

JRC SCIENCE AND POLICY REPORT

European Union Location Framework Strategic Vision

Version 1

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Abstract

The European Union Location Framework (EULF) is a set of guidance and actions to promote more effective and efficient use of location information in e-government services, building on the Infrastructure for Spatial Information in the European Community (INSPIRE). The EULF is part of the Interoperability Solutions for Public Administrations (ISA) Programme, which supports interoperability solutions, sharing and re-use among European Public Administrations.

The vision for the EULF is that "more effective e-services, savings in time and money, and increased growth and employment will result from adopting a coherent European framework of guidance and actions to foster interoperable cross-sector and cross-border sharing and use of location information. The 'framework' consists of a number of 'focus areas' which are used to assess the current state of play, structure a transition strategy, and define recommendations and guidance. The focus areas are: 'policy and strategy alignment', 'e-government integration', 'standardisation and interoperability', 'return on investment' and 'effective governance and partnerships'.

INSPIRE is being implemented by Member States to deliver effective pan European location information for environmental policy. However, location information is important in many other policy areas, including transport, marine and energy. The EULF aims to be a catalyst to 'bring order' into the use of location information across all policy areas and make it easier to build applications using data from multiple sources, including cross-border applications.

This report defines the vision, objectives and transition strategy for the EULF. It analyses the policy landscape and identifies where the EULF should target its initial policy interventions. It identifies the related projects and initiatives where synergies need to be developed, and outlines the benefits and risks in undertaking this endeavour, including defining an approach to estimate and measure benefits. More detailed recommendations and guidance can be found in the EULF Blueprint and more information in the EULF References document.

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EXECUTIVE SUMMARY

European Union Location Framework - delivering savings, growth and better services through "location-enabled government"

The European Union Location Framework (EULF) aims to maximise the benefit from the vast amount of money spent on location-related information and services by governments across Europe by promoting a best practice approach for cross-sector and cross-border¹ sharing and use of this information. It will be driven by user needs and priorities, and will target actions to deliver efficiencies, contribute to growth and jobs, and improve e-services. This will be achieved through a series of measures focusing on better alignment of European policy involving location information, better integration of location information in public e-services, and improved interoperability and harmonisation of information, to make it easier to develop new public services and foster opportunities for developing businesses.

The first step for the EULF is a project which is part of the Commission-driven Interoperability Solutions for Public Administrations (ISA) Programme². The ISA programme supports interoperability solutions, sharing and reuse among European Public Administrations through the creation of frameworks, architectures and re-usable components to enable more cost effective e-Government services and support cross-border applications. The EULF will deliver the location framework that underpins this broader vision.

To achieve the aims of the EULF, it will be essential to build on and establish synergies with key related frameworks and initiatives. The INSPIRE Directive 2007/2/EC and related legislation³ is creating a Spatial Data Infrastructure (SDI) for Europe, focusing initially on the Environment sector, the Copernicus programme is making available large amounts of earth observation data⁴, the UN-GGIM: Europe committee of experts aims to identify European issues relevant to geospatial information management and recommend necessary actions on them, contributing to the global UN-GGIM initiative⁵, and the European Location Framework⁶ CIP-ICT-PSP⁷ funded project is creating harmonised mapping and tools that will help in building cross border applications.

The EULF will promote the core principles within the European Interoperability Framework (EIF⁸, see Annex A), particularly those relating to 'openness', 'reusability' and 'effectiveness and efficiency'. It will consist of a package of recommendations, guidelines, standards, methodologies, best practices, training,

¹ 'cross-border' in terms of either adjoining countries or multiple countries with a common requirement

² More information about ISA is available at <http://ec.europa.eu/isa/> and at http://ec.europa.eu/isa/library/isa-work-programme/index_en.htm

³ <http://inspire.ec.europa.eu>

⁴ <http://copernicus.eu/>

⁵ <http://ggim.un.org/>

⁶ <http://www.elfproject.eu/>

⁷ [Competitiveness and Innovation Framework Programme](#)

⁸ [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', Annex 2](#)

and actions to facilitate better use of location information and INSPIRE and improve interoperability in cross-sector and cross-border Government-to-Government (G2G), Government-to-Business (G2B) and Government-to-Citizen (G2C) e-services. The EULF will concentrate on activities where the European Commission can add value through working with Member States and through better co-operation amongst Commission institutions. The EULF project is co-ordinated by the EC Joint Research Centre (JRC), in cooperation with DG ENV.

This document outlines a vision and framework for 'location-enabled government', based on applying good practice in a number of 'focus areas': policy and strategy alignment, e-government integration, standardisation and interoperability, return on investment and effective governance and partnerships. It identifies the objectives, transition strategy and high-level actions needed in each focus area. Initial opportunities for better alignment with the INSPIRE Directive and improved integration of location information in e-government services are in transport (Intelligent Transport Systems, Rail Interoperability), marine (Marine Strategy Framework Directive), Energy (Energy Performance of Buildings), Galileo and Copernicus.

An ISA Working Group on Spatial Information and Services advises on the role of spatial information in support of the Digital Agenda for Europe⁹. It has guided the process of developing the EULF Strategic Vision and deciding priorities for action.

A key input to the Vision has been an EU-wide survey and assessment, carried out by the EULF project in 2013 and documented in the 'Assessment of the Conditions for an EULF' report¹⁰. This confirmed the need and opportunities for collaborating to develop an EULF. The EULF project will document the details of the framework in an EULF Blueprint and apply the framework to analyse and solve real-world problems in a series of pilots and use cases. A targeted stakeholder consultation is envisaged in 2016, after which this document and the detailed framework will be updated to reflect stakeholder views. After this an evaluation of the EULF project will be made and, subject to a successful outcome, mechanisms put in place for an operational phase to embed the EULF in future developments to location-enable e-government services. An EULF Roadmap will describe the plan for sustainability and future actions within the EULF.

1. EULF VISION

Coherent and committed action is required to remove barriers and realise the potential of location information in e-Government, focusing on the needs and expectations of users. There is a need for a harmonising initiative to guide alignment in policy and implementation and ensure that best practices are followed, mistakes are not repeated, and collaboration occurs where it is needed. This is the role of the EULF.

⁹ <http://ec.europa.eu/digital-agenda/>

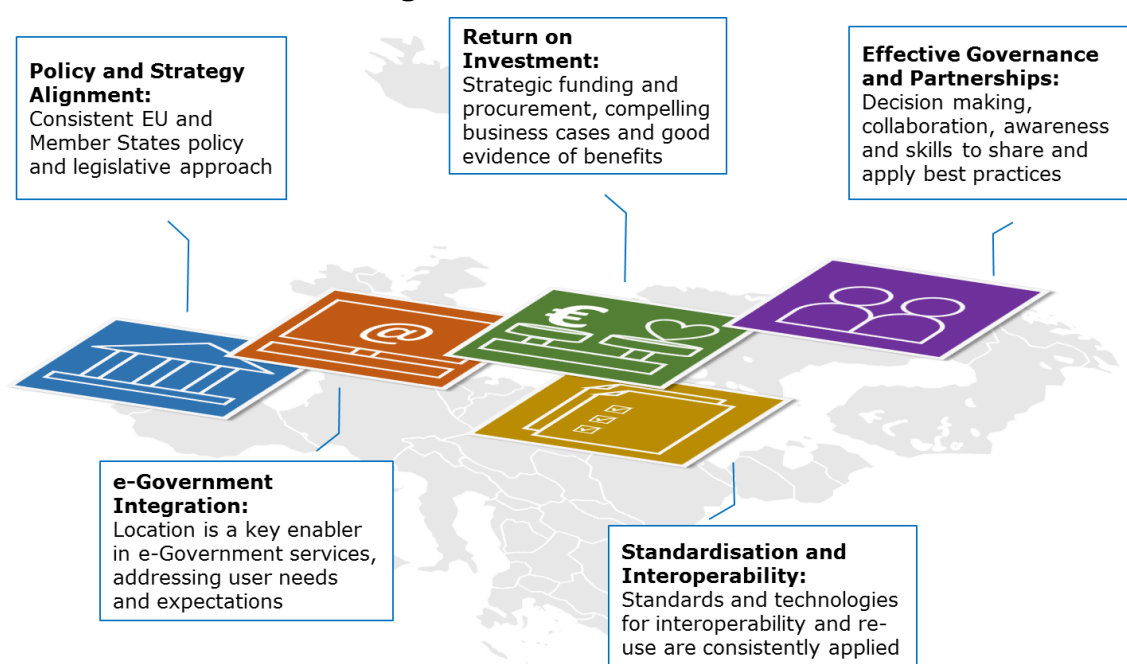
¹⁰ http://ec.europa.eu/isa/documents/assessment-of-the-conditions-for-an-eulf-v1_en.pdf

The vision for the EULF can be summarised as follows:

"More effective services, savings in time and money, and increased growth and employment will result from adopting a coherent European framework of guidance and actions to foster cross-sector and cross-border interoperability and use of location information in e-government, building on INSPIRE"

The framework is divided into five 'focus areas' which are critical to the successful use of location information and delivery of services using this information, as shown in Figure 1.

