Towards a Data Union Strategy
Shaping Digital Sovereignty in Europe

Open Geospatial Consortium (OGC) Innovation Days,
Bad Nauheim, 10 December 2025

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European priorities

The goals ahead

European Commission

European Commission
Political Priorities 2024-2029

[A new plan for Europe's sustainable prosperity and competitiveness]

[A new era for European defence and security]

[Supporting people, strengthening our societies and our social model]

https://commission.europa.eu/priorities-2024-2029_en

[Sustaining our quality of life: Food security, water and nature]

[Protecting our democracy, upholding our values]

[A global Europe: Leveraging our power and partnerships]

[Delivering together and preparing our Union for the future]

European Commission
Political Priorities 2024-2029

A new plan for Europe's sustainable prosperity and competitiveness

Boost productivity with digital tech diffusion

- Encourage investments in digital infrastructures to improve access to secure, fast and reliable connectivity.
- Continue to step up our enforcement of the EU digital laws.
- Step up investment in high-value technologies (supercomputing, IoT, quantum computing, semiconductors, genomics, space technologies…)
- Ensure access to supercomputing capacity for AI startups and industry via an AI continent action plan.
- Boost new industrial uses of AI and improve public services.
- Ensure seamless, high-quality and at-scale data sharing with a European Data Union Strategy (Build on the earlier European Data Strategy).

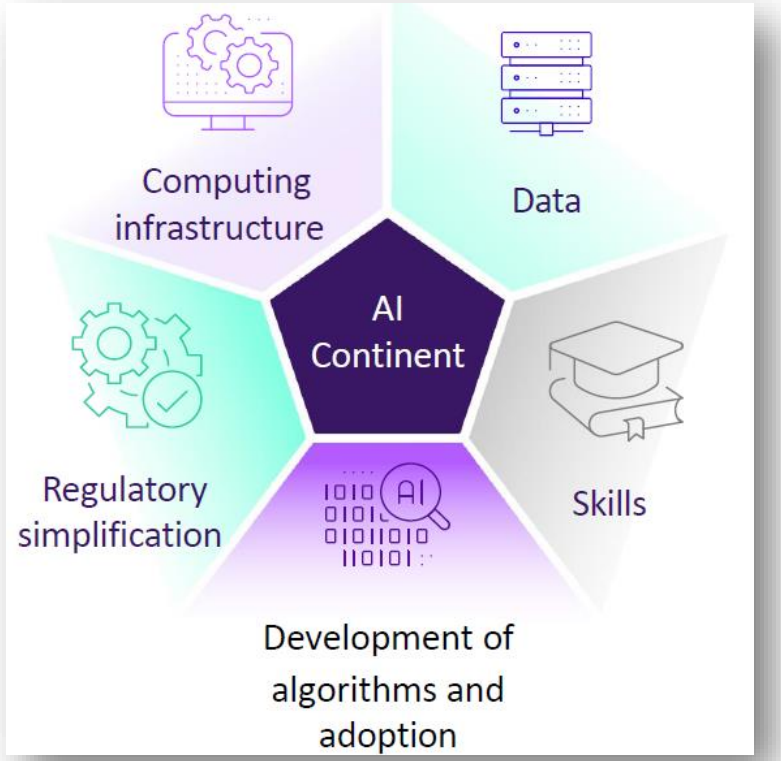
Put research and innovation at the heart of our economy

- Increase research spending to focus more on strategic priorities.
- Support green and digital transitions by developing high-value technologies.

European Commission
Political Priorities 2024-2029

AI Continent Action Plan
Making Europe a Global AI Leader

Roadmap to position Europe as a global frontrunner in artificial intelligence



AI Factories & Giga Factories

- Equipped with state-of-the-art computing resources

Data Labs

- Integrate & organise data from different sources
- Linked to EU Data Spaces
- Provide sovereign cloud data-related services

Data Union Strategy
Unlocking Data for AI

Ensuring access to high-quality data for AI development


EUROPEAN COMMISSION

Brussels, 19.11.2025
COM(2025) 835 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

