European Strategy for data

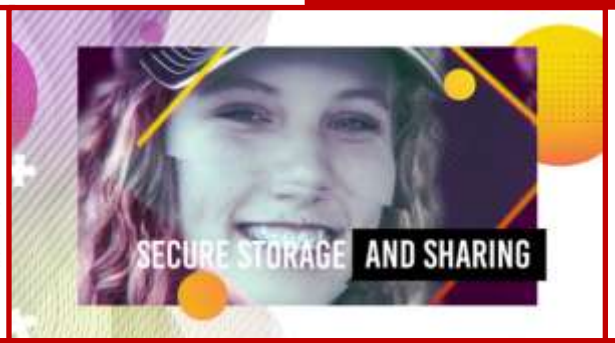
Shaping Europe's digital future – EU Data Spaces

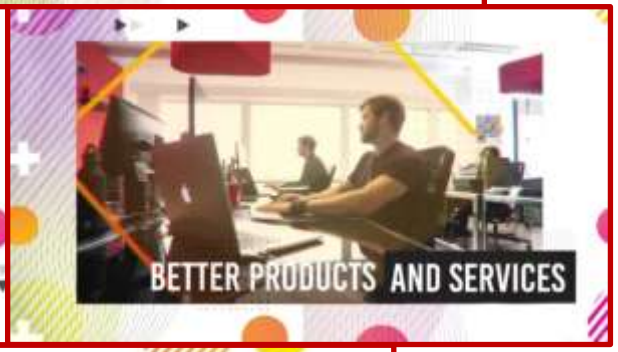
photo by Looker Studio, image #315352794. Source: *stock.adobe.com*

Jordi Escriu
European Commission
Joint Research Centre
Digital Economy Unit (T.1)

European Core Data and Services for European Data Spaces
GeoE3-Project, Location Innovation Hub, EuroGeographics, EuroSDR
Workshop, 18th April 2023

A new context is ahead
New European digital society





European Commission

Push for new commitments
European Commission priorities 2019-2024

- The twin green & digital transition is at the top of the policy agenda.

A European Green Deal

Europe aims to be the first climate-neutral continent by becoming a modern, resource-efficient economy.

A Europe fit for the digital age

The EU's digital strategy will empower people with a new generation of technologies.

An economy that works for people

The EU must create a more attractive investment environment, and growth that creates quality jobs, especially for young people and small businesses.

A stronger Europe in the world

The EU will strengthen its voice in the world by championing multilateralism and a rules-based global order.

Promoting our European way of life

Europe must protect the rule of law if it is to stand up for justice and the EU's core values.

A new push for European democracy

We need to give Europeans a bigger say and protect our democracy from external interference such as disinformation and online hate messages.

https://commission.europa.eu/strategy-and-policy/priorities-2019-2024_en

European Commission

New policy context
European Strategy for Data

- Aims to create a European single market for data.
- Highlights the problems to address:
  - Data availability, interoperability, quality.
  - Governance & infrastructures.
  - Skills & data literacy.
  - Cybersecurity.
- Envisages the establishment of:
  - A common European data space.
  - Sectoral data spaces.

