to be used in combination with an ELI compliant storage and dissemination environment
ISA Action 1.20 Application of EU Law: provision of cross-sector communication and problem solving tools	Action supporting the application of EU law, allows you to transmit data directly from your back-office systems to the EC, including the notification of the transposition of directives.
ISA ² Action 'Participatory knowledge for supporting decision making'	Underlying semantic structures and data standards used by reusable tools that allow the electronic participation of stakeholders, the analysis of the captured opinions and the discovery and generation of knowledge will provide feedback for proposing an interoperable approach for identifying legislation documents and the supporting assets and solutions.
ISA ² Action 'Legislation interoperability tools (LEGIT)'	Existing or under development building blocks (i.e. software, tools etc.) that support and improve the electronic exchange of documents and metadata in the context of the legislative process and the transformation between different formats will be taken into account for proposing an interoperable approach for identifying legislation documents and the supporting assets and solutions.
'ISA ² Action ICT implications of EU legislation'	Results and conclusions related with the properly preparation and evaluation of EU legislation regarding the ICT implications will be taken into account for proposing an interoperable approach for identifying legislation documents and the supporting assets and solutions.
ISA ² Action 'Interinstitutional framework for digital OLP management'	The proposed interoperable ways of structuring the content of the documents that need to be exchanged between the institutions for the purposes of the ordinary legislative

	procedure will be taken into account for proposing an interoperable approach for identifying legislation documents and the supporting assets and solutions.
ISA ² Action 'Application of EU law: provision of cross-sector communication and problem solving tools (THEMIS)'	Reusable tools and the underlying semantic structures and data standards for monitoring the application of EU law will be taken into account for proposing an interoperable approach for identifying legislation documents and the supporting assets and solutions.

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

The essence of ELI is to be reusable to facilitate interoperability between systems. Below are a few examples of ELI solutions directly reusable by stakeholders:

1. The ELI ontology

The Eli ontology published on <http://publications.europa.eu/mdr/eli/>. The publication of the ELI ontology on the interoperability platform Joinup is foreseen.

2. The ELI system

The mechanism to link ELI references from <http://data.europa.eu/ELI> and display on Légifrance <http://www.legifrance.gouv.fr/> is an example of reuse of the ELI system.

Users will find that national implementing measures on Légifrance include EU ELI references retrieved through <http://data.europa.eu/ELI>. This implementation is proof that the project has been true to its objective of interoperability for Member States.

3. ELI implementation guidelines

A set of guidelines and good practice documentation (general and technical) have been developed to help interested stakeholders implement ELI. These guidelines include information on http URI templates, metadata to apply to legislative acts and much more.

4. ELI website

An ELI knowledge base hosted on EUR-Lex developed by the ELI Taskforce. This knowledge base is a crucial asset for the Member States and interested stakeholders who want to implement ELI for improved interoperability.

5. Open source ELI Cellar and envisaged ELI Open-Source tools

Development of an Open Source publishing system configured with the ELI ontology to be made available to interested Member States and stakeholders. Further open-source tools to facilitate the implementation and use of ELI as well as the generation of added-value interoperability solutions are envisaged.

Outputs generated in the context of this project aim at being reused in the context of publishing legislation, however, ELI could be used at national level in other domains as well (identification of bills as they pass through various stages).

As ELI supports open linked data initiatives, it could play a role in national debates on open data too.

6.4.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	ELI ontology
Description	The ELI ontology is available for use and implementation and provides a solution to uniquely identify, structure and enrich legal acts. For more information, please refer to the ELI ontology repository on: http://publications.europa.eu/mdr/eli/
Reference	http://publications.europa.eu/mdr/eli/
Target release date / Status	Published since December 2014

Output name	ELI implementation guide
Description	This is an implementation guide, covering both general and technical aspects, aimed at helping Members States implement ELI.
Reference	(development ongoing)
Target release date / Status	Q4 2015

Output name	Open Source ELI Cellar
Description	Open Source publishing system configured with the ELI ontology. System to be made available to Member States who are interested in an advanced system pre-configured with ELI ontology
Reference	(development on-going)
Target release date / Status	2016

Output name	List of open source tools (list not exhaustive)
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Description	<ul style="list-style-type: none"> - Visualisations tool - Editing tools - RDF transformations - Tools for preparation and conversion of legacy data - Tools for searching semantic data and full-text
Reference	Depending on ISA ² financing
Target release date / Status	2016

6.4.10 ORGANISATIONAL APPROACH

6.4.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Project Manager	Publications Office of the European Union
Chair	Valeria Sciarrino Head of Unit Official Journals and Case-law production Publications Office of the European Union valeria.sciarrino@publications.europa.eu www.publications.europa.eu
Co-chairs	<u>Luxembourg</u> John Dann Chargé de la direction adjoint Ministère d'État Service central de législation john.dann@scl.etat.lu www.legilux.public.lu <u>France</u> Jean-Michel Thivel Chef du service Administration générale, documentation et informatique Premier ministre Secrétariat général des affaires européennes jean-michel.thivel@sgae.gouv.fr <u>United Kingdom</u> John Sheridan Head of Legislation Services The National Archives john.sheridan@nationalarchives.gsi.gov.uk

	<p><u>Denmark</u> Nina Koch Director Ministry of Justice civilstyrelsen@civilstyrelsen.dk www.civilstyrelsen.dk</p> <p><u>Ireland</u> Gerry Matthews eISB Project team - electronic Irish Statute Book (eISB) Office of the Attorney General gerry_matthews@ag.irlgov.ie www.irishstatutebook.ie</p>
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6.4.10.2 Communication plan

e-Law group of the EU Council	EU e-law members	Twice a year during each Presidency, June and December.
Promote and share the work on ELI	National/ International community	Specific events to be organised
Steering Committee	Publications Office, Luxembourg, France, Denmark, Ireland, United Kingdom	Quarterly
Stakeholders interested in ELI	ELI website published on EUR-Lex	Regular updates

6.4.10.3 Governance approach

A Task Force was set-up under the auspices of the EU Council Working Party e-Law (e-Law) to study the future developments of the ELI standard. The Task Force is made up of Denmark, France, Luxembourg (chair), Ireland, the United-Kingdom and the Publications Office of the EU.

The approach is characterized by helping other Member States adopt ELI, by sharing knowledge/expertise, without imposing a strict given schema and by taking into account their national specificities.

The project is followed by a Steering Committee, chaired by the Publications Office of the EU and co-chaired by France, Luxembourg, United-Kingdom, Ireland and Denmark.

The Taskforce and Steering Committee meet at regular intervals in order to review the ongoing activities and collectively decide on the developments to be conducted in line with the adopted strategy.

6.4.11 TECHNICAL APPROACH

ELI is based on a gradual three-step approach defined as follows:

- uniform rules governing the identification and designation of and access to national and European legislation (URI: Uniform Resource Identifiers),
- metadata describing the legislative resources,
- ontology - information exchange format - describing the properties of the legislative texts and their relationship with other concepts or legislation.

ELI is being implemented on a voluntary, gradual and optional basis alongside existing identifiers.

Further technical documentation about the ELI technical approach is accessible via the following link: <http://publications.europa.eu/mdr/eli/> and in future via the ELI website hosted on EUR-Lex.

6.4.12 COSTS AND MILESTONES

6.4.12.1 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)
Assist Member States in ELI adoption:	Assistance workshops; Trainings; Technical meetings; Consultancy (cost/benefit analysis; impact assessment, technical solutions); Assistance with mass transformation of existing data	250	ISA ²		
Maintain knowledge base and facilitate information sharing	Update of technical and general documentation (review and translation) ; Management of peer reviews and information exchange with stakeholders	90	ISA ²		

Guarantee maintenance and evolution of existing ELI assets and solutions	Update of technical tools to changes in formats, standards, platforms; Open-sourcing of solutions, including their hosting; Adaptations in context of re-use by MSs or other stakeholders	100	ISA ²		
Develop added-value services	Analyse, study and build added-value services and tools Prospection and analysis activities	260	ISA ²		
Standards	Progressing ELI as a standard Participation in groups and communities working in areas that relate to ELI	60	ISA ²		
Dissemination of results	Reporting in English and in French, Drafting news, best practices, updates on ELI, news items, Translation Presenting ELI to appropriate audiences Half year report to the Council's eLaw group Organisation of events to promote ELI	150	ISA ²		
	Total	910			

6.4.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016		400	

2017		510	
2018			
2019			

6.4.13 ANNEX AND REFERENCES

description	Reference link	Attached document
Conclusions of the Council of the European Union on the European Legislation Identifier (ELI) 2012/C 325/02	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:325:0003:0011:EN:PDF	
Report on the introduction of the ELI	9922/13 Jurinfo 25 28 May 2013	
Website informing on the progress of ELI in France	http://www.eli.fr	
Letters of support from Taskforce members		4

6.5 THEMIS - APPLICATION OF EU LAW: PROVISION OF CROSS SECTOR COMMUNICATION AND PROBLEM SOLVING TOOLS (2016.01)

6.5.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common Services
Service in charge	SG.C.3
Associated Services	SG.R.3, EU Publications Office , DG CONNECT, Parliament, Council

6.5.2 EXECUTIVE SUMMARY

The Commission's Decide project, currently under development, has a substantial impact on the scope of THEMIS, directly affecting the original ISA proposal for action 1.20 – funded under the ISA work programme during the period 2013-2015 - specifically with regards to the infringements management process. The objective of Decide is to streamline and harmonise the Commission's decision-making procedures and to consolidate the existing applications into one integrated system ("Decide"), supporting the whole workflow from programming to adoption (planning, consultation and decision)planning to dissemination, across all types of documents.

THEMIS needs to be integrated as much as possible with Decide in order to make use of Decide's inter-service consultation functionality and its adoption module, including all decision-making related functionalities.

The alignment of THEMIS and Decide is still an on-going task, to be completed during Q4 2015/Q1 2016. Therefore it has not been possible to progress with the work on the infringements management related web services, in scope of the original ISA action 1.20 proposal, during 2015 as initially planned.

In this respect, this new proposal for the ISA² Work Programme is a continuation of the original ISA action 1.20, taking over the non-accomplished work on infringements management related web services.

Context

Under article 17 TUE, the Commission shall oversee the application of EU law under the control of the Court of Justice of the EU. This monitoring task is entrusted to the Commission in its exclusive role as "guardian of the Treaty".

The monitoring of the application of EU law is a complex task, involving a number of steps and specific rules which are inter alia provided for by article 258 TFUE (Treaty on the Functioning of the European Union). The cooperation between the Commission and the Member States through the whole process remains a crucial element in the effective monitoring of the application of EU law. The structural dialogue before opening formal proceedings contributes to the resolution of a high percentage of possible breaches of EU law (EU Pilot).

Problem statement

The facilities to assist Commission staff in this task are currently provided by a series of EU-LAW applications (CHAP, EU-PILOT, MNE, NIF) covering – partially - different phases of the overall

process for the adoption of an infringement decision (complaint handling, pre-infringement phase, transposition of directives, and infringements proceedings).

All these applications, even though they provide the basic needs for the management of the day-to-day activities for the above-mentioned process, have gradually become inadequate to comprehensively provide the functionalities corresponding to the evolving business requirements.

Therefore, to comply with current needs, major evolutive evolutionary development is necessary. However, given the underlying technologies and the state of the existing applications, which have already undergone a series of enhancements since 2004 (production date of the current NIF application, the first application from the EU law family to be released), taking this approach would be extremely costly due to their instability, limitations, lack of flexibility to incorporate advanced and/or new functionalities, lack of common methods of operation, different interaction patterns and limited inter-operability.

Proposed solution

The proposed approach towards a new solution, aligned with the requirements of the on-going IT governance and rationalisation efforts within the "Legislative Lifecycle" domain being currently fostered across the SG and the Commission as a whole, will have a significant impact to overcome the above-mentioned deficiencies.

THEMIS – as the envisaged solution – will enhance the execution of the fundamental task of the Commission in monitoring EU law implementation and its application by Member States by providing an end-to-end management of the full inherent life-cycle of EU-LAW processes, exposing one single, usable and coherent point of access - both for the Commission and the Member States - improving the efficiency and transparency of reporting and monitoring of Member States' implementation and application of EU law.

In essence, THEMIS aims at improving inter-operability of the tools to manage complaint, pre-infringement and infringement handling. Integration with Decide will ensure mainstreaming the phases of inter-service consultation and Commission decision-taking processes. This integration aims at simplifying working methods and avoiding data inconsistencies and duplication. THEMIS includes a set of cross-sector interest web services to be consumed by in-house applications of the Member States.

6.5.3 OBJECTIVES

Better and more efficiently managed application of EU law involves both the European Commission and the Member States, working in close partnership. Member States are responsible for the timely and correct implementation and application of EU law while the Commission's responsibility is to ensure that EU law is applied consistently. To this end the Commission works in partnership with Member States via EU Pilot and launches, if necessary, formal infringement procedures.

The specific objective of this action is to identify and implement common web services of interest that can support this. The project will analyse, design and develop or implement services to manage and support the exchange of information between Member States and the Commission during all phases of infringement proceedings.

All these web services are to be integrated into THEMIS, the central Commission IT application which will provide a one-stop solution for Commission services and Member States' administrations with

regard to all aspects of the application of EU law; starting from the transposition process of directives into national legislation and the notification of the corresponding legal acts to the Commission, through dialogue based problem resolution triggered either by complaints or own-initiative of the Commission, onto the full bi-directional flow of information in the context of infringement proceedings.

In detail, this action aims at:

- Providing a single point of access for Member States as regards to application of EU law.
- Reducing administrative burden of the Member States and of the Commission.
- Enhancing efficiency and transparency of reporting and monitoring of EU law application.
- Improving statistical tools to simplify the gathering of information, its dissemination and reporting.

6.5.4 SCOPE

The scope of this action can be summarised as follows:

- Better integration between Commission and national IT tools:

Thanks to improved interoperability, national IT tools should be able to connect and interact easily and automatically with Commission systems.

This is becoming increasingly important as the national administrations are developing more and more in-house IT applications and online services managing EU legislative work, in particular for infringement proceedings.

- Management of infringement proceedings through a modern workflow system:

The need to speed up procedures and rationalise the decision-taking process makes it necessary to use advanced technologies for workflow management. Commission services and Member States should be able to work in a system, which allows a complete follow up of infringement procedures, from the creation to the final closing of the case, including any attendant communication and publication of information.

- Statistical facilities and search tools

There is need for more elaborated reporting and statistical tools to facilitate overall reporting on the application of Union law, including for the purpose of preparing the Annual Report on monitoring the application of EU Law and the publication of other information.

Deliverables covered under this proposal will include both web-services and their corresponding backend services, providing for bi-directional data and document exchange facilities for the infringements proceedings domain⁵⁹.

The Commission offers the deliverables as a service to Member States, developing the required application and interfaces and hosting the computing infrastructure.

This will be accompanied by technical documentation detailing the interfaces to be used. Furthermore, on request, the Commission will provide assistance to Member States, in order to ensure correct and reliable interconnection between Member States' system and THEMIS.

6.5.5 PROBLEM/OPPORTUNITY STATEMENT

The monitoring of the application of EU Law is a complex task, involving a number of steps and very specific rules. Currently, this task is only partially supported by a family of old information systems that are technologically obsolete and lack interoperability amongst them.

Even though these applications fulfil the basic needs for the management of the day-to-day activities for the above-mentioned process, they have gradually become inadequate to comprehensively cover the evolving business requirements.

To comply with current needs, the largely outdated systems in operation today need to be replaced by a modern, well performing system, which is built on a sound technological platform and offers the required interoperability.

6.5.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States and European Commission	<p>Security, rapidity and privacy, preservation of information:</p> <p>The service dedicated to the communication of infringement notifications will guarantee the information exchange system providing:</p> <ul style="list-style-type: none"> - immediate transmission (MS are required to respect deadlines), - secure transmission with acknowledgement of receipt (high level of trust); and - secure data preservation (legal security for both MS and the EC).
Member States and European	<p>Data quality</p> <p>THEMIS external services will improve data quality, integrity and</p>

⁵⁹ The underlying principle is that public authorities responsible for implementing and ensuring compliance with EU legislation should not be presented with a proliferation of different information systems but rather a single interface in the form of the future THEMIS system and its externally accessible interfaces, thus ensuring that information existing in Member States own system(s) need not be re-encoded.

Commission	preservation of information by implementing a state-of-the-art user interface and interoperability to back-office and by using reliable and trusted data transfer. Search and statistics retrieval will be also improved.
Member States and European Commission	Better cooperation THEMIS external services will improve the transparency and openness of data exchange between Commission and MS by developing/adapting and using a component to share case/project related data.
Member States	Administrative simplification, effectiveness and efficiency, data quality THEMIS external services will increase efficiency and data quality by implementing state-of-the-art user interface and interoperability (system-to-system) for the transmission of replies and prolongation of deadline requests in the matter of infringement proceedings.
European Commission	Efficient management of infringements THEMIS external services will provide data quality, efficient and secure data dissemination among services and will be the basis of the decision making process in matter of infringements.
European Commission	Efficient IT development and evolution, flexibility, scalability, adaptability to legislation change THEMIS external services will be flexible, scalable and adaptable by being developed as a service and component oriented IT architecture.

6.5.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Communication "Towards interoperability for European public services" COM(2010) 744 final	This Communication introduces European Interoperability Strategy (EIS) and the European Interoperability Framework (EIF) for European public services, being part of the Digital Agenda, focusing on interoperability.
eGovernment Action – Plan 2011 -2015	Reducing administrative burden by horizontal integration of processes across administrative authorities.
ISA ² Action 'Participatory knowledge for supporting	Reusable solutions that allow the electronic participation of stakeholders, the analysis of the captured opinions and the discovery and generation of knowledge will be taken into account for enhancing the monitoring of EU law implementation and its application by Member States.

decision making'	
ISA ² Action 'Legislation interoperability tools (LEGIT)'	Existing or under development building blocks (i.e. software, tools etc.) that support and improve the electronic exchange of documents and metadata in the context of the legislative process and the transformation between different formats will be taken into account for enhancing the monitoring of EU law implementation and its application by Member States.
'ISA ² Action ICT implications of EU legislation'	Results and conclusions related with the properly preparation and evaluation of EU legislation regarding the ICT implications will be taken into account for enhancing the monitoring of EU law implementation and its application by Member States.
ISA ² Action 'European Legislation Identifier (ELI)'	The proposed approach for identifying legislation documents and the supporting assets and solutions will be taken into account for enhancing the monitoring of EU law implementation and its application by Member States.
ISA ² Action 'Interinstitutional framework for digital OLP management'	The proposed interoperable ways of structuring the content of the documents that need to be exchanged between the institutions for the purposes of the ordinary legislative procedure will be taken into account for enhancing the monitoring of EU law implementation and its application by Member States.

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

THEMIS will assess the feasibility of re-using solutions and/or results outcome of other ISA, ISA² or EU / National initiatives, specifically ISA Action 1.8, ISA Action 1.11, ISA Action 1.14, ISA Action 1.18 and ISA Action 1.21.

Action / Policy	Description of relation, inputs / outputs
ISA Action 1.8 – Trusted Information Exchange Platform	THEMIS will develop the future Infringement (INFR) service as a single exchange platform and repository of all official infringement documents exchanged between Member States and the Commission (by using the eTrustEx platform for the transmission of official documents to the Member States and reception of acknowledgement from them), mainly in legislation and competition policy areas.
ISA Action 1.11 – Interoperable and generic notification services.	THEMIS will assess the feasibility of re-using the results of ISA Action 1.11 in relation to the notification services developed within the scope of this action.
ISA Action 1.18 – Federated Managed Authentication Services for	THEMIS will assess the feasibility of re-using the results of ISA Action 1.18 in relation to its outcome web services interfaces developed.

ECAS	
ISA Action 1.21 – European Legislation Identifier	ISA Action 1.21 will provide input to this action.

6.5.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Web services tailored to infringement management processes
Description	The web services in scope to develop as part of this proposal are tailored to infringement management processes. Nevertheless, there may be possibilities to reuse/apply certain outputs to other purposes
Reference	
Target release date / Status	2017

6.5.10 ORGANISATIONAL APPROACH

6.5.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
European Commission – administrator	Unit SG C.3 of the Secretariat General administrating the application, providing policy guidance on its use.
Project Owner	Unit SG.C.3 of the Secretariat General responsible to coordinate the Commission's actions as guardian of the Treaties.
Solution Provider	Unit SG R.3 (Information Technology) responsible for the development of THEMIS.
End users – Commission Services	Infringement correspondents and infringements case handlers in all Commission services.
End users - Member States authorities	Current MNE/INFR end users (various national administrations in all Member States) and Central Managers in the Member States represented in the EU Law Network.

6.5.10.2 Communication plan

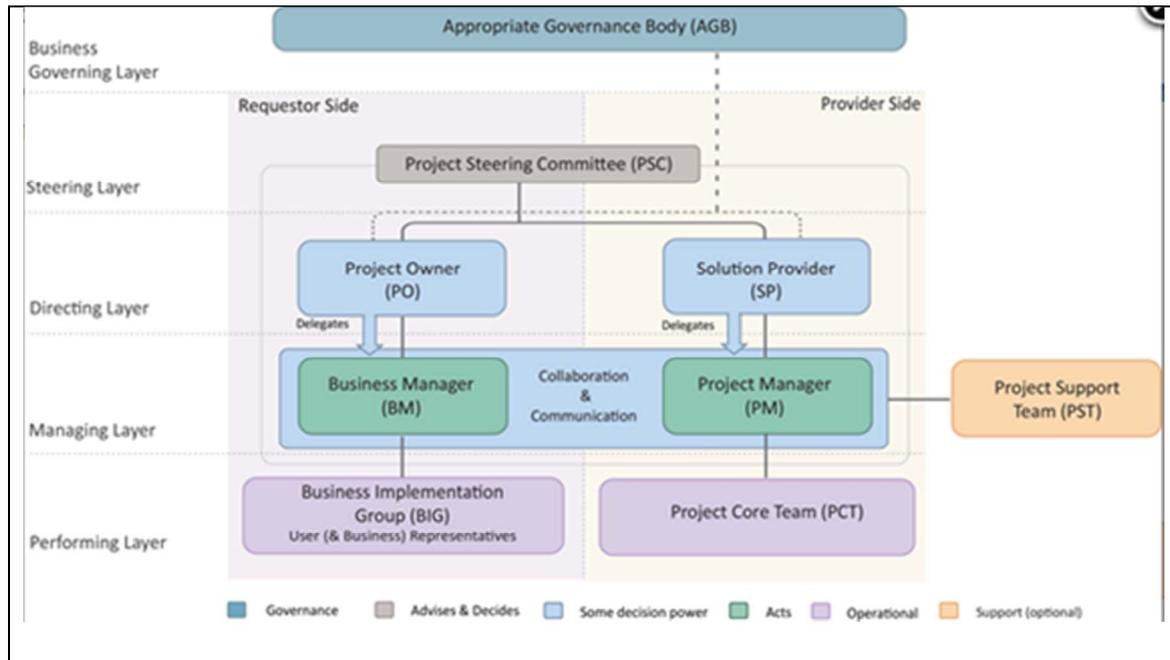
The main communication actions are described next:

- Written communication, both to internal and external stakeholders (newsletter via e-mail).
- Awareness sessions – 1 with MSs representatives and 1 with DGs representatives – to present the project.
- Dissemination material for all relevant stakeholders:
 - o DGs: Leaflets, posters and a quick-start guide.
 - o MSs: Quick start guide.
- Meetings:
 - o With external stakeholders, once a year, in the frame of the EU Law Network meetings, to provide status and recollect feedback.
 - o With internal stakeholders, twice a year, as part of the DGs infringement correspondents meeting, to provide status and recollect feedback.
- First-line support: The Project Support Team will help users through the change and collecting feedback.
- CIRCABC group of interest on "Implementation and application of EU law", members of which are MS representatives.

Event	Representatives	Frequency of meetings / absolute dates of meetings
EU Law Network	All Member States	Normally, once or twice a year
Infringement correspondents meetings	Representatives from all DGs	Once or twice a year
Directors network	Representatives from all DGs	Once or twice a year
Project owner/System supplier	SG.C.3/SG.R.3	Quarterly reporting using PM ² methodology

6.5.10.3 Governance approach

This project will follow the standard PM2 project governance structure.



Project Owner: Mr. VON KEMPIS, Karl (SG.C3)

Solution Provider: Mr. GRITSCH, Martin (SG.R3)

Project Manager: Mr. BLAZQUEZ DE MIGUEL, Víctor (SG.C3)

Business Manager: Mrs. GROCHOWIAK, Elzbieta

Project Support Team (PST): To be appointed.

Project Core Team (PCT): To be appointed.

Business Implementation Group (BIG): 1 representative per DG and 1 representative per MS. To be appointed at a later stage.

The governance approach has established weekly coordination meetings between SG.C.3 (project owner) and SG.R.3 (solution provider). In addition, this action will respect the general ISA Governance under the supervision of the ISA Coordination Group inside the cluster "Trusted Information Exchange".

The governance of this action project is set up in the vision document for NIF2 (renamed later as "THEMIS"). According to this document, the Steering Committee monitors completion of the project phases; sets project requirements, objectives and outcomes, validates project deliverables, tests activities and disseminates information about the project to the Commission services. It is composed of members from Units C.3, R.2 and R.3 of the Secretariat General and representatives of those services which manage complaints and infringement procedures (DG AGRI, DG CLIMA, DG CNECT, DG EMPL, DG ENER, DG GROW, DG ENV, DG FISMA, GROW, HOME, DG JUST, Legal Service, DG MOVE, DG SANCO and TAXUD).

In parallel, Member States are participating in THEMIS work through the EU Law Network. Tests and feedback can be submitted to the functional mailbox SG-THEMIS-FEEDBACK@ec.europa.eu.

6.5.11 TECHNICAL APPROACH

The services in scope of this proposal will represent the common future external module of the THEMIS system, providing a reliable, robust and secure mechanism to connect to systems in Member States' public authorities (existing or under development).

System-to-system data exchanges between the national administrations and the Commission will reduce extra manual data encoding. This will allow Member States to transmit data directly from their back-office systems in respect of the following principles of the European Interoperability Framework: security and privacy, multilingualism, administrative simplification, transparency, preservation of information, openness, reusability, effectiveness and efficiency. History of all data exchanges with the Member States' administrations should be accessible to either party.

All services will be strongly integrated to ensure a consistent and reliable workflow.

The technical implementation of the proposed data-exchange services has the following requirements:

- State of the art secure web services allowing for the exchange of meta-data for confidential (official notification of infringements and MS replies to those notifications) dossiers; these services should permit uploading such information from MS systems into the Commission system.
- Non-repudiation for official notifications of infringements.
- Legally binding electronic signature for official notification of infringements and transmission of the corresponding MS replies (explicit requests by Spain and Germany). To be checked if this can be covered by the eTrustEx platform.
- A transfer mechanism allowing for highly reliable exchange of documents, including very large documents if needed (electronic transmission should be the unique notification mechanism). To be checked if this can be covered by the eTrustEx platform.
- A publishing service allowing MS to 'pull' information accessible to them in a format compliant with open government publication standards, allowing them to integrate the extracted information into their own IT systems.
- A notification service which will inform the concerned parties that new tasks/data are available in the system, allowing either for specific action in the external interface, or automated download procedures for available data.
- A reporting and statistics service which will allow Member States to retrieve, at any time, different sets of statistics and historical data of EU-LAW proceedings they are / have been involved in.

Backwards compatibility with the current basic web services used by MS needs to be ensured for an initial length of time (6-12 months), since often MS have out-sourced IT developments and any changes on our side will have a non-negligible impact for them.

By the same token, it is imperative to involve MS in order to ascertain that current and future MS requirements are met. The Commission will inform Member States at an early stage of the projected developments and collect feed-back from them. This will be channelled through the existing EU Law Network, with regular coordination meetings in Brussels.

6.5.12 COSTS AND MILESTONES

6.5.12.1 List of use cases identified: 10 use cases

- *ISA1 Submit reply to infringement notification:* This technical use case describes the required actions, associated data and the web-service call structure to correctly upload meta-data and associated documents for the reply by a MS to an official infringement notification.
- *ISA² Request an extension of deadline for a reply to an infringement:* This technical use case describes the required actions, associated data and the web-service call structure to correctly upload a meta-data and associated documents with regards to a request for an extension of deadline to reply to an infringement case.
- *ISA3 Retrieve reply:* This technical use case describes the required actions and the web-service call structure to retrieve all meta-data and documents associated with a reply to an infringement notification in a machine-readable format (XML).
- *ISA4 Retrieve infringement notification:* This technical use case describes the required actions and the web-service call structure to retrieve all meta-data and documents associated with a given dossier and accessible to a MS in a machine-readable format (XML).
- *ISA5 Retrieve infringement dossier:* This technical use case describes the required actions and the web-service call structure to retrieve all meta-data and associated documents accessible to a MS for an entire infringement dossier in a machine-readable format (XML).
- *ISA 6 Communication of additional information:* This technical use case describes the mechanism and web-service structure to provide additional information to on-going infringement cases at any time during their life-cycle.
- *ISA 7 User management:* This technical use case describes the mechanism and web-service structure to manage Member States users. Add, delete or update users, define roles and rights, or re-assign / delegate cases are actions to be supported by this web-service. As part

of this use case, feasibility of re-using the results of ISA Action 1.18 (Federated Authentication Action) will be checked.

- *ISA 8 Notifications and Alerts*: This use case describes the mechanism and web-service structure to retrieve new tasks/data available in the system, allowing either for specific action in the external interface, or automated download procedures for available data. As part of this use case, feasibility of re-using the results of ISA Action 1.11 (Interoperable and generic notification services) will be checked.
- *ISA 9 Statistics and reporting – Infringement cases*: This technical use case describes the mechanism and web service structure to retrieve different reporting and statistics related to infringement cases, from the Member State perspective.
- *ISA 10 Statistics and reporting – EU-LAW proceedings life-cycle*: This technical use case describes the mechanism and web service structure to retrieve different reporting and statistics throughout the whole life cycle of EU-LAW proceedings, from the Member State perspective.

The following table summarises the scope of the identified use cases.

Use case	Name	Release	Scope
ISA 1	Submit reply to infringement notification	V1	Infringements management
ISA 2	Request an extension of deadline for a reply to an infringement	V1	Infringements management
ISA 3	Retrieve reply	V1	Infringements management
ISA 4	Retrieve infringement notification	V1	Infringements management
ISA 5	Retrieve infringement dossier	V1	Infringements management
ISA 6	Communication of additional information	V1	Common services
ISA 7	User management	V1	Common services
ISA 8	Notifications and Alerts	V1	Common services
ISA 9	Statistics and reporting – Infringement Cases	V1	Statistics and Reporting
ISA 10	Statistics and reporting – EU-LAW proceedings life-cycle	V1	Statistics and Reporting

6.5.12.2 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/ others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Planning	Requirements gathering, assuring alignment with Decide's scope.	30	ISA ²	Q1/2016	Q2/2016
Planning	Detailed formal (technical use cases) of the in scope identified business services and their exposure through web services. Validation of the proposal by all actors.	60	ISA ²	Q1/2016	Q2/2016
Executing	Development of 'in/out' web services and their correspondent backend business services.	220	ISA ²	Q2/2016	Q4/2016
Executing	Testing and training; updated technical documentation for Member States to allow them to integrate their systems with the new services.	30	ISA ²	Q1/2017	Q1/2017
Closing	Roll-out V1	30	ISA ²	Q1/2017	Q1/2017
Monitor & Control	Monitor and report on on-going project activities and project performance, planning and implementing corrective actions in case of need.	30	ISA ²	Q1/2016	Q1/2017
	Total	400	ISA ²		

6.5.12.3 Breakdown of ISA funding per budget year

Budget	Anticipated allocations	Executed budget (in
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Year	Phase	(in KEUR)	KEUR)
2016	Planning	90	
2016	Executing	250	
2016	Closing	30	
2017	Monitor & Control	30	

6.5.13 ANNEX AND REFERENCES

Description	Reference link
Articles 4 and 17 TEU	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:083:0013:0046:EN:PDF
Articles 258 and 260 TFEU	http://eur-lex.europa.eu/JOHtml.do?uri=OJ:C:2010:083:SOM:EN:HTML
Decision 2002/47/CE, CECA, Euratom for document management rules	OJ L 21, 24.1.2002, p. 23–27
Annual Reports on monitoring the application of Community law	http://ec.europa.eu/eu_law/infringements/infringements_annual_report_en.htm
Communication 'A Europe of results – Applying Community law' (the 2007 Communication)	COM (2007) 502
Communication on the application of Article 260 (3) TFEU	http://ec.europa.eu/eu_law/infringements/infringements_260_en.htm
Framework Agreement between the Commission and the European Parliament (Section on 'Monitoring the application of Community law')	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:304:0047:0062:EN:PDF
Public access to documents relating to infringement proceedings	SEC(2003)260/3 http://www.cc.cec/sg_vista/cgi-bin/repository/getdoc/COMM_PDF_SEC_2003_0260_3_EN.pdf
Monitoring the application of community law: manual of procedures	SEC(2005)254/5 http://www.cc.cec/sg_vista/cgi-bin/repository/getdoc/COMM_PDF_SEC_2005_0254_5_EN.pdf

6.6 INTERINSTITUTIONAL FRAMEWORK FOR DIGITAL OLP MANAGEMENT (2016.17)

6.6.1 Identification of the action

Type of activity	Common services
Service in charge	Publications Office of the European Union, Directorate A
Associated services	Parliament, Council, Commission

6.6.2 Executive summary

The action concerns the rationalisation of the EU law-making process. The vision is a fully automated process for law-making in the European Union. This will boost the efficiency of the regulatory process and unleash unprecedented speed. It will also reduce the administrative and financial burden, improve the quality of legislation and help to facilitate accessibility, reuse and preservation. The activity also has a direct effect on the Member States. For the purposes of transposition and notification of EU law it would be advantageous if Member States were to apply the same standards (from IFC) as intended here for use at the level of the EU institutions.