DATA UNION STRATEGY
UNLOCKING DATA FOR AI

https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=COM:2025:835:FIN

EU data sharing

What was achieved so far

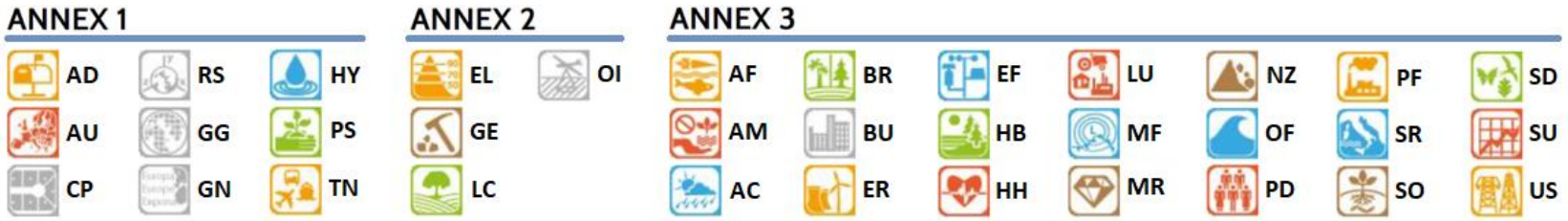
INSPIRE 1.0

European Commission

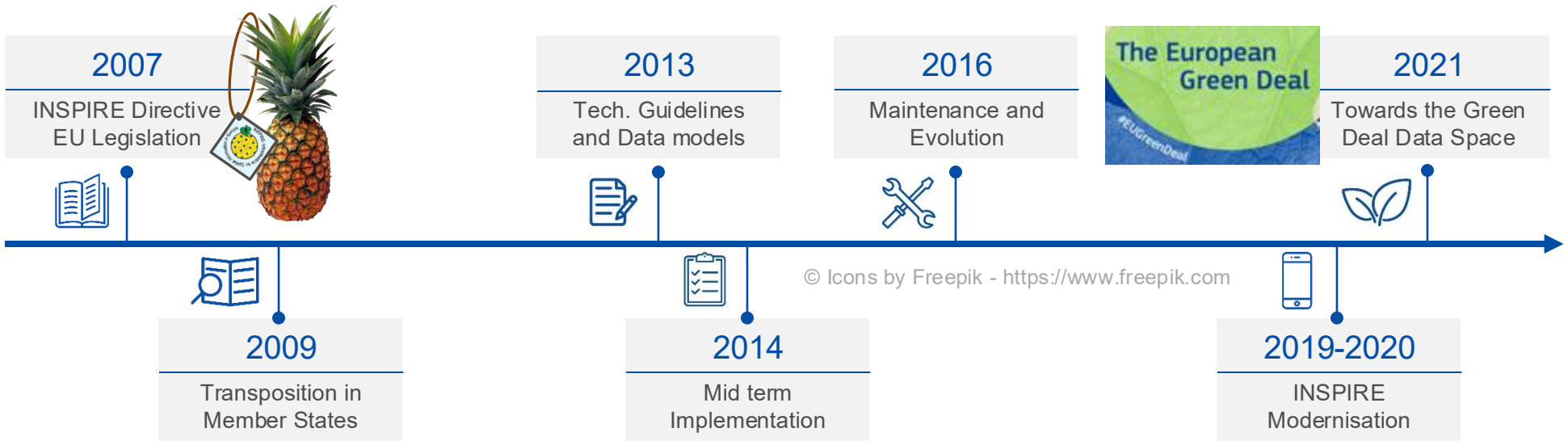
EU data sharing experience
INSPIRE 1.0

European Spatial Data Infrastructure

- Sharing of interoperable metadata, data and services across EU.
- Thematic domains: 34 spatial data themes



- Implementation roadmap:



Multi-faceted SDI

Perspectives:

- Legal.
- Organisational.
- Technical.

Implementation status

Lights and shadows.

- Objectives partially achieved.
- Heterogeneity of implementations across EU.
- Pan European coverage yet do be achieved.

EU data sharing experience
INSPIRE 1.0 – Lessons learnt

- Worked ☺
  - Data availability
  - Community
  - Ecosystem of Open-Source tools
- To be improved ☹
  - Interoperability through prescription
  - Rigid (legal & technical) framework
  - Data provider-centric governance

