The technological evolution of environmental data sharing: A perspective from the JRC

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European Commission, Joint Research Centre (JRC)

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Outline

1. Role of JRC in data sharing and utilisation
2. Lessons learned from past experiences in environmental data sharing
3. Emerging opportunities and recommendations for EuroGEO

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Role of JRC

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JRC mission

- Science and knowledge service of the European Commission
- Mission to support policies with independent evidence throughout the whole policy cycle

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JRC sites

Headquarters in Brussels and research facilities located in 5 Member States:

- Belgium (Brussels & Geel)
- Germany (Karlsruhe)
- Italy (Ispra)
- The Netherlands (Petten)
- Spain (Seville)

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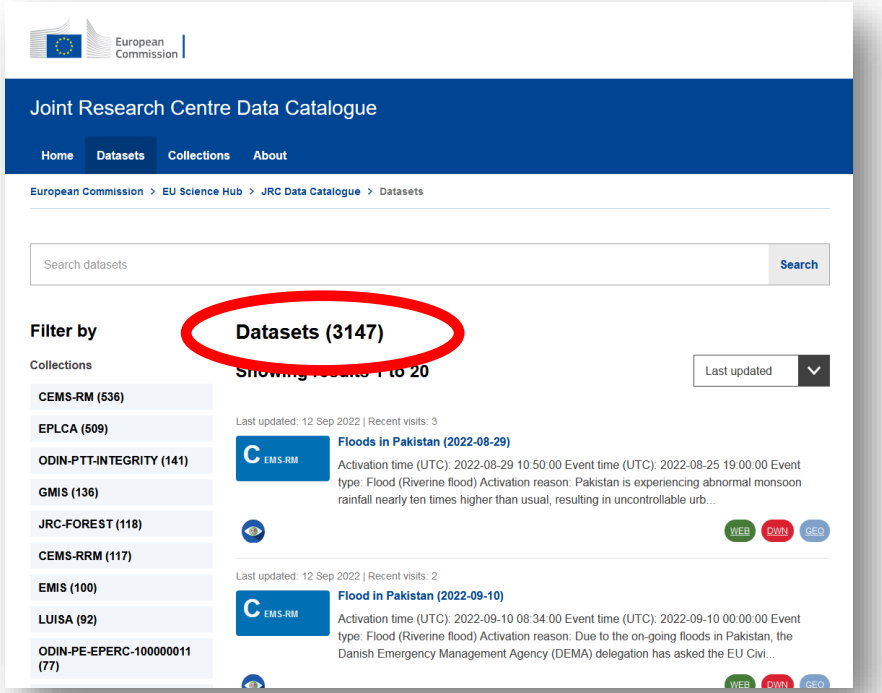
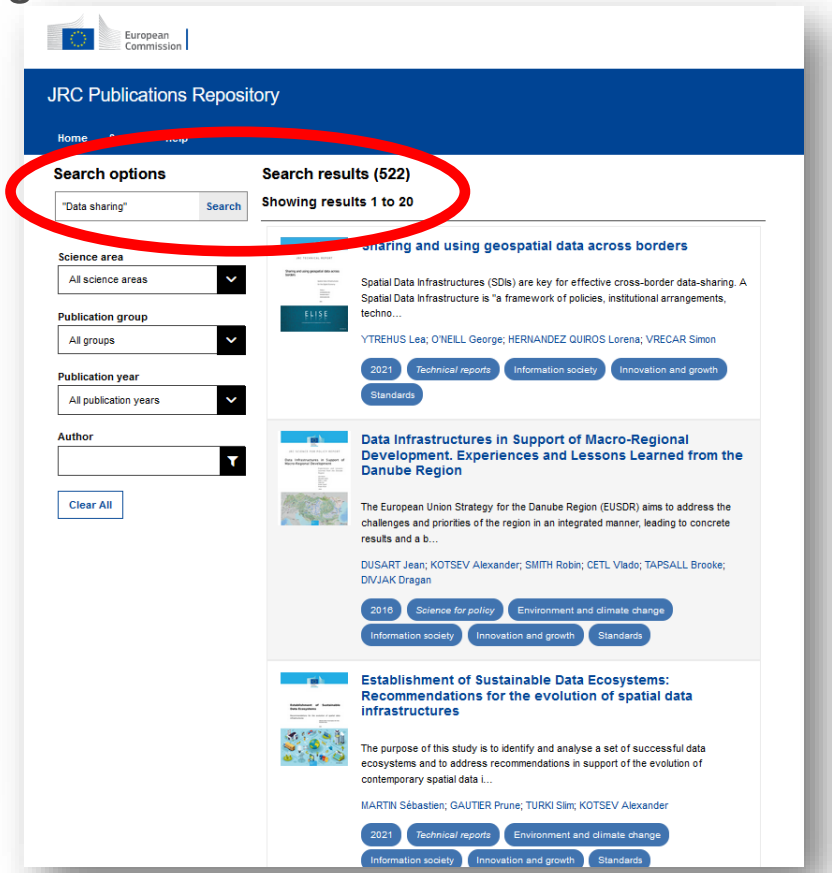
JRC role in data sharing