The implementation of this action is a multiannual activity. The proposal consists of an interinstitutional framework for the management of document flows pertaining to the ordinary legislative procedure (OLP)

For the year 2016 the proposal builds on the ongoing landscaping exercise that will describe in detail the AS-IS. The continuation of that effort is to accumulate and provide in-depth information on the TO BE scenario, firstly to build consensus amongst the players involved, in particular EP, the Council and the Commission with the Publications Office facilitating this process.

If successful, this action would represent a major ‘digital’ contribution towards the ‘better legislation’ policy objective. The in-depth analysis of the TO BE scenario is a precondition.

6.6.3 Objectives

For the year 2016 the activities are of preparatory nature towards the stated goal of a seamless, interconnected, end-to-end, fully interoperable document exchange for the production of multilingual EU laws across the institutions.

The TO BE landscaping exercise will form the basis for the further discussion of the Institutions (and possibly the Member States) and will foster the necessary consensus building for a road map which will detail the migration to the target systems.

6.6.4 Scope

The main activities foreseen for 2016 are:

- detail the TO-BE scenario, e.g.
 - identify all the missing tools,
 - resolve overlaps/conflicts,
 - identify the needed bridges,
 - new or consolidated specs and transformations/mappings,
- develop a practical and coordinated implementation plan with concrete roles (who does what and where),
- build consensus around this common plan among the various institutions.

6.6.5 Problem statement

The institutions' current implementations for the management of the production of EU law are not aligned and hence not interoperable per se.

The institutions generally agree that they would widely benefit from applying agreed standards, automated validation and quality control to become quicker, far less error prone and cheaper. However there is no consensus yet on how to achieve this.

As a first step, an ongoing landscaping exercise describes in detail the AS IS of this inter-institutional set-up.

Naturally the next step will be a landscaping exercise for the TO BE covering the necessary implementations from a system as well as from a process perspective for all institutions.. This will form a sound basis for the necessary interinstitutional consensus building to proceed for the common goal.

6.6.6 Expected beneficiaries and anticipated benefits

Beneficiaries	Anticipated benefits
European institutions	<ul style="list-style-type: none"> • Overview over requirements and potential pitfalls concerning all relevant aspects of implementations needed for significant future savings in time and resources (eliminating manual intervention, document conversion) • Building up confidence with all parties involved in the process, which is a prerequisite for proceeding with any implementation.
Member States	Transparent approach to enhance interoperability and support for the smooth evolution of necessary technical infrastructures

6.6.7 Related EU actions/policies

Action/Policy	Description of relation, inputs/outputs
Better regulation	Digital contribution to better law-making
Public sector information	Directive 2013/37/EU Harmonised structure for documents throughout the (ordinary) legislative procedure
ICT standardisation	Regulation (EU) No 1025/2012 Through various work packages in the project protocols are developed to ensure interinstitutional interoperability and as such to contribute to the objective of standardisation
Modernise European public administrations	Through interinstitutional interoperability the project pilots the modernised legislative process. It can serve as a best-practice model for Member States in their approach to e-government

6.6.8 Reuse of solutions developed by ISA, ISA² or other EU/national initiatives

The activity builds on and continues the landscaping exercise for the AS IS situation, which should be finalised by May 2016:

6.6.9 Expected reusable outputs (solutions and instruments)

Output name	TO-BE
Description	Detailed definition of the target architecture for the interinstitutional framework for digital management of the OLP: a. identify all the missing tools, b. resolve overlaps/conflicts, c. identify the needed bridges, d. new or consolidated specs and transformations/mappings,
Reference	
Target release date / Status	Q4 2016

Output name	Coordination plan
Description	develop a practical and coordinated implementation plan with concrete roles (who does what and where),
Reference	
Target release date / Status	Q4 2016

Output name	Consensus building
Description	Build consensus around this common plan among the various institutions
Reference	
Target release date / Status	Q4 2016

6.6.10 Organisational approach

6.6.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Project lead	Publications Office
Parliament	Secretary-General
Council	Secretary-General
Commission	Secretary-General, DG Informatics
Member States	Technical experts on interoperability in the public sector

6.6.10.2 Communication plan

As the Publications Office is an interinstitutional body, there are strong and long-established organisation and communication structures which ensure the flow of information between the Publications Office and the Parliament, Council and Commission.

With the governance structure including the secretaries-general of the institutions as part of the Steering Committee and the directors responsible for IT developments as members of the Technical Steering Committee, this project management structure ensures that the pertinent information is communicated in a precise, concise and timely manner to the relevant representatives of the stakeholders. This will be done through the standard management reporting procedures, complemented by ad hoc presentations in the relevant meetings or working groups.

Upon the successful completion of the main technical components, a knowledge-transfer process will be offered for technical experts from Member States and international organisations.

The public at large will be informed in a non-technical manner to explain the relevance of improving the legislative process.

6.6.10.3 Governance approach

Coordinated by the Publications Office the project will be implemented in close collaboration with the support of the Parliament, the Council, the Commission, the Committee of the Regions and the European Economic and Social Committee. As an interinstitutional body the Publications Office has the necessary infrastructure in place to manage a complex, multilateral project involving itself and the aforementioned institutions. The project will be included in the annual work programme and will therefore be subject to the standard interinstitutional management and reporting requirements of the Publications Office.

A Steering Committee and a Technical Steering Committee will be introduced to complement the IFC for implementation work.

6.6.11 Technical approach

Work packages

- Project management
 - Phases: initiation and planning Q1 2016; execution Q1 2016 to Q4 2016.
 - Deliverables: management reports, financial reports, communication products, analyses, descriptions, specifications.
 - Activities: monitoring, control, reporting, governance and oversight, communication.

6.6.12 Costs and milestones

6.6.12.1 Breakdown of anticipated costs and related milestones

Phase: inception, execution, operational	Description of milestones reached or to be reached	Anticipated allocations (thousand EUR)	Budget line — ISA/others (specify)	Start date (QX YYYY)	End date (QX YYYY)
Inception, execution, operational	Project management and execution	100	ISA	Q1 2016	Q4 2016
	Total	100			

6.6.12.2 Breakdown of ISA funding per budget year

Budget year	Phase	Anticipated allocations (thousand EUR)	Executed budget (thousand EUR)
2015	Inception		
2016	Execution	100	

7. EU POLICIES – SUPPORTING INSTRUMENTS

7.1 CISE - DEVELOPMENT OF THE INFORMATION SHARING ENVIRONMENT FOR THE SURVEILLANCE OF THE EU MARITIME DOMAIN (2016.13)

7.1.1 IDENTIFICATION OF THE ACTION

Type of Activity	Reusable generic tools
Service in charge	DG MARE D1
Associated Services	JRC/IPSC G4 - DG MOVE D1 & D2 & D4 – DG HOME C1 – DG TAXUD A1, A3 & A5 – GROW H3 – DIGIT B4 – ECHO B1 – ENV D2 – JUST B3

7.1.2 EXECUTIVE SUMMARY

The development of a Common Information Sharing Environment for the EU maritime domain was launched in 2009 (Commission Communication (2009)538 final) and is supported by several Council Conclusions⁶⁰.

The last Commission Communication provides for CISE⁶¹ to be a "*voluntary collaborative process in the European Union seeking to further enhance and promote relevant information sharing between authorities involved in maritime surveillance. Its ultimate aim is to increase the efficiency, quality, responsiveness and coordination of surveillance operations in the EU maritime domain and to promote innovation, for the prosperity and security of the EU and its citizens*".

The cornerstone of maritime CISE is that, through an improved interoperability, information collected by a maritime authority for a specific purpose can prove to be useful to other maritime authorities performing different missions⁶². The gap analysis carried out in 2012 has shown that only 30% of the data currently collected and relevant to other authorities is actually shared with those authorities.

The ISA² programme is expected to support a set of actions undertaken by the Commission to support and exploit the results of the current pre-operational phase, as well as the actions needed to reach relevant operational solutions. These actions could inter alia cover the following areas:

- Identify relevant IT interoperability endeavours/solutions for information sharing in third countries/ maritime regions to assess potential improvements of CISE solutions
- Explore CISE IT and operational governance solutions, taking into account current solutions and lessons learnt from existing EU information-exchange solutions (e.g. IMI, EESI, EURES, CCN/CSI).

⁶⁰ http://ec.europa.eu/maritimeaffairs/pdf/external_relations_council_conclusions_17112009_en.pdf
http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/EN/genaff/122177.pdf
http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/genaff/115166.pdf
http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/gena/104617.pdf

⁶¹ Commission Communication of 8th July 2014, COM (2014)451 final.

⁶² Maritime surveillance encompass seven sectors: border control, maritime safety and security, fisheries control, customs, marine environment protection, general law enforcement and defence.

- Whenever needed and depending on the shortcomings/gaps identified during the testing phase, further develop the CISE data model, service model, gateway, registry of authorities and services to deliver fully functional solutions/ building blocks matching CISE high-level requirements
- Assess the contribution of CISE to the EU standardisation process⁶³ in order to facilitate the definition of a technical reference architecture for public services by end 2017⁶⁴ (in line with the European Interoperability Reference Architecture)
- Promote the CISE final interoperability solutions among national authorities and support the conclusion of agreements on data sharing.
- Promote the adoption, reuse and continuous improvement of existing and future reusable building blocks and solutions such as the CEF DSIs and results of existing ISA actions and future ISA² actions.

7.1.3 OBJECTIVES

The overarching objective of CISE is to enhance awareness of what is happening at sea and thus ensure safer, more secure and cleaner seas. In line with the ISA objectives, this requires to set up common specifications enabling trusted cross-sector and cross border data exchange between national public administrations. The ISA² programme is expected to bring into maturity and further develop of CISE towards a set of operational and full-fledged interoperability solutions by end 2020.

7.1.4 SCOPE

Over 300 national authorities belonging to the seven functions (see note n°4) are covered by CISE, either as data providers and end-users (i.e. data consumers). The project entails the establishment of common specifications and generic reusable tools to achieve interoperability between systems and authorities.

The project does not aim to build up a new maritime surveillance system, to create new information sources as well as to set up man-to-machine interfaces.

7.1.5 PROBLEM STATEMENT

Due to the organisational complexity and the diversity of legacy systems at national level across the EU, the automatic exchange of data among national authorities remains limited in the field of maritime surveillance. Today, only a fraction of data is or can be exchanged, mostly in the same sector and seldom cross-border. The development of common semantic, technical and organisational interoperability specifications/solutions allowing seamless data exchange among legacy systems is a key-enabler to enhance cross-border and cross-sector data sharing.

⁶³ ICT standardisation Regulation (EU) No 1025/2012

⁶⁴ Commission Communication of 8th July 2014, COM (2014)451 final

7.1.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
EU institutions and agencies	<p>Enrichment of available data enabling a better implementation and enforcement of EU legislation in the fields of maritime safety and security, border control and fisheries control, customs and environment.</p> <p>Development of EU interoperability solutions (re-usable building blocks).</p>
National authorities in the EU/EEA with a remit at sea	<p>Enhanced interoperability in this domain which will enable better cross-border and cross-sectorial interaction among national authorities as well as an improved civil-military cooperation. (Ref. Impact Assessment SWD(2014)225 final)</p> <p>Enhanced maritime situational awareness enabling more effective and efficient surveillance, thus improving the overall safety, security and environmental protection of the EU maritime domain.</p> <p>Reduction of data collection cost and better use of surveillance assets (radars, satellites, patrol vessels, aircrafts) allowing savings and/or the reallocation of resources.</p>
Citizens in the EU/EEA	<p>Safer, more secure and environmentally protected seas enabling the EU/EEA citizens to take full advantage of the social, economic and leisure potential of the seas.</p>
European industry	<p>The development of common interoperability specifications and standards opens up new markets opportunities in the field of legacy systems interconnection as well as in the provision of digital information services to support maritime surveillance (e.g. weather and oceanic data, data mining tools, ...).</p> <p>Improved interoperability between maritime authorities and systems will also allow an increased interaction between administrations, citizens and businesses.</p> <p>Stimulate the research for the development of innovative technologies / solutions to increase interoperability and cover operational needs (e.g. for environment of federation of systems, cross-border and classified environment, collaboration activities etc)</p> <p>Development and implementation of improved information/ business models or web-services in this field.</p> <p>Solutions for interchangeability of different data formats, for standard compatibility, for data stream correlation, for user definable, customizable and transferable workspace, with intuitive use.</p>

7.1.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation
1. Integrated Maritime Policy	<p>The Common Information Sharing Environment for the EU maritime domain (CISE) has been supporting the development of the Integrated Maritime Policy (IMP) since its inception by being the flagship initiative of the Integrated Maritime Surveillance pillar.</p> <p>CISE is designed to contribute to maintain safe, secure and clean seas, the fundamentals of blue growth. CISE is in particular linked to the Blue Growth cross-sectoral policies instruments such as marine data and knowledge, maritime spatial planning and maritime security. From that perspective, EMODnet, FLUX and other sectorial European level systems (as underlined below) are envisaged to become an intrinsic part of the European Integrated Maritime Surveillance via CISE.</p>
2. Maritime sectorial policies	<p>The seven user communities to be interconnected through the CISE and their functions are: maritime transport safety and security, marine environment preparedness and response to pollution, fisheries control, border control, general law enforcement, customs and defence. Cross-border and cross-sectoral data exchange generates knowledge and enables sound decision making and better implementation of EU legislation in the above policy areas. Further specific examples with respect to these functions are given below.</p>
2.1 Maritime transport safety and security	<p>The maritime transport sector has developed traffic safety, security and environmental monitoring systems, based on EU legislation (Directive 2002/59 on vessel traffic monitoring and information system, Directive 2010/65 on reporting formalities for ships arriving and departing from ports of the MS, Directive 2009/16 on Port State Control and Directive 2005/35 on ship source pollution). Where these systems are not yet connected to non-transport related surveillance systems, CISE will enable such interconnection. The 2011 transport white paper (COM(2011)144) specifically refers to the contribution of the maritime transport monitoring and data exchange system SafeSeaNet to the CISE development.</p>
2.2. Fisheries	<p>The fisheries sector has developed its specific monitoring systems (FLUX) based on EU legislation (Regulation 1224/2009)). CISE is working on developing interoperability solutions to enable enhanced information exchange between these systems and the range of other maritime surveillance systems, across-sectors and borders.</p>
2.3. Customs	<p>The customs sector is developing a monitoring system (eCUSTOMS) based on EU legislation (European Customs</p>

Action / Policy	Description of relation
	Code). CISE is working on developing interoperability solutions to enable enhanced information exchange between these systems and the range of other maritime surveillance systems, across-sectors and borders.
3. Security related policies	Through enabling enhanced information exchange for the surveillance of the maritime domain through an improved interoperability amongst systems and authorities, CISE supports an important number of security-related policies developed at the EU level.
3.1. EU Maritime Security Strategy	The establishment of the Maritime CISE is also mentioned as a building block of the Maritime Security Strategy adopted jointly by the Commission and by the EEAS in June 2014. Enhancing information exchange between maritime surveillance authorities, particularly through the development of CISE, is one of the five main work strands identified under the Action Plan set up for the implementation of the EU Maritime Security Strategy.
3.2. European Agenda for Security	The Agenda supports better information exchange, increased operational cooperation and mutual trust, drawing on the full range of EU policies and tools to support the Member States in ensuring security. By supporting an enhanced cross-sectoral and cross border information exchange, CISE is fully contributing to the Agenda's objectives.
3.3. European Migration Policy	Regulation n°1052/2013 has established a European Border Surveillance System which interlinks national border control authorities. In the same way as the Maritime transport systems mentioned above, EUROSUR may be interconnected with other legacy systems through CISE where systems are still incompatible and act as data provider and consumer. CISE will therefore enable to complement the data currently shared among border control authorities with additional data owned by other authorities. CISE is referred to as the 8th and final step of the Border Surveillance System EUROSUR (COM(2008)68final), stating that it will go beyond border related aspects, thus covering all maritime related activities.
3.4. Common Security and Defence Policy (CSDP)	CISE is one of the main tangible domains of civil/military cooperation at EU level, as beneficial to the tasks of both types of authorities. CSDP operations - being of humanitarian or security nature - benefit from enhanced data exchanges improving the maritime situational awareness. The CISE is therefore acknowledged as an important tool for EU Maritime Security Operations and as an essential building block of the EU Maritime Security Strategy (EUMSS) which provides the political framework for maritime CSDP operations. CISE is specifically mentioned in the Commission Communication of July 2013

Action / Policy	Description of relation
	"Towards a more competitive and efficient defence and security sector" (COM(2013) 542 final) ^[1] and in a Parliament report on the maritime dimension of the Common Security and Defence Policy (2012/2318(INI)) ^[2] .
4. Digital Agenda for Europe	CISE is directly relevant to the Digital Agenda, especially as it develops in line and contributes to following pillars: I. Digital single market: see below. II. Enhancing interoperability and standards: CISE is developing technical, semantic and organisational interoperability EU solutions aiming to improve the cross-border and cross-sectoral interlink between national maritime authorities, based on common specifications and standards; V. Research and innovation: CISE fosters investment in R&D technologies for maritime surveillance and security VII. ICT-enabled benefits for EU society: CISE will allow for the optimization of data exploitation to support maritime surveillance, ultimately leading to safer, more secure and better environmental protection of the maritime domain.
4.1. Communication on "A Digital Single Market Strategy for Europe", COM(2015)192 (DSM)	CISE contributes to the objectives of the DSM, in particular to the development of digital networks and services, and the enhancement of industrial competitiveness through promoting solutions which match the pace of technology and support improvement of data exchange.
4.2. Directive 2007/2/EC establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)	As INSPIRE also addresses the spatial harmonisation of data related to basic hydrographical including marine areas as well as oceanographic features and sea regions, CISE takes into account the relevant data exchange solutions put in place under the INSPIRE directive.
4.3. ISA Action 1.1 – Promoting semantic interoperability amongst the European Union Member States	That ISA action defined a methodology for defining semantic assets, which is reused in the CISE project to define use cases, information services and the associated data formats and semantics. The approach of the CISE project will be based as appropriate on the governance, process and methodology proposed by that ISA action. Under that ISA action a pilot has been carried out to demonstrate the potential interest of Linked Data technologies. It is envisaged to further explore collaboration with ISA 1.1 on

^[1] http://ec.europa.eu/internal_market/publicprocurement/docs/defence/130724_communication_en.pdf

^[2] <http://www.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2012/2318%28INI%29&l=en>

Action / Policy	Description of relation
	<p>the definition of useful core vocabularies for the maritime domain, and on the set up of a platform to disseminate the CISE common data model ("Data Dictionary").</p> <p>Under this ISA action, the cooperation Project (CoopP) defined a data and service models for CISE. These semantic interoperability models are being tested and refined as from 2015 in the framework of the pre-operational validation project EUCISE 2020.</p>
<p>4.4. ISA Action 2.1 – Elaboration of a common vision for an European Interoperability Architecture (EIA)</p>	<p>The European Interoperability Architecture developed by action 2.1 will be taken into consideration when developing the CISE platform. Mechanisms have been put in place to ensure alignment of CISE work with the results of this action.</p>
<p>4.5. ISA action 2.14 – Assessment of Trans- European Systems (TESs) supporting EU Policies</p>	<p>CISE should ultimately improve interoperability between the systems of 7 different sectors, in which specific sectorial solutions have already been put in place to exchange information. In that context the rationalization of existing trans-European systems between public administrations is seen as an opportunity and a necessary basis for CISE structured development. CISE shall seek alignment with corporate recommendations to interconnect administrations, and in any case shall ensure convergence with such recommendations or corporate solutions.</p>
<p>4.6. European eGovernment Action Plan 2016-2020</p>	<p>CISE is in line with the objectives of the eGovernment Action plan aiming to help national and European policy instruments to work together, supporting the transition of eGovernment into a new generation of open, flexible and collaborative seamless eGovernment services at local, regional, national and European level.</p> <p>The European Commission's <u>eGovernment Action Plan 2011-2015</u> supports the provision of a new generation of eGovernment services.</p> <p>This is also valid for the upcoming follow up plan "new EU eGovernment Action Plan 2016-2020"</p>
<p>5. Connecting Europe Facility (CEF)</p>	<p>The Connecting Europe Facility develops and implement reusable building blocks (essential digital services) that will play a vital role in enhancing interoperability between public authorities allowing for conducive flow of data across borders and sectors. The CEF building blocks are a set of highly reusable tools and services that have been mainly developed and piloted by the Member States in different large scale pilots.</p>

Action / Policy	Description of relation
	As CISE is approaching its implementation phase, the linkages with the CEF are being fully explored. Particularly, CISE pre-operational validation project ('EUCISE 2020') is assessing the possible reuse of CEF building blocks, at software as well as specifications level.
5.1. CIPA solution - Common Infrastructure for Public Administrations Sustainability	CIPA e-Delivery aims at creating a document exchange network. Access to this network is enabled through gateways and a standard protocol. CIPA e-Delivery provides components for a secure and reliable exchange. The CISE architecture definition shall be carried out also taking into consideration the possibility to reuse the CIPA solution (eTrustEx platform and CIPA gateway).
6. ICT standardisation Regulation (EU) No 1025/2012	CISE is part of the 2015 EU work programme for standardisation and closely follows the developments within the industrial standardisation domain, since the development of interoperability solutions may only benefit from the standardisation of certain components.

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

The development of the CISE project has aimed from the beginning to reduce development and operational costs and ensure better sustainability of maritime surveillance activities.

The possible reuse of the following ISA solutions is currently assessed within the CISE pre-operational validation project ('EUCISE 2020'):

ISA Solution	Description of relation
S-TESTA	This network is considered to exchange sensitive data.
EU public license	The EU public license should be used to license the technical specifications and the software components developed by the industry within the EUCISE 2020 project.

Should these solutions be set aside during the validation project, their reuse will be considered again to define the final operational CISE.

ISA Solution	Description of relation
SEMIC (ISA action 1.1)	CISE data model reused the definition of some of the Core Vocabularies (Public Organization, Person, Location) and will evolve taking into

	consideration the new Core Vocabularies developed by SEMIC.
INSPIRE platform	CISE data model took into consideration INSPIRE vocabulary and standards. The Inspire Registry was also tested to be reused for CISE data dictionary.
CAMSS	CISE interoperability layer is based on existing standards of exchange. CAMSS is considered to assess standards to integrate in the future evolutions of CISE.
EIRA	The European Interoperability Architecture can be considered to organize and document solutions, including the integration of CISE to existing European sectorial systems.
e-Trustex	The solutions developed by e-Trustex on top of the CEF component e-Delivery are considered to be reused for CISE gateway component.
CIPA	The solutions developed by CIPA on top of the CEF component e-Delivery are considered to be reused for CISE gateway component.

Furthermore, the CISE project in general and the CISE pre-operational validation project ('EUCISE 2020') in particular, consider the possible reuse of the solutions developed by CEF and the e-SENS building blocks: e-Delivery, e-Signature, e-ID, e-Document, etc

In addition, the process of developing and implementing CISE will require further investigations to find suitable re-usable components (e.g. assessing solutions in the Joinup Catalogue of interoperability solutions)

7.1.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Data model
Description	The CISE data model provides a common European cross-sector format to share data across countries and sectors. It represents the most useful data for all maritime surveillance authorities, as identified and validated by a representative group of national experts representing all relevant maritime surveillance sectors at EU and national level (Cooperation project, 2013).
Reference	
Target release date / Status	Initial version released in 2015 . This version will be tested, fine-tuned an enriched by the CISE pre-operational validation project by end 2017. Release of version 2: end 2017.

Output name	Service model
Description	<p>The CISE service model defines the specifications of the services offered by an information provider, including the behaviour of the service and the input and output data expected by/from the service to ensure the expected behaviour</p> <p>For each data entity defined the CISE data model (i.e., each information type: Vessel, Cargo, Person, etc.), the CISE Service Model defines a service and specific operations that support the exchange of that specific data entity using the four known communication patterns.</p>
Reference	
Target release date / Status	<p>Initial version released in 2014. This version will be tested, fine-tuned and enriched by the CISE pre-operational validation project by end 2017.</p> <p>Release of version 2: end 2017.</p>

Output name	Governance model
Description	<p>The CISE governance model defines a framework to structure and describe the governance elements and relationships including candidate organisational structures, processes, roles and responsibilities for the governance and management of an operational CISE environment</p>
Reference	
Target release date / Status	<p>Initial version released in 2014 . This version will be tested, fine-tuned and enriched by the CISE pre-operational validation project by end 2017.</p> <p>Release of version 2: end 2017.</p>

Output name	Security model
Description	<p>The CISE security model defines a framework for CISE security and describes the elements and concepts which apply at different layers of CISE security, ranging from security governance and management to service, data and infrastructure security.</p>

Reference	
Target release date / Status	Initial version released in 2014 . This version will be tested, fine-tuned an enriched by the CISE pre-operational validation project by end 2017. Release of version 2: end 2017.

Output name	Registry of authorities and services
Description	This registry is a software tool that will provide information about the authorities, their systems and the information they make available within CISE. Once fully implemented, the registry will support the governance, development and the operating phases of CISE fulfilling the operational (e.g., search for information, operational contacts) and the technical needs of the participants (e.g., technical IT support contacts).
Reference	
Target release date / Status	Final specifications: end 2015 Final version of the registry software: end 2016

Output name	CISE gateways
Description	Interface among legacy systems enabling the implementation of the CISE service model.
Reference	
Target release date / Status	Final specifications: end 2015 Testing: 2016 First version: end 2017

7.1.10 ORGANISATIONAL APPROACH

7.1.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
EU level: Commission DGs and Agencies	DG MARE, JRC, MOVE, HOME, TAXUD, ENV, DIGIT, ECHO, JUST EMSA, FRONTEX, CFCA, EUROPOL, EEA, MAOC, EDA, EUSC

Member States	<p>National authorities carrying out maritime surveillance tasks in the seven sectors identified above. The number of national authorities involved in CISE amounts to over 300.</p> <p>National authorities are represented at EU level in the steering and management of the CISE development in two ways:</p> <ul style="list-style-type: none"> - The technical advisory group (TAG) involves technical and operational experts representing the seven maritime surveillance sectors, together with EU agencies representatives - The Member States experts sub-group on the integration of maritime surveillance (MSEsG) is composed of one representative per Member-States speaking on behalf of all national maritime authorities of the said state.
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7.1.10.2 Communication plan

The communication plan on CISE is threefold:

- Internal communication within COM and EU agencies

The inter-service Group on Integrated Maritime Surveillance involves all European Commission services concerned by integrated maritime surveillance. It meets on average 3 times per year

- Communication with MS

Communication with MS is based on three different groups:

- The friends of presidency group in the Council with foreign affairs attachés (4 meetings/year)
- The Member States experts sub-group on the integration of maritime surveillance (MSEsG) with representatives from national maritime administrations(3 meetings/year)
- The technical advisory group (TAG) with technical and operational experts from national authorities and EU agencies (3 meetings/year)

- Communication with the general public

A set of communication tools was developed in 2014. General communication on CISE is made during events/seminars on maritime issues, including the European maritime day held each year.

7.1.10.3 Governance approach

Management of the action will be done jointly by DG MARE D1 and the Joint Research Centre, under the provisions of the Administrative Arrangement (AA) n°SI2.691869 from 3rd December 2014 between the two Commission services or any amendment/extension thereof. Six persons (3 from DG MARE and 3 from the JRC) will be responsible for the implementation of the action.

Additionally, DG MARE is assisted in developing this action by DG DIGIT under the provisions of the Memorandum of Understanding (MoU), n° DIGIT - 00364-00, from 16 August 2012 and its amendments.

There are already established bodies/groups ensuring stakeholders' involvement and coordination at all levels:

- (a) the seven user communities, including the EU Agencies, participate to the Technical Advisory Group (TAG) bringing in the necessary expertise from their sectoral policy and related actions,
 - (b) an Interservice group consisting of representatives of all associated DGs ensures coordination at Commission level
- and
- (c) the Member States Experts sub-group (MSESG) which is the principal actor for the implementation of the CISE Roadmap will be kept updated regularly on the development of the project.

7.1.11 TECHNICAL APPROACH

Actions carried out previously since the launch of CISE in 2009 until 2014 have focused on the following primary preparatory areas:

- Landscaping of existing governmental information-exchange systems in the maritime field
- Analysis of data gaps and needs
- Definition of CISE high-level requirements and architectural options
- Development of CISE data and service model

CISE has entered in 2015 a pre-operational testing phase of its interoperability solutions which will be carried out by the FP7 funded and MS-led project 'EUCISE 2020' until end 2017. This project is closely supported by the COM. This testing phase will pave the way towards the establishment of full-fledged interoperability solutions by end 2020.

The ISA² programme is expected to support a set of actions undertaken by the COM to support and exploit the results of this pre-operational phase, as well as the actions needed to reach relevant operational solutions. These actions could inter alia cover the following areas:

- Identify relevant IT interoperability endeavours/solutions for information sharing in third countries/ maritime regions to assess potential improvements of CISE solutions
- Explore CISE IT and operational governance solutions, taking into account current solutions and lessons learnt from existing EU information-exchange solutions (e.g. IMI, EESI, EURES, CCN/CSI).
- Whenever needed and depending on the shortcomings/gaps identified during the testing phase, further develop the CISE data model, service model, gateway, registry of authorities and services to deliver fully functional solutions/ building blocks matching CISE high-level requirements
- Assess the contribution of CISE to the EU standardisation process⁶⁵ in order to facilitate the definition of a technical reference architecture for public services by end 2017⁶⁶ (in line with the European Interoperability Reference Architecture)
- Promote the CISE final interoperability solutions among national authorities and support the conclusion of agreements on data sharing.

⁶⁵ ICT standardisation Regulation (EU) No 1025/2012

⁶⁶ Commission Communication of 8th July 2014, COM (2014)451 final

- Promote the adoption, reuse and continuous improvement of existing and future reusable building blocks and solutions such as the CEF DSIs and results of existing ISA actions and future ISA² actions.

7.1.12 COSTS AND MILESTONES

7.1.12.1 Breakdown of anticipated costs and related milestones

Additional actions might later on be required to bridge the gap between the CISE pre-operational testing and the final interoperability solutions (including reusable building blocks). Some of these possible activities are briefly described under the section *Technical approach*. Complements might therefore be submitted during the revision of ISA² work programme later on.

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)
Execution	Large scale pre-operational testing 'EUCISE 2020'	17 000	13 000 HOME- FP7 4 000 MS	Q4/2014	Q3/2017
Execution	Follow-up and technical support to 'EUCISE 2020', set up of the registry of authorities and services, web tool for the CISE handbook, secretariat of the TAG, maintenance of data and service model	2 340	MARE, delegated to JRC	Q4/2014	Q4/2017
Execution	Identify relevant IT interoperability endeavours/achievements enabling information sharing in third countries/ maritime regions to assess their potential to support CISE development.	200	ISA ²	Q4/2016	Q4/2017
Execution	Assess the contribution of CISE interoperability solutions to the EU standardisation policies	200	ISA ²	Q3/2017	Q4/2018
Execution	Explore CISE IT and operational governance	250	ISA ²	Q1/2018	Q4/2019

	solutions				
Execution	Support the transition from the Pre-operational to the operational phase of CISE interoperability building blocks/ solutions.	400	ISA ²	Q1/2018	Q4/2019
Operational	Support implementation/ adoption of CISE (re-usable) building blocks/ solutions.	400	ISA ²	Q1/2019	Q4/2020
	Total	1450	ISA ²		

7.1.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Execution	100	
2017	Execution	300	
2018	Execution	500	
2019	Execution	350	
2020	Execution	200	

7.1.13 ANNEX AND REFERENCES

Description	Reference link
EU Maritime Security Strategy and its Action Plan	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1395676070971&uri=CELEX:52014JC0009 http://ec.europa.eu/maritimeaffairs/policy/maritime-security/doc/20141216-action-plan_en.pdf
Commission Communication: Next steps within the Common Information Sharing Environment for the EU maritime domain	http://ec.europa.eu/maritimeaffairs/policy/integrated_maritime_surveillance/documents/com_2014_451_en.pdf
Commission Staff working document Impact Assessment accompanying the	http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52014SC0225

Description	Reference link
Communication (above)	
CoopP final report	http://www.raja.fi/facts/news_from_the_border_guard/1/0/the_final_report_of_the_cooperation_project_has_been_published_and_is_available_on_the_project_website_52764
Commission Communication: CISE Guiding principles	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0538:FIN:EN:PDF
Commission Communication: Draft Roadmap towards the CISE	http://ec.europa.eu/maritimeaffairs/pdf/maritime_policy_action/com_2010_584_en.pdf
Council conclusions Nov 2009	http://ec.europa.eu/maritimeaffairs/pdf/external_relations_council_conclusions_17112009_en.pdf
Council conclusions May 2011	http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/EN/genaff/122177.pdf
Council conclusions June 2010 (para 11)	http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/genaff/115166.pdf
Council conclusions Dec 2008 (para 5, page 45)	http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/gena/104617.pdf
European Parliament resolution on Integrated Maritime Policy (paras 31-36)	http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P7-TA-2010-0386+0+DOC+XML+V0//en
ECOSOC opinion, July 2010	http://www.eesc.europa.eu/?i=portal.en.ten-opinions.16088
Technical Advisory Group: Terms of reference, meeting minutes, progress reports	https://webgate.ec.europa.eu/maritimeforum/frontpage?tid_2=519
Council conclusions Jun 2013	http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/agricult/137604.pdf
Limassol Declaration, Oct 2012	http://www.cy2012.eu/index.php/el/file/TphGtH7COdr2nxXo9+AUZw==/
Parliament report on the maritime dimension of the Common Security and Defence Policy (2012/2318(INI)) - Committee on Foreign Affairs	http://www.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2012/2318%28INI%29&l=en
Commission Communication: Towards a more competitive and efficient defence and security sector	http://ec.europa.eu/internal_market/publicprocurement/docs/defence/130724_communication_en.pdf

7.2 EUROPEAN CITIZENS' INITIATIVES AND EUROPEAN PARLIAMENT ELECTIONS (2016.14)

7.2.1 IDENTIFICATION OF THE ACTION

Type of Activity	Reusable generic tools
Service in charge	DIGIT B.2
Associated Services	SG C.4 JUST C.2

7.2.2 EXECUTIVE SUMMARY

This action is in the context of the European Citizens' Initiative (ECI), a right given by the European Union Lisbon Treaty, Art 11.4 and European Parliament Elections.

