

## Deliverable 3.1

### Technical Collaboration with other European Partnerships and relevant initiatives

### Focus on Common European Data Spaces

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Authors	Paolo Budroni (TU Wien), Chris De Loof (Belnet), Juliana de Mello Castro Giroletti (TU Wien), Dale Robertson (EGI), Friederike Schröder-Pander (Belnet)
Contributors	Isabel Caetano (EOSC-A), Franciska de Jong (CLARIN), Niels Deriemaecker (Belnet)
Work Package	WP 3 SRIA Update and Technical Development
Reviewed by	Ignacio Blanquer (EOSC-A Director) , Sara Garavelli (EOSC-A Director), Ute Gunsenheimer (EOSC Focus Project Coordinator), EOSC Focus Management Board
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### Deliverable Abstract

This deliverable is a report on the technical collaboration of the EOSC Partnership with other European Partnerships and relevant initiatives. This first report is dedicated to the EOSC liaison with the Common European Data Spaces. The objective of this deliverable is to describe the Common European Data Spaces, their governance, scope, technical framework and to report on the actions and opportunities for mutual collaboration and cooperation in line with the objectives of the EOSC Partnership’s Memorandum of Understanding.

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v1.0	20/11/2023	Final version	Paolo Budroni Chris De Loof Juliana de Mello Castro Giroletti Dale Robertson Friederike Schröder-Pander	<a href="https://orcid.org/0000-0001-7490-5716">https://orcid.org/0000-0001-7490-5716</a> <a href="https://orcid.org/0009-0003-9458-7972">https://orcid.org/0009-0003-9458-7972</a> <a href="https://orcid.org/0000-0002-1111-2548">https://orcid.org/0000-0002-1111-2548</a> <a href="https://orcid.org/0000-0002-7723-0336">https://orcid.org/0000-0002-7723-0336</a> <a href="https://orcid.org/0000-0002-2065-4728">https://orcid.org/0000-0002-2065-4728</a>

### TERMINOLOGY

Terminology/Acronym	Definition
AAI	Authentication and authorization infrastructure
DEP	DIGITAL Europe Programme
CoNOSC	The Council for National Open Science Coordination
CoP	Community of Practice of DSSC
CSA	Coordination and Support Action
DG	Directorate-General
DGA	Data Governance Act
DS	Data Space
DSSC	Data Spaces Support Centre
EC	European Commission
EDIC	European Digital Infrastructure Consortium
EGD	European Green Deal

EHDS	European Health Data Space
EOSC	European Open Science Cloud
EOSC-A	EOSC Association
EOSC-SB	EOSC Steering Board
ERA	European Research Area
EU	European Union
FAIR	Findable, accessible, interoperable, reusable
GDDS	Green Deal Data Space
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
HPC	High-performance computing
MCP	Multi-country project
NoS	Network of Stakeholders of DSSC
OS	Open Science
OSCER	The Open Science Commons Executives' Roundtable
RI	Research Infrastructure
RTD	DG for Research and Innovation
RTOs	Research and Technology Organisations
SME	Small and Medium Enterprise
SRIA	Strategic Research and Innovation Agenda for EOSC
SSF	Strategic Stakeholder Forum of DSSC
UN SDG	The Sustainable Development Goals of the United Nations
WP	Work programme

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## Executive Summary

The Memorandum of Understanding of the EOSC Partnership (see [R1]) describes in chapter 5.4 (“Coherence and coordination with other European Partnerships and beyond”) that “The Partners undertake to set up and maintain a clear strategy and plan for the interfaces and joint activities of the European Partnership with the other relevant European Partnerships, as well as with the broader European research and innovation system and communities.”

The Coordination and Support Action “[EOSC Focus](#)” supports the EOSC Partnership in achieving the ambitious goals set in the EOSC Co-programmed Partnership Memorandum of Understanding. One of the objectives of the EOSC Focus project is to collaborate with EOSC projects, other partnerships and international initiatives, more specifically to “work internationally to pursue global interoperability frameworks so EOSC can connect with domain Data Spaces (DS) and international open research commons”. Next to activities related to the other European Partnerships, the initiatives for the Common European Data Spaces are of great importance for EOSC.

The initial focus of the “European Strategy for Data” (see [R2]) was on 10 Common European Data Spaces either in strategic sectors or domains of public interest (including also EOSC). In that communication, it is also pointed out that the list of sectoral Data Spaces is not exhaustive and could be extended. Two years later, 15 Common European Data Spaces were mentioned in the “Commission Staff Working Document on Common European Data Spaces” (see [R5]). For most of them, funding for preparatory actions or deployment is already foreseen in the DIGITAL Europe Work Programme 2021-22 (see [R7]). This shows how fast the Common European Data Spaces are evolving.

Because of the importance of Data Spaces for EOSC (being also one of them) and due to their rapid evolution, EOSC Focus has decided to focus this first deliverable on “European Partnerships and other initiatives” on documenting the status of the current Common European Data Spaces. The cut-off date for the information in this report is set on 1/7/2023.

After an introduction (chapter 1), the basis, the concepts, the key features and the design principles of the Common European Data Spaces and the funding available are explained (chapter 2). Furthermore, the document offers an overview of the 14 Common European Data Spaces (except for EOSC itself) that were under development at the moment of writing. For each of the 14 Data Spaces, an overview of the current state is given, including past, ongoing and future activities, legal and policy frameworks related to the DS, data governance, technical building blocks and synergies with EOSC, based on extensive desk research (see the Appendix).

The role of the DSSC, the Data Spaces Support Centre, as the main initiative coordinating and supporting the evolution of the Common European Data Spaces, is discussed in chapter 3. Chapter 4 and 5 contain detailed information on the technical and legislative frameworks for Data Spaces. Chapter 6 is dedicated to “EOSC and the Data Spaces”. EOSC as a Data Space is discussed as well as the current collaborations with other Common European Data Spaces. Our conclusions, based on analysis and research during the last few months, can be found in chapter 7.

With this comprehensive overview of the Common European Data Spaces, and the conclusions, we aim to give guidance to everybody who has interest in the Data Spaces, ranging from the newcomer who wants to understand the world of Data Spaces to the organisations that wish to play a role in the

development of the Data Spaces, to the policy makers who decide on the direction and next steps to support them.



# 1 Introduction and methodology

## 1.1 Introduction

The aim of the [EOSC Focus project](#) is to support the EOSC Partnership in obtaining its objectives as agreed in the Memorandum of Understanding (see [R1]):

1. Ensure that Open Science practices and skills are rewarded and taught, becoming the ‘new normal’.
2. Enable the definition of standards, and the development of tools and services to allow researchers to find, access, reuse and combine results.
3. Establish a sustainable and federated infrastructure enabling open sharing of scientific results.

These General Objectives are made clear in the EOSC Strategic Research and Innovation Agenda (SRIA) (see the [documents site of EOSC](#) for the latest version of the SRIA). Focusing on the specific objectives and Key Performance Indicators of the SRIA, one will read that the EOSC Partnership will engage with other Horizon Europe Partnerships and Common European Data Spaces.

One of the objectives of the EOSC Focus project is to facilitate technical cooperation and to organise concertation between the EOSC Advisory Groups and Task Forces, EOSC-relevant projects, other Horizon Europe Partnerships (such as the European Partnership for High Performance Computing - EuroHPC), and other relevant initiatives (e.g. GAIA-X and sectoral Data Spaces) to ensure that suitable outcomes are identified to and serve as a baseline for future developments for the EOSC.

This document is in line with this objective and focuses on past and future work and coordinated activities in relation to, in collaboration with and in technical cooperation between the EOSC initiative and the other relevant initiatives to foster a global Open Science commons and technical interoperability and to minimise overlaps with those existing initiatives.

Other initiatives relevant to the EOSC Partnership remains of course a broad term, which we have scoped in three different categories where the EOSC Focus project will dig in: the Common European Data Spaces, European Partnerships in Horizon Europe, and Global Open Science Initiatives. Although this document will primarily focus on the Common European Data Spaces, the other initiatives will be shortly described to offer a complete overview of the landscape.

### 1.1.1 Common European Data Spaces

To harness the value of data for the benefit of the European economy and society, the European Commission supports the development of Common European Data Spaces in strategic economic sectors and domains of public interest. The European data strategy of February 2020 (see [R2]) announced the creation of Data Spaces in 10 strategic fields: health, agriculture, manufacturing, energy, mobility, finance, public administration, skills, the EOSC, and the crosscutting key priority of meeting the Green Deal objectives. Since then, Data Spaces in other important areas such as media and cultural heritage have also emerged. The goal is that the Common European Data Spaces will together form a genuine single market for data. Common European Data Spaces bring together

relevant data infrastructures and governance frameworks in order to facilitate data pooling and sharing. They deploy tools and services for the pooling, processing and sharing of data by an open number of organisations, as well as federating energy-efficient and trustworthy cloud capacities and related services. They include data governance structures, compliant with relevant EU legislation, which determine the rights concerning access to and processing of the data in a transparent and fair way. Furthermore, they improve the availability, quality and interoperability of data – both in domain-specific settings and across sectors.

The creation of EU-wide common, interoperable Data Spaces in strategic sectors will overcome existing legal and technical barriers for data sharing and, as such, unleash the enormous potential of data-driven innovation.

This will allow data from across the EU to be made available and exchanged in a trustworthy and secure manner. Businesses, public administrations and individuals in Europe will be in control of the data they generate, while knowing that they can trust the way in which it is used to boost innovation. Common European Data Spaces will therefore enhance the development of new data-driven products and services in the EU and thereby create the core tissue of an interconnected and competitive European data economy.

### 1.1.2 European Partnerships in Horizon Europe

European Partnerships bring the European Commission and private and/or public partners together to address some of Europe's most pressing challenges through concerted research and innovation initiatives. They are a key implementation tool of Horizon Europe and contribute significantly to achieving the EU's political priorities. By bringing private and public partners together, European Partnerships help to avoid the duplication of investments and contribute to reducing the fragmentation of the research and innovation landscape in the EU.

There are 3 types of European Partnerships (cited from the [official EC site](#)).

#### Co-Programmed European Partnerships

"These are partnerships between the Commission and mostly private (and sometimes public) partners. A Memorandum of Understanding is the basis for the cooperation in these partnerships, as it specifies the partnership's objectives, the commitments from both sides and the governance structure." EOSC is a co-programmed partnership.

"Implementation runs first and foremost through the Horizon Europe work programmes and their calls for proposals. Each partnership provides the Commission with input on relevant call topics to be included in future work programmes. The grants resulting from these calls are fully funded by Horizon Europe. The private partners also develop additional activities, which are not funded through Horizon Europe, but which are included in the partnership's Strategic Research and Innovation Agendas (SRIAs). These additional activities typically focus on issues such as market deployment, skills development or regulatory aspects."

### Co-funded European Partnerships using a programme co-fund action

“These are partnerships involving EU Member States and Associated Countries, with research funders and other public authorities at the core of the consortium.

The partnership is based on a grant agreement between the Commission and the consortium of partners, resulting from a call for proposals for a programme co-fund action in the work programme of Horizon Europe.

The programme needs to specify the objectives, the activities and associated outputs to be delivered, and the expected results and impacts that need to be monitored with specific key performance and impact indicators (SRIA).

This type is suited to partnerships involving public authorities supporting research, but it is also possible to include foundations and international organisations as partners.”

### Institutionalised European Partnerships

“These partnerships require legislative proposals from the Commission and are based on a Council Regulation (Article 187) or a Decision by the European Parliament and Council (Article 185). They are implemented by dedicated structures created for that purpose. Institutionalised partnerships will only be implemented where other parts of the Horizon Europe programme, including other types of partnership, would not achieve the desired objectives or expected impacts.”

Examples of European Partnerships in Horizon Europe are the European Partnership on Metrology and EuroHPC.

### 1.1.3 Global Open Science Initiatives

The EOSC Focus project also includes a Task contributing to expanding Open Science collaboration and providing support for relevant initiatives aimed at collaboration towards a global interoperability framework (to cover generic and discipline-specific standards, models for the harmonisation of practices and organisational interoperability, international alignment of rewards and incentives frameworks) that would facilitate the emergence of Global Open Science Commons in conjunction with other initiatives. These Global Open Science initiatives will be the subject of another report from the EOSC Focus project.

Examples of Global Open Science Initiatives are RDA, CODATA, the International Science Council (ISC), OSCER and the UNESCO Global Open Science Partnership.

### 1.1.4 Potential Synergies of Data Spaces and Partnerships with EOSC

Through our research activities, we discovered that the approach to, the degree of maturity and the knowledge of those initiatives are in constant evolution.

#### Data spaces

Some of the Common European Data Spaces have potential to collaborate with EOSC: EOSC has a transversal character, covering all fields addressed by research, industrial cooperation and societal development, and has many commonalities with the basic key features of the Data Spaces which by definition cover (like ‘macro silos’) one or a few related themes. Derived from European Commission

policy and compliant with European legislation, the Data Spaces share the same concepts as the EOSC for accessing, sharing, processing and using data, ruled by trustworthy data governance mechanisms. As mentioned, legal compliance and especially personal data protection and intellectual property rights are key, and data owners have the possibility to grant trusted access or to share access to data under their control. They will have a technical interoperable data infrastructure, services and data marketplaces in which they could promote the development of tools to pool, access, use and share all types of data and related services favouring the development of common open standards and the findable, accessible, interoperable and reusable (FAIR) principles.

The EU is taking a big leap forward in the domain of the Common European Data Spaces, with a clear strategy (Digital Decade policy programme European strategy for data), funding opportunities ([DIGITAL Europe Programme](#)<sup>1</sup>, [Horizon Europe programme](#)), legal instruments (European Digital Infrastructure Consortium) and the creation of a coordination mechanism for the definition of common requirements and best practices, the Data Space Support Centre ([DSSC](#)) which will mutually advise the Commission and the Data Spaces on technical interoperability and governance frameworks. In the domain of the technical framework, we can notice the launch of a [tender procedure](#) to set up an open source middleware framework (Simpl) which will guarantee the interoperability of data between the different initiatives as eg. the EOSC and EuroHPC and be open for tools (marketplace, artificial intelligence) and processing (HPC).

The EOSC Partnership Memorandum of Understanding prescribes that the EOSC Partnership will engage with at least 50% of the active Data Spaces by 2027. The scope of the engagement is not yet defined but will relate to data management practices and the FAIR principles.

### Horizon Europe Partnerships

Horizon Europe Partnerships also have potential for the EOSC as they also deal with disciplinary research data and data infrastructures. The EOSC Memorandum of Understanding names a few Partnerships the EOSC should work with, and a plan should be set up to develop and maintain a clear strategy with interfaces and joint activities with the other relevant European Partnerships, as well as with the broader European research and innovation system and communities.

The EOSC-A will establish a formal and regular collaboration with the following other European Partnerships:

- European Partnership on Rare Diseases
- European Partnership for Chemicals Risk Assessment
- European Partnership on Metrology
- European Partnership for High Performance Computing
- European Partnership for Key Digital Technologies (KDT)
- European Partnership on Artificial Intelligence, Data and Robotics

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<sup>1</sup> The Digital Europe Programme is an EU funding programme that funds several Data Space related projects, among other topics. The programme is focused on bringing digital technology to businesses, citizens and public administrations.

“The SRIA of EOSC will set out further details, as appropriate, on coherence and collaboration with other European Partnerships. [...] The EOSC-A will report specifically on its collaboration with other European Partnerships in their annual reporting” (cited from [R1]). The EOSC-A has already been in close contact with the Era4Health Partnership to discuss potential synergies and had first contacts with the European Partnership on Metrology.

There are many other Partnerships in which the EOSC can have an interest, but in the Partnerships domain, as with Data Spaces, there is a huge difference in maturity between established Partnerships and newly created ones.

## 1.2 Methodology

In agreement with the EOSC Association, it was decided to focus the attention for this first deliverable on the Common European Data Spaces because of the pressing need for a strategic collaboration and prioritisation of the most relevant Data Spaces. Also, the new or updated horizontal legislation (e.g. Data Governance Act, Data Act, Open Data Directive) and sectoral legislation (e.g. European Health Data Space Regulation) have called for a quick action to investigate the landscape of the Data Spaces.

The purpose of this document is to provide insights for the broad EOSC Stakeholder community:

- To make well-informed decisions on strategy and actions concerning the interaction between EOSC-A Board/EOSC-SB with the Data Spaces, the Commission and the DSSC
- To inform all EOSC Stakeholders (EOSC-SB, mandated organisations, members and observers of EOSC-A, Horizon Europe EOSC project partners, EOSC-A Task Force members) about the current status of the Data Spaces
- To provide input to community discussions on the future of the EOSC beyond the framework programme
- To raise awareness of the Data Space Support Centre (DSSC) on the particularities of the EOSC as an overarching Data Space (with vertical links) for research, industrial collaborations between RIs, industry, and societal development
- To complement the SRIA with further details, as appropriate, on coherence and collaboration with other European partnerships, synergies in technical interoperability with other Union programmes, Union bodies and national, international, and intergovernmental programmes and policies and the relevant parts of Horizon Europe (including the missions)
- To highlight challenges on interoperability and the use of FAIR across research domains and data discovery to support multi-disciplinary re-use

The EOSC Focus project will further support the EOSC Partnership in establishing a collaboration with at least two active sectoral Data Spaces and two active Horizon Europe Partnerships. A decision on the type and scope of the collaboration with the initiatives will be made by the EOSC-A Board in due course. In function of this decision, the project will update the SRIA and the accompanying detailed multi-annual roadmaps (MAR). The SRIA update will be underpinned by bottom-up activities with the

participation of all stakeholders volunteering and collaborating in the EOSC-A Task Forces and in collaboration with the selected Partnerships and sectoral Data Spaces.

The content of this report is mainly based on desk research. The sources used are publicly available documents, publications, slide shows and websites from the Commission and EU-funded projects. The main aim has been to provide a factual representation on the following topics and questions:

1. What are the Common European Data Spaces?
2. Who is behind the Common European Data Spaces?
3. What is the role of the Data Space Support Centre?
4. What is the technical framework for the Common European Data Spaces?
5. What is the legislative framework for the Common European Data Spaces?
6. How does EOSC engage with the Common European Data Spaces?

The cut-off date for the information in this report is set on 1/7/2023. More initiatives, whitepapers and reports on Data Spaces are in the pipeline but could not be considered as they are still in draft status at the time of writing.

## 2 Common European Data Spaces – State of play

### 2.1 The basis for the Common European Data Spaces

The EC's European strategy for data Communication of 19 February 2020 announced that the Commission will invest in Common European Data Spaces in strategic economic sectors and domains of public interest in order to speed up the development of the European economy and to harness the value of data for the benefit of the European society (see [R2]).

On 9 March 2021, the Commission presented its vision with a set of measures leading to Europe's digital transformation by 2030 in the Communication '2030 Digital compass: the European way for the digital decade'. The development of Common European Data Spaces in strategic sectors and domains will constitute an important contribution to accelerating digital transformation in these fields and realising the digital decade objectives (see [R3]).

In its conclusions of 25 March 2021, the European Council recognised "the need to accelerate the creation of Common Data Spaces, including ensuring the access to and interoperability of data", and invited the Commission to "present the progress made and the remaining measures necessary to establish the sectoral Data Spaces announced in the European strategy for data of February 2020" (cited from [R4]).

### 2.2 The pillars for a European single market for the data

In its communication to the European parliament, the Council, the European Economic and Social Committee and the Committee of the Regions from 19.2.2020, the Commission highlighted its strategy to create a European Single market for data. (see [R2]).

In its Strategy, the Commission foresees a big role for industrial players and SMEs, limiting its own role in creating an even playing field for data users, protecting the rights of citizens, co-funding the necessary capacity and stimulating a selection of strategic sectors into Common European Data Spaces.

The 4 pillars of its strategy are:

1. A cross-sectoral governance framework for data access and use

The Commission has put in place an enabling legislative framework for the governance of Common European Data Spaces: the Data Governance Act. At the same time the Commission put in place the procedure for the adoption of an "Implementing act on high-value datasets" under the Open Data Directive, making these data sets available across the EU for free, in machine-readable format and through standardised Application Programming Interfaces (APIs). Another legislative action is still in preparation: the Commission will tackle the need for legislative action on issues that affect relations between actors in the data-agile economy to provide incentives for horizontal data sharing across sectors with the forthcoming Data Act.



2. Enablers: Investments in data and strengthening Europe’s capabilities and infrastructures for hosting, processing and using data, interoperability

“Europe’s data strategy relies on a thriving ecosystem of private actors to create economic and societal value from data. Start-ups and scale-ups will play a key role in developing and growing disruptive new business models that fully take advantage of the data revolution. Europe should offer an environment that supports data-driven innovation and stimulates demand for products and services that rely on data as an important factor of production.” The most important action from the Commission to make this happen is the High Impact Project which is developing Common European Data Spaces and interconnecting cloud infrastructures.

3. Competences: Empowering individuals, investing in skills and in SMEs

Firstly, individuals should be empowered and supported with respect to their rights with regard to the use of the data they generate. Secondly, the Commission will stimulate via its Digital Europe Programme, the creation of a pool of digital talent who will be able to deploy the latest technologies in businesses throughout the EU (data stewards). And lastly, a new European SME strategy will define measures to build capacity for SMEs and start-ups and will create opportunities for SMEs in the data economy, to have better access to data and to develop new services and applications based on data.

4. Common European Data Spaces in strategic sectors and domains of public interest

The Commission will promote the development of Common European Data Spaces in strategic economic sectors and domains of public interest. This should lead to the availability of large pools of data in these sectors and domains, combined with the technical tools and infrastructures necessary to use and exchange data, as well as appropriate governance mechanisms. While not having a one-size-fits-all approach, common governance concepts and models can be replicated in the different sectors.

## 2.3 The concept of the Common European Data Spaces

For clear understanding, we will use in this document the terminology in Version 1.0 of the DSSC Glossary (see [R6]) from March 2023.

“A Data Space is an infrastructure that enables data transactions between different data ecosystem parties based on the governance framework of that Data Space.” By governance framework we mean a “set of principles, standards, policies (rules/regulations) and practices that apply to the governance, management and operations within a particular scope (e.g., a Data Space, a Data Space initiative, or Data Spaces blueprint) as well as to the enforcement thereof and the resolution of any conflicts.” “Data spaces should be generic enough to support the implementation of multiple use cases.”

The Common European Data Spaces are a subclass of Data Spaces which adhere to European rules and values. The Common European Data Spaces were introduced in the EC data strategy and referenced in the Data Governance Act and Data Act:

- The Data Governance Act (DGA) (see [R9]) is the European regulation which aims to create a framework to facilitate Common European Data Spaces and increase trust between actors in the data market. The DGA entered into force in June 2022 and applies as from Sept 2023. The



DGA defines the European Data Innovation Board. The DGA makes the purpose of the Common European Data Spaces very clear: “This will be particularly important in the context of the establishment of Common European Data Spaces, namely purpose- or sector-specific or cross-sectoral interoperable frameworks of common standards and practices to share or jointly process data for, inter alia, the development of new products and services, scientific research or civil society initiatives.” (cited from [R26]).

- The [Data Act](#) is a European Union draft regulation to create a framework to harmonise rules on fair access to and use of data. The proposal was formally issued on 23 February 2022 and is expected to be finalised during 2023. The proposal (Art 28) sets essential requirements to facilitate the interoperability of data, data sharing mechanisms and services.