Long-term experience in provision and use of data

- 110+ harmonised databases (mainly EU-wide & global)
- 3000+ datasets
- 500+ publications on data sharing





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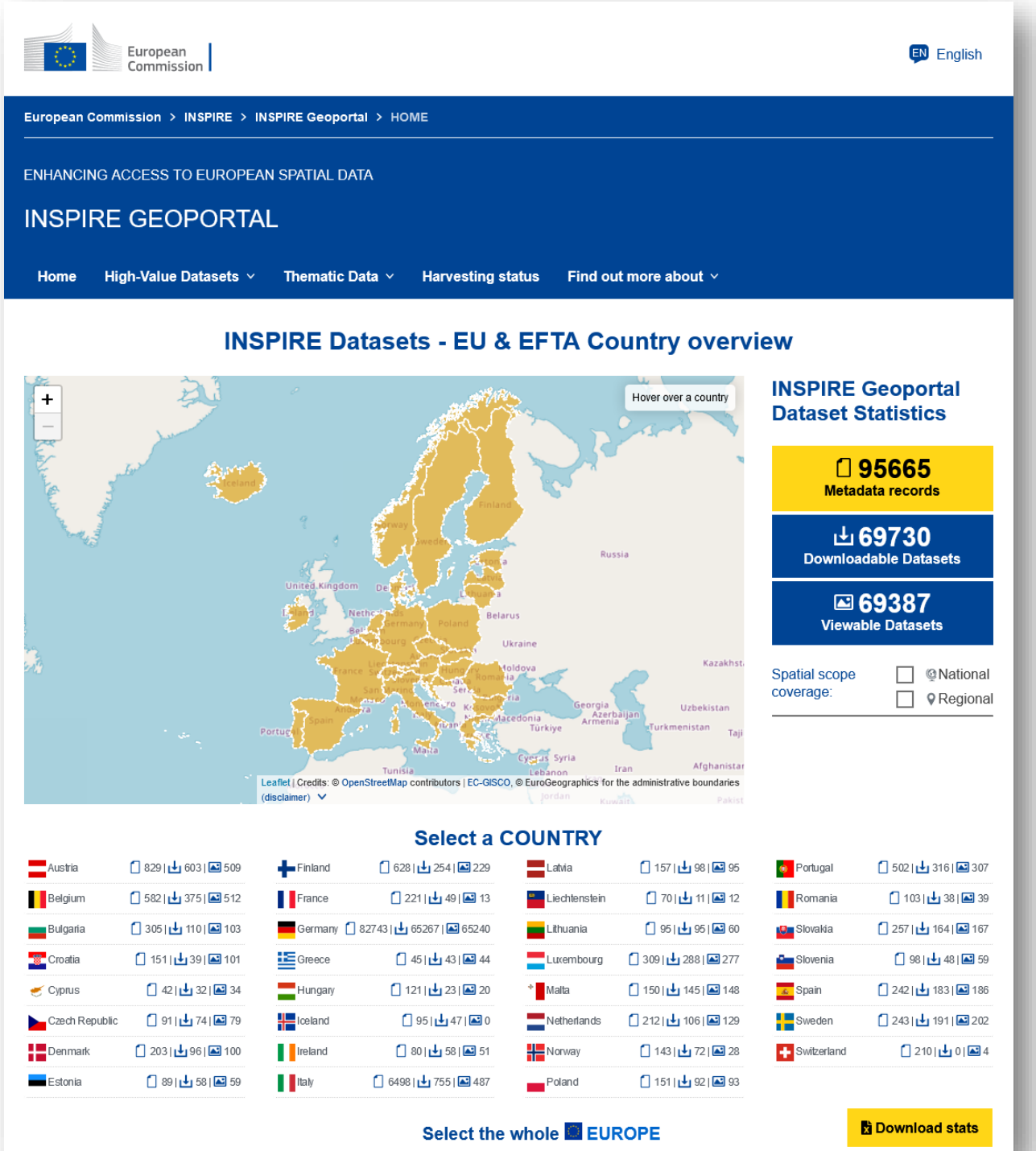
JRC role in INSPIRE

