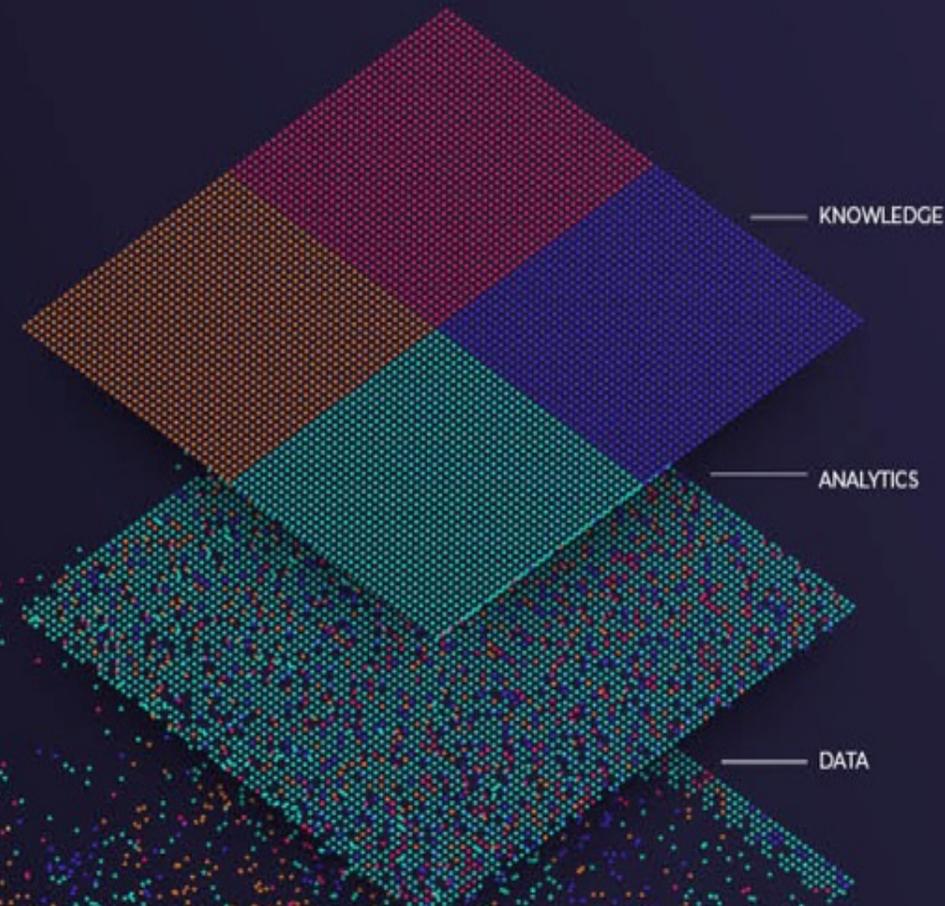


3 – Days Pre-Conference Training Program

Geospatial Knowledge Infrastructure and Evolution of the Stakeholder Ecosystem

7th – 9th May 2022



Jointly Organized by

**GEOSPATIAL
WORLD**
ADVANCING KNOWLEDGE FOR SUSTAINABILITY



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LESSON - 3

Integrated National Policy Frameworks and Strategies

OBJECTIVES

Understand the importance and components of integrated national policy frameworks, especially across space, geospatial and wider digital policies

Understand the GKI Integrated Policy Framework initiatives

Consider the elements of national geospatial strategies in a GKI age

PERSPECTIVE:
Location Interoperability Frameworks in Europe

KNOWLEDGE

ANALYTICS

DATA

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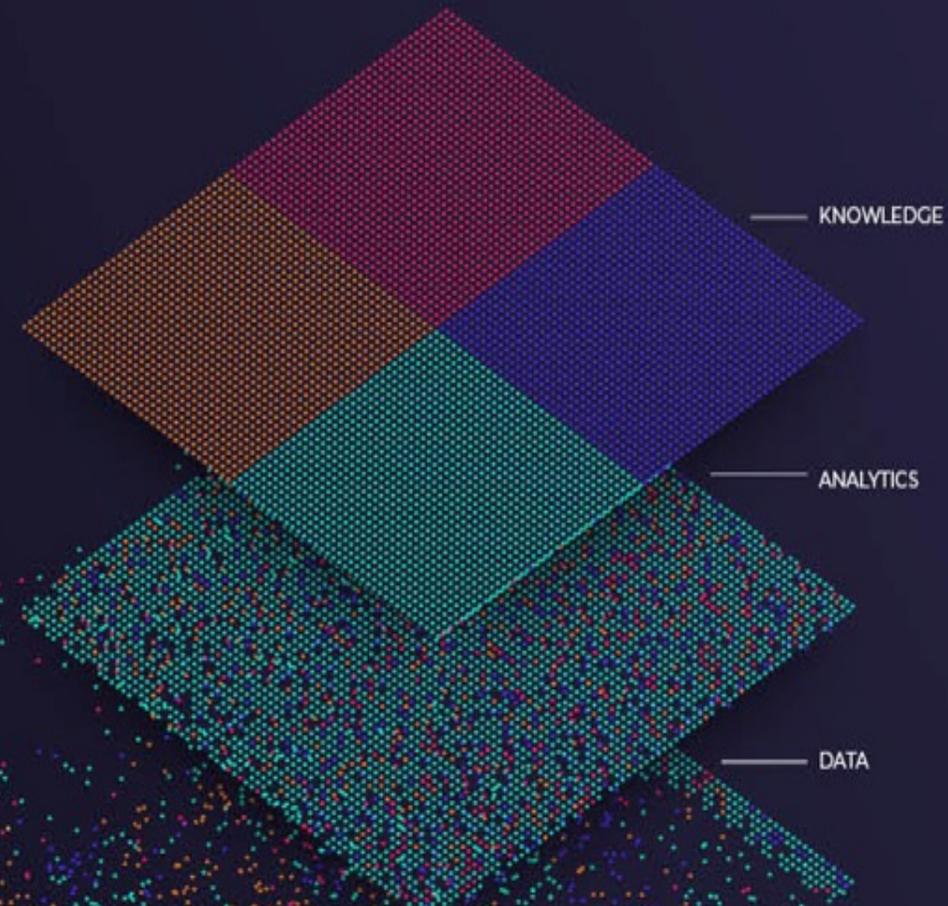
PRESENTERS



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External Expert
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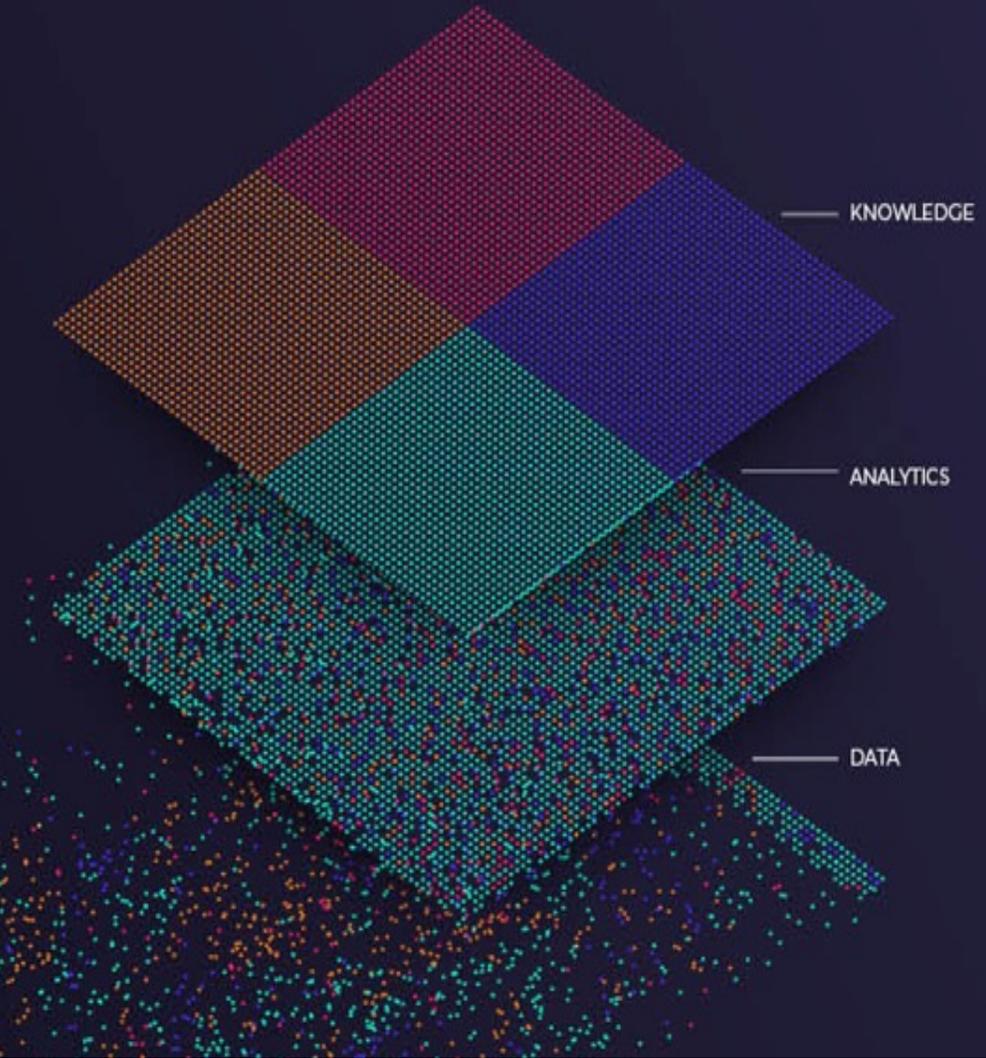