The scope of Data Spaces is very broad. In the frame of our research, we have identified 15 Data Space initiatives relevant for the EU policies, the so-called Common European Data Spaces. There are plenty of other Data Spaces, but these 15 Data Spaces are prevalent in the EU policy, receive EU funding, and are ruled by EU regulations (sources: [R2], [R5], [R7]).

## 2.4 The key features of a Common European Data Space

The key features of a Common European Data Space are the following (cited from [R5]):

- “A secure and privacy-preserving infrastructure to pool, access, share, process and use data.
- A clear and practical structure for access to and use of data in a fair, transparent, proportionate and/non-discriminatory manner and with clear and trustworthy data governance mechanisms.
- European rules and values, in particular personal data protection, consumer protection legislation and competition law, are fully respected.
- Data holders will have the possibility within a Data Space to grant access to or to share certain personal or non-personal data under their control.
- Data that is made available can be reused against compensation (including remuneration) or for free.
- Participation of an open number of organisations/ individuals.”

## 2.5 The design principles of the Common European Data Spaces

### Data control

“Driven by sector-specific needs, Common European Data Spaces could promote the development of tools to pool, access, use and share all types of data favouring the development of common open standards, the findable, accessible, interoperable and reusable (FAIR) principles, and especially the machine readability of data.

In line with the applicable legislation, data holders could use these tools to ease the uploading of data into Data Spaces, to give or revoke their authorisation to access data and to change access rights and specify new conditions of how their data can be accessed and reused over time.”

## Governance

“Put in place an appropriate governance structure to ensure fair, transparent, proportionate and non-discriminatory access to, sharing and use of data. That structure should comply with existing provisions of horizontal (e.g. General Data Protection Regulation ([R14]), Free Flow of Non-Personal Data Regulation ([R16]), ePrivacy Directive ([R15]), Platform to Business Regulation ([R21])) and sectoral EU data-related legislation (e.g. type approval regulation ([R22]), Payment Services Directive 2 ([R23]), Electricity Regulation ([R24]), Intelligent Transport Systems Directive ([R25]).”

## Respect of EU rules and values

“Data spaces will comply with the applicable EU legal frameworks on personal data protection and security, fundamental rights, environmental protection, competition law, and other rules relevant for the provision of data services in the EU, such as international trade commitments under the World Trade Organisation’s General Agreement on Trade in Services and other trade agreements. In addition, adequate technical, legal and organisational measures will be put in place to prevent unauthorised access to personal and non-personal data.”

## Technical data infrastructure

“Participants in Common European Data Spaces will be encouraged to use the common technical infrastructure and building blocks which will allow the Data Spaces to be built in an efficient and coordinated manner. The common technical infrastructure will have to take due account of the existing and emerging sectoral frameworks, integrate the cybersecurity-by-design principle and respect the data protection by design and by default obligations enshrined in the General Data Protection Regulation (GDPR).”

## Interconnection and interoperability

“To avoid fragmentation, high integration costs and the creation of silos, the Common European Data Spaces could build on international standards, INSPIRE (for spatial data) and FAIR principles to favour interoperability, machine actionability, exploitation of data on EU computing infrastructures (e.g. cloud and HPC). They should be interconnected and progressively made interoperable to lead to a genuine European Data space, as envisioned in the European strategy for data.”

## Openness

“Participation in Common European Data Spaces is open to all actors (organisations/ individuals) that respect EU rules and values and comply with the rules defined in the scope of each EU Data Space. Openness would also serve to allow competition between different product and service providers requiring data sharing, thereby avoiding any potential competition lock-in due to manufacturers’ specific protocols.”

The design principles are cited from [R5] - see the document for more in-depth information.

## 2.6 The funding of the Common European Data Spaces

To facilitate the development of the data market and the general capitalisation of data, the Commission is investing in Common European Data Spaces in strategic economic areas and areas of public interest, such as health, the Green Deal, transport and security and law enforcement. The Data Spaces bring together data, data infrastructures and governance structures in order to facilitate

secure data pooling and data sharing, a precondition for wider availability of data across the economy and society.

Under the DIGITAL Europe Work Programme 2021-2022 (see [R7]), the basis was laid for the development of 12 Data Spaces in line with the European data strategy.

The work on the Data Spaces is accompanied by a review of the policy and legislative framework for data access and use, with the Data Governance Act and a proposal for a Data Act adopted on 23 February 2022, as well as the Implementing Act on High-value datasets under the Open data directive adopted on 22 December 2022 (see [R8]).

To ensure the continuation of the work, the DIGITAL Europe Programme will provide funding for:

- further development of individual Data Spaces,
- the development of the common platform for European open data, covering datasets from EU, national, local, regional and geo portals.

Most of the Common European Data Spaces follow a lifecycle approach, a sequence of stages that a Data Space initiative passes through during its lifetime. Each stage of the lifecycle has different needs and challenges:

#### Preparatory stage

In this phase, mostly Coordination and Support Actions are launched in which the potential for the Data Space is discovered by exploring the preconditions for the Data Space, the governance model, potential partners and stakeholders and possible use cases.

#### Implementation stage

During the Implementation stage, the “real” Data Space initiative starts. A sufficiently detailed project plan, milestones and resources (funding and other) are a precondition for a Data Space pilot. The roles of the organisations involved in the Data Space pilot and the value created for each role are also clearly identified.

#### Operational stage

Later, the operational stage of the lifecycle of a Data Space initiative starts when an initial tested implementation and governance framework of the Data Space exists, and the first Data Space use case becomes market-ready (with data flowing between Data Space members and use cases providing the intended value).

The Commission supports this lifecycle approach for a number of Common European Data Spaces by launching during the DIGITAL Europe Work programme 2021 a number of Coordination and Support Actions (CSAs) which are then followed by an implementation stage of the Data Space with simple or cascading grants.

Next to the Digital Europe Programme, other Union programmes also foresee funding (for example Connecting Europe Facilities and Horizon Europe).

Other Common European Data Spaces will be procured by the Commission (e.g. Cultural Heritage Data Space, Language Data Space, Public Procurement Data Space as part of public administration).

This lifetime approach demonstrates clearly that most of the following Common European Data Spaces do not have the authority to be called an established operational Data Space yet. The Data Spaces are still in a preparatory phase where communities are set up by funding initiatives initiated by the Commission. In several cases the maturity is rather low but preconditions for Data Spaces are set. Funding for the implementation phase in 2023 will stimulate the uptake, as well as the role of the private sector.

## 2.7 The 15 Common European Data Spaces

### 2.7.1 [European Health Data Space \(EHDS\)](#)

“The EHDS is essential for making progress in preventing, detecting and curing diseases from the perspective of patients as well as for informed, evidence-based decisions to improve the accessibility, effectiveness and sustainability of healthcare systems.” (cited from [R5]).

Distinction is made between the primary and secondary use of health data. Primary use of health data focuses on the individual level of a patient, using the original data. As far as the primary use of health data is concerned, the Commission continues to work with Member States to extend the geographical coverage of MyHealth@EU. Secondary use of health data is meant for research, innovation and policy making.

### 2.7.2 [Green Deal Data Space \(GDDS\)](#)

Green Deal (EGD) is the European Commission’s flagship plan to tackle climate change, launched December 2019. Via this plan, the EU aims to become the first resource-efficient and competitive economy with net zero emissions of greenhouse gases by 2050. Data and services will be critical to achieve this goal. The EGD requires investment in technologies and digital assets, which are critical enablers for attaining the sustainability goals of the EGD. However, implementation of the EGD vision also presents significant challenges due to the vast amounts of diverse and distributed data resources from many stakeholders, different sectors, application domains and governance schemes.

According to the EU data strategy, the Green Deal Data Space (GDDS) will be a common infrastructure that will allow industries, governments, and researchers to access high quality, interoperable data and related services and to give data holders and providers tools to manage, control and provide access to their data. The GDDS is expected to solve these problems of fragmentation and inconsistency by supporting sharing of data across silos and islands and flexible data processing, respecting the rights of data holders to make decisions about how their data is used, as well as more generally respecting the European values.

### 2.7.3 [Agricultural Data Space](#)

“The main objective is to develop a secure and trusted Data Space to enable the agriculture sector to transparently share and access data allowing for an increase in its economic and environmental performance. The space may also serve common good purposes. Furthermore, the Data Space is expected to facilitate the sharing, processing and analysis of production data, open data and possibly

other public data (e.g. soil data). Production data supplemented by publicly held data will present new opportunities for monitoring and optimising the use of natural resources and will contribute to achieve the objectives of the Green Deal and the Common Agricultural Policy” (cited from [R7] WP 2021-22).

#### [2.7.4 Data Space for Skills](#)

“The European skills Data Space will aim at sharing and accessing skills data for various purposes, from analytical and statistical purposes to policy development or reuse in innovative applications, as well as for providing easy, cross-border access to key datasets. Another goal is to reduce the mismatches of skills between education and training systems on the one hand and labour market needs on the other hand. Besides improving skills intelligence, this Data Space will deliver services to its users, with recommendations of learning opportunities to support their upskilling efforts, tailored to the information on their skills profiles.

On 25 October 2021, the Commission launched the European digital credentials for learning platform, thus enlarging the pool of data on which the European skills Data Space will be built. Through this platform, individuals can easily share their learning achievements in a secure digital environment, when applying for a job or for further studies and training. It also helps employers, education and training providers to quickly confirm if someone’s digital diplomas and certificates are genuine and accurate” (cited from [R5]).

#### [2.7.5 Mobility Data Space](#)

“The overall goal of the Common European Mobility Data Space is to accelerate the digital transformation of the European transport sector and to fully reap the benefits of data for the sector and for the society at large. As stated in the Smart and Sustainable Mobility Strategy, digitisation and enhanced use of data in all modes of transport (passenger and freight) are essential enablers for the transformation to safer, more efficient, accessible and sustainable mobility. The Mobility Data Space will facilitate access, pooling and sharing of data from existing and future transport and mobility databases.”

“The Common European Mobility Data Space will build upon existing EU and Member States’ legislation and infrastructures related to transport data. It should focus on promoting interoperability by contributing tools to support convergence on governance and infrastructure. Particular attention should be paid to enabling data sharing with linked sectors such as buildings, energy, environment or health, for example to fully leverage the benefits of e-mobility.” (cited from [R5]).

#### [2.7.6 Data Space for Manufacturing](#)

Some local ‘embryonic’ Data Spaces have emerged in the manufacturing sector in the last few years. These have brought together companies holding and using data to agree on what data to share as well as the rules for managing and controlling data sharing, and to convince their industrial software providers to support the agreed data formats and semantics.

There is a need for speed and scale to attract end users beyond the local ecosystems of embryonic Data Spaces, and for reaching a critical mass of manufacturing companies & technology providers by building on the embryonic Data Spaces and enlarging their uptake among end users and suppliers of

solutions (e.g. enterprise resource planning vendors for supply chain management, but also industrial data platform providers).

Several Member States have already started initiatives to support the deployment of Data Spaces for manufacturing (see [R5]).

#### [2.7.7 Language Data Space](#)

“Text, audio and video represent a large part of the data produced every day. Processing and extracting relevant information from this wealth of data requires the availability of more and more complex AI-based language services that need, in their turn, larger quantities of training data. Europe creates large quantities of multimodal language data every day. This data, in order to be used for developing AI services, needs to be aggregated and organised in a comprehensive data ecosystem, whilst taking into account European specificities such as the need to promote and support digital language equality.

The objective is to deploy a Language Data Space for the collection, creation, sharing and reuse of multimodal language data. This will support the deployment of large multimodal language models and a wide range of AI language technologies services to be offered through the AI platform” (cited from [R7], WP 2021-22).

#### [2.7.8 Data Space for Cultural Heritage](#)

“The Data Space for cultural heritage will build on the current Europeana platform, its robust data governance and model (such as the Europeana Data Model and the Publishing Framework) and will expand its functionalities, seizing new opportunities created by advanced technologies like 3D digitisation, cloud computing, crowd-sourcing, artificial intelligence and extended reality.”

“The creation of the Data Space for cultural heritage aims to:

1. strengthen infrastructures, with better services for data providers and aggregators,
2. support the creation and integration of high-value datasets of digital cultural content of any kind, size and nature. These will boost research, reuse and the development of innovative applications in the cultural and creative sectors as well as in other areas such as tourism, or education,
3. improve data (content and metadata) quality, access and reuse, enhance multilingualism and encourage the use of interoperable formats,
4. build capacity and skills on digital transformation,
5. further enlarge, coordinate and engage with the network of data partners (museums, galleries, libraries, archives, and other cultural institutions across Europe), accredited aggregators, and experts working in the field of digital cultural heritage,
6. develop standards for the provision of datasets, including the Europeana Data Model.”

(cited from [R5])

#### [2.7.9 Data Space for Media](#)

The main objective is to set up and deploy a secure and trusted Data Space to enable media organisations active in all media sub-sectors to cooperate by sharing and accessing data in a mutually

advantageous manner and in full compliance with the data protection legislation. By providing the means for enhanced data-based collaboration, the Data Space should open new opportunities for the media sector with a view to innovating, transforming and addressing existing and new challenges of the digital economy (such as regaining competitiveness in the face of online platforms).

#### [2.7.10 Data Space for Tourism](#)

Tourism is a major economic activity in the European Union with a wide-ranging impact on economic growth, employment, and social development. It can be a powerful tool in fighting economic decline and unemployment. Nevertheless, the tourism sector, one of the hardest hit by the pandemic, needs support to face sectoral challenges exacerbated by the recent developments.

A tourism Data Space will provide access to information to the ecosystem through its connection to other sectoral Data Spaces (e.g. cultural heritage), “with an impact on productivity, greening and sustainability, innovative business models and upskilling. It will provide the possibilities of aligning tourism offers to tourists' expectations, adapting service proposals to new tourist groups, predicting a large influx of tourists and thus planning resources more efficiently, and even creating new business opportunities” (cited from [R7] WP 2021-22).

#### [2.7.11 Financial Data Space](#)

Enhanced access to data and data sharing within the financial sector will encourage the financial sector to embrace data-driven innovation. This should lead to more innovative products for consumers and businesses. At the same time, the Commission is particularly vigilant about ensuring consumers remain in charge of their data. Therefore, compliance with data protection rules, in particular the GDPR regulation is a prerequisite for a financial sector driven by data.

The goals of the Financial Data Space are to stimulate innovation, market transparency and sustainable finance, as well as access to finance for European businesses and a more integrated market.

#### [2.7.12 Data Space for Public Administrations](#)

Public administrations are big producers and also users of data in different areas. The Data Spaces for public administrations will reflect this. Actions in this area will focus on public procurement data and other areas of public interest such as data use for improving law enforcement in the EU in line with EU law, including the principle of proportionality and data protection rules.

The goal of the Data Spaces for Public Administrations is to improve transparency and accountability of public spending and spending quality, as well as fighting corruption, both at EU and national level.

#### [2.7.13 Energy Data Space](#)

The Commission will take concrete steps to establish a Common European Energy Data Space for improving the access to, exchange of, and (re-)use of data. The goal is to broaden the availability of data, and to make smooth and transparent data exchanges possible for the benefit of different players and different use-cases throughout the entire value chain. They include: system operators, suppliers, aggregators, providers of storage and/or demand response services, energy service companies, building managers, financial institutions, consumers and prosumers, manufacturers of electric vehicles (EV), smart equipment and appliances (including SMEs), operators of charging points for



electric vehicles. The best use of already available data must be ensured, including data from smart metres, to serve the interests of consumers and the energy system as a whole. The actions will also enhance the interoperability of energy assets and services, facilitate the comparability of solutions, promote standardisation, enhance grids flexibility and responsiveness, and will ultimately contribute to the overall energy security and reliability of the energy system.

Existing initiatives in the field of energy data interoperability need to be connected so that they can be scaled up in order to strengthen the European market for energy, including innovative energy services based on data.

Interoperability between different platforms and initiatives is also necessary to create a European energy Data Space in which (decentralised) renewable energy sources can be managed and CO2 emissions from key sectors (e.g. transport, buildings) reduced. A data sharing infrastructure in the form of a set of agreements, protocols and a governance system that defines who shall or can share data, under what conditions and in what format, is therefore needed. Innovative applications and services call for common baseline requirements in compliance with data protection by design and by default. These should provide consumers and citizens with the tools to effectively exercise their rights in a digital energy market and continuously drive the energy sector to maintain the highest cybersecurity standards.

#### [2.7.14 Data Space for Smart Communities](#)

Time is critical in addressing the challenges of the twin digital and green transition. Cities and communities are ready for effective innovation, hence the need for the creation of a Data Space for smart communities as an enabler of the Green Deal goals and Sustainable Development goals.

The Data Space for Smart Communities is an overarching Data Space that will grow organically, building on different EU initiatives and data ecosystems, and strengthening the connection between repositories of data.

#### [2.7.15 European Open Science Cloud \(EOSC\)](#)

The ambition of the European Open Science Cloud, known as EOSC, is to develop a 'Web of FAIR Data and Services' for research in Europe. EOSC is conceived as a multi-disciplinary environment where researchers can publish, find and re-use data, tools and services, enabling them to better conduct their work.

EOSC builds on existing infrastructure and services supported by the European Commission, Member States and research communities. It brings these together in a federated 'system of systems' approach, adding value by aggregating content and enabling services to be used together.

This environment will operate under well-defined and trusted conditions to ensure trustworthiness and safeguard the public interest. Expectations of service providers and users will be made explicit to ensure appropriate behaviour.

EOSC is recognised by the Council of the European Union as the pilot action to deepen the new European Research Area (ERA). It is also recognised as the science, research and innovation Data



Space which will be fully articulated with the other sectoral Data Spaces defined in the European strategy for data.

### 3 The role of DSSC

As already mentioned, in 2020 the European Commission adopted a European strategy for data (see [R2]) which aims to create a single market for data that will ensure Europe’s global competitiveness and data sovereignty. Common European Data Spaces will ensure that more data becomes available for use in the economy, society and research, while keeping the companies and individuals who generate the data in control.

In the Data Strategy, different kinds of instruments have been announced to achieve these goals. One of the instruments to achieve these goals, is the establishment of the [Data Space Support Centre](#) (DSSC), which is a Coordination and Support Action. The DSSC is a project funded by the EU Commission under the DIGITAL Europe Programme (No 101083412, €14 million, duration 42 months: October 2022 - March 2026). The project is a collaboration of twelve partners (Research and Technology Organisations - RTOs, data-focused associations and companies) coordinated by [Fraunhofer](#).



Figure 1 – DSSC Consortium

The DSSC establishes and operates a Support Centre to operationalise the European Strategy for Data by fostering and coordinating the development of Common Data Spaces through the definition of requirements, technologies, processes, standards and tools to enable the public sector and European businesses to use and share data across sectors. It will carry out comparisons in regard to sectoral requirements for security and access procedures, while considering sector-specific standardisation activities, fully respecting EU values, and contributing to the digital advancement of the European economy and society.

The project will create appropriate conditions for building an open data ecosystem characterised by interoperability and mutual trust between all participants. The goal is to provide a blueprint for Data Spaces that comprises common building blocks for business, legal, operational, technical, and societal aspects. The blueprint continuously evolves with a user-centric (cooperative) approach, as the result of co-creation with the stakeholders. The existing and emerging Data Space initiatives and the potential implementers of the building blocks form the Community of Practice in the field of data sharing, and they create and adopt the blueprint and its building blocks.

To foster the adoption of common building blocks and standards for Data Spaces, the DSSC will provide **support activities** such as a **knowledge and resource sharing** web portal, a helpdesk, toolboxes, and active stakeholder engagement. It will also support the work of the envisaged Data

Innovation Board (see [R9], chapter VI) in view of enhancing the interoperability of data as well as data sharing services between different sectors and domains.

The DSSC project brings together associations and industry players, including SMEs, regulators, and digital innovation hubs, to foster the creation of Data Spaces. The [DSSC project consortium](#) includes the leading associations and knowledge centres in the domain of Data Spaces, with a broad membership, an extensive network, national hubs, open-source communities, and Data Space pioneers.

### The DSSC objectives

Overall Mission	Special Focus on Interoperability
<ul style="list-style-type: none"> <li>■ Create a <a href="#">network of stakeholders<sup>2</sup></a> and <a href="#">community of practice</a></li> <li>■ Provide tools to address <a href="#">organisational and technical</a> matters required for every Data Space</li> <li>■ This includes a <a href="#">blueprint, building blocks</a>, best practices, commons standards, reference implementations and identification of <a href="#">data governance models</a></li> <li>■ Provide <a href="#">support</a> and enable Data Spaces to focus on their domain-specific business challenges</li> <li>■ Enable Data Spaces to reach a higher flight lever faster: <a href="#">quick start</a> and an <a href="#">accelerated scale-up</a></li> </ul>	<ul style="list-style-type: none"> <li>■ Ensure that participants of one Data Space can also <a href="#">participate in other</a> European Data Spaces</li> <li>■ Can only be achieved if Data Spaces conform to certain <a href="#">standards</a>, which will be part of the DSSC blueprint</li> </ul>
	General
	<ul style="list-style-type: none"> <li>■ Create <a href="#">economies of scale</a> and <a href="#">synergies</a> on a European level for development of Common European Data Spaces</li> </ul>

Table 1 - DSSC objectives, [summary slide by DG CNECT](#)

### Network of Stakeholders

The Data Space Support Centre (DSSC) has created three engagement mechanisms (Community of Practices - CoP, Strategic Stakeholder Forum - SSF and Collaborations and liaisons) which are intended to establish a broad Network of Stakeholders (NoS) including all relevant organisations and initiatives involved in the development of Data Spaces. This network is made up of a diverse range of groups and individuals.

Community of Practice (CoP): Group of people and organisations (Data Spaces initiatives and Building Block implementers) working together to develop and implement Data Space initiatives in various sectors, central to the co-creation of DSSC assets. They collaborate to create and use the blueprint and building blocks that make up Data Spaces.

<sup>2</sup> The main objective, essentially, is to support a Community of Practice in the field of data sharing, with a focus on EU-funded initiatives. Closely work with CSAs and projects funded under the DIGITAL Europe Programme.

- The CoP is currently comprised of 17 engaged initiatives from 11 sectors<sup>3</sup>, including preparatory and deployment actions funded by DIGITAL & H2020 (source of 07 June 2023, presented by DSSC in a webinar on 7 June 2023).