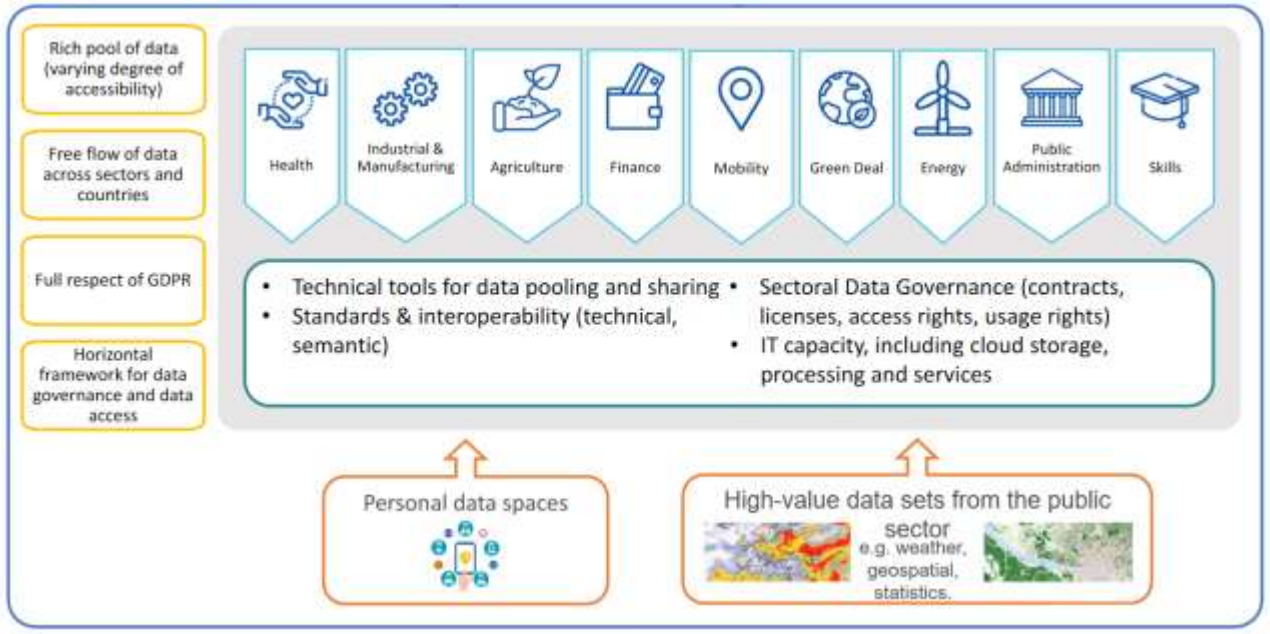

EUROPEAN COMMISSION

Brussels, 19.2.2020
COM(2020) 66 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

A European strategy for data

https://digital-strategy.ec.europa.eu/en/policies/strategy-data



New policy context
European Strategy for Data

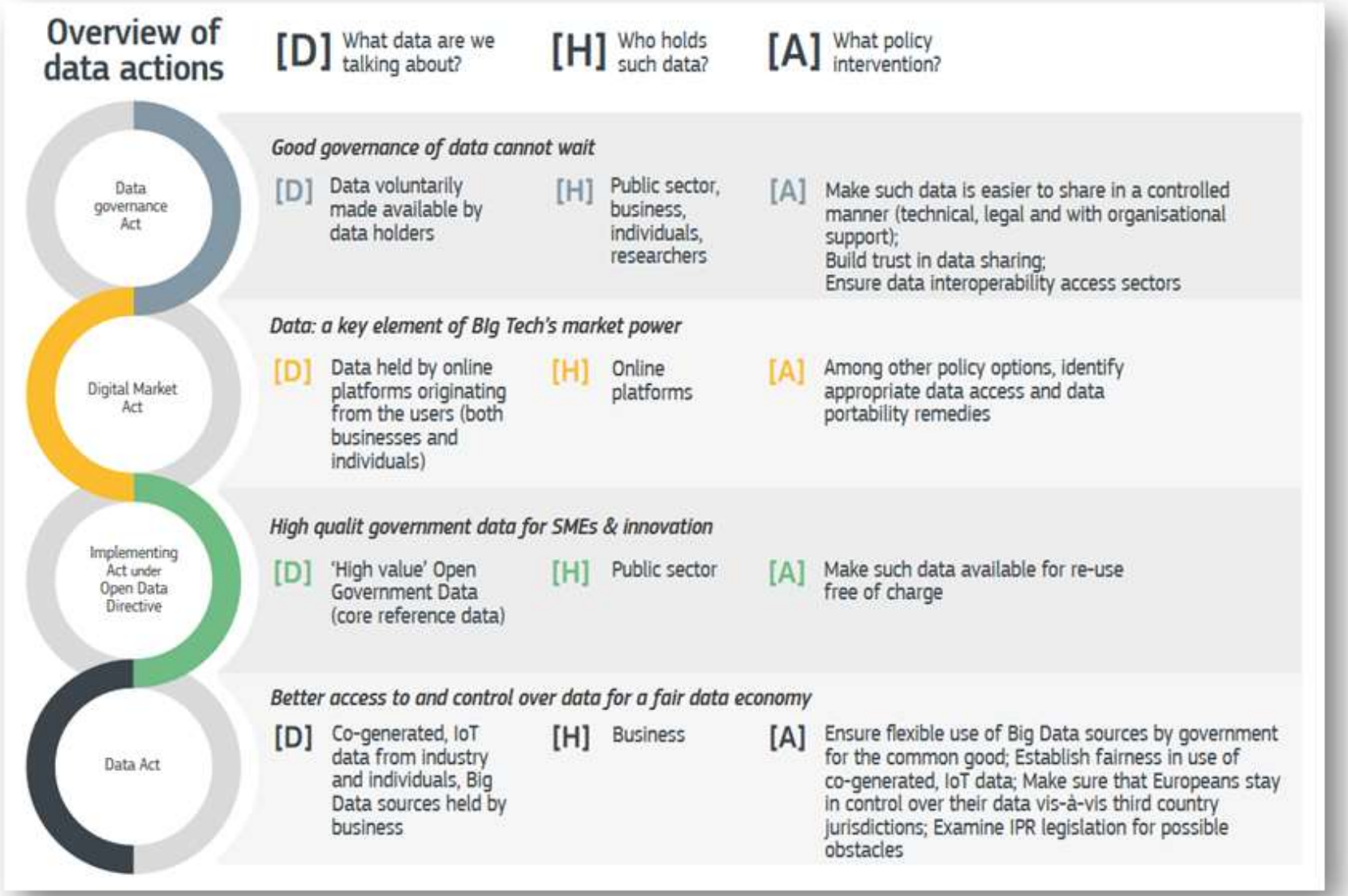
"Europe fit for the Digital Age"

