WORK PROGRAMME ENTRY TEMPLATE

for the 2019 revision of the ISA^2 Work Programme

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

1.1.1 IDENTIFICATION OF THE ACTION

Service in charge	EC Joint Research Centre (JRC)
Associated Services	DIGIT, CNECT, ENV, ENER, MOVE, ESTAT
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1.1.2 EXECUTIVE SUMMARY

Location information underpins policy assessment, digital services and applications for public administrations, businesses and citizens. However, interoperability barriers hinder the optimal performance of underlying ICT systems and obstruct the creation of economic value from location information. Although the PSI and INSPIRE Directives and the ISA Programme have started to remove interoperability barriers, more needs to be done to reach the potential of location information, supporting Digital Single Market (DSM) Strategy goals. To address this need, the European Location Interoperability Solutions for e-Government (ELISE) Action is a package of solutions facilitating efficient and effective electronic cross-border or cross-sector interactions between European public administrations, citizens and businesses, in the domain of location information and services.

In 2019, ELISE will continue to carry out investigations in the digital transformation of government, focusing on the impacts on interoperability in the geospatial domain. It will consolidate its Geo-Knowledge Base with reusable solutions, applications, and pilots and further activities to support take-up of good practice. Specifically, ELISE's Geo-Knowledge Base will be enriched with further studies, pilots and applications exploring i) the future role and mode of operation of spatial data infrastructures (SDIs) in the context of the ever changing technological landscape (e.g. digital platforms, AI, IoT, APIs, High Performance Computing), and ii) the means to address location interoperability issues from technological, semantic, organisational and legal perspectives, including pilots in thematic (e.g. energy, transport) and crosscutting (e.g. common data services, artificial intelligence) domains.

Among other benefits, ELISE outputs will aid public administrations implementing the INSPIRE Directive, as well as policy makers and application developers interested in using its content

and/or approach for environmental policy or other domains/initiatives. It will support DIGIT in their assessment of ICT implications of EU legislation (as part of EC Better Regulation objectives) where location information and associated processes are relevant. It will also share evidence and best practices and benchmark developments across Europe partnering with DIGIT's National Interoperability Framework Observatory (NIFO) Action. ELISE will support European geospatial capacity building and take-up of results through a package of knowledge transfer, communication and engagement activities. Knowledge transfer support will potentially be initiated through joint actions with EU Digital Innovation Hubs.

1.1.3 OBJECTIVES

ELISE aims to provide location-related solutions for all four levels of the EIF. It supports the ISA^2 Programme's basic objective to identify, create and operate interoperability solutions implementing Union policies. It will remove barriers to the sharing and reuse of location information in Europe, and build effective interactions between public administrations, citizens and businesses. ELISE will promote a holistic approach towards 'location interoperability' by contributing to the assessment of ICT implications of EU legislation; identifying legislation gaps, supporting stakeholders in all stages of the policy cycle and optimising the contribution of location information in the digital transformation of public administrations.

1.1.4 SCOPE

In scope:
   a) Evaluate and promote the role of location information in the digital transformation of government;
   b) Provide a Geo Knowledge Base Service for ISA^2 Programme stakeholders;
   c) Develop pre-operational 'common services' for decision-making and value-added applications;
   d) Develop and evolve reusable tools supporting location interoperability;
   e) Run application pilots covering different policies/sectors;
   f) Evaluate and pilot new technologies in support of digital government transformation;
   g) Communicate effectively and disseminate the results by actively engaging stakeholders.

Out of scope:
Create or develop solutions already in place or being produced by other initiatives. ELISE will re-use or promote them, where relevant.

1.1.5 ACTION PRIORITY

ELISE contributes to the interoperability landscape by ensuring that the 'location' dimension has an impact, adds value and is appropriately addressed within solutions across borders and sectors, in line with DSM objectives and in support of digital government transformation. ELISE is linked strongly to various other ISA[2] Actions, and has harmonisation and reuse as core themes in its approach. ELISE also targets a wide range of EC and Member State stakeholders, with specific focus on the links between public administrations, businesses and citizens.

1.1.5.1 Contribution to the interoperability landscape

Question	Answer
How does the proposal contribute to improving interoperability among public administrations and with their citizens and businesses across borders or policy sectors in Europe? *In particular, how does it contribute to the implementation of:* • *the new European Interoperability Framework (EIF),* • *the Interoperability Action Plan and/or* • *the Connecting European Facility (CEF) Telecom guidelines* • *any other EU policy/initiative having interoperability requirements?*	ELISE will continue assessing location interoperability enablers and barriers related to the transition towards digital government and promoting good practices. As such, it is intended to provide technical assessments and recommendations for the EIF and contribute to the implementation of the Interoperability Action Plan (e.g. Actions 4,6,17 & 19). ELISE pilots are designed to test cross-border and cross-sector interoperability and deliver pre-operational and reusable solutions. Their outputs contribute to different EU initiatives; including support to the implementation of the INSPIRE Directive 2007/2/EC, promoting the Once Only Principle (OOP, recommendation no.18 of the e-Government Action Plan) and the CEF by providing building blocks for Member State deployment.
Does the proposal fulfil an interoperability need for which no other alternative action/solution is available?	ELISE is the only action in ISA[2] focusing on location interoperability. It will promote widespread uptake and the reuse of good practices through the development its Geo Knowledge Base Service.