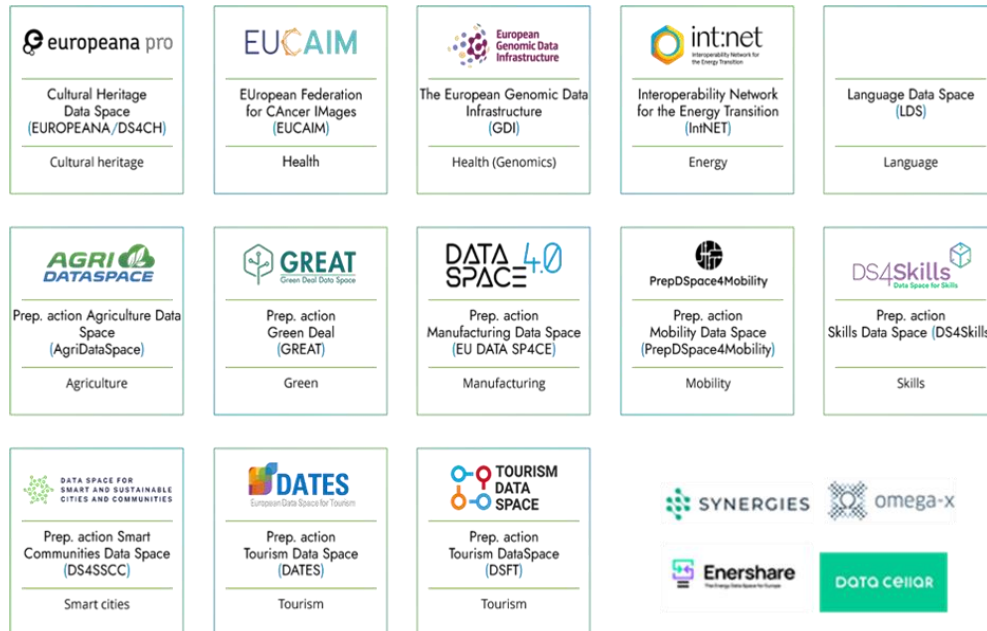


Figure 2 – Members of DSSC Community of Practice (status June 2023)

In the future the ambition is to grow this network further by adding new Data Space initiatives that are going to be funded and thus are going to emerge.

Strategic Stakeholder Forum (SSF): The DSSC Strategic Stakeholder Forum (SSF), also referred to as the Strategic Stakeholder Group, is a group of key organisations very active in the Data Space landscape in Europe (sectoral and cross-sectoral). It is considered “a think-and-do-tank that supports the DSSC in delivering on policy objectives. Together with the rest of the DSSC consortium partners, the SSF makes recommendations on the governance of the Support Centre’s assets, its evolution, and its sustainability. The SSF has both an active and advisory/strategic role at the DSSC” (cited from the DSSC website, page [“Strategic Stakeholder Forum”](#)).

- The SSF is currently comprised of 22 members coming from: National and Regional Initiatives that enable Data Spaces, Industry (Large, SMEs, Industry Associations) & Start-ups, Investors, Research Institutions, International initiatives, Experts on specific fields (e.g (Cyber-)security, AI,...), Representatives from EC, National/Regional/City Governments or from the Civic Society, Members of the CoP that decide to join the SSF or from the former Support Centre for Data sharing, and relevant initiatives to align with including EU funded initiatives projects.

<sup>3</sup> The 11 sectors are: Agriculture, Cultural Heritage, Energy, Green Deal, Health, Language, Manufacturing, Mobility, Skills, Smart Communities and Tourism.

### D3.1 – Technical Collaboration with other European Partnerships and relevant initiatives



Figure 3 – Members of DSSC Strategic Stakeholder Forum

Collaborations and liaisons: DSSC engages and collaborates with other relevant initiatives and stakeholders that are important to the development of Data Spaces. These types of liaisons and collaborations aim to align goals, share knowledge with the DSSC and Data Space initiatives and inform the requirements gathering process for the DSSC.

“In the first stage, the DSSC will focus on engaging with European initiatives and programs, including relevant data initiatives, research and innovation projects contributing to Data Spaces, AI, cloud-to-edge, HPC initiatives, EDIHs, and skills initiatives under the Digital Europe Program.

The second stage will see the DSSC expanding its network to include standardisation bodies, policy makers, national initiatives, multi-country projects, international initiatives, and other relevant initiatives beyond the Data Execution Prevention” (cited from the DSSC website, page “[Collaborations and liaisons](#)”).

As the DSSC evolves, it will continue to work more deeply with all of these initiatives and expand its network.

The purpose of the engagement is not just to obtain information, but to involve organisations in the design of the assets the DSSC is developing. It is intended that all products the DSSC is delivering as part of this project will be designed in conjunction with these initiatives so that it can ensure that users are satisfied with the product and that the product meets their expectations.

## Main assets being developed by the DSSC<sup>4</sup>

DSSC Asset	Description	Version	Publication on DSSC Website
DSSC <a href="#">glossary</a>	Limited set of Data Spaces related terms, where each term has a criterion to determine whether or not something is an instance/example of the concept to which the term refers.	1.0	22/03/2023
		2.0	30/09/2023
<a href="#">Starter Kit</a>	A short guidance document to create a Data Space by providing a multifaceted view about business, legal, governance and technical aspects and pointing out to the DSSC assets available for addressing all of them.	1.0	22/03/2023
		1.5	27/10/2023
		2.0	March 2024
Annual Conference	Annual event organised by the DSSC to promote and present the DSSC assets in particular and the Data Spaces movement in general.	1.0	22/03/2023
		2.0	March 2024
Network of Stakeholders	Group of parties relevant to the development of Data Spaces and with whom the DSSC proactively engages in achieving its purpose and objectives. It includes the CoP as main targeted subgroup	1.0	22/03/2023
		2.0	March 2024
Data Spaces Support Platform	Single point of truth about Data Spaces which opens and activates a place to host, grow and curate discussions related to Data Spaces for all the actors of the data economy and where they can access a knowledge base including the DSSC assets.	0.5	30/06/2023 (New Website)
		1.0	30/09/2023
Conceptual Model	A consistent, coherent and comprehensive description of the concepts and their relationships that can be used to unambiguously explain what Data Spaces and Data Space initiatives are about. The conceptual model offers a starting point for defining the governance models for Data Space initiatives.	1.0	30/09/2023
Blueprint	A consistent, coherent and comprehensive set of guidelines to support the implementation, deployment and maintenance of Data Spaces. The blueprint contains the conceptual model of Data Space, Data Space building blocks, and recommended selection of standards, specifications and reference implementations identified in the Data Spaces technology landscape.	0.5	30/09/2023

<sup>4</sup> DSSC Delivery Plan - Summary of assets publication. Available at: <https://dssc.eu/space/DDP/117211137/DSSC+Delivery+Plan+-+Summary+of+assets+publication>

DSSC Asset	Description	Version	Publication on DSSC Website
<b>Building Blocks</b>	Organised inventory of Data Space building blocks recommended by the DSSC, according to a taxonomy which covers all the Data Spaces aspects.	1.0	30/09/2023
<b>Collection of Standards and Technologies Landscape</b>	A curated collection of candidate standards (de facto and de jure), specifications and open-source reference implementations available for deploying Data Spaces.	1.0	30/09/2023
<b>Data Spaces Taxonomy</b>	A classification scheme used to describe, analyse and organise Data Space initiatives according to a defined set of characteristics. It will be visualised through the DSSC Radar.	1.0	23/12/2023
<b>Maturity Model</b>	A set of indicators and a self-assessment tool (including a survey and the analysis of the data collected) allowing Data Space initiatives to understand their stage of development and their capabilities in absolute terms and in relation to peers. It will be visualised through the DSSC Radar.	1.0	23/12/2023
<b>Radar/Inventory</b>	A web-based tool to provide an overview of the Data Space initiatives, their sectors, locations and approximate lifecycle stages ranging from Data Spaces in an exploratory stage to fully operational and scalable Data Space solutions.	1.0	23/12/2023

Table 2 - Main DSSC assets under development, taken from the [DSSC website](#)

## 4 Technical framework for the DS: the common middleware Simpl

Each sectoral Data Space will have its own technical specifications. Nevertheless, the EC suggested using a common middleware for interconnecting the different technical building blocks from each Data Space to guarantee an optimal interoperability and to reduce duplication of effort and cost of development. The smart middleware, called “Simpl”, will enable cloud-to-edge federations and support all major data initiatives funded by the European Commission, such as the Common European Data Spaces.

Simpl will be anchored to specific use cases, covering a broad range of cases from sectoral Data Spaces (e.g., Agriculture, Genomics, Energy, Mobility) to Destination Earth, and from AI-on-demand to the EOSC. Simpl will ensure that data sets and their infrastructures can be seamlessly interconnected and made interoperable.

Simpl will be open source, allowing insights into all parts of the architecture (without any proprietary claims), and simple deployment will be green, scalable and elastic, by allowing a monitoring of its environmental performance and the addition of new users without affecting performance. Simpl will be secure and interoperable, where trust, confidence and compliance with regulations are built into the system. This implies an effortless sharing of resources between participants, regardless of their data processing environment. It creates an abstraction layer that enables data to flow across multiple providers and Member States.

Simpl will be smart and modular, to allow the replacement or addition of components without affecting the rest of the system, something that the EC hopes to continue developing over time. The smart middleware will utilise existing building blocks as much as possible and serve as an enabling layer for the interconnection of the various Data Spaces, public authority cloud resources, Artificial Intelligence ecosystems etc., by providing the required interoperability mechanisms.

Among the building blocks to be re-used will be, where appropriate, those deployed under the Common Services Platform and other relevant solutions developed through EU-funded projects (e.g. other Digital Service Infrastructures developed under past and current Connecting Europe Facility programme). This set of building blocks, relevant solutions and specifications (e.g. interoperability specifications, standards and solutions, federated security and trust management etc.), will form a common technical baseline to be exploited by the Common European Data Spaces to enable seamless data flows, streamlined service orchestration and data integration.

The identification of technical components will take into account and encompass the relevant developments on common services stemming from the work of the Data Space Support Centre, once available (e.g. technical elements related to data and semantic interoperability, data and transactions’ brokerage etc.).

The middleware is funded through the DIGITAL Europe work programme. The main infrastructure is tendered by the EC with a call for tender on the 24 February 2023. This procurement is worth 65 million Euro and has an indicative duration of 3 years. At the time of writing, the tender was not yet awarded. Another funding for the continuation of the procurement is foreseen in the work programme 2023-2024.



The European Commission will be the contracting authority for this procurement and be the main operator of some public sector-specific Data Spaces. Most of the Common European Data Spaces will be (co-funded) by the EC and will have to align with Simpl.

The EC envisages the following high-level roadmap for the implementation of Simpl:

- A Minimum Viable Platform released by the beginning of 2024.
- In parallel and starting as early as possible in 2024, the open testing environment (Simpl-Labs) will be made available for stakeholders to experiment with.
- The EC will progressively on-board and integrate use cases, helping them to adjust Simpl to their specific needs (without compromising its generic nature). Use cases otherwise funded under the DIGITAL Europe Work Programme will take priority (see next).
- As an open-source project, further developments will be conducted in an open manner, listening to user needs and welcoming external contributions. The roadmap foresees major new releases every 6 months.

The overview of Simpl is mainly based on the information on the EC [News Article on Simpl](#) from 27 April 2022. For more in-depth information on Simpl see the EC news article "[Simpl: cloud-to-edge federations and Data Spaces made simple](#)", the [eTendering](#) website concerning the Simpl Procurement, the DIGITAL Europe Work Programmes 2021-2022 and 2023-2024 (see [R7]), and the slides and recording of the [Simpl session at the EOOSC Symposium 2023](#).

## 5 Legislative Framework

Data Spaces are forming in a complex regulatory web. Numerous legislative and regulatory acts and policies are of relevance. This section provides a short, non-exhaustive summary of European-level policies and regulations which may affect the Common European Data Spaces. Member state laws, local regulation (e.g. city or regional level) and sector-specific laws and regulation are also relevant, although not elaborated further here.

### 5.1 Underpinning policies

Several EC policies can be said to underpin policy relating to Data Spaces, of which two in particular are described here.

#### The Digital Decade policy programme

A Europe Fit for a Digital Age is one of the [European Commission's six priorities for the period 2019-2024](#). This policy priority aims to secure a sustainable digital future and a technological development based on fundamental rights. The goals set to achieve this include:

- protecting people and entities from cyber threats,
- ensuring that artificial intelligence is developed in ways that respect people's rights and earn their trust,
- facilitating the growth of start-ups and small businesses,
- strengthening the responsibility of online platforms and clarifying the rules for online services,
- ensuring fair competition of all companies in Europe,
- enabling access to data and giving citizens control over their data.

To achieve its policy priority, the EC announced the [Digital Decade policy programme](#) which sets concrete targets and objectives for 2030, to guide Europe's digital transformation.

#### The European strategy for data

The February 2020 EC Communication A European strategy for data (see [R2]) aims at creating a single market for data that will ensure Europe's global competitiveness and data sovereignty. To further ensure the EU's leadership in the global data economy, the European strategy for data aims to (cited from the EC website "[A European Strategy for Data](#)"):

- "adopt legislative measures on data governance, access and reuse. For example, for business-to-government data sharing for the public interest,
- make data more widely available by opening up high-value publicly held datasets across the EU and allowing their reuse for free,
- invest €2 billion in a European High Impact Project to develop data processing infrastructures, data sharing tools, architectures and governance mechanisms for thriving data sharing and to federate energy-efficient and trustworthy cloud infrastructures and related services,

- enable access to secure, fair and competitive cloud services by facilitating the set-up of a procurement marketplace for data processing services and creating clarity about the applicable regulatory framework on cloud framework of rules on cloud”.
- Legal Frameworks

Several European legislative frameworks are relevant to the Common European Data Spaces. The principles of contract law, competition law and intellectual property rights legislation all apply. In the area of cybersecurity, the December 2022 NIS2 directive (see [R11]) updating the original Network and Information Security Directive, and supported by the proposed [Cyber Resilience Act](#) (see also [R10]) to strengthen protection and resilience against cyber threats, are both of relevance. Also of relevance is platform regulation in the form of the EU’s Digital Services Act (see [R12]) and Digital Markets Act (see [R13]) package, adopted in the autumn of 2022 to regulate online platforms with the aims of protecting the fundamental rights of users of digital services and ensuring fair competition in Europe. The Digital Services Act is mainly concerned with online intermediaries and platforms, such as online marketplaces, social networks, content-sharing platforms, app stores and online platforms such as for travel and accommodation. The Digital Markets Act proposes rules to govern gatekeeper online platforms which act as bottlenecks between businesses and consumers for important digital services (see also “[The Digital Services Act package](#)”).

## Data Regulation

Of more specific relevance to Data Spaces is regulation relating to data. The established body of legislation includes regulation of use of personal data in the form of the EU’s General Data Protection Regulation (GDPR) adopted in 2016 (see [R14]), and the 2002 ePrivacy Directive (see [R15]). Non-personal data is regulated by the 2018 Regulation on A Framework for the Free Flow of Non-Personal Data (see [R16]), the 2019 Open Data Directive (see [R17]) which encourages EU member states to promote the reuse of data in the public sector, and the December 2022 Implementing Act on High-Value Datasets (see [R8]) which lists specific high-value datasets and aims to increase their exploitation.

The EC proposed a [comprehensive legal framework for Artificial Intelligence](#) (see also [R18]) in April 2021, from which the AI Act is at an advanced stage of the EU’s legislative process, with the goal of ensuring that artificial intelligence is developed in ways that respect rights. The framework also contains a proposed AI Liability Directive. The 2022 EU Data Governance Act (see [R9]) and the very recently adopted [Data Act](#) focus on data sharing and aim to create a fair and innovative data economy, enabling start-ups and small businesses to grow, and individuals to have control over their data.

## 5.2 Domain-Specific Regulation

The legislations and policies summarised above may all be regarded as “horizontal” in that they apply to Data Spaces in general. The first domain-specific regulation to be proposed by the EC is the 2022 proposal for an EU regulation to set up the European Health Data Space (see [R19]), which addresses health-specific challenges to electronic data access and sharing. The proposal builds on many of the regulations mentioned above. In particular it aims to provide a framework for the secondary use of electronic health data, complementing the Data Governance Act and the Data Act to provide specific rules covering the exchange of electronic health data.

### 5.3 Legal Entities

The Digital Decade Policy Programme mentioned above introduced the concept of [Multi-Country Projects](#) (MCPs), large-scale projects supporting the digital transformation of the Union and the achievement of the Digital Decade objectives and targets. MCPs aim to pool investments from the EU budget, member states and the private sector, building on the [Recovery and Resilience Facility](#) and other EU funding, to achieve progress that no single entity could do on its own.

A new legal instrument, the European Digital Infrastructure Consortium (EDIC) (see [R20]) has been created to help speed up and simplify the setup and implementation of MCPs. An EDIC’s members must include at least three EU member states, and member states must hold the majority of the voting rights in the members’ assembly of an EDIC, but other entities can also be members, including third countries, international organisations, and public or private entities. Several EDICs have already been set up and a number of others are in preparation (see for example “Digital Assembly 2023”). The Digital Decade Policy Programme Committee is consulted before an EDIC is formally set up (see the EC website “[European Digital Infrastructure Consortium \(EDIC\)](#)” for more details). Figure 4 provides a summary of some of the key characteristics of EDICs compared to other EU legal instruments.

#### Added value of European Digital Infrastructure Consortium (EDIC)

MCP Implementation Format	Legal personality (mandatory)	Rapid set up	Outside the research realm	Membership: MS participation is mandatory	Membership: Flexibility (MS can join later)	Membership: Other entities than MS allowed (companies or intl organisations)	Governance: Voting rights proportionate to financial contributions of all entities	Financial liability: Limited to respective contributions of members	State Aid Rules: Assumption of Conformity	Exemptions from VAT and excise duty	Statutory Seat in one MS
Joint Undertaking (JU)	X	-	-	-	X	X	-(8)	X(9)	X	X	N/A
European Research Infrastructure Consortium (ERIC)	X	X	-	X(5)	X	-	X(7)	X	X	X	X(6)
Through Union's agencies	N/A	-	X	N/A	N/A	N/A	N/A	N/A	X	X	N/A
Important Projects of Common European Interest (IPCEI)	-	-	X	X (Min. 2, after rev. will be 4)	-	X(10)	-	-	X(4)	-	-
European Digital Infrastructure Consortium (EDIC)	X	X	X	X (Min. 3)	X	X(1)	X(2)	X(3)	X(11)	X	X



Figure 4 – Key characteristics of selected EU legal instruments (Source: European Commission)

## 6 EOSC and the Data Spaces

EOSC and the Common European Data Spaces are not two completely separate initiatives. On the contrary, they are interlinked with each other with many relations and collaborations between EOSC and the Data Spaces on different levels.

### 6.1 EOSC itself is a Data Space

In the European Data Strategy (see [R2]) EOSC was already recognised as a Data Space:

“In addition to the creation of nine Common European Data Spaces, work will continue on the European Open Science Cloud, which provides seamless access and reliable re-use of research data to European researchers, innovators, companies and citizens through a trusted and open distributed data environment and related services. **The European Open Science Cloud is therefore the basis for a science, research and innovation Data Space that will bring together data resulting from research and deployment programmes and will be connected and fully articulated with the sectoral Data Spaces.**”

This is also supported by a statement published by RTD (Open Science unit A.4) in December 2022 with the title: “[EOSC: the Transverse European Data Space for Science, Research and Innovation](#)”. This statement was prepared for the EOSC Tripartite Governance<sup>5</sup> Event 2022 in Prague, Czechia, on 15 November 2022, based on a reflection on the main disruptive concepts and practices connected to the construction and future operation of the EOSC. The reflection was initiated in 2022 by the EOSC Steering Board expert group (EOSC-SB) and resulted in the aforementioned statement.

In this document, it is stated that “the EOSC Steering Board collectively recognises EOSC as the overarching transverse European Data Space for research. EOSC shall be implemented as orthogonal and supplementary to the thematic European Data Spaces, which in turn should capitalise on expertise and solutions developed in the context of EOSC.”

Depending on the viewpoint of the author, EOSC is shown either as a horizontal Data Space, a transversal one, being the connector for the research data of the different sectoral (=vertical) Data Spaces:

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<sup>5</sup> The [EOSC tripartite collaboration](#) is a concept of strategic coordination between the EU represented by the European Commission, the participating countries represented in the [EOSC Steering Board](#), and the research community represented by the [EOSC Association](#) to resource and support the implementation of the EOSC ecosystem in Europe.

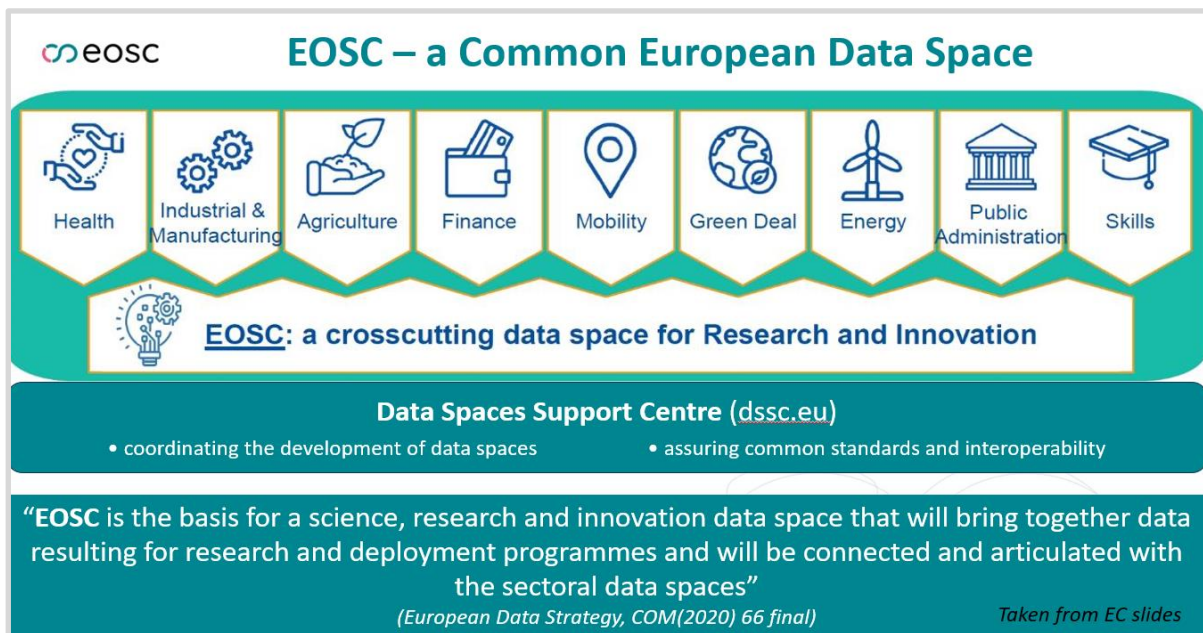


Figure 5 – A view on Common European Data Spaces (slide from the EC, used in different presentations)

or as a vertical Data Space, placed next to the sectoral Common European Data Spaces:

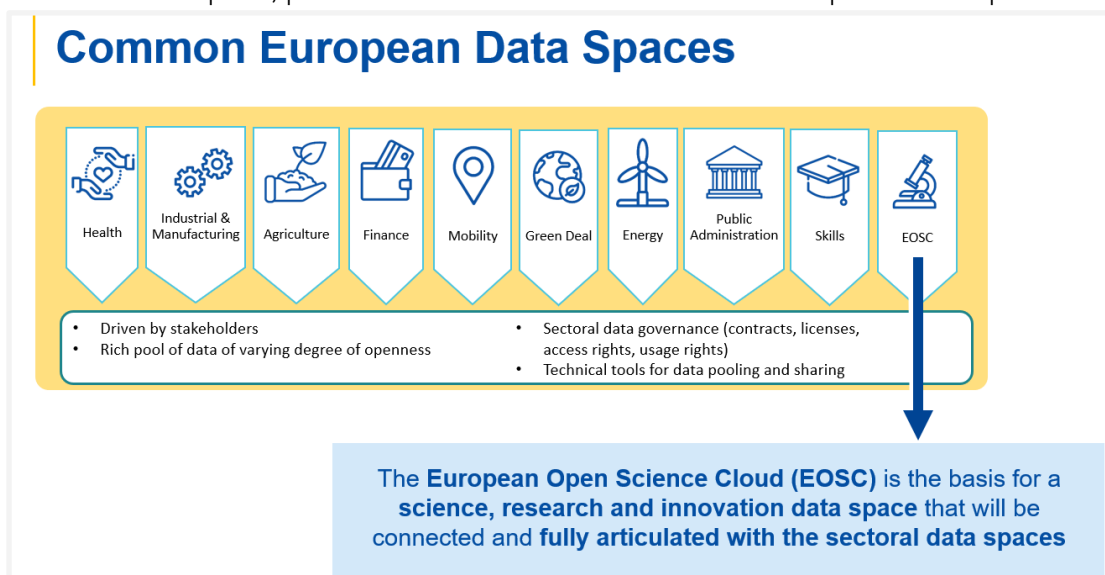


Figure 6 - Another view on Common European Data Spaces (slide from the EC, used in different presentations)

One can find reasoning for both views (transversal vs. vertical), or it could also be a combination of both. This report does not aim to take a position for one or the other. The most important is the fact that EOSC is recognised as a Data Space for research data and related services.