1. Data Governance

2. Digital Market

3. Open Data

4. Data Act



New policy context
Data Governance Act

Entered into force
on 23 June 2022

- Data Scope
  - Data voluntarily made available by stakeholders.
- Main actors involved
  - Public sector + Private sector (Business) + Individuals + Researchers
- Policy intervention
  - Make such data easy to share in a controlled manner (technical, legal and with organisational support), while ensuring data interoperability across sectors and Member States.
  - Build trust in data sharing.
- Expected results.
  - Facilitate data sharing by strengthening mechanisms to increase data availability and overcome technical obstacles to the reuse of data.
  - Development of common European data spaces in strategic domains in key sectors or domains.
  - Create wealth for society. Provide control to citizens and trust in companies.

https://digital-strategy.ec.europa.eu/en/policies/data-governance-act
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022R0868

New policy context
Digital Markets Act

Proposed by EC on
15 December 2020

Entered into force on
1 November 2022

- Data Scope
  - Data held by online platforms originated by the users (from both businesses and individuals).
- Main actors involved
  - (Large) Online platforms (qualifying as 'gatekeepers') - important gateways between business users and consumers.
- Policy intervention
  - Identify appropriate data access and portability remedies.
- Expected results
  - Assure fair practices by companies that act as gatekeepers in the online platform economy.

https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/digital-markets-act-ensuring-fair-and-open-digital-markets_en

https://eur-lex.europa.eu/legal-content/en/TXT/?uri=COM%3A2020%3A842%3AFIN

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1925&from=EN

New policy context
Open Data Act

- Data Scope
  - ‘High Value’ Open data from Government.
- Main actors involved
  - Public sector.
- Policy intervention
  - Make such data available for re-use free of charge.
- Expected results
  - Increased data availability and access, especially in the scope of the High Value Dataset categories: geospatial, earth observation and environment, meteorological, statistics, companies and company ownership, mobility.
  - Reduce heterogeneity in licensing by setting a common European approach for the licensing of the data, reusing existing licensing frameworks, e.g. Creative Commons.

Open Data Directive entered into force on 16 July 2019

Implementing Act on High Value Datasets
https://eur-lex.europa.eu/eli/reg_impl/2023/138/oj

Adopted on 21 December 2022

Published on 20 January 2023
(Official Journal of the EU)

https://digital-strategy.ec.europa.eu/en/policies/legislation-open-data
https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L1024&from=EN

New policy context > Open Data Act
Implementing Act on High-value datasets

- High-value datasets (HVD)
  - Datasets the re-use of which is associated with important socio-economic benefits.
- To be made available:
  - For free, under open access licenses (CC BY 4.0 or less restrictive).
  - In machine-readable formats, via APIs and (when relevant) as a bulk download.
- Thematic categories of HVD

Geospatial	***Earth observation and environment***	***Meteorological***	***Statistics***	***Companies and company ownership***	***Mobility***

- The Implementing Act defines:
  - The list of High-value datasets for each thematic category.
  - The requirements for their provision: key attributes, granularity, formats, license, etc.

European Commission

New policy context
Data Act

Proposed by EC on
23 February 2022

- Data Scope
  - Co-generated, IoT data from industry and individuals.
  - Big Data sources held by business.
- Main actors involved
  - Private sector (Business).
- Policy intervention
  - Ensure flexible use of Big-Data sources by government for the public good.
  - Establish fairness use of Co-generated, IoT data.
  - Make sure that Europeans stay in control over their data vis-à-vis third country jurisdictions.
  - Examine Intellectual Property Rights (IPR) legislation for possible obstacles.
- Expected results
  - Making more data available for innovative use in line with EU rules and values.
  - Harmonised rules on fair access to and use of data, preserving incentives to invest in data generation.

