European INSPIRE Directive and Location Interoperability

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ISO/TC211 "Standards in Action" Seminar
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European Location Interoperability
Solutions for e-Government

*Enabling Digital Government through
Geospatial and Location Intelligence*

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Agenda

Context for European (Location) Interoperability

ELISE as an enabler of location interoperability in Europe

INSPIRE and ISO: a close relationship for years

ELISE Studies & Frameworks & Solutions in the area

ELISE efforts towards semantic Interoperability

Context for European (Location) Interoperability – 1/2

Context for European (Location) Interoperability – 2/2

From Static Maps to Location Intelligence
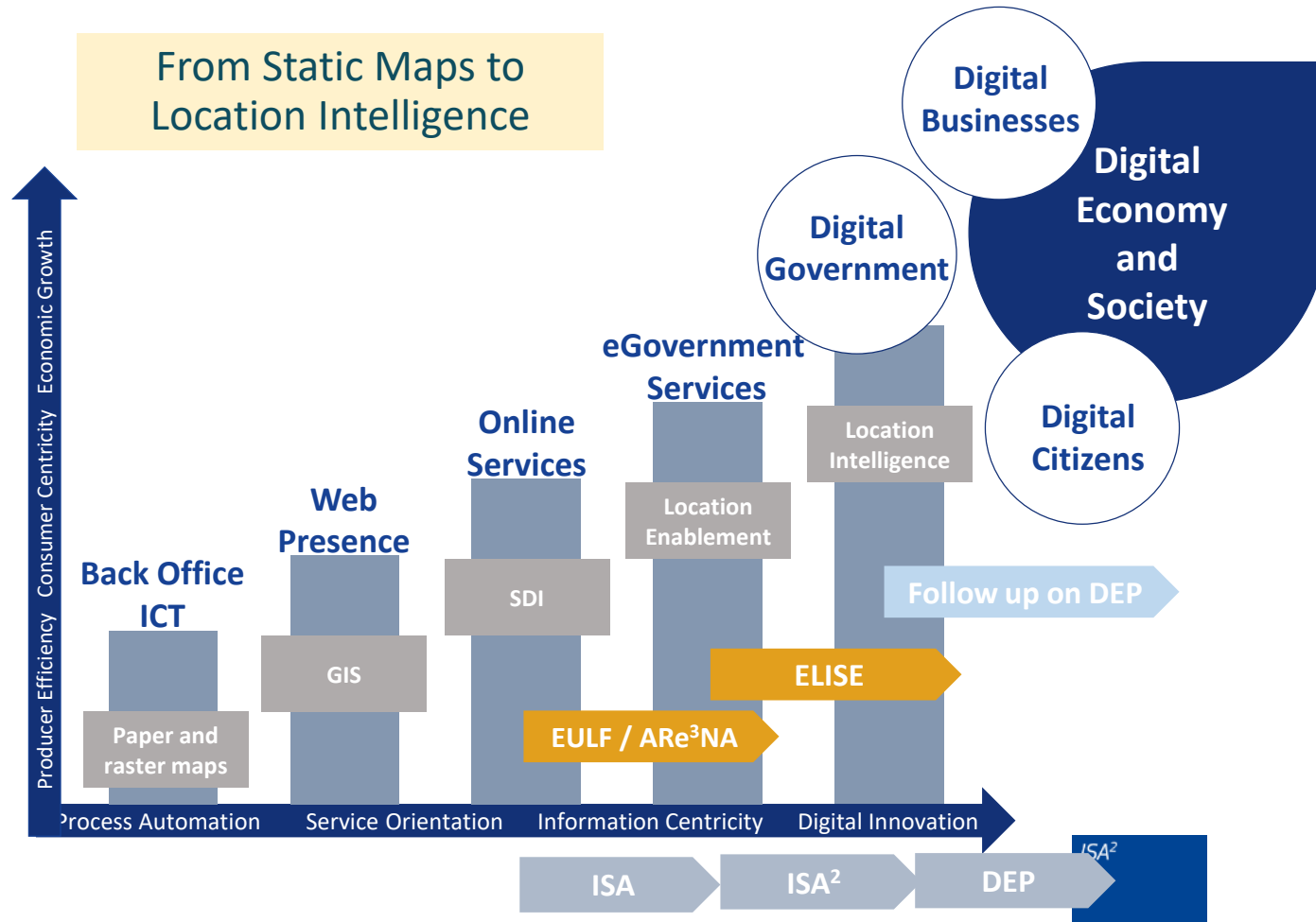
Digital government is about