Remark: the diligent reader might notice that the two figures with the Common European Data Spaces contain only the initially nine targeted sectoral Data Spaces plus the EOSC, but not yet the other Common European Data Spaces which have started to be formed and also funded in the meantime. The two EC slides are based on the initial list of Common European Data Spaces that was described in the “European Strategy for Data” from 2020 (see [R2]). This shows the rapid evolution in the world of Data Spaces.



## 6.2 Collaboration between the EOSC Association and the Data Spaces Support Center (DSSC)

The landscape of Data Spaces is changing very fast: new initiatives emerge, and new collaborations arise. This is for sure true for the commercial Data Spaces, but also the world of the Common European Data Spaces on which we are focussing in this report, is changing quickly. Funded by the European Commission via the DIGITAL Europe work programme, initiatives started for most of the European Common Data Spaces either as exploratory coordination and support actions or as (technical) pilots via procurement.

As already mentioned, alongside the Data Spaces themselves, a Coordination and Support Action “Data Spaces Support Center (DSSC)” was also launched by the DIGITAL Europe work programme (for more details see [chapter 3](#)). As we have seen, the goal of the Data Spaces Support Centre is to facilitate Common European Data Spaces in different sectors, to collectively create an interoperable data sharing environment:

### Data Spaces and Infrastructure in DIGITAL

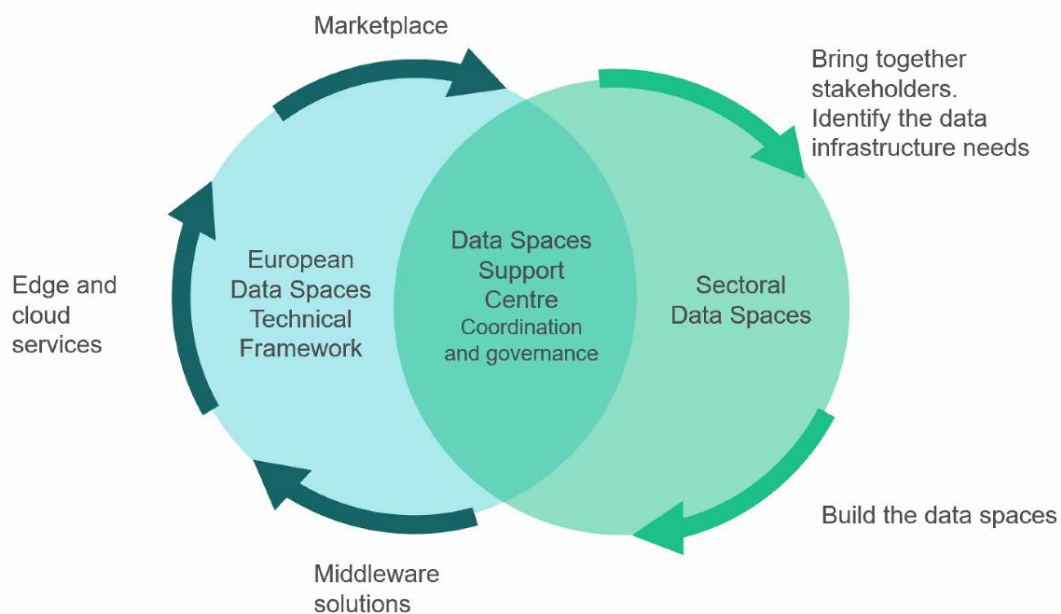


Figure 7 - Data Spaces and Infrastructure in the DIGITAL Europe Programme

Since the DSSC dedicated coordination action launched by the EC provides an excellent platform for collaboration and exchange of experiences with regard to Data Spaces, it was decided that it was a priority for the EOSC Partnership to start a collaboration with the DSSC. EOSC Focus will support the EOSC Partnership, represented by [EOSC-A](#), in this collaboration. The collaboration between EOSC-A and DSSC is reflected on three different levels:

### 6.2.1 EOOSC as a DS: part of the DSSC community

Since EOOSC is also seen as one of the Data Spaces, representatives from the EOOSC Focus project and EOOSC-A contribute to the three thematic groups that DSSC put in place in order to follow up developments, and to find synergies and ways to strengthen forces:

- “Technology of Data Spaces”: This thematic group aims at sharing and co-creating knowledge about technological aspects of a Data Space, including topics like blueprint, building blocks, standards, and inventories.
- “Governance of Data Spaces”: This thematic group aims at sharing and co-creating knowledge about governance aspects of a Data Space.
- “Business of Data Spaces”: This thematic group aims at sharing and co-creating knowledge about business aspects of a Data Space.”

### 6.2.2 EOOSC and DS: joining forces & learning from each other

#### EOOSC & DSSC joint webinars

DSSC and EOOSC-A, supported by EOOSC Focus, organise together a series of webinars for the two communities with the goal that each community learns more from the other, to find synergies between EOOSC & DSSC/DS initiatives and to discover ways to work together.

To set up these joint webinars, first the EOOSC Task Forces (= the EOOSC research community) and the EOOSC-related projects were asked to suggest topics of interest to be discussed during the joint webinars (April 2023). This resulted in a preliminary list of topics from the EOOSC side:

#### **Topics for Joint Online Workshops with DSSC**

##### **EOOSC Association proposal**

(input collected via consultation with all the EOOSC projects and EOOSC A Task Forces)

- EOOSC & DSSC introductory webinar
- Data – Metadata and Cross-Domain Interoperability in EOOSC and Data Spaces: current ideas and potential synergies for future work
- EOOSC initiatives for Health and the EHDS
- EOOSC initiatives for Green Deal and the Green Deal Data Space
- Governance and national coordination in EOOSC and Data Spaces: differences and commonalities
- Maximising the value of data for innovation: challenges and opportunities
- EOOSC Procurement & SIMPL procurement (later in 2023)
- FAIR implementation: is FAIR in scope for the Data Spaces?
- Skills in EOOSC and Data Spaces: what skills and capabilities do we need to build? (let’s consider the EU year of skills)
- Data preservation: EOOSC and Data Space perspectives

15 June 2023 by EOOSC-A

Figure 8 - Topics for joint online workshop EOOSC A with DSSC

This preliminary list was afterwards discussed with DSSC. It turns out that the Data Space community is interested in most of the topics that were suggested by the EOOSC community. Only the last one on data preservation seems to find less interested candidates from the DS community. However, data



preservation is a hot topic for EOSC, and we truly believe that it will also be of importance for the Data Spaces in the long run.

The first introductory webinar “[EOSC and Data Spaces](#)” took place on 26/6/2023. During this webinar, several key topics were addressed to help the communities to gain a comprehensive understanding of these initiatives:

- Missions and expected outcomes: Discover the objectives and goals of EOSC and the Data Spaces initiative, and understand their potential impact.
- Main stakeholders involved: Learn about the key players and organisations actively participating in these initiatives and contributing to their success.
- Organization of the communities: Explore how the two communities, EOSC and the Data Spaces, are structured and how they collaborate to achieve their respective missions.
- Engagement opportunities: Find out how you can get involved and actively contribute to EOSC and the Data Spaces, fostering collaboration and innovation.
- State of the art developments: Gain insights into the latest advancements and progress made within the field, ensuring you stay up-to-date with the current landscape.

With about 140 subscriptions from the different communities, insightful presentations and questions from the interested audience, it was a successful first introductory session. A word cloud that was generated at the end of the session, revealed what the community expects from the collaboration between EOSC and the other Data Spaces:



Figure 9 - Word cloud, result of joint workshop EOSC A with DSSC

Further webinars will be set up, starting in the autumn of 2023. Although the cut-off date for this document is 1/7/2023, we add here below the next two joint sessions that took place in the meanwhile:

### Joint session at the EOSC Symposium 2023

During the EOSC Symposium 2023 in Madrid, on 22/9/2023, [a joint session of EOSC and DSSC](#) was organised. In this session, the world of the Data Spaces describing what is the value of Data Spaces and explaining the different opportunities for engagement was further explored. The introductory presentation on the “Value of the Data Spaces” set the scene for a panel with representatives from the EOSC and Data Spaces communities discussing the value and the role of research data in the Data Space ecosystem.

### Joint session at the EBDVF (European Big Data Value Forum) 2023

The third joint session “[Maximizing the value of research data for data spaces](#)” was organised on 27/10/2023 during the EBDVF 2023. The purpose of this session was to offer continuity to the dialogue initiated during the first two joint sessions and to highlight the value and the role that research data can play in Data Spaces. This time however, the focus is on bringing the discussion closer to the Data Spaces community.

### Collaboration between EOSC and DSSC on a strategic level

The Secretary General of the EOSC-A and one member of the EOSC-A Board represent EOSC-A in the DSSC Strategic Stakeholder Forum (SSF). It is a think-and-do-tank that supports the DSSC in delivering on policy objectives. Together with the rest of the DSSC consortium partners, the SSF makes recommendations on the governance of the Support Centre’s assets, its evolution, and its sustainability. In addition, ad hoc regular meetings are taking place between the EOSC-A and the DSSC to work on a joint roadmap for the two initiatives.

## 6.3 Further activities to explore & align with Data Spaces from the EOSC side

### Data Spaces in the Strategic research and innovation agenda (SRIA) of EOSC

The goal of the SRIA of EOSC is to define the general framework for future strategic research, development and innovation activities for EOSC. It creates the basis on which the European Commission relies for future calls with regard to open science developments. The SRIA is the result of the collaboration of many stakeholders: researchers, service providers, infrastructure operators, funders, European and national policy makers, the EC and last but not least EOSC-A with its huge number of members (many of them mandated organisations).

The current [SRIA 1.1](#) recognises that the EOSC ecosystem can be seen as part of the developments relevant for making ‘Europe fit for the digital age’. Furthermore, it is stated that “the work conducted within EOSC to enable interoperability across research domains and data discovery to support multi-disciplinary reuse is critical to supporting collaboration with the **Data Spaces** envisaged by the European strategy for data.[...] Strong links with research domains will naturally foster opportunities for collaboration with the **Data Spaces**.”

## DS at the EOSC Symposium

During the yearly EOSC Symposium, some sessions are reserved to Data Spaces. The following sessions with regard to Data Spaces were or will be organised:

### **EOSC Symposium 2022**

- Data spaces: architecture, business models and supporting initiatives

### **EOSC Symposium 2023**

- **Session on the Data Spaces** (joint session by EOSC & DSSC)  
For further details see above
- **Session on Simpl and the Data Spaces**  
Simpl is the smart middleware that will enable cloud-to-edge federations and support all major data initiatives funded by the European Commission, such as Common European Data Spaces. The European Commission (DG CNECT) will provide the community with a presentation of Simple, its role in the Data Spaces and beyond.
- **Session about the data landscape** with topics around the vertical Data Spaces and engagement of the EOSC Community in these Data Spaces

## Active collaboration of the EOSC community in DS related projects

Many members of EOSC-A are actively involved in one or more projects that are (co-)funded by the EC to further advance the development of the Common European Data Spaces. These projects are currently mostly CSAs or procurement actions. At least 5 mandated organisations and more than 20 members of the EOSC-A are involved in these projects related to the Common European Data Spaces. The closest collaboration can be seen in the two projects related to EC DG HEALTH: the European Cancer Imaging Initiative “EUCAIM” and the [Genomic Data Infrastructure](#) which are key components for the future Common European Health Data Space. Some of the Common European Data Spaces, such as the EHDS, have an explicit research component in their structure and should be seen as the primary targets for interaction and collaboration with the EOSC.

## 7 Conclusions

As a general statement, and as a relevant part of the conclusions, as already stated in 6.1.: In the European Data Strategy (see [R2]), EOSC was already recognised as a Data Space: **“The European Open Science Cloud is therefore the basis for a science, research and innovation Data Space that will bring together data resulting from research and deployment programmes and will be connected and fully articulated with the sectoral Data Spaces.”**

Starting from this statement, it is worth to understand what could be a) the main advantages of the European Common Data Spaces for the development of the EOSC; b) what kind of major changes could be identified; c) what kind of synergies could be identified in linking Data Spaces to the development of EOSC.

### 7.1 Envisaged advantages of European Common Data Spaces

The Common European Data Spaces initiative is aimed at creating a framework for data sharing and access across different sectors and domains within the European Union. It is a sectoral initiative. It is designed to address the challenges of data fragmentation beyond one's own working environments and borders. It also addresses different existing data silos in a particular sector (e.g. "Health"), and the interests of industry are strongly represented - much more so than in the area of "Open Science". In the field of the Common European Data Spaces, there is an awareness of the barriers to data sharing, and the aim is to break down these barriers within the sector respectively to enable certain forms of interoperability with the other Data Spaces that are being established.

Here below are some major advantages of the Common European Data Spaces listed:

1. Cross-sector collaboration: One intention of the Common European Data Spaces is to facilitate collaboration and integration of data across various domains and sectors, breaking down data silos. This collaboration can lead to the development of new insights, solutions, and services that can benefit multiple industries and sectors simultaneously. The research environments (academic institutions) that have committed to trusted spaces of data, thus fostering Open Science and Open Access can also benefit from this approach to some extent (the extent is defined by the amount of trusted research data that is made available). However, this approach brings with it some complex challenges, especially at the *governance level*, which we will discuss in more detail later.
2. Enhanced data accessibility: In the course of this increased collaboration, enhanced data accessibility takes place within the original sector, and subsequently with other emerging sectors. This is good for the further development of the European Union, since this increased data accessibility can stimulate innovation, business development, knowledge exchange and research-oriented collaboration. The working approach is initially vertical.
3. Accelerated digital transformation: The creation of the Common European Data Spaces can serve as a catalyst for digital transformation by providing a standardised framework and infrastructure for data sharing. This can help organisations leverage data-driven technologies, such as artificial intelligence, machine learning, and big data analytics, to drive innovation and competitiveness. The big question is *how to effectively engage the backbone of the European economy*, namely small and medium-sized enterprises (SMEs), in this process of contribution of

data and further use of data from an economic perspective. Furthermore, digital transformation is also linked to e-infrastructures and skills development. In this context, we refer to the very successful models of skills development in the field of infrastructures and e-infrastructures, as they are realised outside the EU in Norway, especially through the work of the RCN (Research Council of Norway), and especially in the field of infrastructure programmes "INFRASTRUKTUR" ([National Financing Initiative for Research Infrastructure](#)).

4. Enable advanced data analysis and processing through (possible) data-driven decision making: Potentially, the Common European Data Spaces enable participating enterprises, institutions or initiatives to harness a broader range of data sources and types, allowing for more comprehensive and informed decision making. By integrating and analysing diverse datasets, decision-makers can gain deeper insights and make evidence-based decisions. This assumption has its importance mainly in large companies. The question is also how to embed SMEs in the process, especially in upgrading human resources (skills development). The same question must also be asked when *recognising expanded market opportunities*.
5. More opportunities for large and interconnected industrial processes: the possible use of more possibilities is of immense importance for the large and interconnected industrial processes, including to a large extent their supply chains. However, there are some sectors of the European economy that contribute very strongly and in the billions to the respective national GDP (the agri-food sector, the eco-tourism sector, the wine-production chain etc.) where, in turn, a very large number of SMEs are active. This cross-sector collaboration can foster the development of new products, services, and business models. By establishing a common framework for data sharing, Common European Data Spaces can enhance Europe's competitiveness on the global stage.
6. Improved efficiency and cost reduction: This is especially true for large industrial processes. Harmonising and standardising data sharing processes and protocols through the Common European Data Spaces can lead to greater efficiency and cost reduction at a later stage. Companies can save time and resources by accessing and using shared data rather than duplicating efforts to collect or capture similar data. Another step would be to subsequently involve research institutions in these processes of efficiency and cost reduction.
7. Data sovereignty and security: This is an overarching issue that affects the entire Data Spaces of the European Union, and we will address it later, both in the identified challenges related to policy, as well as to the overarching "unique Data Space". In any case, and without doubt, the Common European Data Spaces places great emphasis on data sovereignty and security. Data sharing within each framework should potentially be governed by strict privacy and security regulations, ensuring that enterprises, organisations and individuals – and scientific institutions - retain control over their data (offering access to them) and that the highest standards of data protection are maintained. This is also in the sense of the European Union, as we have already mentioned (see chapter [5 Legislative framework](#)), and now want to explain in more detail.
8. Regulatory alignment and compliance: the Common European Data Spaces promotes alignment with existing European Union regulations, such as the GDPR, ensuring that data sharing activities remain compliant with legal and ethical requirements. This alignment fosters

trust and confidence among data providers and users within the framework of the Common European Data Spaces.

While Europe has started working on the Common European Data Spaces initiative very quickly and it has significant potential for development, its implementation and further development require a long-term active involvement and cooperation of different stakeholders, including policy makers, businesses, researchers and citizens, who together contribute to shaping the common European data landscape. And this comes with challenges. Given the complexity and scale of Common European Data Spaces, it is crucial to *foster collaboration between the public and private sectors*. Both sectors bring unique strengths and resources to the table, and a collaborative approach can help leverage these resources effectively while ensuring accountability and fair representation.

## 7.2 Challenges related to governance and governance models of Data Spaces

1. Data integration and interoperability among Data Spaces: Data spaces often involve integrating data from different formats, systems, and platforms. Ensuring seamless interoperability and integration of data across (sectoral) systems can be a significant challenge. Transcultural borders might also represent a problem, specifically in training and skills development.
2. Data quality and reliability: Ensuring the accuracy, completeness, and reliability of the data within a Data Space is crucial. The challenge lies in producing many good-governance models, in order to maintain data quality and resolving inconsistencies that will certainly arise from different sources of data produced by different contributors, in a diverse environment of work.
3. Respect the timelines concerning data collection and aggregation: Gathering and aggregating data from various sources is a complex and time-consuming activity. Data spaces need to overcome the challenge of bringing together diverse data sets that can range from structured to unstructured data. Also, in this case skills development in life cycle issues and training are needed.
4. Trusted environments, data privacy and security: Sectoral Data Spaces often deal with sensitive and personal information. It is a critical challenge to put in place appropriate security measures in order to protect data privacy. This will be needed in order to safeguard against unauthorised access or breaches.
5. Regulatory and legal compliance: Sectoral Data Spaces may be subject to various regulatory and legal requirements, such as data protection laws, which should also be applied in transborder transactions. The regulations on personal data differ among countries and even regions. The research in sensitive data is endangered by a complex and strict international legal framework. Social and health studies are suffering from strict interpretations of the law that prevents from gathering data.
6. Data governance and ethics: Data spaces need to establish clear governance frameworks and ethical guidelines to address issues such as data ownership, accountability, and responsible data usage. Industrial collaborations with SMEs, as experienced in other collaborations concerning EOSC, like e.g. the COVID Portal of the EC, have so far shown that support in order to solve ethical issues is needed in different sectors.



7. Stakeholder collaboration and coordination: Data spaces often involve multiple stakeholders, including data providers, users, and regulators. Ensuring effective collaboration, coordination, and alignment of interests can be a challenge, especially when dealing with diverse stakeholders with varying needs and objectives. This has an impact on sustainable development, scalability issues and data analytics (see also: [Linking Data Spaces to the development of the European Open Science Cloud \(EOSC\)](#)).
8. Sustainable development and issues related to cost and resource management: Building and maintaining Data Spaces need a proper and dedicated e-infrastructures environment. The maintenance is resource-intensive, requiring significant investments in infrastructure, service development, and skills development (human resources). Managing costs and allocating resources effectively can be a challenge, especially for organisations with limited resources.
9. Scalability: Increased interaction among sectoral Data Spaces can theoretically lead to a significant enrichment of metadata. It may also be possible that data is replicated multiple times and through their use. These duplications lead to possible challenges in their management. Therefore, these considerations should be taken into account in the possible scaling of the systems, especially when it comes to securing trusted environments.

### 7.3 EOSC as a Data Space

In contrast to the sectorally conceived Data Spaces, the EOSC is mainly linked to the world of researchers (including more than 800 universities and more than 1.8 million researchers and more than 500,000 experts involved in research support) and one of its main objectives is to "build a Web of FAIR data and services".<sup>6</sup>

EOSC covers research data for all disciplines, without a primary profit orientation in the monetary sense. This can be a significant difference when compared to some Data Spaces.

Another, equally important element is the different ways in which the factor "time" is measured. While time is sometimes not considered the most important resource in research (e.g. in the humanities or in basic and integrative science disciplines, sociology or mathematics), the importance of time is crucial in business (e.g. in industrial or production areas). These differences in time management result from the different business models that exist in the two sectors, since naturally, the business sector sometimes has to react more quickly than the science sector. These different perceptions of time have an impact on the way data is handled and how it is used.

An important point of contact with the sectoral Data Spaces results from the fact that research data can also be found in the sectoral Data Spaces, which originate from research processes or are of importance in research in other Data Spaces.

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<sup>6</sup> Budroni, Paolo, Claude-Burgelman, Jean and Schouppe, Michel. "Architectures of Knowledge: The European Open Science Cloud" *ABI Technik*, vol. 39, no. 2, 2019, pp. 130-141. <https://doi.org/10.1515/abitech-2019-2006>

EOSC is not a Data Space which is conceived in a vertical way. It is covering more than one sector, The impact exerted by EOSC may affect all other Data Spaces, and in particular:

- Research data
- Educational data (especially open educational resources)

And an indirect impact on:

- Societal development (and above all through the open science initiatives)
- Industrial cooperations

The viewpoint that EOSC, as a more transversal Data Space, interacts with the different sectoral Data Spaces, leads to the need of a new Advisory Group “Data Spaces and Industry” that will be set up during the next EOSC-A General Assembly #7 on 21/11/2023. Furthermore, the creation of a Task Force on the Health Data Space (EHDS) will be proposed during the GA #7 to establish a collaboration with EHDS.

### 7.3.1 Linking Data Spaces to the development of the EOSC

Linking Data Spaces to the development of the EOSC serves to explore and identify possible synergies between EOSC and Data Spaces. This involves aligning and integrating the functionalities and infrastructure provided by sectoral Data Spaces, possibly including the objectives and principles of the EOSC whenever it refers to the research data. This would make it easier to reuse the research data.

By linking Data Spaces to the development of the EOSC, the goal is to create a cohesive and interoperable environment for research data management and sharing, enabling seamless access to data resources, fostering collaboration, and promoting open science principles across Europe.