1.1.5.2 Cross-sector

The scope of the action, measured by its horizontal impact, once completed, across the policy sectors concerned.

Question	Answer
*Will the proposal, **once completed** be useful, from the interoperability point of view and utilised in two (2) or more EU policy sectors? Detail your answer for each of the concerned sectors.*	Location interoperability is relevant to almost all EU policies and many of the outputs apply in any policy area. The ELISE pilots will be tested in domains such as environment, transportation, energy, statistics, health and digital economy.
For proposals completely or largely already in operational phase, indicate whether and how they have been utilised in two (2) or more EU policy sectors.	The Re3gistry and INSPIRE test framework / validator are available online for free for all Member States, as well as reusable software for others to explore, and have been used in the environmental and energy domains.

1.1.5.3 Cross-border

Question	Answer
Will the proposal, once completed, be useful from the interoperability point of view and used by public administrations of three (3) or more EU Members States? Detail your answer for each of the concerned Member State.	The common data services and interoperability tools will be designed to be accessible and reusable across Member States. All Member States are actively encouraged to participate in development and trialling of these interoperability solutions. The Geo Knowledge Base Service will offer guidance, advice and solutions for EU institutions and Member States.
For proposals completely or largely already in operational phase, indicate whether and how they have been utilised by public administrations of three (3) or more EU Members States.	Road safety data-exchange solutions piloted and implemented in Norway and Sweden are being rolled-out to 14 other Member States using CEF Programme Support Action[1]. INSPIRE Registry services (see below) have 100k accesses per quarter from many different Member States.

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[1] Reference call: CEF MOVE/B4-2017-63

1.1.5.4 Urgency

Question	Answer
Is your action urgent? Is its implementation foreseen in an EU policy as priority, or in EU legislation?	ELISE is active in supporting several EU policy initiatives, such as the EIF (Actions 4, 6, 17 & 19); the revision of the PSI Directive (2018); the introduction of GDPR (2018); INSPIRE Directive implementation (next deadline end 2020); the Digital Single Market Strategy; the eGovernment Action Plan 2016-2020 (COM(2016)179 final; Action 19), and the Tallinn Declaration on e-Government (2017).
How does the ISA^2 scope and financial capacity better fit for the implementation of the proposal as opposed to other identified and currently available sources?	The ISA^2 Programme offers a unique opportunity to investigate how to reuse and build on the cross-sector/cross-border approach of INSPIRE to create synergies between location and wider ICT interoperability solutions and frameworks. The Programme is the only funding source to address interoperability issues in the scope of ELISE.

1.1.5.5 Reusability of action's outputs

Name of reusable solution	Geo Knowledge Base Service – Knowledge Transfer
Description	The Service will continue fostering the reusability of solutions in the context of location interoperability. It will do so by means of disseminating acquired knowledge from specific studies, successful pilots, tools and guidance (e.g. EULF blueprint). The service will incorporate material coming from new activities performed in ELISE. Aiming at broadening the outreach and promoting take-up, the underlying approach will use innovative channels for dissemination such as through innovation hubs, re-usable workshop "packs", quizzes, and hackathons.
Reference	https://joinup.ec.europa.eu/collection/european-union-location-framework-eulf/eulf-blueprint
Target release date / Status	Q4/2018- Q4/2020 (operational solution)
Critical part of target user base	Service: usage by 10 Member States and 3 EC DGs Approach: reuse of approach or basic 'knowledge elements' in 2 other initiatives

For solutions already in operational phase - actual reuse level (as compared to the defined critical part)	N/A

Name of reusable solution	Pilots and testbeds for applications, technologies, and common data services
Description	These will help test the concepts developed in ELISE and provide reusable solutions, as well as outputs for operational activities. Outputs include application pilots in transport and energy efficiency domains, testbeds on publishing spatial data the web and use of APIs and AI. A focus is on cross-border use cases in the geospatial domain.
Reference	https://www.youtube.com/watch?v=jnny5ATwTYE https://joinup.ec.europa.eu/community/eulf/og_page/eulf-energy-pilot
Target release date / Status	Q1/2018 – Q4/2021 ongoing programme of pilots
Critical part of target user base	Services: integration into applications/portals by 10 public bodies or businesses Pilots: Take up by public bodies and/or businesses in 10 Member States
For solutions already in operational phase - actual reuse level (as compared to the defined critical part)	Transportation pilot outputs already used in NO, SE, UK, BE (Flanders), IE.