The objectives of this ISA² action are to continue the efforts for improving the tools provided; and to propose, study, assess and develop new solutions in order to improve the whole process.

Under the first ISA programme action 1.12, several goals were achieved including:

- The Online Collection Software (OCS) was developed. The tool helps the ECI organisers collect online statements of support necessary to submit the initiative to the European Commission.
- A Validation Tool, a re-usable tool by the Member States helping them validate the signatures collected by ECI organisers.
- Tools to improve the mechanism preventing double voting in European Parliament elections (Directive 93/109/EC - participation of EU citizens in EP elections) were developed and offered to Member States
- A helpdesk for assisting the users of these tools was established.

In the scope of the ISA² programme, subject to the outcome of an ongoing study, in 2016 the action aims at enhancing the above tools in the following areas:

- Improvements for European citizens, users of the Online Collection Software (e.g. OCS for mobile, better user interface, accessibility improvements)
- Improvements for ECI Organisers (e.g. ISO 27K compliance, OCS Administration Interface improvements, better analytical and statistical tools, more integration with social media platforms, more support)
- Interoperability improvements (better interconnection between the ECI Register, OCS and the Validation Tool)
- Technical advice in relation to development of legislative framework (risk analysis, impact assessment)

7.2.3 OBJECTIVES

The high level objective is to improve the ECI and EP elections processes by enhancing the tools already provided, research and develop new solutions.

As the ECI instrument is currently subject to a review, the outcome of this process may require an adaptation of the objectives in the course of the action.

7.2.4 SCOPE

The scope of this action covers the study, analysis, assessment and supply of tools and documentation directly related to the European Citizens' Initiative and European Parliament Elections software (Online Collection Software, Validation Tool, Crypto Tool) and their interoperability with tools directly related to them.

This action does not cover the development of a campaigning platform for the ECI organisers.

This action does not cover the development of the ECI Register legal content and administration interface.

7.2.5 PROBLEM STATEMENT

7.2.5.1 European Citizens Initiatives

The Lisbon Treaty introduced in the EU Treaties the European Citizens' Initiative instrument (enshrined in Article 11(4) of the TEU), enabling one million citizens who are nationals of a significant number of Member States to take the initiative of inviting the Commission to submit any appropriate proposal on matters where citizens consider that a legal act of the Union is required for the purpose of implementing the Treaties. The instrument has been implemented by Regulation (EU) 211/2011 of the European Parliament and of the Council of 16 February 2011 on the citizens' initiative (ECI Regulation).

The ECI Regulation provides that statements of support for citizens' initiatives can be collected by organisers both on paper or electronically.

If the organisers of an ECI wish to collect statements of support for their initiative online, they must build an online collection system complying with the rules of the ECI Regulation and with the technical specifications set out in Commission Implementing Regulation No 1179/2011⁶⁷ (ECI Implementing Regulation). This means, in particular, that ECI organisers need to choose online collection software incorporating the relevant technical and security features and to find a hosting provider ensuring that the data collected can be stored in the territory of a Member State (Art. 6 of the ECI Regulation). Organisers must then obtain the certification of their system by the competent authority in the Member

⁶⁷ Commission Implementing Regulation (EU) No 1179/2011 laying down technical specifications for online collection systems pursuant to Regulation (EU) No 211/2011 of the European Parliament and of the Council on the citizens' initiative, OJ L 301/3, 18.11.2011

State where the data will be stored. Only one Member State would need to certify an online collection system used for an initiative across several Member States.

In order to facilitate on the one hand compliance with these requirements by organisers of initiatives and on the other hand certification of online collection systems by the relevant Member State authorities, the Regulation (Article 6(2)) requires that the Commission develops and maintains an open source software for online collection (the OCS) which would satisfy the requirements of the regulation and could be freely downloaded by anyone.

The OCS has to allow the collection of the data necessary to support a citizens' initiative and has to comply with the security and technical requirements for online collection systems as set out in the ECI Regulation and in the technical specifications set out in the ECI Implementing Regulation.

The OCS has been developed under ISA Programme together with the Validation Tool helping the Member State authorities validating the collected statements of support submitted by the ECI organisers. To date, it has been used by all but one initiative collecting online.

The experience of the first three years of operation of the ECI instrument put into evidence different issues relating to the online collection process as established in the Regulation. Some of the issues reported by the organisers and Member States authorities concerned directly the Commission Online Collection Software and resulted in requests to have an Online Collection Software easier to set up, to use and having more features, for example to sign up using electronic ID cards. Several ones among them have already been satisfactorily solved while the others are still pending.

The Commission 2015 report on the implementation of the ECI Regulation⁶⁸, which is the first step of the review process, emphasises the importance of technical aspects for the effective implementation of the ECI and the need for further development and improvement thereof to meet the policy objective of enhanced use by ECI organisers and citizens. The report highlights that stakeholders are not fully satisfied with the features offered by the Commission software and that ECI organisers strongly call for improvements in order to better meet their needs.

A study under the ISA programme⁶⁹ concerning specifically the "Assessment of ICT impacts of the Regulation (EU) No 211/2011 of the European Parliament and of the Council of 16 February 2011 on the citizens' initiative"⁷⁰ was carried out by the Commission in parallel with the preparation of the report and finalised in June 2015. It provides valuable input as regards possible options for further development of the OCS. The study also concludes that there is a need for more substantial changes as regards the way the online collection process is organised (for instance to build a central platform under the direct responsibility of the Commission instead of decentralised systems run by the organisers). Such changes, however, would not be feasible without the revision of the ECI Regulation. Whereas no decision as regards the possible revision of the ECI Regulation has been yet taken at the time of drafting the present work programme, the reflection on the subject is ongoing.

⁶⁸ COM(2015)145

⁶⁹ ISA Action 3.1 – Assessment of ICT implications of EU legislation,;

⁷⁰ <http://ec.europa.eu/citizens-initiative/files/ECI-expert-group-meeting-15-06-2015-Presentation-study.pdf>

In the light of the above, it can already be envisaged that these aspects will have to be further considered in the review process for the ECI and that further technical analysis, studies, and evaluation may be needed as regards the technical aspects under the current instrument and potential changes to the legislative framework. The more detailed set of actions to be carried out in this context will be determined and updated in the light of the progress and outcome of the review process.

The ISA² action will thus focus at first at improving the software under the current legislative framework, while it may also serve to provide further analysis and studies in preparation of a possible revision of the ECI Regulation in order to provide solutions to the problems raised. Further on, this ISA² action could also allow adapting the existing tools to a revised ECI Regulation.

The technical assistance and support to ECI organisers will also continue to require action from the Commission. As outlined in the Commission's first triannual report on the application of the ECI Regulation, technical support as regards the Commission's online collection software and the hosting of online collection systems has been provided by email (almost 300 requests) and via the Joinup platform⁷¹. Support has also been provided by dedicated meetings, phone and videoconference whenever necessary to meet the demands from stakeholders.

7.2.5.2 European Parliament Elections

Regarding Member States exchange of data on EU citizens who register to vote in the Member State where they reside, in the 2010 EU citizenship report the Commission announced that it would take action to improve the mechanism for preventing double voting in European Parliament elections which is laid down in Directive 93/109/EC (participation of EU citizens in EP elections). These efforts were necessary to alleviate the administrative burden on the Member States by increasing the efficiency of the mechanism. Recommendations for this purpose were addressed to the Member States in 2013⁷², including recommendations for using common IT tools when implementing the data exchange mechanism. A Crypto Tool was developed by the Commission to help Member States in implementing this recommendation. Ahead of the 2014 EP elections the Commission worked together with the Member States to prepare the implementation of the Crypto Tool.

It was highlighted in the Report on the 2014 European Parliament elections⁷³ that the vast majority of Member States welcomed the recommendations and reported that the measures had a significant positive impact in terms of cutting red tape. The report concluded that the Commission will continue, together with the Member States, to explore ways of further improving the efficiency of the mechanisms preventing double voting. The meeting of the Electoral Expert Group held on 12th June 2015 discussed about the need, and possible ways to achieve this objective.

This ISA² action will focus mainly in addressing the above needs, in order to the prepare the election of the European Parliament for 2019.

⁷¹ <https://joinup.ec.europa.eu/software/ocs/home>

⁷² Recommendation 2013/142/EU on enhancing the democratic and efficient conduct of the elections to the European Parliament.

⁷³ COM(2015) 206 final.

7.2.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Signatories of citizens' initiatives	Improvements in the different software will help the signatories supporting more easily the European Citizens' Initiatives.
Organisers of citizens' initiatives	The enhanced OCS will help organisers (users of the OCS) to build their online collection systems and ease the online collection system certification process. As the OCS is offered free of cost, they will financially benefit as they don't have to invest into an alternative, potentially costly, software (see also study on OCS).
Member States competent authorities	Easier and quicker processes for verifying Online Collection Software instances and validate the signatures collected by the OCS
Member States' Electoral authorities	More efficient, standard and secure process to exchange data on EU voters and candidates participating in European Parliament elections.

7.2.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
European citizens' initiative	Regulation (EU) No 211/2011 of the European Parliament and of the Council of 16 February 2011 on the citizens' initiative: <i>Article 6(2): By 1 January 2012, the Commission shall set up and thereafter shall maintain open-source software incorporating the relevant technical and security features for compliance with the provisions of this Regulation regarding the online collection systems. The software shall be made available free of charge.</i> The action will maintain and further develop OCS to comply with this legal obligation.
Online Collection System	Commission Implementing Regulation (EU) No 1179/2011 of 17 November 2011 on the Online Collection System: <i>laying down technical specifications for online collection systems pursuant to Regulation (EU) No 211/2011 of the European Parliament and of the Council on the citizens' initiative</i>
ISA action 1.12	Open Source Software for online collection of statements of support for European citizens' initiatives.
EU Treaty – Elections to European parliament	Council Directive 93/109/EC of 6 December 1993 <i>Article 13</i> <i>Member States shall exchange information required for the implementation of Article 4 (...)</i>
Recommendation on EP elections	Recommendation 2013/142/EU on enhancing the democratic and efficient conduct of the elections to the European Parliament:

	<p><i>"Technical means for safe and efficient transmission of data</i></p> <p><i>8. For exchanging the data as provided in Article 13 of Directive 93/109/EC the Member States should use a uniform and secure electronic means, as set out in the Annex ..."</i></p> <p><i>"ANNEX</i></p> <p><i>1. For exchanging the data as provided in Article 13 of Directive 93/109/EC the Member States should use files following the Extensible Markup Language format ("XML"). These XML files should be transmitted exclusively via electronic means in a secure way. [...]</i></p> <p><i>3. The Member States should use the W3C XML Encryption Syntax and Processing recommendation, [...]"</i></p>
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7.2.8 REUSE OF SOLUTIONS DEVELOPED BY ISA, ISA² OR OTHER EU / NATIONAL INITIATIVES

7.2.8.1 ECAS-STORK

If possible, a common solution will be defined between the OCS and ECAS software for the graphical and audio Captcha solutions.

7.2.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Online Collection Software
Description	The Online Collection Software will be published on JoinUp with its source code and documentation freely available.
Reference	
Target release date / Status	Twice per year approach

Output name	Validation Tool
Description	The Validation Tool will be published on JoinUp with its source code and documentation freely available.
Reference	
Target release date / Status	Twice per year approach

Output name	Crypto Tool
Description	The Crypto Tool will be published on JoinUp with its source code and documentation freely available.
Reference	

Target release date / Status	Twice per year approach
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7.2.10 ORGANISATIONAL APPROACH

7.2.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States	ISA Coordination Group
Member States competent authorities	Expert group on the citizens' initiative
SG – Secretariat-General of the European Commission	SG.C.4. – Work Programme and Stakeholder Consultation
DIGIT – Directorate General of Informatics of the European Commission	DIGIT.B.2. – Corporate Knowledge and Decision making Solutions
JUST – Directorate Justice and Consumers	JUST C.2. – Union citizenship rights and Free movement
Member States' competent authorities	Expert group on electoral matters

7.2.10.2 Communication plan

European Citizens' Initiatives:

The representatives of SG and DIGIT will meet twice per year to agree on the mid- and long-term developments and, on working level, on a weekly basis to discuss short- and mid-term developments. The expert group on the citizens' initiative meets twice per year in the European Commission premises. The members of the expert group can also be contacted or discuss topics in an online forum.

European Parliament elections:

Expert group on electoral matters meets yearly (or more often if required) in the European Commission premises. The members of the expert group can also be contacted or share information on an online forum. DG JUST and DIGIT will meet regularly, according to the actual needs.

7.2.10.3 Governance approach

The project steering committee, comprised of the head of units of the concerned services, meets twice per year to provide overall guidance and steer the direction of the project. The working level representatives of the services meet weekly to organise and manage the daily work.

The expert groups on the Citizens' Initiative and Electoral Matters provide expert knowledge. With regard to the ECI, this will cover and especially on questions of interoperability and concepts of e-identification and e-signatures, during the expert group meetings and online and, if appropriate, in workshops. With regard to EP elections, this will cover especially questions related to the management of electoral rolls by the national authorities.

7.2.11 TECHNICAL APPROACH

The software components developed under this action will be implemented based on an agile, efficient and pragmatic technical approach. This approach will combine established and emerging standards, industry best practices and state of the art technologies to empower the delivery of high quality and reusable software components.

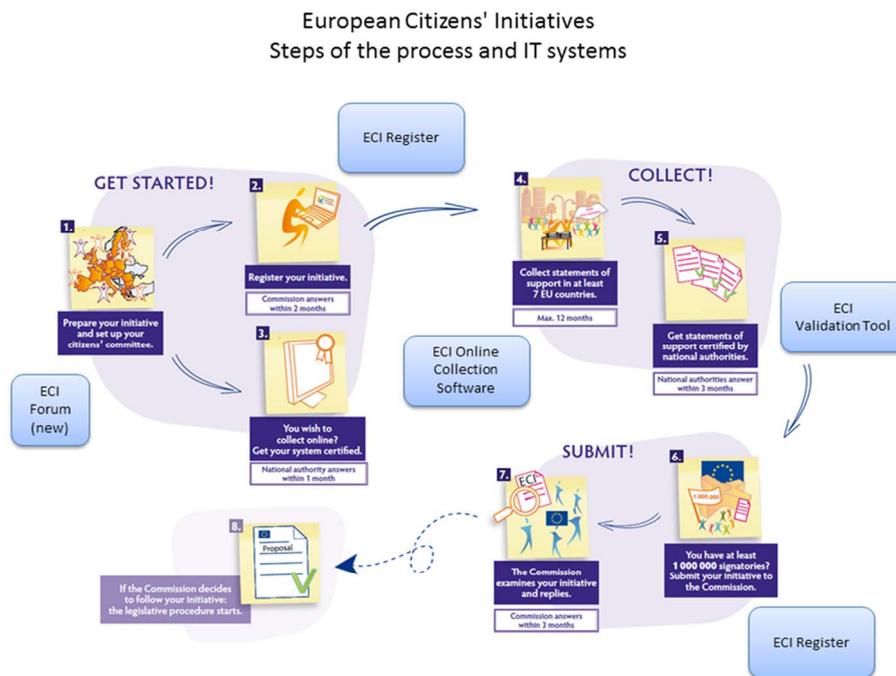
The delivery of the new or improved functionalities will be grouped in bi-annual releases. The scope and timing of the releases will be defined based on the priority and value of the proposed implementations as agreed with the main stakeholders, and can evolve depending on the impact of possible legislative changes. If needed due to legal or technical constraints the releases can be further split or combined. When needed, a feasibility study will be conducted to assess the value of the different implementation options prior to committing the actual implementation. For urgent changes to the software components, two patches (or mini-release) can be added on top of the standard bi-annual releases.

In the scope of this ISA² programme the action aims to enhance in particular the following aspects of the tools concerned:

- Improvements for European citizens, users of the Online Collection Software
 - OCS for mobile (smartphone, tablets, ...)
 - OCS: Better user interface for classic / desktop version of the User Interface
 - OCS: Accessibility improvements, example: Audio Captcha in all the European Union languages as an alternative of the text Captcha for the blind and visually impaired people
 - OCS: Integration of the e-signature and/or e-ID solutions
 - ECI Register: Enhancements for the citizens to have a better “user experience”
- Improvements for ECI Organisers
 - Facilitate the OCS instance ISO 27K compliance
 - OCS Administration Interface improvements
 - Web analytics
 - Statistics, reports
 - OCS: Tracking of successful/failed visits (visits transformed or not into a signature) in order to try to identify the reasons behind
 - OCS: More integration with social media platforms
 - ECI Register: Improvements of the Organisers' Account user interface
 - ECI Forum: Help ECI organisers during the preparation process and the lifecycle of their initiative.

- Interoperability improvements
 - More integration between the ECI Register, OCS and the Validation Tool
 - Enhancements of the Crypto Tool and the Live DVD
- Technical advice in relation to development of legislative framework (risk analysis, studies, ICT impacts assessment)
- Improvements of the tools for the national electoral authorities, to enhance the efficiency of the data exchange mechanism under Directive 93/109/EC – EP elections, and alleviate the burden on these authorities.
- Improvements of the tools on overall, and in particular, to cover candidates standing in EP elections , given that the tools currently only cover EU voters.
- Technical advice in relation to the implementation and the use of the IT tools developed under this project to exchange data under Directive 93/109/EC.

The list above is non-exhaustive and may evolve depending on the outcome of the ongoing ECI review process and the assessment of the value of each of the proposed implementations and the decisions taken by the steering committee.



7.2.12 COSTS AND MILESTONES

7.2.12.1 Breakdown of anticipated costs and related milestones

Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipat ed Allocatio ns	Budget line ISA/ others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)

		(KEUR)			
Inception	Studies/Impact assessments	200	ISA	Q3/2016	Q4/2016
Execution	Release December 2016	300	ISA	Q3/2016	Q4/2016
Execution	Release June 2017	250	ISA	Q1/2017	Q2/2017
Execution	Release December 2017	300	ISA	Q3/2017	Q4/2017
Execution	Release June 2018	250	ISA	Q1/2018	Q2/2018
Execution	Release December 2018	250	ISA	Q3/2018	Q4/2018
Execution	Release June 2019	250	ISA	Q1/2019	Q2/2019
Execution	Release December 2019	250	ISA	Q3/2019	Q4/2019
Operation	Support	360	ISA	Q3/2016	Q4/2019

7.2.12.2 Breakdown of ISA funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Inception + execution + support	500	
2017	Execution + support	670	
2018	Execution + support	620	
2019	Execution + support	620	

7.2.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
Regulation (EU) No 211/2011 of the European Parliament and of the Council of 16 February 2011 on the citizens' initiative	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02011R0211-20131008&from=EN	
Commission Implementing Regulation (EU) No 1179/2011 of 17 November 2011 laying down technical specifications for online collection systems pursuant	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:301:0003:0009:EN:PDF	

to Regulation (EU) No 211/2011 of the European Parliament and of the Council on the citizens' initiative		
Minutes of the meeting of the ECI Expert Group held on 15 th June 2015	http://ec.europa.eu/citizens-initiative/public/legislative-framework	
Directive 93/109/EC – Participation of EU citizens in EP elections	http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:31993L0109	
Recommendation 2013/142/EU on enhancing the democratic and efficient conduct of the elections to the European Parliament	http://ec.europa.eu/justice/citizen/document/files/c_2013_1303_en.pdf	
Minutes of the meeting of the Electoral Expert Group held on 12 th June 2015	https://circabc.europa.eu/ Interest group: European Parliament Election Data exchange (category: Justice and Consumers).	

7.3 ABCDE - ADMINISTRATION, BUSINESS AND CITIZENS' DATA EXCHANGES IN THE DOMAIN OF CASE MANAGEMENT (2016.24)

7.3.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common Services
Service in charge	DG COMP
Associated Services	DG DIGIT DG MARE DG AGRI

7.3.2 EXECUTIVE SUMMARY

The ISA² Action "**ABCDE - Administration, Business and Citizens' Data Exchange in the domain of Case Management**" aims at providing interoperable solutions to support data exchanges between the European Commission, Member States' administrations, business and citizens in the domain of Case Management.

Case Management in the context of this ISA² Action comprises Competition policy in the European Union, that is to say the enforcement of the Antitrust / Cartel rules, Merger control as well as State aid control⁷⁴.

Data exchange processes in Case Management are cross-border: they rest upon intense co-operation between the European Commission and the Member States⁷⁵, where information systems are prone to reusability at European and international level⁷⁶. Data exchanges cover various entities, such as Member States administrations and undertakings (including law firms) located within the EU or even outside of the EU.

Data exchange processes in Case Management are cross-sector, covering: Fisheries, Agriculture, Energy and Environment, Information, Communication and Media, Financial services, Basic Industries and Manufacturing, Pharma and Health services, Transport, Post and other services.

ABCDE has three packages:

i. **Operation and improvement of existing common services**

Operation and improvement of existing cross-border or cross-sector common services (established under ISA or IDABC), serving EU interests and under the umbrella of ABCDE, namely:

⁷⁴ Potentially extensible to any sector and policy area carrying out dossier-centric and data exchange-intensive administrative services or investigations.

⁷⁵ In Antitrust, the European Commission and the National Competition Authorities (NCAs) enforce the same rules of law and coordinate their action through the European Competition Network (ECN). In Merger Control, the European Commission and the NCAs may refer cases to one another. In State aid control, enforcing the rules has become a shared responsibility between the European Commission and Member States following the State aid modernisation.

⁷⁶ This stems from the fact that (i) European and National authorities enforce the same or similar rules of law, and (ii) the business processes involved are similar.

- a. GENIS (suite of common services for State aid).
- b. ECN2.
- c. COMP eTrustEx.
- d. eQuestionnaire.

ii. **Development and operation of new ABCDE common services**

Development and operation of new cross-border or cross-sector common services serving EU interests, namely:

- a. eRFI⁷⁷. Common service to support requests for information, sector inquiries and market investigations, to replace the ageing eQuestionnaire⁷⁸. One National Competition Authority has already manifested their interest in reusing this common service. The European Competition Network could be used to promote its reuse among other authorities.
- b. eLeniency. Common service to support the European Commission's immunity and leniency programme in Cartel investigations. As eRFI, eLeniency is potentially reusable by National Competition Authorities of the Member States to support their national immunity and leniency programmes.
- c. eConfidentiality. Common service to support confidentiality negotiation of case files with the investigated undertakings.

iii. **Establishment of a common ABCDE architecture / framework**

The common ABCDE architecture / framework will ensure the long-term sustainability of the ABCDE interoperable solutions by maximising synergies and economies of scale, reducing operation, improvement, change and development costs.

7.3.3 OBJECTIVES

The mission of ABCDE is to contribute to a better functioning of the internal market in the benefit of consumers, businesses and the European economy as a whole, thus endorsing European Union's political priorities such as the Digital Single Market, the Energy Union or a sanitised and stable Financial Services sector.

In the context of scarce resources in public administrations, the main objective of ABCDE is to reduce costs and gain efficiency and efficacy in the enforcement of Competition policy by the European Commission and the Member States' administrations, while ensuring good governance. This will be achieved at different levels:

- ABCDE will help reducing costs by implementing and operating common e-services used by the European Commission and the Member States' administrations to jointly enforce European and National competition law, thus avoiding disparate IT investments by the EU Member States' administrations. The common services are: SANI2, ECN2, SARI, Transparency Data Collection, Recovery Calculator, State Aid Collaborative Platform.

⁷⁷ During the preliminary analysis of eRFI, we analysed EUSurvey as a potential candidate. Given the wider scope of eRFI requirements which includes: knowledge base management, security constraints (e.g. Non-Repudiation), integration with Case Management back-ends, strong analytics capabilities, the preferred option was to develop eRFI. However we intend to leverage the existing know-how of EUSurvey, by observing its implementation approach (as 'lessons learned').

⁷⁸ The scope of eQuestionnaire was recently extended to cover not only Merger but also Antitrust and State Aid policy instruments. As a critical application it will be maintained and evolved until the release in Production of eRFI in 2020.

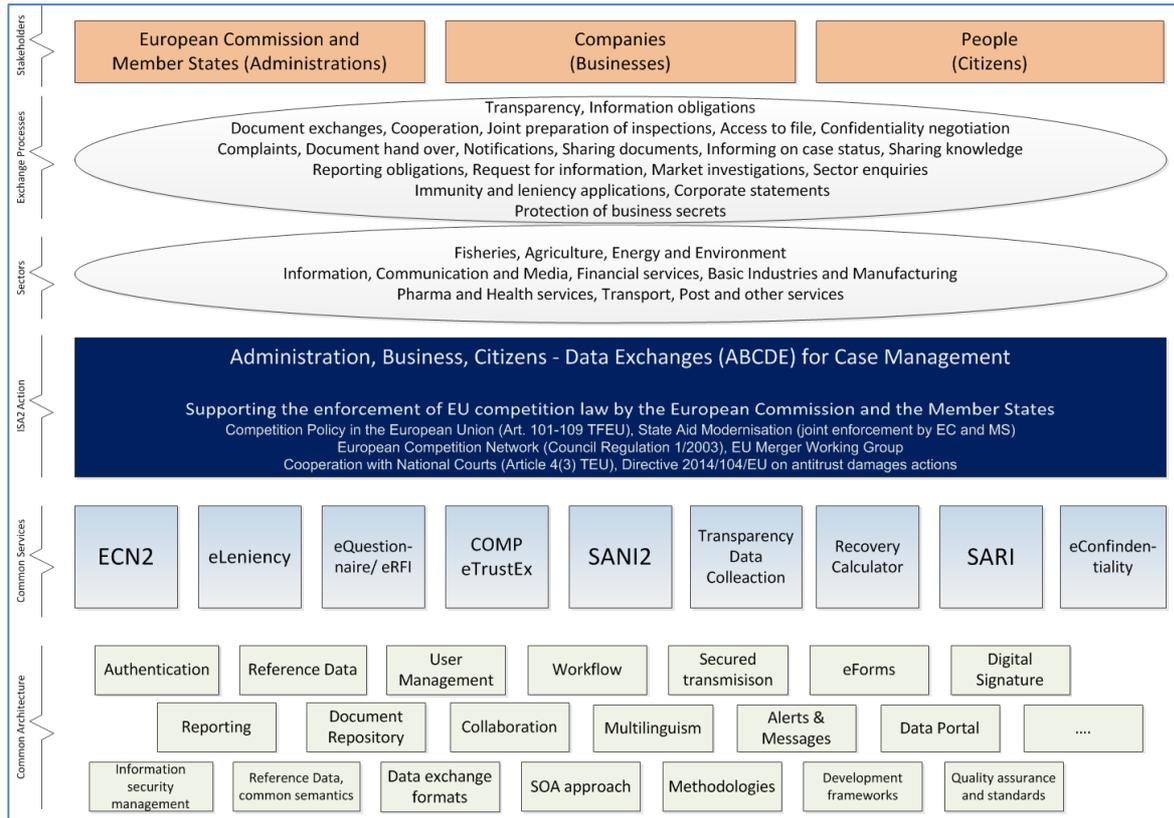
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- ABCDE will make data exchanges in Case Management faster, more effective and cost-efficient, by implementing and operating efficient interoperable e-services benefiting both the main users and key stakeholders (European Commission services, Member States' administrations, business and citizens).
 - ABCDE will promote the use and exchange of semantically consistent and highly qualitative data across European information systems in the Competition policy domain, fostering cross-sector and European-level interoperability.
 - ABCDE will reduce costs by implementing a common architecture / framework aiming at maximising synergies and economies of scale and reducing operation, improvement and development costs, ensuring the long-term sustainability of the ABCDE common services.
 - ABCDE shall further help reducing costs by implementing and operating common services that can be reused by Member States' administrations (confirmed interest in re-using eRFI by already one NCA, potential of reusability of eLeniency). The ABCDE common architecture / framework (partially or as a whole) has also a high potential of reuse by Member States' administrations.

7.3.4 SCOPE

ABCDE covers the cross-border and cross-sector data exchange processes with or among EU and Member States' administrations, business and citizens in the domain of Case Management, which are not covered by the European Commission's Case Management Rationalisation project (CMR)⁷⁹. Case Management in the context of the ISA² Action comprises the Competition policy of the European Union as well as State aid control in all sectors including Fisheries and Agriculture. Case Management is potentially extensible to any policy area carrying out dossier-centric and data exchange-intensive administrative services or investigations. Commission's backend processes and internal exchanges (i.e. between Commission's departments and services) are out of scope of ABCDE.

The overall scope of the ISA² Action ABCDE is visualised in the diagram below.

⁷⁹ The CMR project focuses on backend case management processes: document and record management; case handling and orchestration; case portfolio management; case team collaboration; e-discovery and evidence management etc.. European Commission Services participating to the CMR project are: DG COMP, DG TRADE, DG AGRI, DG MARE, OLAF.



The scope is defined in three packages:

Package I) Operation and improvement of existing common services

In scope:

Operation and improvement of existing cross-border or cross-sector common services established under ISA or IDABC, serving EU interests, namely:

GENIS (ISA Action 1.11) common services: SANI2, SARI, State Aid Transparency Data Collection, Recovery Calculator, State Aid Collaborative Platform, State Aid Portal, used by DG COMP, DG AGRI, DG MARE and the Member States' administrations of the 28 Member States to support the implementation of EU State Aid rules (Art.107 to 109, [Treaty on the Functioning of the European Union](#) (TFEU)).

ECN2 (ISA Action 2.9 - COMP Pilot) common service to support the European Competition Network (ECN), formed by DG COMP and the National Competition Authorities of the 28 Member States to share case information and case documents, supporting the implementation of Competition policy of the EU in particular Antitrust/Cartels investigations and Mergers control (Art. 101 to 106, TFEU and Merger Regulation 139/2004). ECN2 also supports exchanges between ECN and administrations of EFTA⁸⁰ countries. ECN2 improvements will support

⁸⁰ The European Free Trade Association (EFTA) is an intergovernmental organisation set up for the promotion of free trade and economic integration to the benefit of its four Member States: Iceland, Liechtenstein, Norway, and Switzerland.

document sharing and collaboration between the European Commission and the National Courts of EU28, will support the implementation of the Damages Directive⁸¹, will offer e-signature capabilities and adapt to any updates in the ECN legislation expected in the medium term.

COMP eTrustEx⁸² (ISA Action 1.8 - COMP Pilot) common service used by DG COMP, businesses (companies, law firms) and Member States' administrations to exchange large volume of sensitive documents in a secure way. COMP eTrustEx greatly supports the implementation of Competition policy of the EU.

eQuestionnaire (IDABC Action) common service used by DG COMP and businesses (companies, law firms) to request and provide structured information (requests for information, sector inquiries, market investigations) for case investigations. This tool is used cross-sector in Mergers control, Antitrust/Cartel investigations and State aid control.

Package II) Development and operation of new ABCDE common services

In scope:

Development and operation of new cross-border or cross-sector common services serving EU interests and in the scope of ABCDE, namely:

eRFI. Common service to support requests for information, sector inquiries and market investigations. eRFI will replace the ageing eQuestionnaire (developed under IDABC and in Production since 2009).

eLeniency. Common service to support the European Commission's leniency programme in Cartel investigations. Currently, the exchange process with businesses that is submitting leniency applications to the Commission is not IT-supported; hence it is human resources-consuming. eLeniency would be reusable by National Competition Authorities of the Member States to support their national leniency programmes.

eConfidentiality. Common service to support the confidentiality negotiation of case files with the investigated undertakings (businesses). Currently, this exchange process with businesses is not IT-supported, hence it is human resources-consuming.

Package III) Establishment of a common ABCDE architecture / framework

In scope:

The common ABCDE architecture / framework will ensure the long-term sustainability of the ABCDE interoperable solutions by maximising synergies and economies of scale and reducing operation, improvement, change and development costs. The common ABCDE architecture / framework will focus on:

- Common information security management.
- Common business and Service Oriented Architecture (SOA) approach.

⁸¹ Directive 2014/104/EU on antitrust damages actions.

⁸² Covers the evolution and maintenance of the modules specially developed and used by DG COMP (GUI, adapter, COMP back-end interoperability layer). Maintenance of DIGIT's eTrustExchange platform itself is out of the scope of this action and will be financed by another ISA² action.

- Common interoperability: Common technical approach, common semantics, common specifications and standard exchange formats, common security implementation.
- Common methodological approach: PM2⁸³, development methodologies.
- Common development frameworks and stacks.
- Common quality assurance approach and standards.

The common ABCDE architecture will operate and improve the reusable building blocks developed under ISA 1.11 GENIS and under ISA 2.9 DRS / ECN2 Pilot. The common ABCDE architecture / framework will be aligned to EIRA and EIC⁸⁴, being potentially reusable in any similar context (sector, policy area, national administration) dealing with a large set of complex data exchange processes with external stakeholders that have to interoperate with both backend systems and external systems. ABCDE re-usable components will be published on EIC.