Partners



AGENDA

- Policy context
- European policy framework: Best practices
- European policy framework: State of play
- Relevance for GKI integrated policy framework initiatives
- Group discussions and feedback



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European Commission Joint Research Centre



- The European Commission science and knowledge service for over 60 years
- Mission to support EU policies with independent evidence throughout the whole policy cycle
- Located across 5 countries, the JRC hosts specialist research facilities and is home to thousands of scientists working to support EU policy



Relevant digital economy research in the JRC



INSPIRE spatial data infrastructure for environmental policy

Interoperability solutions for public administrations
ISA² ELISE action
EULF BLUEPRINT location interoperability framework



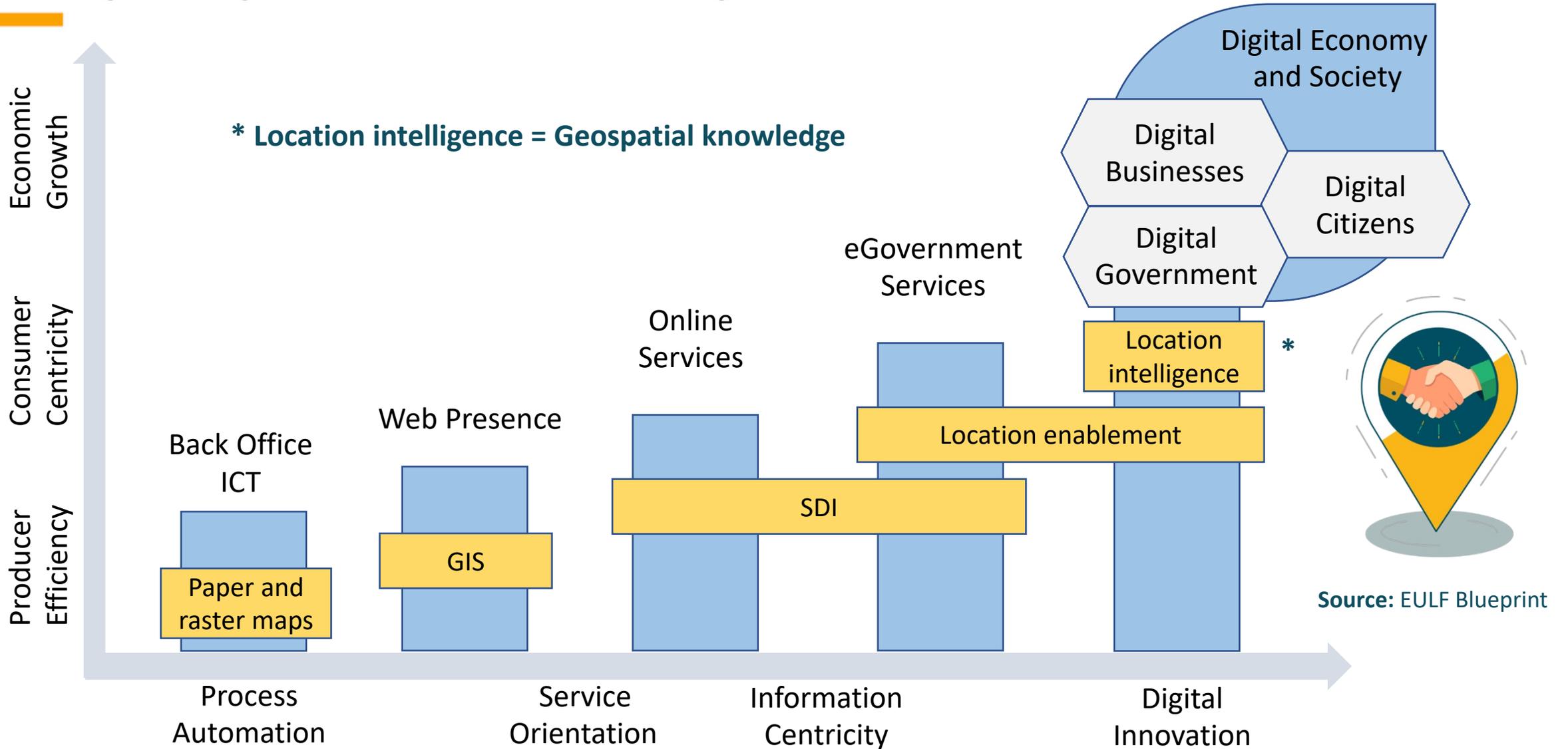
Policy, organisational and technical enablers for data sharing
LICENSING, OPEN DATA, STANDARDS, APIs, DATA QUALITY, DATA PRIVACY, DATA ECOSYSTEMS

Frameworks, methodologies and tools for innovative public services
DIGITAL TWINS, AI, LOCAL DATA-DRIVEN INNOVATION, CITIZEN PARTICIPATION



Conditions for fair and contestable digital markets and services
DIGITAL MARKETS STUDIES
PLATFORM ECONOMICS

Digital government and geospatial evolution

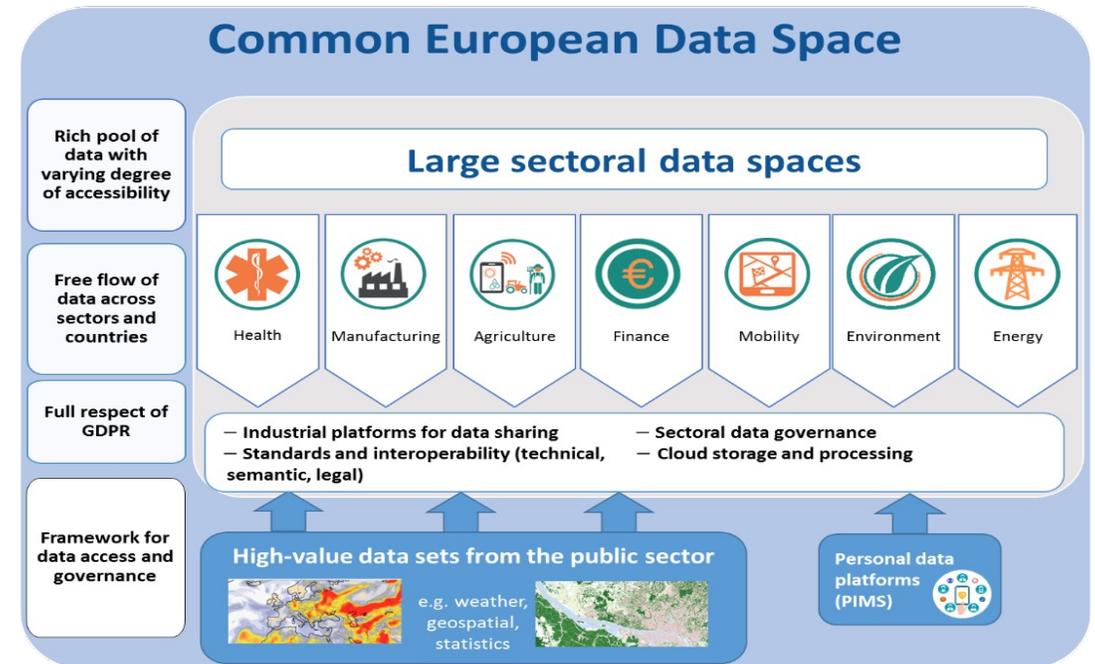


Future policy context: European Strategy for Data

Overview of data actions	[D] What data are we talking about?	[H] Who holds such data?	[A] What policy intervention?
Q4 20 Data governance Act	Good governance of data cannot wait		
	[D] Data voluntarily made available by data holders	[H] Public sector, business, individuals, researchers	[A] Make such data easier to share in a controlled manner (technical, legal and with organisational support); Build trust in data sharing; Ensure data interoperability across sectors
Q4 20 Digital Market Act	Data: a key element of Big Tech's market power		
	[D] Data held by online platforms originating from the users (both businesses and individuals)	[H] Online platforms	[A] Among other policy options, identify appropriate data access and data portability remedies
Q1 21 Implementing Act under Open Data Directive	High quality government data for SMEs & innovation		
	[D] 'High value' Open Government Data (core reference data)	[H] Public sector	[A] Make such data available for re-use free of charge
Q3 2021 Data Act	Better access to and control over data for a fair data economy		
	[D] Co-generated, IoT data from industry and individuals, Big Data sources held by business	[H] Business	[A] Ensure flexible use of Big Data sources by government for the common good; Establish fairness in use of co-generated, IoT data; Make sure that Europeans stay in control over their data vis-à-vis third country jurisdictions; Examine IPR legislation for possible obstacles

- Multiple policy and legal interventions
- Geospatial integrated in the broader data economy

- **Single market for data** through sector-specific data spaces
- Different actors interplaying in the data economy (public sector, businesses, citizens, and academia)



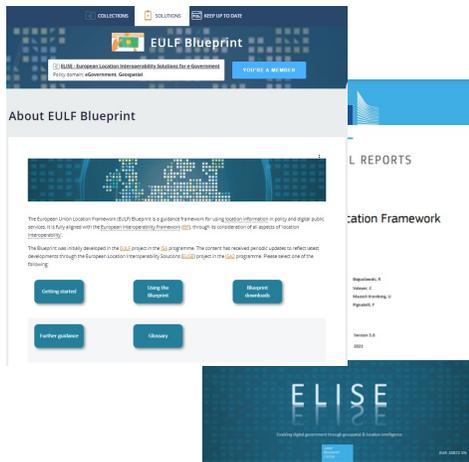
What is location interoperability?

