European Spatial Data Infrastructures: A Time of Change

Webinar
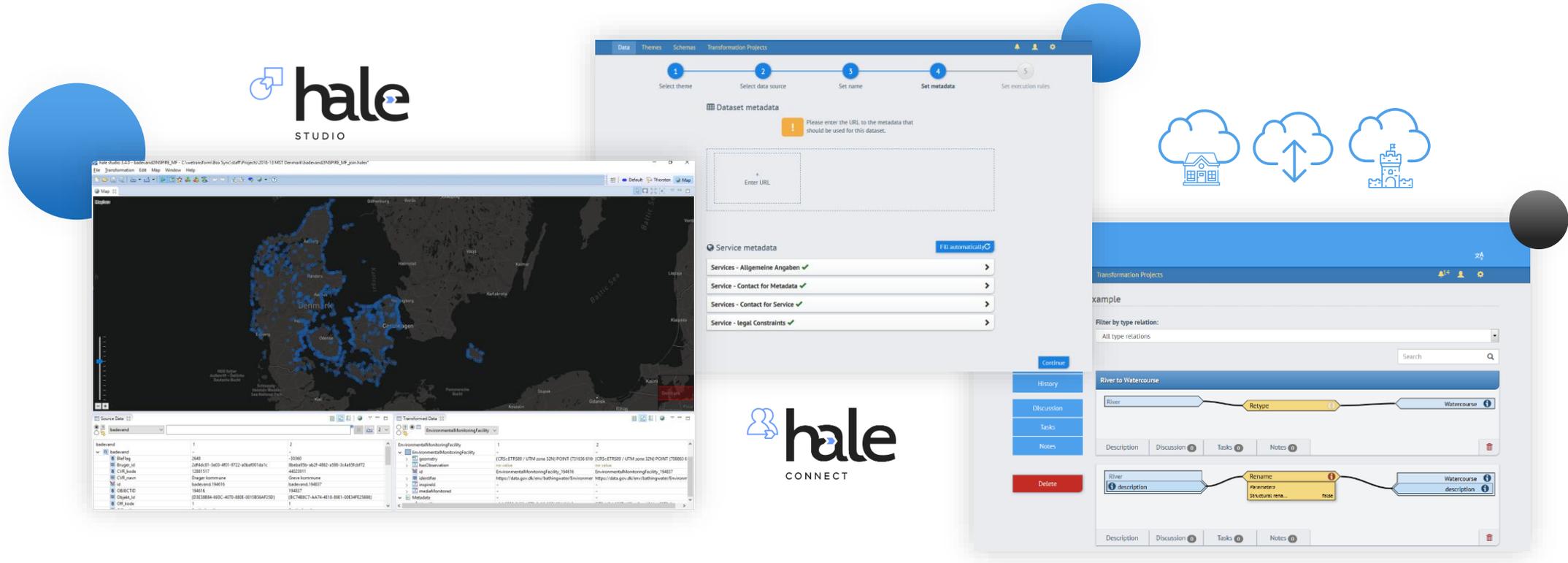
Thorsten Reitz, Founder/CEO wetransform GmbH
19.03.2026

Agenda

- INSPIRE Evaluation 2017 to 2025

- The Proposed Changes

- Other Current Initiatives
    - Green Deal Data Space
    - New Geospatial Legislation
    - Timeline

- Opportunities & A Strategy for Uncertainty

I love INSPIRE

120.000+ INSPIRE DATASETS HARMONISED & PUBLISHED

Key Benefits

Efficient data harmonization reduces effort by 80 to 95%

Fully Automated Publishing simplifies Compliance

Automated Model Transformation increases Usefulness, e.g. for AI applications

INSPIRE Evaluation 2017 to 2025

First Evaluations & Change Processes

2017 to 2019: Changes within the Framework

INSPIRE Implementation Report

- Accelerate interoperability implementation
- Improve metadata quality
- Expand network services
- Ensure dataset identification
- Strengthen coordination
- Promote reuse of data

New Processes

- Good Practice Process

INSPIRE What-If Workshop

- Simplify INSPIRE framework
- Focus on usable datasets
- Reduce technical complexity
- Improve developer usability
- Engage private sector
- Promote open ecosystems