7.3.5 PROBLEM STATEMENT

Problems and needs addressed by Package I) Operation and improvement of existing common services
<p>Problems:</p> <ul style="list-style-type: none"> • IT solutions supporting EU legislation could be either implemented in each of the 28 Member States or with one common service used by all. The former would imply disparate expenditures by Member States multiplying IT solutions' developments and operations, as well as a number of disparate systems hardly interoperating with each other. The use of common services is the de-facto approach in the ABCDE context, being significantly more cost-efficient and more effective (interoperability, use/reuse and exchange of data). • Data exchanges –typically ruled by tight legal deadlines– are often carried out in an inefficient and time-consuming way (e.g. delivery of documents by e-mail or in (encrypted) DVDs or paper documents delivered by mail service). • Ongoing legislation changes requiring adaptations to underlying IT solutions.
<p>Resulting needs:</p> <ul style="list-style-type: none"> • Need to operate existing cross-sector interoperable common services used by the European Commission and the administrations of the 28 Member States to jointly implement EU legislation: SANI2, ECN2, SARI, Recovery Calculator, State aid Transparency Data Collection and the State Aid Collaborative Platform. • Need to operate existing cross-sector interoperable common services used by the EC, the administrations, the business and citizens to further support secured and efficient data exchanges required by EU legislation: eTrustEx and eQuestionnaire. • Need to improve/adapt, e.g. upon legislation change, existing cross-sector interoperable common services in the interest of the EU.

⁸³ PM2 is the project management methodology of the European Commission.

⁸⁴ [European Interoperability Reference Architecture \(EIRA\)](#) and [European Interoperability Cartography \(EIC\)](#).

Problems and needs addressed by Package II) Development and operation of new ABCDE common services
<p>Problems:</p> <ul style="list-style-type: none"> • Recurrent and critical data exchange processes are currently carried out without IT support, being very resources-intensive. This is unbearable in the current situation of limited staff and resources in public administrations in the EU. • Data exchanges –often ruled by tight legal deadlines– are often carried out in an unsecured, inefficient and time-consuming way (e.g. delivery of paper documents by mail service). Developing common services addressing this problem is in the benefit of the European Commission, the Member States administrations, the businesses and citizens. • The European Commission and the Member States enforce, at different levels, similar legislation in the ABCDE context. IT solutions supporting similar data exchange processes at EU and national level could lead to disparate expenditures by Member States multiplying IT solutions' developments and operations.
<p>Resulting needs:</p> <ul style="list-style-type: none"> • Need to provide state-of-the-art IT solutions to support recurrent and critical data exchange processes in a more effective and cost-efficient way: "do more with less". This is the case for eLeniency and eConfidentiality. • Need to develop and operate new cross-sector interoperable common services used by the EC, the administrations in the Member States, the business and citizens to support secured and efficient data exchanges required by EU legislation: eLeniency, eConfidentiality and eRFI. • Need to develop IT solutions supporting data exchanges for Case Management that are prone to reusability at European and national level. One National Competition Authorities have already expressed his interest in reusing the eRFI solution if such is developed under ISA² (or launch their own development otherwise). The European Competition Network could be used as a platform to present this solution to other National Competition Authorities.

Problems and needs addressed by Package III) Establishment of a common ABCDE architecture / framework
<p>Problems:</p> <ul style="list-style-type: none"> • Lacking a well-defined common architecture / framework would lead to different projects being implemented conform to ISA² each, however architecturally different. This would result in increasing costs increasing over time, eventually resulting in the unsustainability of maintenance and operation of the ABCDE domain's common services. • A distinct information security management by project (i.e. not having a global security strategy and implementation common for the ABCDE domain) would be not only expensive but would also imply a high risk of incoherence in the security implementation of interoperability, resulting inevitably in security vulnerabilities. • Insufficient usage of standard exchange formats in the context of data exchanges in Case

Management in the EU, resulting in reduced interoperability and higher costs for data exchanges.
<p>Resulting needs:</p> <ul style="list-style-type: none"> • Need of a common ABCDE architecture / framework, aligned with EIRA and EIC, focusing on common SOA approach (business architecture, interoperability), common semantics, common specifications and standard exchange formats, common security implementation, aiming at maximising synergies and economies of scale and reducing operation, improvement, change and development costs. • Need for a common, global information security management covering all data exchanges in Case Management. • Need for identifying existing or defining new standard data exchange formats in the context of data exchanges in Case Management in the European Union.

7.3.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
European Union as a whole: Institutions, Member States, businesses and citizens	<p><u>Effective enforcement of EU competition law (Art. 101-109 TFEU)</u></p> <ul style="list-style-type: none"> • State-of-the-art common e-services for efficient data exchanges in Case Management will result in a more effective enforcement of EU competition law by the European Commission and the Member States, leading to: <ul style="list-style-type: none"> ○ A better functioning of the European Single Market. ○ Better services and products, more choices, and better prices for European consumers. ○ More competitive European business better placed in the global economy. • The quantified customer benefits resulting from antitrust (including cartels) and merger decisions in 2014 were estimated above €3.8 billion⁸⁵. In 2014, the European Commission imposed €1.7 billion in fines related to cartel decisions, €0.5 billion in fines related to antitrust decisions, and imposed recoveries of €301 million of illegal State aid. Revenues from antitrust and cartel fines reduce the Member States' contributions to the EU budget. • At national level, the successful enforcement of Competition law brings similar benefits.
European Commission, Member States and businesses	<p><u>Concrete cost savings derived from the common use (by the Commission and Member State administrations) of common ABCDE e-services</u></p> <ul style="list-style-type: none"> • ABCDE common services are used by the European Commission and Member States' administrations to jointly implement EU legislation: SANI2, ECN2, SARI, State aid Transparency Data Collection and the State Aid Collaborative Platform. • The provision and operation of central e-services jointly used by Member States and the European Commission translates in concrete cost savings, since Member

⁸⁵ Page 26 on: http://ec.europa.eu/atwork/synthesis/aar/doc/comp_aar_2014.pdf

	<p>States do not need to engage in significant investments to develop, operate and evolve their own information systems.</p> <ul style="list-style-type: none"> ○ Example: with the implementation of a common service to comply with the Transparency provisions in State aid legislation entering into force by 1st July 2016, 25 Member States will not need to develop their own State aid Transparency Data Collection system. A conservative estimation of €250.000 costs to develop such a system at national level result in savings of more than €6 million, to which operation, maintenance and evolution costs have not been counted. ○ Similarly, the savings of providing and operating ECN2, a common service used by the European Competition Network (ECN) to jointly enforce Antitrust/Cartels rules can be estimated as high as €15 million⁸⁶. <ul style="list-style-type: none"> ● The provision and operation of central e-services (versus many disparate systems) will also significantly reduce the implementation costs of interoperability and foster cross-sector and European-level interoperability.
European Commission, Member States	<p><u>Concrete cost savings derived from a common ABCDE architecture / framework</u></p> <ul style="list-style-type: none"> ● Implementing common functionality in re-usable components and following a coherent architecture / framework common to all ABCDE common services shall significantly reduce development and operation costs. E.g. the savings on the State Aid Transparency Data Collector by re-using GENIS components can be estimated in at least €0.5 million⁸⁷. This estimation can be extrapolated to future systems as eRFI, eLeniency and eConfidentiality. ● The common ABCDE architecture / framework will foster cross-sector and European-level interoperability by establishing and spreading common domain semantics, specifications and standard exchange formats. ● The common ABCDE architecture / framework could be potentially reused in any similar context (sector, policy area, national administration) dealing with a large set of complex data exchange processes with external stakeholders that have to interoperate with both backend systems and external systems.
Member States	<p><u>Potential cost savings resulting from the re-use of ABCDE common services by Member States' administrations</u></p> <p>Similar exchange processes take place both at European and national level. Implementing e-services that can be re-used by Member States translates in potential cost savings. Some examples:</p> <ul style="list-style-type: none"> ● Requests for Information are carried-out both by the European Commission and the National Competition Authorities. The cost of implementation of eRFI as e-service supporting this process is estimated in €0.75 million (see section 1.1.12). Following high-level estimations, each potential re-use of this common service by a national administration could result in savings of approximately €1 million⁸⁸;

⁸⁶ Based on 28 x €550.000 costs of development of ECN2 v1.0.

⁸⁷ The cost of analysis and implementation of GENIS re-usable components (User Management, Reference Data, Multilingual, Forms and Audit Trail) was estimated in €1.1 Million in ISA Work Programme 2015 (approximately €220k per component). The savings link to reusing four of these components in State Aid Transparency Data Collector can be estimated in at least €0.5 million (220k per component multiplied by 4 minus integration costs).

⁸⁸ The implementation cost of eRFI is estimated in €0.6 million (see section 1.1.12). This amount doesn't include the cost of implementation of the different components that it will be reusing (estimating 4 components with an individual cost of €220k). Adding these amounts, the implementation

	<ul style="list-style-type: none"> Member States also implement leniency programs in Cartels investigations, making the eLeniency common service potentially re-usable. Following similar estimation calculations, each potential reuse of this common service by a national administration could result in savings of approximately €0.7 million⁸⁹;
European Commission, Member States and businesses	<p><u>Cost savings derived from automation of exchange processes</u></p> <ul style="list-style-type: none"> Several data and document exchange processes in Case Management (foremost the negotiation of confidentiality) still imply heavy manual intervention by European administrations and businesses' staff (e.g., case support and the Registries) as well as the use of costly postal services (e.g. DHL). Automating these processes will reduce the cost and manpower required to carry them. Concrete savings to be estimated. Member State representatives for the European Competition Network come to Brussels several times a year (more than 20 in 2014) to participate in ECN Advisory Committees and sign the Advisory Committee Opinion document. The implementation of electronic signature in ECN2 would allow the Advisory Committee Opinion document to be signed remotely facilitating Advisory Committee meetings to be hold per videoconference. This would result in minimising delays in the procedure and will reduce travel and accommodation costs. Concrete savings to be estimated.
European Commission, Member States and businesses	<p><u>Efficiency gains derived from automation of exchange processes</u></p> <ul style="list-style-type: none"> eRFI will give respondents to market investigation the ability to delegate and collaborate in answering to the Requests for Information (e.g. involving different actors: legal department, departments, CEO, etc.) that will save companies and citizens valuable time, increasing response rates to European Commission's market investigations. European administrations make extensive use of Requests for Information (RFIs) every year. In 2013, only in DG COMP, 14.394 RFIs were sent out in the context of 86 competition cases. eConfidentiality will make the confidentiality negotiation process (the most time consuming activity in the processes for parties' access to file and publication of final decisions) more resource-efficient and in a shorter delay by significantly speeding up the exchanges and facilitating the number of validation checks, allowing a faster registration, et cetera. eLeniency will make the leniency request process more resource-efficient and in a shorter delay, by reducing administrative tasks and streamlining the process for external businesses. Taking into account that currently one Case Assistant handles almost 200 oral corporate statements each year, the automation of this process will significantly reduce the time needed for the administration to complete corporate statements and help decreasing the overall case duration freeing resources of the European Commission to carry out more Cartel and antitrust investigations.

of a similar system from scratch by a Member State could reach €1.48 million. If we estimate that tailoring eRFI for the Member State could cost 33% of the total amount (€0.49 million), the reusability of the solution for one Member State could mean almost €1 million savings.

⁸⁹ For eLeniency the cost of implementation €370k and estimating that the service will reuse 3 common components.

European Commission and businesses	<p><u>Enhanced security in the manipulation, transmission and storage of sensitive information.</u></p> <p>The European Commission has an obligation of professional secrecy to protect confidential data of the business that it receives in its investigations.</p> <ul style="list-style-type: none"> • By substituting the usage of non-automated means (fax, mail post, etc.) inadvertent document disclosures will be minimised. • The common ABCDE architecture / framework will comprise a common, coherent information security management and technical implementation for all ABCDE common services. This will significantly improve the security of data exchanges in this domain.
European Commission, Member States, businesses and citizens	<p><u>More transparency toward EU citizens</u></p> <ul style="list-style-type: none"> • Consumers and companies in the EU will benefit from having more accessible and easily comparable information on support granted by national authorities to beneficiaries of State aid, thus increasing the awareness of the business and Member States on aid measures. • Improving collaboration between the European Commission and EU28 National Courts will allow a better overview of sectorial trends/focus on infringements cases at national level and increase transparency across the EU on competition cases both for business and for the administration.

7.3.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
<p><u>Competition Policy in the European Union:</u> the European Commission, together with the National Competition Authorities, directly enforces EU Antitrust and Cartels rules (Art. 101-106 TFEU), to make EU markets work better, by ensuring that all companies compete equally and fairly on their merits. This benefits consumers, businesses and the European economy as a whole.</p> <p>EU competition policy is a key enabler to several priority policies defined in the European Commission agenda:</p> <ul style="list-style-type: none"> • Jobs, Growth, Investment and Competitiveness, • Digital Single Market, • Energy Union. 	<p>The outcome of ISA² Action ABCDE will make data exchanges in Case Management faster, more effective and cost-efficient for both the main users of interoperable solutions (European Commission services and Member States' administrations) and the addressed stakeholders (other Member States' administrations, business and citizens).</p> <p>→ Package I) Operation and improvement of existing common services</p> <p>→ Package II) Development and operation of new ABCDE common services</p> <p>→ Package III) Establishment of a common ABCDE architecture / framework</p>
<p><u>State Aid Modernisation:</u> The European Commission has completed by 2014 an in-depth</p>	<p>The common services developed under ISA 1.11 GENIS aim at offering the features and capabilities</p>

<p>reform of State aid control. It included the amendment of the Procedural Regulation, an amendment of the Enabling Regulation, a new <i>de minimis</i> Regulation, the new General Block Exemption Regulation, and the revision of sectorial guidelines. At the heart of State Aid Modernisation is a substantial shift of responsibility from the European Commission to the Member States for the control and implementation of State aid rules serving the Europa 2020 objectives. In return, the European Commission has introduced new transparency and ex-post evaluations requirements. The new legislation package also enables the use of sector inquiries and market investigations in State aid control, and streamlines the treatment of complaints. Finally, in order to achieve a coherent interpretation and implementation of the new legislation package across the EU, steady collaboration between the European Commission and the Member States will be set up.</p>	<p>necessary to support the State Aid Modernisation.</p> <p>The State aid common services are:</p> <ul style="list-style-type: none"> • SANI2, • SARI incl. scoreboard reporting, • Transparency Data Collection, • Recovery Calculator, • State Aid Collaborative Platform, • State Aid Portal. <p>These common services are used by the European Commission (DGs COMP, AGRI and MARE) and the Member States administrations.</p> <p>→ Package I) Operation and improvement of existing common services</p> <p>→ Package II) Development and operation of new ABCDE common services</p> <p>→ Package III) Establishment of a common ABCDE architecture / framework</p>
<p><u>European Competition Network (ECN):</u> the European Competition Network consists of the 28 competition authorities within the European Union and DG Competition. ECN jointly carries out the enforcement of European Antitrust/Cartels rules (Council Regulation 1/2003) and Merger rules (Regulation 139/2004).</p>	<p>ECN2, a common service developed under ISA Action 2.9, supports the exchange and sharing of case data and case documents between the European Commission and the Member States in a secured way, supporting the implementation of EU Antitrust law:</p> <ul style="list-style-type: none"> • European Competition Network (the Member States' National Competition Authorities plus the European Commission), • Application of Antitrust/Cartel law by National Courts, • Directive 2014/104/EU on antitrust damages actions.
<p><u>Application of Antitrust/Cartel law by National Courts:</u> the European Commission is committed to assisting National Courts pursuant Articles 101 and 102 TFEU in order to ensure the coherent application of those provisions throughout the EU. This builds on the mutual duty of loyal cooperation provided for by Article 4(3) Treaty on European Union (TEU).</p>	<p>→ Package I) Operation and improvement of existing common services</p> <p>→ Package III) Establishment of a common ABCDE architecture / framework</p>
<p><u>Directive 2014/104/EU on antitrust damages actions:</u> the Directive removes practical obstacles to compensation for victims of infringements of EU antitrust law. The Directive applies to all damages actions, whether individual or collective, which are available in the Member States.</p>	
<p><u>Request for Information/RFI, market</u></p>	<p>RFI has been a key investigative technique in</p>

<p><u>Investigations and sector inquiries:</u> in the context of Merger, Antitrust and State aid rules the European Commission may request information from the business and Member States whether it concerns undertakings or affected sectors of the economy. In 2013, only in DG COMP, 14.394 RFIs were sent out in the context of 86 competition law cases. In addition, among others, the following sectors have been subject to specific sector inquiries by the EC:</p> <ul style="list-style-type: none"> • E-commerce, • Pharmaceuticals, • Financial Services, • Energy, • Telecommunications, • Roaming, • Media. 	<p>merger and antitrust cases and is currently also part of the State aid investigations tools. Collected information is typically registered in the case file (becomes part of the investigation dossier) and plays a vital role in the decision making process of the European Commission (the regulator). RFIs are extensively used in Antitrust and Merger cases, have recurrently extremely tight deadlines (especially in merger cases) and face a steady increase of the volume of data and information received from respondents. A common service supporting this key process is of paramount importance for the enforcement of competition law in the EU. By 2020, eRFI shall replace the ageing eQuestionnaire (in production since 2009).</p> <p>→ Package I) Operation and improvement of existing common services</p> <p>→ Package II) Development and operation of new ABCDE common services</p> <p>→ Package III) Establishment of a common ABCDE architecture / framework</p>
<p><u>Negotiation of confidentiality claims:</u> the protection of confidential information as well as by the obligation of professional secrecy, which obliges the European Commission not to disclose information in its possession covered by the obligation of professional secrecy pursuant to Article 28 of Reg. 1/2003 and Art. 339 TFEU.</p>	<p>Negotiating confidentiality claims with investigated undertakings (businesses) generates substantial workload for case teams and should be dealt with as early as possible. These claims must be settled before the Statement of Objections is notified and access to file granted. eConfidentiality will support confidentiality negotiations of case files with the investigated undertakings.</p> <p>→ Package II) Development and operation of new ABCDE common services</p> <p>→ Package III) Establishment of a common ABCDE architecture / framework</p>
<p><u>Leniency Policy:</u> the leniency policy offers companies involved in a cartel - which self-report and hand over evidence - either total immunity from fines or a reduction of fines which the European Commission would have otherwise imposed on them. It also benefits the Commission, allowing it to lift the cloak of secrecy in which cartels operate and to obtain insider evidence of the cartel infringement.</p>	<p>The implementation the eLeniency common service will fulfil the protection and confidentiality needs of the external parties (businesses) and significantly reduce the use of resources of the European administrations implementing leniency programmes, and bring administrative savings in the Cartels investigations.</p> <p>→ Package II) Development and operation of new ABCDE common services</p> <p>→ Package III) Establishment of a common</p>

	ABCDE architecture / framework
<p><u>ISA Action 2.9 - Document Repository Services (DRS) for EU policy support:</u> DRS offers document management features as a service, with a strong focus on interoperability.</p>	<p>ECN2 is a common service developed under ISA 2.9 that uses Document Repository Services (DRS) as building block in order to implement document management capabilities. In the context of ABCDE actions, the usage of DRS as building block will be extended to any common service with document management requirements.</p> <p>→ Package I) Operation and improvement of existing common services</p> <p>→ Package III) Establishment of a common ABCDE architecture / framework</p>

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

ISA² Action ABCDE will establish a common component-based architectural approach for all the common services developed and operated under this action. This approach will be aligned with the European Interoperability Reference Architecture (EIRA) and be fully oriented to the re-usability and interoperability of building blocks. This strategy will be implemented by **Package III) Establishment of a common ABCDE architecture / framework** and will include the identification, re-use and integration of existing solutions in order to implement common business requirements. Some solutions developed by other initiatives that are already used by ABCDE common services:

European Commission Authentication Service (ECAS) is the common authentication service for web applications developed by DG DIGIT offering single sign-on between applications. ECAS will be the building block for authentication for all ABCDE common services (currently used in SANI2, COMP eTrustEx and ECN2).

Document Repository Services (DRS) is a set of reusable document management services developed by DG DIGIT.B2 under ISA Action 2.9. The maintenance and operation of DRS will be financed by ABCDE action and the budget sub-delegated to DG DIGIT.B2 who will be responsible for operating and evolving the component (see budget item Operation III.1 in the Section 1.1.12. Costs and Milestones). DRS will be analysed as potential building block for document repository for all ABCDE common services implementing such features. DRS is currently used in ECN2.

e-TrustEx platform is a platform for secure information exchange developed by DG DIGIT under ISA Action 1.8 which plays the role of interoperable mediator between the back-offices of exchange parties. eTrustEx will be analysed as potential building block for secure transmission and end-to-end encryption for ABCDE common services. This solution is already used in COMP eTrustEx and could be also adopted for new common services with this type of requirements.

Reference Data Deployment Agent (REDDA) is a reusable component being developed under ISA 1.1 supporting reference data governance, management and deployment. REDDA will be analysed as

potential the building block for reference data management and deployment for all ABCDE common services.

Apart from these components, ABCDE will operate, improve and re-use the building blocks developed under ISA Action 1.11 GENIS: **Multilingual**, **eForms**, **User Management** and Audit Trail, and under ISA Action 2.9 DRS COPM Pilot: **Messaging** and **Alerts & Subscriptions**.

7.3.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	State aid common services developed under ISA Action 1.11 – GENIS: <ul style="list-style-type: none"> • SANI2 • SARI (originally developed under IDABC) • Transparency Data Collection • Recovery Calculator • State aid collaborative platform
Description	These common services are used by the European Commission (DGs COMP, AGRI, and MARE) and the Member States' administrations to jointly implement State aid rules (Articles 107-109 TFEU).
Reference	https://webgate.ec.europa.eu/competition/sani2 https://webgate.ec.europa.eu/competition/sani/sari
Target release date / Status	<ul style="list-style-type: none"> • SANI2 and SARI incl. Scoreboard are in production. • Transparency Data Collection is under development. Production date (deadline fixed by the Legislation): 1 July 2016. • Recovery Calculator, State Aid Collaborative Platform are under development. Estimated production: Q4 2015.

Output name	ECN2: common service developed under ISA Action 2.9 – DRS (ECN2 Pilot).
Description	<p>ECN2⁹⁰ is used by the European Competition Network (European Commission and the National Competition Authorities) to jointly implement Antitrust/Cartels rules (Articles 101-102 TFEU): inform each other about the status of Antitrust cases, share related documents, prepare inspections.</p> <p>ECN2 is also used by the EU Merger Working Group as an efficient and secure means to exchange documents in Merger cases.</p> <p>ECN2 is also used as secure document sharing platform between European Commission and Member States' administrations to support the application of Antitrust/Cartel law by National Courts as well as the Directive 2014/104/EU on antitrust damages actions.</p>
Reference	URL will be made public in when ECN2 enters in production.
Target release date / Status	ECN2 target date for release in production is Q1 2016.

⁹⁰ ECN2 will replace in Q1 2016 the ageing systems ECN-I and ECN-ET currently (August 2015) used by the European Commission and Member States' National Competition Authorities.

Output name	New ABCDE common services with a potential of re-use by Member States administrations: <ul style="list-style-type: none"> • eRFI • eLeniency
Description	<ul style="list-style-type: none"> • Requests for information (incl. market investigations and sector enquiries) is a process equally applied by the European Commission and the National Competition Authorities in Competition law enforcement. Therefore there is a high potential of re-use of the eRFI common service. National Competition Authorities have expressed their intention to reuse the eRFI solution if such is developed under ISA², or launch their own development otherwise. • Immunity/leniency programmes are effective weapons in the fight against Cartels. They are implemented at European and National level. Therefore there is a high potential of re-use of the eLeniency common service.
Reference	URLs will be made public when common services enter in production.
Target release date / Status	<ul style="list-style-type: none"> • eRFI target date for production is Q1 2020. • eLeniency target date for production is Q1 2019.

Output name	Building Blocks developed under ISA Action 1.11 – GENIS: <ul style="list-style-type: none"> • Multilingual • eForms • User Management • Audit Trail
Description	<ul style="list-style-type: none"> • Multilingual: manages sets of translations in all European Commission languages in a central repository and offers these translations to different clients embedded in the user applications. • eForms: generic forms easily defined and maintained. • User Management: supports de-centralised authorisation (user and access rights management), e.g. delegating the management of Member State's users to a local administrator. • Audit Trail: reusable building block to provide audit trail support of the operations carried out in the common services with a harmonised approach. <p>These modules are completely decoupled as generic building blocks and are published for re-use.</p>
Reference	https://joinup.ec.europa.eu/asset/multilingual/home https://joinup.ec.europa.eu/asset/forms/home
Target release date / Status	Already operative in production and re-used by common services.

Output name	Building Blocks developed under ISA Action 2.9 – DRS (ECN2 Pilot). <ul style="list-style-type: none"> • Messaging
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	<ul style="list-style-type: none"> Alerts & Subscriptions
Description	<ul style="list-style-type: none"> Messaging: implements communications between users via messaging operations (send message, reply, archiving and content encryption). Alerts & Subscriptions: implements subscriptions and alert functionalities. Events are stored in a generic database model and a batch process sends alert notifications to users based on their event subscriptions. <p>Both modules will be completely decoupled as generic building blocks and will be published for re-use.</p>
Reference	Publication in JoinUp will follow.
Target release date / Status	Currently in acceptance, re-used by ECN2. Target released date in production is Q1 2016.

7.3.10 ORGANISATIONAL APPROACH

7.3.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Package I) Operation and improvement of existing ABCDE common services	
GENIS State aid exchanges (SANI2, Transparency, State Aid Calculator, SARI, State Aid Collaborative Platform)	
Project Owner (PO)	Gert-Jan Koopman (COMP Deputy DG for State Aids)
Business Manager (BM)	Nicola Pesaresi (HoU COMP.A.3), Koen Van de Castele (HoU COMP.0.3) and Wolfgang Mederer (HoU COMP.H.4).
Solution Provider (SP)	Manuel Pérez Espín (HoU COMP.R.3)
Project Manager (PM)	Raül Romero Valls, Xavier Descamps (COMP.R.3)
DG AGRI User Representatives	Ludmila Hamtcheva, Maria Elisabete Dias Costa, Linas Visomirskis (AGRI.DDG4.I2)
DG MARE User Representatives	Cécile Ducatez (MARE.F.4)
Member States User Representatives	One representative per Member State attending the State Aid Working Group, chaired by COMP.A.3.
ECN2	
Project Owner (PO)	Eddy de Smitjer (HoU COMP.A.4)
Business Manager (BM)	Petra Krenz (COMP.A.4)
Solution Provider (SP)	Manuel Pérez Espín (HoU COMP.R.3)
Project Manager (PM)	Radu Tudose (COMP.R.3)
Member States User Representatives	One representative per Member State attending the European Competition Network Working Group, chaired by COMP.A.4
Other Stakeholders	DIGIT.B.2

COMP eTrustEx	
Project Owner (PO)	Sari Suurnakki (HoU COMP.R.1)
Business Manager (BM)	Vincent Maes (COMP.R.1)
Solution Provider (SP)	Manuel Pérez Espín (HoU COMP.R.3)
Project Manager (PM)	Radu Tudose (COMP.R.3)
Other Stakeholders	DIGIT.B.2, DIGIT.B.4
eQuestionnaire	
Project Owner (PO)	Julia Brockhoff (HoU COMP.A.2)
Business Manager (BM)	Christos Tsoumanis (COMP.A.2)
Solution Provider (SP)	Manuel Perez Espín (HoU COMP.R.3)
Project Manager (PM)	Attila Borguet (COMP.R.3)
Package II) Development and operation of new ABCDE common services	
eLeniency	
Project Owner (PO)	Eric Van Ginderachter (Director COMP.G)
Business Manager (BM)	Kevin Coates (COMP.G.1)
Solution Provider (SP)	Manuel Pérez Espín (HoU COMP.R.3)
Project Manager (PM)	Attila Borguet (COMP.R.3)
eConfidentiality	
Project Owner (PO)	Sari Suurnakki (HoU COMP.R.1)
Business Manager (BM)	Vincent Maes (COMP.R.1)
Solution Provider (SP)	Manuel Pérez Espín (HoU COMP.R.3)
Project Manager (PM)	Radu Tudose (COMP.R.3)
eRFI	
Project Owner (PO)	Julia Brockhoff (HoU COMP.A.2)
Business Manager (BM)	Christos Tsoumanis (COMP.A.2)
Solution Provider (SP)	Manuel Pérez Espín (HoU COMP.R.3)
Project Manager (PM)	Olivier Mungo (COMP.R.3)
Member States User Representatives	Representatives from the State Aid Working Group for exchanges in the context of State Aid, and representatives from the European Competition Network Working Group for exchanges in the context of Antitrust.
Package III) Establishment of a common ABCDE architecture / framework	
ABCDE common architecture / framework, building blocks	
Project Owner (PO)	Manuel Pérez Espín (HoU COMP.R.3)
Business Manager (BM)	Javier Vázquez Fernandez (COMP.R.3)
Solution Provider (SP)	Manuel Pérez Espín (HoU COMP.R.3)
Project Manager (PM)	Raül Romero Valls (COMP.R.3)
Other Stakeholders	DIGIT.B.1, DIGIT.B.6

7.3.10.2 Communication plan

Services under the ISA² Action ABCDE will implement the communication management process following the PM2 methodology and will participate to the different ISA² communication channels, working groups and events as appropriate. Some of the meetings taking place will be:

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- **Project follow-up and review meetings.** Chaired by the Project Manager and attended by the Business Manager and the Project Core Team, the project follow-up and review meetings aim to discuss the project progress, the identification of new risks and issues, the status of current and future deliverable and/or the testing progress among others. Depending of the project size they will be held on a monthly basis. The Project Progress Report shall support the meeting. Minutes of the meeting will be distributed by e-mail.
 - **Project Steering Committee meetings.** Chaired by the Project Owner, and attended by the Business Manager, Solution Provider and Project Manager, the project steering committee meetings aim at discussing key points meriting management attention (e.g. problems encountered and actions taken, evaluation of the project status with respect to the scope, plan and budget). Depending of the project size they will be held every three or six months. The Steering Committee Progress Report shall support the meeting. Minutes of the meeting will be distributed by e-mail.
 - **DIT⁹¹ meetings.** Chaired by a business Director and attended by project owners, business managers, IT and document management specialists. The DIT operates as DG COMP's IT Steering Committee and assures that the investments in IT are aligned with business needs and generate business value. The DIT coordinates the overall execution of the IT strategy and set priorities where necessary. DIT meetings are held monthly. Minutes of the meetings are distributed by e-mail.
 - **Working groups and participatory meetings with Member States representatives.** For the common services used by the Member States' administrations, the European Commission will hold several meetings per year in order to ensure the alignment of the common services with Member States' needs. IT trainings and Questions & Answers sessions will be organised in this context. Some samples of these meetings are the ECN Plenary meeting, EU Merger Working Group or the Transparency Steering Group. Appropriate channels of communication will be established with those Member State administrations interested in the reuse of common services.
 - **ABCDE - CMR Coordination meetings** will bring together representatives from the ABCDE action and Case Management Rationalisation (CMR) project, with the participation of DIGIT.B1 (Architecture Office). The purpose of these meetings will be to ensure architecture alignment and coherent SOA/interoperability approach between the two projects. The coordination meetings will be held quarterly. Minutes of the meeting will be distributed by e-mail.

⁹¹ DIT stands for Document handling and IT systems Group.

- **ABCDE - ISA² Coordination meetings** will bring together representatives from the ABCDE common architecture framework and ABCDE common services, with the participation of DIGIT.B6 (ISA Unit). The purpose of these meetings will be to ensure the alignment of the common ABCDE architecture framework with the European Interoperability Reference Architecture (EIRA). The meetings will be held quarterly. Minutes of the meeting will be distributed by e-mail.

7.3.10.3 Governance approach

The governance of ISA² Action ABCDE will have two dimensions: global governance of the action as a whole and governance of each common service under the umbrella of ABCDE. The governance model will be aligned with the European Commission IT governance and will follow recommended standards and methodologies.

The ABCDE global governance will follow the ISA² governance structures and reporting to ensure ISA² alignment of the project. The ABCDE action will also be steered and monitored by the DIT (see section X.1.10.2), to ensure its business alignment.

The architecture alignment of ABCDE with the Case Management Rationalisation project (CMR) and the European Interoperability Reference Architecture (EIRA) will be ensured by the ABCDE common architecture/framework sub-project.

Each ABCDE common service will implement a governance model based on PM2 methodology. The roles and responsibilities of the Project Owner and the Business Manager will be defined and each project will be steered by its Project Steering Committee (see table under section X.1.10.1). Each Project Steering Committees will bring together the different project stakeholders, and it will guide, promote, monitor and evaluate the successful execution of the project. The individual Project Steering Committees will report to the DIT.

7.3.11 TECHNICAL APPROACH

Package I) Operation and improvement of existing ABCDE common services.

The common services under Package I will be in operation phase throughout the duration of ISA² programme. The operation phases will comprise the improvements of these common services. The improvements will have two lines:

- improvements derived from new business request and legislation changes,
- step-wise alignment with the ABCDE common architecture / framework.

Package II) Development and operation of new ABCDE common services.

The common services under Package II will be implemented following PM2 and RUP@EC or Agile@EC methodologies⁹². The inception and execution phases of the different sub-projects will go

⁹² PM2 is the project management/lifecycle methodology of the European Commission.

RUP@EC and Agile@EC are software development methodologies of the European Commission.

hand-in-hand with the implementation of the common ABCDE architecture. The execution phases will benefit from the common architecture by re-using common artefacts and technologies. In order to make the execution phases more efficient, the inception phases of new common services could cover not only the definition of the Business Case and the Project Charter, but also the specification of the System Business Requirements and/or the implementation of an architectural Proof of Concept (PoC) if required..