Figure 1: EULF Focus Areas







These focus areas are the basis for assessing 'location-enabled government' maturity in Member States and policy areas and for scoping the deliverables and actions within the EULF. Evidence for the scope of the framework was gathered from a survey of Member States carried out in 2013 and documented in the Assessment of the Conditions for an EULF report.


2. FRAMEWORK FOR ACTION

The EULF (the "framework") consists of a series of outputs and actions to improve interoperability and use of location information in e-government services, based on the five focus areas. Table 1 outlines the current state of play in these five areas (taken from the EULF survey and assessment), the key objectives in each area ('what good looks like'), and the key EULF actions that will support the transition.

Table 1: What transition are we aiming to achieve with the EULF?

FOCUS AREA	IMPROVEMENTS AND ACTIONS
 <p data-bbox="268 629 357 696">Policy and Strategy Alignment</p>	<p data-bbox="432 461 1358 651">Current State: Location aspects within existing policy and strategic frameworks are often addressed in inconsistent and incompatible ways. This can result in duplication of effort and unnecessary costs. Data of suitable quality is not always readily accessible. There are some good examples of simple, consistent licensing and access to open data but there is limited alignment across Member States.</p> <p data-bbox="432 678 1385 994">Future State: There is an aligned and coordinated policy and strategic approach across Europe for the management of location information that makes available relevant data for decision making and enables more efficient and effective integration of cross-sector and cross-border location-based services, reducing costs and increasing social and economic benefit. Public sector location policies promote accessibility and interoperability. There are simple and consistent approaches to licensing, progressive open data policies that balance the needs of data users and suppliers, and authentic registers in which 'location' has a prominent role.</p> <p data-bbox="432 1021 1374 1337">EULF Actions: Assess EU and Member States thematic policies, data policies, location strategies and e-Government strategies, and work with stakeholders to develop proposals and guidelines and share best practices that will enable a more consistent and productive approach to location information, based on INSPIRE and on Member States' needs. Develop an approach for aligning thematic policies with INSPIRE, taking account of relevant use cases, e.g. data collection, e-reporting, location-based services to businesses and citizens etc. Provide active feedback to the INSPIRE Maintenance and Implementation Group.</p>
 <p data-bbox="252 1536 373 1581">e-Government Integration</p>	<p data-bbox="432 1368 1390 1559">Current State: Location is key to effective public services but location information is not well integrated in all e-Government applications, resulting in sub-optimal services, incompatible systems and expensive maintenance. Location-related services are often designed and implemented from a provider rather than a user perspective, resulting in services and information that may not be fit for purpose.</p> <p data-bbox="432 1585 1374 1812">Future State: Location is well integrated in G2G, G2B and G2C processes, including related services across government and at different levels of government. Users do not have to supply the same mandatory information multiple times. There is visibility of common coordinating and support structures, expert groups and technologies, a strong user voice in the design, evaluation and improvement of location-based services, and good evidence of take-up of services.</p> <p data-bbox="432 1839 1385 2024">EULF Actions: Ensure that Member States have access to best practices, publish case studies and guidance, and provide support and draw lessons from pilots and the most successful implementations. Focus on improvements in interoperability and integration of INSPIRE-based services to enable more effective and efficient processes at a Member State and European Commission level.</p>

FOCUS AREA	IMPROVEMENTS AND ACTIONS
 <p data-bbox="245 577 381 645">Standardisation and Interoperability</p>	<p data-bbox="432 409 1362 725">Current State: Several standardisation bodies are working on standards in the geospatial field. Also various cross-cutting and thematic standards exist at an international level. These standards can be interpreted and implemented in different ways resulting in incompatible ways of managing and integrating location information. Compliance to existing legislation (notably INSPIRE) helps, but does not guarantee, the creation of harmonised pan-European or cross-border products, including core data sets. Current governance and funding models leave gaps in relation to the interoperability arrangements required for the creation of EU-wide core data.</p> <p data-bbox="432 752 1362 1039">Future State: Core data has been defined and a funding model has been agreed for its ongoing maintenance and availability. Consistent use of geospatial and location-based standards and technologies, enabling interoperability and reuse, and integration with broader ICT standards and technologies, including the standards and solutions promoted by the ISA programme. Use of these standards in all areas related to the publication and use of location information in e-government services, including metadata, discovery, view, exchange, visualisation etc.</p> <p data-bbox="432 1066 1391 1384">EULF Actions: Review current use of standards and technologies, produce clear guidance and direction on the use of international standards that results in improved semantic and technical interoperability and more widespread sharing and use of location information. Define approaches with stakeholders that enable enabling current priority issues and opportunities to be addressed. Embed the EULF in the general architecture approach being developed within the ISA programme. Establish operational governance to facilitate use of standards in key areas. Ensure relevant Commission bodies are motivated to contribute to UN-GGIM: Europe.</p>
 <p data-bbox="264 1592 362 1637">Return on Investment</p>	<p data-bbox="432 1417 1391 1765">Current State: There are inefficiencies in collection, publication and use of location information and growth opportunities with increased availability of re-usable data. There is insufficient understanding of the usefulness and value of location information. Infrastructure investments, such as INSPIRE or SDIs, are difficult to justify and there is limited evidence of actual benefits. However, some specific examples do spell out the value of investment in key datasets or particular applications. Funding models are not always clear particularly where many parties contribute to and derive benefit from the infrastructure. Only some procurement refers to INSPIRE and, when it does, it is not always clear what this means.</p> <p data-bbox="432 1792 1382 2040">Future State: There is a strategic approach to national and European funding, procurement, and delivery of location information and location-based services to minimise costs and maximise benefits for government, businesses and citizens, recognising best practices, and building on INSPIRE and other standardisation tools. The funding and sourcing model for collection and distribution of core location data takes into account user needs from different sectors and the strategic importance of continued supply of data at a suitable quality.</p>

FOCUS AREA	IMPROVEMENTS AND ACTIONS
	<p>Procurement recognises INSPIRE and other standardisation tools in a meaningful way. There are compelling impact assessments and business cases, a rigorous approach to targeting and tracking benefits, and good evidence that benefits are being achieved.</p> <p>EULF Actions: Review benefits approaches and determine an approach suitable for the EULF. Contribute to developing a good understanding of the need for sustained funding of key national and European datasets and effective procurement, recognising INSPIRE and relevant skills. Share best practice funding models, impact assessments, business cases and approaches for stimulating innovation and growth, publish procurement guidelines, define EULF performance measures, monitor EULF impacts and benefits and target EULF actions in areas that will maximise benefits.</p>
 <p data-bbox="244 1025 381 1095">Effective Governance and Partnerships</p>	<p>Current State: Good practices in strategic 'location' governance exist in some Member States, linked with wider governance of e-service delivery. However, there are cases where different interests are not resolved coherently, key stakeholders are left outside the decision process, and network vs central approaches are not well balanced (e.g. in collecting and combining data in a particular domain). Often the partnering model for the exchange of location information is not well defined or understood, and the benefits to stakeholders are not well articulated. Collaboration may exist for specific purposes but wider considerations are not addressed. It is difficult to develop services that cross organisational boundaries, particularly where costs incurred by one organisation have a downstream benefit to others. Knowledge and skills mainly exist with geospatial specialists, there is low awareness of the opportunities and issues in using location information outside this community, and few examples of geospatial experts sharing their knowledge with broader stakeholders.</p> <p>Future State: There is high level support for a strategic approach to the funding and availability of location information at Member State and EU level, based on INSPIRE and other tools to achieve interoperability. Effective governance, partnerships, work programmes, responsibilities and capabilities have been established, taking into account the needs and expectations of stakeholders at Member State and EU level. Governments recognise the importance of 'location' understanding and skills and invest in awareness raising, training and resourcing. Service design takes account of user capabilities. Specialists form communities to share knowledge and develop new ideas related to location information. As a result, there is a sufficient level of understanding and skills to develop, deploy and use effective location-based services.</p> <p>EULF Actions: Develop a strong EULF community to contribute to decision making and problem solving and share and use best practices, building on existing and new partnerships. Promote location awareness and knowledge sharing, establish EULF strategic and operational governance, share best practice governance models, and develop synergies with key related initiatives.</p>

An EULF project within the ISA Programme running to the end of 2016¹¹ will validate the EULF 'concept' by a series of actions, including:

- assessing priorities in policies and services for effective integration of location information and use of INSPIRE;
- collation of good practices and case studies;
- developing recommendations, specifications and guidelines on key topics such as procurement, data quality, use of standards;
- undertaking pilots and assessing use cases in selected areas to validate, refine and embed the framework;
- developing a measurement framework to assess the impact and benefits of EULF actions and help target appropriate interventions;
- building a stakeholder community to determine needs and priorities, validate outputs, and help promote take-up of the EULF.