INSPIRE MIG-T Action 2017.2

- Alternative Encodings
- Simpler schemas

Green Deal & GreenData4All enter the stage

2020 to 2022: **Formal Evaluation** & Public Consultation

- Use the INSPIRE evaluation to support the development of GreenData4All.
- Align INSPIRE with the European Data Strategy and data spaces.
- Improve integration between INSPIRE and the Open Data Directive.
- Address implementation gaps and delays across Member States.
- Simplify and modernise the INSPIRE framework to reflect current technologies.
- Strengthen INSPIRE's role as an enabling infrastructure for environmental data sharing.
- Promote interoperability with other EU data initiatives and platforms.
- Encourage reuse of INSPIRE infrastructure for the European Green Deal data ecosystem

https://wikis.ec.europa.eu/download/attachments/33528128/MIGT65_Commission%20Initiatives%20evaluation.pdf

https://wikis.ec.europa.eu/download/attachments/39354928/%5BDOC2%5D_MIG14_Summary%2013th%20MIG_draft_final.pdf

https://wikis.ec.europa.eu/download/attachments/36701338/67MIGT_Action2.2.pdf

Green Deal & GreenData4All enter the stage

2020 to 2022: Formal Evaluation & **Public Consultation**

- Simplify INSPIRE technical requirements and data models.
- Reduce implementation burden for data providers.
- Improve accessibility and usability of INSPIRE datasets.
- Increase availability of harmonised datasets across Europe.
- Strengthen integration with other EU data policies and initiatives.
- Improve documentation, tools, and guidance for implementers.
- Promote open data and easier reuse of spatial datasets.
- Improve communication and awareness of INSPIRE benefits.

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=intcom:Ares(2021)5310825

Formal Evaluation of the INSPIRE Directive
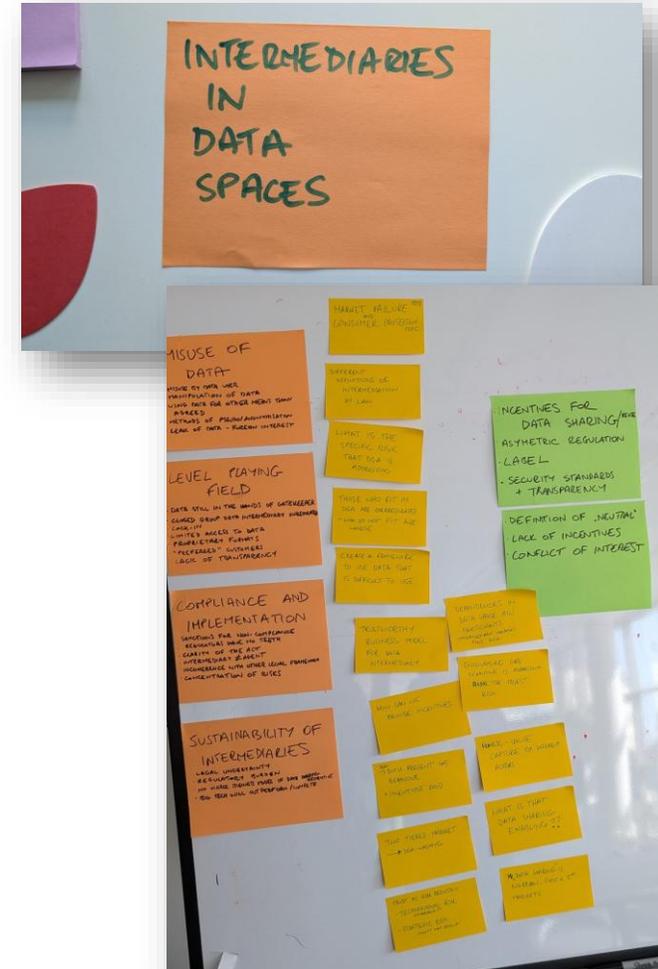## 2022: Commission Staff Working Document

- Simplify INSPIRE technical implementing rules, particularly interoperability requirements.
- Increase technology neutrality to accommodate modern data technologies.
- Improve implementation across Member States to close remaining gaps.
- Better align INSPIRE with the EU data policy framework, including:
  - Open Data Directive
  - Data Governance Act
  - European data spaces.
- Promote development of harmonised high-value environmental datasets.
- Improve governance structures and coordination mechanisms.
- Enhance usability and accessibility of spatial data services.
- Strengthen links between INSPIRE and environmental policy implementation.
- Ensure INSPIRE supports the European Green Deal and digital transformation