Name of reusable solution	Re^{3}gistry software
Description	Maintenance and extension of the open source Re^{3}gistry software to ensure support for the INSPIRE Registry and cross-sector register federations. Handover options will be assessed, such as release as a full open source project or as a DSI building block in the CEF.
Reference	https://joinup.ec.europa.eu/software/re3gistry/description http://inspire.ec.europa.eu/registry/ http://inspire-regadmin.jrc.ec.europa.eu/ror/
Target release date / Status	Q4/2018 operational solution
Critical part of target user base	Re-use of software by 5 public bodies and high levels of usage through the online INSPIRE Registry service.

	Already re-used in several Member States (AT, ES, IT, FI, FR and SK) and for managing ISA Core Vocabularies. Indicators are part of quarterly reporting on the ISA^2 Dashboard. Promotion for uptake will continue for the duration of the Action.
For solutions already in operational phase - actual reuse level (as compared to the defined critical part)	

Name of reusable solution	INSPIRE test framework / validator
Description	Extended testing frameworks to ensure that reuse of INSPIRE and other geo-ICT data infrastructures provide reliable and appropriate content across INSPIRE's data themes, supporting public administrations in their implementation tasks.
Reference	https://github.com/inspire-eu-validation/
Target release date / Status	Q3/2017
Critical part of target user base	Re-use by 10 public bodies
For solutions already in operational phase - actual reuse level (as compared to the defined critical part)	Version 1.0 was released in July 2017. Reuse will be monitored periodically. Promotion for uptake will continue for the duration of the Action.

1.1.5.6 Level of reuse of existing solutions

Question	Answer
Does the proposal intend to make use of any ISA^2, ISA or other relevant interoperability solution(s)? Which ones?	ELISE will promote re-use and build on EULF, ARe^{3}NA and other ISA/ISA^2 solutions, including: i) publishing outputs on JoinUp, carrying out surveys using EUSurvey, and sharing solutions based on the EIF and EIRA; ii) making 'location' contributions to the assessment of ICT implications of new legislation and to the NIFO; iii) following recommendations/methods of the Sharing and Re-use strategy and the Interoperability Maturity Model; and iv) supporting various SEMIC activities (especially in relation to vocabularies). ELISE will also reuse or promote solutions from other initiatives, including, i.e.:

	i) the European Data Portal;
	ii) ESTAT geocoding services;
	iii) the interoperability assets from INSPIRE;
	iv) European projects, such as ELF, OpenELS and GeoSmartCity;
	v) Danish and Czech approaches to core registries; and
	vi) relevant legal and organisational assets (e.g. business cases, licensing approaches, Public Private Partnership (PPP) models, training modules).
For proposals completely or largely already in operational phase: has the action reused existing interoperability solutions? If yes, which ones and how?	Examples include the Transportation pilot reusing the TN-ITS data specifications and INSPIRE approach to location (linear) referencing. The INSPIRE test framework is partly based on the OGC CITE test engine for web services.

1.1.5.7   Interlinked

Question	Answer
Does the proposal directly contribute to at least one of the Union's high political priorities such as the DSM? If yes, which ones? What is the level of contribution?	ELISE contributes directly to the DSM Strategy, as it actively supports the EIF, the revision of PSI Directive and INSPIRE Directive implementation, as requested by the EU eGovernment Action Plan 2016-2020. By assessing demand, opportunities and barriers through specific studies and thematic pilots, ELISE creates targeted guidance and (location) interoperability tools.
	ELISE contains actions that correspond to the vision laid out in the Tallinn Declaration on e-Government from October 2017, specifically on open access (including data licencing and promoting open EU gazetteer services), usability (guidance on user-driven design), trust (knowledge sharing on GDPR within the geospatial community); development of the data economy (assessment of data flows and data value, understanding and overcoming barriers); cross-border (EU-wide common data services and cross-border pilots); and interoperability by default (applying the EIF and monitoring through a geospatial domain specific observatory).

1.1.6 PROBLEM STATEMENT

The problem of	barriers to location interoperability
affects	many policy areas and public services
the impact of which is	higher costs due to inefficiencies in current governmental processes and barriers in the creation of economic value. Data are undervalued, not managed efficiently or misinterpreted therefore, impacting on decision-making
a successful solution would be	sharing best practices, guidelines and tools, supported through the ELISE Geo Knowledge Base Service, including training and pilots to demonstrate the feasibility and identify the benefits of solutions. For example, different data specifications are used in different contexts, whereas ELISE pilots use INSPIRE to have a harmonised approach.

The problem of	limited data-sharing of location data
affects	European data economy
the impact of which is	over-investments / spending using often poorer quality information and barriers to innovation, especially in the private sector
a successful solution would be	to understand the needs of different users and the extent to which data is required across borders and the barriers to sharing this data and to promote collaborative efforts to improve the extent and impact of EU location data sharing. This includes actions relating to simplified, harmonised, and open licensing, use of common data formats, improvements in searching for data, as well as capacity building and knowledge transfer. These efforts need to be in line with the PSI and INSPIRE Directives, and the protections afforded by GDPR.