Key outputs of the EULF project will be an Assessment of the Conditions for an EULF (based on the EULF survey), an EULF Blueprint (recommendations, guidelines, best practices), EULF References (inventories and links), and an EULF Roadmap (outcomes, benefits, feasibility, future plans).

Subject to successful evaluation and support, the EULF project will move to an operational phase beyond 2016, where further actions will be undertaken to extend the value and use of the framework.

3. POLICIES AND SERVICES USING LOCATION INFORMATION

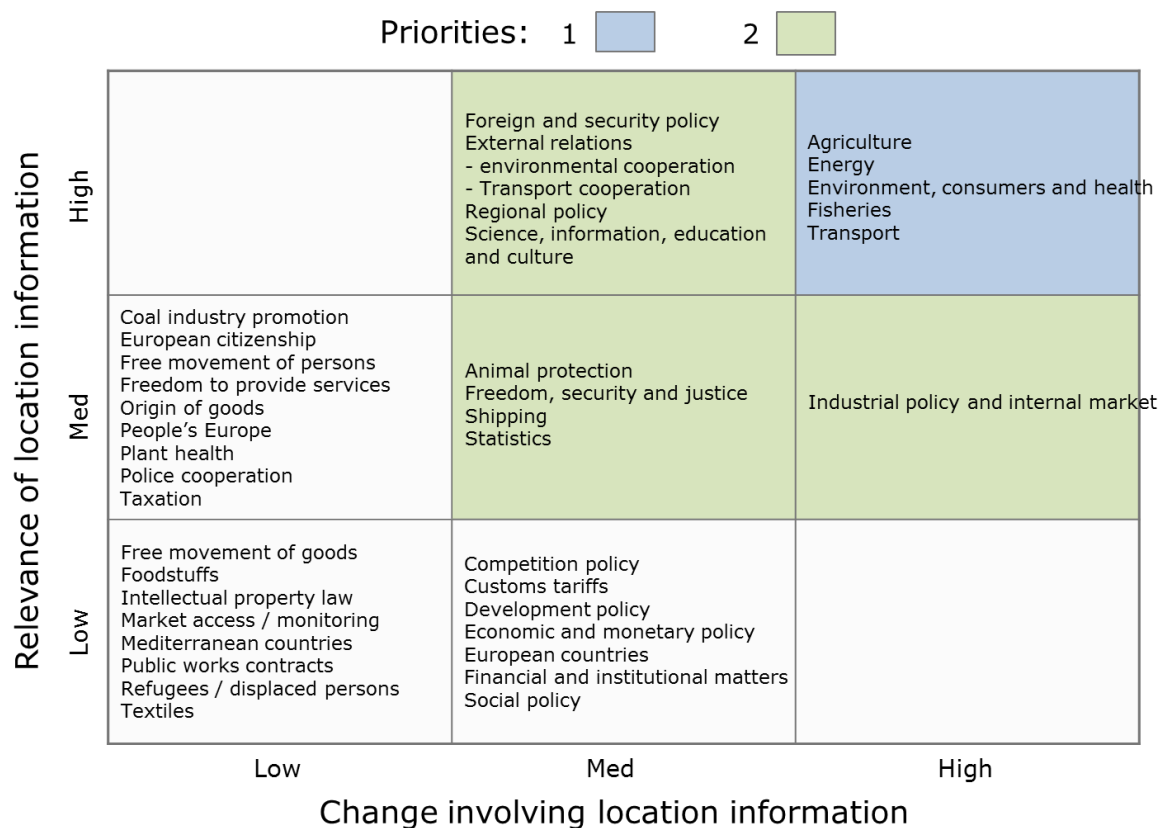
This section shows where location information is used in public sector policies and services, indicates the main areas of opportunity for EULF support, and describes the planned approach in key 'pilot' areas during the EULF project.

The original focus of INSPIRE was on environmental policy and there are over 150 references to specific EU policies in the INSPIRE data specifications. However, location information is relevant to many other EU policy areas and one of the aims of the EULF is to extend the good practices of INSPIRE into these other areas.

Figure 2 gives a broad indication of the relevance of location information in different policy areas and the degree of change in these policy areas involving location information (based on the Commission work programme). The areas where the EULF can potentially be of most value appear to be in Transport, Environment, Marine, Agriculture, Consumers and Health, and Energy, as well as in crosscutting areas such as e-Government, Open Data and Space policy (Copernicus and Galileo), Consumers and Health and Industrial Policy and Internal Market.

¹¹ [ISA Work Programme, Fourth Revision 2014, Annex I.1, Page 354ff.](#)

Figure 2: EULF Policy Opportunities



The EULF survey gathered data on key public sector processes and services using location information. The findings appear in the Assessment of the Conditions for an EULF report. These processes and services represent opportunities for the EULF to share best practices and promote more effective use of location information, both nationally and in cross-border contexts (see Table 2).

The EULF project will use pilots in selected policy areas and services to both validate the EULF concept and provide input to the EULF Blueprint. Pilot projects are planned to support the development of the road network specifications required within the Intelligent Transport Systems (ITS) Directive, the e-reporting requirements of the Marine Strategy Framework Directive (MSFD), and the data requirements of the Energy Performance of Buildings Directive (EPBD), the Energy Efficiency Directive (EEF) and the Covenant of Mayors Sustainable Energy Action Plan (SEAP) and Baseline Emissions Inventory (BEI). These pilot projects will help the EULF project develop an approach to location for new legislation, supporting cross-border needs and enabling effective use of INSPIRE. A key role for the EULF beyond the initial project will be to extend these good practices into other policy areas and key services.

Other relevant policies will be highlighted for potential action during the EULF Project. For example, the Directive on Rail Freight Corridors and the European Train Control System (ETCS) involve large scale data collection and management,

European Union Location Framework Strategic Vision

including the creation of an interoperable Register of Infrastructures (RINF), and in health, there are important benefits in being able to profile cancer risk based on environmental and demographic factors and plan future health provisions at a European level.

Table 2: EULF Service Opportunities

SERVICE TYPE	SERVICE	X-BORDER POTENTIAL
Planning	Spatial planning	Yes
	Public transport planning	Yes
Administrative: Registration	Maintenance of addresses	Yes
	Citizen registration	Yes
	Company registration	Yes
Administrative: Application	Land and property registration	No
	Building permit	No
	Environmental permit	No
	Land use application	No
	Agricultural subsidy	No
Administrative: Notification	Forest plantation	No
	Mining application	No
	Citizen taxation/land tax calculation	No
	Patient health records	No
	Participation in public consultations	Yes
Operational	Reporting ecological problems	Yes
	Reporting municipal problems/suggesting improvements	No
	Crime and anti-social behaviour monitoring	Yes
	Deployment of emergency services	Yes
	Flood protection	Yes
	Animal disease management	Yes
	Water management facilities/network information	Yes
	Water quality management	Yes
	Smart grids/smart metering	No
	Underground utility assets	No
	Waste collection routing	No
	Monitoring illegal dumping	No
	Maritime surveillance	Yes
	Road toll collection	Yes
Information	Heritage information	No
	Statistical information	Yes
	Weather forecasting	Yes
	Property / cadastral information	Yes
	Journey planner / multi-modal trip planner/hiking planner	Yes
	Natural hazard events, e.g. flood/landslide warning	Yes
	Job search	Yes
	Search for industrial/commercial site	Yes
	Address search - citizens, companies, schools, healthcare	Yes
	Property energy efficiency	No
	Renewable energy sources	Yes
Petrol prices/opening hours	Yes	
Biodiversity information	Yes	

SERVICE TYPE	SERVICE	X-BORDER POTENTIAL
	Waste collection sites	No
	Air quality	Yes
	Bathing water quality	Yes
	Geological data	Yes
	Mining locations	Yes

4. LOCATION ENABLING THE ISA PROGRAMME

The ISA Programme is providing a set of frameworks and tools for interoperable e-Government services. The 'location' aspects of the ISA programme are addressed by two projects, the EULF, which is defining the policy and practice framework, and ARE3NA, which is making available a set of re-usable tools. The EULF vision and actions need to be considered alongside the wider ISA programme, and the value of the EULF is enhanced when the broader elements of the programme are also taken on board. Figure 3 illustrates the contributions of EULF and ARE3NA to the ISA value chain.