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022SC0195

Final Consultations and Studies
2024 to 2025: Data Spaces, GreenData4All

- GD4A Call for Evidence
- Green Deal Data Space & INSPIRE Governance Participatory Policy Lab (09/2025)
- External Evaluation Study (2024 to 2025), including public consultations:
  - Establish a more flexible governance structure that represents data users, data processors and data intermediaries
  - Create a less rigid legal structure to quickly adapt technical guidance and infrastructure to current requirements
  - Re-use common, well-supported standards that have sufficient support with key stakeholder groups
  - Align with Data Act, Data Governance Act, Open Data Directive/HVD and with new initiatives such as the Green Deal Data Space (SAGE).
  - Protect existing investments into SDIs and retain semantic interoperability resources (e.g. code lists) and requirements

Policy & Technology Evaluation

- **JRC Expert Contract 06/2023 to 02/2024**
- **Objectives of the Study:**
  - Analyse existing provisions and their impact *qualitatively* and *quantitatively*
  - Propose new provisions for interoperability in the EGDDS
  - Take different policy pathways for the transition from INSPIRE to the EGGDS into account
  - Discuss and validate provisions

- **Co-Authors:** Jordi Escriu, Marco Minghini
- **Contributors:** Alexander Kotsev, Brooke Tapsall

Interoperability Approaches for environmental data sharing and reuse in the European Union

Reitz, T., Escriu, J., Minghini, M.,

2025

Evaluation Summary

- Simplify INSPIRE technical requirements
- Reduce implementation burden for data providers
- Improve usability and accessibility of spatial datasets

- Promote harmonised European datasets
- Encourage broader reuse of spatial data

- Align INSPIRE with the European data strategy and data spaces
- Strengthen governance and coordination

- Shift from compliance-driven implementation to value-driven data ecosystems

The Proposed Changes
to the INSPIRE Directive

Summary of Changes

Unchanged:

- Scope of INSPIRE (34 Annex Themes)
- General requirements to make datasets findable and accessible
- Requirements for Metadata
- There are no changes that directly align the amended Directive to align with the Interoperable Europe Act, or to the (updated) Data Act(s).

Changed:

- Legal Structure (i.e. allowing future implementing acts to establish standards for interoperability and for metadata)
- Article 13 (1) on access to sensitive spatial data sets, is also updated, but does not seem to make an explicit reference to the Data Union Strategy or to Data Spaces.
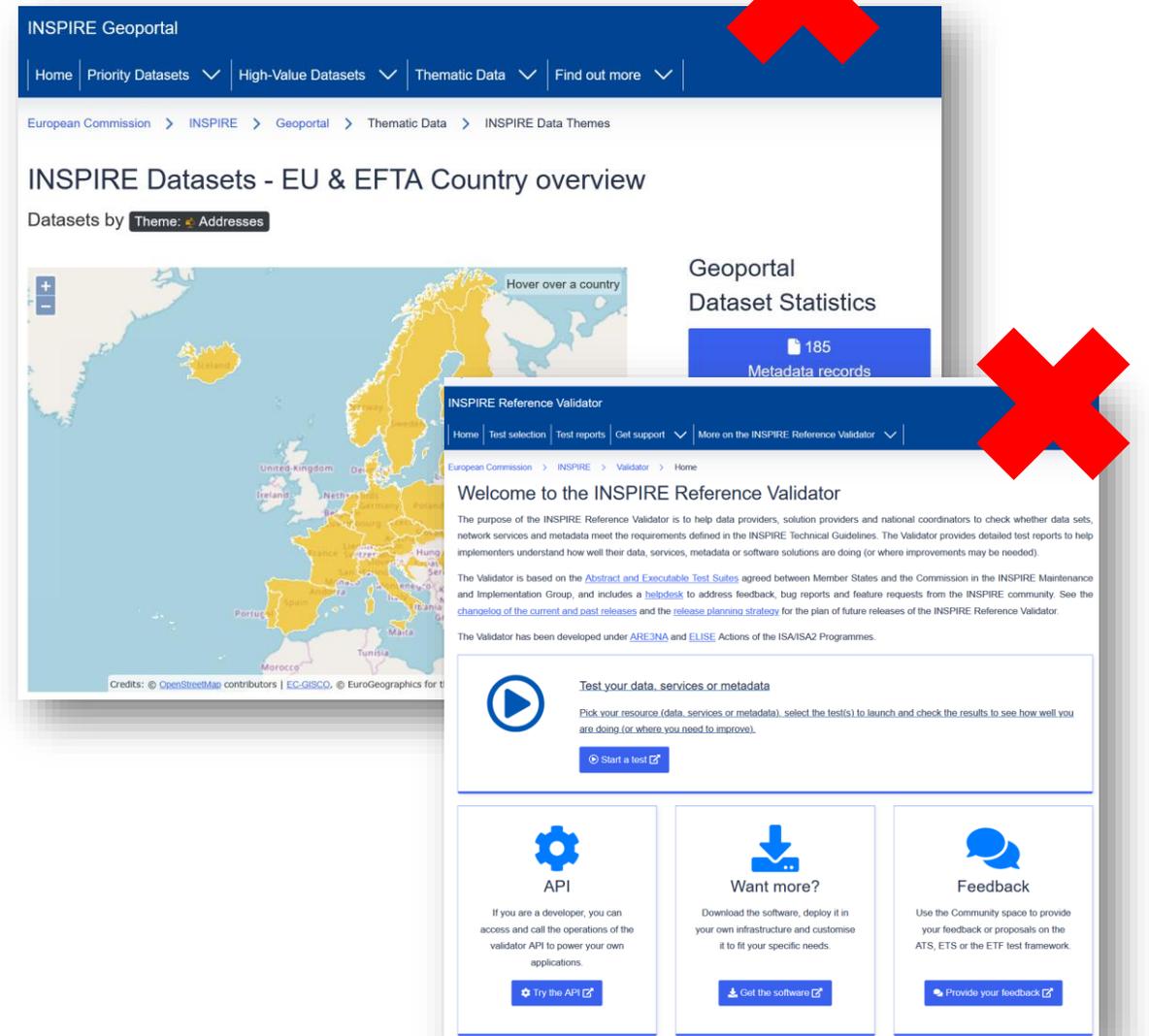
Summary of Changes