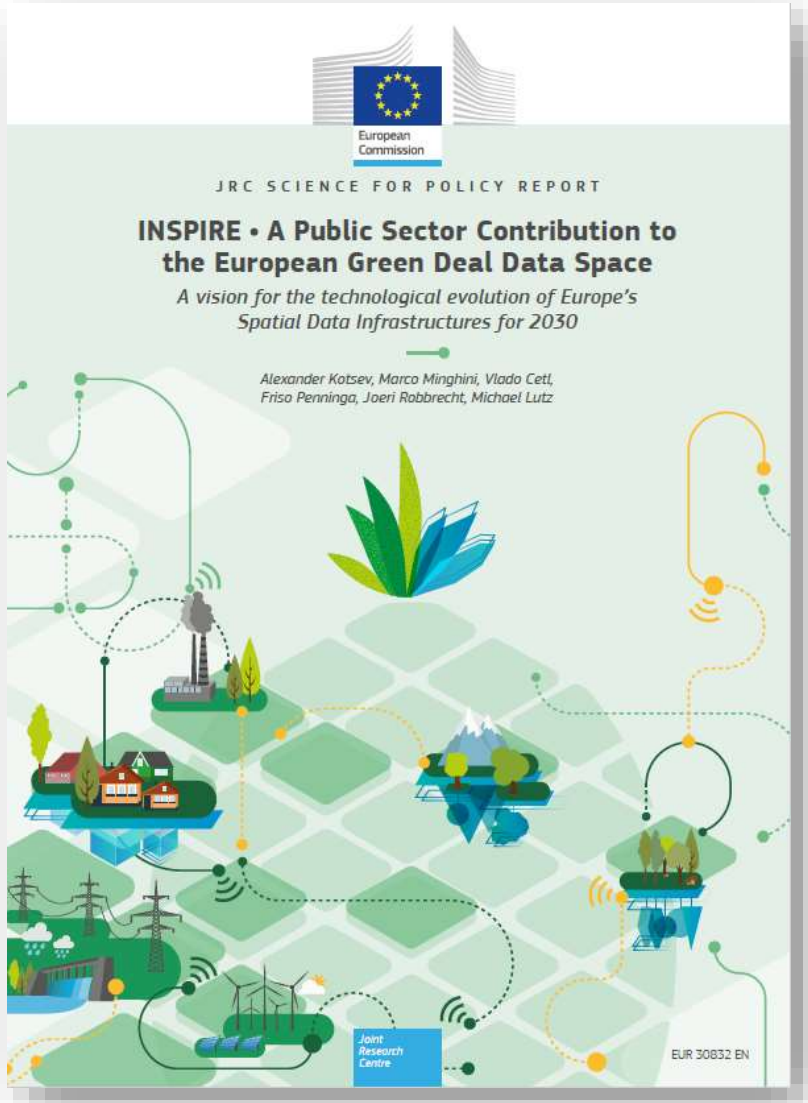
https://digital-strategy.ec.europa.eu/en/policies/data-act
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A68%3AFIN

INSPIRE & new policy context
JRC Science for Policy Report

- **INSPIRE - A Public Sector Contribution to the European Green Deal Data Space**

  https://publications.jrc.ec.europa.eu/repository/handle/JRC126319

- Evolution to a data ecosystem (Green Deal Data Space).
- Broadening the scope:
  - New sectors: public, private/businesses, academia.
  - New communities: developers, users.
- Widening the range of applications and use cases.
- Making INSPIRE framework more simple, flexible and agile.
- Lowering the knowledge entry-level for implementing and/or using data.
- Reusing well-adopted standards and technologies.



Prepared by JRC, Geonovum and DG ENV

Defining now the future!
Common & Sectoral EU data spaces

Rich pool of data (varying degree of accessibility)

Free flow of data across sectors and countries

Full respect of GDPR

Horizontal framework for data governance and data access

Health

Industrial & Productive

Agriculture

Finance

Mobility

Environment
Green Deal

Energy

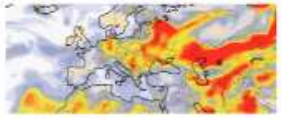
Public Administration

Skills

- Technical tools for data pooling and sharing
- Standards & interoperability (technical, semantic)
- Sectoral Data Governance (contracts, licenses, access rights, usage rights)
- IT capacity, including cloud storage, processing and services