Figure 3: ISA Value Chain - Geospatial Elements

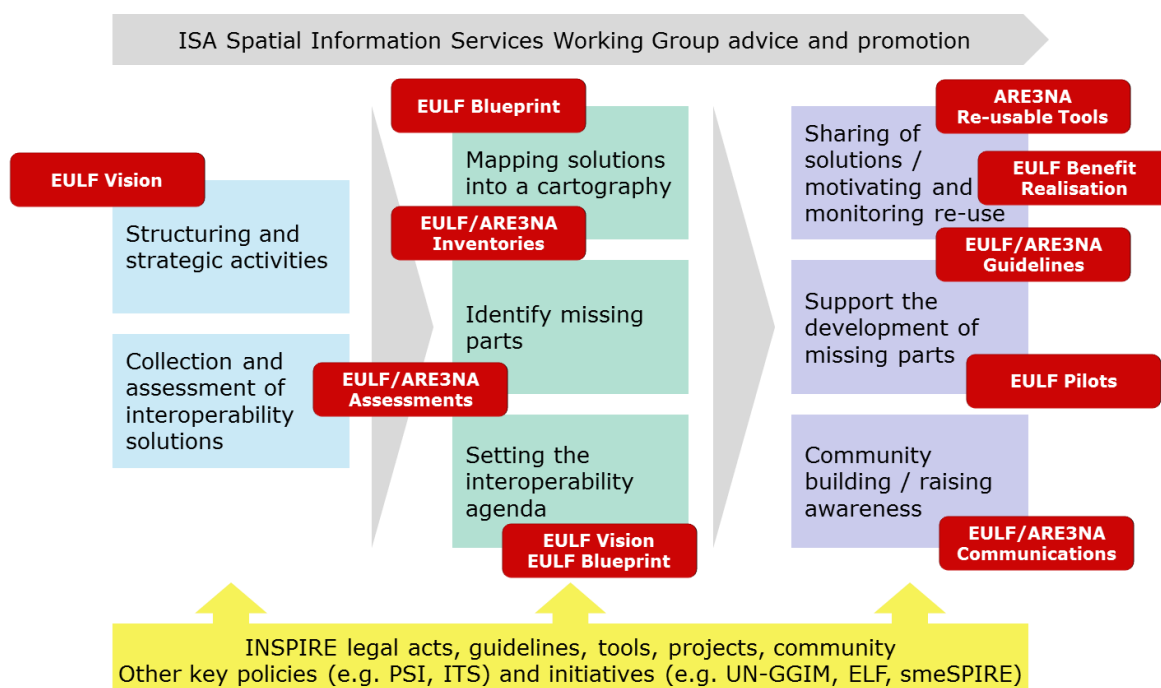


Figure 4 shows the links between the EULF project and the other ISA actions. Annex B describes the nature of these links.

One of the key related actions is 2.1. This action is developing a European Interoperability Reference Architecture (EIRA) for classifying and organising the most relevant building blocks relating to interoperability used in the delivery of digital public services. The EIRA is structured according to the different levels in the European Interoperability Framework (EIF), i.e. Political Context, Legal

Interoperability, Organisational Interoperability, Semantic Interoperability and Technical Interoperability. A European Interoperability Cartography is also being constructed, which maps available solutions (a solution architecture) to the building blocks of the EIRA.

Figure 4: EULF links with other ISA actions

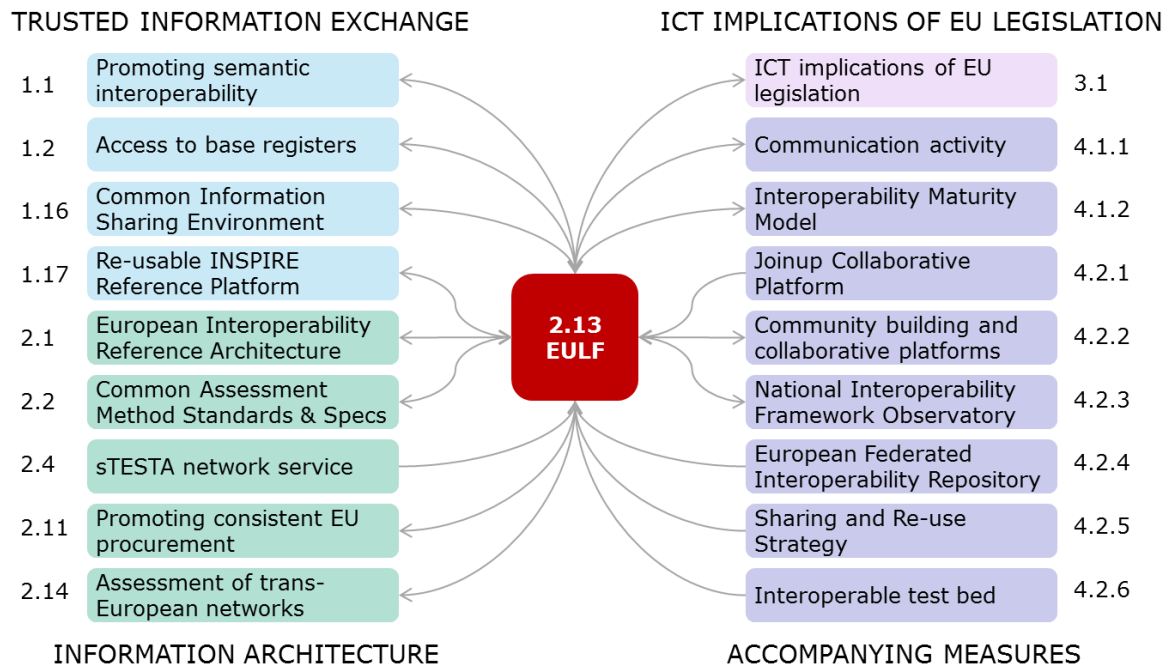


Figure 5 shows how the EULF Focus Areas and the EULF Blueprint relate to the EIF, EIRA and EICart.

The five EULF focus areas cut across the different levels of the EIF and EIRA. For example standardisation, reuse, governance, partnership working and efficiency are relevant to all levels. The EULF Blueprint will identify recommendations in each of the focus areas and will package up these recommendations and associated 'resources' (e.g. guidelines, best practices, specifications, methodologies) into a series of 'toolkits' that are targeted at particular audiences and describe HOW TO undertake key tasks relevant to the use and interoperability of location information in e-government. These toolkits will focus on the elements relevant at each of the levels of the EIF and EIRA and, in terms of solutions, will contribute to the EICart. The toolkits will be based on stakeholder priorities, with likely candidates including:

Funding, procurement and benefit realisation - Funding models for sharing core location data. Procurement guidelines for location data. How to create a business case and monitor benefits for location information and INSPIRE?

Policy alignment - How to ensure policy and legislation are aligned to enable optimal use of location information?