The problem of	delayed reaction in government to advances in the technology landscape
affects	inhibits public service innovation and timely take-up of policy measures
the impact of which is	reduced policy impact and public administration satisfaction levels (as expectations increasingly rise)
a successful solution would be	to use agile knowledge gathering and dissemination processes to improve the readiness of public sector. ELISE contributes to mitigate this issue by disseminating specific studies on the impacts of new technologies in government environments (e.g.

	digital platforms, APIs, AI, IoT), by facilitating the testing through pilots, developing specific tools, and facilitating knowledge transfer.

1.1.7 IMPACT OF THE ACTION

1.1.7.1 Main impact list

Impact	Why will this impact occur?	By when?	Beneficiaries
(+) Savings in money	Savings will occur thanks to avoiding duplicated efforts and reusing cost-efficient solutions in e.g.: data procurement, software development and service delivery	Once solutions are in an operational phase in Public Administrations	Public administrations, businesses and citizens
(+) Savings in time	Time savings will occur thanks to avoiding duplicated efforts and, again, reusing cost-efficient solutions	As above	Public administrations, businesses and citizens
(+) Better interoperability and quality of digital public service	Interoperability objectives will be realised through fostering collaboration between actors, sharing of best practices, highlighting optimal business processes and (user-centric) services, promoting harmonised policy approaches (e.g. INSPIRE, GDPR, ITS, EPBD) and deploying new technologies effectively to support digital government transformation.	The duration of ELISE and the operation of its Geo Knowledge Base Service	All stakeholders
(-) Integration or usage cost	Effort will be needed to integrate 'location' in other initiatives, across all the EIF	ELISE supports such integration until 2021	EU and MS policy makers
(+) Improved policy-making where location plays a role (including cross policy alignment)	Considering location information at the early stages will provide a cohesive approach to analysing status/problems throughout the policy cycle	Within the policy implementation and review timeframe (e.g. 5 years approx. for new policies)	EU and MS policy makers
(+) Effective skills	Organisations will improve their spatial awareness and other skills to	ELISE duration and operation of	All

	make best use of available data	Geo Knowledge Base Service	
(+) Creation of a collaborative network	The Geo Knowledge Base Service is a focal point for facilitating partnerships between organisations/ initiatives, offering expert advice about location data and services/ sources, reusable software etc. The best practices identified through the Location Observatory will be promoted for reuse across the ELISE and broader ISA[2] stakeholder communities.	Initial benefits will occur when partnerships are set up, such as via pilots or the roll-out of interoperable services	Various stakeholder relationships, including with research and businesses. Examples of best practice in the geospatial domain are often of interest to other interoperability activities.

1.1.7.2 User-centricity

Collaboration is core to ELISE's approach, involving key stakeholder input through workshops, consultations, surveys and co-development of solutions. In particular, the ISA[2] Working Group on Geospatial Solutions is invited to propose priority actions. Inputs are sought from public and private sector stakeholders, academia, key industry bodies and thematic communities. ELISE's use cases and feasibility studies help assess demand for particular solutions and priorities. Validation in the field ensures that needs are met in a practical way, with improvements through direct feedback from users. As well as practising a user-centric approach, the ELISE Blueprint incorporates user-driven service delivery best practice in its guidance framework.

1.1.8 EXPECTED MAJOR OUTPUTS

ELISE outputs form a holistic proposal, including evaluating benefits, outcomes and impacts, with clear links to key ISA[2] selection criteria. It will act as a 'solution incubator' to develop and pilot solutions, a 'solution bridge' to bring them to maturity and a 'solution broker' to find new users. ELISE also involves a number of feasibility studies to scope and assess requirements/options for key topics before launching pilots, alongside engagement and knowledge-sharing activities. The major outputs for the 2019 Work Programme are summarised below.

Output name	Analysis of the role of location information in digital government transformation
Description	A series of studies on key topics concerning the role of location information for digital government transformation and the digital economy such as:

	1) Study on the future role of SDIs, how they should adapt in a world of digital transformation, what business models should they apply, and what implications these developments may have for the future evolution of INSPIRE; 2) Quantitative analysis of key geospatial data flows, looking, firstly, at cross-border use cases for INSPIRE data and assessing the nature and volume of the exchanges and, secondly, identifying the data flows and value chains between public administrations and businesses; 3) Study on the potential use of AI techniques across all facets in the geospatial data lifecycle and for its use in specific applications, with recommendations for publishers and users of data.
Reference	https://joinup.ec.europa.eu/community/eulf/og_page/eulf-blueprint https://joinup.ec.europa.eu/sites/default/files/inline-files/SC395_ELISE_Webinar_3.00.pdf
Target release date / Status	Q3/2020