Image generated through Artificial Intelligence

European Commission

EU data sharing

How it may look like in the future

INSPIRE 2.0 / Green Deal Data Space / …

European Commission

EU data sharing future options
Approaches

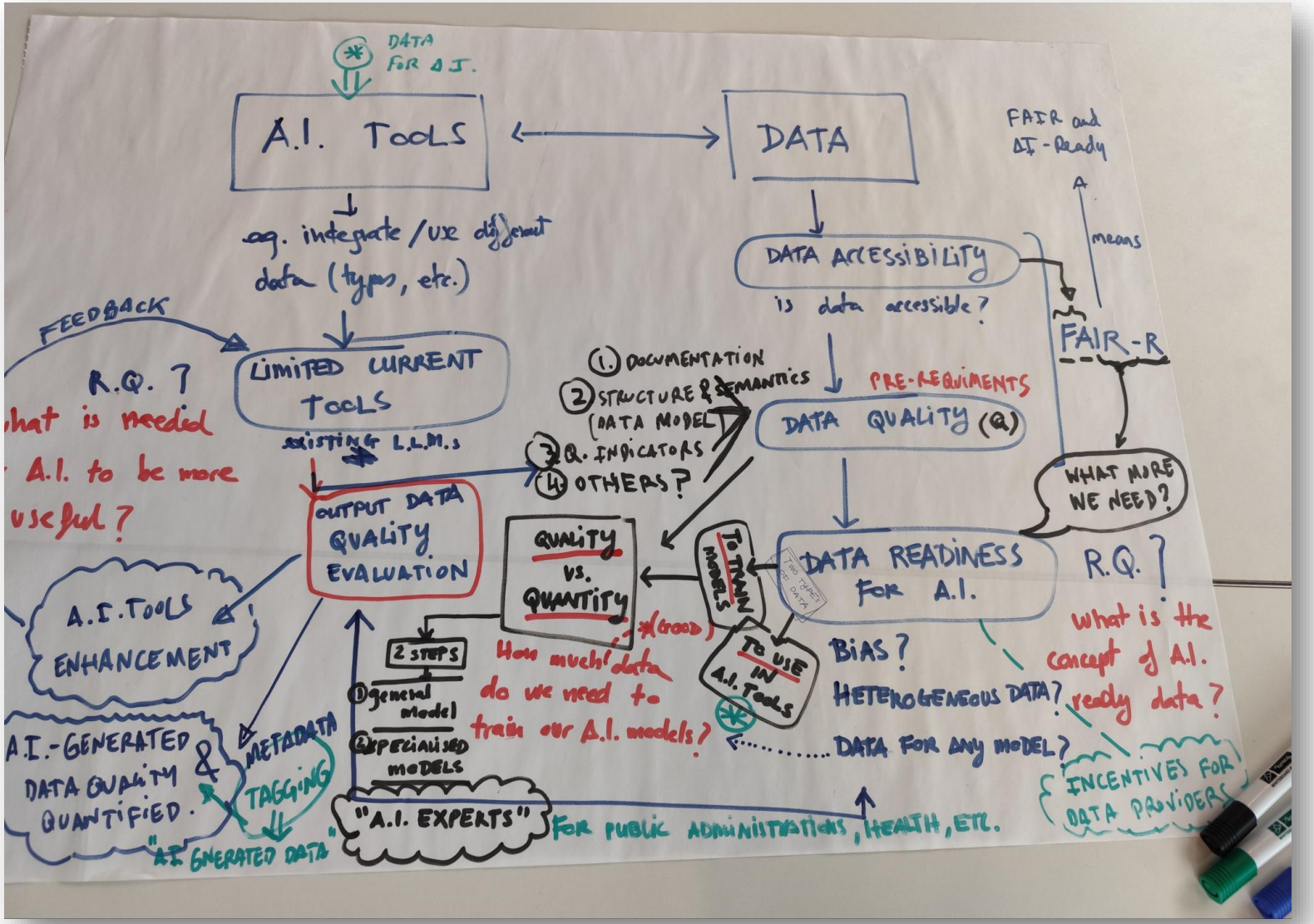
- Iterative interoperability
  - Use-case driven, based on real needs
  - Start with minimal requirements
  - Incentivise higher levels of interoperability
- Inclusive data governance model
  - Multiple actors / Co-creation
  - Living ecosystem
  - Bringing knowledge and digital innovation
- Alignment to Open Data
  - High-Value Datasets & Environmental priorities

Image generated through Artificial Intelligence

EU data sharing future options
AI-readiness

- AI-ready data

  Understanding what it is
  - Documentation
  - Structure and semantics
  - Provenance & Quality
  - Others? (e.g., standards)
- AI-generated data
  - Quality evaluation
  - AI tools enhancement
  - Capacity to achieve Interoperability



Towards data sovereignty

JRC.T4 research

European Commission

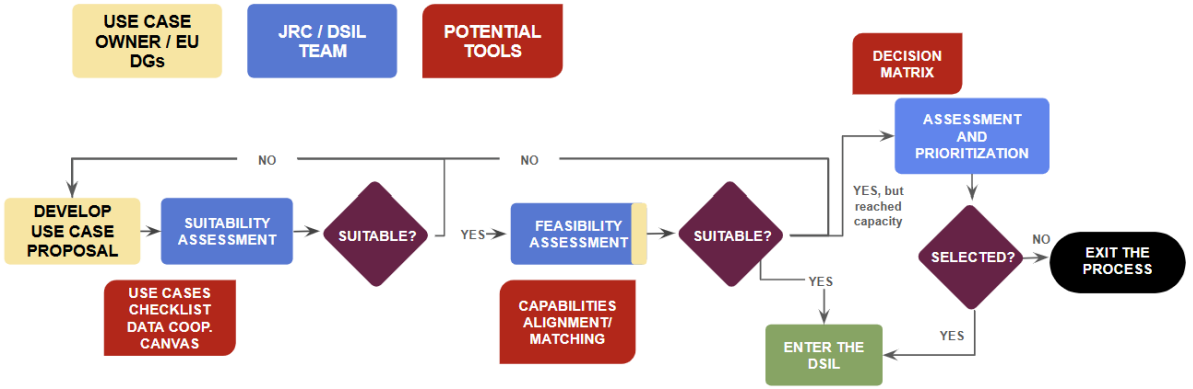
JRC.T4 team – Research on data sharing
+ Digital Sovereignty

- **Towards a Common understanding of EU Digital Sovereignty**
  - EU Digital Sovereignty is intended as the EU's **capacity of exercising its independence in the digital domain while remaining open and connected to global networks**.
  - It focuses on the ability to decide, invest, and innovate according to European values of democracy, openness, and the rule of law.
  - Rather than implying isolation or protectionism, we describe Digital Sovereignty as strengthening EU skills, infrastructures, and governance to ensure that digital transformation supports competitiveness, resilience, and trust.