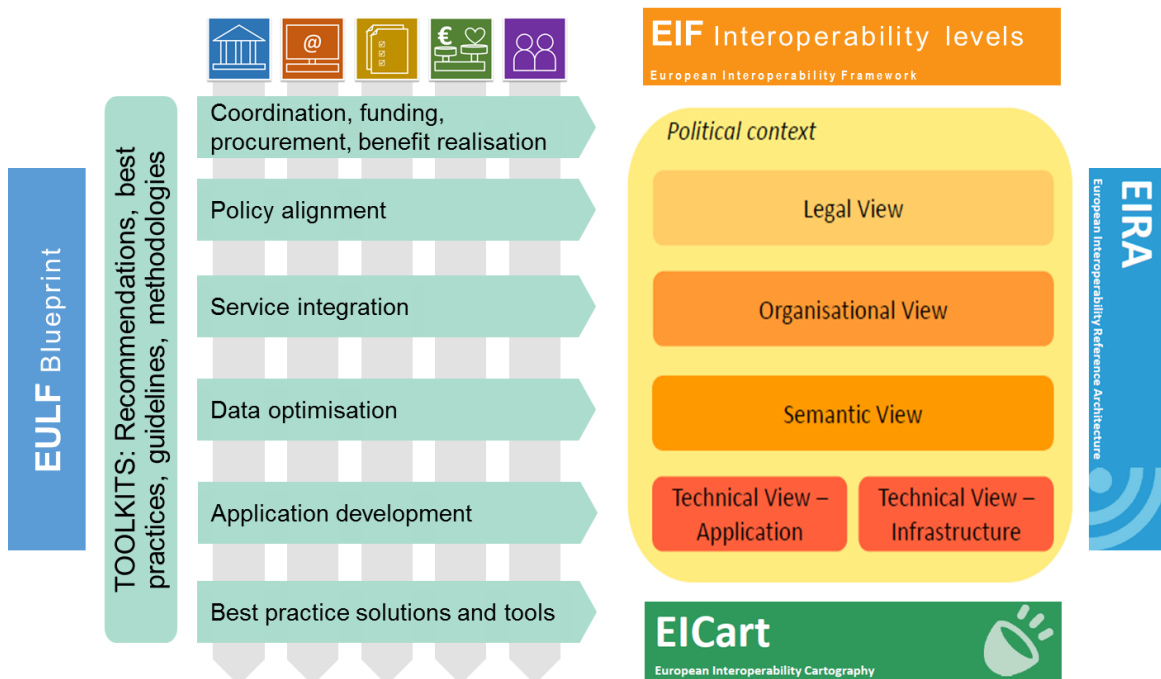
Service integration - How to design and operate innovative location-enabled public services in key areas, meeting the needs of citizens and businesses?

Data optimisation - How to ensure data quality and harmonisation to support cross-sector and cross-border services? How to implement open location data? How to integrate location data and non-location data?

Application development - How to apply best practice approaches, standards and solutions in the development of location-enabled public services?

Solutions and tools - What solutions and tools are available for location-enabling key public services in different sectors and across borders?

Figure 5: Location enabling the EIF, EIRA and EICart



The EULF project will deliver key components of the toolkits at each level, incorporating resources from related initiatives where appropriate (e.g. INSPIRE, ARE3NA). It will use pilot studies to help define and validate the toolkits and will promote the use of the toolkits to address emerging problems and opportunities.

An ISA Working Group on Spatial Information and Services has been established under the main ISA Committee 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 two geospatial ISA actions, EULF and ARE3NA. The terms of reference for the Group are shown in Figure 6. Recommendations for ongoing 'operational governance' will be made in the latter stages of the respective projects.

Figure 6: ISA Working Group on Spatial Information and Services

The ISA-INSPIRE Working Group on Spatial Information and Services provides policy and technical advice on the role of spatial information in support of the Digital Agenda for Europe, with particular emphasis on policy alignment, integration of e-government services across sectors and borders, and development and adoption of common reusable technical components also relevant to INSPIRE.

Responsibilities

- identify common challenges and good practices in the application and use of location information and technologies
- promote the ISA Actions that are addressing spatial information and services at European and Member State levels
- identify policy areas or initiatives where a more integrated, efficient or innovative approach to location information is required
- identify opportunities for INSPIRE to be reused in other sectors beyond the environment in line with Member States' e-government developments
- provide information on developments in e-government within their country that are potentially relevant for INSPIRE, including reusable technical components such as open source software and guidelines, missing items that would aid INSPIRE implementation and cross-sector interoperability, and opportunities for joint pilot or test activities, thereby reducing the burden on Member States for the development of tools
- provide feedback on results, guidelines and recommendations coming from the Actions
- advise on strategies for the sustainability of the Actions

Membership

- Commission chair
- One representative per Member State - able to cover e-Government and Location
- Commission representatives, e.g. DIGIT, JRC, DG Environment, Eurostat. The Commission will ensure there is co-ordination with the Commission inter-service Group on Geographic Information (COGI).

5. WORKING WITH STAKEHOLDERS

The EULF project will build a community of "contributors" and "beneficiaries" to understand needs and priorities, support collective decision-making and actions, and extend the use of best practices by giving practical help and promoting solutions that will deliver benefits. As a "contributor", an organisation or initiative may contribute to analysis and priority setting, supply best practices, case studies, compatible frameworks or re-usable software, make its data more readily usable, or be involved in pilot applications. "Beneficiaries" will either be direct beneficiaries (e.g. e-Government authorities) who make use of the EULF and the contributions of stakeholders in terms of policies, guidelines, services or products; or indirect beneficiaries (e.g. businesses or citizens) who are able to work in wider markets or use more effective location-based services provided by government or their

business partners. EULF outputs will be developed collaboratively with stakeholders and will be based on their priorities, requirements and contributions. Communications and engagement actions will include:

- information gathering through interviews and surveys;
- presentations and workshops;
- publication of information on the ISA website and other relevant locations;
- a public consultation on the EULF vision, blueprint, needs and priorities;
- formal stakeholder participation in an ISA Working Group on Spatial Information and Services.

The EULF project has a broad range of core stakeholder groups. These groups, together with the nature of the engagement, are summarised in Table 3: *Core Stakeholder Groups*.

Table 3: Core Stakeholder Groups

STAKEHOLDER	NATURE OF ENGAGEMENT
ISA Programme	
DIGIT/ISA Programme Governance	ISA programme management and budget; e-Practice workshops
ISA Spatial Information Services Working Group	Inputs, advice, promotion
Other ISA Actions	Collaboration, synergies, re-use
INSPIRE	
INSPIRE Regulatory Committee	Consultation
INSPIRE National Contact Points (NCPs)	Consultation, advice, promotion; Working Group; Location frameworks, best practices, case studies
INSPIRE Maintenance and Implementation Group	Consultation; EULF inputs to INSPIRE policy evaluation and action plan; Joint action; Working groups of thematic experts
EU Institutions	
Policy DGs (AGRI; CONNECT; ECHO; ENER; ENTR; MARE; MOVE; REGIO; RTD; SANCO; TAXUD)	Consultation; Policy reviews and adaptation
Eurostat	Consultation
Commission Inter service group on Geographic Information (COGI)	Communication and consultation within EC services
Joint Research Centre	Consultation; Working Group
European Environment Agency	Consultation
Member State Location / SDI	
Location / SDI coordination bodies	Survey, consultation, promotion; Working Group; Location frameworks, best practices, case studies
National Mapping and Cadastral Agencies	Survey, consultation, promotion; Working Group; location frameworks, best practices, case studies
Member State e-Government	

STAKEHOLDER	NATURE OF ENGAGEMENT
Member State e-Government coordination bodies	Survey, consultation, promotion; Working Group; e-Government and ICT frameworks, best practices, case studies; Policy reviews and adaptation; Service reviews and adaptation
Cross-border projects (e.g. Powered by INSPIRE, Intelligent Transport Systems)	Consultation; pilots and case studies; identifying barriers, promoting EULF and relevant solutions
Interest Groups / Communities	
UN-GGIM: Europe expert committee	Consultation, coordinated activities
Standards bodies (CEN, ISO, OGC, W3C, OASIS, OMG) and their focus groups on e-Government of relevance to location	Consultation, standards provision / adaptation
EuroGeographics - INSPIRE KEN	Knowledge exchange
Open Source Software communities	Consultation, solution provision
Research / academic groups	Consultation, requirements, solution provision
Volunteer Geographic Information communities	Consultation, requirements, solution provision
Major European projects/initiatives	
European Location Framework (ELF)	Pilots, infrastructure, products
eENVplus	Pilots, infrastructure
smeSpire	INSPIRE impact assessment, potential stakeholder group for EULF consultation, potential re-use of training package
SmartOpenData	Pilots, lessons learned, case studies, reusable data assets
Organisations outside government	
Private sector	Consultation, requirements, take-up
Non-profit / voluntary sector	Consultation, requirements, take-up

The EULF project will build on and take account of related frameworks and initiatives. Key examples include INSPIRE, UN-GGIM: Europe, the European Location Framework¹², eENVplus¹³, smeSPIRE¹⁴, and SmartOpenData¹⁵. Annex C describes the expected relationships.