Output name	Location interoperability tools and testbeds
Description	Investigating and piloting tools in areas such as making spatial data more accessible, using APIs, AI techniques and linked data in the geospatial arena, data, and exploring approaches to synonyms for INSPIRE data (more details are provided in the Technical Approach). Maintenance and handover of tools already developed, i.e. Re3gistry, INSPIRE test framework / Validator.
Reference	https://inspire.ec.europa.eu/events/webinar-spatial-data-web-and-inspire http://inspire-eu-rdf.github.io/inspire-rdf-guidelines/ https://joinup.ec.europa.eu/solution/re3gistry http://etf-validator.net/
Target release date / Status	Q4/2017 – Q2/2019 solution design Q4/2018 – Q4/2019 prototype Q1/2020 – Q4/2020 operation

Output name	ELISE Application Pilots
Description	Energy efficiency of buildings: finalisation of pilots for

	harmonised Energy Performance Certificate datasets and methodologies to assess Energy Performance of buildings. Multi-modal travel information services: use of INSPIRE in National Access Point implementations
Reference	https://joinup.ec.europa.eu/collection/elise-european-location-interoperability-solutions-e-government/elise-energy-pilot https://joinup.ec.europa.eu/collection/elise-european-location-interoperability-solutions-e-government/inspire-support-multimodal-travel-information-services
Target release date / Status	Energy pilot example: Q4/2017 Pilot definition and stakeholder engagement Q2/2018 Pilot launch and initial development Q3/2020 Operation

Output name	Location Interoperability Landscape-analysis and Technology Watch
Description	Complementing NIFO, evidence will be gathered and shared about the uptake of Blueprint recommendations and the leading technological and organisational best practices across Europe. This will be based on a detailed assessment carried out with MS representatives, supported with expert inputs. The evidence will be used as a secondary data source for NIFO. Best practices captured will be published on JoinUp and linked with the Blueprint and the EIRA.
Reference	
Target release date / Status	Q3/2019 service definition and piloting completed Q3/2019 – Q4/2020 operation

Output name	Geo Knowledge Base Service – Knowledge Transfer
Description	The service will provide guidance and support to Commission policy DGs, public administrations, business and citizens in Member States on the optimal exploitation of interoperable location information. 2019 sees the continuation of a knowledge transfer programme started in 2018. Knowledge assets developed and applied in 2018 will be further refined and extended to include new

	topics, based on user demand. The work will continue to link with the Digital Innovation Hubs in order to make an impact with different stakeholders and ensure it is offering or re-using relevant assets. Outputs of the knowledge transfer activities include a glossary of terms, a primer on spatial literacy and use of location data in digital government transformation, quizzes, knowledge transfer modules and reusable workshop packs on specific topics in the Blueprint, and awareness-raising and capacity building events. The work will also assess the sustainability of the activity and its potential handover.
Reference	
Target release date / Status	Q4/2017 service definition Q4/2019 piloting and initial evidence sharing Q2/2020 sustainability study and operation of service

1.1.9 ORGANISATIONAL APPROACH

1.1.9.1 Expected stakeholders and their representatives

Stakeholders	Representatives	Involvement in the action
ISA^2	Member State representatives in the ISA^2 Working Group on Geospatial Solutions and the ISA^2 Committee. Plus, other ISA^2 Actions	Inputs to Work Programme, governance, identifying best practices, partnerships and synergies with other activities
Commission Services	ENV, ESTAT, CNECT, DIGIT, MOVE, ENER, GROW. EC Inter service group on Geographic information (COGI)	Scoping solutions / pilots, including ICT Assessments
INSPIRE Governance	Maintenance and Implementation Group (MIG), National Contact Points (NCPs), Legally Mandated Organisations (LMOs), European Environment Agency (EEA)	Identifying needs, promoting reusable solutions, participating in pilots
Geospatial Solution providers	Businesses (including SMEs) and research bodies	Knowledge base content and solution development

Thematic Policy domains	Committees, working groups, including those related to location data, such as Copernicus (GROW) and GEO (RTD)	As relevant for application, solution or pilot activities
UN-GGIM: Europe	ELISE will collaborate with ESTAT on the promotion of geospatial data management for public administrations.	Uptake of results of work on geospatial data and statistics
Member State organisations, groups and projects	Location / e-Government coordination bodies, Government digital agencies, National mapping and cadastral agencies, Private sector actors	Solution providers and users
Pan-European interest groups, organisations and projects	Such as OSGeo and other communities; open data communities, research / academic groups, European umbrella organisations (e.g. EuroGeographics)	As data sources and pilot partners and inputs to feasibility studies
EEA/EIONET, Environment National agencies	EEA/EIONET national focal points (NFPs), National Reference Centres for Information Systems.	As partners in potential INSPIRE environmental pilots
Network of businesses, or individual private companies	Smespire (and similar) networks of enterprises, private companies working in specific thematic domains	Pilot partners and stakeholders for scoping solutions

1.1.9.2 Identified user groups

Existing stakeholder groups are defined above but ELISE will also cover businesses and citizens by exploring successful models and solutions (e.g. to support innovation, provide funding, put PPPs into practice, take on board citizen inputs).