Here are some ways to achieve this linkage, focusing our attention mainly on the main purpose of EOSC on the use and reuse of research data:

1. Where possible, alignment with EOSC policies: Data spaces could adhere to the policies and guidelines defined by the EOSC with the primary aim of facilitating the use and reuse of research data (this could happen mainly through facilitated access to research data). Additional vehicles are: research data management and adoption of open science policies.
2. Collaboration with EOSC stakeholders: Data spaces can actively engage and collaborate with EOSC stakeholders, including research infrastructures, research data providers, and service providers. This collaboration can involve joint development efforts, sharing best practices, and contributing to the overall advancement of the EOSC ecosystem. To strengthen such collaboration in the future, EOSC-A and DSSC are aiming to establish a collaboration roadmap.
3. Interoperability and integration: Regarding research data, Data Spaces could be designed to ensure seamless interoperability and integration with the EOSC federation. Both Data Spaces and EOSC could adopt common standards, formats, and protocols for data exchange and ensure compatibility between the EOSC architecture and Simpl. It is entirely conceivable that Data Spaces could become part of the EOSC Federation, especially when it comes to the implementation of the FAIR principles, which are an essential aspect of the EOSC.



4. Data discovery and access: Data Spaces can serve as a gateway to discover and access research data, research resources and research related assets, available through the EOSC.
5. Data sharing and collaboration: Data Spaces can foster research data sharing and collaboration by providing features that enable researchers to securely share research data with collaborators and enable collaborative workflows within the EOSC. This can include features like access control, versioning, and collaborative data annotation or analysis tools.
6. Integration of data analytics platforms: Data spaces can integrate with data analytics platforms or tools provided by the EOSC data federation processes to enable advanced data analysis and processing. This integration can allow researchers to leverage the power of the EOSC ecosystem to perform complex analyses on the data hosted within the Data Spaces. Data analytics, provision of trustworthy insights, AND machine actionability, is an issue concerning also groups of users in Europe and beyond (including machines): these groups *might be external* to one or different interoperating Data Spaces (e.g. climate change, research in malaria, migration issues, labour development, transcontinental educational settings, etc.).

A last remark: Open data is an important factor for economic growth in the European Union, since more than 30% of the economic growth is related to the usage of open data which are financed through the taxpayers (and therefore their re-use is underlying EU legislation). Extracting meaningful insights from sectoral spaces of data, or fragmented landscapes of data is a complex task, and vast data sets of data as well as small sets of data represent significant challenges. Data spaces need to incorporate advanced analytics, techniques and technologies to enable effective data analysis and decision-making. These tools should be accessible to all potential users. Therefore, analytics platforms should be integrated, within the EOSC and through all Data Spaces.

It is hard to say if the EOSC Partnership should focus more on this or that Data Space: in any case, it would be worth trying to do an interaction analysis with at least two Data Spaces (probably the least sectoral ones), with the aim of thinking as much as possible about populations of data that share the Data Spaces within a "unique area". In any case, it should be ensured that the various Data Spaces (including those belonging to the Gaia-X initiative) become more and more aware of the importance of the activities around EOSC, because at the moment it seems that the Data Spaces (and the ministries behind them at national level) are not aware of the existence of EOSC. Also, it is not perceived to the appropriate extent that EOSC operates transversally and independently of disciplines and especially serving the area of research data.

EOSC, on the other hand, should be aware that the Data Spaces do not necessarily have their focus on research data and research processes.

## References

No	Description/Link
R1	Memorandum of Understanding (MoU) EOSC Partnership <a href="https://eosc.eu/sites/default/files/20210215_EOSC_MoU_FinalDraft.pdf">https://eosc.eu/sites/default/files/20210215_EOSC_MoU_FinalDraft.pdf</a>
R2	A European strategy for data (COM (2020) 66 final) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0066">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0066</a>
R3	2030 Digital Compass: the European way for the Digital Decade (COM (2021) 118 final) <a href="https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118">https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118</a>
R4	Statement of the members of the European Council, 25 March 2021(SN 18/21) <a href="https://www.consilium.europa.eu/en/press/press-releases/2021/03/25/statement-of-the-members-of-the-european-council-25-march-2021/">https://www.consilium.europa.eu/en/press/press-releases/2021/03/25/statement-of-the-members-of-the-european-council-25-march-2021/</a>
R5	Commission Staff Working Document on Common European Data Spaces (SWD(2022) 45 final) <a href="https://digital-strategy.ec.europa.eu/en/library/staff-working-document-data-spaces">https://digital-strategy.ec.europa.eu/en/library/staff-working-document-data-spaces</a>
R6	DSSC Glossary <a href="https://dssc.eu/space/Glossary/55443460/DSSC+Glossary+?attachment=/rest/api/content/55443460/child/attachment/att110362680/download&amp;type=application/pdf&amp;filename=DSSC-Data-Spaces-Glossary-v1.0.pdf">https://dssc.eu/space/Glossary/55443460/DSSC+Glossary+?attachment=/rest/api/content/55443460/child/attachment/att110362680/download&amp;type=application/pdf&amp;filename=DSSC-Data-Spaces-Glossary-v1.0.pdf</a>
R7	DIGITAL Europe Work Programme <a href="https://digital-strategy.ec.europa.eu/en/activities/work-programmes-digital">https://digital-strategy.ec.europa.eu/en/activities/work-programmes-digital</a>
R8	Implementing Act on High-value datasets under the Open data directive adopted on 22 December 2022 (C(2022) 9562 final) <a href="https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12111-Open-data-availability-of-public-datasets_en">https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12111-Open-data-availability-of-public-datasets_en</a>
R9	Regulation on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act) (PE/85/2021/REV/1) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32022R0868">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32022R0868</a>
R10	Regulation on horizontal cybersecurity requirements for products with digital elements (COM/2022/454 final) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52022PC0454">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52022PC0454</a>
R11	Directive on measures for a high common level of cybersecurity across the EU (NIS2 directive) (PE/32/2022/REV/2) <a href="https://eur-lex.europa.eu/eli/dir/2022/2555/oj">https://eur-lex.europa.eu/eli/dir/2022/2555/oj</a>

R12	Regulation on a Single Market For Digital Services (PE/30/2022/REV/1) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022R2065&amp;qid=1666857835014">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022R2065&amp;qid=1666857835014</a>
R13	Regulation on contestable and fair markets in the digital sector (PE/17/2022/REV/1) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022R1925">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022R1925</a>
R14	Regulation on GDPR <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02016R0679-20160504&amp;qid=1532348683434">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02016R0679-20160504&amp;qid=1532348683434</a>
R15	Directive on privacy and electronic communications <a href="https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32002L0058">https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32002L0058</a>
R16	Regulation on a framework for the free flow of non-personal data in the EU (PE/53/2018/REV/1) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32018R1807">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32018R1807</a>
R17	Open data directive (PE/28/2019/REV/1) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019L1024">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019L1024</a>
R18	Proposal for an Artificial Intelligence Act (COM/2021/206 final) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206</a>
R19	Proposal for a regulation to set up the European Health Data Space (COM/2022/197 final) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52022PC0197">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52022PC0197</a>
R20	Decision: establishing the Digital Decade Policy Programme 2030 (PE/50/2022/REV/1) <a href="https://eur-lex.europa.eu/eli/dec/2022/2481/oj">https://eur-lex.europa.eu/eli/dec/2022/2481/oj</a>
R21	Regulation on promoting fairness and transparency for business users of online intermediation services (PE/56/2019/REV/1) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R1150">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R1150</a>
R22	Regulation on harmonised rules and principles for the type-approval (EU 2018/858) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0858">https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0858</a>
R23	Directive on payment services in the internal market (EU 2015/2366) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02015L2366-20151223">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02015L2366-20151223</a>
R24	Regulation on the internal market for electricity (PE/9/2019/REV/1) <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019R0943">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019R0943</a>
R25	Directive on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport (2010/40/EU) <a href="https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32010L0040">https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32010L0040</a>

R26	Regulation on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act) (EU 2022/868) <a href="https://eur-lex.europa.eu/eli/reg/2022/868/oj">https://eur-lex.europa.eu/eli/reg/2022/868/oj</a>
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## Appendix: Information sheets of the European Common Data Spaces

The information sheet is not filled in for EOSC itself.

Table of content:

1. [European Health Data Space \(EHDS\)](#)
2. [Green Deal Data Space \(GDDS\)](#)
3. [Agricultural Data Space](#)
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6. [Data Space for Manufacturing](#)
7. [Language Data Space \(LDS\)](#)
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14. [Data Space for Smart Communities](#)

# European Health Data Space (EHDS)

## 1. Overview

### Launched on 3/5/2022 by the EC

“The EHDS is essential for advances in preventing, detecting and curing diseases from the perspective of patients as well as for informed, evidence-based decisions to improve the accessibility, effectiveness and sustainability of healthcare systems” (see [R5]).

Distinction is made between the **primary and secondary use** of health data:

**Primary use** of health data focuses on the individual level of a patient, using the original data. As far as the primary use of health data is concerned, the Commission continues to work with Member States to extend the geographical coverage of MyHealth@EU.

**Secondary use** of health data is meant for research, innovation and policy making.

We focus on the secondary use of health data in this deliverable.

**Key actor of the EC:** DG Sante

## 2. Current state

### Approach EC

#### Preliminary work:

A Joint Action by 25 European countries and co-ordinated by the Finnish Innovation Fund, Sitra, ‘Towards a European Health Data Space (TEHDaS)’ started in February 2021 with the aim to provide recommendations to the Commission by 2023 on several aspects, such as governance, interoperability, data quality, infrastructures and citizens’ empowerment. The project runs until August 2023.

There are two pilot projects, one for the primary use of health data, the other one, the **EHDS2 pilot project**, for research data related to health.

EHDS2 pilot project, together 17 partners including health data access bodies, health data sharing infrastructures and European agencies

**Goal:** building a pilot version of the EHDS infrastructure for secondary use of health data (connecting data platforms, develop services, provide standards for data quality, security and transfer). This project is co-financed by the EU4Health programme of the EC.

Start: 10/2022 (2 years project)

Three initiatives are complementing the EHDS:

### 1) Federated European infrastructure for genomics data (2021-2022)

The objective is the creation of a technical infrastructure combined with governance mechanisms that will secure easy, cross-border access to key datasets in the targeted area. In particular, the aim of this topic is to achieve sustainable cross-border linkage of and access to a multitude of genomic and

related phenotypic, clinical and other datasets across Europe based on the progress achieved in the context of the 1+ Million Genomes initiative (1+MG). Authorised data users, such as clinicians, researchers and innovators, will be able to advance our understanding of genomics for more precise and faster clinical decision-making, diagnostics, treatments and predictive medicine, and for improved public health measures that will benefit citizens, healthcare systems and the overall economy. The resulting genomic data infrastructure will be aligned with the developments under the European health Data Space, including relevant projects supported under the EU4Health Programme. In order to maximise the societal benefits of health data use, the genomic data infrastructure should be supported by advanced IT tools and capacities, e.g. AI, HPC, cloud, blockchain and trust solutions, as appropriate for enabling secure access to and distributed analysis of complex datasets. Moreover, the measure will support the creation, extension and adaptation (e.g. FAIRification) of genomic datasets.

- **Type of action Simple grant:** 50% co-funding rate
- **Indicative Budget:** EUR 20 million
- **Indicative time of call opening:** First call
- **Indicative duration of the action:** 48 months

“The Genomic Data Infrastructure (GDI) project is enabling access to genomic and related phenotypic and clinical data across Europe. It is doing this by establishing a federated, sustainable and secure infrastructure to access the data. It builds on the outputs of the Beyond 1 Million Genomes (B1MG) project and is realising the ambition of the 1+Million Genomes (1+MG) initiative” (cited from <https://gdi.onemilliongenomes.eu/>).

Different partners in this project are members of the EOSC-A. (eg [BBMRI ERIC](#), [Barcelona Supercomputing Center](#), [CSC IT Center for Science](#), [Inserm](#), ...

A second call *Genome of Europe* will be launched in DEP 2023-2024

This action will support the implementation of the Genome of Europe (GoE) multi-country project and contribute to achieving the objectives and long-term ambition of the 1+Million Genomes (1+MG) initiative. GoE aims to establish and launch a European reference genome database of genetic variation obtained by whole genome sequencing (WGS) for at least 500,000 citizens based on population-based national reference genome collections, collectively representative of the European population. GoE has the potential to foster break-through advances in research, innovation, disease prevention and healthcare delivery, widely spread across clinical disciplines, beyond current use cases (disease areas).

The objective is also to support the initiative taking into account the potential creation of a European DIGITAL Infrastructure Consortium (EDIC).

- **Type of action:** Simple grant
- **Indicative budget:** EUR 20 million
- **Indicative call planning:** First set of calls

- **Indicative duration of the action:** 42 months

## 2) Federated European infrastructure for cancer images data (2021-2022)

The aim is to establish and deploy a pan-European digital infrastructure facilitating access to cancer images and related patient data in full compliance with the applicable data protection requirements. It will be used by clinicians, researchers and innovators with the ultimate aim of more precise and faster clinical decision-making, diagnostics, treatments and predictive medicine that will benefit citizens, patients, healthcare systems and the overall economy. The resulting data infrastructure will be interoperable with the other components of the European health Data Space, in particular the genomic data infrastructure. It contributes to Europe's Beating Cancer Plan and to the cancer mission under Horizon Europe, while building on relevant research projects under Horizon 2020. In order to maximise the societal benefits of health data use, the Data Space should be supported by advanced IT tools and capacities, e.g. AI and HPC. Moreover, the measure will support creation of new cancer image datasets and further extension of the existing ones.

- **Type of action:** Simple grant (50% co-funding rate)
- **Indicative Budget from the Commission:** EUR 18 million (total : 35,5 M Euro)
- **Indicative time of call opening:** Second call
- **Indicative duration of the action:** 36 months

Project EUCAIM: <https://cancerimage.eu/>

Cancer Image Europe provides a robust, trustworthy platform for researchers, clinicians, and innovators to access diverse cancer images, enabling the benchmarking, testing, and piloting of AI-driven technologies.

By connecting high-quality cancer image data and AI experts, Cancer Image Europe facilitates collaboration and accelerates the development of cutting-edge solutions for cancer diagnosis and treatment.

EUCAIM aims to build a pan-European federated infrastructure for cancer images, connecting top cancer research institutions and making diverse cancer images available to researchers, clinicians, and innovators.

The Consortium also involves major European Research Infrastructures, such as [Euro-Bioimaging](#), [BBMRI](#), [EATRIS](#) and [ELIXIR](#). Overall, in the EUCAIM consortium, public and private entities, many prestigious universities, private companies, and hospitals are represented to ensure that all of the necessary expertise is brought together for the success of EUCAIM.

## 3) Federated European Infrastructure for Intensive Care Units' (ICU) data (2023-2024)

"The action will establish and deploy a pan-European federated infrastructure for Intensive Care Units' (ICU) data combined with governance mechanisms allowing secure cross-border access to ICU datasets. The infrastructure shall primarily address data from acute care, including data generated from physiological monitors, laboratory investigations, imaging, clinical examination and examination



protocols, and therapeutics as well as from emerging omics technologies used during the delivery of care. It shall be used by clinicians, researchers and innovators with the ultimate aim of more precise, faster and more effective clinical decision-making, diagnostics, treatments and predictive medicine. This infrastructure shall allow for both observational and interventional research and innovation to occur at pan-European level, also in preparation for possible future pandemics.

The ICU data infrastructure shall be supported by advanced corresponding IT tools and capacities in terms of data capture, processing, analysis and visualisation, with inherent interoperability and connectivity, enabling secure access to and distributed analysis of datasets, including AI use. In addition, it should support the exchange of best practices with a fast-track approach for addressing emerging needs, such as in case of a pandemic. Finally, it shall be supported by a corresponding package for digital skills training and education as fit for the purpose for this scope.”

“The resulting data infrastructure should be aligned with the developments under the European Health Data Space (EHDS). It should be interoperable with other building blocks and components of the EHDS, and the federated European infrastructures for genomics data and for cancer imaging data” (cited from [R7] WP 2021-22).

- **Type of action:** Simple grant
- **Indicative Budget:** EUR 5.1 million
- **Indicative time of call opening:** First set of calls
- **Indicative duration of the action:** 42 months

### Focus

Mainly national health agencies, but also European ones and research infrastructures

### Governance structure

EU4Health supports the deployment and extension of the cross-border infrastructure for the EHDS, covering both primary and secondary uses of health data.

The 2 pilot projects for DS health are co-financed by EU4Health.

### Involvement of the countries

France has an interest in the Health Data Space. The Health Data Hub (French organisation to be or build the unique gateway to health data in France) is the project coordinator of the EHDS2 pilot project.

### Beneficiaries of the current approach EC

The EHDS2 pilot project (project coordinator: Health Data Hub in France)

### Related initiatives (public & commercial)

- [Covid19 portal](#)
- ERA4Health (EOSC-A/EOSC Focus contribute to their Synergies Working group)
- [EUCAIM – EUROPEAN FEDERATION FOR CANCER IMAGES](#) (funded by HE)
- [Beyond 1 million genomes](#) (project coordinator: Serena Scollen, Head of Human Genomics and Translational data, ELIXIR)

- o Info, cited from the [website](#): “The Beyond 1 Million Genomes (B1MG) project is helping to create a network of genetic and clinical data across Europe. The project provides coordination and support to the 1+ Million Genomes Initiative (1+MG). This initiative is a commitment of 24 EU countries, the UK and Norway to give cross-border access to one million sequenced genomes by 2022.”

Overview of the DS landscape of DS Health (status 10/2022):

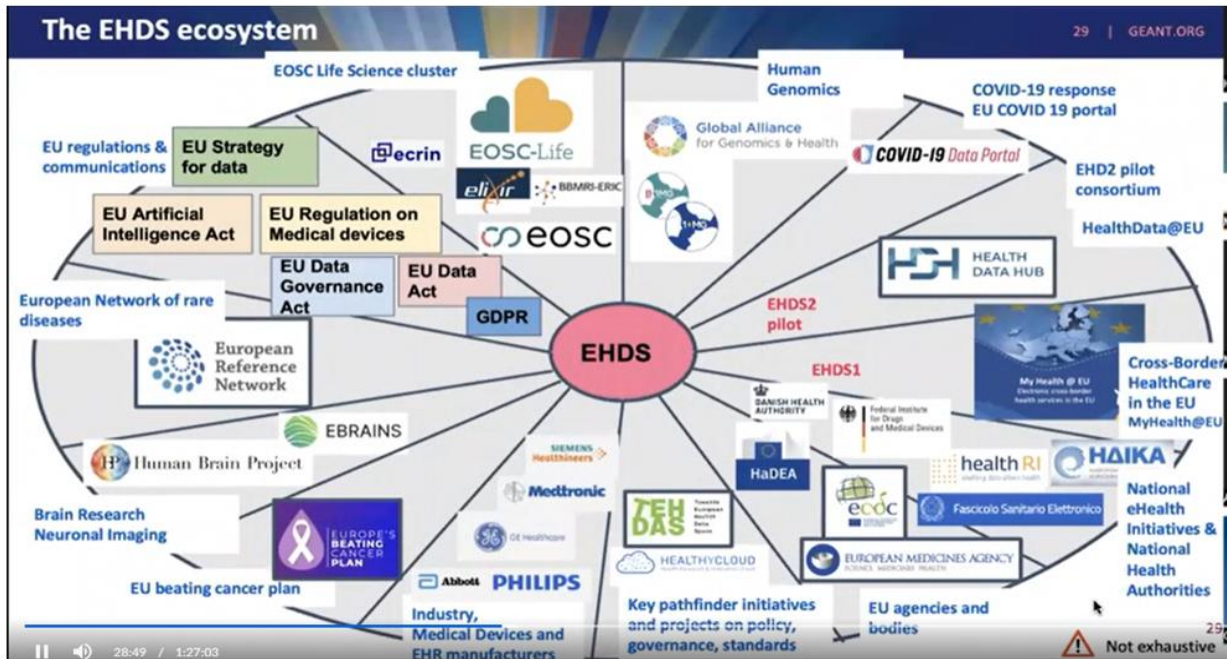


Figure 10 - Overview of the DS landscape of DS Health (status 10/2022)

### 3. Legal and policy frameworks connected with the DS

EHDS2Pilot: Lead by BBMRI-ERIC, WP7 will provide guidelines in order to build a single data access form for the EHDS, to harmonise legal and ethics data access procedures, security requirements and GDPR citizen access rights compliance for cross-border use of data applied to selected use cases.

### 4. Data governance

EHDS2-pilot: Co-lead by Health Data Hub and the Health Data Lab, WP5 will lead the implementation of the IT infrastructure enabling information exchange between nodes in an agnostic way in order to allow data processing (DCAT, data...) among nodes. The infrastructure will use and specify an eDelivery protocol and provide discovery services. WP5 will also provide hosting solutions.

### 5. Technical building blocks for the DS

Priority services include a metadata discovery service and a common health data access request.

**Additional sources of information** (if not yet referred to in the text)

- Commission Staff Working Document on Common European Data Spaces (see [R5])
- Presentation by Mario Reale, “GÉANT info share - Common European Data Spaces - 26 October 2022” <https://geant.app.box.com/s/botsoskxx3tluttid2phm1bhr26a6gbi>
- Website of the EHDS2 pilot project: <https://ehds2pilot.eu/>
- Website of the THEDAS joint action: <https://tehdas.eu/>

⇒ [Back to the overview of the Common European Data Spaces](#)

# Green Deal Data Space (GDDS)

## 1. Overview

Green Deal (EGD) is the European Commission's flagship plan to tackle climate change, launched December 2019. Via this plan, the European Union (EU) aims to become the first resource-efficient and competitive economy with net zero emissions of greenhouse gases by 2050. Data and services will be critical to achieve this goal. The EGD requires investment in technologies and digital assets, which are critical enablers for attaining the sustainability goals of the EGD. Implementation of the EGD vision also however presents significant challenges due to the vast amounts of diverse and distributed data resources from many stakeholders, different sectors, application domains and governance schemes.

According to the EU data strategy, the Green Deal Data Space (GDDS) will be a common infrastructure that will allow industries, governments, and researchers to access the high quality, interoperable data and related services, and give data holders and providers tools to manage, control and provide access to their data. The GDDS is expected to solve these problems of fragmentation and inconsistency by supporting sharing of data, across silos and islands, and flexible data processing, respecting the rights of data holders to make decisions about how their data is used, as well as more generally respecting European values.

Green Deal Data Space Vision: Key data resources, applications and algorithms from different sectors are discoverable, accessible, interoperable and reusable in a Common Green Deal Data Space (GDDS), a federation of data ecosystems empowering policy makers, business, researchers and citizens, from Europe and around the world, to jointly tackle climate change, circular economy, zero pollution, biodiversity protection, deforestation and compliance assurance.

Key actor of EC: DG Connect; DG ENV following the current project closely too.

## 2. Current state

### Approach EC

The GDDS initiates its activity from the call to launch European Data Spaces within the European Data Strategy and the European Green Deal.

The legal landscape is framed by the two key sets of legislation/regulation. The Data Strategy is driving horizontal data legislation that will increase data availability and reuse including Data Governance Act, Data Act, AI Act, Digital Markets Act and Digital Services Act in addition to existing legislation General Data Protection Regulation, Free Flow of Non-Personal Data Regulation, ePrivacy Directive, Platform to Business Regulation, Open Data Directive.