6. **BENEFITS**

Benefits of "frameworks" and "infrastructures" are difficult to quantify and measure. In the case of the EULF, its contribution will be only part of the value chain. INSPIRE and other initiatives will supply inputs that the EULF builds upon and those implementing services and products will be responsible for delivering 'end benefits', using elements of the EULF as appropriate. Nevertheless, there are numerous studies highlighting the benefits of applying good practices in the use of location information, usually in the form of case studies, extrapolations, or broader models.

¹² <http://www.elfproject.eu/>

¹³ <http://www.eenvplus.eu/>

¹⁴ <http://www.smespire.eu/>

¹⁵ <http://www.smartopendata.eu/>

On the other hand, there are few examples of ongoing measurement of benefits, linked to continuous improvement programmes.

This section starts by examining some of the studies relevant to the EULF in the areas of SDIs and INSPIRE, economic studies, e-Government, ICT standardisation and interoperability, and Open Data (Table 4). It then summarises the potential benefits and beneficiaries of the EULF. Finally, it outlines the proposed approach to analysing and measuring the effectiveness and benefits of the EULF.

Table 4: Relevant Benefit Studies

TYPE OF STUDY	EXAMPLES
SDIs and INSPIRE	<p>The INSPIRE Impact Assessment of 2003-4¹⁶ estimated benefits 7-10 times higher than costs, with savings of €200-300m p.a., a significant proportion in environmental reporting. The Catalonia SDI Study (2007)¹⁷ estimated efficiency benefits of €2.6m p.a. and costs recovered in 6 months, and the Lombardia SDI Study (2009)¹⁸ estimated 11% cost savings and 17% time savings in environmental reporting. A study of 15 e-Cadastres in Europe¹⁹ estimated savings of €231bn p.a. compared with non-digital solutions.</p> <p>Evidence of benefits materialises once the infrastructure is in place and is being used. This process is reflected in benefits measurement initiatives in Finland (the GIS maturity model²⁰), Denmark (the Business Case Model²¹), and the UK (Benefits Realisation Strategy²²).</p>
Economic Studies	<p>ACIL Tasman conducted studies in Australia (2008) and New Zealand (2009) on the value of spatial information to the national economies²³. The Australian study found that in 2006/07 the spatial information industry generated revenues of A\$37bn (€92bn) and contributed between A\$6.4bn (€4.3bn) and A\$12.6bn (€12.6bn) to GDP (equivalent to between 0.6% and 1.2% of GDP). The report also estimated that constraints on data access had reduced productivity in certain sectors by between 5% and 15%, resulting in GDP being around 7% lower in 2006/07 than it might otherwise have been.</p> <p>A study, commissioned by Google, and published in 2013, examined the global economic impact of Geo services²⁴. Among the main findings were that global revenues from Geo services are between \$150bn (€113bn) and \$270bn (€203bn) p.a. and that Geo services contribute to significant cost savings.</p>
e-Government	<p>An Australian study in 2003²⁵, surveyed 38 e-Government projects. Cost savings to public authorities were expected in 24 of these projects, with total savings of A\$100m (€67m) against an investment of A\$108m (€72m) (a benefit cost ratio of 92.5% or</p>

¹⁶ [Contribution to the Extended Impact Assessment for INSPIRE, 2003](#)

¹⁷ [The Socio Economic Impact of the Spatial Data Infrastructure of Catalunya, JRC, 2008](#)

¹⁸ [The Socio Economic Impact of the Spatial Data Infrastructure in Regione Lombardia, JRC, 2011](#)

¹⁹ [Estimating Benefits of Spatial Data Infrastructures: A Case Study on e-Cadastres, 2012](#)

²⁰ [Model for Assessing the GIS Maturity of an Organisation, 2011](#)

²¹ [INSPIRE in Danish e-Government, 2012](#)

²² [UK Location Programme, Benefits Realisation Strategy, 2012](#)

²³ [The value of spatial information to the Australian and New Zealand economies, ACIL Tasman 2008/09](#)

²⁴ [What is the Economic Impact of Geo Services? - a report prepared by Oxera for Google, 2013](#)

²⁵ [Australian National Office for the Information Economy e-Government Benefits Survey, 2003](#)

TYPE OF STUDY	EXAMPLES
	61.1% if all projects were taken into account). A user survey estimated citizen cost savings of A\$14.62 (€9.8) per transaction and business cost savings of A\$25 (€16) per transaction. In a similar study of 14 UK e-Government projects, all except one forecast positive returns and payback varied 4 months and 11.5 years, with an average of 4.8 years.
ICT Standardisation and Interoperability	<p>A Booz Allen study for NASA on the use of geospatial interoperability standards²⁶ showed that there is a significant improvement in functionality and decrease in cost when using open as opposed to proprietary standards. Two projects were compared and the one using open standards had a risk-adjusted ROI of 163% and saved 26.2% compared to the project that relied on proprietary standards. In addition, maintenance and operation costs were lower, future projects using the same standards were cheaper to implement, and the open solution delivered 55% more value to its stakeholders.</p> <p>A Microsoft study on the Economic Impact of Interoperability²⁷ concluded that public sector interoperability has a positive impact on GDP. As the number of connected services increases, the value and efficiency of public administration grows significantly, thus reducing the wasted hours of citizens and businesses (i.e. the burden on GDP). The study applies a theoretical model to estimate potential GDP impacts of required activities for citizens and businesses, considering the number of activities and time to execute each activity. The model assumes that any time saved through improved interoperability will be spent on productive activity which will contribute to GDP.</p>
Open Data	<p>The Open Data Strategy for Europe, announced in 2011, encourages public authorities to make their data openly available for re-use. This is expected to deliver a €40bn boost to the EU economy. In a Commission survey, nearly 80% of respondents said they were prevented from making full use of location information - through issues with fees, licensing and lack of understanding.</p> <p>A review of public sector information (PSI) re-use by Vickery in 2011²⁸ concluded that with easier access, improved infrastructure and lower barriers, the economic impacts from PSI applications and use across the EU27 economy in 2008 could have increased from €140bn to around €200bn. In the geospatial sector, economic benefits could increase by 10%-40% through improved access, use of data standards and building skills and knowledge. Productivity could be doubled with better policies and new markets could develop in finance, energy and construction.</p>

The EULF will target actions that optimise the delivery of benefits as broadly as possible in all of the above areas. Table 5 outlines the possible benefits that the EULF may help to achieve, together with the corresponding beneficiaries.

²⁶ [NASA's Geospatial Standards ROI Study, 2004/05 - A Case Study from the Network Centric Operations Industry Consortium](#)

²⁷ [The Economic Impact of Interoperability, Microsoft 2012](#)

²⁸ [Review of Recent Studies on PSI Re-use and Related Developments, Vickery 2011](#)

Table 5: EULF Beneficiaries

STAKEHOLDER	BENEFITS
Policy makers	Better policy outcomes Better evidence and analysis Better links between public authorities within Member States and with other Member States Constituents receive better services with reduced burdens Cost savings Increased growth opportunities
Public sector users of location data and services	Better business processes (cross-sector and cross-border) Effective systems (ICT, SDI, business systems) Effective structures and governance (including links with other departments / e-Government) Effective skills Reduced costs (helping achieve cost reduction targets)
Public sector providers of location data and services	Access to best practices, standards and guidelines Knowledge sharing with peers across the EU More effective partnering between related organisations and initiatives Cost savings from re-use and interoperability
Citizens and businesses	Better services (designed around their needs) Cost and time savings Better communication with government Better use of tax payers' money by government Increased transparency, trust and participation Wider socio-economic benefits
Private sector suppliers of location-related products and services	More effective partnering with government Easier to introduce new products and offer cost effective services Access to wider markets through the use of standards Impact on profitability and growth
Research and academia	Better access to interoperable information and reusable software More innovative and authoritative research