1.1.9.3 Communication and dissemination plan

Documentation will be published on the ISA[2] website and on JoinUp. Cross-references will be made to, for example, INSPIRE's knowledge base[2] and relevant 'partner' websites. The source code of solutions developed under ELISE will be published in well-accepted open source repositories such as GitHub. Training will be carried out in face-to-face events, webinars, and through access to online resources. Videos, brochures, and platforms, including social media will also be used. Engagement activities such as surveys will also help to raise awareness about the Action and the ISA[2] Programme. Key events are summarised in the following table.

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[2] http://inspire.ec.europa.eu/

Event	Representatives	Frequency of meetings / absolute dates of meetings?
ISA[2] Committee and Coordination Group Meetings	MS representatives	Twice yearly
ISA[2] Working Group on Geospatial Solutions	MS and Commission representatives	2-3 times per year
ELISE workshops, partner events, webinars	MS and Commission representatives, thematic groups, invited experts, including awareness raising and capacity building events	8-10 times per year
INSPIRE Conferences	INSPIRE stakeholders	Once per year
INSPIRE Maintenance and Implementation (MIG) 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	1-2 times per year
Other thematic conferences	Transport, Energy as well as FOSS/ICT conferences, including ISA[2]'s SEMIC and Sharing and Reuse Conferences	Once per year

1.1.9.4 Key Performance indicators

Description of the KPI	Target to achieve	Expected time for target
Number of interventions where ELISE has aided European Commission policy makers in advancing location interoperability good practice in their policies and initiatives with relevant studies and recommendations	10	Q4/2018
Number of MS public services where ELISE guidance, tools, support or pilots have helped them improve the integration of location information in their processes	5	Q4/2018
Number of positive impacts, collaborations, stakeholder (Member State organisations and DGs)	8	Q4/2018

feedback or implementation of results in MS/EC from outputs of ELISE activities		
Number of hits on the INSPIRE Registry service (based on the Re^{3}gistry software)	400,000	Q4/2018

1.1.9.5 Governance approach

The broad reach of ELISE involves engaging with work in the Member States and the EC. The ISA[2] WG on Geospatial Solutions[3] will continue to play a vital advisory and facilitating role (e.g. for ELISE WP updates, Geo Knowledge Base Service content/scope, promoting take-up). ELISE focusses on user-centricity, co-creation and shared ownership of results for wider reuse. WG representatives are, therefore, encouraged to contact others (e.g. GI and digital government communities in their Member States, UN-GGIM: Europe, Group on Earth Observations, standards bodies and thematic actors) to aid communication / coordination / promotion of location interoperability. As JRC.B06 is the chair of the WG, ELISE can also connect with other groups, such as COGI, IMSB and INSPIRE governance structures, including the MIG EC expert group, where ELISE helps to deliver some aspects of its work programme 2016-2020[4].

1.1.10 TECHNICAL APPROACH AND CURRENT STATUS

The focus of the ELISE work packages for 2019 is described in detail in Table 1.

Table 1. Focus of ELISE work packages for 2019

Work package	2019 focus
1. STUDIES	
Digital government transformation and the future of SDIs	Public administrations evolve as a consequence of ICT being adopted in their processes. Following ELISE's studies on the digital transformation of government, digital platforms, APIs, and blockchain, the focus for 2019 will be on the future role of SDIs. A study will consider how SDIs should adapt to support the goals of digital government in Europe, taking account factors such as new business models, digital platforms, IoT and ever-demanding expectations of open data and mobile services. The highly integrated nature of geospatial and non-geospatial activities will need be addressed, as well as the applicability of SDI concepts to support cross-sector and cross-border applications. The outcomes of the study will provide an important input into the discussion on the future evolution of INSPIRE after the conclusion of the current implementation programme in 2020.

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[3] The ISA[2] WG on Geospatial Solutions is the successor of the ISA WG on Spatial Information and Services (SIS), which was the governance group for the EULF and ARe3NA ISA actions.