“Location interoperability is the ability of organisations, systems and devices to exchange and make use of location data with a coherent and consistent approach”



European Union Location Framework Blueprint

A **European 'location interoperability framework'** for the exchange and use of location information in the context of digital public services – distilled from best practices across Europe



Online and downloadable versions

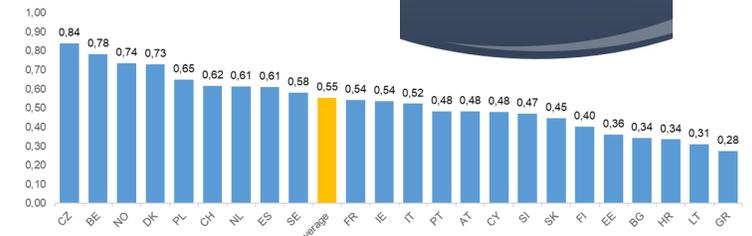
[European Union Location Framework \(EULF\) Blueprint | Joinup](#)

- 5 FOCUS AREAS**
- 19 RECOMMENDATIONS**
- 6 ROLES**
- 2 RELATED FRAMEWORKS**
- 92 BEST PRACTICES**
- 15 BENEFITS ILLUSTRATIONS**

CLICK to explore

1			X	
2				
3				
4				X
5				

LIFO: Location Interoperability Framework Observatory
2020 EUROPEAN STATE OF PLAY REPORT



Adoption monitored through the LIFO

[Location Interoperability Framework Observatory \(LIFO\) | Joinup](#)



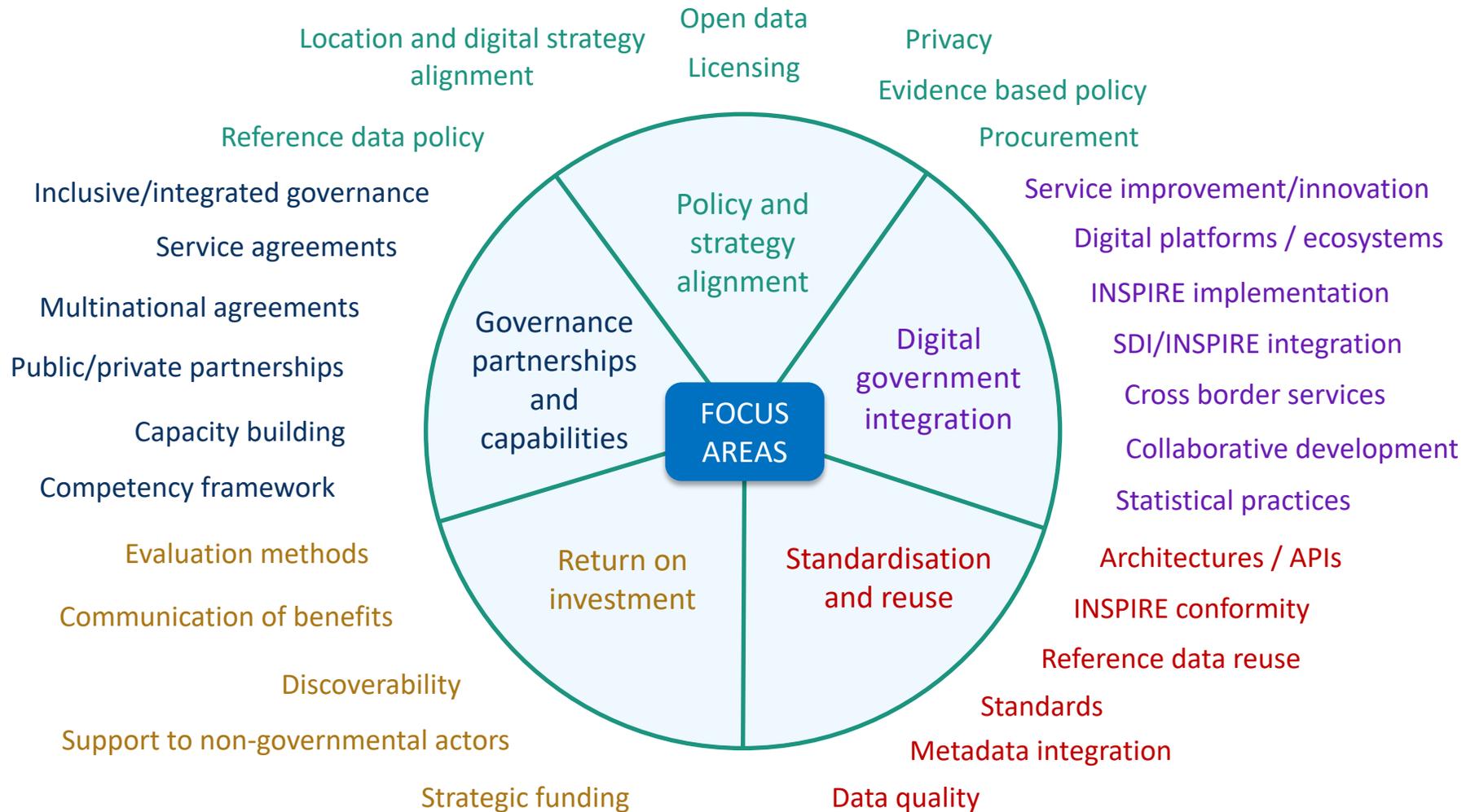
Comprehensive and actionable guidance

Focus area	
 Current State Location aspects within existing policy ...	
 Vision An aligned and coordinated policy ...	
 LIFO Monitoring LIFO monitoring information about focus area	
	Recommendation 1

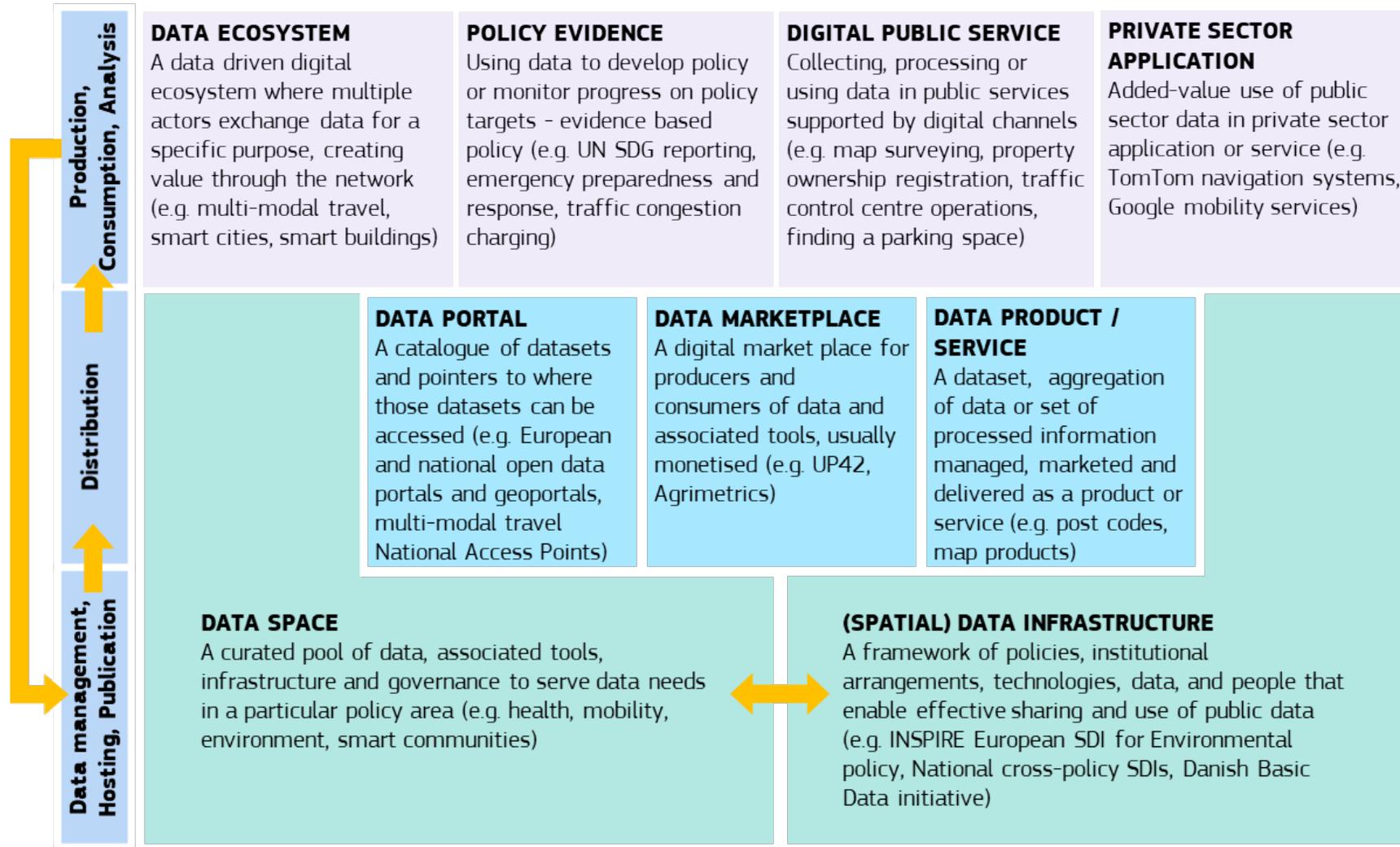
 Recommendation 1: Connect location information ...	
	Why: Core location information ...
	How: ICT strategies ...
	Challenges: Lack of understanding by policy makers...
	Best Practices: #1: A generic GIS ...
	LIFO Monitoring: LIFO monitoring information about Recommendation ...
	Related Frameworks: EIF Related EIF pillars and recommendations
	Related Frameworks: UN-GGIM IGIF Related IGIF strategic pathways, <u>elements</u> and actions
	ELISE Resources: The Role of Spatial Data Infrastructures ...
	Further Reading: EU Better Regulation Toolbox