Sectoral specific legislation in this case the Green Deal will apply in addition to the horizontal legislation e.g. 148 legislative actions as defined in the Green Deal European legislative train: <https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal>.

## Focus

Multi-stakeholder focus - is likely to include commercial (hyperscalers, SMEs), public administrations (national, regional, municipal), research, citizens, UN, policy makers, not-for-profits.

## Governance structure

Green Deal Data Space is currently designing its governance structure - a Deliverable is in preparation (as of May/June 2023), based on known requirements to date from use cases. EGI Foundation is involved in drafting the deliverable and will add relevant information if and when possible.

The Governance of the GDDS builds on four layers of governance considering:

- Legislative Framework: Governance and compliance for Horizontal and sector specific legislation
- Digital platforms: Governance of the digital infrastructure/platform needed to establish the GDDS
- Data Space governance: Governance of the organisational structure, rules for provision and stakeholder's management and value proposition
- Data governance: Governance of the data made available through the GDDS

## Involvement of the countries

Direct involvement from the Consortium partners: Italy, Netherlands, Czech Republic, Austria, Belgium, Poland, United Kingdom, Germany

No dedicated national priorities exist, Green Deal has an international dimension.

Expressions of interest from Member States regarding possible European Data Infrastructure Consortia (EDICs) did NOT include any specific green deal initiatives. However, almost all countries have priorities related to the Green Deal (climate adaptation, extreme weather event management, pollution reduction, environmental conservation, agricultural policies, mobility policies).

## Transnational involvements

Green Deal will be a European Data Space, with international involvement. Many of the transnational involvements will come from reporting obligations, e.g. financial/ESG reporting or at a global scale from UN conventions, Stockholm, Minamata, Global Stocktake.

## Beneficiaries of the current approach EC

There are no obvious incumbents in this space which might be expected to take a lead role in the eventual implementation of the Green Deal Data Space.

Beneficiaries may be driven by funders initially, in this respect the Commission will have a strong drive on policy fulfilment. As the sustainability and long-term funding of the GDDS gets defined, the vision and objectives of the Green Deal should provide a clear benefit to all the stakeholders, including society and the data economy.

## Related initiatives (public & commercial)

The GDDS builds on a community engagement program which includes:

- Data Space Support Centre
- Other Sectoral Data Spaces E.g. Agriculture, Energy, Digital Passport Product, Tourism
- Other projects from Horizon Europe, DIGITAL Europe and European Missions: AD4GD, FAIRiCube, Urban Data Spaces for Green Deal, Destination Earth, Open data for AI
- Stakeholders engagement and consultations
- Thematic Use cases onboarding via Task Forces representing all the stakeholder involvement of the use cases/data initiatives
- Research infrastructures: ENVRI community
- EOSC
- Industry engagement with hyperscalers and SMEs: e.g. Amazon and Microsoft sustainability initiatives. SME engagement via Remote Sensing industry associations EARSC

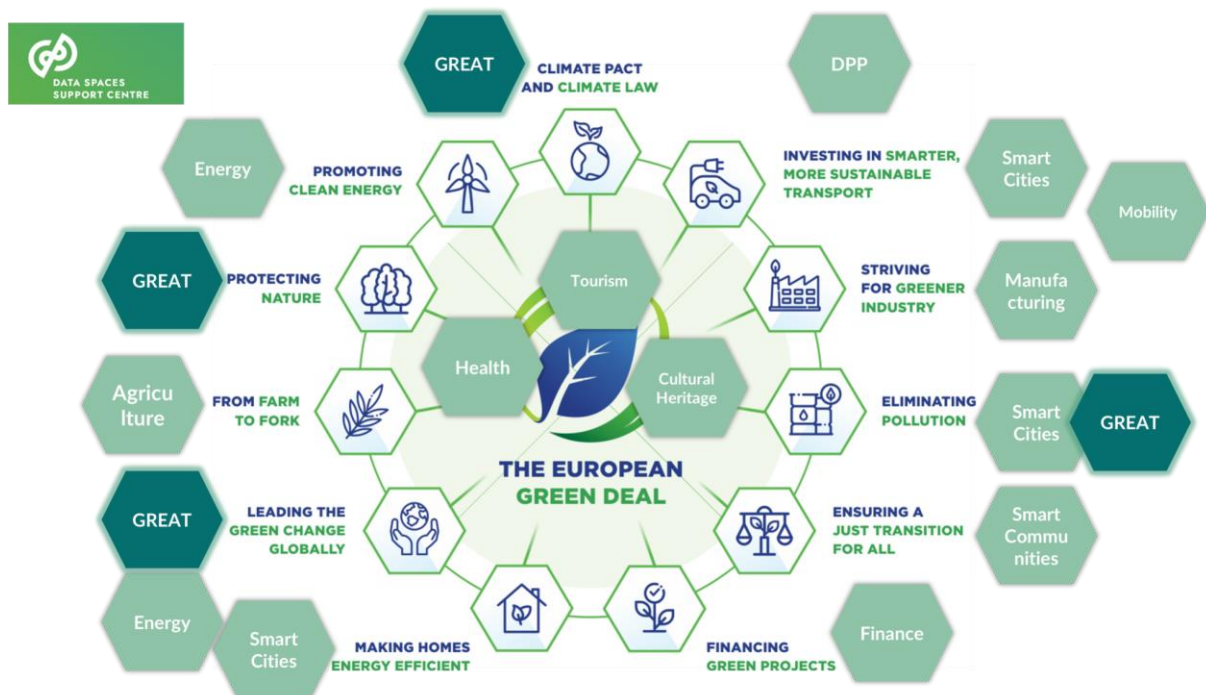


Figure 11 - Engagement with sectoral Data Spaces and the DSSC

### 3. Legal and policy frameworks connected with the DS

In addition to 3a above, the GDDS, e.g. geospatial data, will have to comply largely with the INSPIRE directive, now under review. The GDDS will analyse the forthcoming review of the directive with the GreenData4All initiative and provide feedback via public consultation of the commission.

### 4. Data governance

The GDDS will onboard and ensure data sovereignty preserving data rights of original data holders. One of the outcomes of the GDDS is a high value dataset inventory, categorising all the critical data

All types of data, but predominantly public data in this particular DS. Most of the data will be open.

## 5. Technical building blocks for the DS

Initially the majority of data in the GDDS would come from public sources, which have varying compliance with FAIR and/or use of PIDs.

As commercial data is added to the DS, these measures are likely to fall, not increase – one challenge given the volume of “potentially” interesting data is the technical issues of enforcing FAIRness, creating PIDs, etc.

However, this challenge is less important than deciding how to consolidate major data sources, preserving the role of their providers, while enabling interoperability as well as ideally interoperation through composable services and orchestration.

### Additional sources of information (if not yet referred to in the text)

- GREAT project website: <https://www.greatproject.eu/>
- Commission Staff Working Document on Common European Data Spaces (see [R5])
- <https://dataspaces.info/common-european-data-spaces/#page-content>
- DIGITAL Europe Work programme 2021–2022 (see [R7])
- DIGITAL Europe Work programme 2023–2024 (see [R7])
- EC Information session on Green Deal preparatory actions, Dec 2021: <https://digital-strategy.ec.europa.eu/en/events/information-session-preparatory-action-common-european-green-deal-data-space-under-digital-europe>

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# Agricultural Data Space

## 1. Overview

“The main objective is to develop a secure and trusted Data Space to enable the agriculture sector to transparently share and access data allowing for an increase in its economic and environmental performance. The space may also serve common good purposes. The Data Space is expected to facilitate the sharing, processing and analysis of production data, open data and possibly other public data (e.g. soil data). Production data supplemented by publicly held data will present new opportunities for monitoring and optimising the use of natural resources and will contribute to achieve the objectives of the Green Deal and the Common Agricultural Policy” (cited from [R7] WP 2021-22).

### Key actor of EC:

The CSA call is launched in accordance with the 2021/2022 Work Programme and will be managed by the European Commission, Directorate-General for Communication, Networks, Content and Technology (DG CONNECT) (Source: Commission Implementing Decision on the financing of the DIGITAL Europe Programme and the adoption of the multiannual work programme for 2021 – 2022)

## 2. Current state

### Approach EC

Under the first DIGITAL call for proposals (Q4 2021), the Commission will support a preparatory coordination and support action (CSA) aimed at developing a governance and business model for the Data Space with stakeholders and Member States. The CSA is expected to start in Q3 2022 and last for 18 months, indicative budget: 2 million Euro.

“The project will explore possible options and conceptual approaches for the future deployment of this Data Space. Provisions for transparent control of data access and use, development of governance and business models for the Data Space are to be developed considering, among others, the evolving regulatory environment, cross-data-space elements, and experiences with the EU Code of Conduct on sharing agriculture data by contractual agreement. The development of the Data Space is expected to have a strong end-user orientation and to consider potential users, including farmers currently less using data-based solutions.

The action will engage the community of stakeholders involving at least associations acting at EU/multi-country level representing relevant stakeholders, and public administration and/or governmental bodies. In particular, the project will:

- Undertake an inventory of existing platforms sharing agricultural data,
- Take stock of experience gained with the above-mentioned Code of Conduct,
- Take stock of experiences gained with other types of data sharing as well as with data (set) generation in the private and public domains,
- Explore different possible design approaches for the Data Space (e.g. serving private data sharing and interests, serving private data sharing interests complemented by public data, serving private and public interests), and elaborate the advantages and disadvantages,



- Propose design/conceptual approaches, for the set-up of the Data Space, identify common essential elements and develop corresponding business models,
- Develop a multi-stakeholder governance scheme of the Data Space,
- Get broad consensus on the approach, governance, and business models.
- Develop a roadmap for the step-wise deployment of Data Space, including the identification of public and private data sets which are expected to particularly contribute to the objectives of the Data Space.
- Work together with the Data Spaces Support Centre.”

(cited from [R7] WP 2021-22)

The CSA has been attributed to the [AgriDataSpace project](#).

In the WP 2024 there will be a new action (simple grant): “Taking into consideration the work and recommendations of the preparatory action for the Data Space in agriculture launched under the first WP in 2022, the action will develop and deploy an operational Data Space for sharing agricultural data. The expected results of this action are to develop a secure and trusted Data Space to enable the agriculture sector to transparently share and access data, allowing for an increase in its economic and environmental performance. Production data supplemented by publicly held data will present new opportunities for monitoring and optimising the use of natural resources and will contribute to achieving the objectives of the Green Deal and the Common Agricultural Policy” (cited from [R7] WP 2023-24).

### Focus

Public and private entities such as (but not limited to) public administrations and/or governmental bodies, economic actors (SMEs, large organisations), relevant associations, academia/ universities/ research organisations, etc (commercial / public, etc.)

### Governance structure

None, project based.

### Involvement of the countries

Not clear, commercial driven.

### Beneficiaries of the current approach EC

Coordination: <https://agdatahub.eu/>

“The AgriDataSpace consortium brings together an excellent team of experts from leading research institutes, agriculture data intermediaries and industry associations representing 10 countries that are rooted in the EU Data Space ecosystem” (cited from the [AgriDataSpace](#) website).

### Related initiatives

Certain actions under the first Work Programme of Horizon Europe Cluster 6 will boost the development of this Data Space. In particular, two calls in 2021 are expected to generate additional knowledge, including on data economical aspects, the potential of big data in agriculture and on digital

and data infrastructure, which should be especially beneficial for the development of a business model for the Data Space. The Data Space will also benefit from the development of the Horizon Europe candidate partnership “Agriculture of Data”, planned for the work programme 2023/24, for which the preparatory work with Member States and stakeholders began in spring 2021.

Horizon 2020 has funded a number of noteworthy projects in this domain. Some of these aims to tackle questions related to privately and publicly held agricultural data and data interoperability, and other forthcoming large-scale projects aim to build digital platforms to support digital innovation in agriculture.

For instance, the **ATLAS project**, with a budget of EUR 15 million, started at the end of 2019 and will conclude until early 2023. The project aims to deliver an interoperability framework among several heterogeneous data sharing systems.

Another **project OpenDEI** has defined a set of general design principles for Data Spaces applicable across several sectors including agriculture. In the field of public data, there are national and European initiatives on sharing data from the Integrated Administration and Control System, of which some reuse the principles and technologies of INSPIRE.

### 3. Legal and policy frameworks connected with the DS

Tailored use of data and data analytics in the field of agriculture contributes to increased competitiveness and the sustainability performance of the sector, e.g. through increasing the effectiveness of precision farming applications, and thus to the ambitions laid out in the **Common Agricultural Policy** and the **Farm-to-Fork-Strategy**. Several actions are already in place for improving discoverability of and accessibility to interoperable European agricultural data by re-using the **European Spatial Data Infrastructure** (INSPIRE Directive).

### 4. Data governance

During a series of webinars held with different stakeholders and Member States in 2020, there were calls for more stock-taking of ongoing private and public initiatives in the field of agricultural data sharing and data interoperability, as well as to allow for more time for gaining experience **with the implementation of the code of conduct on agricultural data sharing by contractual agreement**, launched in 2018 by EU stakeholders.

### 5. Technical building blocks for the DS

Work in progress. CSA will define technical building blocks in cooperation with DSSC.

**Additional sources of information** (if not yet referred to in the text)

- Commission Staff Working Document on Common European Data Spaces (see [R5])
- DIGITAL Europe Work programme 2021–2022 (see [R7])
- DIGITAL Europe Work programme 2023–2024 (see [R7])

- Website of the CSA for the Agriculture DS: <https://agridataspace-csa.eu>

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# Data Space for Skills

## 1. Overview

“The European skills Data Space will aim at sharing and accessing skills data for various purposes, from analytical and statistical purposes to policy development or reuse in innovative applications, as well as at providing easy, cross-border access to key datasets. The European skills Data Space will also aim to reduce the skills mismatches between education and training systems on the one hand and labour market needs on the other. Besides improving skills intelligence, this Data Space will deliver services to its users, with recommendations of learning opportunities to support their upskilling efforts, tailored to the information on their skills profiles.

On 25 October 2021, the Commission launched the European digital credentials for learning platform, thus enlarging the pool of data on which the European skills Data Space will be built. Through this platform, individuals can easily share their learning achievements in a secure digital environment, when applying for a job or for further studies and training. It also helps employers, education and training providers to quickly confirm if someone’s digital diplomas and certificates are genuine and accurate” (cited from [R5]).

### Key actor of EC:

The CSA call is launched in accordance with the 2021/2022 Work Programme and will be managed by the European Commission, Directorate-General for Communication, Networks, Content and Technology (DG CNECT).

## 2. Current state

### Approach EC

Launch of a preparatory CSA. Indicative Budget EUR 1 million; Indicative duration of the action 12 months.

“The project will explore conceptual approaches and possible options and for the future deployment of this Data Space. Provisions for transparent and ethical data access and use, development of governance and business models for the Data Space are to be developed considering, among others, the evolving regulatory environment, cross-data-space elements, interoperability, equality, privacy and security issues.

The action will engage the community of stakeholders involving organisations at EU/multi-country level, public administrations and/or governmental bodies, private and public actors (Including IT developers and end-users), education and training providers” (cited from [R7] WP 2021-22).

The CSA has been awarded to the [Data Space for Skills project](#).

In the WP 2024 a simple grant will be launched to develop, set-up and implement the secure and trusted Data Space, following the recommendations of the preparatory action selected in the previous call. The Data Space will support sharing and accessing skills data for various purposes, from analytical and statistical purposes to policy development or re-use in innovative applications.

## Focus

High-quality data on qualifications, learning opportunities, jobs and skills will feed the creation of this Data Space. Several Commission's initiatives, such as reference frameworks for qualifications and for digital skills and competence, the European skills classification (ESCO) and the Europass e-portfolio, increase transparency of information on people's skills, qualifications and learning opportunities and deliver on the European Skills Agenda.

## Governance structure

CSA will define a multi-stakeholder governance scheme specific to the sector

## Transnational involvements

The skills Data Space will be created in collaboration with the several EU agencies such as the European Centre for Development and Vocational Training, the European Labour agency and European Training Foundations. 18 Member States joined a pilot project in 2020 and some of them have already implemented the European digital credentials for learning in their digital ecosystem.

## Beneficiaries of the current approach EC

The DS4Skills project is funded by the European Commission under the DIGITAL Europe Programme (DIGITAL), and DIGITALEUROPE is the coordinator of the project. There are a limited number of research institutes in the project, mostly commercial partners. Academic and research partners, public administrations and/or governmental bodies, education and training providers, IT developers, private and public actors (particularly in the area of job search and recruitment services as well as data sharing), trade and industry associations and alliances

## 3. Legal and policy frameworks connected with the DS

None found

## 4. Data governance

None found

## 5. Technical building blocks for the DS

To develop

### Additional sources of information (if not yet referred to in the text)

- Commission Staff Working Document on Common European Data Spaces (see [R5])
- DIGITAL Europe Work programme 2021–2022 (see [R7])
- DIGITAL Europe Work programme 2023–2024 (see [R7])

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# Mobility Data Space

## 1. Overview

“The overall goal of the Common European Mobility Data Space is to accelerate the digital transformation of the European transport sector and to fully reap the benefits of data for the sector and for society at large. As stated in the Smart and Sustainable Mobility Strategy, digitisation and enhanced use of data in all modes of transport (passenger and freight) are essential enablers for the transformation to safer, more efficient, accessible and sustainable mobility. The mobility Data Space will facilitate access, pooling and sharing of data from existing and future transport and mobility databases.”

“The Common European Mobility Data Space will build upon existing EU and Member States’ legislation and infrastructures related to transport data. It should focus on promoting interoperability by contributing tools to support convergence on governance and infrastructure. Particular attention should be paid to enabling data sharing with linked sectors such as buildings, energy, environment or health, for example to fully leverage the benefits of e-mobility” (cited from [R5]).

**Key actor of EC:** DG MOVE, Units B4 and D1 (cf [survey](#))

## 2. Current state

### Approach EC

A Coordination and Support Action is funded by DIGITAL Europe (preparatory project for a Mobility DS):

The [PrepDSpace4Mobility](#) project: 10/2022-9/2023

### Key objectives (cited from the project website):

#### MAPPING WHAT EXISTS

Existing data ecosystems can be found all over Europe, yet their characteristics might vary heavily. PrepDSpace4Mobility creates an extensive understanding of the current landscape by

- Identifying existing European data ecosystems in the mobility and logistics sector
- Creating a catalogue summarising all relevant data ecosystems including valuable information about the type and quality of data

#### FINDING COMMON GROUND

In addition to analysing the European data landscape, PrepDSpace4Mobility finds common ground among existing and new data related initiatives by:

- Analysing gaps and overlaps of existing private, public, or industrial data sharing initiatives
- Exploring suitable frameworks for securely sharing and managing data exchange across Europe
- Proposing common building blocks to build up on in coordination with engaged stakeholders

- Ensuring alignment with the European Data Spaces Technical Framework

A Follow up call is scheduled in the DEP Work programme 2022 for the deployment of the DS for Mobility for a maximum of two co-funded projects, 4 million Euros each EU contribution. (Simple grant, 24-36 months).

“The awarded project(s) will make information available and accessible in a machine-readable format in order to allow building a large amount of accurate and reliable data that could be used inter alia for artificial intelligence. It will have the following tasks and characteristics:

- Support sustainable urban mobility planning and management by making available and accessible in machine-readable format data for EU sustainable urban mobility indicators, such as greenhouse gas emissions, congestion, commuting travel times and modal split in line with the EU definition and methodology.
- Make traffic and travel information at urban level available and accessible in a machine-readable format in line with Intelligent Transport Systems (ITS) Directive 2010/40/EU and in particular the Delegated Regulation 2015/962 on real-time traffic information services and delegated regulation 2017/1926 on multimodal travel information services.

Project(s) will have to demonstrate a clear European dimension and should involve at least cities or regions in three different eligible countries (i.e. Member States or Associated countries) sharing common objectives. Projects will have to be closely integrated and use common building blocks. Where relevant, data shall be made accessible through National Access Points set up under the ITS Directive (2010/40/EU)” (cited from [R7] WP 2021-22).

### Focus

Partners are from research, business and public sector (the International DS Association is one of them).

### Governance structure

In project mode

### Involvement of the countries

Not found any

### Beneficiaries of the current approach EC

Lead of the preparatory project: acatech – Deutsche Akademie der Technikwissenschaften (in any case, the project coordinator Lucie Kirstein is from acatech)

(Acatech is also the founding shareholder in the “[Mobility Data Space](#)”, the German DS on mobility.)

### Related initiatives (public & commercial)

Also, under DIGITAL, the Commission will fund one or several project(s) to make large amounts of accurate and reliable urban mobility data available and accessible in machine-readable format. Additional financial support will come from the Connecting Europe Facility (CEF) funding instrument.

### 3. Legal and policy frameworks connected with the DS

The legal framework of relevance for this Data Space is in constant evolution. The Sustainable and Smart Mobility Strategy announced future legislative initiatives related to the sharing of mobility data as well as the adaptation of existing frameworks in the area of mobility. These legislative initiatives would also contribute to the development of the mobility Data Space.

“In the automotive sector, type approval legislation provides for conditions of access of third-party service providers to repair and maintenance information. This legislation is currently under review.”

“In the air traffic sector, the Commission amended in 2020 the proposal for a Regulation on the Single European Sky to include, among other things, new provisions on data availability and market access of data service providers in the field of air traffic management.”

- “A revision of the Delegated Regulation (EU) 2017/1926 on **multimodal travel information services** to include mandatory accessibility of dynamic datasets, as well as an assessment of the need for regulatory action on rights and duties of multimodal digital service providers together with an initiative on ticketing, including rail ticketing, are planned for 2022/109.
- Revision of **Directive 2005/44/EC on harmonised river information services (RIS)** in Q4 2022. That revision will aim to better integrate inland waterway transport into multimodal logistics, increase inland waterway transport resilience and reduce negative externalities, contributing to the interoperability of information services and data sharing in inland waterway transport.
- Review the regulatory framework for interoperable data sharing in **rail transport** through revisions of the technical specifications for interoperability for telematics applications for passengers (TAP TSI) and freight (TAF TSI) in 2022.
- Establish a common dataset for reporting formalities in EU ports as provided for in the **European Maritime Single Window Environment Regulation** (Q1 2022), and a multimodal transport common data set for regulatory freight transport information, as provided for in the electronic freight transport information (Q1 2023), facilitating digital exchange and data reuse between businesses and administrations.
- Propose rules on a trusted environment for the corridor data exchange framework to support collaborative logistics based on recommendations from the Digital Transport and Logistics Forum (DTLF). **These rules will include the technical specifications for digital architecture, connection and registration issues, data semantics, common services and governance (2023).** (citations from [R5])

### 4. Data governance

The CSA supports the creation of a technical infrastructure combined with governance mechanisms that will facilitate easy, cross-border access to key data resources in this area. This will be on the basis of and in full alignment with existing and upcoming mobility and transport initiatives (some of which are regulated) that organise the sharing of data for both passengers and freight in the domains and where relevant become an integral part of the emerging European data and cloud services infrastructure.