Removed:

- **Article 7 and 8:** Requirements related to interoperability of data
- **Article 11 and 12:** Requirements related to interoperability of Network Services
  - remaining regulation is that of the High Value Datasets Implementing Act (HVD) to use "APIs" and "bulk download".
- **Article 16:** Performance of Network Services
- **Article 14 and 17:** Requirements to make data available free of charge and for reciprocal sharing among INSPIRE implementers
  - Alignment to the rules of the Open Data Directive
- **Article 15:** Requirement to operate a central INSPIRE Geoportal
  - Data will instead be catalogued in the EU Open Data Portal
- **Article 21:** Member State obligations related to the monitoring and reporting
  - instead handled via the processes established for the Open Data Directive and the High Value Datasets Implementing Act
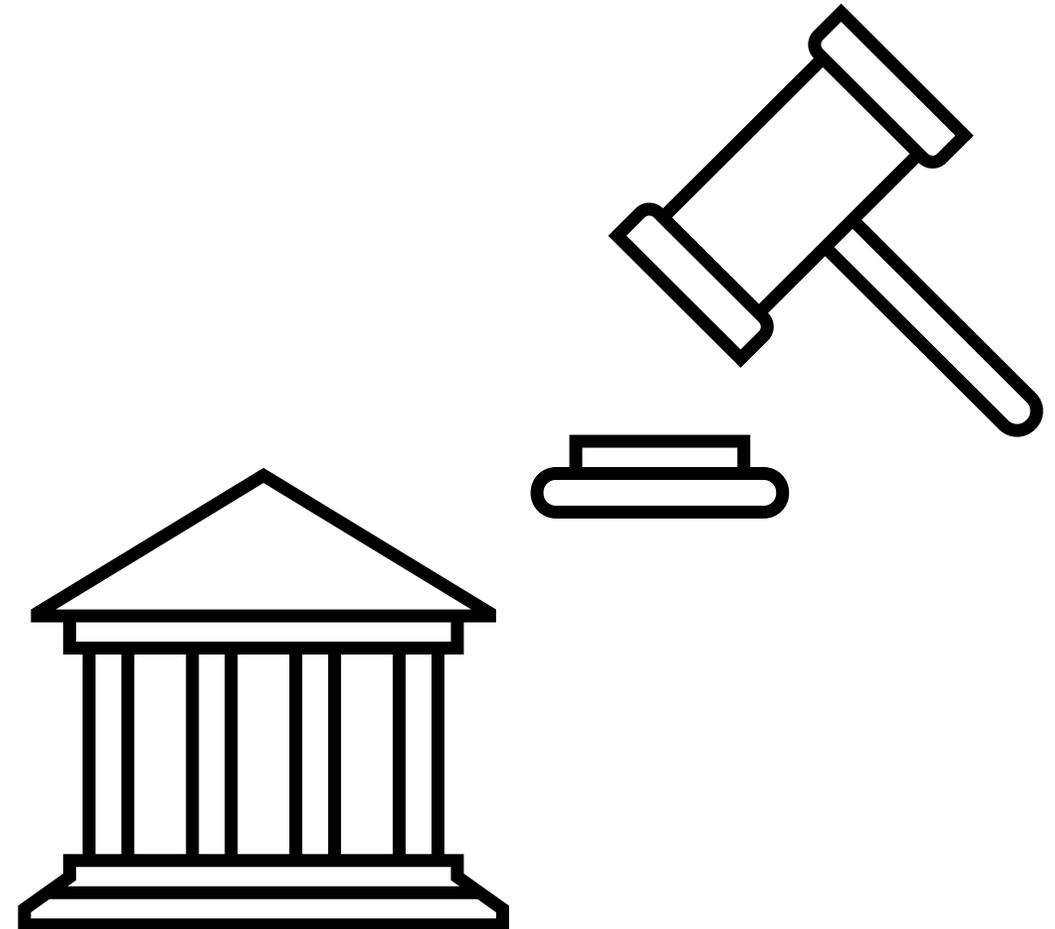
First Impacts