- Coordination of technical infrastructure since the adoption of the Directive (2007)
  - operation of software components
  - governance of technical expert groups
- Modernisation of environmental data sharing in line with the vision for the European Green Deal data space
  - 7k+ data providers sharing about 100k datasets
  - focus on high-value datasets



JRC contribution to GEO & GEOSS

- Long-term contribution to GEO
  - defined in the Horizon Europe WP
  - EAG, Programme Board, WGs
- in close collaboration with other EC services (RTD, DEFIS, CNECT, ENV, etc.) and the GEO community
- multiple research outputs with a science for policy emphasis
  - datasets
  - services
  - analyses tailored to the needs of the GEO community

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Lessons learned

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Want to know more

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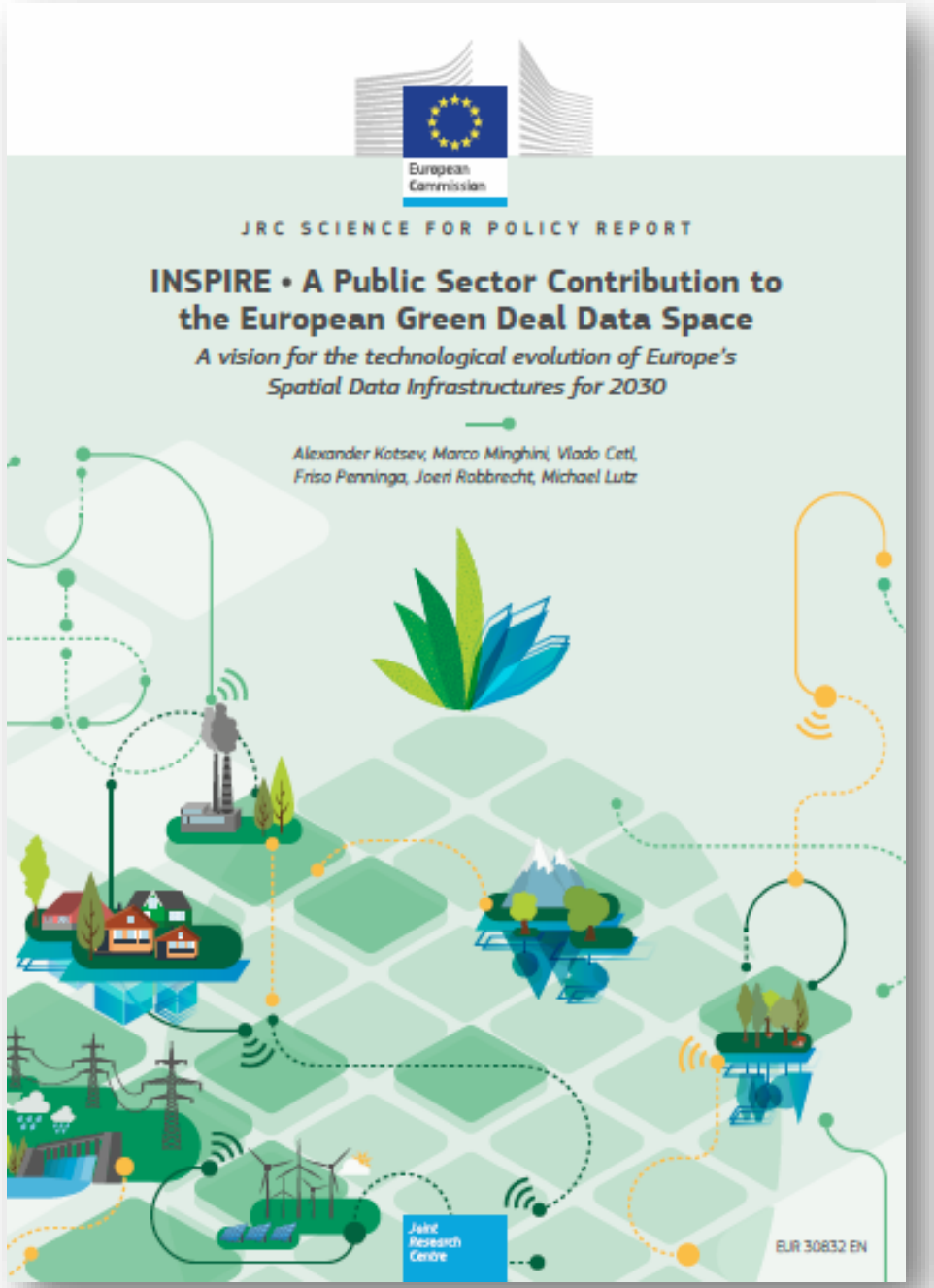