Further information and tools	
 Best Practices	 Benefits Illustrations
 EIF Cross-reference	 UN-GGIM IGIF Cross-reference
 Role-based methodologies	 Further guidance on selected topics

EULF Blueprint and LIFO topics



EULF Blueprint - Integrated policy landscape



EULF Blueprint - Balancing data supply and use

Focus Area	Supplier good practices	User good practices
Policy and strategy alignment	<ul style="list-style-type: none"> • Aligned digital, innovation, and location policies • Interconnected approach to data policy and data governance, incorporating location data in wider data policy context, e.g. open data, PSI, GDPR • European data policy alignment • Structured approach to e-reporting 	<ul style="list-style-type: none"> • Cross-sector policy alignment on use of location data • Use location-based evidence to inform policy • Protect personal data, incorporating ‘location privacy’ measures • Standards based procurement of location data and services
Digital government integration	<ul style="list-style-type: none"> • Make data easily discoverable and accessible • Publish open core location data and other open location data where possible • Use simple standardised (machine readable) licensing schemes • Build and adapt the SDI according to user needs and priorities (data ecosystems, key services, public and external organisations; analytical support capabilities) • Integration within wider data frameworks, e.g. national, thematic, international 	<ul style="list-style-type: none"> • Optimise use of location data in digital public services • Use authoritative SDI datasets and common access mechanisms • Collaborative agile development • Feedback to providers on data quality • Collaborative business models for location-enabled digital public services • Reusable models for specific data ecosystems based on authoritative open location data (e.g. smart cities) • Use of new technologies to deliver innovation, e.g. digital twins, digital platforms, AI, location intelligence • Integrated location-based statistics

Source: EULF Blueprint : [Blueprint for a user-driven SDI](#)

EULF Blueprint - Balancing data supply and use

Focus Area	Supplier good practices	User good practices
Standardisation and Reuse	<ul style="list-style-type: none">• Standardised framework for heterogeneous and agile use• Simple cross-sector interoperability models – core datasets, basic multi-purpose models, persistent identifiers, integration with other public sector core data and different thematic / international standards (e.g. road transport, BIM)• Simple modern data access, e.g. metadata, web access, APIs, micro services, event stream processing• Include dynamic (e.g. IoT) and satellite data in the SDI with necessary localised processing and standard access mechanisms• Include relevant external data in the SDI in a structured way (e.g. community-sourced, business data)• Affordable data quality regime, balancing needs and based on agreed standards and service levels	<ul style="list-style-type: none">• Use recognised architectural principles and standards in building digital public services• Reuse data, standard access mechanisms (e.g. APIs) and other ICT assets (e.g. software components from sources such as GitHub)• Feedback to providers of tools and services (e.g. APIs) to improve quality

Source: EULF Blueprint : [Blueprint for a user-driven SDI](#)

EULF Blueprint - Balancing data supply and use

Focus Area	Supplier good practices	User good practices
Return on Investment	<ul style="list-style-type: none"> • Funding agreements for pan-government and open data access • Efficiencies in location data collection and supply • Integration with alternative sources of supply, e.g. private sector / citizens • Providing access to location datasets and expertise for evaluation purposes 	<ul style="list-style-type: none"> • Benchmarking and improvement • ROI case studies • Support location data innovation in relevant communities (e.g. smart cities, energy, health, construction) • Promote innovation in and with the private sector using public sector location data
Governance, Partnerships and Capabilities	<ul style="list-style-type: none"> • Cross-sector governance of core data, including location data • Inclusive transparent governance models, involving users • Data supply and data ecosystem partnerships • Geospatial competency framework • Awareness raising and skills programmes 	<ul style="list-style-type: none"> • Partnerships in acquisition and use of data in digital public services • Share learning on digital government innovation

Source: EULF Blueprint : [Blueprint for a user-driven SDI](#)

EULF Blueprint and UN-GGIM IGIF

- EULF Blueprint contains detailed two-way cross references between EULF Blueprint recommendations and IGIF strategic pathways, key elements, actions and tools
- Updated in EULF Blueprint v5.1 to 2022 versions of IGIF Implementation Guides
- Enables users to access resources from both frameworks in defining their strategies, implementation actions, guidance and monitoring
- Start your exploration here: <https://joinup.ec.europa.eu/node/704325>

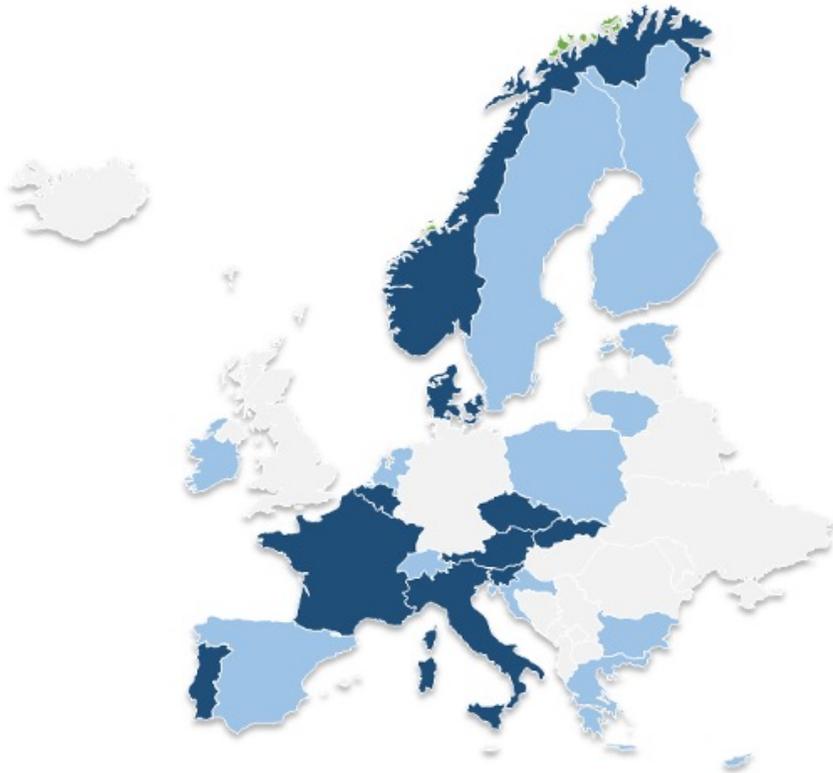
			UN-GGIM IGIF STRATEGIC PATHWAYS									
			Governance and Institutions	Policy and Legal	Financial	Data	Innovation	Standards	Partnerships	Capacity and Education	Communication and Engagement	
EULF BLUEPRINT RECOMMENDATION TOPICS	Policy and Strategy Alignment	1. Digital policy alignment	X	X			X					
		2. Data policy alignment		X								
		3. Location data privacy		X								
		4. Location data for policy evidence				X	X					
		5. Standards based procurement				X		X				
	Digital Government Integration	6. Location enabled digital public services					X					
		7. SDI integration	X	X		X	X					
		8. Open and collaborative development							X			X
		9. Location-based statistics				X	X					
	Standardisation and Reuse	10. Common architecture				X	X					
		11. Authentic data reuse				X	X					
		12. Use of standards						X				
		13. Location data quality				X						
	Return on Investment	14. Assessing and monitoring benefits	X	X	X							X
		15. Communicating benefits	X	X	X							X
		16. Innovation through access to data		X			X					
	Governance, Partnerships and Capabilities	17. Integrated governance	X									
		18. Effective partnerships							X			
		19. Communication and skills			X						X	X

EULF Blueprint and EIF

- Detailed two-way cross references in [EULF Blueprint](#) and [EIF Toolbox](#) solutions on Joinup
- Enables users to access resources from both frameworks

		EIF UNDERLYING PRINCIPLES								EIF INTEROPERABILITY LAYERS						EIF CONCEPTUAL MODEL											
		Subsidiary and proportionality	Openness	Transparency	Reusability	Technological neutrality and data portability	User centricity	Inclusion and accessibility	Security and privacy	Multilingualism	Administrative Simplification	Preservation of information	Assessment of effectiveness and efficiency	Interoperability governance	Integrated public service governance	Legal interoperability	Organisational interoperability	Semantic interoperability	Technical interoperability	Conceptual model	Internal information sources and services	Base registries	Open data	Catalogues	External information sources and services	Security and privacy	
EULF BLUEPRINT RECOMMENDATION TOPICS	Policy and Strategy Alignment	1. Digital policy alignment											X		X		X										
		2. Data policy alignment		X	X									X										X			
		3. Location data privacy			X				X										X				X				X
		4. Location data for policy evidence																	X				X				
		5. Standards based procurement					X							X													
	Digital Government Integration	6. Location enabled digital public services					X				X						X										
		7. SDI integration					X						X					X							X		
		8. Open and collaborative development				X		X																		X	
		9. Location-based statistics					X																X				
	Standardisation and Reuse	10. Common architecture					X												X	X	X						
		11. Authentic data reuse				X		X												X					X		
		12. Use of standards		X			X							X			X	X	X				X				
		13. Location data quality									X							X					X	X			
	Return on Investment	14. Assessing and monitoring benefits											X														
		15. Communicating benefits										X															
		16. Innovation through access to data		X				X															X	X			
	Governance, Partnerships and Capabilities	17. Integrated governance					X						X	X													
		18. Effective partnerships					X							X		X	X										
		19. Communication and skills			X																						