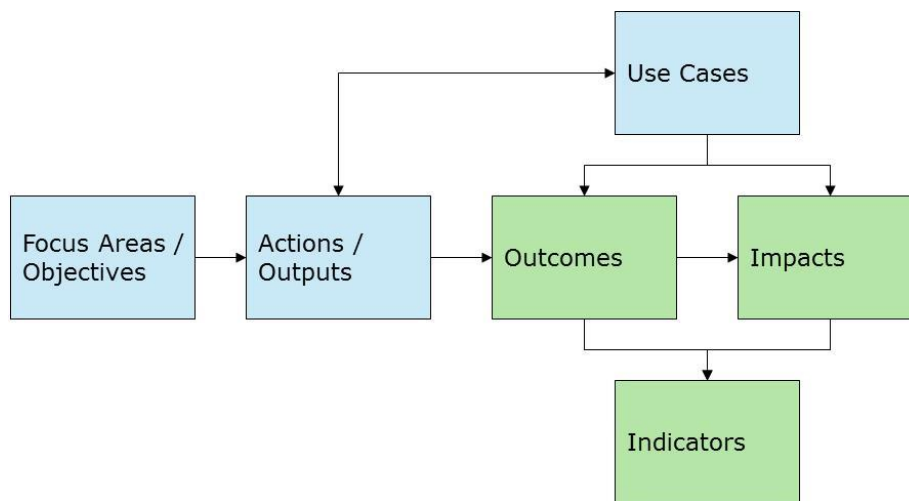
The EULF project will 'set the scene' for wider delivery of benefits as the EULF becomes operational and its use expands. Figure 7 outlines the approach for measuring the effectiveness and benefits of the EULF during the project phase, through analysis of a series of pilots and other use cases. The approach will assess the contribution of the activities and outputs in the EULF focus areas. It will be possible to continue using this approach beyond the project phase if required.

Indicators will be used to measure the 'outcomes' (or intermediate effects) and 'impacts' (or resulting benefits) of the EULF project activities and outputs in some practical situations. Example 'outcome indicators' include "the number of policy areas with specifications aligned to INSPIRE", the "number of cross-border

processes supported by integrated location services", and "the number of Member States adopting EULF guidelines in their service design". 'Impact indicators' will be collected for a small number of selected processes, services and projects (EULF pilot studies or other relevant projects). Example 'impact indicators' include "time savings", "cost savings" or "increased sales". These use cases will highlight the types of benefits that might be expected, the steps needed to realise these benefits, and the measures that should be established to track delivery of these benefits more broadly.

Where relevant and feasible, extrapolations will be made to show the potential longer term effectiveness and benefits of the EULF, establish targets, and inform plans that focus on activities to deliver value. In making these extrapolations, appropriate sensitivities will be applied to ensure the estimates and targets are realistic.

Figure 7: Approach to measuring EULF effectiveness and benefits



In reviewing the EULF project with stakeholders, it will be important to spell out the potential of location information and be clear on what the EULF will do to help realise this potential. The project should look at what drives the adoption and use of location information in different sectors, focusing on efficiency and growth. It should understand the barriers to using location information effectively and work with stakeholders to determine actions that address these barriers. In tracking progress, a library of use cases should be maintained, showing where real problems are being solved and identifying the actual benefits delivered.

7. RISKS

Although there are significant opportunities and benefits associated with the EULF, there are also risks in being able to realise the potential benefits. There needs to be a parallel focus on benefit realisation and risk mitigation. Table 6 highlights the main strategic risks identified for the EULF and the proposed actions to mitigate these risks. The assessment of these risks and the associated actions should be

reviewed periodically by the ISA Working Group on Spatial Information and Services.

Table 6: EULF Strategic Risks

NO.	RISKS	ACTION
1.	The policy landscape at EU and Member State level is dynamic and crowded, making it difficult to secure the necessary interest and support for the EULF.	Use a mixture of general and targeted communications to raise awareness. Target communications and actions on policy areas and initiatives where there are relevant actions in the Commission work programme and existing recognition of INSPIRE and the need to address 'location issues' effectively. Support this engagement with sound analysis of the policy opportunities and solutions for location information. Focus on a small number of policy areas at the outset and build on these as the EULF moves forward. Be open to reassessing priorities as new initiatives emerge or new intelligence is captured.
2.	In the current financial climate it is difficult for Member States to see beyond the compliance requirements of INSPIRE.	Demonstrate the benefits of the EULF, including the potential for service improvements, cost savings and contributions to economic growth. Support this with real life use cases. Identify and promote opportunities for improved interoperability and use of INSPIRE, where appropriate, beyond the current legislative scope and timetable.
3.	There are different requirements and approaches to e-Government and Location within Member States, making it difficult for them to consider changing direction.	Promote best practice models, produce outputs and identify relationships that will assist less-developed implementations. Understand the potential issues in making changes and ensure they are addressed in proposed policies, actions and solutions. Use the ISA Working Group for Spatial Information and Services to identify and prioritise actions that address Member States' needs. Ensure attention is given to the requirements of citizens and businesses.
4.	There are potential overlaps with other European GI initiatives (INSPIRE, UN-GGIM: Europe, European Location Framework), making it difficult to establish a distinct identity for the EULF or secure engagement and backing.	Ensure there is strong communication and engagement, including appropriate cross-representation in the governance of related initiatives. Where there are related activities, make sure the work programmes are aligned and mutual inputs are scheduled. Run joint events to demonstrate the synergies to stakeholders. Publish joint statements where appropriate. Use the ISA Programme links with Member States to help secure engagement. Ensure there are well-managed synergies with other ISA actions.
5.	Stakeholders may not see the benefits of a cross sector or cross-border coordinated approach.	The costs of operating in a non-coordinated way should be brought out. The requirements and approaches in individual policy areas should be respected when proposing any actions or solutions.

NO.	RISKS	ACTION
6.	Skills may not be available to apply the good practices being promoted through the EULF.	Re-use proven practices and recognised standards. Provide practical guidance. Review skill requirements and potential gaps. Build a community of experts. Provide access to training and trainers.
7.	It may not be possible to achieve significant progress and results by the end of 2016.	Focus on key stakeholders, policies and initiatives, including specific pilots or use cases that will produce results as early as possible and demonstrate the broader case.
8.	It may be difficult to sustain the actions after the initial work agreed up to the end of 2016.	Build a sustainable profile for the EULF, including demonstrating tangible benefits. Build an active Working Group and community of interest before the end of 2016 to pave the way for sustaining the EULF. Encourage coordination with other ISA actions at Member State level. Put in place enduring programme and governance mechanisms. Establish coordination arrangements to go beyond 2016 that are part of or linked with mainstream e-Government. Embed requirements in agreed policy or legislative actions.

8. CONCLUSIONS

The EULF Strategic Vision has proposed a need for action to achieve better alignment between location-related policies and services at EU and Member States levels and to realise the potential of location information across Europe.

It is ambitious, but the amount of money spent by public authorities across Europe in this context is significant and, even though location is recognised as important, there is still a long way to go to bring this information into focus for many policy areas in a coordinated way.

The EULF project aims to build on the assessment of current conditions, which has confirmed the need for EULF action, and bring together a community of stakeholders that will collectively define its future. As such, this document represents the first step in that journey. The EULF project will evolve to produce a practical framework of guidance and actions, focusing on initial priorities, and paving the way for a sustainable EULF that continues to be relevant after work under the ISA programme has concluded.

ANNEX A: EUROPEAN INTEROPERABILITY FRAMEWORK PRINCIPLES

The EIF is an agreed approach to interoperability for organisations collaborating to provide joint delivery of public services. It complements / ties together national interoperability frameworks at a European level. The Framework provides guidance on the definition, design and implementation of European public services. It addresses interoperability at four levels: legal, organisational, semantic and technical and specifies common elements such as vocabularies, concepts, principles, policies, guidelines and standards. The EIF principles are shown in the table below. The EULF addresses all four levels of the EIF and takes account of the EIF principles in the effectiveness measures it uses to assess the current state of play and define actions.