Personal Data Spaces

High Value Data sets

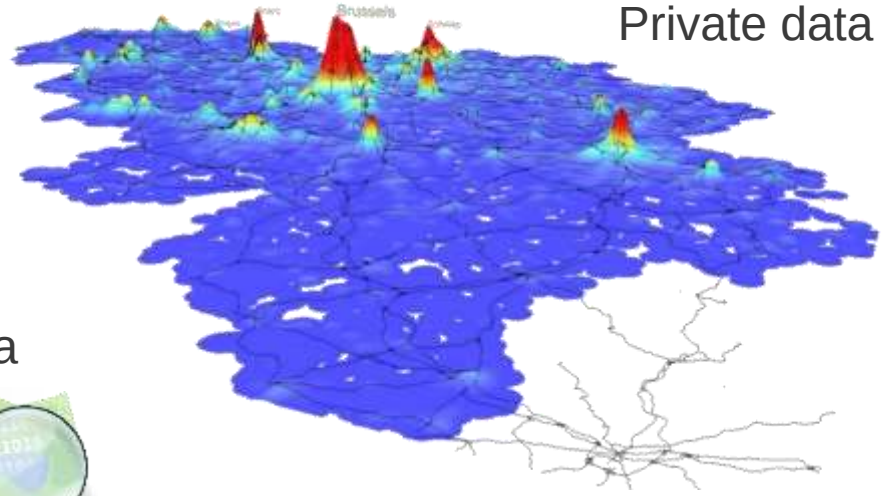


Public Sector

JRC Research on European Data Spaces
Technology trends: New data sources

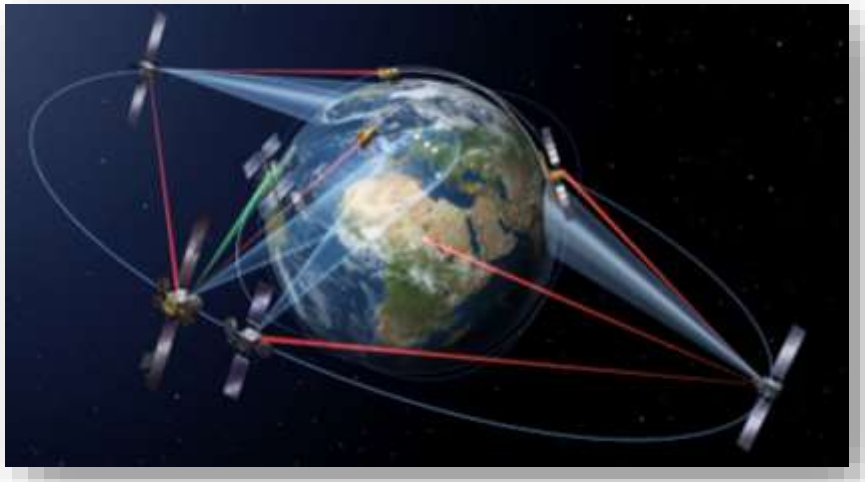
Internet of Things

Private data

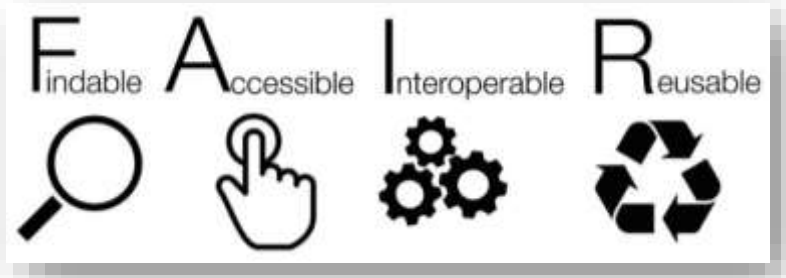


Citizen-generated data

Copernicus



Open research data



European Commission

JRC Research on European Data Spaces
Technology trends

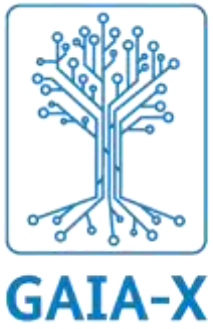
- Extensive use of APIs – From data collection to data connection.
- Agile standards.
- Mature tools.
  - Multiple approaches for using & serving data.
  - Powerful ETL instruments.
- Novel architectures:
  - Federated cloud
  - edge/fog
  - Solid

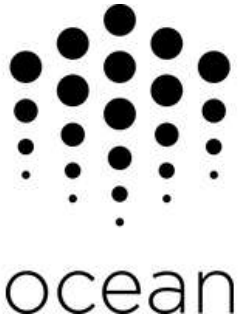
photo by Looker Studio, image #315352794. Source: *stock.adobe.com*