- the use of digital technologies

- as an integrated part of governments' **modernisation and transformation** strategies,

- to create public value

It relies on a **digital government ecosystem** comprised of government actors, non-governmental organisations, businesses, citizens' associations and individuals

Location intelligence enables new ways of delivering public value and making services and government procedures digital by design

INSPIRE Directive

The INSPIRE Directive establishes an **infrastructure for spatial information in Europe** to support Community **environmental policies, and policies or activities which may have an impact on the environment**.

Implementing Rules (IR) are adopted in a number of specific areas:
- Metadata,
- Data Specifications,
- Network Services,
- Data and Service Sharing
- Monitoring and Reporting

The Directive addresses 34 spatial data themes

ANNEX: 1

- Addresses
- Cadastral parcels
- Geographical grid systems
- Hydrography
- Transport networks
- Administrative units
- Coordinate reference systems
- Geographical names
- Protected sites

ANNEX: 2

- Elevation
- Land cover
- Geology
- Orthoimagery

ANNEX: 3

- Agricultural and aquaculture facilities
- Atmospheric conditions
- Buildings
- Environmental monitoring Facilities
- Human health and safety
- Meteorological geographical features
- Natural risk zones
- Population distribution and demography
- Sea regions
- Species distribution
- Utility and governmental services
- Area management / restriction / regulation zones & reporting units
- Bio-geographical regions
- Energy Resources
- Habitats and biotopes
- Land use
- Mineral Resources
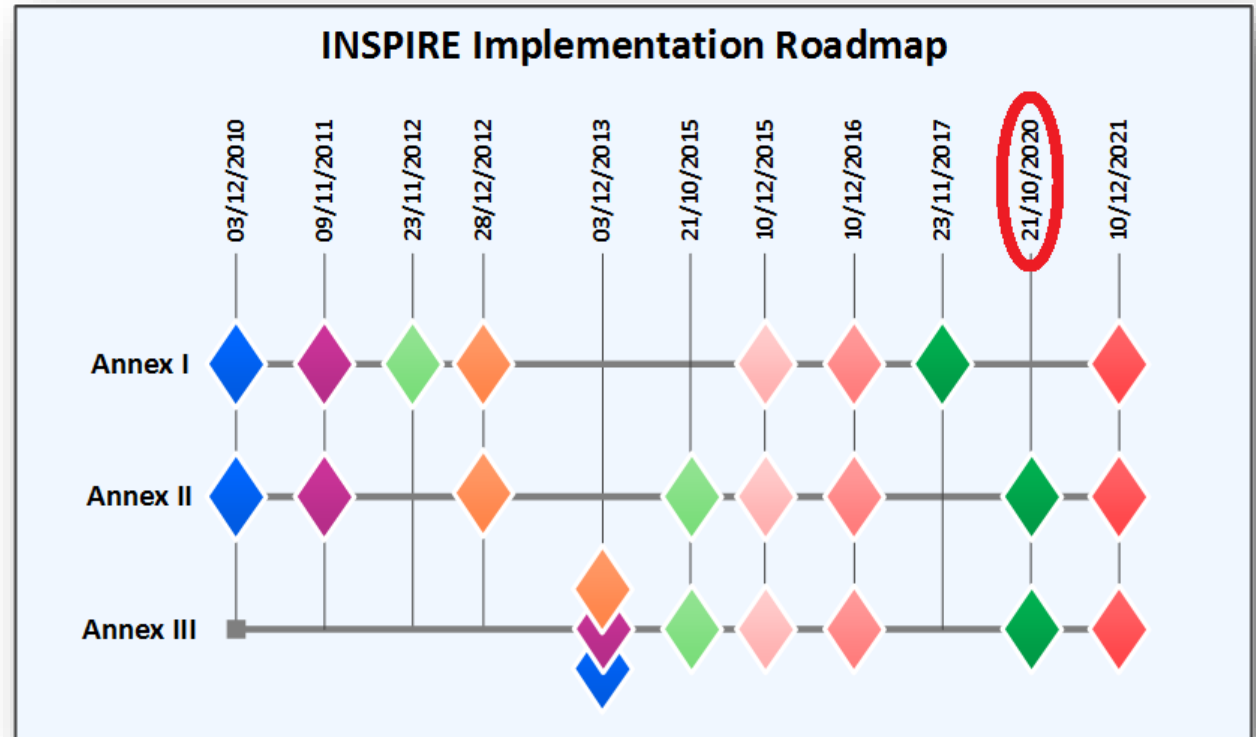- Oceanographic geographical features
- Production and industrial facilities
- Soil
- Statistical units