[4] https://ies-svn.jrc.ec.europa.eu/documents/58

Work package	2019 focus
Analysis of key SDI dataflows	The evolution of SDIs and INSPIRE also need to consider demand for data in different contexts. Two related studies will analyse: 1) Cross-border data flows: Identification of cross-border use cases for INSPIRE data themes; Classify whether they involve remote access or physical transfer of data and the reasons for data-sharing, related to the free flow of data; Quantify volumes of cross-border data use and their likely growth; Identify barriers and enablers in accessing the data and recommendations for improving access; 2) Location data flows/value chains between public administrations and businesses: Identify the main location data demanded by businesses (G2B), with a focus on SMEs; Identify the main uses by public administrations of location data from commercial, not-for-profit or academic organisations (B2G "reverse PSI" instances); Assess the barriers and enablers and develop recommendations for meeting demand and assessing progress.
Potential of AI in geospatial contexts	This study will analyse the relevance of Artificial Intelligence in the geospatial domain to support both policy tools and public service provision. The EIF will provide part of the analytical frame for this work, so that legal, organisational, semantic and technical aspects are fully addressed. This work will use, as input, the JRC's flagship report on Artificial Intelligence (AI).
2. FRAMEWORKS AND SOLUTIONS	
Guidance	Maintenance of good practice Blueprint, associated guidance documents on emerging topics, to be agreed with stakeholders, and reference materials. Further work to improve usability of guidance, including online adaptation, cataloguing references identified in the observatory, and facilities for user feedback and co-creation. Possible new guidance on open data licensing or integration from ESTAT and UN-GGIM of good practices for statisticians and policy analysts in the use of location data in their work.
Location Interoperability Tools and Testbeds[5]	User-centric approach for the evolution and sustainability of solutions, including the Re3gistry software; the INSPIRE test framework; and further developments for the Spatial Data on the Web tools and technical guidance for both data providers and data users. Continued contributions to SEMIC (building on the Core Location Vocabulary, GeoDCAT-AP etc.), sharing of 'discovered' solutions on JoinUp based on the EIRA as a reference model. The 2019 work programme will address the following topics: 1) Making spatial data more accessible through mainstream search engines: investigating synergies between INSPIRE/DCAT approach and schema.org;

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[5] Formerly entitled "Geospatial Interoperability Tools"

Work package	2019 focus
	2) Implications of emerging service and data standards for publishing spatial data on the web
	3) An approach to introduce synonyms for INSPIRE objects and simplify identification of appropriate INSPIRE resources;
	4) A survey of linked data implementations and their approaches to linking INSPIRE datasets, including use of persistent identifiers;
	5) An approach to facilitate interoperability through the use of APIs in government geospatial data / service provision, evaluate against different national and cross-border use cases, and explore methods for simplifying access to INSPIRE datasets;
	6) A technical feasibility study and initial development of an AI prototype for automated discovery of linked geospatial data and objects for INSPIRE datasets
3. APPLICATIONS	
Application Pilots	Pilots, applications and experiments/studies designed to explore in practice the opportunities and barriers when using INSPIRE and other location information to support different European policies, including in the areas of ITS (road safety and multi-modal transport data exchange)) and the Energy efficiency of buildings. These activities will be carried out in collaboration with the relevant policy DGs and support action 5.4 of the European Commission's Information Management Steering Board (IMSB) work programme on "Strengthening Spatial Data Management In the European Commission and the EU Agencies". The focus for 2019 is for continued action in the energy and transport domains: Energy Efficiency of Buildings: Continuing the multi-national collaborations to develop solutions and make them sustainable in the areas of: 1) harmonised Energy Performance Certificate datasets; and 2) assessing Buildings Energy Performance from both calculated and measured perspectives. Multi-Modal Transport Information Services (MMTIS). An assessment of the role of INSPIRE in the standards for MMTIS is being carried out in the 2018 WP. For 2019, the focus will be on implementation through National Access Points (NAPs).
4. GEO KNOWLEDGE BASE SERVICE	
Location Observatory	Following the definition and initial piloting of an observatory process in 2017, we will refine the assessment model in 2018, ensuring it aligns with and supports the revised NIFO, and carry out a number of trial assessments with different Member States, including preparation of factsheets and a State of Play Report. 2019 will see the full operation of the observatory, reusing the technology solution created for the NIFO and supplying evidence as a secondary data source to NIFO. Best practice evidence captured will be published on JoinUp, incorporated in the Blueprint and classified according to the structures of the EIRA.
Knowledge transfer	Continued development and update of knowledge transfer and capacity building resources, channelling knowledge acquired to

Work package	2019 focus
	improve geospatial skills for public administrations (policy makers and analysts, public service managers, ICT and data technicians) and businesses (business leaders, developers, and data technicians). In 2017, ELISE designed the knowledge transfer service, with a two year programme involving developing and sharing knowledge transfer materials, specifically: In the 2018 WP: Development of glossary, primer on spatial literacy and use of location data in digital government transformation, quizzes, knowledge transfer modules and reusable workshop packs on specific topics in the Blueprint, run targeted awareness raising and capacity building events. Link, where possible, with the activities on Digital Innovation Hubs in Europe; In the 2019 WP: Refine knowledge transfer resources based on piloting and extend resources according to demand. Include more innovative events, e.g. hackathons and laboratory exercises.
ICT assessments	ELISE will continue to support DIGIT in ICT assessments of new legislation on an *ad hoc* basis, where new legislative requirements include a significant geospatial element. This is now mainly supported with JRC's own resources
Communication and stakeholder engagement	Proactive awareness-raising, dissemination of the Action's outputs, stakeholder engagement, including business and citizens' feedback and online representation of the Action's knowledge.