Package III) Establishment of a common ABCDE architecture / framework.

The implementation of the common ABCDE architecture will take input from architectural analysis of the common services under Package I, and from the architectural analysis carried out during inception phases of the common services under Package II. Defining a common architecture in one unique analysis will avoid the repeated efforts and costs derived from each common service carrying out their own analysis about the appropriate re-usability of components, will provide a common guideline to implement interoperability and provide sustainability for all ABCDE common services. The ABCDE common architecture will also centrally manage the maintenance and evolution of the different common building blocks re-used by the services (User Management, Reference Data, Multilingual, Audit Trail, etc.).

Services – Management, coordination, QA, testing, support and hosting

In order to gain efficiency and save costs, several non-development activities will be centralised in a horizontal cell (see S.2) supporting all the ABCDE common services. This cell will cover the implementation of quality assurance and quality control independently from the development teams, will provide 2nd level user support to administrations and business and will support all development teams for configuration and deployment management.

Following the same approach, PMO activities will also be centralised in an horizontal cell (see S.1) in order to give support to the different project managers, enforce coordination and harmonization among all the ABCDE common services, establish common standards on project management and software development methodologies aligned with PM2, RUP@EC and Agile@EC, draft qualitative reporting for the central governance and ISA² bodies, and ensure communication with the ISA² Working Group.

7.3.12 COSTS AND MILESTONES

7.3.12.1 Breakdown of anticipated costs and related milestones

Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipa ted Allocati ons (KEUR)	Budget line ISA ² / others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Package I - Operation and improvement of existing ABCDE common services					
Operation I.1	GENIS (State aid common services)	3040	ISA ²	Q2/2016	Q4/2020
Operation I.2	ECN2	1475	ISA ²	Q2/2016	Q4/2020
Operation I.3	COMP eTrustEx	550	ISA ²	Q2/2016	Q4/2020

Operation I.4	eQuestionnaire	400	ISA ²	Q2/2016	Q3/2020
Package II – Development and operation of new ABCDE common services					
Inception II .1	eRFI	160	ISA ²	Q2/2016	Q1/2017
Execution II.1	eRFI	600	ISA ²	Q1/2017	Q4/2018
Closing II.1	eRFI	130	ISA ²	Q1/2019	Q2/2019
Operation II.1	eRFI	390	ISA ²	Q3/2019	Q4/2020
Inception II .2	eLeniency	70	ISA ²	Q2/2016	Q3/2016
Execution II.2	eLeniency	250	ISA ²	Q4/2016	Q2/2018
Closing II.2	eLeniency	50	ISA ²	Q3/2018	Q4/2018
Operation II.2	eLeniency	100	ISA ²	Q1/2019	Q4/2020
Inception II .3	eConfidentiality	170	ISA ²	Q2/2016	Q1/2017
Execution II.3	eConfidentiality.	300	ISA ²	Q2/2017	Q3/2018
Closing II.3	eConfidentiality	100	ISA ²	Q3/2018	Q4/2018
Operation II.3	eConfidentiality.	200	ISA ²	Q1/2019	Q4/2020
Package III – Establishment of a common ABCDE architecture / framework					
Inception III	ABCDE architecture	105	ISA ²	Q2/2016	Q4/2016
Execution III	ABCDE architecture	350	ISA ²	Q4/2016	Q2/2018
Closing III	ABCDE architecture	60	ISA ²	Q3/2018	Q4/2018
Operation III	ABCDE architecture	1985	ISA ²	Q2/2016	Q4/2020
Operation III.1	DRS operation	600	ISA ²	Q2/2016	Q4/2020
Services – Management, coordination, QA, testing, support and hosting for ISA ² Action ABCDE					
Operation S.1	Overall project management and support, PMO, ISA ² reporting, communication	990	ISA ²	Q2/2016	Q4/2020
Operation S.2	User support, QA, testing pool, etc.	1630	ISA ²	Q2/2016	Q4/2020
Operation S.3	Hosting DIGIT Data Center	1000	ISA ²	Q2/2016	Q4/2020
	TOTAL	14705	ISA ²		

7.3.12.2 Breakdown of ISA² funding per budget year

Budget year	Anticipated allocations (in KEUR)
2016	2335
2017	3350
2018	3320
2019	2920
2020	2780

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Operation I.1	480	
2016	Operation I.2	255	
2016	Operation I.3	100	
2016	Operation I.4	180	
2016	Inception II.1	100	
2016	Inception II.2	70	
2016	Execution II.2	50	
2016	Inception II.3	120	
2016	Inception III	105	
2016	Execution III	80	
2016	Operation III	225	
2016	Operation III.1	120	
2016	Operation S.1	110	
2016	Operation S.2	240	
2016	Operation S.3	200	
2017	Operation I.1	640	
2017	Operation I.2	340	
2017	Operation I.3	150	
2017	Operation I.4	80	
2017	Inception II.1	60	
2017	Execution II.2	200	
2017	Inception II.3	50	
2017	Execution II.3	200	
2017	Execution III	220	
2017	Operation III	440	
2017	Operation III.1	120	
2017	Operation S.1	220	
2017	Operation S.2	280	
2017	Operation S.3	200	
2018	Operation I.1	640	
2018	Operation I.2	340	
2018	Operation I.3	100	
2018	Operation I.4	80	
2018	Execution II.1	400	
2018	Execution II.2	50	
2018	Closing II.2	50	
2018	Execution II.3	100	
2018	Closing II.3	100	
2018	Execution III	50	

2018	Closing III	60	
2018	Operation III	440	
2018	Operation III.1	120	
2018	Operation S.1	220	
2018	Operation S.2	370	
2018	Operation S.3	200	
2019	Operation I.1	640	
2019	Operation I.2	340	
2019	Operation I.3	100	
2019	Operation I.4	80	
2019	Closing II.1	130	
2019	Operation II.1	130	
2019	Operation II.2	50	
2019	Operation II.3	100	
2019	Operation III	440	
2019	Operation III.1	120	
2019	Operation S.1	220	
2019	Operation S.2	370	
2019	Operation S.3	200	
2020	Operation I.1	640	
2020	Operation I.2	200	
2020	Operation I.3	100	
2020	Operation I.4	80	
2020	Closing II.1	50	
2020	Operation II.1	260	
2020	Operation II.2	50	
2020	Operation II.3	100	
2020	Operation III	440	
2020	Operation III.1	120	
2020	Operation S.1	220	
2020	Operation S.2	370	
2020	Operation S.3	200	
	TOTAL	14705	

7.3.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
Please refer to ISA Actions having a follow-on by ISA ² Action ABCDE: <ul style="list-style-type: none"> ISA 1.11 GENIS ISA 1.8 eTrustEx (COMP Pilot) 	ISA Work Program 2015	

• ISA 2.9 Document Repository Services (COMP Pilot)		
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8. SUPPORTING INSTRUMENTS FOR PUBLIC ADMINISTRATIONS

8.1 EUROPEAN INTEROPERABILITY ARCHITECTURE (EIA) (2016.32)

8.1.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common frameworks
Service in charge	DG DIGIT.B6
Associated Services	DG JRC, DG CONNECT, DG TAXUD, DG SANCO

8.1.2 EXECUTIVE SUMMARY

Coordination between EU and Member States' public administrations is highly important to avoid digital barriers between administrators, businesses and citizens and increase public administration efficiency.

EIRA (European Interoperability Reference Architecture) plays a crucial in the realisation of such coordination as it provides **a reference model** that describes in a common way digital European public services, making it possible for you to search, share and reuse digital solutions.

EIRA provides a **common terminology** that architects, portfolio managers, and business analysts can use when performing the following tasks:

1. **Design interoperable E-government solutions**
2. **Assess solutions in different areas and identify focal points for convergence and reuse**
3. **Document and Share prominent interoperability solutions**
4. **Discover and reuse solutions through the European Interoperability Cartography:**

Developed through an open and inclusive change management process, the EIRA applies the principles of Service-Oriented Architecture (SOA) as an architectural style..

Under public consultation until September 2015, EIRA version 1.0 is expected to be released in December 2015.

In 2016, the focus will be to enrich EIRA with interoperability specifications, extend it with Solution Architecture Templates (detailed EIRA implementation for some widely used building blocks such as eID, eDelivery, etc.) and promote its use in the Member States and the Commission, including by the implementation of pilot applications in Poland and other Member States.

8.1.3 OBJECTIVES

The objective of this action is to establish, operate, maintain, improve, apply and promote a European Interoperability Reference Architecture (EIRA) for European Public services.

8.1.4 SCOPE

Any possible digital public service is in scope, as far as it concerns its representation of the EIRA action. This includes also Trans European Systems (TES) developed by the Commission and/or the Member States.

More particularly the following activities fall under the action in question:

- Ensure that a mature version of EIRA is well documented, linked with pertinent ISA/ ISA² and other EU programme solutions (European Interoperability Catalogue, Joinup, Trans-European Systems, European Catalogue of Standards, etc.) and well communicated to its potential users;
- Support the use of EIRA, through pilots and an ad-hoc helpdesk, as an enterprise architecture paradigm for systems such as the TES, solutions developed by other Commission initiatives such as eSENS and CEF and other key digital solutions in the MS public sector;
- Improve the EIRA through planned enrichments (i.e. definition of specific interoperability specifications and methodology of applying them on the described solutions) and through feedback received from its application to tangible solutions;
- Ensure alignment between EIRA and other Reference Architectures applied in administrations throughout EU.

8.1.5 PROBLEM STATEMENT

The problem of	<p>lacking a coherent approach at EU level for elements such as:</p> <ul style="list-style-type: none"> • architectural guidelines for cross-border interoperability building blocks; • concrete and reusable, use-case-based interoperability guidelines, rules and principles on standards, architecture, and specifications on how to develop information exchange between ICT systems; • concrete implementation guidelines
affects	Member States and Commission responsible services (architects, portfolio managers, ICT decision makers, etc.) in their endeavour to put in place interoperable digital services
the impact of which is	duplication of effort in the development of solutions at EU and national level due to difficulties in identifying reusable elements and interfacing with existing solutions in an interoperable manner. This in turn results in higher cost and longer development time with no guarantee of openness and interoperability
a successful solution would be	the definition, application and promotion of an European Interoperability Reference Architecture (EIRA) that will provide a generic and unique way of representing any digital public service.

8.1.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States' Public Administrations	Improved efficiency, cost reduction, performance and increased interoperability and cooperation in establishing European Public Services
European Commission Services	Improved efficiency, cost reduction, performance and increased interoperability and cooperation in establishing European Public Services

8.1.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	The revision of the EIS/EIF is part of the DSM and EIRA is a strategic instrument for their implementation. EIRA should also be used by solutions supporting the DSM in different domains.
Communication "Towards interoperability for European public services"	The EIRA will be used as an extension to the Communication under revision.
ISA ² Decision (COM(2014) 367)	The decision ordains the establishment and maintenance and improvement of the EIRA in Article 3/e.
ISA Action 2.14 – Assessment of Trans-European networks supporting EU policies	The action will provide input for the EU cartography developed by the ISA Action 2.14, by identifying reusable solutions to map into the cartography (i.e. conceptual reference architecture) and by providing information collected on these solutions in order to feed the solution fiche of the EIA.
ISA Action 4.2.6 Test-Bed	This action could play an important role testing interoperability conformance to the interoperability specifications provided by the EIRA.
Other ISA actions	Given the broad nature of EIRA, links with other actions such as Semantics (SEMIC), IMM, Base Registries, Catalogue of Services, etc. will be established.

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

The EIRA is an ISA/ ISA² instrument of transversal nature and is linked with many ISA/ ISA² actions, more specifically with:

- The European Interoperability Catalogue (EIC) that will use EIRA to describe all solutions included in its repository;
- The Interoperability Maturity Model (IMM) that will be kept aligned with the EIRA as far as the description of a public service is concerned and will be used for the definition of interoperability specifications;

The EIRA should also be used for the description of the CEF (and potentially the eSENS) Digital Service Infrastructures (DSI). Pilots will be organised for this purpose, notably the definition of Solution Architecture Templates (SAT) that will further deepen the EIRA in their respective domains i.e. eID, eDelivery, etc.

8.1.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Solution Architecture Templates for generic needs (e.g. eID, eDelivery and data management)
Description	sub-set of the building blocks of the EIRA, which focuses on the most salient building blocks needed to build an interoperable solution addressing a particular interoperability need.
Reference	
Target release date / Status	2016

Output name	Query CarTool and Cartography services
Description	<ul style="list-style-type: none"> Set of functional requirements documented in JIRA for the implementation of the EU cartography, national cartographies and the European Interoperability Cartography in Joinup and A tool developed from the proof-of-concept CarTool to support queries to cartographies
Reference	https://webgate.ec.europa.eu/CITnet/jira/secure/Dashboard.jspa https://eia-project.eu/qlikview/
Target release date / Status	Q1 2016

8.1.10 ORGANISATIONAL APPROACH

8.1.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States	The ISA ² Committee/Coordination/working Groups
European Commission Services	IT Governance of the Commission and a representative from each concerned Commission service
ICT Industry	Representatives of ICT industry, SMEs, ...
Standardisation bodies	Representatives of ICT industry, SMEs, ...
Local and regional public administrations	Representatives from standardisation organisation for a and consortia

8.1.10.2 Communication plan

Event	Representatives	Frequency of meetings / absolute dates of meetings?
ISA ² Committee/Coordination/work group meetings	Member States representatives	At least yearly.
EIRA web page conferences	DIGIT	As needed
Monitoring & Evaluation updates	DIGIT	Monthly

8.1.10.3 Governance approach

The action will be managed by DIGIT with the support of an external contractor and in close collaboration with the relevant ISA² working group and with the concerned Commission services.

8.1.11 TECHNICAL APPROACH

In 2013 the EIRA described a common architectural view based on a service-oriented reference architecture to cover cross-border cross-sectorial interoperability needs at European level. This first beta version of the European Interoperability Reference Architecture (EIRA) was delivered along with the European Union Cartography (EUCart) which was the result of mapping existing Trans-European Solutions (TES) contained in the Commission's systems portfolio onto the EIRA. The mapping exercise was implemented in a proof-of-concept, the Cartography Tool (CarTool).

On the 12th of June 2014, the ISA coordination group endorsed the current versions of the EIRA and CarTool stating that they are mature enough to go to public consultation and to be used in pilots. In 2015 the EIRA action has produced a final beta version of the EIRA and validated it in pilots with some Members States and Commission DGs.

On the 2nd of June 2015 the results were presented to the ISA Coordination Group obtaining endorsement for i) a public consultation and, after implementing potential updates, ii) the release of version 1.0 by December 2015.

Next steps include:

- Pilots with the Members States (Poland, Spain and Czech Republic [have so far expressed an interest](#)) and the Commission promoting the use of EIRA. Each pilot experience has the following profile/activities:
 - Limited duration (2-4 days) including a local workshop
 - Planning the pilot experience

- Identifying one or several use cases of EIRA of interest to the stakeholder
 - Identify the success criteria with stakeholders
 - Identify deliverables including advice for EIRA re-use
 - Remote support before and after the local workshop for not more than 6 days
 - Overall allocated time for one pilot is 30 working days
- The creation of Solution Architecture Templates for generic needs like eID, eDelivery and data management through pilots – the pertinent CEF DSI will be considered in the frame of this activity;
 - The definition of precise interoperability specifications to facilitate solutions' mapping to EIRA building blocks and of an overall methodology of applying those specifications on mapped solutions;
 - Improvements to the EIRA and definition/follow-up of a change management process for the governance of new releases of EIRA;

8.1.12 COSTS AND MILESTONES

8.1.12.1 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)
	<ul style="list-style-type: none"> • EIRA pilots in the Member States and the Commission DGs • EIRA pilots on Solution Architecture Templates • Definition of interoperability specifications and of the accompanied methodology of applying them • Enhancements to the EIRA 	300	ISA ²	Q2/2016	Q1/2017
	Total	300			

8.1.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016		300	

8.1.12.3 Planning for the tendering procedures to be launched for the action

None. The action will be financed by an existing Commission's Framework Contract.

8.1.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
Current release of EIRA	https://joinup.ec.europa.eu/asset/eia/description	

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

8.3 NATIONAL INTEROPERABILITY FRAMEWORK OBSERVATORY (2016.21)

8.3.1 IDENTIFICATION OF THE ACTION

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

8.3.2 EXECUTIVE SUMMARY

The National Interoperability Framework Observatory (NIFO) monitors interoperability activities in Member States and associated countries. It analyses the National Interoperability Frameworks (NIFs) in the countries covered, based on a comparative model (called Analytical model – AM) and measures their alignment with the European Interoperability Framework (EIF).

NIFO exchanges and promotes good practices and interoperability solutions among member States as well as the re-use of infrastructures, digital services and software solutions. It collects public administration's interoperability requirements that are then translated into specifications and standards for digital services.

The aim is to share good practices and to serve as a source of inspiration towards the establishment and further development of the NIFs aligned with the EIF.

NIFO aims at providing guarantees on implementation and monitoring and acts as a reference point for the modernisation of public sector in EU based on ICT interoperable solutions.

Under the ISA² programme, NIFO will continue the activities started under ISA.

In 2016, the action will revise its approach, guidelines, methodologies and other instruments based on the revised European Interoperability Strategy (EIS) and the European Interoperability Framework (EIF) and will continue monitoring the status of interoperability in the Europe.

8.3.3 OBJECTIVES

As countries across the European Union (EU) strive to combat the economic crisis, the need for cooperation and collaboration between them is ever increasing. In the world of eGovernment, this collaboration comes in the form of cross-border and cross-sector interoperability. All of the EU Member States are working hard in this area and the NIFO has been set up by the EU Commission as a means to support collaboration between EU public administrations. In this respect, the NIFO aims to:

- Maintain a landscape of interoperability activities in the Member States;
- Contribute to the revision of the EIS/EIF;
- Carry out a comparative analysis of the NIFs in order to gain a structural snapshot of their alignment with the EIF in Europe;

- Analyse the current national interoperability activities in MS and feed the NIFO factsheets that are then shared with all MS;
- Help EU public administrations to align their NIFs or similar initiatives with the EIF;
- Identify interoperability needs of the public sector;
- Identify new interoperable and reusable solutions that can feed the European Interoperability Cartography (EIC);
- Manage the online space for the NIFO community on the Joinup.eu platform containing information and comparative analysis between different countries as well as best practices and practical examples.

8.3.4 SCOPE

All EU public administrations, EFTA countries and Candidate Countries with whom a Memorandum of Understanding or Agreement regarding their participation in the ISA/ ISA² programme has entered into force, are in scope of the action.

8.3.5 PROBLEM STATEMENT

The problem of	not having the European Interoperability Framework aligned with and implemented in practise by the national administrations in National Interoperability Frameworks or similar approaches
affects	the Members States and the EU bodies as well as the European citizens and businesses benefitting from European public services
the impact of which is	misalignment of interoperability actions within and amongst the MS, diverging approaches in the delivery of public services, possible duplication of effort, risk that interoperability is not seriously considered. All above entail the risk of creating new e-barriers in EU to the detriment of the DSM.
a successful solution would be	to put in place a National Interoperability Framework Observatory (NIFO) that will monitor and support the EIF/NIFs alignment and implementation through a proper mechanism, will collect and make available information about the status of interoperability at EU level and will identify interoperability needs and opportunities.

8.3.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
EU public administrations	The NIFO action will provide guidance and support both for the development of new NIFs and the alignment of current interoperability initiatives to the EIF. NIFO provides a "virtual" place to share best practices and experiences.
National Experts and Policy Officers	NIFO acts as an input to decision-making processes for national developments and MS policy officers.
EU Commission	Policy-makers that require information about the current state interoperability in order to develop European-wide policies.
ICT Industry	Organisations that are involved in the realization of e-Government solutions like service integrators and software vendors.

8.3.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	The DSM roadmap makes a clear reference to the need of updating the European Interoperability Framework (EIF). The NIFO action will be the primer "information feeder" to this initiative. Following revision, the NIFO will remain the action to monitor the implementation of the updated EIF in the MS.
ISA Action 1.1 – Methodologies for the development of semantic assets	As semantic interoperability is one of EIF, consequently NIFs components..
ISA Action 4.1.2 – Interoperability Maturity model	The NIFO action monitors the degree of implementation of the NIFs within the MS. The IMM gives input to such monitoring.
ISA Action 2.1 EIA	The EIRA will be part to the revised EIF and as such falls under the monitoring function of the NIFO.
ISA Action 4.2.1 – Collaborative platform (Joinup.eu)	ISA Action 4.2.1 will develop the missing features and services necessary for the improvement of the NIFO community.

Action / Policy	Description of relation, inputs / outputs
ISA Action 4.2.2 – Community Building and effective use of platforms	Joinup hosts the NIFO community
ISA Action 4.2.5 – Sharing and re-use strategy	The sharing and reuse action identifies best practises in the relevant area and can feed the NIFO.
ISA Action 5.2 – EIS Governance support	NIFO monitors the implementation of EIF which in turn is the implementing instrument of the EIS.

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

The Joinup platform is used to host the community and all NIFO deliverables.

8.3.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	NIFO factsheets
Description	Factsheets presenting the degree of alignment of NIFs or similar instruments/initiatives/approaches in the MS with the EIF
Reference	https://joinup.ec.europa.eu/community/nifo/og_page/nifo-factsheets
Target release date / Status	Yearly update

Output name	EGovernment factsheets
Description	Factsheets presenting the situation in the MS in relation to eGovernment
Reference	https://joinup.ec.europa.eu/community/nifo/og_page/egovernment-factsheets
Target release date / Status	Yearly update

Output name	State of play of interoperability in Europe
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Description	A yearly report that presents the state of play in the area of interoperability at EU, along with main trends, main challenges and best practises.
Reference	http://ec.europa.eu/isa/documents/publications/2014-report-on-state-of-play-of-interoperability.pdf (2014 report)
Target release date / Status	Periodical update

8.3.10 ORGANISATIONAL APPROACH

8.3.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States	<ul style="list-style-type: none"> • National experts and national policy officers • ISA² Committee • ISA² Coordination Group or ISA CG equivalent
European Commission	<ul style="list-style-type: none"> • DG officials and ISA² action owners
EU Publications Office	<ul style="list-style-type: none"> • The unit responsible for the EU Open Data portal
Non-European public administrations	<ul style="list-style-type: none"> • National representatives
ICT Industry	<ul style="list-style-type: none"> • Industry associations

8.3.10.2 Communication plan

Event	Representatives	Frequency of meetings / absolute dates of meetings?
State of play report	All	Annual
Meeting/workshop of the NIFO experts	NIFO experts	Ad-hoc

8.3.10.3 Governance approach

The action will be managed by DIGIT with the support of an external contractor.

8.3.11 TECHNICAL APPROACH

The NIFO is presented in different sections of Joinup. The observatory has a continuous maintenance process which makes sure that information is timely and accurate.

The success of the NIFO action depends mainly on the commitment and support of the public administrations. Desk research is done prior to data collection from the Member States experts. The input is then processed and sent back to the respective country for validation before it is published.

In 2015, 25 countries had a NIF (or similar) in place. Since 2012, it has been observed that NIF to EIF alignment has been increased.

In 2016, the action will continue its regular activities but will have this time an extended scope. It will feed into and contribute to the Impact Assessment process for the revision of the EIS/EIF, foreseen to be completed by mid-2016.

After the revised instrument is in place, 2016 onwards, NIFO will continue monitoring its application in the MS during the lifetime of the ISA² programme. It is possible that the comparative model used for this purpose will have to be updated to reflect the revised EIF.

Although having a NIF is very important step towards achieving interoperability, it is definitely not enough. The Commission will also continue supporting public administrations in the implementation of their NIFs by supporting and facilitating the monitoring of implementation of the NIFs in the EU public administrations.

A prerequisite for the success of this action is the direct involvement of the EU public administrations and therefore the participation of the latter will be done via the online community on Joinup.eu

8.3.12 COSTS AND MILESTONES

8.3.12.1 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)

Operational	<ul style="list-style-type: none"> • Maintenance of the NIFO process including the update of the eGovernment and interoperability factsheets and the analysis of the interoperability state-of-play in Europe; • Support to the MS to develop or align their NIFs with the EIF; • Contribution to the revision of the EIS/EIF. 	920	ISA ²	Q2/2016	Q1/2019
	Total	920			

8.3.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016		450	
2017		250	
2018		220	
2019			
2020			

ANNEX AND REFERENCES

Description	Reference link	Attached document
NIFO Community	https://joinup.ec.europa.eu/community/nifo/description	

8.4 CAMSS - COMMON ASSESSMENT METHOD FOR STANDARDS AND SPECIFICATIONS (2016.27)

8.4.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common frameworks
Service in charge	DIGIT B6
Associated Services	DG CONNECT, DG GROW

8.4.2 EXECUTIVE SUMMARY

Standardisation is key to achieve interoperability and to avoid vendor lock-in when developing digital public services. Several Member States have published lists of recommended or mandatory standards. The Common Assessment Method for Standards and Specifications (CAMSS) was developed under the IDABC and ISA programmes, in order to ensure that public administrations can assess and select in a transparent and trusted manner the most relevant interoperability standards for their needs. It is based on the methods used in Member States, provides neutrality and transparency for the assessment process and enables the reuse of assessments.

The main objectives of the CAMSS action are:

- To ensure that assessments of formal ICT specifications and interoperability profiles are performed to high and consistent standards;
- To ensure that assessments contribute to the interoperability of systems implementing these specifications and profiles;
- To enable the re-use, in whole or in part, of such assessments;
- To continuously improve the efficiency and effectiveness of the assessment process for ICT formal specifications and interoperability profiles.

In 2016, ISA² funding is foreseen for the maintenance and extension of the existing tools and the standards list. For the tools, this includes greater flexibility (user-defined scenarios) and improvements in the user interface (including search functionalities). For the standards list, it concerns both the update of the content and the functionalities; where the latter regards primarily the alignment with other Joinup catalogues (EIC catalogue, European Catalogue of Standards).

8.4.3 OBJECTIVES

The specific purpose of the CAMSS Action under the ISA² work programme is:

- To maintain and extend the method itself, the library of existing assessments, the tools and the list of standards selected in Member States;
- To implement a lightweight but consistent and transparent governance process and to continuously update the method;

- To closely cooperate with and support other standardisation-related commission activities such as the Multi-Stakeholder Platform on European Standardisation and the foreseen European Catalogue of ICT-Standards as well as other relevant organisations, e.g. standardisation bodies;
- To create an active user community around the assessment and adoption as well as the development and maintenance of standards and/or liaise with existing standardisation fora, to raise awareness of the different methods used in Member States, aligning them where possible, and building upon existing knowledge about best practices.

8.4.4 SCOPE

The CAMSS action does not itself select or recommend standards; it is meant to support public administrations in Member States that make such selections. Member States are free to use the method as-is or to build their own methods based on it; and they are encouraged to contribute requests to the development of CAMSS in order to make it suitable to their needs.

Primarily, the CAMSS action will secure the sustainability of the assessment method and the related components. Beyond the assessment and selection of existing standards, methods for the development and maintenance of standards are also within the scope of the CAMSS action.

8.4.5 PROBLEM STATEMENT

Within the context of the elaboration of their National Interoperability Frameworks, Member States need to define interoperability architecture domains and standardised interfaces. The same is true when various Member States want to link up their systems in order to establish cross-border European public services.

Decisions and recommendations concerning formal specifications often call for resource intensive and time consuming assessments. By following a common assessment process and criteria, and by sharing and re-using assessments done in other Member States, the burden of assessment can be made easier.

CAMSS provides guidance on the assessment of ICT standards and specifications and ensures transparency and openness of the process.

8.4.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States' Public Administrations, Standardisation Bodies and ICT Services Industry	<p>A commonly agreed assessment method, assessment process and a list of assessment attributes brings transparency to the selection of standards in the context of ICT strategies, architectures and interoperability frameworks. The re-use and sharing of completed assessments reduces resources and time needed, when establishing, maintaining and commenting on Interoperability Statements.</p> <p>Using CAMSS offers the following main benefits:</p> <ul style="list-style-type: none"> • A clear guideline that allows the assessments of formalised specifications to be made consistently and in high quality by applying neutral, unbiased and transparent criteria. • Helps Member States to make interoperability agreements based on formal specifications, by providing a common assessment method for these needs. • Helps Member States to assess formalised specifications in public procurement. • Re-use of assessments, in whole or in part. Avoids duplication of effort, for the already finalised assessments of formalised specifications can be shared via the library to be available on Joinup. • The assessed formalised specifications will contribute to the interoperability of systems implementing these specifications. • The possibility of more efficient use of public funds, because of easier and faster assessments and a CAMSS library to reuse formalised specifications meant for similar business needs. • Improvement of the expertise of civil servants working with formalised specifications. • Offers a complimentary tool to support the European Interoperability Framework (EIF) and the European Interoperability Reference Architecture (EIRA) in the evaluation of European or national interoperability standards and specifications.

8.4.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
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Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	The DSM strategy calls for more standardisation and in its roadmap the establishment of a European catalogue of ICT-standards is foreseen. The latter is closely interrelated with the CAMSS as it will be in this catalogue that standards to be assessed will be hosted.
Digital Agenda Action 21 & 22	Alignment to be ensured between renewed ICT standardisation regulation, procedures and CAMSS
Digital Agenda Action 23	Alignment to be ensured between new ICT standards related procurement guidelines and CAMSS
Regulation 1025/2012 on standardisation	The regulation establishes the rules for standards and specifications to be referenced in public procurement, and establishes the Multi-stakeholder Platform on European Standardisation
Rolling Plan on ICT Standardisation	The standardisation-related activities in the Commission will set the priorities for specifications to be assessed.
Priority ICT Standardisation Plan	
ISA ² Action 09 – Promoting semantic interoperability amongst the European Union Member States	The SEMIC action is itself developing and maintaining standards. Its governance process was devised to comply with the CAMSS criteria. The Core Vocabularies creation methodology and the metadata management policy developed by SEMIC provide input for the development and maintenance of specifications.
ISA ² Action 45 – European Interoperability Architecture	CAMSS can give input on the selection of interoperability specifications for the European Interoperability Reference Architecture.
European Catalogue of Standards (DG CONNECT and DG GROW)	The action will collaborate with the European Catalogue of Standards to align and harmonise its list of standards with the future catalogue.
ISA Action 30 – Joinup European Observatory, Collaborative platform and Catalogue	The CAMSS method and library are published on Joinup, and the online assessment tools have been integrated into the platform.

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

CAMSS has been created on the basis of the assessment methods in several Member States, and has been aligned with the submission form used by the Multi-Stakeholder Platform on European Standardisation.

For the publication of the method, the existing assessments and the list of standards selected in Member States, it is the Joinup platform that is used. An online version of the assessment tools is also integrated into Joinup.

8.4.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

The following reusable assets have been produced by the CAMSS action under the IDABC and ISA programmes and will need to be maintained under ISA²:

Output name	CAMSS library
Description	The CAMSS library of existing assessments is available on Joinup and will be extended in 2016 and 2017. Each assessment is reusable partially or as a whole.
Reference	https://joinup.ec.europa.eu/community/camss/og_page/camss-assessments
Target release date / Status	available on Joinup

In addition to these directly reusable assets, the CAMSS method has produced a catalogue of standards that are recommended or mandatory in Member States (on Joinup), and an inventory of adoption methods in Member States (study) with the analysis of their effectiveness. These are expected to serve as input for the future European Catalogue of ICT-Standards.

8.4.10 ORGANISATIONAL APPROACH

8.4.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Bodies in MS administrations that assess and select standards	ISA ² Coordination Group or ISA CG equivalent
Public procurers in Member States	ISA ² Coordination Group or ISA CG equivalent
Multistakeholder	DG CNECT project officer

Platform on European Standardisation	
Standardisation units in DG GROW and CNECT	Project officers
Standardisation fora	Individual contacts, secretariats

8.4.10.2 Communication plan

The benefits resulting from a common method and from the reuse of assessments can only be realised when the method is widely used and Member States not only continuously align their methods with CAMSS but also contribute changes made in their national methods back to the common one.

This requires an active community, which will be built starting with the known users of the early CAMSS versions, engaging them in a dialog with the goal to re-align where assessment methods have over time diverged, and encouraging active participation in the decision-making for the common method. Duplication of fora will be avoided through a close liaison with other groups such as the Multistakeholder Platform on European Standardisation and the Commission services in charge of the future European Catalogue of standards.

Further Member States (with a priority on those that already publish lists of recommended or mandatory standards) will be actively invited to participate in the governance of CAMSS, and align their own methods with it.

The availability of the online version of the CAMSS tools (from autumn 2015) is expected to make its use even more attractive to users, and result in an automatic contribution of assessments to the CAMSS library.

8.4.10.3 Governance approach

The Commission coordinates consensus building around CAMSS, and all relevant stakeholders will be consulted. Alignment between CAMSS and related EU actions and policies will be ensured by close interdepartmental collaboration inside the Commission. The proposal for the governance of CAMSS that has been developed under the ISA programme will be further refined, aligned with the governance mechanisms of other actions, and implemented. The action is managed by the DG DIGIT ISA unit and a contractor will help in the implementation of the action. The Commission will also assess cooperation opportunities with standardisation bodies.

Maintenance and sustainability of the CAMSS tools, the assessment library and the list of recommended or mandatory standards from Member States will be planned In the course of the action.

8.4.11 TECHNICAL APPROACH

The first version of CAMSS was developed by the Commission and Member States under the IDABC programme, the predecessor of the ISA and ISA² programmes. It revised in 2011-2013 in in 2014 aligned with the submission form of the Multi-Stakeholder Platform on European Standardisation. The

documentation of the present CAMSS is publicly available online at the following address:
<https://joinup.ec.europa.eu/community/camss/home>

The current version of CAMSS comprises 1) a process, 2) a set of criteria and 3) an assessment library. The CAMSS process describes how to complete an assessment utilising the CAMSS criteria. Assessments from Member States have already been identified and published in the Joinup platform.