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INSPIRE Directive - Roadmap

Next step:
- **European Data Ecosystems**
- Support to EU Green Deal

ISO standards as the INSPIRE 'building blocks´

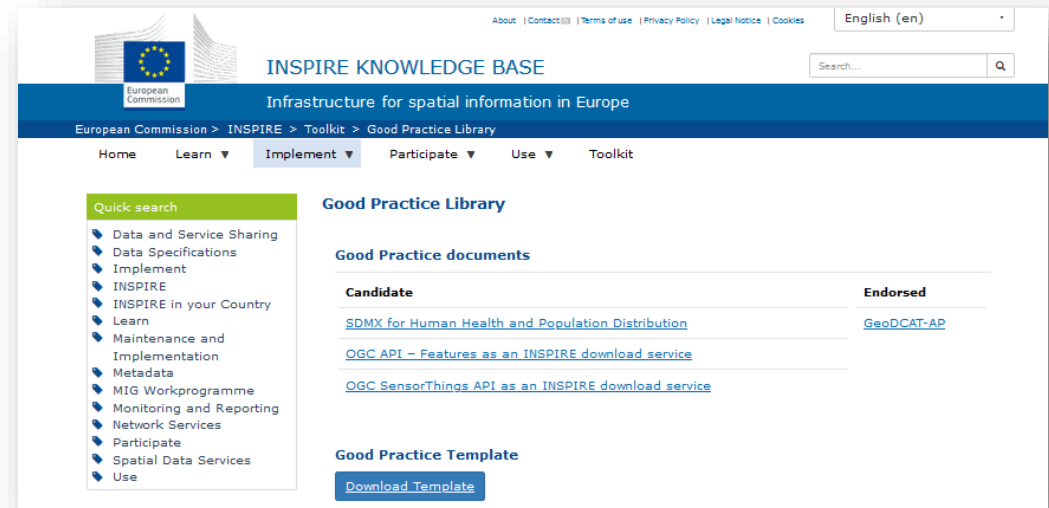| 19101 Geographic information — Reference model	19103 Geographic information — Conceptual schema language	19106 Geographic information — Profiles	19107 Geographic information — Spatial schema	19108 Geographic information — Temporal schema
19109 Geographic information — Rules for application schema	19111 Geographic information — Referencing by coordinates	19111-2 Geographic information — Spatial referencing by coordinates — Part 2: Extension for parametric values	19115 Geographic information — Metadata	19118 Geographic information — Encoding 19119 Geographic information — Services
19123 Geographic information — Schema for coverage geometry and functions	19125-1 Simple feature access - Part 1 common architecture	19127 Geographic information — Geodetic register	19128 Geographic information — Web map server interface	19135 Geographic information — Procedures for item registration
	19136 Geographic information — Geography Markup Language (GML)	19139 Geographic information — XML schema implementation	19144-2 Geographic information - Classification systems — Part 2: Land Cover Meta Language (LCML)	19156 Geographic information — Observations and measurements

- **ISO standards** underpin the establishment of the **pan-European** data infrastructure as defined by the **INSPIRE Directive**.

- The standards are extensively used for the creation of non-legally binding INSPIRE Technical guidelines documents.