Relevant lessons learned from our work on data sharing in INSPIRE

- There is almost never one size-fits-all use case
- The role of public sector as primary provider of data is changing
- If not agreed up-front, licensing approaches may lead to data sharing becoming a bottleneck
- Enforcing technical provisions might be challenging
  - There is a risk to over engineer technical provisions in data sharing
  - Hardcoding technical requirements in legislation is an obstacle to the evolution of the legal framework
- Governance approaches not community-driven and shared across different actors often fail

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Recommendations

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Build strategic partnerships with established communities

UN-GGIM
UNITED NATIONS INITIATIVE ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT

Open Geospatial Consortium

isprs

CEOS

INTERNATIONAL DATA SPACES ASSOCIATION

BDV BIG DATA VALUE ASSOCIATION

GEO

OSGeo

ISDE International Society for Digital Earth

INSPIRE · Infrastructure for Spatial Information in Europe

GAIA-X

ISO/TC 211

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Actions

- **Legal:**

1. Avoid overspecification in legislation
2. Use a standard licensing framework

- **Organisational:**

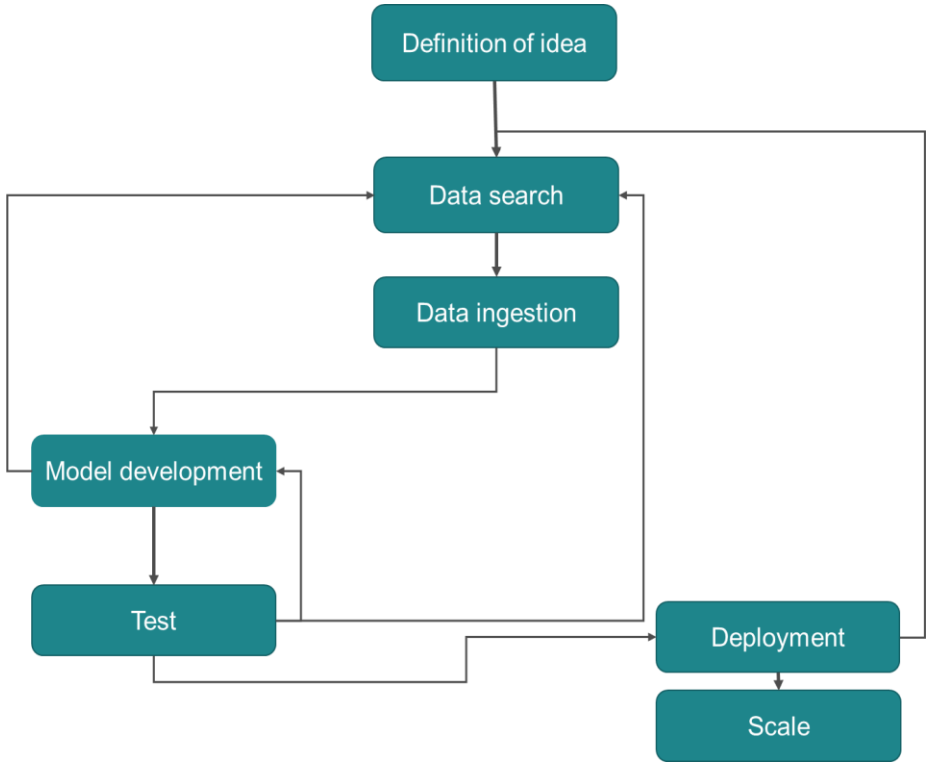
1. Embrace co-design by default
2. Rethink the existing governance structures
3. Promote social coding and sandboxing