## 5. Technical building blocks for the DS

The CSA PrepDSpace4Mobility works “in liaison with the Data Spaces Support Centre and the Alliance for Industrial Data, Cloud and Edge, to ensure alignment with the European Data Spaces Technical Framework with and the rest of the ecosystem thereof, notably concerning common tools such as:

- A Data Space reference architecture, building blocks, common toolboxes and cloud services;
- Common standards, including semantic standards and interoperability protocols, both domain-specific and crosscutting;
- Data governance models, business models and strategies for running Data Spaces, with the aim to recommend possible common tools, building on existing data ecosystems.”

(cited from [R7] WP 2021-22)

**Additional sources of information** (if not yet referred to in the text)

- Commission Staff Working Document on Common European Data Spaces (see [R5])
- DIGITAL Europe Work programme 2021–2022 (see [R7])

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# Data Space for Manufacturing

## 1. Overview

“Some local ‘embryonic’ Data Spaces have emerged in the manufacturing sector in the last few years. These have brought together companies holding and using data to agree on what data to share as well as the rules for managing and controlling data sharing, and to convince their industrial software providers to support the agreed data formats and semantics.

There is a need for speed and scale to attract end users beyond the local ecosystems of embryonic Data Spaces, and for reaching a critical mass of manufacturing companies & technology providers by building on the embryonic Data Spaces and enlarging its uptake among end users and suppliers of solutions (e.g. enterprise resource planning vendors for supply chain management, but also industrial data platform providers).

Several Member States have already started initiatives to support the deployment of Data Spaces for manufacturing” (cited from [R5]).

## 2. Current state

### Approach EC

**Actions taken:**

**Previous project:** [boost40](#)

The project BOOST 4.0 developed a prototype for the industrial manufacturing sector, called European Industrial Data Space (EIDS), an endeavour of 53 companies (Co-funded by the Horizon 2020 Framework Programme, started 1/1/2018, 36 months)

(see also the book “[A Framework for Big Data Sovereignty: The European Industrial Data Space \(EIDS\)](#)”

**Current active project:**

Under the first call for proposals of DIGITAL (Q4 2021), the Commission has committed to fund a coordination and support action (CSA) to establish a multi-stakeholder data governance, an inventory of existing data platforms for manufacturing and a blueprint for manufacturing-specific building blocks. The CSA is expected to start in Q3 2022 and will last between 12 and 24 months.

Project: **Data space 4.0**

- **Funded by:** DIGITAL Europe
- **Indicative type of action:** Simple grant
- **Runs until** 12/2023

**Goal:** “Data Space 4.0 is set to secure growth and economies of scale for future Data Spaces for manufacturing in general. The initial focus will be to pave the way for secure, fair, sovereign, responsible and cost-effective data sharing across data ecosystems in dynamic asset management, predictive maintenance and agile supply chain management.

Expected outcomes:

- A European Data Space 4.0 Alliance & Multi-stakeholder Governance Model for Data Spaces for manufacturing.
- Data Space 4.0 Canvas of design strategies, business modelling, incentive schemes and best-practices.
- A Directory of existing manufacturing Data Space assets, toolkits and blueprints.
- A consolidated set of reference Smart Data 4.0 Models.
- A Data Space 4.0 Minimum Viable Framework (MVF).
- A Multi-Step Roadmap towards deployment of pan-EU Data Spaces for manufacturing.”

(cited from the project website [DataSpace4.0](#))

In addition, the Commission will launch a second call for proposals in Q3 2022, of a duration of 24 months, to support relevant stakeholders to deploy and scale-up two Data Spaces for manufacturing (announced in the DIGITAL Europe Work programme 2021-2022).

#### Digital Europe WP 2023-24:

##### Data Space for Manufacturing (deployment)

The goal of this action is to significantly scale up the deployment and use of the dataspace in the two use cases supported under the previous work programme, while at the same time expanding the use and sustaining the development of a European industrial data ecosystem by reaching a significant critical mass.

**The first Data Space** will address agile supply chain management and execution across a large set of supply chain stakeholders.

**The second one** will address dynamic asset management and predictive/prescriptive maintenance, unlocking deep industrial data for trustworthy and reliable value-added services by parties outside a production site, such as machine tool manufacturer and integrator, improving production line operations.

At the same time, it will broaden the scope of the dataspace by including functionality supporting manufacturing companies to meet the goals of the Green deal and move towards an integrated Industrial Data Space through interoperability and integration with both the European Data Spaces Technical Framework and the Smart middleware for the European Cloud Federation.

##### Focus

Commercial (industrial community driven). All entities, with a focus on manufacturing SMEs and mid-caps, machine tool industry, IT companies and integrators and related industry associations

##### Governance structure

Governance model to be created; project mode

##### Involvement of the countries

Not clear

### Beneficiaries of the current approach EC

- Project “Data space 4.0”, led by the [Digital Factor Alliance](#) (also founded by EC).
- Founding members of the DFA: [innovalia association](#), Atos, [Engineering.org](#)

### Related initiatives (public & commercial)

Initiatives related to Data space 4.0 (see presentation Fraunhofer):

- Pan-European I4MS
- Smart Industry platform (NL)
- EOSC
- FIWARE
- NESSI
- BDVA
- Industrie 4.0

## 3. Legal and policy frameworks connected with the DS

None found

## 4. Data governance

Will be developed during the project

## 5. Technical building blocks for the DS

Will be developed during the project

### Additional sources of information (if not yet referred to in the text)

- Commission Staff Working Document on Common European Data Spaces (see [R5])
- DIGITAL Europe Work programme 2021–2022 (see [R7])
- DIGITAL Europe Work programme 2023–2024 (see [R7])
- Website of the CSA “Data Space 4.0”: <https://manufacturingdataspace-csa.eu/>
- A Common Data Space 4.0 for European manufacturing: <https://digitalfactoryalliance.eu/moving-towards-a-common-data-space-4-0-for-european-manufacturing/>

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# Language Data Space (LDS)

## 1. Overview

“Text, audio and video represent a large part of the data produced every day. Processing and extracting relevant information from this wealth of data requires the availability of more and more complex AI-based language services that need, in their turn, larger quantities of training data. Europe creates large quantities of multimodal language data every day. This data, in order to be used for developing AI services, needs to be aggregated and organised in a comprehensive data ecosystem, whilst taking into account the European specificities such as the need to promote and support digital language equality.

The objective is to deploy a Language Data Space for the collection, creation, sharing and reuse of multimodal language data. This will support the deployment of large multimodal language models and a wide range of AI language technologies services to be offered through the AI platform” (cited from [R7], WP 2021-22).

LDS in a nutshell (slides by consortium lead DFKI):

### Context: Large Language Models

- Large language models (LLMs) are the most important breakthrough in AI in the last 15-20 years (BERT, ChatGPT etc.)
- LLMs are based on vast amounts of training data; LLMs can be fine-tuned with domain-specific data
- Big models use dozens, some even hundreds of terabytes of language (billions of tokens) and image, video, audio etc. data
- Europe is lagging behind the large enterprises in US and Asia
- Europe’s languages are, except English, *vastly* under-resourced
- *We need a concerted effort for the collection of vast amounts of language data for all European languages*

### Language Data Space in a Nutshell

- Type of action: procurement (CNECT/LUX/2022/OP/0026)
- Budget/length: 6M€ + 2M€ – 36 + 12 months (if renewed)
- Objective: Develop and deploy a European platform and marketplace for the collection, creation, sharing and re-use of multilingual and multimodal language data
- Salient features: governance framework, technical architecture and infrastructure, openness, promotion
- Stakeholders: industry, research, public administration, cultural associations, NGOs and citizens

LDS – CNECT/LUX/2022/OP/0026

Consortium Meeting – 28 February 2023

2 LDS – CNECT/LUX/2022/OP/0026

Consortium Meeting – 28 February 2023

4

Figure 12 - Language Data Space in a nutshell

1. “Establish an **institutional Centre of Excellence for Language Technologies (CELT)** to coordinate across the Member States the creation and collection of multimodal language data and models.

The centre of excellence will:

- Develop in close collaboration with the Member States a multi-stakeholder data and services governance scheme, bringing together large industrial entities, public stakeholders and SME stakeholders.
- Identify and bring together existing European stakeholders and initiatives.
- Elaborate a blueprint for the language data ecosystem based on existing EU legislation and language data policies to build innovative business models across all stakeholders.
- Identify the large multimodal language models to be deployed.

- Identify datasets and data streams (public, private, citizen-collected....) relevant to the creation of large language models to be brought into conformity with the new blueprint standards and principles
  - Establish a detailed roadmap on how to deploy the language Data Space.”
2. “Based on existing EU initiatives such as the European Language Grid and **CEF Automated Translation** (eTranslation and other language technologies), **the second work strand**, will support the deployment of the language Data Space, by:
- deploying the necessary infrastructure for the collection and sharing of multimodal language data and models;
  - implementing the data & services governance, business models and strategies as defined by CELT;
  - supporting the increased uptake and usage of the language Data Space and its derived language technologies services among European private and public sectors, including various DIGITAL platforms and endeavours/initiatives, also through piloting and deployment projects;
  - establishing Member States and industrial collaboration to bring the set of identified language datasets and data streams into conformity with the new blueprint standards and principles;
  - establishing Member States and industrial collaboration to create and deploy the identified large multimodal language models;
  - deploying advanced AI-based language processing services and tools to be made available through the AI-on-demand platform.”

(cited from [R7], WP 2021-22)

**Key actor of EC:** DG CNECT, Unit G3, sector Multilingualism

## 2. Current state

### Approach EC

#### DEP Work programme 2021-2022

- **Type of action:** Procurement
- **Indicative budget:** EUR 6 million
- **Indicative time of call opening:** 2021
- **Indicative duration of the action:** 24 months
- **Implementation:** EC

#### DEP Work programme 2023-2024

- **Type of action:** Procurement
- **Indicative budget:** EUR 5 million

- **Indicative time of call opening:** 2023
- **Indicative duration of the action:** 24 months
- **Implementation:** EC

“Aligned with the previous WP, support to the Language Data Space will be provided through three work strands.

**The first work strand** will involve making new language datasets available, with a focus on inter institutional ones, i.e., data from the Publications Office of the EU, collections of multilingual, aligned and labelled translation memories, and speech transcriptions from public conferences. This will increase the availability of updated European test and training language datasets to foster the creation, evaluation and deployment of multimodal language data models and services.

**The second work strand** will imply merging the eLangTech portal<sup>43</sup> into the LDS. In addition to the online access, the eLangTech tools and services will be delivered through APIs and containers into the LDS. Similarly, generic and domain-specific eLangTech language models will be made available on the LDS platform. As a result, the eLangTech portal and the catalogue of European language technologies services already integrated within the LDS, will gain visibility and reach a broader users’ base for wider deployment and re-use, both in the private and public sector throughout EU Member States and DIGITAL Europe Programme-affiliated countries.

**The third work strand will** focus on enhancing the quality and extending the range of the eLangTech portal, i.e., automated translation and speech technologies, anonymisation and other Natural Language Processing (NLP) tools and use cases, etc., while covering a broader set of socially and economically relevant languages.

## Focus

The objective of the action DEP WP23-24 is the development and implementation of new use-cases for the Language Data Space with a focus on European industries and more specifically SMEs. By scaling up the deployment and use of the Language Data Space in the collection, creation, sharing and re-use of language data and models within the industries and SMEs, the goal is to establish a European industrial language data ecosystem.

- **Indicative type of action:** Simple grant
- **Type of beneficiaries:** Public and private entities“

(cited from [R7] P 2023-24)

## Governance structure

The envisaged governance model is that of an EDIC.

## Involvement of the countries

Initially two EDIC consortia started preparing a proposal related to ‘languages’. Currently ALT-EDIC (Alliance for Language Technologies, coordinated by France) is one of the EDICs under preparation. It brings together twenty member states, 15 as full members, 5 as observers.

More details can be found on the EC website on the European Language Data Space: [https://language-data-space.ec.europa.eu/related-initiatives/alt-edic\\_en](https://language-data-space.ec.europa.eu/related-initiatives/alt-edic_en)

### **Beneficiaries of the current approach EC**

LDS is a proposal selected based on an EC call for tender (2022).

Core consortium: DFKI GmbH (DE, lead), ELDA (FR), Athena/ISLP (GR), Tilde (LV)

Subcontractors: 3pc GmbH (DE), Capgemini Invent GmbH, CLARIN ERIC (NL), Data, AI and Robotics AISBL (BE; formerly: BDVA); in addition, many country nodes will be reimbursed for the organisation of workshops.



## Related initiatives (public & commercial)

### Previous Projects and Initiatives

- The four core partners have been involved in many joint projects and initiatives, including:
- **META-NET** (FP7, EU Network of Excellence, 2010-2013)
  - META-SHARE
- **ELRC** (various CEF projects/contracts, 2014-2023)
  - ELRC-SHARE
- **ELG** (Horizon 2020, 2019-2022)
  - ELG Cloud Platform
- **ELE** (PP/PA, 2021-2022; 2022-2023)

LDS – CNECT/LUX/2022/OP/0026

Consortium Meeting – 28 February 2023

Figure 13 - Language Data Space – previous projects and initiatives

### Collaborations (selection)

- **DSSC** (Digital, EU; Community of Practice; The Hague event)
- **OpenGPT-X** (Gaia-X; BMWK, Germany)
- **DataBri-X** (IDSA; EU Horizon Europe)
- **European Language Grid** (ELG) – currently supported through OpenGPT-X, SciLake, DataBri-X – legal entity work in progress
- **European Language Equality** (ELE, EU PP/PA project)
- **INESData** (new language data space project in Spain; 65% of the 5M€ funding for industry for development of actual platform)
- **SciLake** (EOSC; EU Horizon Europe)

LDS – CNECT/LUX/2022/OP/0026

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Figure 14 - Language Data Space – collaborations

## 3. Legal and policy frameworks connected with the DS

None found

## 4. Data governance

None found

## 5. Technical building blocks for the DS

“The awarded project(s) will use in so far as possible the smart cloud-to-edge middleware platform Simpl, and work in partnership with the Data Spaces Support Centre deployed under the first WP in



order to ensure alignment with the rest of the ecosystem of Data Spaces implemented with the support of Digital Europe Programme.

The joint work will target the definition of:

- the Data Space reference architecture, building blocks and common toolboxes; · the common standards, including semantic standards and interoperability protocols, both domain-specific and crosscutting;
- the data governance models, business models and strategies for running Data Spaces.“

(cited from [R7] WP2023-24),

**Additional sources of information** (if not yet referred to in the text)

- EC website on European Language Data Space: [https://language-data-space.ec.europa.eu/index\\_en](https://language-data-space.ec.europa.eu/index_en)
- EC call for tender for the Language Data Space (2022) <https://digital-strategy.ec.europa.eu/en/funding/language-data-space-call-tenders>

[⇒ Back to the overview of the Common European Data Spaces](#)

# Data Space for Cultural Heritage

## 1. Overview

“The Data Space for cultural heritage will build on the current Europeana platform, its robust data governance and model (such as the Europeana Data Model and the Publishing Framework<sup>208</sup>), and it will expand its functionalities, seizing new opportunities created by advanced technologies like 3D digitisation, cloud computing, crowd-sourcing, artificial intelligence and extended reality.”

“The creation of the Data Space for cultural heritage aims to:

- strengthen infrastructures, with better services for data providers and aggregators;
- support the creation and integration of high-value datasets of digital cultural content of any kind, size and nature. These will boost research, reuse and the development of innovative applications in the cultural and creative sectors as well as in other areas such as tourism, or education;
- improve data (content and metadata) quality, access and reuse, enhance multilingualism and encourage the use of interoperable formats;
- build capacity and skills on digital transformation;
- further enlarge, coordinate and engage with the network of data partners (museums, galleries, libraries, archives, and other cultural institutions across Europe), accredited aggregators, and experts working in the field of digital cultural heritage; - develop standards for the provision of datasets, including the Europeana Data Model”

(cited from [R5])

**Key actor of EC:** DG CNECT G2

## 2. Current state

### Approach EC

Procurement 15 million, 2 years and simple grants (ca 1 million / project, duration 24 months)

### Focus

Public

### Governance structure

“A Commission Expert Group has been set up to provide advice and expertise to the Commission on the creation of the Data Space for cultural heritage. Specifically, the group will contribute to the evolution of the Data Space for cultural heritage and sustainability of Europeana and support the Commission in defining the general objectives and priorities for actions for this Data Space under DIGITAL. It will also assist the Commission in monitoring developments regarding the way cultural digital resources can be reused in innovative ways to offer economic opportunities to cultural and creative industries” (cited from [R5]).

## Involvement of the countries

All EU countries are involved.

## Transnational involvements

The objective is the creation of a technical infrastructure combined with governance mechanisms that will secure easy, cross-border access to key datasets in the targeted area. The projects funded by the DIGITAL Europe program will have to deploy trust mechanisms (security and privacy by design), data services which ensure the identity of source and receiver of data, and which ensure the access and usage rights towards the data.

## Beneficiaries of the current approach EC

Work to deploy the Common Europeana Data Space for cultural heritage is led by the [Europeana Foundation](#) in collaboration with a consortium of 18 partners from nine EU countries. The work of the consortium is supported by the Europeana Network Association (ENA), a strong and democratic community of 3,500+ experts working in the field of digital heritage, and the Europeana Aggregators' Forum (EAF), the network of national, domain and thematic aggregators who support cultural institutions providing data.

The work programme DEP 2024 will include the continuation of the action on Cultural Heritage (procurement). The objective of this action is to extend the Data Space for the cultural heritage. The development of the Data Space will include improved, decentralised aggregation; evolution of the licensing, the content (including 3D) and the metadata frameworks; increased multilingualism coverage; integration of requirements and framework from the Data Spaces common services; and creation or consolidation of links with other Data Spaces at European, national, or local level. All those aspects will contribute to reach the high-quality data targets for 2025, defined in the Recommendation (EU) 2021/1970.

First work strand:

- **Type of action:** Procurement
- **Indicative budget:** EUR 15 million
- **Indicative time of call opening:** 2021
- **Indicative duration of the action:** 24 months
- **Implementation:** EC

“The second work strand will be implemented through grants and will focus on the digital capacity building in the cultural sector for its digital transformation and re-use of data, particularly at national level across Member States. Projects will cover one of the following activities:

- enriching the offer of services available on the Data Space, such as access to high quality and high value datasets, technological tools, technical know-how references, tools for knowledge sharing, consultancy and other services, to support digitisation, preservation and online sharing of digital cultural heritage assets.
- using existing Artificial Intelligence and machine-learning systems to improve user-engagement and experience, such as for the automatic translation of content or automatic

metadata enrichment, improving multilingual aspects, providing adaptive filtering of cultural heritage assets or personalised recommendations;

- fostering the potential of re-use of, in particular, 3D digitised cultural heritage assets in important domains such as education, social sciences and humanities, tourism and the wider cultural and creative sector. “

(cited from [R7] WP 2021-22)

Indicative duration of the action: 24 months

Indicative budget per Grant (EU contribution): EUR 1-1.3 million

#### Current 4 Projects (call 2021):

- [EUreka3D](#) - European Union's REKconstructed content in 3D
- The project will offer a knowledge, service and resource hub based on a smart technical infrastructure whose services are registered on the European Open Science Cloud (EOSC). This virtual space will allow cultural heritage institutions to use storage and computing resources to manage their 3D assets, which will give smaller institutions an affordable and simpler way to digitise, model, manage and enrich 3D records. Project led by [PhotoConsortium](#) with EGI as partner.
- [DE-BIAS](#) - Detecting and cur(at)ing harmful language in cultural heritage collections
- [AI4Europeana](#) - An AI platform for the cultural heritage Data Space
- [5Dculture](#) - Deploying and demonstrating a 3D cultural heritage space

#### Calls 2023

- **Type of action:** Simple grant
- **Indicative budget:** EUR 4 million
- **Indicative call planning:** Second set of calls
- **Indicative duration of the action:** 24 months
- **Implementation:** Executive agency HaDEA

#### Related initiatives (public & commercial)

Complementarity will be sought with

- the new European Collaborative Cloud for Cultural Heritage to be developed under the Horizon Europe programme and
- the EIT Culture and Creativity by establishing links to actions of these initiatives as appropriate.

### 3. Legal and policy frameworks connected with the DS

The Recommendation on a Common European Data Space for cultural heritage, adopted on 10 November 2021, paves the way for the creation of a cultural heritage Data Space. It aims at supporting

and accelerating the digital transformation of Europe’s cultural heritage sector by boosting the digitisation of cultural assets and the reuse of high-quality data in this sector and others, such as media and tourism. The Recommendation covers all types of assets with special attention to categories of cultural heritage, such as heritage at risk. It sets two targets for Member States on digitisation and online availability, to be achieved by 2030:

- Digitise in 3D all monuments and sites at risk and 50% of the most physically visited cultural and heritage monuments, buildings and sites;
- Contribute an additional 40 million, high quality, digitised and diversified types of cultural heritage assets for reuse to Europeana.

By 2025, Member States should digitise 40% of the overall 2030 targets.

In order to facilitate a wide adoption of standards and reuse of data, the Data Space will be provided with trustworthy mechanisms, such as security by design technologies. It will also ensure data access and usage rights, including relevant EU copyright provisions.

## 4. Data governance

None found

## 5. Technical building blocks for the DS

Deployment and maintenance of the Common European Data Space for cultural heritage is split into four work packages:

- **Development and operation of the Data Space infrastructure:** this work package aims to provide a reliable Data Space infrastructure and quality of service, as well as foster innovation, interoperability and compliance with other Data Spaces.
- **Integration of high-quality data:** this work package aims to contribute to a significant and sustained increase in high-quality, usable and accessible data in the Data Space.
- **Capacity building and fostering reuse:** this work package aims to strengthen the capacity and capabilities of professionals and reuse communities working with digital cultural heritage.
- **Digital services for the public:** this work package aims to engage audiences with digital cultural heritage by expanding pan-European themes and perspectives, inspiring use, reuse, and participation.

“The first work strand is the deployment of the Data Space for cultural heritage through procurement, of which the objective is to set up and run the Data Space, building on the existing Europeana digital service infrastructure platform and, in so far as possible, the smart cloud-to-edge middleware platform Simpl. Its continuation may be addressed under actions in 2024” (cited from [R7] WP 2023-24).

### Additional sources of information (if not yet referred to in the text)

- Website Europeana: <https://pro.europeana.eu/page/data-space-deployment>
- Commission Staff Working Document on Common European Data Spaces (see [R5])

- DIGITAL Europe Work programme 2021–2022 (see [R7])
- DIGITAL Europe Work programme 2023–2024 (see [R7])

[⇒ Back to the overview of the Common European Data Spaces](#)

# Data Space for Media

## 1. Overview

The main objective is to set up and deploy a secure and trusted Data Space to enable media organisations active in all media sub-sectors to cooperate by sharing and accessing data in a mutually advantageous manner and in full compliance with the data protection legislation. By providing the means for enhanced data-based collaboration, the Data Space should open new opportunities for the media sector with a view to innovating, transforming and addressing existing and new challenges of the digital economy (such as regaining competitiveness in the face of online platforms).

### Key actor of EC

Unit G2 “Interactive Technologies, Digital for Culture and Education”, DG CNECT

## 2. Current state

### Approach EC

“The data infrastructure for media will enhance Europe’s digital autonomy and strengthen forms of citizens’ participation in the public sphere. It will boost the use of data for innovative content (both entertainment and news), production and distribution” (cited from [R7] WP 2021-22).