🌳 INSPIRE Reference Validator:
  🌳 Last release in March 2026
  🌳 Will be switched off on 31.03.2026

🌳 INSPIRE Geoportal:
  🌳 Will be switched off on 30.06.2026

🌳 INSPIRE Registry:
  🌳 Will be handled by EC Publications Office, probably migrated to VocBench-based infrastructure

🌳 INSPIRE Github Repositories, Knowledge Base and other assets:
  🌳 Will be retained and maintained at least until 31.12.2026

Legal Impacts

- EU Legislation that builds on INSPIRE
  - Intelligent Transport Systems
  - Marine Strategy Framework Directive
  - Maritime Spatial Planning Directive
  - Seveso III Directive (industrial risk)
  - ...

- National Legislation that builds on INSPIRE

- E-Reporting Processes that build on INSPIRE
  - Environmental Noise Directive
  - CDDA (Protected Areas)
  - MSFD (Marine Areas)

- All this will create significant work... ☹

Current Initiatives & Timelines

Green Deal Data Space (GDDS)
Technology RL: 4-6, Market RL: 3-6 (depends on Use Case)

Problem:
- Green Economy and Policymakers need to re-use sensitive data in high quality data-driven solutions
- Data interoperability and data-specific Policy enforcement are key blockers for actual value generation

Solution:
- Common European Data Space for Green Data
- Automated Data Onboarding, Location PEP
- Interoperable with other Data Spaces via simpl

Ecosystem:
- Use Case Communities, e.g. Forest, Bioeconomy
- Facilitators (EC, national actors)

Strengths:
- Strong & large consortium
- Good use cases

Weaknesses:
- Relatively (compared to other CEDS) low budget to develop and deploy the complex technology

Opportunities:
- Be part of a EU-wide system that generates enormous financial and common good value
- Build on INSPIRE standards and infrastructure

Threats:
- Participant uptake unclear
- Little co-funding in market

New Core Geospatial Legislation (NGL)

Technology RL: 1-7, Market RL: 3

Problem:
- There are still missing harmonised cross-EU core geospatial datasets

Solution:
- DEFIS to propose new legislation with smaller scope than INSPIRE and implement it effectively

Ecosystem:
- DEFIS & NGL implementers (NMCAs/NEAs)
- Far more concentrated than INSPIRE