photo by Siarhei, image #199237766. Source: *stock.adobe.com*

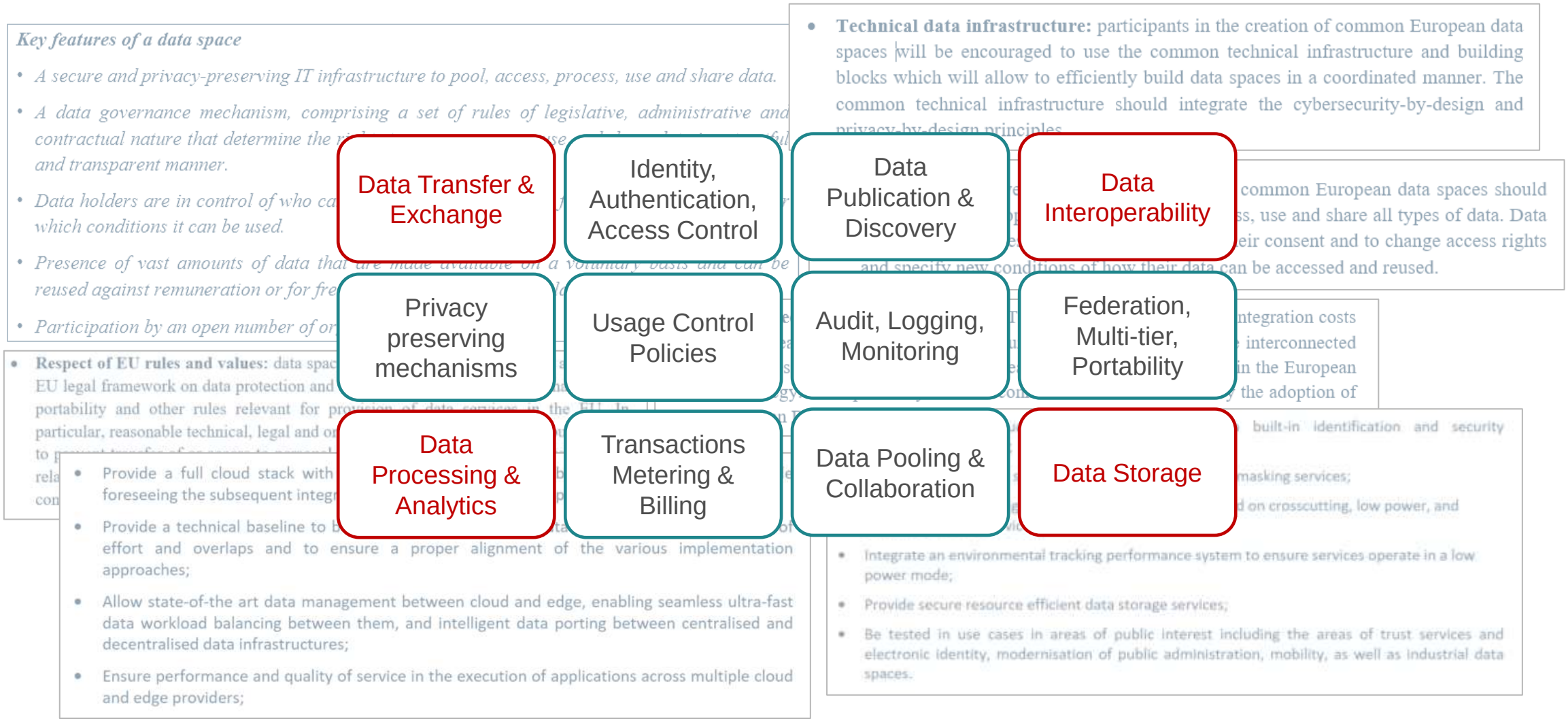
European Commission

JRC Research on European Data Spaces
Analysis of relevant data sharing initiatives

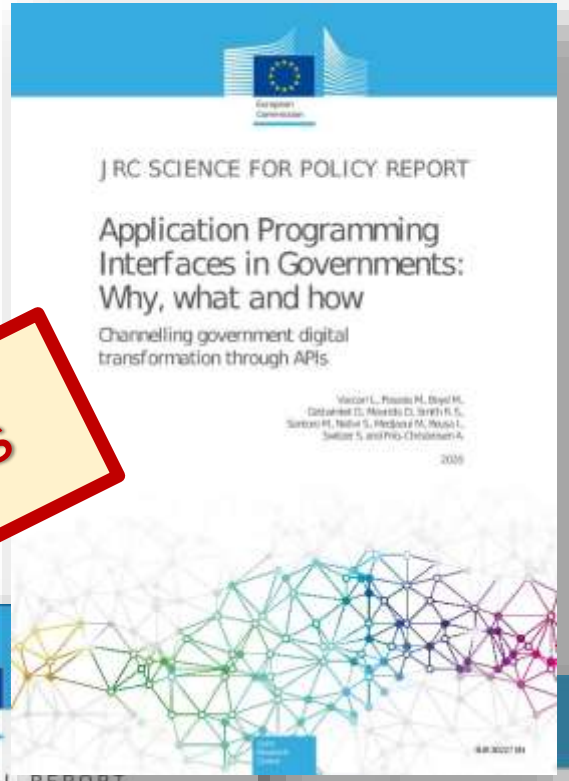




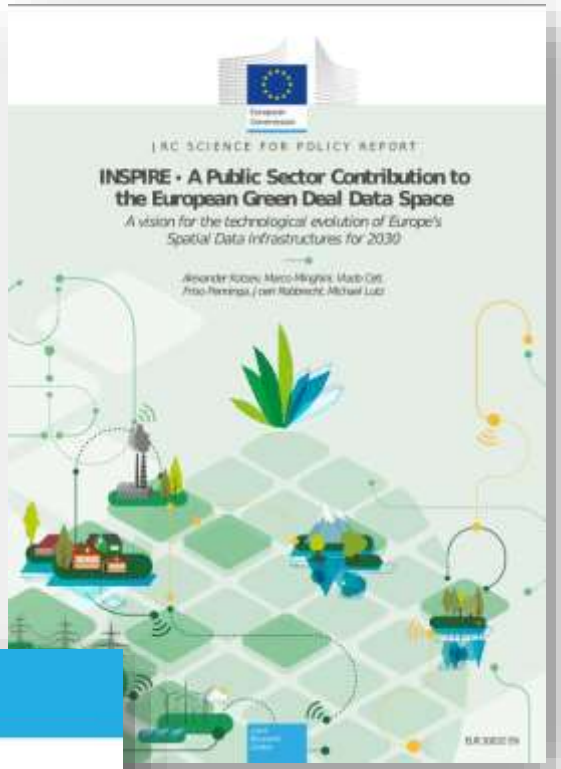
JRC Research on European Data Spaces
Analysing technical and non-technical requirements



Findings


JRC SCIENCE FOR POLICY REPORT
Application Programming Interfaces in Governments: Why, what and how
Channelling government digital transformation through APIs


JRC SCIENCE FOR POLICY REPORT
Artificial Intelligence and Digital Transformation: early lessons from the COVID-19 crisis
AI


JRC SCIENCE FOR POLICY REPORT
INSPIRE - A Public Sector Contribution to the European Green Deal Data Space
A vision for the technological evolution of Europe's Spatial Data Infrastructures for 2030


JRC TECHNICAL REPORT
Emerging approaches for data-driven innovation in Europe
Sandbox experiments on the governance of data and technology


JRC TECHNICAL REPORT
Quantifying the Benefits of Location Interoperability in the European Union


Establishment of Sustainable Data Ecosystems
Recommendations for the evolution of spatial data infrastructures


Humanities & Social Sciences Communications
nature
ARTICLE
Collaboration matters: capacity building, up-scaling, spreading, and sustainability in citizen-generated data projects

JRC Research on European Data Spaces
EU Data Spaces – Scientific insights into data sharing and utilisation at scale

- Technical Report: Publication approved – Soon online!