JRC.T4 team – New tools
Data Sharing (+Sovereignty) Innovation Lab

- Technical and governance experiments based on preselected policy-relevant use cases
- Toolbox: European cloud instances, stack of technical components, methods and approaches
- Research topics - Selection criteria
  - Clear policy demand and alignment with EC priorities
  - Evidence of potential societal, economic, or environmental benefits
  - Involvement of more than one stakeholder
  - Focus on data reuse
  - Comply with ethical, legal, sovereign and privacy norms and values
  - Measurable outcomes

DSI Lab



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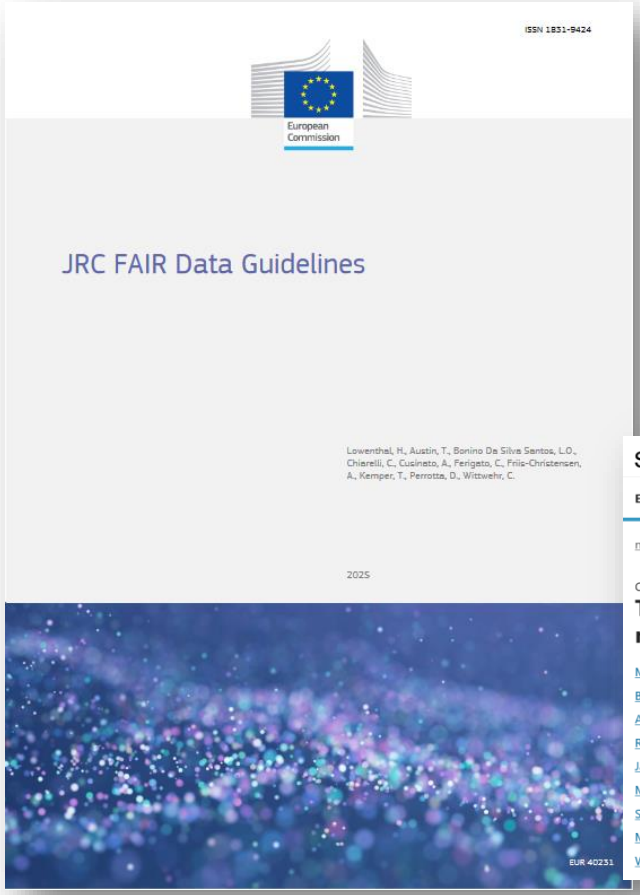
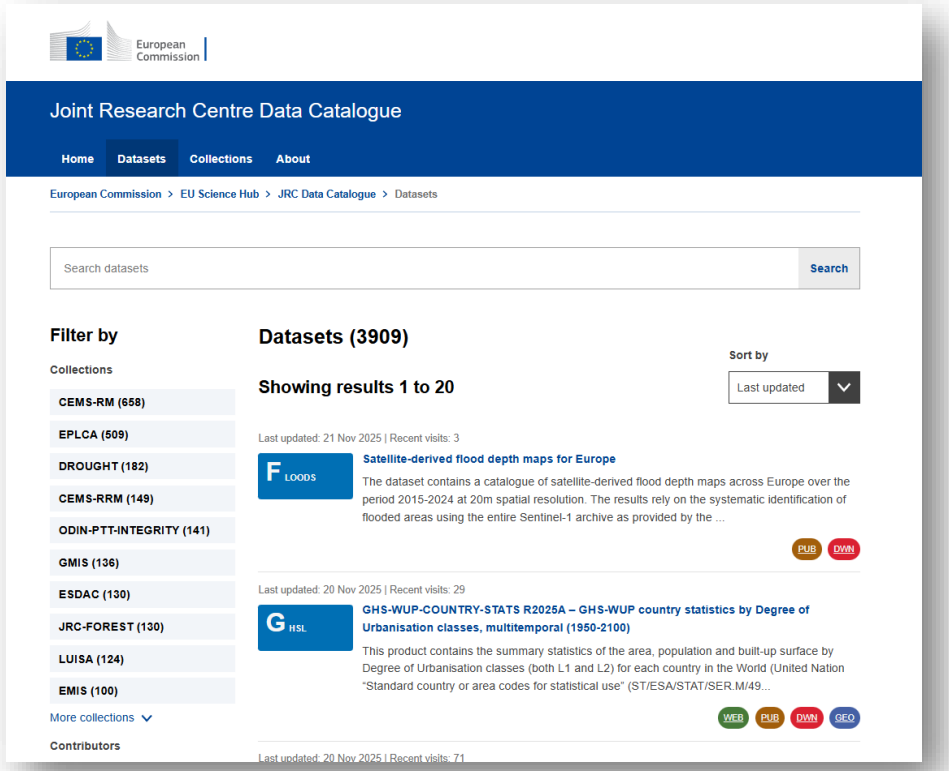
Relevant activities
FAIR data sharing: Guidelines