- **Technological:**

1. Consider interoperability as a means to an end
2. Ensure neutrality and embrace well-adopted standards and technologies
3. Avoid custom extensions
4. Embrace well-documented, standard-based APIs
5. Optimise data for search engines
6. Leverage on the developments of federated European cloud infrastructure

Development life cycle & available options

- JRC working on the definition and prototypical implementation of an end-to-end developer journey
  - considering emerging technologies & trends
  - based on some principles:



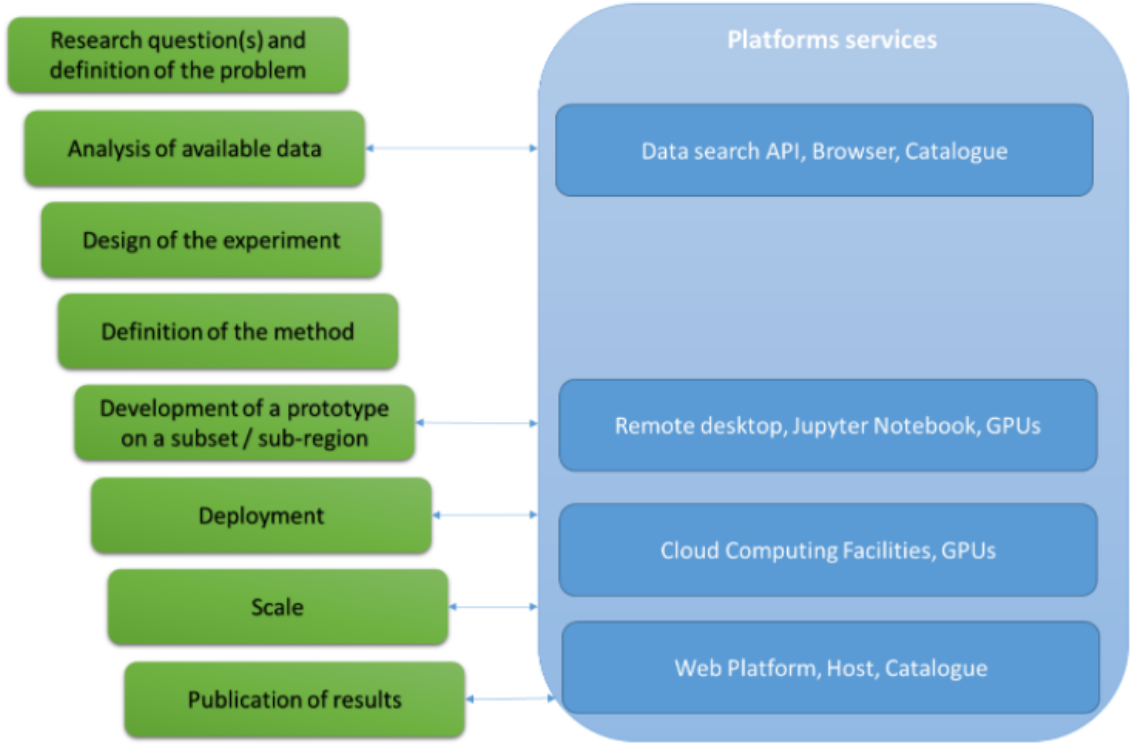
- prefer open source software
- avoid vendor/technology lock-in
- limit data movement as much as possible
- reuse existing tools/modules
- combine data from different infrastructures/services
- adhere to FAIR principles

Prototypical data-driven EO applications

- based on the knowledge from existing European pilots & the development life cycle
- using decentralised European infrastructures
- 2 use cases from different domains, addressed in an independent way

Target

- identify inefficiencies and bottlenecks
- identify potential areas of improvement
- document the utility, maturity and reusability of the technical stack
- distill recommendations for GEO and EuroGEO
- Inform the post-2025 strategy



Thank you

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