The technical approach as from 2016 includes:

- to continue populating the assessment library, supporting the Member States to run or map to CAMSS assessments of standards, and animate the Joinup CAMSS community;
- to maintain and update the CAMMS method and CAMSS tools;

8.4.12 COSTS AND MILESTONES

8.4.12.1 Breakdown of anticipated costs and related milestones

In 2016, budget is foreseen for the maintenance and extension of the existing tools and the standards list. For the tools, this includes greater flexibility (user-defined scenarios) and improvements in the user interface (including search functionalities). For the standards list, it concerns both the update of the content and the functionalities; where the latter regards primarily the alignment with other Joinup catalogues (European Interoperability Cartography, European Catalogue of Standards).

In 2017, budget is planned mainly for the maintenance and governance of all existing components.

Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA/ others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Execution - Operation	<ul style="list-style-type: none"> • Governance of the CAMSS action • Functional specification for extension of tools and standards-list, testing and Implementation on Joinup 	175	ISA ²	Q2/2016	Q1/2017
Operation	Maintenance and promotion of method, tools, assessment library and standards list	125	ISA ²	Q2/2017	Q1/2018
	Total	300			

8.4.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016		175	
2017		125	

8.4.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
Regulation 1025/2012 on standardisation	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:316:0012:0033:EN:PDF	
Rolling Plan on ICT Standardisation	http://ec.europa.eu/growth/single-market/european-standards/policy/benefits/index_en.htm http://ec.europa.eu/DocsRoom/documents/8972/attachments/1/translations/en/renditions/native	
Priority ICT Standardisation Plan	To be published end 2015	

8.5 EUROPEAN INTEROPERABILITY STRATEGY (EIS) GOVERNANCE SUPPORT (2016.33)

8.5.1 IDENTIFICATION OF THE ACTION

Type of Activity	Management activities
Service in charge	DG DIGIT.B6
Associated Services	All Commission services

8.5.2 EXECUTIVE SUMMARY

A European Interoperability Strategy⁹³ (EIS) was adopted in 2010 as part of the Communication "Towards interoperability for European public services"⁹⁴.

After two years of implementation, the Commission conducted a review of the EIS implementation in 2012. The result of this study clearly showed that the great majority of interviewed EU Member States considered interoperability as a critical success factor for fulfilling the need to increase the efficiency and effectiveness in the delivery of public services, as well as to increase the transparency and quality of public administrations and that interoperability is an enabler of "cooperation improvement" among public administrations. Ten major recommendations were made to ensure the continued success of the EIS implementation, including the need to improve coordination through the Commission IT Governance, to spread a common vision on interoperability, to spend more effort on the organisational dimension of interoperability and to communicate the benefits of interoperability.

Following the EIS review, it is now time for a complete update of the strategy following last years' development in interoperability, especially the recently launched Digital Single Market strategy that calls for interoperability as a major enabler for digital integration in Europe. This review will be subject to an Impact Assessment process that will start in 2015 and will finish in Q2/2016.

The EIS will be revised to focus on specific measurable initiatives in selected areas up until 2020 with emphasis put on interoperability layers that can now be further developed such as organisational interoperability.

8.5.3 OBJECTIVES

The Member States and the Commission should increase their efforts to avoid market fragmentation, achieve interoperability and promote commonly agreed ICT solutions, while ensuring the appropriate governance.

The ISA² programme should be based on the experience gained from the ISA, IDA and IDABC predecessor programmes. The conclusions drawn from the final evaluations of the ISA and IDABC

⁹³ COM(2010) 744 final: Annex 1 to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions Towards interoperability for European public services, Brussels, 16.12.2010

⁹⁴ [COM \(2010\) 744 final: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions Towards interoperability for European public services, Brussels, 16.12.2010](#)

programmes, which address aspects such as relevance, efficiency, effectiveness, utility and coherence, should also be taken into account.

The objectives of this action are:

- To define a high-level strategy at EU level in the area of interoperability as well as an implementation roadmap of concrete actions to support the realisation of this strategy;
- to identify and assess relevant governance structures and organisational models in the Member States public administrations and evaluate their efficiency and effectiveness vis-à-vis the multi-layered interoperability model,
- to identify and assess the legal solutions used in the Member States and at EU level to ensure that EIS is in compliance with the EU context,
- to follow up on the application of the strategy and review it as needed

Through this approach the Commission will provide a reference model for governance and organisational interoperability structures that will be in accordance with the different structures and models within the EU and could aid the Member States in their national interoperability activities. Furthermore, EIS stays aligned with the EU political agenda and with the priorities and initiatives of the Member States regarding European Public Services and interoperability activities.

8.5.4 SCOPE

Any interoperability initiative in the EU, in any policy domain, is in scope of the action.

This action will help instituting EIS governance, the related organisational models and the decision making processes and activities for implementing, monitoring and keeping up to date the European Interoperability Strategy (EIS).

Moreover this action will investigate the direct relation between the EIS governance and the organisational structures that promote interoperability in the public administrations. The aim in this respect will be the identification and assessment of the organisational interoperability models that exist at EU level and their evaluation.

The core organisational tasks of this EIS Governance action encompass the whole implementation of the EIS as well as ensuring the alignment of the long term vision with short term actions and their related objectives.

The action will have a permanent activity on screening which changes at EU and Member State level might have an impact on the EIS implementation and on the EIS itself.

8.5.5 PROBLEM STATEMENT

The problem of	Not having a common and constantly updated strategic approach to interoperability at European level
affects	the Members States and the EU bodies as well as the European citizens and businesses benefitting from European public services
the impact of which is	Strategic misalignment of interoperability actions amongst the MS, diverging approaches in the delivery of public services, possible duplication of effort, risk that interoperability is not seriously considered. All above entail the risk of creating new e-barriers in EU to the detriment of the DSM.
a successful solution would be	To define a high level strategy at EU level and have it apply through concrete interoperability actions.

8.5.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States' Public Administrations	Strategic alignment between interoperability activities and Member States related priorities, coherence of interoperability actions at EU and MS levels. Awareness and understanding of EU interoperability related activities.
European Commission	Strategic alignment between interoperability activities and EU policies, coherence of interoperability actions within the Commission

8.5.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation
Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	The DSM roadmap makes a clear reference to the need of updating the European Interoperability Framework (EIF). Implicitly this means that the strategy that the framework relies on should also be updated.

Action / Policy	Description of relation
Communication “Towards interoperability for European public services”	A Communication on Interoperability that includes as Annexes the EIS and the EIF. This needs to be updated through an Impact Assessment process and thorough consultation with the MS and concerned stakeholders, notably businesses and citizens.

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

The EIS maintains a strong link with the EIF being its implementing framework and with the action that monitors the status of interoperability in Europe, the NIFO. However given the overarching role of the strategy, it is hard to say that there are ISA² actions that are not concerned or will not contribute to it. Other related Commission initiatives may also be included in the EIS implementing roadmap.

8.5.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	European Interoperability Strategy
Description	An overall strategy on Interoperability at EU level (the exact form of the EU legislative instrument will be subject to an Impact Assessment)
Reference	
Target release date / Status	Q2/2016

Output name	Orientations for ISA ² to implement new objectives
Description	Analysis of ISA ² programme and establishment of future orientations to implement new EIS based objectives. Includes definition of new action on “user centricity approaches”
Reference	
Target release date / Status	2016

Output name	Organisational interoperability orientations
Description	Instrument to measure and increase organisational interoperability
Reference	
Target release date / Status	Q2/2016

8.5.10 ORGANISATIONAL APPROACH

8.5.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
European Commission services	The Secretary General and any Commission DG concerned about the update of the strategy.
Member States	MS representations to the ISA ² Committee and Coordination group (or its equivalent) and through them MS public administration authorities involved in interoperability initiatives.
ICT Industry	Representatives of ICT industry, SMEs, ...
Standardisation bodies	Representatives from standardisation organisation fora and consortia
Local and regional public administrations	Representatives from local and regional public administration European representative organisations such as Council of European Municipalities and Regions, Eurocities, ...

8.5.10.2 Communication plan

The communication plan includes:

- Promotion/consultation rounds with the Commission stakeholders involved in the revision of the existing Communication;
- Communication with the MS representatives through the regular ISA² management meetings and through webinars and dedicated workshops;
- Open consultation as part of the formal Commission process of assessing the Impact of the legislative proposal (the updated EIS)

8.5.10.3 Governance approach

The action will be managed by DIGIT with the support of an external contractor. Whenever major deliverables are to be published, the validation of the MS representatives will be sought. During the Impact Assessment process, an Inter-Service group of Commission DGs will be established and a formal validation process will be followed within the Commission and if relevant with the other EU bodies.

8.5.11 TECHNICAL APPROACH

In 2012, the EIS implementation was reviewed. The review identified the barriers that still existed in implementing interoperability in the EU. It also laid down an overview of the interoperability landscape in Member States as well as in the Commission. Review findings revealed the need for more coordination, and that the lack of organisational interoperability is one of the major interoperability barriers throughout EU.

In 2013 work focused on understanding the critical success factors for proper governance of interoperability solutions at European level.

In 2014 the action performed evaluations on the interoperability governance of selected MS and other countries.

During 2013-2014 effort was put to achieving synergies with other EU initiatives in different policy areas, for example the European Semester.

The complete update of the EIS was launched in 2015 and will continue in 2016. So far certain elements have been tackled such as the problem definition, the objectives, the identification of stakeholders and the definition of the course of action to support the strategy. As the process will evolve various options about the form of the legal instrument to support the strategy will be developed and assessed through a formal Impact Assessment process.

8.5.12 COSTS AND MILESTONES

8.5.12.1 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)
	Update the EIS	210	ISA ²	Q2/2016	Q4/2017
	Total	210			

8.5.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016		210	

8.5.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
The European Interoperability Strategy	http://ec.europa.eu/isa/documents/isa_annex_i_eis_en.pdf	

8.6 CIRCABC (2016.34)

8.6.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common Services – Communication with citizens Reusable Generic Tool
Service in charge	DIGIT A3
Associated Services	DIGIT C

8.6.2 EXECUTIVE SUMMARY

The CIRCABC project delivers a web application and related services enabling the collaboration, communication and documents exchange between many types of European entities like Member States Administrations, Businesses, Citizens, European institutions, centralised or decentralised bodies...

The CIRCABC user's population (almost 160.000 users) is in majority (80%) from member states.

This document provides an overview of the current project situation and expresses needs for its evolution;.

- Service sustainability
- Improve the User eXperience
- Increase the interoperability capabilities

Key CIRCABC 2014 figures are (delta's versus 2013 figures are presented between quotes):

- **3500+ active groups (+10%)**
- Around 2300 Service Help-Desk calls for CIRCABC in 2014 (-40%)
- **157.000+ users (+10%)** and **2.350.000+ (+7%) published documents** (3.5TB+ of data)
- **60 trainings (325+ persons trained in 2014)** and 10+ personal trainings & presentations given

CIRCABC is used by:



Based on the execution of the ISA work Programme 2010-1015, the feedback of the CIRCABC Perceived Quality Survey and the evolution of document management systems/collaborative needs in general, the challenges of CIRCABC now are mostly building further upon the groundwork done so far:

- Use the new User Interface to develop new functionalities
- Use the new Architecture to improve the responsiveness and robustness of the service
- Take advantage of the new technology to be more reactive in implementing user requests (Agile methodologies)
- Offer a professional, dynamic support with modern training materials

The yearly operational costs for CIRCABC remained constant despite an increase in activity.

8.6.3 OBJECTIVES

CIRCABC (Communication and Information Resource Centre for Administrations, Businesses and Citizens) is deployed both in Member States and as a central service, at the European Commission. It allows easy cross-border and cross-sector interactions and is a heavily used reference in this context.

The objective of this submission is to:

- Enable the maintenance and service continuity
- Guarantee a reliable and effective service to the end-users, including support and documentation
- Treat current and coming business needs (functional requests from external parties)
- Offer new services in the area of Interconnectivity, User eXperience, Reporting and Archiving

8.6.4 SCOPE

CIRCABC enables widespread collaborative groups to share information and resources in private workspaces.

It is an open-source multilingual application offering publication, distribution and management of documents in any format, with fine grained security. It includes version control, management of translations, multilingual search, forums and is widely accessible to users with disabilities.

CIRCABC contributes to the implementation of many EU cross border and cross sector priorities both inside Institutions and in Member States by providing them with a trustable and **easy to use collaboration, information and document exchange repository.**

As reported by the EISS study, CIRCABC's architecture and its availability under the EUPL license **enables its reuse as an interoperable building block for other solutions. It can be deployed as a standalone alternative in EU Administrations or Businesses.**

8.6.5 PROBLEM STATEMENT

There is a need for a general-purpose communication and document management solution, managed by a public European body (such as the Commission), which Member States and Citizens can trust.

8.6.5.1 Service sustainability

The CIRCABC service and the CIRCABC OSS version disseminated via the Joinup source forge are heavily used by several Institutions, administrations and businesses.

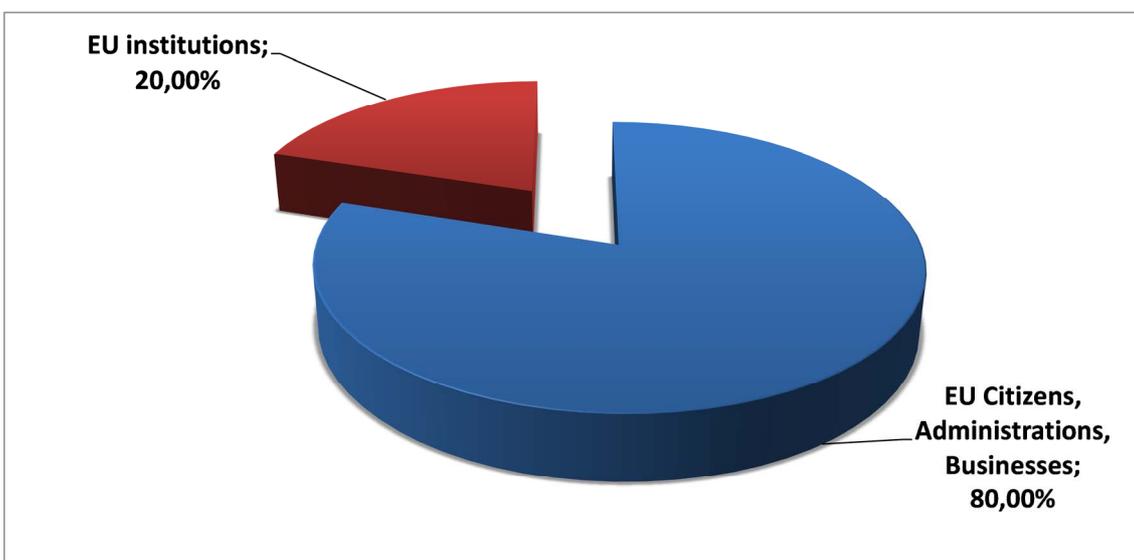


Figure 1: CIRCABC usage breakdown

CIRCABC is critical for these organizations to continue their mission to serve citizens from the member states, and it is therefore **critical to sustain this service** and continue to distribute up-to-date OSS versions.

The European Commission, administrations, businesses and policy makers have to be **more and more agile and responsive** towards the collaboration with their stakeholders contributing from all around the world.

These contributors are in need of intuitive, reliable and modern tools suited to the fast pace they are confronted with: these automated productivity tools should enable them to concentrate on core business activities.

8.6.5.2 New challenges

During the course of the 2010-2015 Programme, CIRCABC has been continuously improved. One of the major achievements was the successful migration of CIRCA to CIRCABC. This migration significantly increased the exchange and use of information.

As a result, important efforts were provided in improving the application performance, functional capabilities and handling of new customer requirements.

A few examples:

- Backward compatibilities and new features
- Improvements in stability and responsiveness
- Management of interest groups
- Internal reporting and administration tools

CIRCABC aligns to the evolution of the versions of Alfresco, in order to stay up to date in terms of performance and security.

During the last year (2014-2015), CIRCABC was upgraded with:

- A New Architecture (further decoupling the user interface from upgrades of Alfresco versions)
- A New User Experience has been defined and is currently under development
- Better performance characteristics due to a dedicated document processing server

Based upon both the feedback received from the CIRCABC Perceived Quality Survey and via the evolution of document management systems/collaborative needs, the following high level requirements have emerged:

Service Pack

- [**User eXperience**] Take advantage of the new UI to provide new features and facilitate the use of CIRCABC. The priorities are defined according to user feedback.
 - **A 'Smart CIRCABC' package** related to a Notification mechanism, UI interactivity, Interest Groups customization and to improvements in the activity reporting service.

Taking advantage of the fast evolution of web technologies, this package offers new practical features (ergonomical), as well as facilitating the work of the CIRCABC users.

- **A Mobile application & Responsive User Interface** (i.e. a mobile ready website)

*Access your document; make comments etc. from a mobile device. As mobile devices are taking a more and more important role in the digital world (~39% of all web traffic is caused by mobile devices), it will become **inevitable** to adapt and optimize our User Interface to interact with different **mobile platforms***

- **New features: Workflows & tasks**, Access Control List, 'Rich' Interest Group templates, In-App Messaging, **Automatic Translation Module**

Our customers are regularly asking for new features. The CIRCABC's capabilities in term of document management are quite advanced, but some key features could help the users, even more.

This package focuses on community & organisational features.

- **Archiving**

Some groups use the tool as an active publication system, whereas others are asking for an archiving system, to simply store and freeze documents' versions, Interest Groups Status.

- **[Interoperability]** More and more requests to integrate with CIRCABC through different means

- **'Social' package** to analyze and enable the integration possibilities with social networks (twitter, google, ...)

In order to improve the community aspect of CIRCABC, the major social network should be integrated within the application to extend its communication channels.

- **'EC applications'**, to analyze the integration possibilities with the e-**Signature action** (1.9 Supporting tools for TSL (Trust-service Status Lists) and e-signature creation/verification), with printable document format generation, and with the EU-Survey tool (action 2.6).

Take advantage of the satellite services that the EC is currently offering. (CIRCABC could use the electronic signature system or another network tool already used by the EC staff)

Performance Pack

- **[Hardware]** Regularly upgrading the architecture in order to cope with the increasing use

- **Database clustering, Indexation, a separate Archiving & Business Intelligence/Monitoring server**

The application usage is quite active and growing. In order to cope with the constant growth of the traffic and to provide a good quality of service, a new management tool has to be set up. This will help maintain a highly efficient service.

- **Horizontal scaling**

Adding new nodes to the current system to keep/increase the service's performance.

- **[Software]** Regular software upgrades from the building blocks

- Migrate to a better-performing search engine (**SOLR instead of Lucene**)

A new index engine (vs Lucene) will be more accurate, efficient and flexible e.g. with regards to searches in an Interest Group.

- Alfresco upgrades

Follows our constant effort to keep the tool in sync with the latest features and security updates delivered by Alfresco.

8.6.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
European Institutions & bodies	The CIRCABC service is readily available to the European Institutions to ease the collaborative work around policy and projects along the lifecycle of documents. They have the possibility to do local deployments.
Member States' public administrations, businesses, citizens	Member State public administrations and businesses are the main target who benefit from the CIRCABC service either for collaboration within the EU framework or for other purposes or who can decide to deploy the OSS version in their services.

8.6.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
2.6 EUSurvey	Online survey tool, another ISA action (2.5)
2.9 Document repository Services	Document repository services for EU policy support through the HERMES repository.
ISA Action 1.4 – ECAS-STORK	In order to authenticate by means of the national e-ID.
2.8 Machine Translation Service	A translation service allowing you to quickly check the general meaning of incoming information

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

See 8.6.7 RELATED EU ACTIONS / POLICIES

8.6.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Updated CIRCABC
Description	See section “new challenges “ for a complete lists of new features
Reference	
Target release date / Status	2016

8.6.10 ORGANISATIONAL APPROACH

8.6.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
ISA ² programme management	DIGIT.B6 (Margarida ABECASIS)
European Institutions, Member State Administrations and businesses	ISA ² Committee, ISA ² working/expert group
DIGIT A	Paulo Jose SANTOS (Acting Director), Henri PUTSEYS , Olivier HOICHE, Benoît ORIGAS
DIGIT C	Philippe VAN DAMME

8.6.10.2 Communication plan

Event	Representatives	Frequency of meetings / absolute dates of meetings?
User Group Conference	Olivier HOICHE, Benoît ORIGAS, Margot FASSIAN	Once a year
ISA events	Olivier HOICHE, Benoît	Presentation to specific key

	ORIGAS, Margot FASSIAN	stakeholders from Member States (dates to be determined)
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8.6.10.3 Governance approach

The approach and governance of the project is structured around 3 groups: the ISA² Coordination Group (or ISA CG equivalent), the Project Management Group and the Users Group.

- The **ISA² Coordination Group** assists the Commission in translating priorities into actions and ensures continuity and consistency in their implementation.
- The **Project Management Group** (DIGIT A3) will be used to bridge the perspectives between the internal stakeholders.
Regular project review meetings (review of project progress), alternating with team meetings (review of the individual tasks) will be held to ensure timely delivery of the project.
DIGIT A contracts external resources for service management, development, maintenance, community management, trainings and help-desk support.
DIGIT A provides a Service/Project and Communication Manager.
- The **'Users Group'**: Based on actual needs and to bridge better the technical and the business aspects, a 'Users Group' has been set up.
It is used to consult the users, when additional information and clarification is required, to provide the opportunity to submit **enhancement requests**, exchange opinions and best practices.
Meetings of the 'Users Group' will take place on an as needed frequency.

8.6.11 TECHNICAL APPROACH

The technical approach is following an adapted **Agile version of the RUP@EC** methodology and is based on a three-step workflow: Inception, Execution and Operational. Those three steps are cycling as often as required to meet the expressed user needs.

The primary concern of the Team is the continuous improvement of the products maintained. The improvement of the products is done by deploying new revisions, called product versions, at regular intervals. Individual tasks, to be implemented within a product version, are combined into work packages called Sprints.

A Sprint usually takes 4 weeks and covers the time required to conduct the following tasks:

1. Implement specified behavior
2. Test the implementation
3. Deploy the result of the implementation.

The mentioned time is usually spent on the following tasks:

- Development of a set of tasks – 3 weeks, including :
 - Requesting and integrating label translations
 - Development of automated tests
- Functional and acceptance testing (Testing) – 1 week

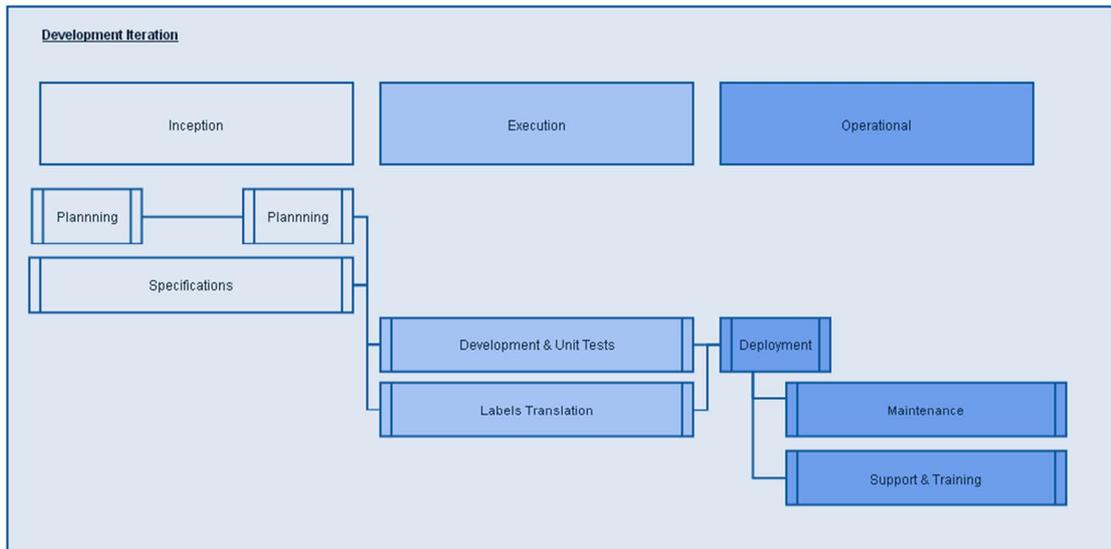


Figure 2: Development cycle

CIRCABC is also delivered as an OSS package via Joinup, the Forge made available by ISA. The OSS community has the possibility to actively contribute to the source code.

8.6.12 COSTS AND MILESTONES

8.6.12.1 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)
Operational	Continuation of current CIRCABC Service	250	ISA ²	Q1/2016	Q4/2016
Inception Execution	Service Pack	100	ISA ²	Q1/2016	Q4/2016

Inception Execution	Performance Pack	50	ISA ²	Q1/2016	Q4/2016
Execution	Communication & Trainings	50	ISA ²	Q1/2016	Q4/2016
Operational	Continuation of current CIRCABC Service	250	ISA ²	Q1/2017	Q4/2017
Inception Execution	Service Pack	100	ISA ²	Q1/2017	Q4/2017
Inception Execution	Performance Pack	50	ISA ²	Q1/2017	Q4/2017
Execution	Communication & Trainings	50	ISA ²	Q1/2017	Q4/2017
	Total	900			

* Legend: In grey are all the tasks that need to be adjusted year by year. It gives a general idea of the provisions but cannot be accurate.

8.6.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Inception	75	
2016	Operational	250	
2016	Execution	125	
2017	Inception	75	
2017	Operational	250	
2017	Execution	125	

8.6.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
#1 CIRCABC Service	https://circabc.europa.eu/	

#2 CIRCABC OSS project on joinup.eu	https://joinup.ec.europa.eu/software/circabc/home	
#3 File Sharing (Wiki)	http://en.wikipedia.org/wiki/File_sharing	

8.7 EUSURVEY (2016.35)

8.7.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common Services – Communication with citizens Reusable Generic Tool
Service in charge	DIGIT.A3
Associated Services	DIGIT.C, DGT.R3, DG EAC, EUROSTAT.B5

8.7.2 EXECUTIVE SUMMARY

EUSurvey is a new multilingual online survey management system built for the creation and publication of public consultations and surveys among **European businesses, administrations and citizens**,

It covers all steps of a survey life cycle,(design, launch,analysis and publication of results) and it offers different types of multiple-choice questions, free text fields, as well as more complex elements like editable tables and gallery elements.

Results can be displayed as histograms, percentages or in full detail and can be exported to different formats.

All the answers submitted (or a sub-set) can be published automatically on a dedicated webpage within the application.

Access to EUSurvey is secured by ECAS, the European Commission's Authentication Service.

The tool offers a wide variety of features to meet different survey needs, including:

- Customisable forms
- Scheduled publishing
- High level security
- Customisable look and feel
- Offline answering
- Uploading of supporting files
- Result analysis & publication
- Invitations sent directly from the application

EUSurvey has quickly become an efficient and appreciated tool to conduct mixed typed of survey activities. The EUSurvey statistics count **2.600+ surveys created and managed by 1.500+ form managers, 1.000.000+ contributions** already as of 07/2015 (after the initial production launch at the end of 2013).

This document provides an overview of the current project situation and expresses the needs for its evolution:

- Service sustainability
- Provide new features and services
- Increase the interoperability capabilities
- Extend the service for mobile devices

Taking into account the feedback received during the ISA work Programme 2010-1015, the results of the EU-Survey Perceived Quality Survey and the evolution of 'form/survey' tools needs in general, the challenge for EU-Survey now lies in building further upon the 'ground work' done so far:

- Use the new user interface to develop further additional functionality, suited for mobile access
- Use the new architecture to improve the responsiveness and robustness (horizontal scaling) of the solution
- Take advantage of the new technologies to be more agile in implementing user requests
- Offer professional, dynamic support with modern training materials

The yearly operational costs for EU-Survey remained constant despite an increase in activity.

8.7.3 OBJECTIVES

EU Survey was introduced in 2013 to replace IPM (Interactive Policy Making). The service, deployed by DIGIT, is widely used by the Institutions and in Member States. It enables to collect easily the opinion of the citizen, key information for decision making processes and implementation of cross-border and cross-sector activities.

The objective is:

- To sustain the service provision, guarantying a reliable and effective service including support to end-users.
- To analyse and treat the current business requests and coming needs.
- To offer new services in the area of Interconnectivity, User eXperience, Mobile, Reporting and Archiving.

8.7.4 SCOPE

EUSurvey enables the creation of surveys amongst European businesses, administrations and citizens, and the collection of answers via a web based user interface. It is an open-source **multilingual** application which is widely accessible and provides support for either identification or anonymity, depending on the survey requirements.

EUSurvey is the ideal tool for quickly and reliably poll opinions from a widespread community, guiding them throughout the contribution process. It supports the implementation of many EU priority sectors and also various other types of surveys and forms.

EUSURVEY is used for very large scale consultations aimed at European populations down to citizens such as:

- Public consultation as part of the Fitness Check of the EU nature legislation (Birds and Habitats Directives) (550.000+ contributions)
- Erasmus Programme - Student Mobility (240.000+ contributions)
- Participant Report Form – Learning Mobility of Individuals (126.000+ contributions)
- A common approach to reducing the harm caused by criminal use of firearms in the EU (85.000+ contributions)
- Public consultation on the possible revision of the Tobacco Products Directive 2001/37/EC (70.000+ contributions)

Because EUSurvey is available, under the EUPL license, from an open source software forge (joinup.eu), it can also be installed anywhere as a standalone application or reused as a component of another Information System.

Some EUSURVEY key figures:

- **2.600+** (in 07/2015 **+78%**) **surveys** since the beginning of 2015
- **1.500+ form managers** (+100% vs 2014) in 07/2015
- **1000+** Service Help-Desk calls (**-20%**), **2000+** Service Help-Desk calls in 2014
- Already **1.000.000+** survey contributions by 07/2015
- Used by most of the Member States

The scope of the project includes:

- Maintain the quality of the current service and support
- Increase the EUSurvey interoperability and reusability towards other national & EUI information systems
- Develop new features and improvements following user's requests
- Mobile access to EUSurvey (contribute to a survey via mobile devices)

8.7.5 PROBLEM STATEMENT

8.7.5.1 Service sustainability

The EUSurvey service and the EUSurvey OSS version, disseminated via Joinup, are in widespread use by many Institutions, administrations and businesses. EUSurvey plays an important operational role for these bodies to support their mission and it is therefore **critical to sustain this service** and continue to deliver updated OSS application code.

Businesses and policy makers react in a more and more agile way and need to gather reliable information easily while their stakeholders are contributing from all over the world.

These contributors require intuitive, reliable and modern tools suited to the strict data collection rules they are confronted with and need automated productivity tools enabling them effortlessly to answer surveys while concentrating on their core business activities.

8.7.5.2 New challenges

Performance Pack

- **[Hardware] Scaling the infrastructure of EUSurvey**

*The continuously growing number of users and consultation audiences, demands a solidly built infrastructure to ensure a **reliable service**. Therefore it is crucial to analyse and deploy **an improved server-database and application-server infrastructure** in order to cope with the **increasing needs and requirements** of our users.*

Service Pack

Based both on the operational feedback about EUSurvey, the results of the perceived quality survey and the evolution of data collection needs in general, the following high level requirements have emerged:

- Integration with other services & information systems, leading to
 - **Embedded surveys**
*Allowing users to **embed** EUSurvey questionnaires within their own webpages in order to **make our service more attractive** to a larger peer group.*
 - Extend the offer of **webservices** (auto-filling of surveys, compatibility with translation information systems)
*Including the possibility to automatically **pre-fill surveys** with information and an **improved compatibility** with **Poetry translation management tool**.*
 - Export formats compatible with **statistical tools**
*To ease an **extended exploration** of answer contributions for end-users, i.e. adapting the exports to be compatible with professional Analytics tools*
- **Rich typed surveys**

Creation of specific features, built-ins, to improve the provision of different survey types such as:

- **e-Voting**
With a possible re-use of the e-Signature tool from ISA Action 1.9..
- **Quiz-Surveys**
*In order to increase the **applicability** of EUSurvey; this will require the analysis and development of **new question types** and an **improved user feedback** within the User Interface.*
- **Events-Oriented Surveys**
*A significant part of our users, use EUSurvey to **plan events** and **organize the registration** of their participants. To completely fit their requirements, additional analysis and development of **new features** will be **necessary**.*
- **Mobile application**
 - Implementation of a **responsive User Interface** to enable users to contribute from mobile devices.
*As mobile devices are taking a more and more important role in the digital world (~39% of all web traffic is caused by mobile devices), it will become **inevitable** to adapt and optimize our User Interface to interact with different **mobile platforms**.*
 - Analyze the possibility of using “**voice based**” contributions, i.e. “**dictating**” and “**recording**” features.
*Such a feature would improve the **accessibility** by letting the user contribute via **voice recognition**.*

8.7.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
European Institutions & bodies	The common EUSurvey service is readily available to Institutions for the creation of surveys, forms and the management, collection and publication of answers in policy making or any other context. They have the possibility as well to do local deployments.
Member States' public administrations and other, non EU administrations	Administrations can also benefit from the EUSurvey service either for answering surveys within the EU policy context or for other purposes. They can as well decide to deploy the OSS version within their environment.

8.7.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
ISA Action 1.4 – ECAS-STORK	Both EU Survey and ECAS-STORK systems need to be integrated to enable EUSurvey users to authenticate by means of their national eID.
2.8 Machine Translation Service	A translation service allowing you to quickly check the general meaning of incoming information
EAC programmes Mobility actions	At the end of Erasmus exchanges, students and other participants are asked to fill in a satisfaction questionnaire, designed with EU Survey. A future web service integration, aiming at collecting and consolidating feedback on Erasmus+ Mobility actions, will store the data in a repository at DG EAC.