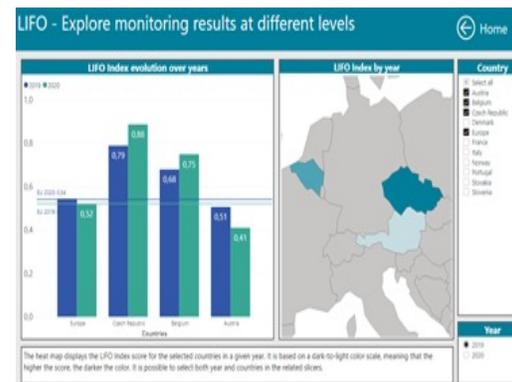
LIFO 2020 participants and results



23 Country Factsheets



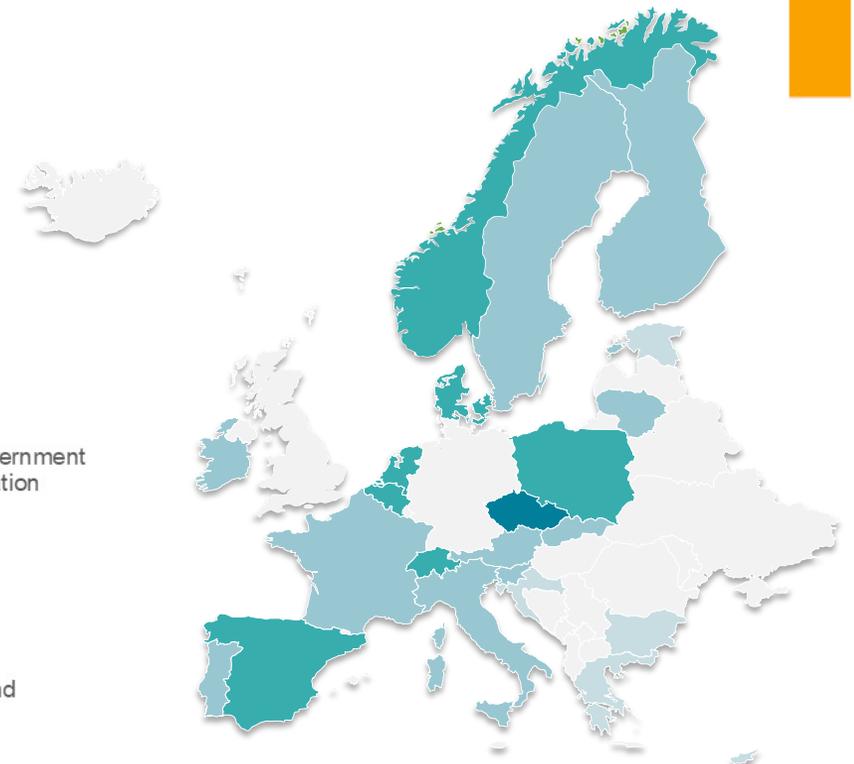
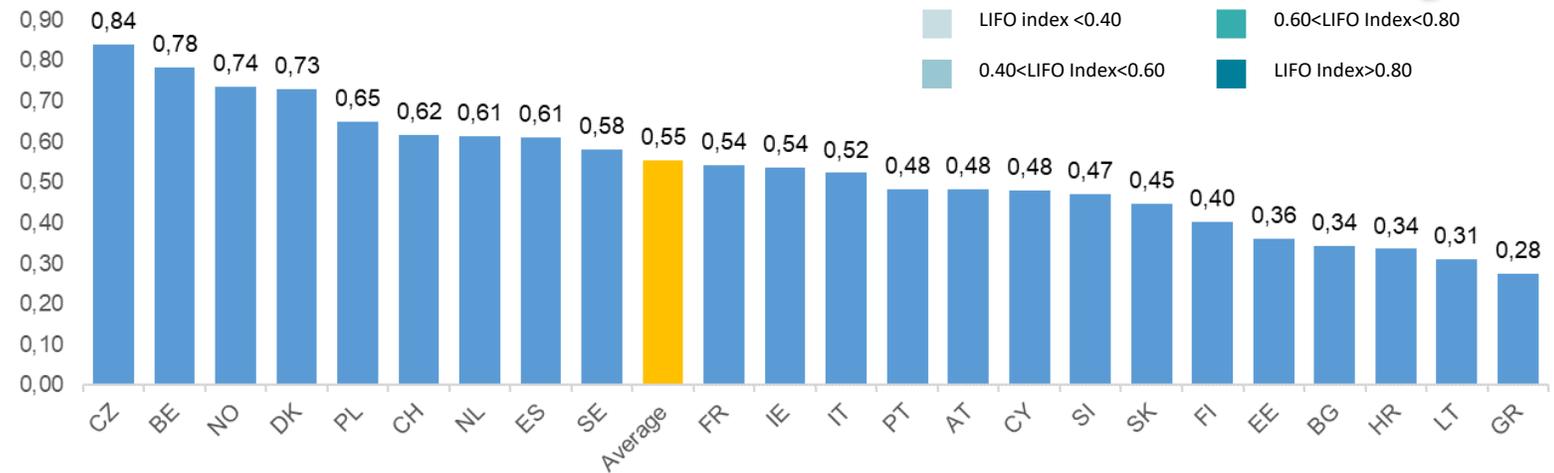
European State of Play Report



Interactive Dashboards

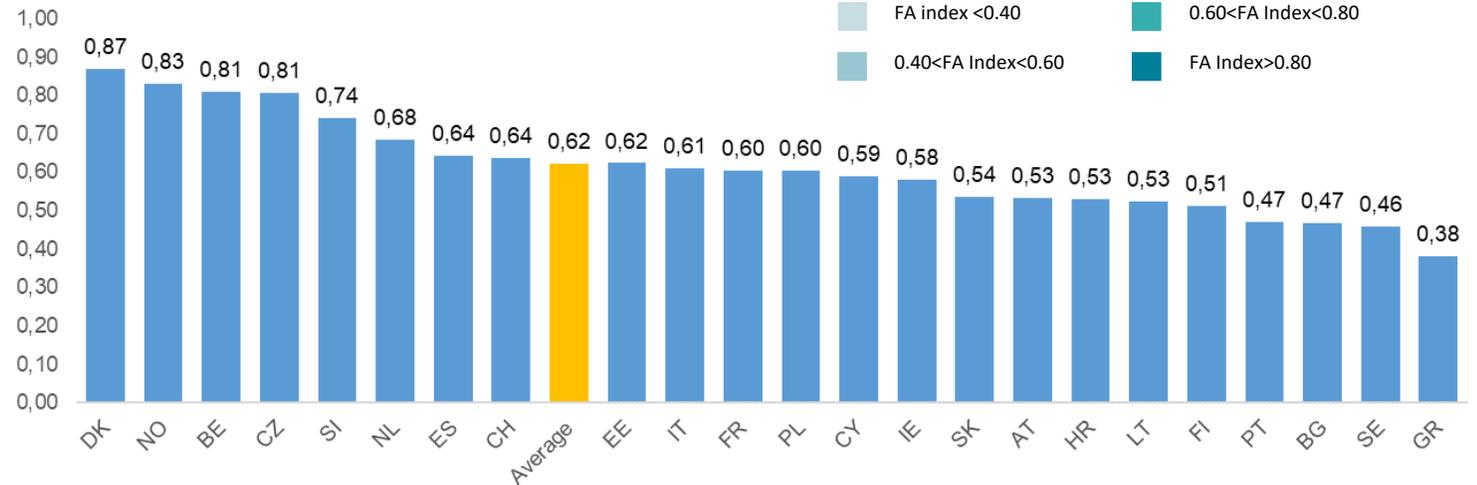
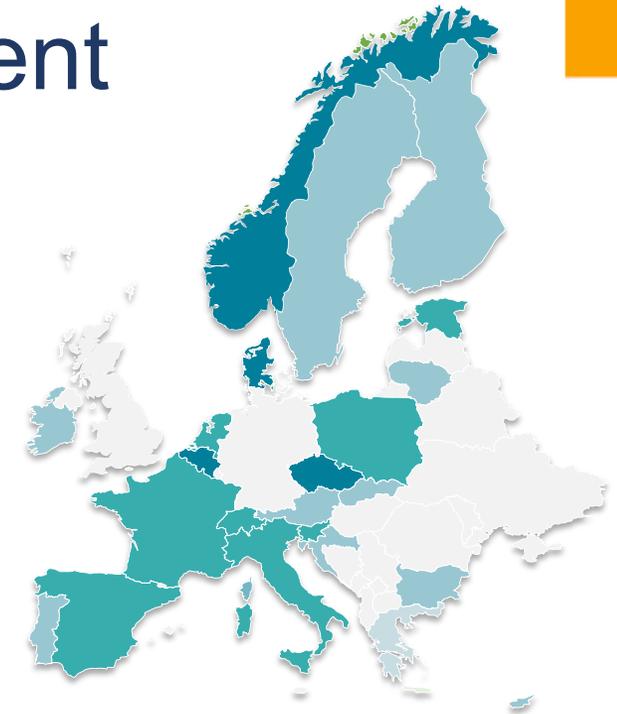
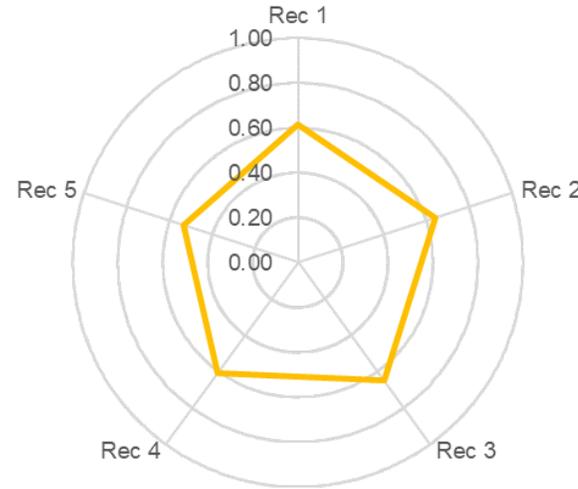
LIFO 2020 results summary