- ISO standards are used as '**building blocks**' for the:

  o encoding of data and metadata,
  o and network services for discovery, viewing and downloading of data

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Benefits for the users

- Some larger scale benefits as seen by the European Commission's JRC:
  - Improved transparency in sharing geospatial data
  - Optimised processes within and between different organisations
  - Easy sharing of data across different borders (e.g. regional, national) and different application domains
  - Better interaction of users and providers of data
  - Minimising the risk of vendor lock-in
  - Standards are a catalyst for data-driven innovation

- INSPIRE implementers are encouraged to consider submitting **Good implementation practices** based on different standards (e.g. ISO) and technologies
  - Details are available at: https://inspire.ec.europa.eu/portfolio/good-practice-library

ELISE as enabler of *Location Interoperability* in Europe

European Interoperability Programme

cross-border and **cross-sector** Interoperability solutions

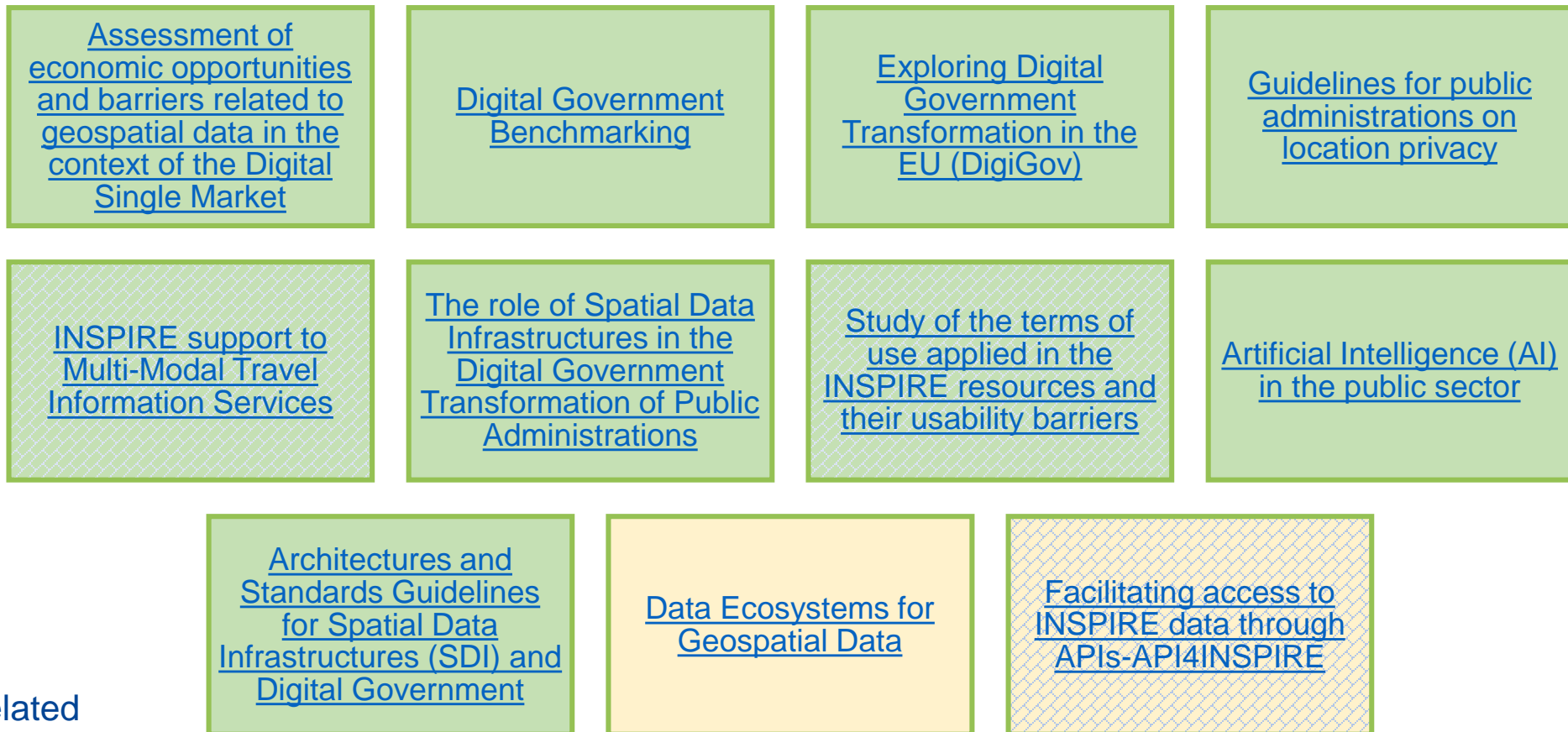for **public administrations, businesses** and **citizens**