CATEGORY	EIF PRINCIPLES
SETS THE CONTEXT FOR EU ACTION	<p>1. Subsidiarity & Proportionality The EU only takes action when this is more effective than action taken at national, regional or local levels and EU action is limited to what is necessary to achieve agreed objectives.</p>
REFLECTS GENERIC USER NEEDS AND EXPECTATIONS	<p>2. User-Centricity The needs of citizens and businesses determine what public services are provided and how they are delivered.</p> <p>3. Inclusion & Accessibility Public services should be accessible to all citizens, including persons with disabilities and the elderly, without discrimination.</p> <p>4. Security & Privacy Citizens’ privacy and confidentiality of information provided by businesses must be guaranteed.</p> <p>5. Multilingualism Information systems supporting public services should cater for multilingualism.</p> <p>6. Administrative Simplification Public services should reduce the administrative burden on businesses from information collection.</p> <p>7. Transparency Citizens and businesses should be able to understand, and respond to, administrative processes and decisions that could affect them.</p> <p>8. Preservation of Information Electronic records should be preserved for as long as needed.</p>
PROVIDE A FOUNDATION FOR COOPERATION AMONG PUBLIC ADMINISTRATIONS	<p>9. Openness To encourage the sharing of knowledge and stimulate debate to solve problems.</p> <p>10. Reusability Solutions should be developed to facilitate sharing and reuse.</p> <p>11. Technological Neutrality & Adaptability Specific technological solutions or products should not be imposed on citizens, businesses and other administrations.</p> <p>12. Effectiveness & Efficiency Solutions should serve businesses and citizens in the most effective and efficient way, providing the best value for taxpayers’ money.</p>

ANNEX B: EULF LINKS WITH OTHER ISA ACTIONS

ISA ACTION		EULF RELATIONSHIP
1.1	Promoting Semantic Interoperability	The core location vocabulary developed with input from the geospatial ISA actions will be part of the EULF toolkit. EULF will input to and reference the work on open and linked data, sharing best practices, and metadata management maturity, working with associated stakeholders (e.g. ARE3NA, ELF).
1.2	Access to Base Registries	Core location registers are important in MS data strategies. EULF will apply the common approach to interconnect base registries, and will input to and reference the work on governance models, guidelines and recommendations. Case studies, such as those from Denmark and the Czech Republic, will be used to demonstrate what is feasible and the benefits that can be delivered. Common arrangements (such as a formal network) will be investigated.
1.16	Common Information Sharing Environment (CISE)	CISE is for sharing marine surveillance information. Synergies between the EULF Marine pilot and CISE will be explored.
1.17	Re-usable INSPIRE Reference Platform (ARE3NA)	EULF will provide input to ARE3NA on the policies and services requiring access to location information. The tools and guidelines produced by ARE3NA will be promoted by the EULF
2.1	Establishment of a common vision for a European Interoperability Architecture (EIA)	EULF and associated stakeholders (e.g. ARE3NA, ELF) will contribute geospatial elements to the European Interoperability Reference Architecture (EIRA) and European Interoperability Cartography (EICart)
2.2	Common Assessment Method Standards and Specifications (CAMSS)	The 'method for assessing standards and specifications' and the 'management and development model for open standards' will be applied in the EULF standards guidance. EULF will provide inputs if required on these approaches.
2.4	sTESTA Data communication network service	Will be considered in the EULF pilots and guidelines within the EULF Blueprint
2.11	Promoting Consistent EU Procurement monitoring and performance	EULF will take account of the indicators from this action in developing its e-Procurement guidelines. The EULF e-Procurement guidelines will be a best practice case study for this action.
2.14	Assessment of Trans-European networks supporting EU policies	EULF will contribute 'location' related examples and recommendations
3.1	Assessment of ICT implications of EU legislation	EULF will provide 'location' inputs

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ISA ACTION		EULF RELATIONSHIP
4.1.1	Communication activity	EULF communications will align with this action and use some of the general outputs
4.1.2	Interoperability Maturity Model (IMM)	The INSPIRE Geoportal will be used as a test case for the IMM. The EULF effectiveness measures will be validated against the IMM. EULF will provide 'location' inputs in the development of the IMM.
4.2.1 4.2.4	Joinup Collaborative Platform European Federated Interoperability Repository (EFIR)	The EFIR repository on the Joinup platform will be relevant to the EULF as a mechanism for sharing interoperability assets
4.2.2	Community building and effective use of collaborative platforms	EULF will draw on the activities relating to open standards and the EU Public Licence (EUPL) and will contribute to the work on e-Government factsheets
4.2.3	National Interoperability Framework Observatory (NIFO)	The EULF 'Assessment' and 'References' will provide input to NIFO
4.2.5	Sharing and Re-use Strategy	The sharing and re-use criteria will be relevant to the EULF
4.2.6	Interoperable test bed	The platform will be considered as a host for the EULF pilots and any reference implementations that EULF wishes to evaluate / showcase

ANNEX C: EULF LINKS WITH RELATED FRAMEWORKS AND INITIATIVES

Some key examples are described below:

RELATED FRAMEWORK OR INITIATIVE	EULF RELATIONSHIP
INSPIRE	INSPIRE is the foundation on which EULF will build. It has created a large body of standardised location information and services, for both general and environmental data themes. Key tasks for the EULF will be to work with EU and Member States stakeholders to determine how INSPIRE could be used in different policy areas and support cross-sector and cross-border applications. The INSPIRE Maintenance and Implementation Group (MIG) will be consulted on items of joint interest, including specific actions and recommendations proposed by the EULF. INSPIRE specifications and guidelines will play an important part in the EULF Blueprint. EULF pilots will examine how INSPIRE can be applied to different sectors and applications. The EULF project will collect views and advise on issues and opportunities through the INSPIRE Policy Evaluation Project. It will also provide input to the post evaluation INSPIRE Action Plan.
UN-GGIM: Europe	The UN Global Geospatial Information Management (UN-GGIM) committee of experts aims to promote the development of geospatial information to address global economic, social and environmental challenges. A European committee (UN-GGIM: Europe) has been established to support this aim from a European perspective. There is a mutual interest in the effective use of location information by governments across Europe, including the policies, standards and mechanisms to improve interoperability. The EULF project has contributed to the planning of the initial UN-GGIM: Europe work programme, which will include two working groups, focusing on 'core data' and 'data integration' respectively. It will be important to ensure there is alignment in the work programmes and communications with stakeholders, as well as in the resultant policies and approaches that are recommended. Outputs should be re-used between the two initiatives where applicable.
European Location Framework (ELF)	The ELF pilot project under the EU CIP ICT PSP ²⁹ programme is developing a pan European infrastructure and products incorporating harmonised authoritative core geospatial reference data, mostly related to the INSPIRE Annex 1 themes, aimed at making it easier to build cross-border applications. The project is led by Norway and Finland and has around 30 consortium members, half of which are NMCAs. ELF will build on INSPIRE and will add specifications and services where needed for the creation

²⁹ Competitiveness and Innovation framework Programme, see <http://ec.europa.eu/digital-agenda/en/ict-policy-support-programme>

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RELATED FRAMEWORK OR INITIATIVE	EULF RELATIONSHIP
	and provision of seamless pan European datasets. The project will include a series of pilots in particular sectors. ELF will be an important stakeholder in identifying strategies and solutions to improve cross-border support. EULF and ARE3NA will be interested in potential use cases and demand for the ELF, and ELF will play an important role in the EULF pilots.
eENVplus	eENVplus is a CIP ICT PSP funded project which aims to integrate infrastructures and create an operational framework for cross-border sharing of environmental data, compatible with INSPIRE. The project will include a series of pilots to support various environmental scenarios and will develop a multi-lingual thesaurus framework, tools for data harmonisation and validation and a series of e-learning modules. All of these will be relevant to the EULF. The eENVplus concept may also be applicable to other policy areas and scenarios.
smeSPIRE	smeSpire is an FP7 funded project to enable and encourage participation of SMEs in making environment content available, and exploiting the opportunities afforded by INSPIRE and related technologies such as Linked Open Data, Sensor Web and cloud computing. The project is assessing the market potential for SMEs in relation to INSPIRE, creating a best practice catalogue in the management of environmental content, developing a multilingual package to train environmental analysts, and creating a network to share knowledge with research centres, environmental agencies, technology providers and digital content providers. EULF will be particularly interested in the assessment of potential market and growth impacts for SMEs and will take account of the barriers and opportunities identified in defining its guidance and actions. The smeSpire community could also be consulted on further considerations relevant to the EULF.
SmartOpenData	This FP7 funded project, entitled 'Open Linked Data for environment protection in Smart Regions' is developing a series of applications using Open Linked Data through five pilots in the field of environmental protection and research, including 'Biodiversity protection in different European protected areas' and 'e-Government'. Location information will feature significantly in these applications. The objectives of the project are 'exploitation of open data for policy making', 'fostering participation of citizens', 'generating new products and services' and 'collaboration of researchers'. There is therefore a strong link with the scope and objectives of the EULF. The project will provide valuable case studies and lessons learned, as well as re-usable assets that may be exploited in wider contexts.

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