- Average level of location interoperability maturity: the **LIFO index** for the 23 countries is **0.55**
- the **Policy and Strategy Alignment** focus area has the **highest score** of 0.62, followed by **Return on Investment** (0.58), **Digital Government Integration** (0.57) and **Standardisation and Reuse** (0.55); the **Governance, Partnerships and Capabilities** focus area stands apart with the lowest score (0.45)
- **Four outliers** (Czech Republic, Belgium, Norway and Denmark) with excellent scores in all focus areas, and five more countries (Poland, Switzerland, Netherlands, Spain, France and Sweden) positioned above the average
- **All countries have offered some examples of best practices** in one or more focus areas



LIFO 2020 – Policy and strategy alignment

- **Good level of alignment between location and digital government strategies**; several countries however **do not have a specific location strategy**
- **Location data frequently (but not universally) open and available free of charge**; attribution of data sources generally required
- Most controllers/processors of public sector location data are **fully GDPR-prepared**
- **Location-based evidence and analysis** is quite often used to help in developing relevant policies and monitoring their outcomes
- **Public procurement of location data and related services** refer to relevant standards but only very rarely to a standards-based architecture



LIFO interactive dashboards

Tailor your LIFO journey!

Choose which **level** to investigate...

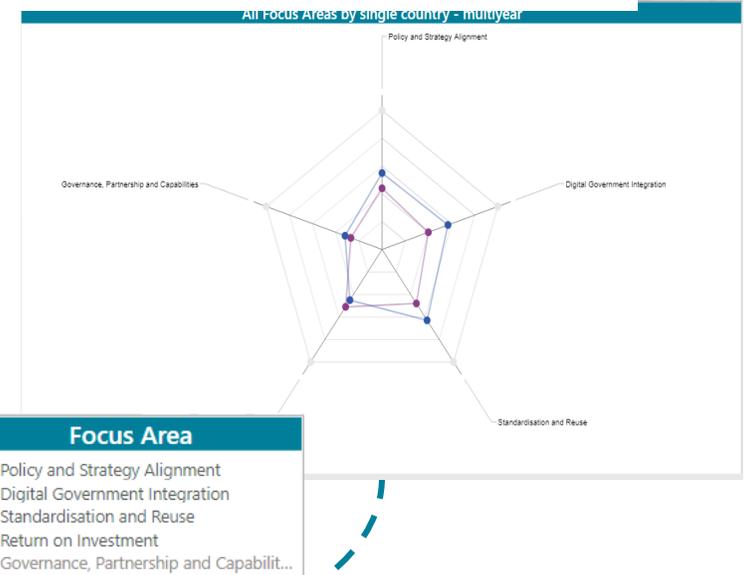


...identify the **countries** you want to compare...



...the **year** you want to consider...

...and which **visualisation** (heat map, radar chart) and **recommendation/focus area/indicator** to display!



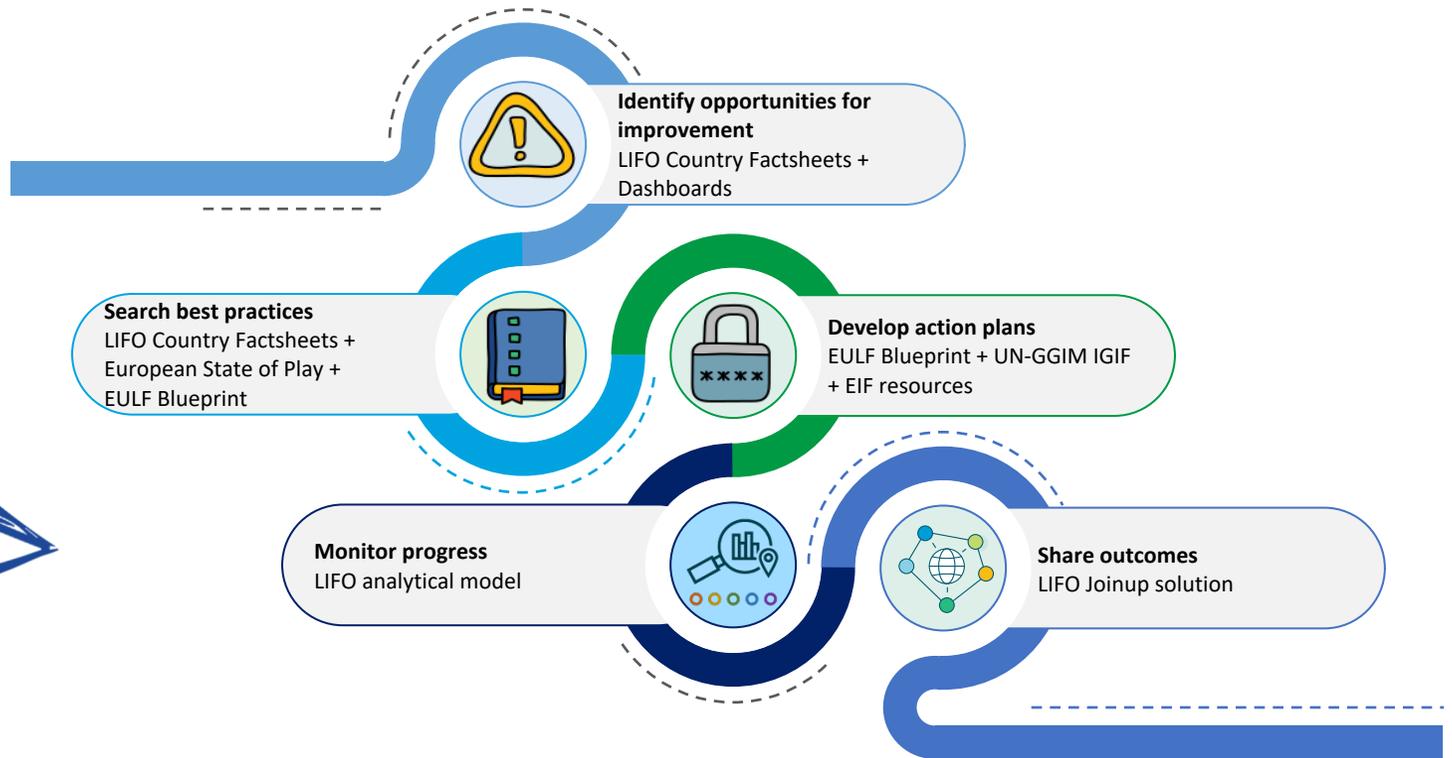
Explore the LIFO interactive dashboards at <https://joinup.ec.europa.eu/node/704247>

Example tasks using EULF Blueprint and LIFO

Role-based views of EULF Blueprint can be leveraged to better exploit geospatial and digital government resources



... users in each of those roles can build their own **user journey** to exploit relevant resources...