54 different actions tackling **interoperability** from different angles

ELISE action is the **only** action focusing on the **location dimension**

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European Location Interoperability Solutions for e-Government

Enabling Digital Government through Geospatial and Location Intelligence

ELISE Studies on Location-enabled Digital Government Transformation

Assessment of economic opportunities and barriers related to geospatial data in the context of the Digital Single Market

Digital Government Benchmarking

Exploring Digital Government Transformation in the EU (DigiGov)

Guidelines for public administrations on location privacy

INSPIRE support to Multi-Modal Travel Information Services

The role of Spatial Data Infrastructures in the Digital Government Transformation of Public Administrations

Study of the terms of use applied in the INSPIRE resources and their usability barriers

Artificial Intelligence (AI) in the public sector

Performed

On going

INSPIRE-related

Architectures and Standards Guidelines for Spatial Data Infrastructures (SDI) and Digital Government

Data Ecosystems for Geospatial Data

Facilitating access to INSPIRE data through APIs-API4INSPIRE

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Check them at: https://joinup.ec.europa.eu/node/701948

ELISE Frameworks and Solutions

European Union Location Framework Blueprint

Access the Blueprint by focus area

- Policy and strategy alignment
- Digital government integration
- **Standardisation and reuse**
- Governance, partnerships, and capabilities
- Return on investment

Access the Blueprint by role

- Policy Maker
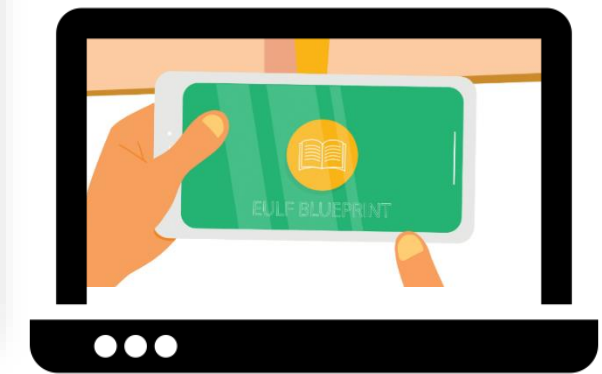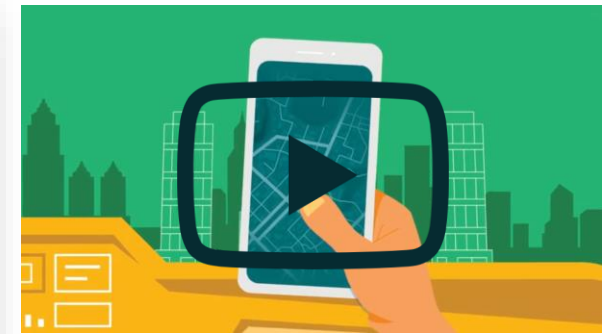- Public Service Owner, Manager and Implementer
- ICT Manager and Developer
- Data Manager / Data Scientist
- INSPIRE Data Publisher
- Private Sector Product and Service Entrepreneur / Developer

JRC TECHNICAL REPORTS

European Union Location Framework Blueprint

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Recommendation 12

Apply relevant standards to develop a comprehensive approach for spatial data modelling, sharing, and exchange to facilitate integration in digital public services