- Guidelines to support and enhance the FAIRness of (JRC) data



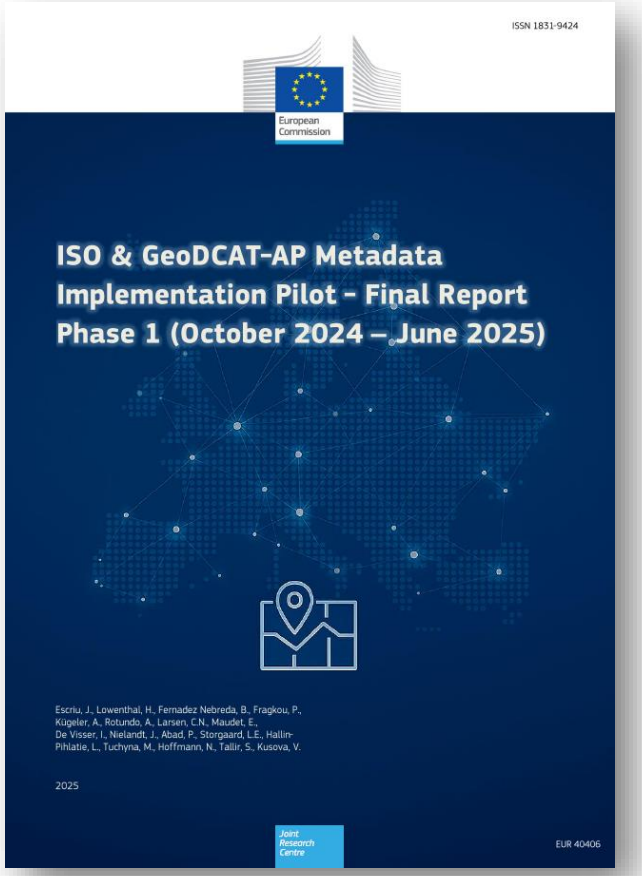


https://doi.org/10.2760/5646214

LOWENTHAL, H., AUSTIN, T., BONINO DA SILVA SANTOS, L.O., CHIARELLI, C., CUSINATO, A., FERIGATO, C., FRIIS-CHRISTENSEN, A., KEMPER, T., PERROTTA, D. and WITTWEHR, C., JRC FAIR Data Guidelines, Publications Office of the EU, Luxembourg, 2025

Relevant activities
FAIR data sharing: ISO & GeoDCAT pilot

- Support the alignment of INSPIRE to Open Data
  - Transformation of INSPIRE / geospatial metadata to an Open Data format: (Geo)DCAT-AP
  - Community shared experiences & common solutions for identified issues
  - Metadata tagging to improve filtering in data.europa.eu
- Participating Member States (Phase 1)
- EU level leadership (ENV, OP, DIGIT, JRC)



https://github.com/INSPIRE-MIF/GeoDCAT-AP-pilot

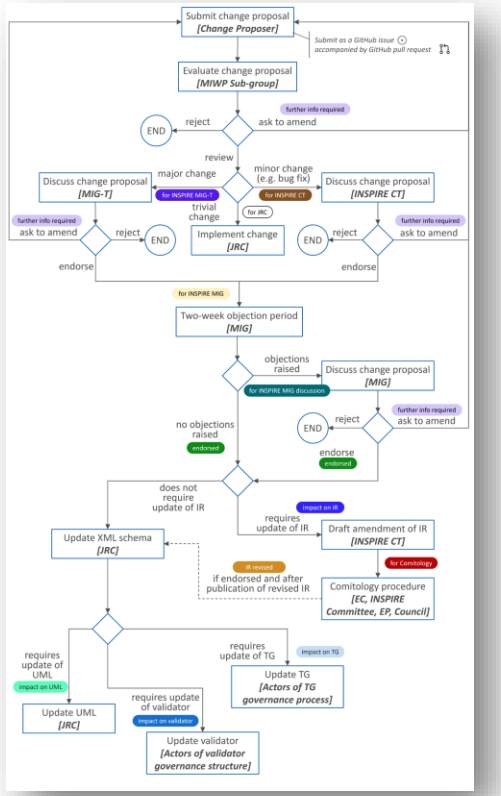
https://data.europa.eu/doi/10.2760/9289518

Relevant activities
FAIR data sharing: Interoperability and Accessibility

- Collaborative governance of semantic / technical assets for geospatial data

  https://github.com/inspire-mif

  - Technical guidelines
  - Application schemas
  - Open source tools
  - Good practices