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

See section RELATED EU ACTIONS / POLICIES

8.7.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Updated EUSurvey
Description	See section “new challenges” for a complete lists of new features
Reference	https://joinup.ec.europa.eu/software/eusurvey/description
Target release date / Status	2016

8.7.10 ORGANISATIONAL APPROACH

8.7.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
ISA ² programme management	DIGIT.B6 (Margarida ABECASIS)

European Institutions, Member State Administrations and businesses	ISA ² management committee, dedicated ISA ² working group
DIGIT A	Paulo Jose SANTOS (Acting Director), Henri PUTSEYS , Olivier HOICHE, Benoît ORIGAS
DIGIT C	Philippe VAN DAMME

8.7.10.2 Communication plan

Event	Representatives	Frequency of meetings / absolute dates of meetings?
User Group Conference	Olivier HOICHE, Benoît ORIGAS, Margot FASSIAN	Once a year
ISA Events	Olivier HOICHE, Benoît ORIGAS, Margot FASSIAN	TBD

8.7.10.3 Governance approach

The approach and governance of the project is structured around 3 groups: the ISA² Coordination Group (or ISA CG equivalent), the Project Management Group and the Users Group.

The **ISA² Coordination Group** assists the Commission in translating priorities into actions and ensures continuity and consistency in their implementation.

The **Project Management Group** (DIGIT A3) will be used to bridge the perspectives among the internal stakeholders.

Regular project review meetings (review of project progress), alternating with team meetings (review of the individual tasks) will be held inside each of the involved entities to ensure timely delivery of the project.

DIGIT A contracts external resources for service management, development, maintenance, community management, trainings and help-desk support.

DIGIT A provides a Service/Project and Communication Manager.

The '**Users Group**': Based on actual needs and to bridge better bridge technical and business aspects, a 'Users Group' has been set up.

It is used to consult the users, when additional information and clarification is required, to provide the opportunity to submit **enhancement requests** and to exchange opinions and best practices.

Meetings of the 'Users Group' will take place only when needed.

8.7.11 TECHNICAL APPROACH

The technical approach is following an adapted **agile version of RUP@EC** methodology and is based on a three steps workflow: Inception, Execution and Operational. Those three steps are cycling as often as needed by the expressed user's needs.

The primary concern is the continuous improvement of the maintained products which is done by deploying new revisions in regular intervals, called product versions.

Individual tasks, to be implemented within a product version, are combined into work packages called sprints. A sprint usually takes 4 weeks and covers the time required to conduct the following tasks:

Implement specified behavior

Test the implementation

Deploy the result of the implementation.

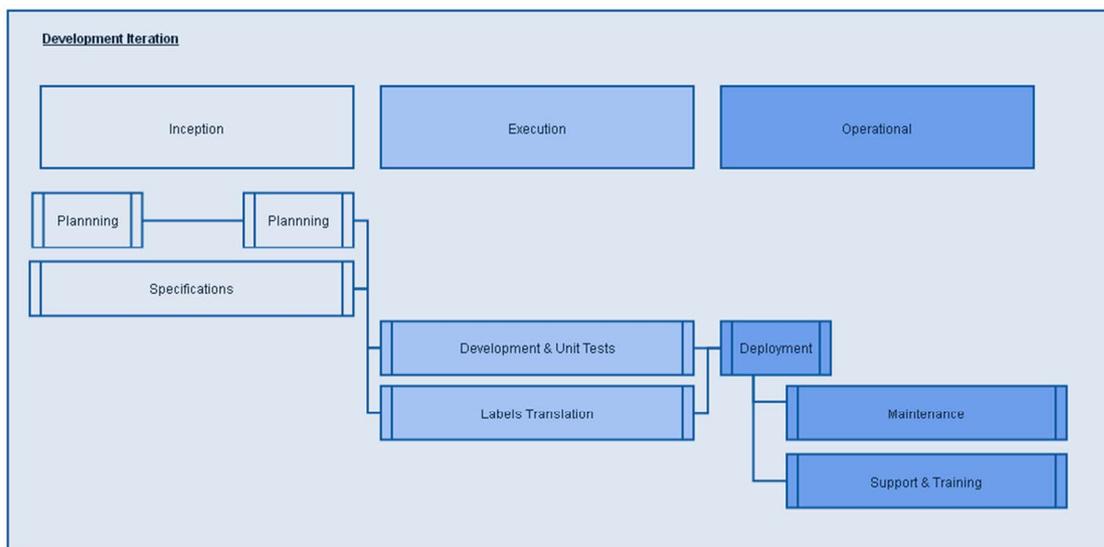


Figure 1: Development cycle

EU Survey is delivered as an OSS project via Joinup.eu, the Forge made available by ISA.

The OSS community will have the possibility to actively contribute at the source code level. Support is also provided to the community.

8.7.12 COSTS AND MILESTONES

8.7.12.1 Breakdown of anticipated costs and related milestones

Phase: Inception Execution Operational	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA2/ others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Inception	Performance Pack	25	ISA ²	Q1/2016	Q4/2016
Inception	Service Pack	25	ISA ²	Q1/2016	Q4/2016
Operational	EUSurvey Service	250	ISA ²	Q1/2016	Q4/2016
Operational	Training – e-learning	50	ISA ²	Q1/2016	Q4/2016
Execution	Service Pack	100	ISA ²	Q1/2016	Q4/2016
Inception	Service Pack	25	ISA ²	Q1/2017	Q4/2017
Operational	EUSurvey Service	250	ISA ²	Q1/2017	Q4/2017
Operational	Training – e-learning	50	ISA ²	Q1/2017	Q4/2017
Execution	Performance Pack	50	ISA ²	Q1/2017	Q4/2017
Execution	Service Pack	50	ISA ²	Q1/2017	Q4/2017
	Total	925			

8.7.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Inception	50	
2016	Operational	300	
2016	Execution	100	
2017	Inception	25	
2017	Operational	350	
2017	Execution	100	

8.7.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
EUSURVEY OSS project on joinup.eu	https://joinup.ec.europa.eu/software/ipm/home	
What is EUSURVEY on Europa	http://ec.europa.eu/yourvoice/ipm/	
EUSURVEY service	http://ec.europa.eu/yourvoice/ipm/forms/html/index.html	
Joinup.eu	http://joinup.ec.europa.eu/	

8.8 INTEROPERABILITY TEST BED (ITB) (2016.25)

8.8.1 IDENTIFICATION OF THE ACTION

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

8.8.2 EXECUTIVE SUMMARY

The ISA/ISA² programmes and other EU initiatives fund the development of several IT solutions. Before connecting new components to these systems (e.g. new partners to a communication network or new clients to a service), extensive testing is necessary, to avoid compromising an already operational system. Usually these tests require connecting the system to an instance of the service or the communication partner; consequently there is a need for a *reference implementation* of this service that is separate from the production instance. In a situation where the compatibility of different systems relies on conformance to a standard or specification, this conformance can also be assured through testing – either simply by connecting to the reference implementation (which is assumed to implement the specification correctly) or, more reliably, through the execution of detailed test cases to separately test each clause of the specification, or both.

The "Interoperability test bed" action was conceived under the ISA programme to provide an environment where reference implementations of different systems/services could be hosted – studies conducted during previous phases showed that a dedicated test bed software can support this by providing a user interface, a standardised way to execute tests and access test results, and some test automation. In addition, the use of a test bed also enables formal conformance testing against a specification.

The scope of the action has therefore been enlarged to encompass both hosting of reference implementations and provision of a test bed. Under the ISA programme some case studies / pilots were executed to demonstrate this with the help of a test bed software that was developed in the context of the CEN GITB workshop⁹⁵.

Under the ISA² programme, this would be extended into an operational service. In addition, the action will work on the sharing and reuse of test assets (through a dedicated Test Registry and Repository on Joinup, and a community of test bed owners and testers).

In view of the existing notion of Interoperability Agreements in the European Interoperability Framework (EIF), and the long-term perspective for the European Interoperability Reference Architecture (EIRA) to put forward interoperability specifications for all building blocks, testing the conformance of systems to such Interoperability Agreements and Interoperability Specifications will become crucial.

8.8.3 OBJECTIVES

ITB's (Interoperable Test Bed) primary objective is to provide a platform for hosting reference implementations of cross-border services, coupled to a test bed that provides a user interface as well as some degree of automation.

This platform would enable Member States' public administrations and their potential vendors to test existing systems or products against a neutral, reliable and responsive test environment of reference.

The long-term vision is for ITB to become a test centre that deploys reference implementations on demand, cooperating with other test centres. Previous studies have shown that using a test bed conforming to the GITB specifications supports this cooperation well, both for the exchange of test artefacts and for the joint execution of tests.

8.8.4 SCOPE

With the hosting of reference implementations, ITB addresses both interoperability and conformance testing. Systems connecting to it demonstrate their interoperability with the test bed and with each other as well as with other systems of different type connected to the test bed. At the same time they deliver proof of their conformance to underlying standards (IOP agreements). The test bed that exposes these services can execute additional tests for more detailed conformance statements.

In addition to the testing service, the action will also facilitate the maintenance and operation of the test registry and repository (TRR) on Joinup, which was conceived by the GITB workshop and realised on the Joinup platform under the ISA programme.

8.8.5 PROBLEM STATEMENT

A considerable number of building blocks for cross-border services have been developed in publicly (EU and MS) funded projects. The connection of new components to a distributed, system requires thorough testing of these components, to avoid compromising the productive system. The absence of

⁹⁵ <http://www.cen.eu/news/workshops/Pages/WS-2015-008.aspx>, accessed on 31/08/2015

test facilities can impede technical implementation and adoption of solutions by Member States. By providing organizational and technical resources, ITB was conceived to provide reference systems for tests and development.

8.8.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States' Public Administrations	European national authorities and agencies tend to shy away from international data communication with embedded and integrated information systems for public services because the implications are too complex and the fidelity of the various systems under other nations' responsibility cannot be judged properly. ITB provides the means to test and verify the requirements and to do this repeatedly without threatening fragile and safety-critical production systems. Testing can be greatly simplified and cost savings achieved because Member States can test one-to-one against the test-bed as opposed to far more complex and time-consuming one-to-many tests.
Citizens	Citizens may have difficulties in trusting the security of their personal data in their own country's public communication systems. Once communication is extended either across borders or across application domains doubts may become even larger. A truly neutral, resourceful and trusted test-bed service may alleviate such concerns. The test-bed will also be able to progress the introduction of new cross-border, cross-domain applications which may benefit citizens.
Industry	ITB will give vendors (in particular SMEs) early access to requirements and standards relevant for the implementation of new cross-border and cross-domain communication. In addition, it provides an opportunity to test and eventually certify products against the requirements.

8.8.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	The DSM is all about digital services provision in Europe. It is evident that to ensure the interoperability, operational quality and performance of those services, thorough testing is needed. the ITB is a good provider of this.

LSPs and CEF DSIs, ISA actions that maintain LSP products	The ITB action should be capable to test software solutions built to support cross border exchange of information, e.g. by the "Large Scale Pilots". Some of the products of these projects have or will soon be taken over by the CEF programme; some will be further developed under the ISA ² programme. In both cases the ITB action can offer testing services to them.
ISA Action 2.14 – Assessment of Trans-European networks supporting EU policies	The TES action includes potential users of test services.
ISA Action 1.17 – Reusable INSPIRE Reference Platform ARE3NA	The ARE3NA action includes testing activities, which should be aligned with the ITB.
GITB	ITB has contributed to the CEN GITB workshop and has evaluated the specifications arising from that workshop. The Proof-of concept-software has been used for the implementation of pilots. Under the ISA ² programme ITB will continue to explore the suitability of the GITB POC for offering its testing services, though other solutions will also be taken into consideration.

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

Under the ISA programme, the ITB action has used the proof-of-concept software from the CEN GITB workshop to set up a first pilot/demo. Under the ISA² programme, this proof-of-concept software is a candidate for the deployment of the test bed (though other options will be examined).

Regardless of the choice of a particular test bed software, the test registry and repository (TRR) that was created on Joinup (also under the ISA programme) will continue to store different types of test artefacts, with the aim to make them reusable across different test centres and potentially even across test bed implementations.

The software that embodies a reference implementation (of some specification or service) is typically an Open Source software distributed on Joinup (as was demoed with the CIPA e-delivery software)

8.8.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Operational test bed service
Description	The test bed and some reference implementations of specifications/services will be deployed in the DIGIT data centre and/or in other computing centres (e.g. test centres in the Member States).

	Testing services will be made available to service owners and users (public administrations and other stakeholders) - subject to conditions that will be laid down based on a preliminary examination conducted under the ISA programme.
Reference	<i>Not yet available</i>
Target release date / Status	Q2 2016, depending on the availability of cloud services in the DIGIT data centre or alternative hosting facilities in Member States.

Output name	Test Registry and Repository (TRR)
Description	The Test Registry and Repository was created, based on specifications coming from the CEN GITB project, and integrated into Joinup under the ISA programme. It is a repository that can hold various types of assets related to testing, e.g. test beds, test cases, assertions, validation schemas etc. Under the ISA ² programme it will have to maintained, promoted and new test artefacts added to it.
Reference	
Target release date / Status	First version released October 2015, to be continuously maintained

Output name	Various test cases
Description	All test cases developed in the context of the action, with their related test artefacts (e.g. assertions, validation schemas etc.) will be made available for ruse in the test registry and repository (TRR) on Joinup
Reference	
Target release date / Status	To be continuously released as of Q1 2017

8.8.10 ORGANISATIONAL APPROACH

8.8.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
European Commission Services	Project Managers

Member States' public administrations	ISA Coordination Group
CEN GITB Workshop and potential successors	Project officer in DG GROW, CEN secretariat
DIGIT data centre and other potential hosting providers (Test centres in Member States)	Cloud hosting services
Test centres in Member states	Various contact persons, facilitated through the ISA Coordination group
Service owners, e.g. ISA action owners or CEF DSI owners, funded projects	Project officers

8.8.10.2 Communication plan

Already under the ISA programme, contacts have been established with a number of system owners that might want to test their products/services. These contacts will be maintained and extended mainly through the respective project officers in the Commission. Demos and presentations to these and other potential users are foreseen.

The contact with several open source test bed software providers (including GITB) will be maintained through participation in their events and web meetings and through reviews of software and specifications.

Setting up the Terms of Reference for hosting is foreseen to be conducted still under the ISA programme, but might extend into ISA². At the same time, contacts with test centres in the Member States (established through the ISA coordination group) will be maintained and extended, through targeted phone calls, web meetings and potentially face-to-face meetings. These test centres could in the long run either become hosting providers (of the ISA² test bed or of a separate independent instance) or become partners in a network of test centres that develop and run tests together and share test artefacts.

8.8.10.3 Governance approach

The action will be managed by DIGIT with the support of an external contractor. Whenever major deliverables are to be published, the validation of the MS representatives will be sought.

While the test bed will physically be run in a data centre (likely at DIGIT), the deployment of new reference implementations, the development of test cases and other artefacts, the management of user demands for testing facilities (both from owners of specifications and services and from owners of

systems claiming conformance to these specifications and from users of the service) will remain in the hands of the ITB action.

A rough frame for this has already been established in deliverables produced under the ISA programme (e.g. hosting requirements, eligibility criteria for users of testing services – see documents referenced in section 8.8.13) and will be further refined.

8.8.11 TECHNICAL APPROACH

The approach that was originally proposed would consist of the establishment of a Framework contract under which particular requirements to provide a test bed for a specific system would be covered by the corresponding specific contracts.

Under the ISA programme, testing requirements of existing systems have been analysed, showing that there is a need for hosting facilities to run test systems on demand, but that it would also be beneficial to provide additional functionalities through a test bed (see figure below). The intention is to provide such hosting, preferably as a cloud service, with the proof-of-concept software from the CEN GITB WS as a first candidate for the implementation of the test bed.

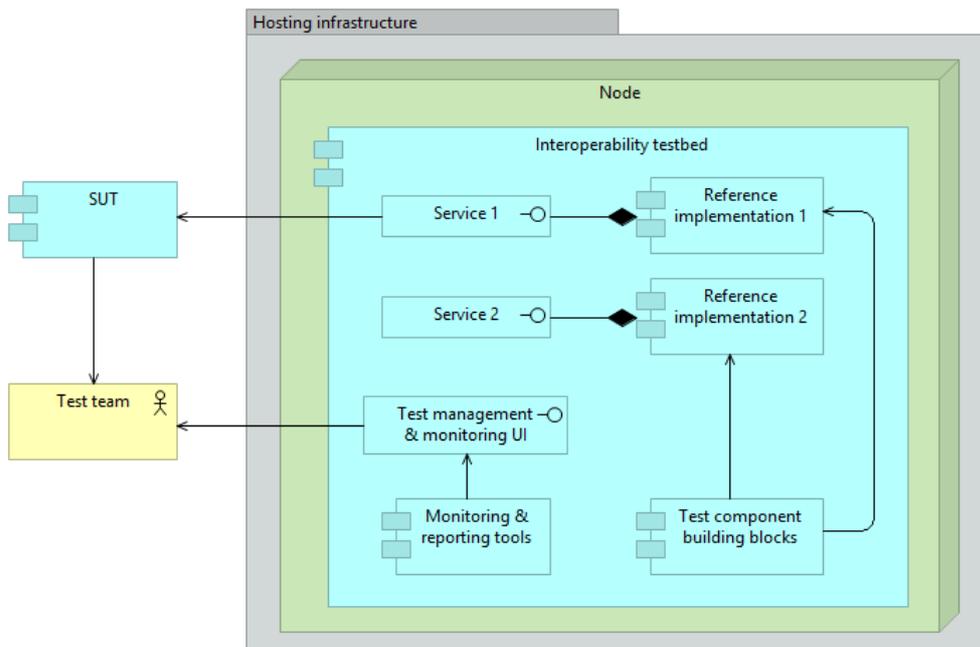


Figure Testing using a test bed

Over time, new reference implementations will be added to provide additional test services, and test cases developed for the automation of simple interconnection tests as well as conformance tests against standards and specification.

8.8.12 COSTS AND MILESTONES

8.8.12.1 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)
Execution (continuing from ISA programme)	<ul style="list-style-type: none"> Establish hosting of test bed 	150	ISA ²	Q2/2016	Q3/2016
Execution	<ul style="list-style-type: none"> Set up governance Deploy reference implementations Develop conformance tests 	200	ISA ²	Q3/2016	Q2/2017
Operation	<ul style="list-style-type: none"> Governance of Operation Operational Hosting Test development 	250	ISA ²	Q1 2017	Q4 2017
	Total	600			

8.8.12.2 Breakdown of ISA funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Execution /Operation	250	
2017	Execution /Operation	350	

8.8.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
CEN GITB specification	Global eBusiness Interoperability Test Bed (GITB) Phase 3: Implementation Specifications and Proof-of-Concept	
Hosting requirements, deliverable from previous contract under	"Hosting requirements" (report to be published)	

the ISA programme		
Eligibility criteria for test services, deliverable from previous contract under the ISA programme	"Eligibility criteria for systems to request testing facilities" (report to be published)	

8.9 JOINUP – EUROPEAN COLLABORATIVE PLATFORM AND CATALOGUE (2016.20)

8.9.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common services
Service in charge	DIGIT.B6
Associated Services	GROW.F3, CONNECT.H3 CONNECT.F2 DIGIT.B1

8.9.2 EXECUTIVE SUMMARY

Information related to interoperability solutions and -initiatives were scattered across Europe in numerous public repositories and governmental websites making it hard for policy makers, IT experts and other interested parties get information on the current status of interoperability in Europe, or to re-use already available solutions in the public sector.

Joinup answers to these problems, by establishing a common platform which combines three services in order to reach the objectives stated above:

1. Observatory functionalities enable different communities, such as NIFO to inform their respective users of new events, news, best practices related to a specific domain;
2. collaborative features allow setting up separate spaces for different communities to cooperatively develop their solutions, or to exchange best practice of a specific sector;
3. finally the catalogue provides a central, federated place for interoperability solutions, which are used and which can be re-used in the public sector across Europe.

The above features allow different initiatives to focus on their core objectives without having to deal with setting up individual websites with similar functionalities to communicate to the public. Joinup not only saves considerable resources compared to setting up individual spaces for specific projects, but also helps these projects gain more visibility and reach their target audience more easily. The Catalogue helps public administrations search for, find and re-use proven solutions from a central place.

Joinup has been available since 2012, while the catalogue of interoperability solutions have been launched in 2013. Based on the experience with their usage, the Commission already has launched a major revamping exercise (funded under the ISA programme, which includes both the update of the Joinup platform and also the re-scoping of the catalogue of solutions.

In 2016, the action will focus on the following areas:

- provide better user experience: continue to enhance the platform to provide better usability, better support for mobile devices, easier navigation for users.

- finish the re-scoping of the catalogue of solutions – the number of solutions is expected to be reduced from 5000 to less than 1000. Joinup will focus on promoting the highest quality, most documented solutions, while also allowing other high quality, and well documented ones to be part of the catalogue.
- implement the European Interoperability Cartography within Joinup, which aims at providing a highly structured (according to the EIRA) set of building blocks and solutions to support administrations in providing interoperable public services.

8.9.3 OBJECTIVES

The objective of the action is to help public administrations deliver high quality, interoperable services faster and cheaper by providing them a platform, where they can exchange good practices, and high quality interoperability solutions in the context of public services.

8.9.4 SCOPE

To develop and provide a common technical platform offering a set of services supporting public administrations exchange interoperability solutions and good practices:

1. to develop and maintain the technical Joinup platform
2. to operate the Joinup platform and to provide technical and user helpdesk
3. to develop and maintain the catalogue of interoperability solutions and the European Interoperability Cartography on Joinup. The catalogue documents and makes available information about interoperability solutions related to EU policies of the Member States and the European Commission, with the possibility to host relevant information from other International Organizations, including standardisation activities and bodies. By interoperability solutions we mean methods, techniques, guidelines, standards, specifications, service descriptions and software artefacts. The listed solutions are organised in multiple dimensions including the four levels of EIF, including technical and semantic interoperability solutions (e.g. standards, metadata schemata), organisational interoperability solutions (e.g. business processes) and legal interoperability solutions (e.g. guidelines on how to achieve legal interoperability, decisions, laws). The catalogue will also include a subset of solutions which meet certain criteria to be included in the European Interoperability Cartography.

Out of scope:

User engagement, content creation and community facilitation are not in scope for the Joinup action, but are managed by other actions (mainly the Community building action).

8.9.5 PROBLEM STATEMENT

Information related to interoperability solutions, interoperability initiatives were scattered across Europe in numerous public repositories and governmental websites making it hard for policy makers, IT experts and other interested parties to be informed on the current status of interoperability in Europe, or to re-use already available solutions in the public sector.

Joinup answers to these problems, by establishing a common platform which combines three services in order to reach the objectives stated above:

1. Observatory functionalities enable different communities, such as NIFO to inform their respective users of new events, news, best practices related to a specific domain
2. Collaborative features allow setting up separate spaces for different communities to cooperatively develop their solutions, or to exchange best practice of a specific sector.
3. Finally the catalogue provides a central, federated place for interoperability -usable solutions, which are used and which can be re-used in the public sector across Europe.

The above features allow different initiatives to focus on their core objectives and not having to deal with setting up individual websites with the above functionalities to communicate with their public. Joinup not only saves considerable re-sources compared to setting up individual spaces for specific projects, but also helps these projects gain more visibility and reach their target audience more easily.

Joinup has been available since 2012, while the catalogue of interoperability solutions have been launched in 2013. Based on the experience with their usage, the Commission already has launched a major revamping exercise (funded under the ISA programme, which includes both the update of the Joinup platform and also the rescoping of the catalogue of solutions.

The main issue with the Joinup platform was related to usability and user friendliness as well as reliance on obsolete technology which is not supported anymore and which did not support new requirements sufficiently (e.g. mobile access).

While the catalogue succeeded in federating more than 5000 interoperability solutions from national and international repositories, experience showed that the majority of these solutions were poorly documented and hence not re-used. The catalogue had difficulties to promote the most re-usable, most useful solutions among the many of medium or low quality catalogue entries.

In the following year, the Commission will continue the revamping exercise to address these issues.

8.9.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
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<p>Member States public administrations and their IT providers</p> <p>Other non-EU public administrations</p>	<p>Improving communication and collaboration on common projects (sharing ideas, code and implementations) with Public Administrations.</p>
<p>European Commission services</p>	<p>Reduced costs through the re-use of common packages integrated into a single hardware + software infrastructure and operated by a single technical service team.</p> <p>Reduced communication and development costs for projects, resulting from not having to set up individual websites and repositories to publish their solutions to the public.</p>
<p>Member States</p>	<p>Member states obtain access to a set of interoperability solutions that can be re-used in their NIF. They could also obtain access to an overview of the different TES that exists to support EU policies. Solutions which could be re-used are not only software systems or parts thereof but also guidelines, methods and techniques, organisational and legal regulations and formal specifications. A selected set of all these elements which could qualify as best-in-class will constitute an EU Cartography. Since EFIR is a federated repository, Member States can seamlessly exchange interoperability solutions with EFIR and their local installations of the platform. A light-weight federation with non-EFIR repositories became available via the ADMS extended specification for describing any type of IOP assets. EFIP allows analysing the strengths and weaknesses of the Member States in specific interoperability areas.</p>
<p>European Commission</p>	<p>The Commission would use the platform to promote EIS, EIF and related concepts and ideas. In addition, the platform enables the EU to analyse the strengths and weaknesses of the Member States in specific interoperability areas and allows measuring the success of the EIS implementation in Europe. Measuring the success of the EIS implementation would be an important aspect of EIS governance.</p> <p>The European Commission is expected to use the platform to document also its own IOP solutions and the ISs which have been implemented to support EU policies.</p> <p>The Commission will also acquire a more precise view on the current landscape of different solutions and their interrelationships, possible overlaps, complementarities, needs for interoperability, etc.</p>
<p>European Industry</p>	<p>The access to interoperability solutions like business processes, communication protocols, guidelines and techniques allows the European software industry to develop products, which fit the needs of European public administrations more closely. Therefore, the proposed repository fosters the creation of an innovative European</p>

	software market offering interoperable products.

8.9.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
Digital Agenda	Interoperability and standards is a cornerstone of the Digital Agenda. Having access to interoperability solutions of all levels and all Member States is, therefore, an important step forward in implementing the Digital Agenda.
eGovernment Action Plan	<p>2.2.3 of the Action Plan: "The Commission will conduct a study with the MSs, of the demand for cross-border services and assess the organisational, legal, technical and semantic barriers." The action aims to provide a platform to facilitate the development of solutions with the objective to overcome these barriers.</p> <p>2.3.1: "The Commission will facilitate the exchange of experience, encouraging re-use of successful solutions and applications and exploring new approaches to support the Member States in improving organisational processes".</p> <p>Interoperability is a pre-condition to establish eGovernment. Given the scope of the project, it directly contributes to fulfilling this pre-condition.</p>
ISA Action 1.17 – Reusable Inspire Reference Platform	Via Joinup, ARE3NA will provide semantic assets from INSPIRE for registration in ADMS including the remaining 24 data specifications from the Annex Themes of the INSPIRE Directive, having already provided the details of the nine Annex I themes. These assets offer the basis for potential reuse of INSPIRE in other sectors, as part of the ARE3NA work on missing items. The improved organisation of these assets could also be addressed with other ISA actions, depending on Member States demand.
ISA Action 1.1 – Promoting semantic interoperability amongst the European Union Member States	Joinup acts as a platform to support the objectives of the ISA Action 1.1 (e.g. the catalogue of semantic assets, ADMS and ADMS.SW open specifications, which are used to federated solution from national and international repositories, are available on Joinup.eu).
ISA Action 2.8 – Machine Translation Service by the European Commission	Joinup will make use of the services of the machine translation platform to provide automatically translated descriptions of software, semantic assets, etc.

ISA Action 2.14 – Assessment of trans-European systems supporting EU policies	ISA Action 2.14 identifies components and solutions which can be used in supporting EU policies. Solutions, which are re-usable cross-border will be published on the Joinup platform.
ISA Action 4.2.2 – Community building and effective use of the collaborative platforms	Joinup offers the technical place to host the activities of the Community Building action.
ISA Action 2.1. European Interoperability Architecture (EIA)	ISA is developing the European Interoperability Cartography (EICart) of solutions. Once available on Joinup, the collaborative platform of ISA, the cartography will be used for discovering existing solutions which can be reused by public administrations at any level. This will accelerate the delivery of public services in a cost-effective manner.

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

The action is re-using the following solutions:

- technical platform: the Joinup platform is based on open source, highly re-usable components (Drupal 7.0, Mailman, etc, with limited customisation).
- ADMS, ADMS.AP: this semantic specification was developed under the ISA action 1.1. to describe in a standardised manner any interoperability solution. All interoperability solutions in the catalogue of solutions are described using this specification. In addition, the specification is also used to federate interoperability solutions from other national and international repositories.
- EIRA: the European Interoperability Architecture will be used to organise solutions which are part of the future European Interoperability Cartography (a subset of Joinup catalogue) on Joinup.

8.9.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Updated Joinup reusable platform
Description	The Joinup platform is available for re-use under an open source licence. The platform is already re-used by the Australian and New Zealander administrations. A new version will be available in 2016.
Reference	www.joinup.eu
Target release date / Status	Q3 2016

Output name	Updated ADMS. AP
Description	This semantic specification was developed under the ISA action 1.1. to describe in a standardised manner any interoperability solution. All interoperability solutions in the catalogue of solutions are described using this specification. In addition, the specification is also used to federate interoperability solutions from other national and international repositories. An updated version will be available, based on the requirements from stakeholders.
Reference	www.joinup.eu
Target release date / Status	Q4 2016

8.9.10 ORGANISATIONAL APPROACH

8.9.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States' public administrations	<ul style="list-style-type: none"> ○ ISA² Committee ○ ISA² Coordination Group (or ISA CG equivalent) ○ Dedicated ISA² expert group ○ Representatives of national repositories
European Commission DIGIT	Service provider for hosting/hosting services and project evolution
European Commission DIGIT	Action owner of "Community building" action
European Commission DIGIT	Action owner of National Interoperability Framework Observatory (NIFO) action

European Commission DIGIT	Action owner of “Promoting semantic interoperability” action
European Commission JRC	Action owner of the ELISA action
European Commission CNECT	Owner of the CEF programme.
European Commission GROW	Owner of the Catalogue of EU standards project.

8.9.10.2 Communication plan

Event	Representatives	Frequency of meetings / Absolute dates of meetings?
	Dedicated ISA ² expert group	1-2 times per year.
Survey on future improvements	Users of the platform, national repositories	Once per year.
Workshops	Owners of national, international federated repositories	Once per year

8.9.10.3 Governance approach

The project is managed by the Commission (DIGIT.B6, DIGIT.A3 and DIGIT.C).

The strategic decisions with regards to the direction of further developments are influenced by evaluating the use of the platform and by surveying the end-users and other stakeholders of the platform. A Joinup Steering Committee has been set up (consisting representatives of the above actions) to support the decision making process.

8.9.11 TECHNICAL APPROACH

The development of Joinup started in 2010, while the platform was launched in 2011. In 2013, Joinup launched an integrated repository of interoperability solutions, which included not only open source software, but also technical and semantic specifications aimed at increasing interoperability among public services. Over the last years, Joinup has become collaborative home to hundreds of Commission and other EU software initiatives and provides a catalogue of thousands of federated interoperability solutions, guidelines, documents and frameworks.

It also provides the technical means to publish several ISA and ISA² initiatives, such as the National Interoperability Framework Observatory (NIFO), CAMSS, IMM, ePrior, eTrustex, etc.

Being such a rich and diverse information source has had its challenges. Users found it hard to find relevant information among the plethora of content Joinup provides and to navigate through the dozens of different services.

To address these issues, the Commission has launched 2 parallel projects in 2015. One aims at updating the platform itself using modern technologies (full support of mobile devices, better user interface, streamlined workflows), while the other is working on streamlining the catalogue of interoperability solutions.

In Q2 2016, the first version of the new Joinup platform will be launched.

Work on the catalogue has already started in 2015. First, a new scoping criteria along with a stricter quality check have been defined, which will result in a significant reduction of the catalogue (from 5000 to approximately 1000 solutions). This will make it easier to promote high quality, well documented solutions and important specifications for public administrations.

While action has started to eliminate solutions which do not meet the criteria, we expect that this work will end in Q1 2016.

In parallel, the action will overtake the implementation and operation of the EIC (European Union Interoperability Cartography) from the ISA action 2.2 EIA.

As a first step (still in 2015) a new scope and eligibility criteria along with a governance model will be defined for the catalogue (using ISA funding) . Based on this criteria, the catalogue will be populated in the course of 2016 (using ISA² funding)

In summary, the following activities are planned for 2016 (the source of funding is given in brackets):

- finalising the development of the new Joinup2 version (ISA)
- deploying Joinup2 (ISA²)
- operation of the Joinup platform (ISA²), which includes hosting, technical maintenance, the provision of technical and user helpdesk.
- further enhances to Joinup2 platform (ISA²)
- revision of the catalogue of interoperability solutions to meet the new scoping and eligibility criteria (ISA)
- operating the catalogue of interoperability solutions on Joinup (ISA²), which includes the federation of new repositories, the assessment of federated and hosted solutions against the scope and eligibility criteria, the promotion of high quality solutions and other promotion activities.
- preparation of scoping and governance model for the EIC (ISA)
- implementation and operating the EIC (ISA²)

8.9.12 COSTS AND MILESTONES

8.9.12.1 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)
Operational	Joinup2 hosting, technical maintenance and provision of technical and user helpdesk	210	ISA ²	Q32016	Q32017
Operational	Provision of the catalogue of solutions on Joinup	200	ISA ²	Q22016	Q22017
Execution	Joinup 2 improvements and new developments	550	ISA ²	Q22016	Q22017
Execution	Implementing and populating the EIC	100	ISA ²	Q22016	Q22017
	Total	1060			

8.9.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Operation : Joinup2 hosting, technical maintenance and provision of technical and user helpdesk	210	
2016	Operation: Provision of the catalogue of solutions on Joinup	200	
2016	Execution: Joinup 2 improvements and new developments	550	
2016	Execution: Implementing and populating the EIC	100	

8.10 COMMUNITY BUILDING AND EFFECTIVE USE OF COLLABORATIVE PLATFORMS (2016.22)

8.10.1 IDENTIFICATION OF THE ACTION

Type of Activity	Accompanying measure
Service in charge	DG DIGIT.B6
Associated Services	DG CNECT

8.10.2 EXECUTIVE SUMMARY

The Community Building action is at the core of the Joinup platform. It facilitates collaboration through the platform, supporting and enhancing the activities of hosted communities. Community-building activities will continue under ISA² programme.