Best practices and benefits illustrations

Best Practice 42 Geodata use case portal	DK
Best Practice 43 The impact of open geodata - follow up study	DK
Best Practice 44 Géoplateforme, a collaborative initiative for management of geodata	FR
Best Practice 45 Common Services BUILD	NO
Best Practice 46 Citizen Map	PT
Best Practice 47 IDE-OTALEX	ES, PT
Best Practice 48 Interactive tool for geospatial presentation of statistical data (STAGE)	SI
Best Practice 49 Rennes Urban Data Interface (RUDI)	FR
Best Practice 50 Geodata and INSPIRE at Statistics Austria	AT
Best Practice 51 Hinderpremie	BE
Best Practice 52 BDZ RADAR train locator application	BG
Best Practice 53 Multimodal mobility - LinkingAlps	CH, AT, FR, DE, IT, SI
Best Practice 54 Access to location datasets via APIs	CH
Best Practice 55 Swiss Positioning Service swipos	CH

Benefits Illustration 1 : European data programmes	EU
Benefits Illustration 2 : National data programmes	DK
Benefits Illustration 3 : Geospatial strategic reviews	UK, AU, LT, NE
Benefits Illustration 4 : Integration of data from external sources	PT, INT
Benefits Illustration 5 : Address data	UK, DK
Benefits Illustration 6 : Planning and construction	SE
Benefits Illustration 7 : Routing applications	UK, NO, SE
Benefits Illustration 8 : Public transport	UK
Benefits Illustration 9 : Catchment area and transport planning	ES
Benefits Illustration 10 : Asset maintenance	BE, NE, UK
Benefits Illustration 11 : Agriculture and fisheries	AU, EU
Benefits Illustration 12 : Environment	DK, INT
Benefits Illustration 13 : Healthcare	KR, CZ, DE, FR, INT
Benefits Illustration 14 : Fix My Street applications	PT, INT
Benefits Illustration 15 : Meteorological services	INT, FI

CLICK to explore

Source: EULF Blueprint

Gateway to ELISE webinars and studies



Rec 6 Location enabled digital public services

Rec 7 SDI integration



Webinars

Webinars	
2019	The role of Geospatial for Digital Government Transformation
2020	Digital Twins – Embracing the benefits of location information
2020	Geospatial Data and AI – A deep dive into GeoAI
2020	Location Intelligence for Cities and Regions
2020	Location Intelligence technology trends and case studies
2020	Monitoring and understanding emerging geospatial technologies
2020	Location enabled public services
2021	Geospatially enabled modelling, simulation and prediction
2021	Immersive realities and location for better public services
2021	Geodata Marketplaces supporting Location Intelligence
2021	Evolution of access to spatial data for environmental purposes
2021	Improving the use of location intelligence in Smart Spaces
2022	Emerging approaches for data innovation in Europe

Studies

Studies	
2018	Assessment of economic opportunities and barriers related to geospatial data in the context of the Digital Single Market
2018	Digital Government Transformation Benchmark Study
2018	Digital Platform for Public Services
2019	Blockchain for Digital Government
2019	The role of SDIs in Digital Government Transformation
2021	Establishment of Sustainable Data Ecosystems
2021	Leveraging the Power of Location Information and Technologies to Improve Public Services at the Local Level
2021	A data-driven method for unsupervised electricity consumption characterisation at the district level and beyond
2022	Comparative analysis of different methodologies and datasets for energy performance labelling of buildings
2022	Evolution of access to spatial data for environmental purposes

[CLICK to explore](#)

Source: EULF Blueprint

GKI Initiative 1.1 Integrated Digital Governance

GKI Recommendation	EULF Recommendations	Challenges	References
<p>Government creates, aligns and eventually combines geospatial and digital policy and strategy functions. (This can be at national and other levels, as appropriate)</p>	<ul style="list-style-type: none"> 1. Digital policy alignment 2. Data policy alignment 17. Integrated governance 18. Effective partnerships 	<p>Lack of appreciation of geospatial role and value by policy makers</p> <p>Standalone v embedded geospatial policy</p> <p>Strategic alignment v organisational alignment</p> <p>Aligning across different levels and sectors of government</p> <p>Maintaining inputs from all relevant stakeholders in governance – ensuring user voice, avoiding unfair competitive advantage</p> <p>Balancing strategic and tactical focus</p>	<p>DK: Integrated Geospatial Governance/ Agency for Data Supply and Efficiency (BP59)</p> <p>NL: Common Ground (BP79)</p> <p>NO: Norway Digital (BP82)</p>

EULF Blueprint relevant content

GKI Initiative 1.1 Integrated Digital Governance

GKI Recommendation	EULF Recommendations	Challenges	References
Liberalise the market for geospatial data and knowledge companies and bridge the digital divide by building and operating networks.	5. Standards based procurement 6. Location enabled digital public services 7. SDI integration 16. Innovation through access to data 18. Effective partnerships	Balancing fairness and competition – SMEs v larger players Encouraging open data v protecting IP and revenue of participants Approach to standards in procurement Optimising links with industry	AT, CH, DE: Cross-border management of Lake Constance area (BP38) FI: Oskari (BP67) FR: Rennes Urban Data Interface (BP49) NO, SE: Road safety data exchange (BP22) UK: Geospatial Commission

EULF Blueprint relevant content

GKI Initiative 1.2 Core Geospatial Policies

GKI Recommendation	EULF Recommendations	Challenges	References
<p>Governments create and maintain a set of core geospatial policies integrated within the wider government policy framework, aimed at driving increasing social, economic and environmental value from geolocation, data integration and knowledge</p>	<ol style="list-style-type: none"> 1. Digital policy alignment 2. Data policy alignment 5. Standards based procurement 6. Location enabled digital public services 8. Open and collaborative development 16. Innovation through access to data 	<p>Standalone v embedded geospatial policy Value driven by use in potentially new scenarios with new business and funding models Reflecting user needs Value chain and data integration complexity Legacy transition Lack of understanding of geospatial and knowledge opportunities Lack of skills may inhibit large scale adoption Optimising links with industry in policies Use of standards v fit for purpose solutions</p>	<p>CH: Official geographic directories (BP58) CZ: Base registers (BP11) DK: Impact of open geodata (BP43) NL: Public Services on the Map PDOK (BP78)</p>

EULF Blueprint relevant content

GKI Initiative 1.2 Core Geospatial Policies

GKI Recommendation	EULF Recommendations	Challenges	References
<p>Governments set public foundation data geospatial standards on content, access, quality, coverage and timeliness of data and services provided by national agencies</p>	<ul style="list-style-type: none"> 4. Location data for policy evidence 5. Standards based procurement 7. SDI integration 9. Location based statistics 10: Common architecture 11. Authentic data reuse 12. Use of standards 13. Location data quality 14. Assessing and monitoring benefits 15. Communicating benefits 16. Innovation through access to data 	<p>Foundation data scope and content</p> <p>Foundation data business case, sponsorship and funding mechanism</p> <p>Intensive long term delivery programme.</p> <p>Reflecting different user needs</p> <p>Investing in take-up as well as supply</p> <p>Data ecosystem integration (e.g. IoT data, imagery, time series)</p> <p>Maintaining authority and trust in highly dynamic environments</p> <p>Embedding data quality processes</p>	<p>CH: Access to location datasets via APIs (BP54)</p> <p>CH: Swiss positioning service ‘swipos’ (BP55)</p> <p>CH: Official geographic directories (BP58)</p> <p>CZ: Base registers (BP11)</p> <p>DK: Impact of open geodata (BP43)</p> <p>SE: Swedish API Strategy (BP88)</p> <p>SE: Sveriges Dataportal (BP90)</p>

EULF Blueprint relevant content

GKI Initiative 1.2 Core Geospatial Policies

GKI Recommendation	EULF Recommendations	Challenges	References
Governments liberalise restrictions on the creation and use of geospatial data and information to strengthen national innovation	2. Data policy alignment 7. SDI integration 11. Authentic data reuse 12. Use of standards 13. Location data quality 16. Innovation through access to data	Inconsistent licensing models Funding to overcome 'restrictions' Reflecting user needs Investing in take-up as well as supply Choice and evolution of standards	DK: Impact of open geodata (BP43) FR: Open licence (BP71) NO, SE: Road safety data exchange (BP22) NL: Public Services on the Map PDOK (BP78) SE: Datasets relevant to Open Data Directive (BP89) SE: Sveriges Dataportal (BP90)

EULF Blueprint relevant content

GKI Initiative 1.3 Global Policy Alignment

GKI Recommendation	EULF Recommendations	Challenges	References
<p>Geospatial application crosses borders, and governments should support, contribute to and where possible align with global and regional geospatial and wider data policies and frameworks</p>	<ol style="list-style-type: none"> 1. Digital policy alignment 2. Data policy alignment 6. Location enabled digital public services 7. SDI integration 10. Common architecture 11. Authentic data reuse 12. Use of standards 16. Innovation through access to data 17. Integrated governance 18. Effective partnerships 	<p>Broader policy requirements may not align with national priorities or solutions. Effort and cost to support both supranational and national policy needs. Cooperation with neighbouring countries often more relevant than global alignment</p> <p>Complexity across multiple sectors</p> <p>Maintaining partnerships</p>	<p>DK: Integrated digital geospatial (BP59) EU: INSPIRE EU: EULF Blueprint EU: European Data Strategy EU: EIF ISO Standard for Geographic Information Data Quality (BP29) UN GGIM: IGIF</p>

EULF Blueprint relevant content

GKI Initiative 1.3 Global Policy Alignment

GKI Recommendation	EULF Recommendations	Challenges	References
Governments collecting global data should look at opportunities to release this and provide commensurate development support to developing nations to increase the role of data and knowledge in government decision-making, sustainable development, and business growth	4. Location data for policy evidence 7. SDI integration 9. Location based statistics 11. Authentic data reuse 12. Use of standards 16. Innovation through access to data 18. Effective partnerships	Business case for supporting other countries Ability to provide meaningful long term support	EU: European Statistical System UN GGIM: IGIF UN SDG reporting