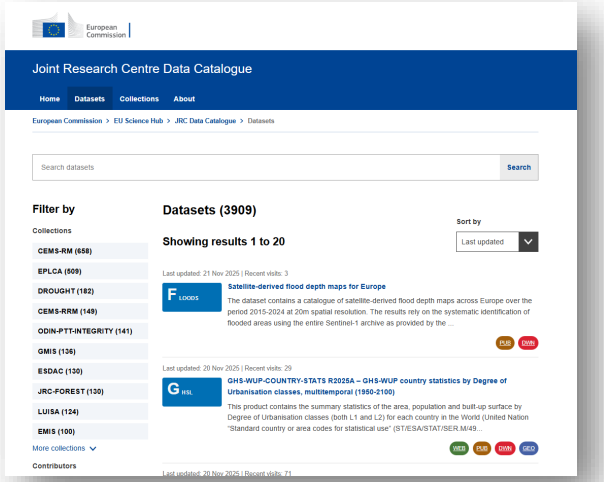


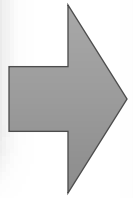
REITZ, T., ESCRIU, J. and MINGHINI, M., Interoperability Approaches for environmental data sharing and reuse in the European Union, Publications Office of the European Union, Luxembourg, 2025

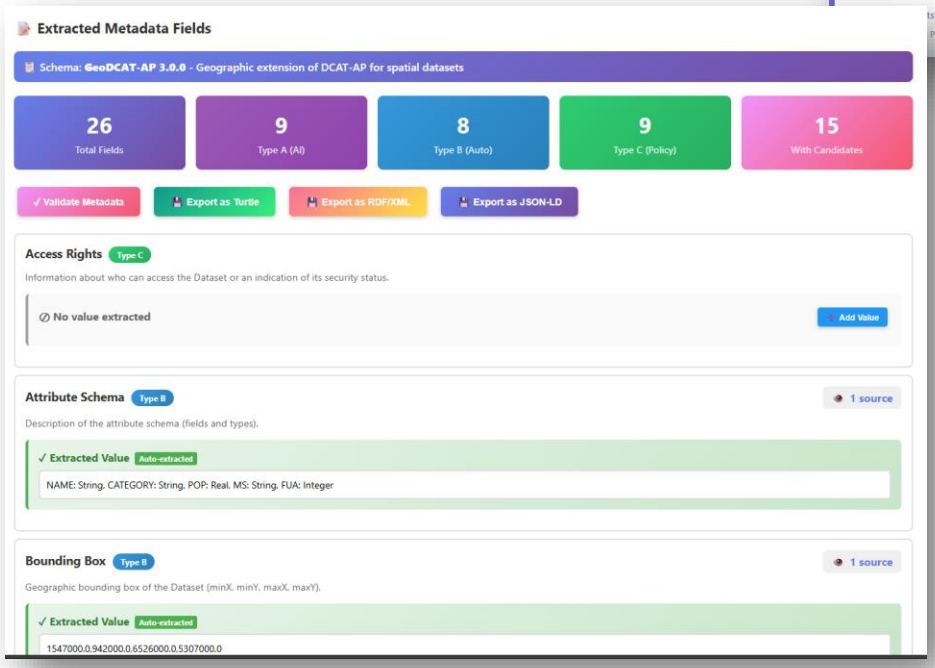
https://publications.jrc.ec.europa.eu/repository/handle/JRC138573