1.1.11 COSTS AND MILESTONES

1.1.11.1 Breakdown of anticipated costs and related milestones

The proposed ELISE Work Programme spans five years and has three phases, with **Initiation** (year 1) completed in 2016/2017. **Execution** (years 2-4) contains activities and new studies and other outputs, with the maintenance of existing tools. A mid-term evaluation is also planned. **Closing** (year 5) will involve readying of solutions for operation/handover, final evaluation and transition of results to "operational governance". Details of each activity, with dates and costs for each year in the work programme are shown below.

Phase: Initiation Planning Execution Closing/Final Evaluation	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA/ others (specify)	Start date	End date
1. STUDIES					
Initiation	1.1 Assessment of economic opportunities and barriers related to geospatial data in the	160 - -	ISA	Q3/2016	Q4/2017

Phase: Initiation Planning Execution Closing/Final Evaluation	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA/ others (specify)	Start date	End date
	context of the DSM	-			
Execution	1.2 INSPIRE and spatial data standards in support of EU-wide Multimodal Travel Information Services	- 100 - -	ISA	Q3/2017	Q1/2019
Execution	1.3 Supporting better uses of location data and statistics	- 90 - -	ISA	Q4/2017	Q4/2018
Execution Execution Execution	1.4 The role of location information in digital government transformation	- 230 400 620	ISA	Q4/2017 Q3/2018 Q2/2019	Q3/2018 Q3/2019 Q3/2020
Execution	1.5 Location-Enabled Digital Platforms Benchmark	- 260 - -	ISA	Q3/2017	Q2/2018
2. FRAMEWORKS AND SOLUTIONS					
Initiation Execution Execution Execution	2.1 Guidance	110 50 40 100	ISA	Q1/2017 Q3/2017 Q4/2018 Q3/2019	Q2/2017 Q4/2018 Q4/2019 Q4/2020
Initiation Execution Execution Execution	2.2 Location Interoperability Tools and Testbeds	220 240 300 540	ISA	Q4/2016 Q4/2017 Q4/2018 Q2/2019	Q4/2017 Q3/2018 Q3/2019 Q4/2020
Initiation Execution	2.3 References and inventories	60 100 - -	ISA	Q4/2016 Q2/2017	Q3/2017 Q4/2018
3. APPLICATIONS					
Initiation Execution Execution Execution	3.1 ELISE Application Pilots	80 260 300 280	ISA	Q4/2016 Q3/2017 Q3/2018 Q2/2019	Q4/2017 Q2/2018 Q4/2019 Q4/2020

Phase: Initiation Planning Execution Closing/Final Evaluation	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA/ others (specify)	Start date	End date
Initiation	3.2 Common services – EU Gazetteer	85		Q4/2016	Q3/2017
Execution		150	ISA	Q3/2017	Q3/2018
Execution		270		Q3/2018	Q3/2019
		-			
4. GEO KNOWLEDGE BASE SERVICE					
Initiation	4.1 Geo Knowledge Base service definition and piloting	81		Q4/2016	Q4/2017
		-	ISA		
		-			
		-			
Initiation	4.2 Location interoperability observatory, landscape analysis and technology watch	91		Q2/2016	Q3/2017
Execution		65	ISA	Q4/2017	Q2/2018
Execution		360		Q3/2018	Q4/2019
Execution		350		Q3/2019	Q4/2020
Initiation	4.3 Location input to ICT assessment of new legislation	36		Q2/2016	Q3/2017
Execution		50	ISA	Q4/2017	Q4/2018
		-			
		-			
	4.4 Knowledge Transfer	-			
Execution		120	ISA	Q2/2017	Q4/2018
Execution		80		Q4/2018	Q4/2019
Execution		210		Q4/2019	Q4/2020
Initiation	4.5 Communication and stakeholder engagement	60		Q3/2016	Q2/2017
Execution		120	ISA	Q2/2017	Q2/2018
Execution		150		Q3/2018	Q2/2019
Execution		100		Q3/2019	Q2/2020
	2016	983			
	2017	+1835			
	2018	+1900			
	2019	+2200			
	Total	=6918			

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, ISA resources will be complemented by JRC institutional staff resources for management, ELISE governance support and technical support on INSPIRE issues.

1.1.11.2 Breakdown of ISA[2] funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Initiation	983	983
2017	Execution	2240	1835
2018	Execution	1900	1900
2019	Execution	2200	
2020			

1.1.12 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)
Intramuros: 750k	n/a	Q2 2019
Framework contracts: 680k	1 - 1.5 years	Q2-Q4 2019
Small/expert contracts: 150k	0.5 - 1.5 years	Q2-Q4 2019
Open calls: 620k	1.5 years	Q2 2019

1.1.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
INSPIRE resources	http://inspire.ec.europa.eu/	
EULF	https://joinup.ec.europa.eu/community/eulf/description	
ARe[3]NA	https://joinup.ec.europa.eu/community/are3na/description	
ELISE	https://joinup.ec.europa.eu/community/elise/home	