The 14 Global Fundamental Geospatial Data Themes

Strengths:
- Synergies

Weaknesses:
- Relation Space/In-situ
- Covers only 14 INSPIRE themes
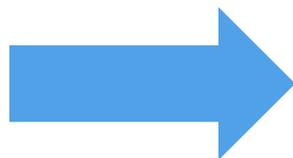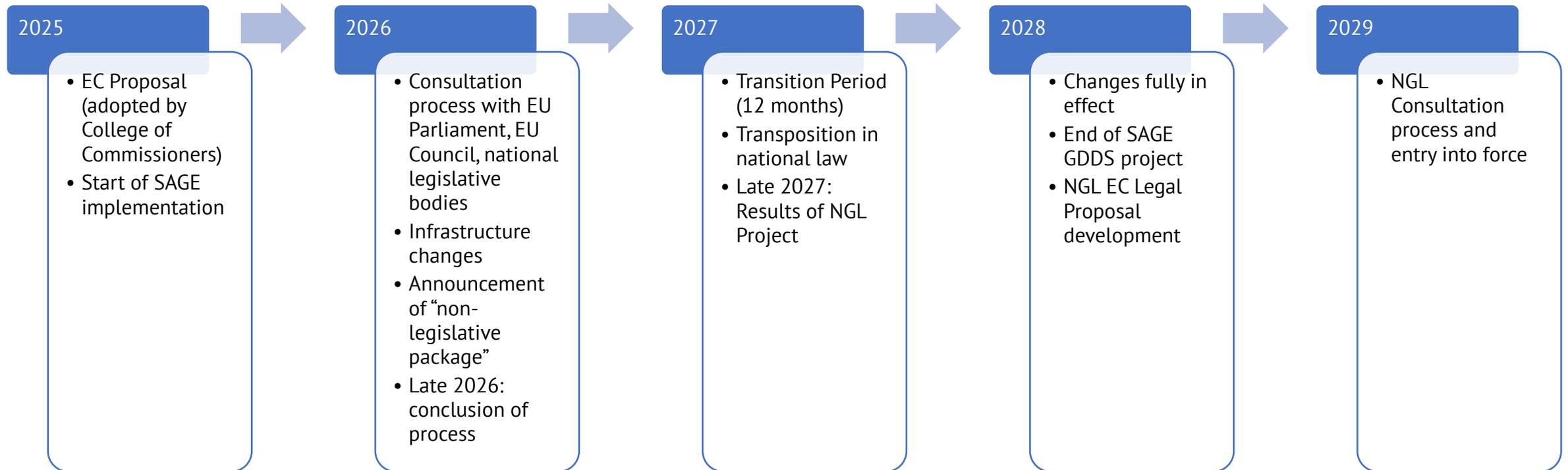- Focused at EC users

Opportunities:
- New legislation for current problems (AI)
- New Technologies
- Utilise INSPIRE experience & infrastructure

Threats:
- Not transposed into regulation at the end
- Pilot Scenario expectations
- **Long timeline & Gap between INSPIRE/NGL**

Overall Timeline

2025
- EC Proposal (adopted by College of Commissioners)
- Start of SAGE implementation

2026
- Consultation process with EU Parliament, EU Council, national legislative bodies
- Infrastructure changes
- Announcement of "non-legislative package"
- Late 2026: conclusion of process

2027
- Transition Period (12 months)
- Transposition in national law
- Late 2027: Results of NGL Project

2028
- Changes fully in effect
- End of SAGE GDDS project
- NGL EC Legal Proposal development

2029
- NGL Consultation process and entry into force

→ Obligations according to current Legislation still valid for at least 24 Months