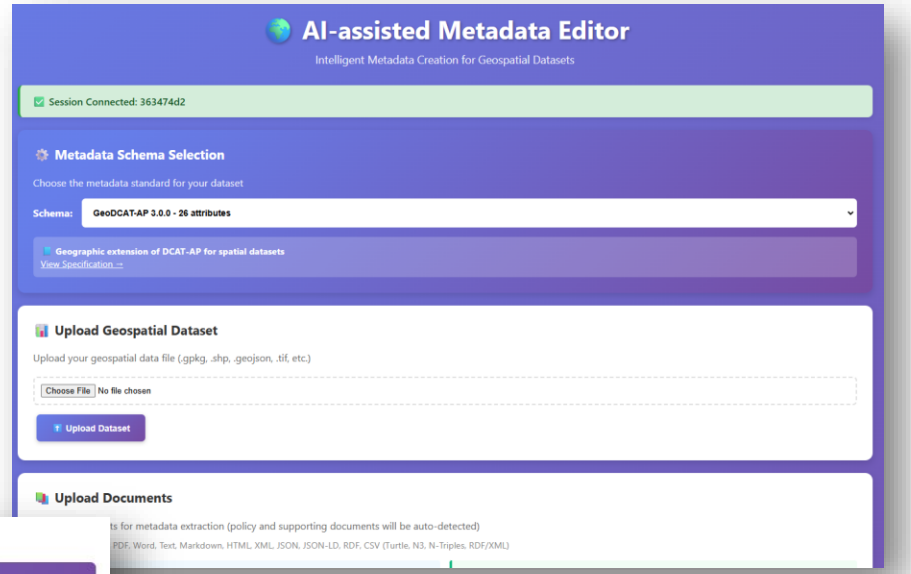
Relevant activities
AI for data sharing

- Support the automation of metadata generation through AI-assisted tools









Source: M. Di Leo

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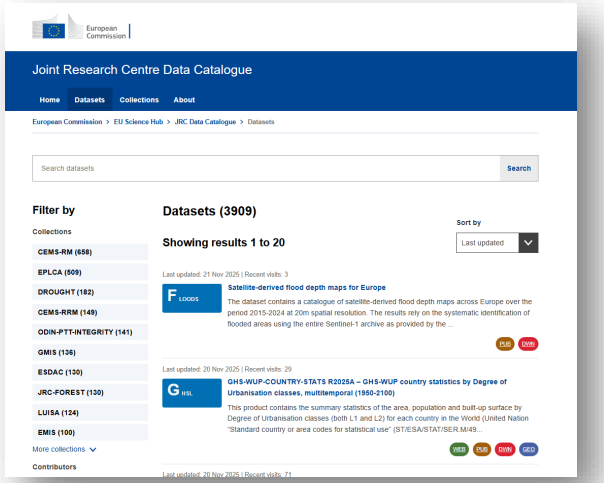
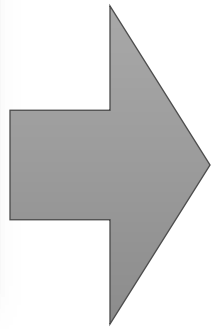
In-house technical enablers

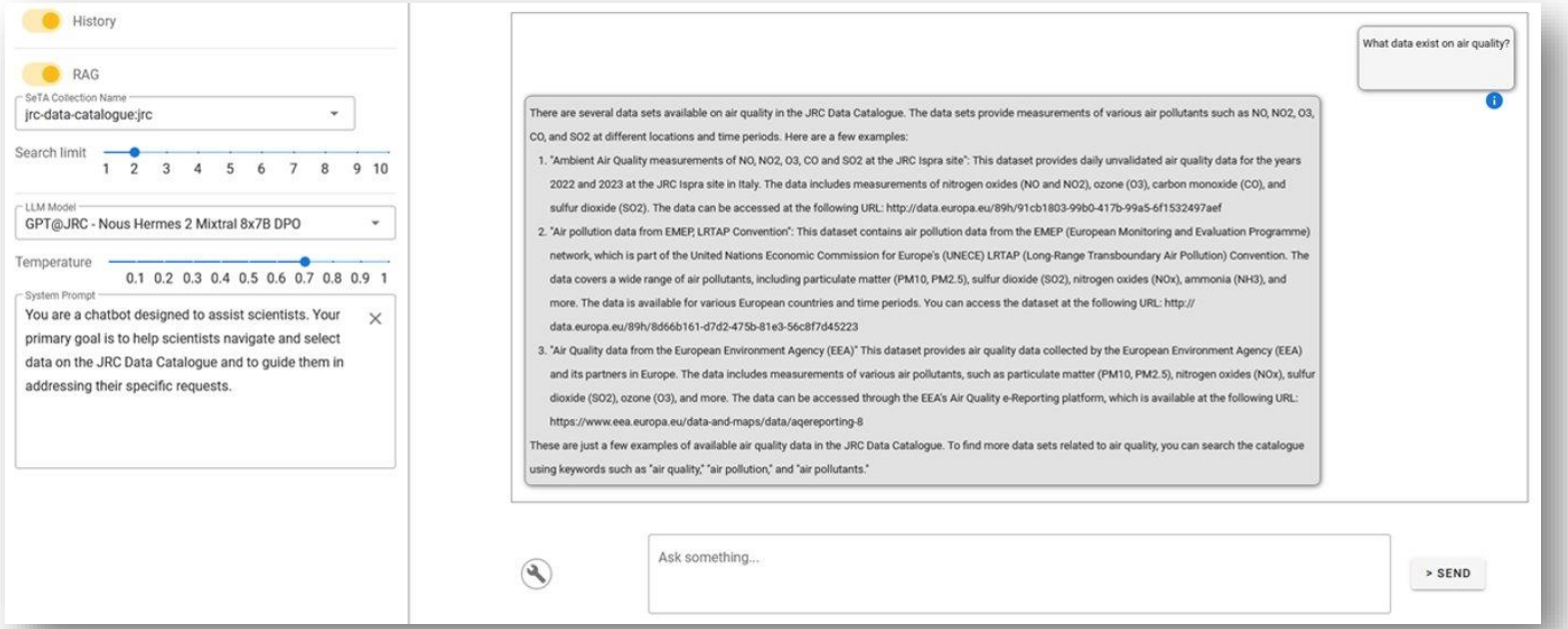
European Commission

Relevant activities
AI for data sharing

- How AI and semantics converge to advance data sharing, automation, and interoperability across Europe: semantic search
  - AI-ready data served through APIs (possible use of semantic text analysers to get unstructured data ready), use of LLMs and Model Context Protocol architecture for processing, user interface for querying.