ELISE Frameworks and Solutions

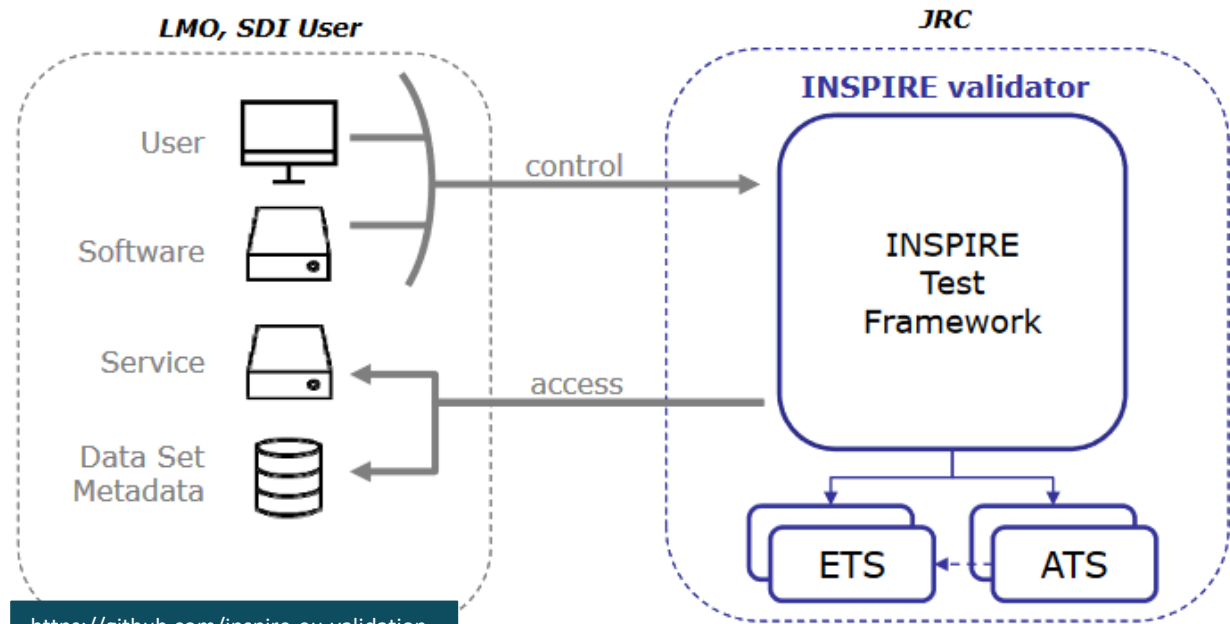**Executable Test Suites**

To start a Test Run, select one or multiple Test Suites with a click on the flip switches on the right-hand side ("use" types and therefore not all Test Suites are combinable for a Test Run. Additional information about a Test Suite will

	Start test		Status	

Q Filter items...

View Services - WMS and WMTS (TG version 3.11)

⊕ Conformance Class: View Service - WMS

⊕ Conformance Class: View Service - WMTS

Download Services - WFS and ATOM (TG version 3.1)

⊕ Conformance Class: Download Service - Direct WFS

⊕ Conformance Class: Download Service - Pre-defined Atom

⊕ Conformance Class: Download Service - Pre-defined WFS

Download Services - SOS (TG version 1.0) - BETA

⊕ Conformance Class: Download Service - Pre-defined SOS

Download Services - WCS (TG version 1.0) - BETA

⊕ Conformance Class: Download Service - WCS Core

https://inspire.ec.europa.eu/validator

ATS & ETS validating many ISO and **ISO application profiles**

https://github.com/inspire-eu-validation

ELISE Frameworks and Solutions

Re³gistry

ISO 19135 registration workflow implementation

Functionalities:

- User friendly editing interface to add, edit and manage easily the registers and reference codes
- Multi-lingual content support
- Free-text search
- RESTful API with content negotiation
- Externally governed items referenced through URI
- Support for versioning

ISO 19135 Standard

RESTful API

https://inspire.ec.europa.eu/registry/

https://github.com/ec-jrc/re3gistry

open source

EUPL

ELISE efforts towards semantic Interoperability 1/2

Common Vocabularies are central to achieve **semantic interoperability** and they allow to be **reused in innumerable ways**

Cross-cutting aspects to connect the future **European Data spaces**

Bridging ISO/TC211 / W3C worlds

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Photo by Cody Hiscox on Unsplash

ELISE efforts towards semantic Interoperability 2/2

INSPIRE registry

Re³gistry software

Spatial Object catalogue

INSPIRE in RDF - Linked data Ontologies

INSPIRE in Practice platform

INSPIRE Implementation and use vocabularies based on the GI Body of Knowlesge

GeoDCAT-AP Specification (Metadata management)

LD proxy & web discoverability

INSPIRE synonyms (On going)

Knowledge Graphs (next)

ELISE action Webinar Series

Using synonyms to improve discovery of geospatial data

European Location Interoperability Solutions for e-Government

03/12/2020 at 14:00 CET (UTC+1)

Register here

https://joinup.ec.europa.eu/node/703535

Stay tuned

Join the *ELISE* community in JoinUp

@eu_location

eu-location@ec.europa.eu

ELISE playlist

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