Opportunities & Strategies

SWOT Analysis of Proposed Changes

Strengths

+ Unchanged Data Scope
+ Still necessary to publish data (but e.g. View Services could disappear, which account for 98% of usage of existing INSPIRE services)
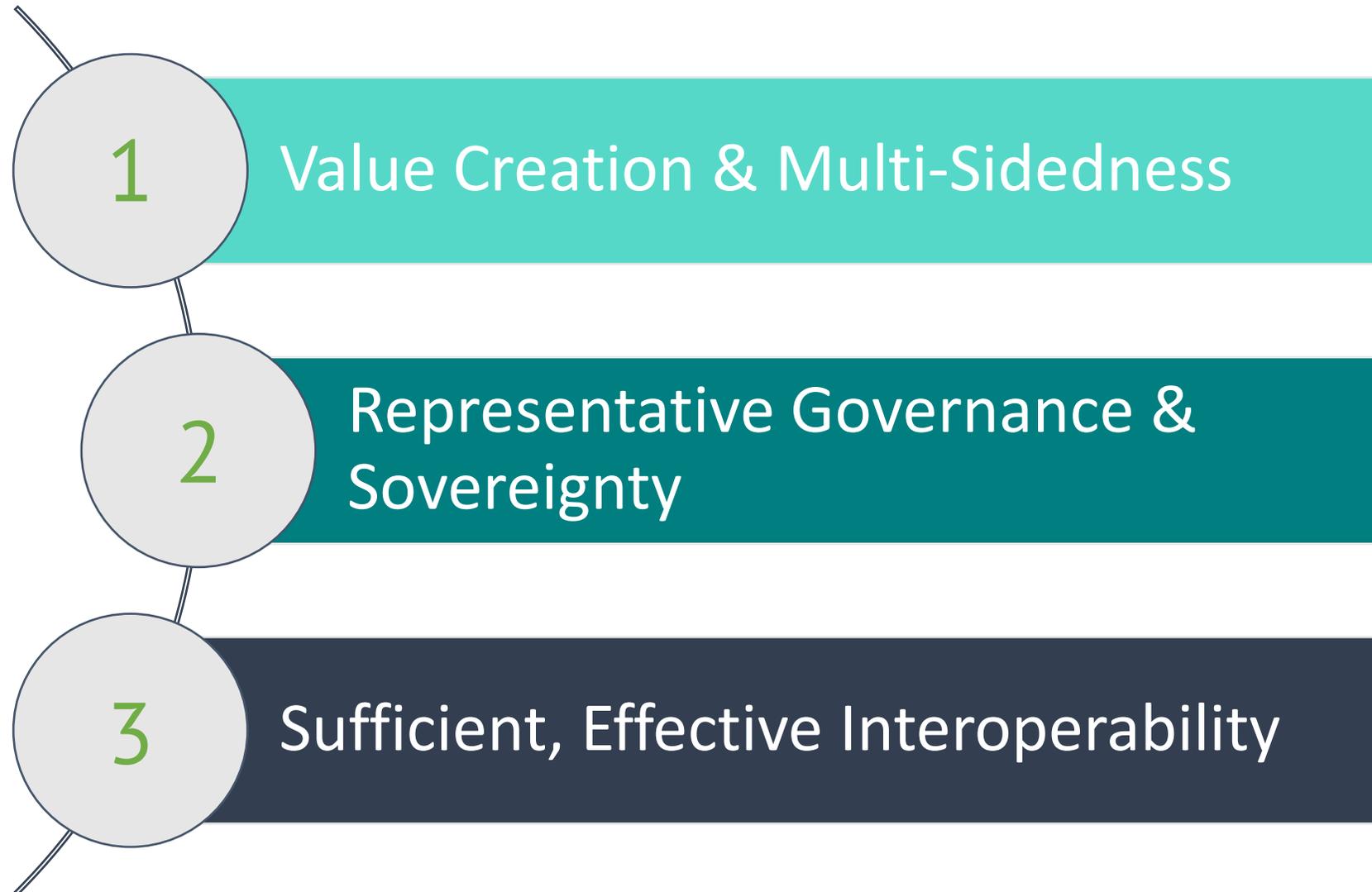
Weaknesses

- No extended governance mandate
- No semantic interoperability requirements
- No explicit path to GDDS or NGL
- No incentives, no measurements
- No eReporting or other legislation relation

Opportunities

+ More flexible governance
+ Focus on today's use cases (AI, AI and AI?)
+ Quicker adoption of new technologies
+ More efficient implementation strategies
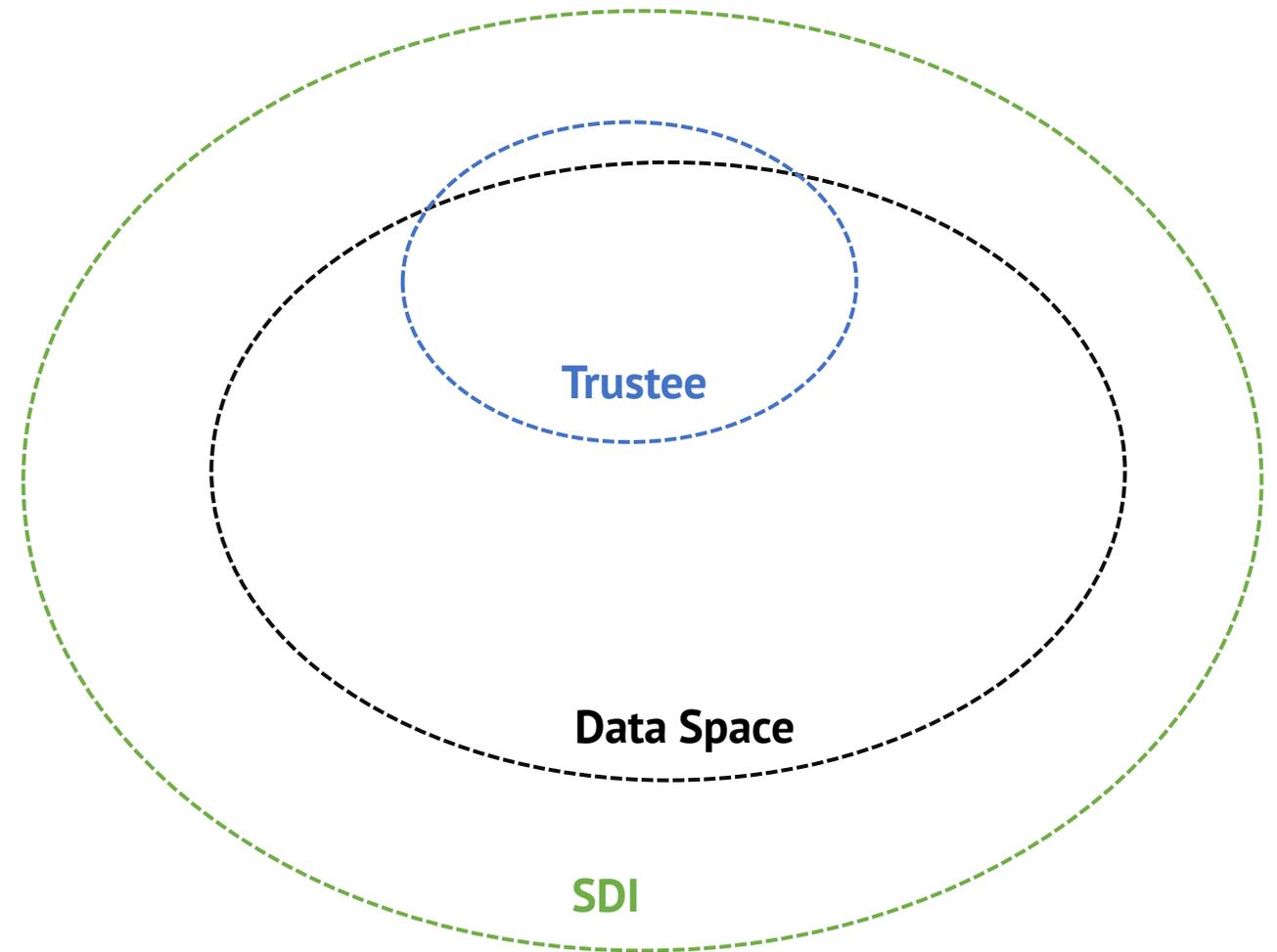+ Chance for Intermediaries & Trustees