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SEMIC 20 conference 25

Session
AI and the future of semantics and data interoperability

Source: F. Cabras, L. Gabrielli

Relevant activities

Data for AI: Synthetic data & Privacy preservation

- **Synthetic data**
  - Generated using microdata
  - Preserving statistical distributions
  - Personas instantiated through LLM
  - Substitute / complement existing data

https://publications.jrc.ec.europa.eu/repository/handle/JRC138521

- **Privacy preservation**
  - Access to data for AI without compromising privacy
  - Evaluation of
    - Maturity
    - Deployment strategies & trade-offs
    - Availability of solutions, e.g.
      - Federated learning
      - Data visiting

https://publications.jrc.ec.europa.eu/repository/handle/JRC134350

https://publications.jrc.ec.europa.eu/repository/handle/JRC141298

OGC Europe Forum

Topics for the next forum session

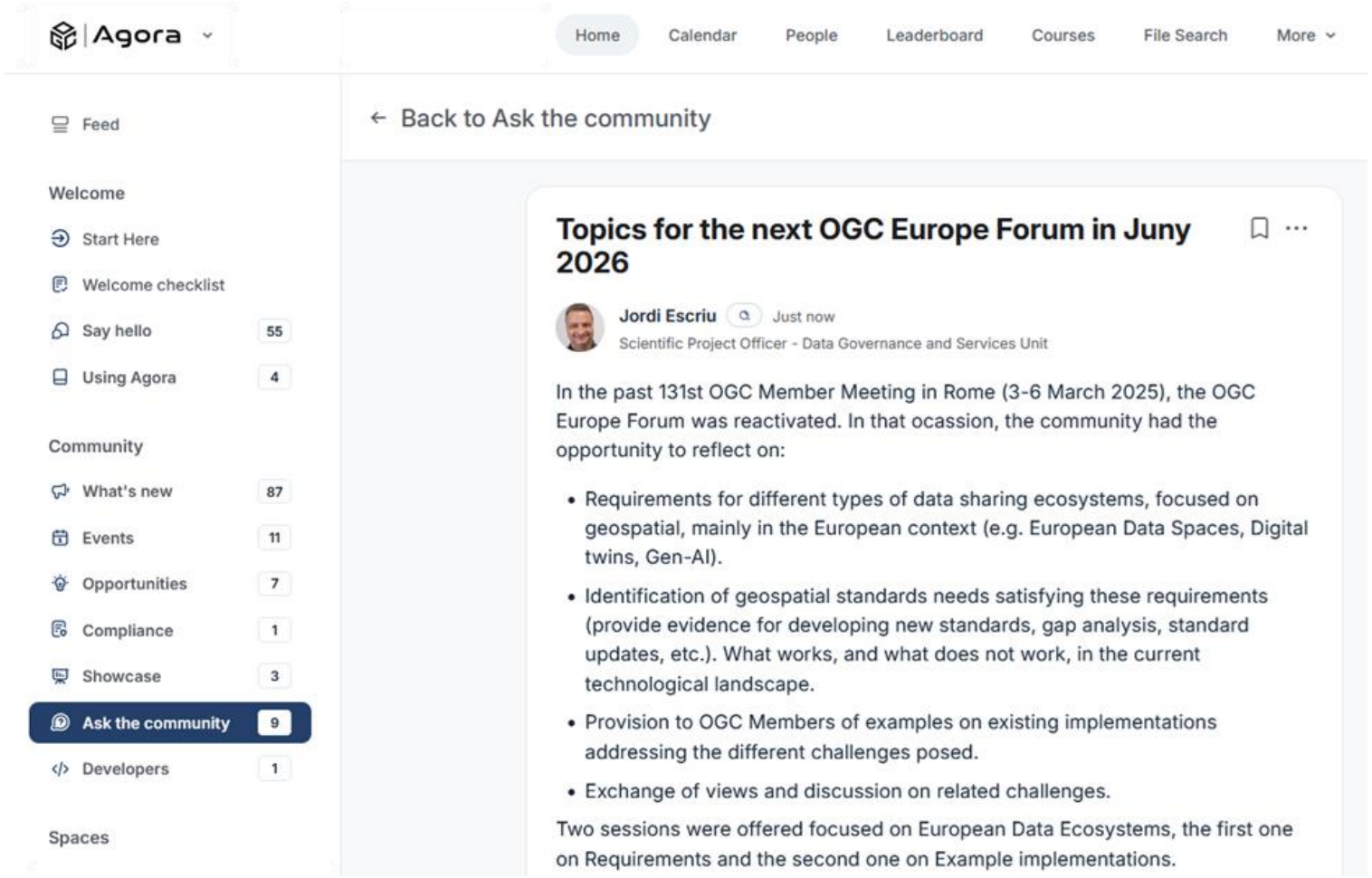
European Commission

Next OGC Europe Forum
Topics of interest

- OGC Community!

  Share your interests for the next OGC Europe Forum

  June 2026, Helsinki



https://agora.ogc.org/c/ask-the-community/topics-for-the-next-ogc-europe-forum-in-juny-2026

Thank you

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