  ISBN 978-92-76-53522-5 (online), doi:10.2760/400188 (online), JRC129900

- Integrates JRC's knowledge base on data sharing - Easy entry point to data spaces JRC findings.
  - Ingredients: JRC research findings from articles, reports.
  - Mapped to the technical and non-technical requirements for data spaces as defined in the European Strategy for Data (2020) and SWD(2022) 45 final.
- Co-created and validated by different services (ENV, SANTE, GROW, DIGIT, JRC, AGRI, CNECT).
- Two products derived from the same knowledge base:
  - Living document (wiki).
  - Interactive component (chatbot, Q&A system).
- Complements the Data Spaces Support Centre and European Innovation Board.

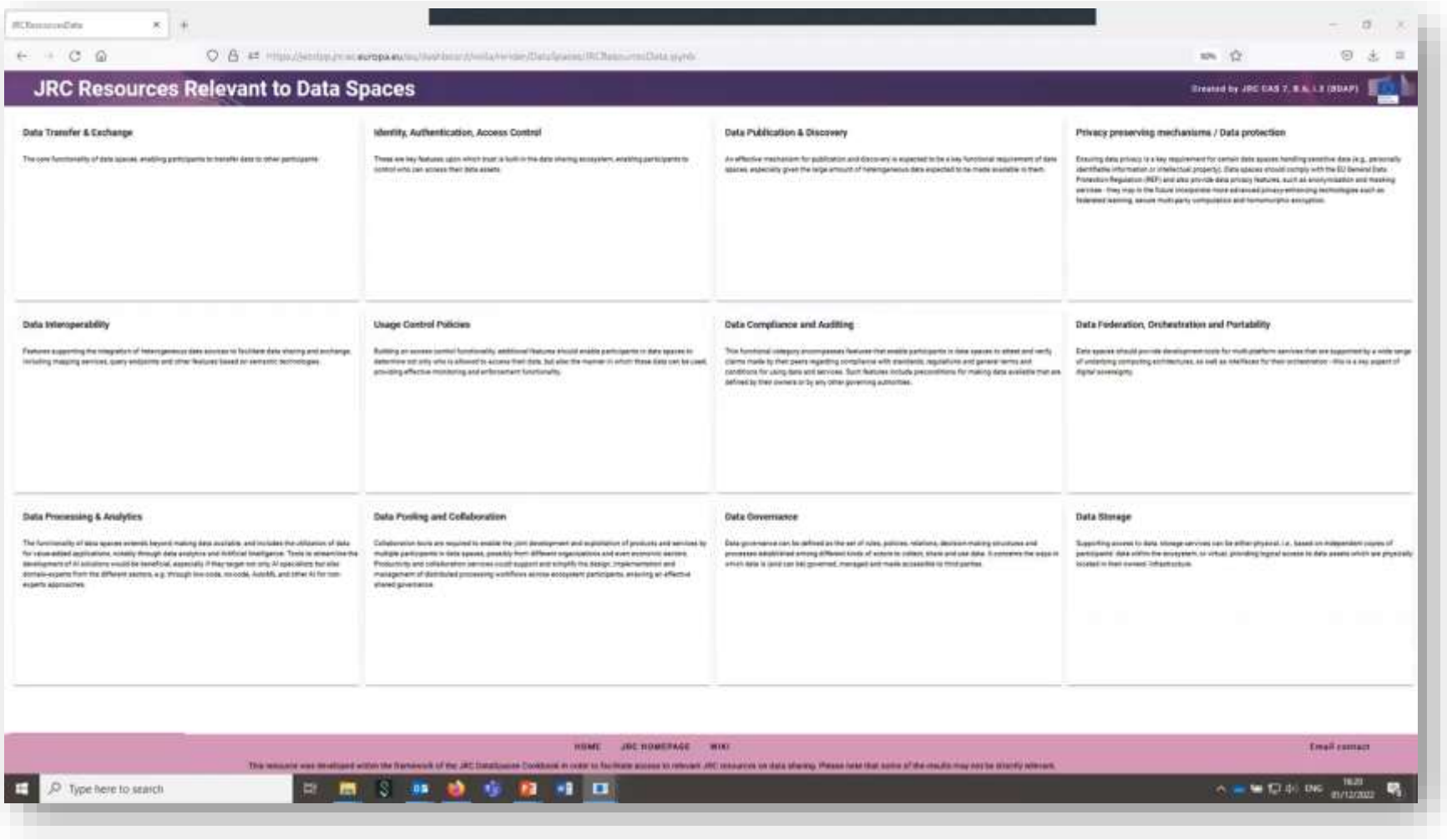
European Commission

JRC Research on European Data Spaces
EU Data Spaces – Scientific insights into data sharing and utilisation at scale