EULF Blueprint relevant content

GKI Initiative 1.4 Open Data

GKI Recommendation	EULF Recommendations	Challenges	References
<p>Governments adopt a common 'open data' policy for fundamental geospatial data including key registers and appropriate quality and interoperability standards</p>	<ol style="list-style-type: none"> 1. Digital policy alignment 2. Data policy alignment 6. Location enabled digital public services 7. SDI integration 14. Assessing and monitoring benefits 15. Communicating benefits 16. Innovation through access to data 	<p>An effective open data policy needs to be broader than geospatial</p> <p>Many existing declarations of 'open data' contain restrictions.</p> <p>'Open data' implies 'open use' – building a business case base on unknown uses is a challenge.</p> <p>Market impact of free high value public data</p> <p>Scope of public responsibility</p> <p>Standards and quality decisions and processes</p> <p>Establishing an API framework</p> <p>Funding mechanism</p>	<p>AT: Applications reusing open data (BP39)</p> <p>CZ: Base registers (BP11)</p> <p>DK: Impact of open geodata (BP43, BI2)</p> <p>DK: Value of address web API (BP60)</p> <p>DK: Value of open geodata based on control group design (BP61)</p> <p>ES: Open geodata standard (BP65)</p> <p>EU: High value dataset impact assessment (BI1)</p> <p>FR: Open licence (BP71)</p> <p>NL: Public Services on the Map PDOK (BP78)</p> <p>SE: Datasets relevant to Open Data Directive (BP89)</p> <p>SE: Sveriges Dataportal (BP90)</p> <p>UK: Data.gov.uk</p> <p>UK: TFL's value of open data (BI8)</p>

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GKI Initiative 1.5 Security

GKI Recommendation	EULF Recommendations	Challenges	References
<p>In the same way that 4IR offers opportunities the new capabilities are threats, whether national security, business intellectual property or personal privacy. Suitable protective policies to mitigate these threats will need to be considered.</p>	<ol style="list-style-type: none">1. Digital policy alignment2. Data policy alignment3. Location data privacy8. Open and collaborative development10. Common architecture	<p>Not always clear that geographical context presents a personal data threat.</p> <p>Mobile apps create vulnerabilities.</p> <p>Having complete protection may result in lost opportunities.</p> <p>Personal data protection involves extra effort.</p> <p>Opening up government data introduces more privacy risks.</p> <p>Anonymisation complexity.</p> <p>New data may invalidate and necessitate new anonymisation approach.</p>	<p>EU: Guidelines for public administrations on location privacy</p> <p>NL: Rotterdam Digital City (BP4)</p>

EULF Blueprint relevant content

GKI Initiative 1.6 Knowledge Legislation

GKI Recommendation	EULF Recommendations	Challenges	References
National geospatial leaders should seek to influence developing legislation to protect the justifiable benefits of geospatial knowledge from the unintended consequences of legislation	<ul style="list-style-type: none"> 1. Digital policy alignment 2. Data policy alignment 3. Location data privacy 4. Location data for policy evidence 7. SDI integration 14. Assessing and monitoring benefits 	<ul style="list-style-type: none"> Inadequate spatial literacy among legislators Geographic connections can be both complex and seem simple Engagement in ex ante policy making Determining the 'justifiable benefits' 	EU: ICT assessments of new legislation
Smart city programmes should be transparent about the uses to which collected geospatial intelligence on people can and cannot be made. Appropriate checks, balances and security should be put in place to prevent misuse	<ul style="list-style-type: none"> 3. Location data privacy 6. Location enabled digital public services 8. Open and collaborative development 17. Integrated governance 	<ul style="list-style-type: none"> Determining appropriate consent mechanisms User benefit v protection Relevant anonymisation approach 	<ul style="list-style-type: none"> NL: Rotterdam Digital City (BP4) NL: Common Ground (BP79)

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GKI Initiative 1.7 Government Research, Development and Innovation

GKI Recommendation	EULF Recommendations	Challenges	References
Governments should support digital innovation in a manner that is inclusive to maximise the potential of geolocation	<ul style="list-style-type: none"> 1. Digital policy alignment 6. Location enabled digital public services 16. Innovation through access to data 17. Integrated governance 18. Effective partnerships 	<ul style="list-style-type: none"> Ensuring SME community is engaged in a balanced way Driving through from innovation programmes to business growth and operational solutions – getting value from innovation sponsorship Delivering reusable benefits – e.g. in different cities 	<ul style="list-style-type: none"> CH, AT, FR, DE, IT, SI: LinkingAlps (BP53) DK: Geodata use case portal (BP42) DK: Impact of open geodata (BP43) FI: Helsinki 3D (BP31) FR: Rennes Urban Data Interface (BP49) NL: Common Ground (BP79) NO, SE: Road safety data exchange (BP22) NO: Common Services BUILD (BP45) PT: Urban platform, Guimarães (BP33) SE: Sveriges Dataportal (BP90) UK: Innovate UK

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GKI Initiative 1.7 Government Research, Development and Innovation

GKI Recommendation	EULF Recommendations	Challenges	References
<p>Governments should establish the means to accelerate the transfer of geospatial ideas to solutions, bringing academia, business and innovators, often from different sectors or disciplines, together</p>	<ul style="list-style-type: none"> 1. Digital policy alignment 6. Location enabled digital public services 16. Innovation through access to data 17. Integrated governance 18. Effective partnerships 	<p>Balancing learning v value creation Nature and source of sponsorship Geospatial is usually part of a much broader innovation scenario</p>	<p>DK: Geodata use case portal (BP42) DK: Impact of open geodata (BP43) FR: Géoplateforme (BP44) FR: Rennes Urban Data Interface (BP49) FR: IGNFab innovation accelerator (BP70) NO, SE: Road safety data exchange (BP22) SE: Sveriges Dataportal (BP90) UK: Innovate UK</p>

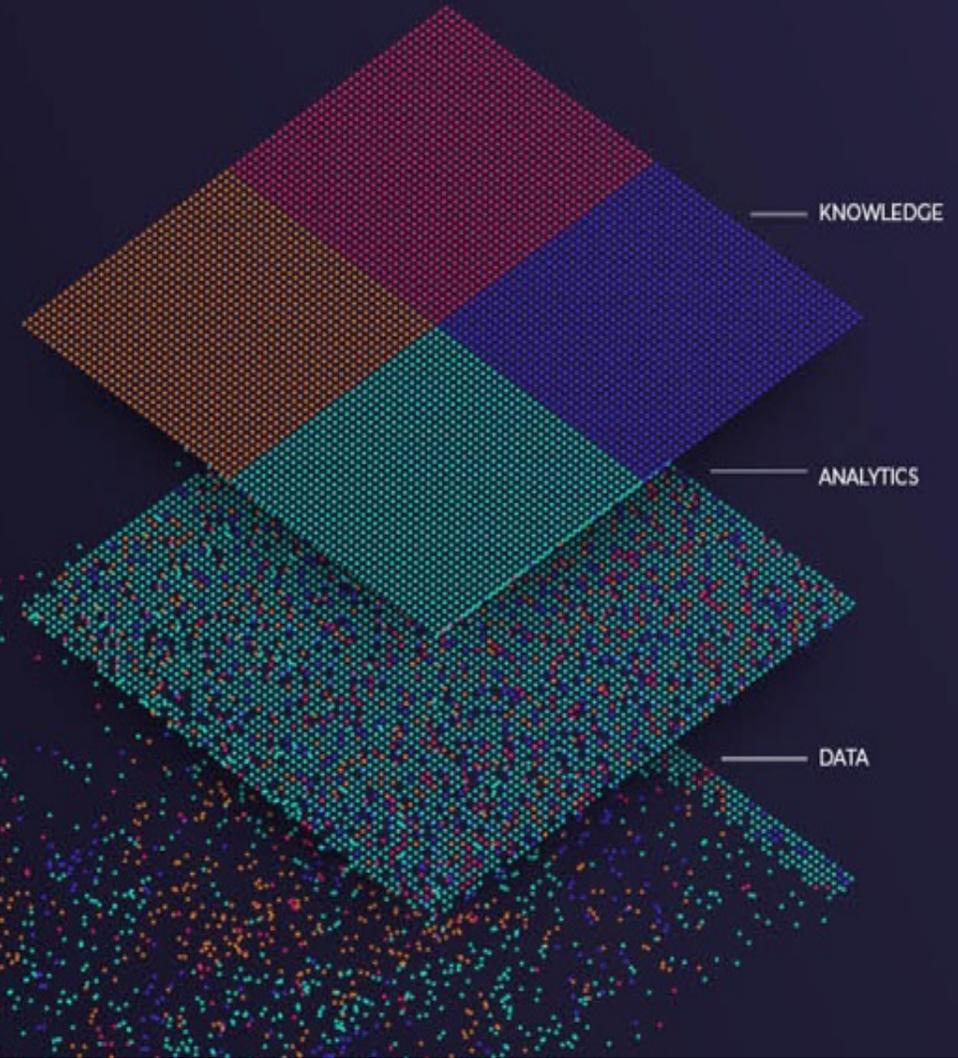
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GKI Initiative 1.8 Digital Education

GKI Recommendation	EULF Recommendations	Challenges	References
<p>Geospatial knowledge, as part of wider digital education, should be integrated with data and analytics education throughout the curriculum and arm students with tools to solve problems</p>	<p>19. Communication and skills</p>	<p>Geospatial viewed as a technical topic Designing appropriate use cases Geography basics essential</p>	<p>EU: ELISE webinar series EU: Interoperability Academy FR: Édugéo (BP69)</p>
<p>Universities should move from GIS specific courses to broader analytical education, bringing geospatial knowledge, AI, data science, sensor technologies, software development, and business information systems together in differing degrees. knowledge, AI, data science, sensor technologies, software development and business information systems together in differing degrees</p>	<p>19. Communication and skills</p>	<p>Designing appropriate modular courses Potential dilution of geospatial specialism. Keeping pace with requirements for geography graduates and graduates with geospatial training in whatever form. Defining what is needed to go into industry – combining with industry experience.</p>	<p>EU: ELISE webinar series EU: Interoperability Academy PL: Project POWER (BP85)</p>

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