Promoting the exchange of good practices is a good way to ensure spreading them across Europe. Member States can replicate useful approaches and solutions to deliver electronic services minimising effort and time.

In this context, the implementation and promotion of best practice online as well as the facilitation of offline sharing are key. They help to ensure a wider deployment across the EU to the benefit of Public Administrations, businesses and citizens.

The ISA² communication strategy to be developed in 2016 will consider also the activities performed under the Community building action.

8.10.3 OBJECTIVES

The main objective of this action is to facilitate the exchange of best practises in the area of interoperability and e-Government, notably by the set-up and operation of pertinent user communities.

8.10.4 SCOPE

Any community interested in interoperability and e-Government is in scope of the action. These communities are open to all stakeholders as long as they are not used for commercial purposes and clearly demonstrate that they represent the interest of the public service.

This action covers one of the priority areas of the European Interoperability Strategy which is the sharing of best practices and common solutions among public administrations. It covers also some priorities of the Digital Single Market. As a result, it will continue building new and maintaining existing communities (within and outside the EU borders).

8.10.5 PROBLEM STATEMENT

European public administrations, who are the main target group of this ISA² action, have progressed a lot in the area of interoperability and most of them already have advanced national portals/platforms as repositories for the sharing of their common solutions. These reside within the national borders, and therefore are often more appealing to national users than the pan-European ones. However, national platforms are not always known or accessible (e.g. due to linguistic issues) to all EU citizens and concerned communities are in national isolation without the broadest possible visibility.

The creation of a single place, i.e. Joinup, where relevant communities can be hosted, supported and maintained is a solution to the above problem. It should be noted that Joinup should not be perceived as a competitor to other local sites but rather as their complement at EU level. Joinup software itself can be downloadable by stakeholders wishing to have their own collaborative space.

Joinup.eu covers content from all across the EU and beyond and therefore it can also support public administrations when adopting a European perspective in interoperability rather than focusing at national level only. The full re-use and benefits of best practices and solutions is not possible without providing European level visibility to such practices. This is exactly what Joinup.eu is committed to do and will be achieved by supporting the building and maintenance of online communities.

8.10.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
European Public administrations, business and citizens	<ul style="list-style-type: none"> • Knowledge/solutions sharing and reuse; • Co-working on issues of common interest; • Better, more effective and efficient public services via sharing, re-use and collaboration.

8.10.7 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	news items, cases studies around eGovernment and OSS in public sector
Description	A set of news items, case studies around eGovernment and OSS in the public sector.
Reference	http://joinup.ec.europa.eu
Target release date / Status	regularly published throughout 2016,

Output name	OSS highlights
Description	A publication highlighting the most important initiatives, good practices around using OSS in the public sector in 2016
Reference	http://joinup.ec.europa.eu

Target release date / Status	Q1 2017
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8.10.8 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
ISA Action 1.1 – Methodologies for the development of semantic assets	ISA Action 4.2.2 hosts and manages the SEMIC and CESAR communities of the ISA Action 1.1.
ISA Action 1.12 – European Citizen's Initiative	ISA Action 4.2.2 hosts and manages communities.
ISA Action 4.2.1 – ISA Integrated collaboration platform	Joinup offers the technical place to host the activities of the Community Building action.
ISA Action 1.6 – PEPPOL Sustainability (CIPA)	ISA Action 4.2.2 hosts the user community around CIPA e-Delivery building block.
ISA Action 1.7 – e-Prior action	ISA Action 4.2.2 hosts the user community around the e-Prior tool.
ISA Action 4.2.3 NIFO	ISA Action 4.2.2 hosts the user community of NIFO. NIFO through the delivery of factsheets and interoperability reports at EU level can be a reference point for many of the communities.

8.10.9 ORGANISATIONAL APPROACH

8.10.9.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States	Member State Experts
Communities of Practice	ELANET
European Public Administrations	Public Administrations from National, Regional and Local levels together with all EU Institutions and Agencies.

8.10.9.2 Communication plan

Communication activities are ensured through constant contacts with the existing and potential stakeholders and through presentations to the ISA² management bodies.

8.10.9.3 Governance approach

The action will be managed by DIGIT with the support of an external contractor.

8.10.10 TECHNICAL APPROACH

The action consists of two parts:

- Community building

The Commission provides answers to all questions, comments and suggestions community members might have, be it on open source, interoperability or of technical nature.

The Commission will ensure that communities are active and will support their facilitator to create content and stipulate discussions between the members.

In 2016, the service will continue and further enriched as Joinup functionalities will be extended due to migration to a newer Drupal version. Support to communities will be intensified, also through providing better content, statistics to facilitators so as to identify new trends needing discussion, running awareness campaigns, etc.

- Sharing of best practice

The Commission will be responsible for the content generation on Interoperability and eGovernment and also support users to submit their own content in terms of news, events, cases and documents.

This action sustains most of the actions within the ISA² programme, as it is able to support their communities on Joinup.eu.

In 2016, social media will be better integrated to allow for success stories and best practises to be easily captured and communicated. Real-life events (workshops, conferences) will be organised to support communities in a variety of themes.

Generally, through this action the Commission is taking a pro-active role in the area of collaboration. Also, the Commission shall search for similar initiatives in the EU public administrations and identify possibilities for collaboration.

8.10.11 COSTS AND MILESTONES

8.10.11.1 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)
Operational	Content provision, moderation of online discussions, support to online communities, showcasing of best practices organising workshops.	500	ISA ²	Q2/2016	Q1/2107
	Total	500			

8.10.11.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Operational	500	
2017	Operational		
2018	Operational		
2019	Operational		
2020	Operational		

8.11 ASSESSMENT OF TRANS-EUROPEAN SYSTEMS SUPPORTING EU POLICIES (2016.36)

8.11.1 IDENTIFICATION OF THE ACTION

Type of Activity	Common frameworks
Service in charge	DG DIGIT.B6
Associated Services	CONNECT.H.3, DIGIT.01, DIGIT.B, MARKT.B.1 and TAXUD.C5

8.11.2 EXECUTIVE SUMMARY

The European Commission is determined to improve the efficiency on its ICT portfolio management, especially for solutions of trans-European nature having direct impact on the implementation of EU policies.

On the one hand the Commission ITT Governance should rationalise existing IT systems by identifying and eliminating overlaps through reusability.

On the other hand the policy makers i.e. in the context of the recently launched Digital Single Market strategy should make good use of technology in EU legislation, by referring to an updated repository of IT solutions linked with legal and business needs and technically sound.

For the above to happen, the identification, collection, documentation and assessment of Trans European Systems (TES) managed by the Commission on behalf of/jointly with the Member States is needed. TES should be put into a Cartography (EUCart) which means that they all have to be described in a common way using a reference architecture. This reference architecture has been chosen to be the EIRA. The scope of this action includes:

- the creation of an EUCart based on EIRA that will allow the identification of reusable and interoperable IT solutions to the benefit of the ICT portfolio management of the Commission and in support of the makers of the EU policy-makers.
- The assessment of the reusability and interoperability levels of the building blocks of each TES

So far, more than 75 TES have been put into the current version of the EUCart and can be easily queried and organised.

Next steps include the update and extension of the EUCart and the application and assessment of reusability and interoperability criteria that will increase the reusability potential of TES.

8.11.3 OBJECTIVES

The objective of this action is:

- To rationalise the portfolio of the Trans European Systems managed by the Commission, through the identification and elimination of overlaps and through maximizing reusability to the benefit of those using these systems, public administrations included;
- To assess/produce/validate reusability and interoperability guidelines that could be used to allow solutions entering the European Interoperability Cartography;
- To allow policy-makers benefit from reusing TES or their parts when preparing EU legislation.

8.11.4 SCOPE

All Trans European Systems developed by the Commission on behalf of/jointly with the Member States and contained in the ICT portfolio of the Commission are in scope. Member State systems identified by NIFO are also potential targets for inclusion in the Cartography.

More particularly, the following activities fall under the action in question:

- Identify, collect and document using EIRA all concerned TES in a Cartography (EUCart);
- Analyse and identify overlaps, missing modules and reusability possibilities;
- Identify TES that could be included into the European Interoperability Cartography (EIC) when this is ready and/or on the Joinup, as needed;
- Feed back to the Commission's IT Governance to ensure proper decision making in relation to (on-going) rationalisation.

8.11.5 PROBLEM STATEMENT

The problem of	not having a detailed and similarly documented (with the use of a common architectural description) portfolio of Trans European Systems supporting EU policies,
affects	the Commission responsible services (policy-makers, ICT decision-makers, portfolio managers, etc.) in their endeavour to rationalise its ICT portfolio and properly reuse ICT solutions in the preparation of EU legislation
the impact of which is	inefficient decision-making and possible duplication of effort in the development of ICT solutions due to difficulties in identifying reusable elements. This in turn results into higher cost and longer development time with no guarantee of openness and interoperability
a successful solution would be	to put in place a Cartography of TES (EUCart) that will cater for common presentation and proper rationalisation process.

8.11.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States' Public Administrations	<ul style="list-style-type: none"> • More streamlined interfacing/integration with less EU systems; • Reduced training efforts as a fewer IT tools are used; • Shorter time to obtain IT tools for new areas; • Boost for e-government policies.
Commission Services	<ul style="list-style-type: none"> • Reduced IT development and maintenance costs; • Reduced training, helpdesk and awareness raising costs ; • Shorter time to deliver IT solutions for new areas; • Better quality due to reusing existing (proved) solutions and/or their modules.
(Indirectly) EU citizens and businesses	<ul style="list-style-type: none"> • Better digital services delivered by public authorities

8.11.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation
Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	The EUCart will be used in the frame of the Impact Assessment/Evaluation processes of the DSM initiatives as a repository of reusable solutions. Policy-makers can search in there for ICT solutions or their parts fulfilling their legal/business/technical needs.
ISA Action 2.1 – European Interoperability Architecture	The overall architectural design principles, direction and approach of EIRA drives the description of TES.

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

The TES action is linked with many other ISA/ ISA² actions, more specifically with:

- EIRA which is used to describe and document TES in a common way (including assessing them in relation to upcoming interoperability criteria);

- EIC which will benefit from the pilot implementation of EUCart;
- EIS which will potentially identify exemplary TES to refer to;
- Sharing and re-use which will co-define the criteria that TES will use to identify reusable solutions contained in the EUCart;
- Interoperable Testbed which could be potentially used for those TES having particular testing needs.

The TES action will support decisions to be taken by the IT Governance of the Commission through identifying and proposing reusability opportunities.

It will also support any legislation preparation or evaluation activity, through providing the means to the policy owners to identify synergies between legislation and reusable TES.

8.11.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	EUCart
Description	European Union Cartography of TES
Reference	CarTool using QlickView
Target release date / Status	regularly updated

8.11.10 ORGANISATIONAL APPROACH

8.11.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
European Commission Services	Policy units in the DGs, responsible for the setup of EU systems supporting exchanges between Member states and with EU institutions
IT Governance of the Commission	DG representatives
Member States Public Administrations	Relevant departments responsible for the information systems connected to or using the TES

8.11.10.2 Communication plan

Event	Representatives	Frequency of meetings / absolute dates of meetings?

Event	Representatives	Frequency of meetings / absolute dates of meetings?
ISA ² committee/working/coordination group meetings	Member States representatives	At least yearly
Internal dedicated Commission meetings	Policy DGs	Ad-hoc

8.11.10.3 Governance approach

The action will be managed by DIGIT as well as CONNECT, MARKT and SANCO as associated DGs with the support of an external contractor and in close collaboration with the Commission DGs owners of the concerned TES.

8.11.11 TECHNICAL APPROACH

Up until 2013 the EUCart included 58 TES and provided a set of rationalization recommendations to the IT Governance of the Commission.

In 2015 the EUCart was updated with the latest version of the EIRA, started using the CarTool as the technical means for its organisation/presentation and extended to more than 75 solutions including 9 base registries. The EUCart is meant to feed into the European Interoperability Cartography (EIC). It is the playground to practise/validate outputs coming from relevant action, i.e. reusability criteria, EIRA, base registers, etc.

The next big step is to migrate/transfer EUCart solutions complying with certain interoperability/reusability criteria, to the EIC. To qualify a solution as interoperable and reusable thus making it eligible for the EIC, all TES views as per EIRA (i.e. legal, organizational, semantic and technical) shall be considered and checked against reusability criteria proposed by the sharing and re-use action and interoperability criteria (resulting from interoperability specifications) developed under the EIRA action. The total reusability cost shall also be estimated per EIRA building block.

Briefly, in 2016 the action will:

- Maintain/extend the EUCart and propose rationalisation recommendations to the Commission's IT Governance, including reusable TES;
- Assess the pertinence and efficiency of interoperability criteria that will be developed by the EIRA action for the purpose of allowing TES to enter the EIC.

8.11.12 COSTS AND MILESTONES

8.11.12.1 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)
	<ul style="list-style-type: none"> Constantly maintain/extend the EUCart Test interoperability criteria on TES 	200	ISA ²	Q2/2016	Q1/2017
	Total	200			

8.11.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016		200	

8.12 SHARING AND RE-USE (2016.36)

8.12.1 IDENTIFICATION OF THE ACTION

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

8.12.2 EXECUTIVE SUMMARY

The economic crisis requires EU public administrations to do the same or even more with much less. In this context, sharing and reuse of the IT solutions used for the provision of digital public services has the potential to bring the much needed savings.

At the same time, reuse of solutions will contribute to a greater harmonisation and improved coherence of services across EU and will make it easier for public administrations to interact and interoperate.

Member States and the Commission have already taken various steps towards this direction. Under the ISA programme, the "Sharing and re-use" action has already produced a number of tools which can help public administrations to develop common and reusable solutions.

Under the 2016 ISA² work-programme, the following activities will take place:

- Publish a re-use and sharing framework: The common framework on cross-border sharing and re-use of solutions (developed under ISA) will be put in public review so as to become a core reference for EU and national sharing and re-use initiatives;
- Conferences about sharing and re-use of IT solutions in the public sector focusing on best practices (cases, solutions, governance and business models);
- Support to national and regional projects bearing chances for a cross-border re-use;
- Award successful IT projects having a potential for cross-border expansion. The aim is to use the prizes as financial incentives and communication tools to have a positive effect on the cross-border re-use of IT solutions (e.g. open source software solutions or services).

8.12.3 OBJECTIVES

The action shall support public administrations in sharing and re-using IT solutions and best practices in order to facilitate the development of interoperable, high-quality and efficient public services.

8.12.4 SCOPE

All EU public administration providing public services are in scope of the action, which aims to develop and promote instruments to help administrations share and re-use their IT solutions. Within this scope, the action has already developed and will publish in 2016 a common Sharing and Re-use Framework, has already developed a set of guidelines and templates and will organise a conference to disseminate these instruments and information on best practices in Europe.

8.12.5 PROBLEM STATEMENT

The problem of	budget limitation although there is a need for better public services at national level and more cross-borders cooperation
affects	the EU public administrations (at all levels, national, regional and local), their users (other administrations, citizens and businesses) as well as the EU bodies responsible for cross-border and/or cross-sector policies
the impact of which is	digital isolation within the national borders, moderate ICT implementation quality, at higher cost, lack of interoperability and lack of coherence in the implementation of EU law.
a successful solution would be	to design a framework on sharing and re-use accompanied by measures (communication, awards, support to sharing and re-use initiatives, etc.) that can support its implementation in Europe.

8.12.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
EU public administrations	Savings as well as indirect facilitation of interoperability through the reuse of existing public services solutions all over Europe
EU bodies	EU initiatives can be better implemented and their impact is maximised if digital services in Europe are developed on the basis of sharing and re-use of existing solutions
Citizens and businesses	Being the end-users of digital public services, they benefit from services of better quality, more interoperable and accessible. Reusability often entails less time for the end-users to engage themselves in using the service due to previous knowledge and makes the concerned service more attractive.

8.12.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
ISA Action 1.3 – Catalogue of services	The criteria developed by the action will be used by the Catalogue of services.
ISA Action 1.17 – Reusable Inspire Reference Platform	ARE3NA will benefit from the sharing and reuse strategy for the better organisation of assets and work related to open data initiatives, in line with the ARE3NA's objectives.
ISA Action 2.1 – European Interoperability Architecture	Sharing and re-use criteria will be considered within EIRA's endeavour to define interoperability specifications.
ISA Action 2.14 – Assessment of Trans-European networks supporting EU policies	The action will provide input to the EU cartography, by defining reusability criteria upon which the TES will be classified. Further on, it will also be used by the European Interoperability Cartography (EIC) as the necessary "sharing and re-use" for the introduction of an interoperable solution.
ISA Action 4.2.1 – Integrated Collaborative platform (Joinup)	Sharing and re-use criteria are used by Joinup for the federation and the registration of new solutions.

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

The action used many sources to develop the common EU sharing and re-use framework, such as the sharing and re-use framework developed by DG TAXUD (for the taxation domain) and a study on the identified barriers to sharing (developed by DG DIGIT). For other instruments, such as the meta-guideline for public procurement, the action used several studies developed by DG CNECT and DIGIT (under the IDABC and ISA programmes).

8.12.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Sharing and re-use Framework
Description	The framework consists of a set of recommendations for public administrations, on the one hand to help them create shareable solutions and on the other hand to reduce development and operation costs by re-using already available solutions.

Reference	
Target release date / Status	Q2/2016

8.12.10 ORGANISATIONAL APPROACH

8.12.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
Member States' public administrations	Dedicated ISA ² Working Group experts
The European Commission	DIGIT, IT governance of the Commission as well as ICT services of other directorate generals

8.12.10.2 Communication plan

Event	Representatives	Frequency of meetings / Absolute dates of meetings?
Sharing and re-use conference		Q2/2016
Sharing and re-use reward event		Q2/2016

8.12.10.3 Governance approach

The action will be managed by DIGIT with the support of an external contractor. Whenever major deliverables are to be published, the validation of the MS representatives will be sought.

8.12.11 TECHNICAL APPROACH

A common framework on cross-border sharing and re-use of solutions (developed under ISA) will be put in public review in Q1/2016 so as to become a core reference for EU and national sharing and re-use initiatives. Its implementation will be supported by a series of activities, such as conferences about sharing and re-use of IT solutions in the public sector and support to national and regional projects bearing chances for a cross-border re-use.

An interesting new approach in promoting sharing and re-use is awarding successful IT projects having a potential for cross-border expansion. The methodology developed under ISA action 4.2.2 Community building will be used for the transparent selection and evaluation of candidate projects. All European public administrations are eligible. The precise context, along with the evaluation and selection criteria will be published by Q1 2016.

8.12.12 COSTS AND MILESTONES

8.12.12.1 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)
Operational	Sharing and re-use conference and award event	50	ISA ²		
	Promotion of sharing and re-use framework	30	ISA ²		
	Funds for financial awards	100	ISA ²	Q2/2016	Q2/2017
	Total	180			

8.12.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Execution	180	
2017			
2018			
2019			
2020			

9. ACCOMPANYING MEASURES

9.1 RAISING INTEROPERABILITY AWARENESS – COMMUNICATION ACTIVITIES (2016.30)

9.1.1 IDENTIFICATION OF THE ACTION

Type of Activity	Accompanying measure
Service in charge	DG DIGIT
Associated Services	

9.1.2 EXECUTIVE SUMMARY

The modernisation of Public administration is currently a need for Public administrations all across Europe. Shrinking public budgets require a greater efficiency and effectiveness of administrations. Digital technologies can increasingly help in this respect. However, in a connected world, it is getting of paramount importance that public administrations can exchange data between each other smoothly, seamlessly and securely through solutions that are interoperable with each other, both from a semantic, organisational, legal and technological point of view.

The ISA² programme of the European Commission will support public administrations in their efforts for modernisation through the development of interoperable solutions that fulfil the above requirements thus contributing to the completion of the Digital Single Market in Europe.

Communicating the solutions developed under the ISA² is a prerequisite for achieving their widespread use. To this end, from the start of the programme on, a comprehensive communication strategy and campaign needs to be set up and maintained.

Under the new programme, in 2016, communication activities will include the development of an overall communication strategy and plan, the development and establishment of the programme's website and social accounts and the organisation of an ISA² conference. In addition the action will continue to organise workshops and participate in conferences in Member States to inform stakeholders about the re-usable instruments developed under the ISA and ISA² programmes. Part of the actions that have started under the predecessor programme ISA will be continued and new will be added.

9.1.3 OBJECTIVES

The objectives of this action are:

- To promote the collaboration between programme's stakeholders and facilitate their interaction;
- To communicate the outcomes of ISA/ISA² actions and actively promote their use by programme's beneficiaries;

- To identify initiatives other than ISA² that could contribute to / benefit from programme's developments and support diffusion/collaboration

9.1.4 SCOPE

All programme actions are in scope, including the upcoming revision of the European Interoperability Strategy and the European Interoperability Framework which have to be supported by a communication plan. The action spans the whole communication process from the establishment of a global "communication strategy" to its implementation at action level aiming to maximise the "Interoperability Awareness" of the whole programme.

Activities will be organised in different forms from hosting of and actively participating in conferences and workshops to the publication of folders, magazines, electronic announcements and newsletters, etc.

9.1.5 PROBLEM STATEMENT

If communication, collaboration and promotion activities are not well planned and performed, the effect of programme's actions to the public administrations, businesses and citizens will not be achieved sufficiently.

Consistent and coherent communication contributes to a stronger buy-in and a broader take-up of solutions, thus increasing the effectiveness of the programme.

9.1.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
Member States' public administrations	Through involvement in the programme, Member State administrations have the possibility to influence its focus and the solutions supported and offered. Awareness of ongoing activities and solutions offered allows Member State administrations to align their efforts in due time and benefit from generic and reusable solutions, which in turn is likely to increase their efficiency and effectiveness.
European Commission services	Through involvement in the programme, Commission services may be able to influence its focus and the solutions supported and offered. Awareness of on-going activities and solutions offered allows Commission services to align their efforts in due time and benefit from generic and reusable solutions, which in turn is likely to increase their efficiency and effectiveness.
Other stakeholders, first and foremost the ICT community	Through involvement in the programme, other stakeholders may be able to influence the conception of the solutions supported and offered. Awareness of ongoing activities and solutions offered allows,

	whenever appropriate, other stakeholders to align efforts in due time, profit from generic and reusable solutions and better adapt their solutions to the needs of administrations.
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9.1.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation
Communication on "A Digital Single Market Strategy for Europe", COM(2015)192	Interoperability, primarily served by ISA ² , is included in the DSM. Programme's communication activities could contribute to raising awareness about ISA ² products beneficial to other DSM domains and strengthen collaboration between different DSM players.
Modernisation of Public administrations	Demonstration to the stakeholders of how solutions developed under the ISA ² programme can contribute to the Modernisation of Public administration in cross-border or cross-sector context. Demonstration of how the ISA results can help public administrations save costs while at the same time increasing efficiency.

9.1.8 REUSE OF SOLUTIONS DEVELOPED BY ISA²

Communication activities are an integral part of every ISA² action. Results will be widely promoted through campaigns, workshops, presentations and the ISA² stand at events, stakeholder mailings, publications of testimonials from the users, etc.

The use of electronic means is the best way to support all these activities. ISA outputs designed to serve this purpose such as Joinup will be extensively used.

9.1.9 ORGANISATIONAL APPROACH

9.1.9.1 Expected stakeholders and their representatives

Stakeholders	Representatives
<ul style="list-style-type: none"> • National public administrations • Regional and local administrations • MS representatives 	<ul style="list-style-type: none"> • ISA² Committee • ISA² coordination group or ISA CG equivalent • ISA² working groups • Associations of regional and local administrations
ICT community	<ul style="list-style-type: none"> • Companies advising public administrations on ICT strategies • Companies building ICT solutions for public administrations

European Commission services	<ul style="list-style-type: none"> • ICT experts and policy-making officers
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9.1.9.2 Communication plan

Communication campaigns will be organised to engage the various levels of the public sector in IT and other policy domains. They can be executed through both traditional print and electronic media as well as social media. National, regional and local administrations will be targeted.

Upon invitation from the Member States, ISA² staff will present solutions developed at workshops tailor-made for the individual Member States' needs. Participants targeted are staff members from national public administration and public agencies. The workshop concept was received with high interest and positive feedback under ISA.

In addition, physical presence at relevant conferences to inform about ISA² will continue, due to the positive experience with the presence at events in the past under ISA.

The successful annual SEMIC conference will be organised in 2016 again as well as conference on ISA².

9.1.9.3 Governance approach

The communication activity will be run by DIGIT with the support of external contractors. Regular reviews of the ISA² communication strategy will be organised.

9.1.10 COSTS AND MILESTONES

9.1.10.1 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/ISA ² / others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Inception	Communication strategy for the new ISA ² programme	Covered by ISA	ISA	Q1/2016	Q1/2016
Execution	Communication activities will have a recurrent annual nature and will consist of the following :	600	ISA ²	Q2/2016	Q1/2017

	<ul style="list-style-type: none"> • events and conferences (100KEUR) • ISA² stand in conferences organised by third parties (150KEUR) • Other communication activities at programme level (ISA² website, printed documents, audio-visual material, research of publications and events...) (150KEUR) • Communication for specific ISA² actions (200 KEUR) 				
Execution	Communication of the ISA ² programme and its individual actions	2400	ISA ²	Q2/2017	Q1/2021
	Total	3000			

9.1.10.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Execution	600	
2017	Execution	600	
2018	Execution	600	
2019	Execution	600	
2020	Execution	600	

9.1.10.3 Planning for the tendering procedures to be launched for the action

None. The action will be financed by an existing Commission's Framework Contract.

9.1.11 ANNEX AND REFERENCES

Description	Reference link	Attached document
ISA website	http://ec.europa.eu/isa/	
ISA ² website	A separate ISA ² website will be established as soon as the programme is officially adopted by the European Parliament and Council.	

9.2 MONITORING AND EVALUATION (2016.39)

9.2.1 IDENTIFICATION OF THE ACTION

Type of Activity	Monitoring and Evaluation (according to ISA ² decision)
Service in charge	DG DIGIT.B6

9.2.2 EXECUTIVE SUMMARY

The Monitoring and Evaluation action needs to ensure administrative support for the following (but not limited to) legal and internal obligations:

- The Commission monitors and evaluates (M&E) the progress and in particular the relevance, effectiveness, efficiency, utility, sustainability and coherence of the actions of the programme to ensure that the requirements of the ISA and ISA² decisions are met;
- The Commission needs to report annually to the ISA² Committee on the implementation of the programme;
- The ISA² programme is subject to an interim and a final evaluation;
- One of the key outputs of the rolling work program is the monitoring activities.

In order to allow the ISA² Committee Members and the ISA² programme management to take decisions, measurements collected in the frame of this action will be communicated on a monthly, quarterly, semester and yearly basis.

This action will follow three main phases in which project officers will be actively involved supported by an external contractor:

- 1) Definition of indicators and related management processes;

- 2) Implementation of the above mentioned processes;
- 3) Measurement and communication of the indicators on a regular basis (monthly, quarterly, semester and yearly).

In each period the relevant metrics are gathered, grouped, analysed and communicated to all stakeholders (including EU citizens when privacy and business secrecy concerns are met). The metrics are grouped in 3 categories:

- process metrics (e.g. cost, risk, time) – specifically related to efficiency;
- generic metrics (that will be the same for each type of action, including policy impact metrics);
- action specific metrics (that will vary amongst actions) – specifically related to effectiveness.

In 2016, the action will revise the method and instruments used to monitor the actions funded by ISA² and to disseminate information.

9.2.3 OBJECTIVES

The objective of the action is to contribute to the efficient and effective use of ISA² funds by providing relevant, reliable and up-to-date information about all funded actions.

To achieve this, the action will monitor and evaluate, on regular basis, five main criteria at action and when relevant programme level:

- Relevance: extent to which the action/the programme meets the objectives stated in the ISA² legal Decision and of the EIS;
- Effectiveness: extent to which the action is meeting the strategic objectives of the ISA² programme by reaching the expected outcome;
- Efficiency: extent to which the outputs planned to be produced in the frame of the action/the programme are produced within the time and budget given;
- Perceived Quality: extent to which the targeted users of the action/programme are satisfied of what has been developed and their expectations are met (potential improvements are also gathered in that frame);
- Utility: extent to which the action/programme answers the business needs defined upfront by its stakeholders.

9.2.4 SCOPE

The scope of the action is to gather, analyse and publish relevant information on all actions funded by the ISA² programme.

9.2.5 PROBLEM STATEMENT

The lack of continuous measurement severely limits the ability to achieve the intended results or even to identify if they were achieved. Therefore a system needs to be set up that is able to provide both

quantitative and qualitative metrics, thus providing guidance on both ISA² and EIS objectives. The supporting system will also act as an effective communication tool for decision-making.

9.2.6 EXPECTED BENEFICIARIES AND ANTICIPATED BENEFITS

Beneficiaries	Anticipated benefits
European Commission	Ensure the objectives of the ISA ² Decision are met.
	Better programme management, as underperforming actions will be identified sooner.
	Increase transparency of the ISA ² work-programme investments.
ISA ² Committee	Better communication of the results of programme's actions.
	Improved information of the overall ISA ² work programme.
	More transparency as to what the budget is used for.

9.2.7 RELATED EU ACTIONS / POLICIES

Action / Policy	Description of relation, inputs / outputs
EIS	EIS Governance structure
All ISA Actions	Helps to steer course of the ISA work programme

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

The measurements gathered in the frame of this action are made available on the ISA dashboard (<http://ec.europa.eu/isa/dashboard/>)

The use of this tool helps in decision-making and ensures transparency towards all the ISA² programme stakeholders.

This tool has been developed under the ISA programme, and is re-used for ISA², and could potentially be re-used by any similar programme.

9.2.9 EXPECTED RE-USABLE OUTPUTS (solutions and instruments)

Output name	Updated dashboard
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Description	The dashboard used to monitor the performance of actions is available under an open source licence for re-use.
Reference	http://ec.europa.eu/isa/dashboard/
Target release date / Status	Updated version Q2/2016.

9.2.10 ORGANISATIONAL APPROACH

9.2.10.1 Expected stakeholders and their representatives

Stakeholders	Representatives
ISA ² actions	Action owners
Member States	Representatives in the ISA ² bodies (Committee, coordination group or equivalent, etc.)

9.2.10.2 Communication plan

Event	Representatives	Frequency of meetings / Absolute dates of meetings
ISA ² Governance Meetings	ISA ² Committee/ Coordination Group Members	Twice a year

9.2.10.3 Governance approach

This action is managed by DIGIT B.6 with the support of an external contractor. In order to allow the ISA² Committee Members follow closely the progress of the programme, measurements collected in the frame of this action will be made publicly available on the ISA² dashboard on a monthly, quarterly, semester and yearly basis.

This action has three main phases during which project officers are actively involved supported by the external contractor:

- 1) Definition of indicators and related management processes;
- 2) Implementation of the above mentioned processes;
- 3) Measurement and communication of the indicators on a regular basis (monthly, quarterly, semester and yearly).

9.2.11 TECHNICAL APPROACH

The measurements gathered in the frame of this action are now available to all stakeholders (ISA² Programme management, ISA² project officers, Member States, citizens, etc.) on the ISA dashboard <http://ec.europa.eu/isa/dashboard/>.

The use of this tool helps in decision making and ensures transparency towards all the ISA² programme stakeholders.

Before starting the monitoring of the ISA² programme, the existing approach will be re-evaluated and possibly adapted based on particularities of the ISA² decision, usage of statistics, new best practices, availability of new tools, synergies with other monitoring programs, etc.

9.2.12 COSTS AND MILESTONES

9.2.12.1 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)
Operational	2016 WP monitoring ISA ²	230	ISA ²	Q2/2016	Q4/2016
	ISA ² Dashboard Operations, maintenance and technical support	100	ISA ²	Q1/2016	Q4/2016
	Design and implementation of new monitoring actions	100	ISA ²	Q3/2016	Q4/2016
	2016 WP monitoring ISA ²	250	ISA ²	Q4/2016	Q3/2017
	Total	680K			

With the start of ISA² work program, new actions will need to be monitored from Q3/2016, and actual monitoring will start gradually from Q4/2016. At the same time, monitoring of the old program will be performed until the closure of the actions under ISA to ensure continuity between the 2 programs.

9.2.12.2 Breakdown of ISA² funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
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2016		680	
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- ⁱ <http://eupan.eu/>
 - ⁱⁱ http://ec.europa.eu/yourvoice/index_en.htm
 - ⁱⁱⁱ <http://ec.europa.eu/eusurvey/>
 - ^{iv} <https://gate.ac.uk/>
 - ^v <https://opennlp.apache.org/>
 - ^{vi} <https://mahout.apache.org/>
 - ^{vii} <https://uima.apache.org/>