Threats

- Reduced budget availability
- Loss of infrastructure, knowledge and community
- Loss of infrastructure
- Reduction of QoS Requirements
- Reduction of interoperability
- Reduction of accessibility
- **Unclear transition period**

How to make Data Ecosystems work

1 Value Creation & Multi-Sidedness

2 Representative Governance & Sovereignty

3 Sufficient, Effective Interoperability

The Interplay of SDI, Data Spaces and Data Trustees

- The Data Trustee simplifies access to data space
- The Data Trustee can take over roles such as participant registry & onboarding organizationally and technically
- The Data Trustee can standardize data and provide it in defined quality
- The Data Trustee can act as an interface to other data spaces
- There can also be more than one trustee in a data space (e.g. per country)

- SDI is a Data Layer that enables the whole System.

Trustee

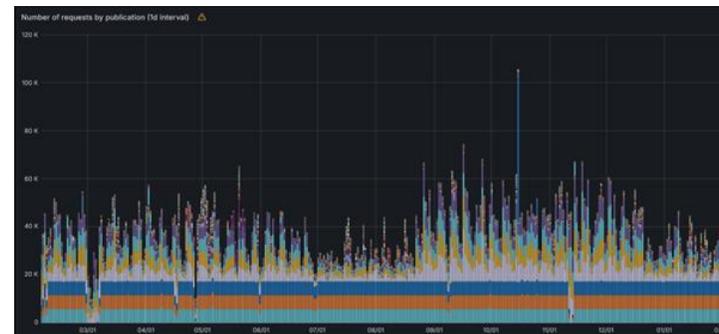Data Space

SDI

Continue / Start / Stop

What can we do today despite uncertainty?

Stop

- Harmonisation towards INSPIRE GML schemas and Validator Compliance

Continue

- Run current services („*We should keep everything until we decide where to move*")
- Optimise current services and data for utility (AI ready, other formats, OGC API-F, …)

Start

- Experiment with new use cases and technologies (MCP, KGs, RAGs)
- Integrate sensitive and open data with Data Spaces
- Look for additional synergies (Once only principle)
- Iterative, semantics-focused interoperability
- How does a service architecture look like that properly and securely supports agents?
- **Define and Defend added value!**
- **Reach out to policymakers!**

Questions, Comments, Discussion

CONTACT

Thorsten Reitz Co-Founder/CEO

✉ tr@wetransform.to

📞 +49 179 59 08 203

📍 Fraunhoferstr. 5,
64283 Darmstadt (Germany)