- **Dashboard:**

  JRC resources mapped to the requirements for Data Spaces

Interactive browsing



JRC Research on European Data Spaces

EU Data Spaces – Scientific insights into data sharing and utilisation at scale

- **JRC resources on Data Spaces**

How-To's on Data Sharing

Scientific support for establishing EU Data Spaces
JRC Research activities under GreenData4All

- Studies in support of the GreenData4All (revision of the INSPIRE Directive) impact assessment, for DG ENV (on-going)
  - Possible role of intermediaries in the Green Deal data space (extending on-going research on intermediaries by JRC for CNECT).
  - Options for including citizen science and user consent data (including data altruism) mechanism) in the Green Deal data space, building on top of Data Governance Act and Data Act.
  - Options to review the interoperability provisions/approach under INSPIRE in view of the upcoming Interoperable Europe Act, High Value Datasets Implementing Regulation and data space interoperability provisions in the Data Act.

Building European Data Spaces
Actors: Coordination and Support Actions

- Data Spaces Support Centre (DSSC)
  - Main Coordination and Support Action.
  - Mission: Coordination of all relevant actions on sectoral data spaces in Europe.

Blueprint | ***Best practices*** | ***Common standards*** | ***Support activities*** | ***Knowledge transfer***

- Sectoral Coordination and Support Actions (CSAs)
  - One CSA envisaged for each sectoral data space.
  - Mission: Coordination of each specific sectoral data space.

Community of practice | ***Priority datasets*** | ***Stakeholder engagement*** | ***Governance & Business models*** | ***Roadmap***

- European Data Innovation Board (EDIB)
  - Consultative and advisory body established in the Data Governance Act.
  - To be set up in September 2023.
  - Mission: Identification of guidelines for interoperability of common EU data spaces.

European Data Spaces
Data Spaces Support Centre

Main Coordination and Support Action (CSA)

- Aimed to build a strong and innovative data ecosystem in Europe through the development of common data spaces in strategic economic sectors and domains under the EU Data Strategy.
- General CSA ruling the specific and sectoral CSAs on Data Spaces - Mission:

<< The Data Spaces Support Centre will explore the needs of data space initiatives, define common requirements and establish best practices to accelerate the formation of sovereign data spaces as a crucial element of digital transformation in all areas >>

- Funded by DIGITAL

https://dssc.eu

European Data Spaces
Great project

Coordination and Support Action (CSA) for shaping the Green Deal data space

- www.greatproject.eu

  Establishing the foundations of a Minimum Viable Green Deal Data Space.

  - Reference blueprint architecture.
  - Governance & Business Models.
  - Priority list of datasets.

- Funded by DIGITAL

European Commission

Building European Data Spaces
Cooperation at multiple levels needed

Building European Data Spaces

Cooperation > Green Deal data space

GREAT
Green Deal Data Space

FAIRiCUBE

OPEN EARTH MONITOR

GEOE3
A GEOSPATIALLY ENABLED ECOSYSTEM FOR EUROPE

GO-PEG

AD4GD

USAGE
Urban Data Space for Green Deal

EuroGEO

e-shape

European Commission

European Data Spaces
The role of NMCAs

- Data providers plays a crucial role in EU data spaces:
  - Long experience producing and sharing data (own business, national SDIs, INSPIRE, EuroGeographics products, Open Data portals).
  - EU Core data and services are key to achieve data spaces' ambitions and goals.
  - Focus on data availability and accessibility. Data intermediaries will support integration and interoperability efforts.
- Approach for integrating NMCAs data in the Common EU data spaces:
  - Gradually build capacities and adopt emerging standards and technologies, mainly those considered for data spaces.
  - Closely follow-up CSAs put in place. Consider collaborating.
  - Participate and influence in relevant relevant actions:

    e.g. ISO/TC211 Ad-hoc group on Input to EU Data spaces
  - Apply an open licensing framework, when possible.
  - Make High-value datasets freely available via standard APIs.

DATA SPACES SUPPORT CENTRE

AD4GD

USAGE
Urban Data Space for Green Deal

GREAT
Green Deal Data Space

GEOE3
A GEOSPATIALLY ENABLED ECOSYSTEM FOR EUROPE


ISO/TC 211 N 5842

N 5842 Draft Resolutions from the 55th hybrid plenary meeting, 2022-12-09

Ad hoc group on Input to EU Data Spaces

Keep in touch

EU Science Hub: ec.europa.eu/jrc

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EU Science Hub – Joint Research Centre

EU Science, Research and Innovation

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European Commission

Thank you!

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