The media Data Space initiative, financed through the Horizon Europe and DIGITAL Europe Programmes (DEP). For the deployment of the European Media Data Space the selected proposal must:

- Be compliant with the European Data Spaces Technical Framework;
- Make use the Simpl middleware;
- Liaise with the Data Spaces Support Centre<sup>7</sup> and the Alliance for Industrial Data, Cloud and Edge<sup>8</sup>;
- Coordinate and collaborate with other projects in the Common European Data Space ecosystem. To ensure the integration of existing standards, interoperability and portability between infrastructure, applications and data;
- Establish synergies with the work done by the European Digital Media Observatory and its national hubs for online content distribution and findability will also be established;
- Explore links with other Data Spaces (e.g. Data Spaces for cultural heritage, tourism, languages) or produced by creative/ industrial sectors (e.g. fashion, design, retail, automotive);

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<sup>7</sup> See DIGITAL-2021-CLOUD-AI-01-SUPPCENTRE: <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/digital-2021-cloud-ai-01-suppcentre>

<sup>8</sup> The European Alliance for Industrial Data, Edge and Cloud has the twin objectives of strengthening the position of EU industry on cloud and edge technologies, and meeting the needs of EU businesses and public administrations that process sensitive categories of data. Members will work together to foster the development and deployment of the next-generation cloud and edge capacities for the public and private sectors. Available at: [https://single-market-economy.ec.europa.eu/industry/strategy/industrial-alliances/european-alliance-industrial-data-edge-and-cloud\\_en](https://single-market-economy.ec.europa.eu/industry/strategy/industrial-alliances/european-alliance-industrial-data-edge-and-cloud_en)



- Create synergies as far as possible with the results of any EU-funded actions that may be useful for the development of a Common European Media Data Space, for example HORIZON-CL4-2021-HUMAN-01-06: Innovation for Media, including eXtended Reality (AI);
- Seek to include any relevant national or regional media initiatives aimed at gathering, sharing and processing media-related data between organisations in Member States.

Key actions (cited from [R5]):

- Outreach actions and stakeholders' consultations by the Commission, first conclusions expected Q1 2022.
- Two European Parliament Pilot Projects (2021-2022) setting out a feasibility study for the creation of infrastructures for data and information sharing platforms for the media ecosystem. First results are expected Q1 2022.
- Through a call for proposals for a Preparatory Action (PA), launched in Q3 2021, the Commission aims to set up media platforms enabling publishers and broadcasters to pool together content and customer data to produce news content and factual programming in multiple languages. The PA will build on the results of a content sharing action funded through the Multimedia Actions line. The projects are expected to start by 1 March 2022 and will have a duration of 12 to 15 months.
- Through Horizon Europe, publication of a first dedicated call for proposals in 2021 for prototyping advanced solutions for the creation, distribution and consumption of new immersive and innovative products for media, which directly links to the media Data Space. Project(s) expected to start Q2-Q3 2022.
- Calling for initiatives under DIGITAL in 2022 to set up an infrastructure and develop tools for media data sharing, as well as tools for data analytics and services.

## Focus

The media Data Space (see [R5]) will consider the inputs of the broad stakeholder community and will address European publishers, broadcasters, radios, advertising companies, media SMEs, technology providers, content and tech start-ups, content creators and producers.

## Governance structure

The Horizon Europe and DIGITAL Europe Programmes (DEP) will help the deployment of the data infrastructure and define a data interoperability strategy. In line with the European Data Strategy and the new horizontal data governance initiative<sup>9</sup>, it will also integrate state-of-the art tools and services needed for the management and processing of the data, define the conditions for sharing and using the data, including IP, data protection privacy, and competition rules. The initiative will be set out taking into account the inputs of the broad stakeholder community.

“The media Data Space will integrate state of the art tools and services needed for the management and processing of data in full respect of the relevant EU and national legislation. A media Data Space will:

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<sup>9</sup> [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_20\\_2102](https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2102)

- Secure interoperability and an easy, cross-border access to key datasets,
- Link to the creation of innovative solutions, tools and models for the production, curation, circulation, and distribution of European media content across the Union,
- Ultimately contribute to connect sub-dataspaces from various media sectors to a coherent Data Space, aligned with the European strategy for data.

Using these building blocks for the future media Data Space, EU media stakeholders will increase their capacity to understand and deal with data-driven business models and pool together increasing sets of content, data and metadata to produce new products and formats targeting expanded audiences in multiple languages. By providing access to larger datasets, the media ecosystem would be better equipped to scale up” (cited from [R5]).

Details objectives and scope<sup>10</sup>:

- Initiative to **support media companies** for sharing data, innovative solutions, and new business models.
- **Boost** use of data for **innovative content** (entertainment, education and news) production, curation, circulation and distribution across Europe
- Enable **data-based cooperation** among media companies, to be more competitive vs online platforms
- A technical **infrastructure with governance** mechanisms
- **Innovative tools** to increase findability of media content across borders (larger audiences, multiple languages)
- Support for curation, **joint-production and circulation** of news and media content and its adaptation to different audience targets and consumer preferences.
- A sandbox **environment for pilots** and innovative media services developed through other EU Initiatives (e.g. HE)

### Involvement of the countries

In the desk research, it is not clear who the beneficiaries are. In this case, it would be Europe in general. However, it is interesting to point out the countries involved in the projects mentioned in item 3 Current situation, letter g, as the main beneficiaries in ascending order. With higher involvement in the creation of this specific SD to that of lower involvement.

**Europe’s MediaLab**<sup>11</sup> (Digital European Platform of Quality Content Providers project): Italy, Spain and Belgium.

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<sup>10</sup> The European strategy for a Common European Data Space for Cultural Heritage (8 July 2022), presentation made by Anne Bajart will present the activities led by DG CONNECT. Available at: <https://youtu.be/N-tXC8BIWSM>

<sup>11</sup> European Media Data Space consortium

**Gaia-X:** German, France. The WG Cultural and Creative Industries (CCI<sup>12</sup>) is composed by 11 industrial sectors: Visual arts, Music, Performing arts, Press, Luxury-Fashion-Design, Television, Radio, Cinema, Book, Video Games, Advertising-Communication. Countries represented: France, Belgium, Switzerland, Finland, Deutschland, Austria, and Greece.

**European Perspective:** EBU Members from Belgium (RTBF), Finland (Yle), France (France Télévisions), Germany (BR-ARD), Ireland (RTÉ), Italy (RAI), Portugal (RTP), Spain (RTVE), Swedish Radio (SR)Switzerland (SWI swissinfo.ch) as well as ARTE, the Franco-German broadcaster.

**Drive Project:** Germany and Austria<sup>13</sup>

**Media Hub Project:** Accelerate remuneration of rights holders: France.

**CREA project:** On the initiative of: Agencia EFE, BSC SME, Cap Digital, Ceipes, Panodysey, Pro Progressione, Venetian Cluster, Voxeurop, Worldcrunch. Countries represented: Bulgaria, Spain, France, Hungary, and Italy.

**TAMIS project:** On the initiative of: CST (France), which supports the project and its service providers. Participants: MediaADN, Lum:Invent (formerly Media-IO), Startin'blox with the support of ISAN-IA agency, The Procirep, Cap Digital (Paris Region competitiveness cluster), and Titra.

**MediaVerse project:** Research institutions and universities (CERTH, LINKS, UAB) join forces with ICT companies and SMEs (ATOS, ATC, FIN, VRAG) to provide the needed research innovations and technological bricks, while traditional industry stakeholders (STXT, DW) provide valuable input to shape new age industrial requirements.

**MILC:** Initiated by Welt der Wunder TV, SRG

**C2PA/Origin Project:** C2PA unifies the efforts of the Project Origin, initiated by BBC, NYT, CBC/Radio Canada, Microsoft, and that tackles disinformation in the digital news ecosystem, and Adobe-led Content Authenticity Initiative (CAI) which focuses on systems to provide context and history for digital media.

**Western Balkan Archives project:** The beneficiaries are the six public service media organizations in the Western Balkans: RTSH (Albania), BHRT (Bosnia-Herzegovina), RTCG (Montenegro), RTK (Kosovo), MKRTV (North Macedonia) and RTS (Serbia). Other stakeholders include the parliamentary committees responsible for media, the media regulatory bodies and the PSM governing bodies.

**European Cultural Backbone:** France, Spain, Ireland, Hungary, and Poland.

**DEMO:** Initiated by: Under the leadership of the European University Institute in Florence (Italy), which relies on the expertise of its School of Transnational Governance and Centre for Media Pluralism and Media Freedom, EDMO is a partnership that also includes Datalab at Aarhus University, Athens Technology Center, which provides the technological support and is also

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<sup>12</sup> WG CCI initiated in May 2021 with 10 members (mainly public). The WG gathers 33 participants from the private and public sector. Source: Towards a Data Space for media: <https://youtu.be/6ZbbMJqSHqw> (26:36)

<sup>13</sup> The Digital Revenue Initiative (DRIVE), established by the German news agency DPA and Schickler consultancy in 2020, is built upon a shared Data Space of currently more than 20 newspaper publishers from Germany and Austria. In 2021 DRIVE received the Global Media Award by the world publishing organization INMA as the best industry innovation.

coordinating the Social Observatory for Disinformation and Social Media Analysis (SOMA); and Pagella Politica.

**Alliance Culture Data:** under French GAIA-X hub

**IWA project:** French, Monark, agency for the creation of digital twins of architectural heritage, sensitive natural sites, and remarkable objects.

**Media-cloud.ai:** France and Europe.

**Invenio project:** France, initiated by ARPP (Autorité de Régulation Professionnelle de la Publicité) is the French advertising self-regulatory body.

**French ministry of culture project:** France. Initiated by: Ministry of Culture. Arenamatrix. Participants: Any Producers, Broadcasters and Ticketing intermediaries.

### **Beneficiaries of the current approach EC**

Probably the consortium that has won Europe's MediaLab and the existing WG CCI within Gaia-X (EBU).

### **Related initiatives (public & commercial)**

Consider all the projects mentioned in the previous topic. Below is a brief description of these projects.

**Europe's MediaLab** ([Digital European Platform of Quality Content Providers project](#) - Phase II)<sup>14</sup> its objective is to support the creation of a European Data Space dedicated to the Media sector.

**GAIA-X:** Since EBU has joined the Gaia-X project in 2021, it has been actively promoting the creation of trusted media Data Spaces to enable the exchange of content and data in a controlled way. Relying on key building blocks that are currently being developed by various organizations in Europe, including Gaia-X and the Data Space Business Alliance (DSBA), such a Data Space would allow the media industry to improve data flows in the production chain, enable privacy-protecting data flows on user needs and preferences, innovate around new data-driven technologies, and create new business opportunities while guaranteeing data sovereignty of the user.

**The European Perspective:** B2B and B2C platform for trusted news exchange. "A European Perspective" brings together public service media who share online news content that offers their audiences fresh insight into pan-European issues.

This initiative's backbone is supported by EBU technology. Each participating organisation shares its stories through a Digital News Hub, where they are translated into multiple languages using the EBU's EuroVOX tool and robust editorial workflows.

**Drive Project:** Exchanging publishers' BI analytics. BI analytics, Classification of content and automatically distribute content to target groups based on content models and user behaviour. DRIVE is a subscription service. Publishers are charged with a monthly fee. The revenue is fully invested into technology, infrastructure and the recruiting of data analysts and digital publishing

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<sup>14</sup> Part of the consortium Europe's MediaLab carried out the study for the second phase of the [Digital European Platform of Quality Content Providers](#).

experts. Every publisher is represented in a steering committee which decides not only on the general project strategy but also on budget issues and the monthly subscription fee.

**Media Hub Project: Accelerate remuneration of rights holders.** Broadcasting report collection and automatic Digital Right Management. A "Media Hub" is positioned transversally within the ecosystem. Its mission will be to provide producers, media and CMOs with a common technological platform, allowing for the acceleration and reliability of the process of declaring data concerning works and their broadcasting.

**CREA project:** Collaborative platform for the creation and distribution of editorial content. Creative Room European Alliance (CREA), a place to co-create, publish, and monetize quality content (writings). The objective of the CREA, backed by the entire sector, is to create a European alternative to American platforms. It is essential to bring out local operators to promote and economically enhance the content of creators in Europe.

**TAMIS project:** optimize data flows in the Production chain. Optimised sharing of media files in the production chain, using a decentralised architecture. The TAMIS project aims to promote the exchange of manufacturing metadata, beyond identifiers, in order to optimise exchanges between actors in the manufacturing chain.

**MediaVerse project:** decentralized network for distinct digital asset repositories. Distributed content Search, Discovery & Access, and DRM. MediaVerse (MV) enables the deployment of a decentralised network for distinct digital asset repositories, where corresponding stakeholders and media owners can share and monetize multimedia content. With this, MV aspires to disrupt current practices of working in isolated silos, while enabling secure and traceable media content sharing. As soon as a digital asset repository is integrated in the MV network as a distinct MV node, the cross-network rights negotiation and content monetization will be enabled via the MV blockchain-enabled rights management solution.

**MILC:** a marketplace for all Video Content. The MILC Project aims at providing the industry with a new, open marketplace for every professional and non-professional content provider and buyer, through the Media Industry Licensing Content (MILC) platform and the use of the Media Licensing Token (MLT). MILC includes the offering, marketing, rights management, contracting and the final delivery of the content in any imaginable technical format. It will also build a bridge between the audience and the content creators, buyers, and distributors. This connection will allow the audience to directly impact and receive benefits from the creation & distribution of quality new content.

**C2PA/Origin Project**<sup>15</sup>: authenticating media provenance. C2PA addresses the prevalence of misleading information online through the development of technical standards for certifying the source and history (or provenance) of media content. The goal is to establish an end-to-end process for the publishing, distribution, and presentation of provenance enhanced media.

**Western Balkan Archives project**<sup>16</sup>: platform for Archive description sharing. Search and Discovery of archives in the Balkans. The platform developed by EBU provides a view to Western Balkans

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<sup>15</sup> See also: <https://www.originproject.info/about>

<sup>16</sup> Service Contract of the European Commission that has been awarded to a Consortium led by the International Federation of Journalists (IFJ) together with the EBU, the European Federation of Journalists (EFJ), the Austrian Public Broadcaster (ORF), the Balkan Investigative Reporting Network (BIRN), and the Eurovision News Exchange for Southeast Europe (ERNO).

PSMs archive material, giving access to information on available content, title, format, source, date, rights, and description, and should serve as a basis for the exchange of material on a bilateral or multilateral basis.

**European Cultural Backbone (EBC)**: a federated platform for European civil society media and content producers. ECB is an initiative by Cultural Broadcasting Archive (A), freie-radios.net and the development collective arso.xyz (D). The project seeks to provide a technological basis for the long-standing desire in using the Internet as an open space with a shared commitment to open and collaborative exchange of knowledge and art.

**European Digital Media Observatory - EDMO**: European platform against Disinformation. The EDMO addresses the phenomenon of disinformation in Europe and contributes to a deeper understanding of disinformation relevant actors, vectors, tools, methods, dissemination dynamics, targets, and impact on society. Participants: The European Digital Media Observatory (EDMO) brings together fact-checkers, media literacy experts, and academic researchers to understand and analyse disinformation, in collaboration with media organisations, online platforms and media literacy practitioners.

**Alliance Culture Data (ACD project)**: a data exchange platform for the Cultural and Creative Industries. ACD is defined as a platform allowing its actors to provide or acquire, free of charge or against payment, any type of data. The platform constitutes itself as a "data intermediary" within the meaning of the Data Governance Regulation.

**Interoperability with the Ark project** (IWA project): a repository for digital twins. The IWA project aims at the emergence of a French or European actor who would organise the collection, storage, description, visibility, and marketing of digital twins' data according to precise and transparent specifications.

**Media-cloud.ai**: A platform for Multimedia data processing services. Based on an open-source project initiated in 2018, the objective is to offer multimedia data processing services (images, moving images, sound, subtitles, interactive data, etc.) that can be used on an existing open-source platform instance made available as a Cloud service, for users who do not have the software engineering skills required to implement it. Beyond the classical processing of audiovisual files and streams, this platform allows the orchestration of processing based on Artificial Intelligence from explicable models. This platform could be developed jointly by various players in the sector, particularly public players in France and Europe.

**Invenio project**: Artificial intelligence and self-regulation of advertising content. As advertising is a combination of images, text and/or sound, technologies based on machine learning such as automatic natural language processing, computer vision, convolutional neural networks, etc., can help detect basic elements in advertising content, such as alcohol (cf. the "Evin" law), size of characters (legibility of legal notices), men and women (contemporary representation of genders, ages, diversity in advertising), specific textual or audio references (health claims, environmental claims, etc.), etc. The goal of such a "**Compliance as a Service**" solution is to provide digital advertising market players with a catalogue of detection services to help ensure the legal and ethical compliance of advertising content.

**French ministry of culture project:** Aggregation of ticketing data. The pooling and aggregation of data from the various ticketing systems would enable the entire sector to better understand the behaviour and aspirations of the public and thus be able to adapt the programming of cultural events and promote encounters between artists and the public. This data could also be shared with other sectors (tourism, transport, etc.) to adapt their own offers.

Projects	Data type	B2C/B2B	Creation	Checks	Search& Discovery	Recomender	Consent mgt	DRM	Audience analysis
The Europeans Perspective	Trusted news	both			X	X (PEACH)			
Drive	Usage data	B2B				X			X
Media Hub	Music	B2B						X	
CREA	Writings	B2B	X					?	
TAMIS	Metadata	B2B	X						
MediaVerse	Images, videos, 3D/VR	both			X	X	X		
MILC	Video	both			X			X	Audience Feedback
C2PA/Origin Project	A/V/text	both		Content origin					
Balkan Archives	Archives metadata	B2B			X				
ECB		Non-profit A/V content			X	X			
EDMO	Fact checking	B2B		Fact checking					
Alliance Culture Data	Any	both			X			X	
IWA	Digital twins	B2B							
Mediacloud.ai	AI-based services	B2B							
Invenio	Ads	B2B		Company checking					

Table 3 - Projects Overview - Position Paper WG Cultural and Creative Industries<sup>17</sup>

<sup>17</sup> French Gaia-X Hub (2022) 'WG Cultural and Creative Industries', Position Paper, version 1.2. Available at: [https://www.cigref.fr/wp/wp-content/uploads/2022/06/French-Gaia-X-Hub-position-paper-GTICC\\_v1.2\\_eng.pdf](https://www.cigref.fr/wp/wp-content/uploads/2022/06/French-Gaia-X-Hub-position-paper-GTICC_v1.2_eng.pdf)



### 3. Legal and policy frameworks connected with the DS

- **European Data Strategy**
- **Media and Audio-visual Action Plan**: The setting-up of a European Data Space for Media was confirmed as part of the Media and Audiovisual Action Plan, adopted by the Commission on 3 December 2020, to support media companies in sharing data and developing innovative solutions.
- **European Democracy Action Plan**: The creation of a media Data Space will also consider the European Democracy Action Plan, adopted on 3 December 2020, in order to safeguard the freedom of expression as well as to help people assess the trustworthiness of content.
- **EU Data Governance Act (DGA)**: see [R9]
- **Data Act**
- **Digital Market Act (DMA)**: The DMA aims to ensure that these platforms behave in a fair way online. Together with the Digital Services Act, the Digital Markets Act is one of the centrepieces of the European digital strategy.
- **Digital Services Act (DSA)**: see [R12]
- **European Data Innovation Board (EDIB)**: see [R9], chapter VI
- **Open Data directive**: see [R17]
- **Free Flow of Data**: The Regulation on a framework for the free flow of non-personal data in the EU aims at removing obstacles to the free movement of non-personal data between different EU countries and IT systems in Europe, see [R16]
- **GDPR**: see [R14]

### 4. Data governance

Public and Commercial data

The data infrastructure should be available to both public service media and commercial media operators, whether large or small, start-ups or established players.

The Data Space could also provide valuable insight to services aiming at increasing the findability of media content (news and entertainment content) across borders, as well as facilitating access to computing resources for creative SMEs. Furthermore, it could allow for exploitation of synergies with datasets produced by other creative industries (e.g., Data Spaces for cultural heritage) and industrial sectors (e.g., retail, automotive).

See more information in the document on "[Europe's Media in the Digital Decade: An Action Plan to Support Recovery and Transformation](#)".





## Typology of governance structure



Figure 15 - Typology of Governance Structure presented by Europe's MediaLab<sup>18</sup>

## 5. Technical building blocks for the DS

The creation of a media Data Space will consist of three layers of action (see [R5]), of which the development of the core infrastructure through funding from DIGITAL plays a fundamental role:

**1) Infrastructure:** including the deployment of enabling technologies, of the underlying structural components to design, implement and operate a Data Space as well as the required elements for data governance and setting of standards.

The infrastructure layer plays a fundamental role in this initiative. It will deploy, for the entire media value chain, the enabling technologies and underlying structural components to design, implement and operate a robust Data Space, as well as the required elements for data governance, cooperation readiness and setting of standards. More specifically, the project will, among others, define the conditions for sharing and using the data, including intellectual property (IP) and licensing options (including fees, if any), data models and metadata schemes, data protection, privacy, competition rules, workflow management and transaction functionalities.

The media sector comprises a number of heterogeneous fields and sub-sectors.

Therefore, several sub-spaces are likely to be initial building blocks for the European media Data Space, such as news media, audio-visual content sharing, immersive content (through XR technologies), film production and gaming. Consequently, special emphasis should be put on interoperability (semantic, technical and IP) and creation of connections between these sub-areas through credible governance and coordination systems, and appropriate technical architecture reflecting these different building blocks.

<sup>18</sup> Towards a Data Space for media: <https://youtu.be/6ZbbMJqSHqW>

In order to ensure the medium and long-term re-use of data of the media Data Space, content formats and metadata structures will take account, to the extent possible, of the use of European open source, international or pan-industry-accepted standards. The media Data Space will make use of EU computing and/or storage infrastructure.

**2) Applications:** development of technical and innovative tools to operationalise content platforms, including, for example, modules on automatic translation, neutral search, editing tools, social media interaction, news aggregation and content-driven modules.

For the pooling, processing and sharing of data, the project will see to the development of technical and innovative tools to operationalise the platform, including, for example, modules and cloud-based services for automatic translation, neutral search, editing tools, data analysis, workflow tools, transaction mechanisms, social media interaction, news aggregation and content-driven modules.

The media Data Space will provide tools and services such as, but not limited to tools for media data transaction preserving data ownership, tools for data analytics, services for financial transactions based on the data usage (e.g. using blockchain), data format transformation services (where applicable), services for immersive content creation (including AI elements), services to develop income from advertising/subscription/copyright/other licenses, services to facilitate access to computing resources for creative SMEs.

**3) Content:** support to curation, joint-production and circulation of news and media content and its adaptation to different audience targets and consumer preferences.

Creators, producers, and distributors host relevant media data, such as content, meta-data or audience data. This data, as well as other types of data on users' behaviours, can be shared within the media Data Space. This might be useful to create content better tailored to consumer needs and distribute it more efficiently. Other examples of data that could be shared include user consumption data, 3D animation models, production meta-data, trained AI models.

The media Data Space should aim at offering data in as many EU official languages and media markets as possible.

The stakeholders will agree on the relevant data formats to be used for data exchange within the media Data Space and with other Data Spaces.

The media Data Space should overall support the curation, joint-production and circulation of news and media content and its adaptation to different audience targets and consumer preferences.

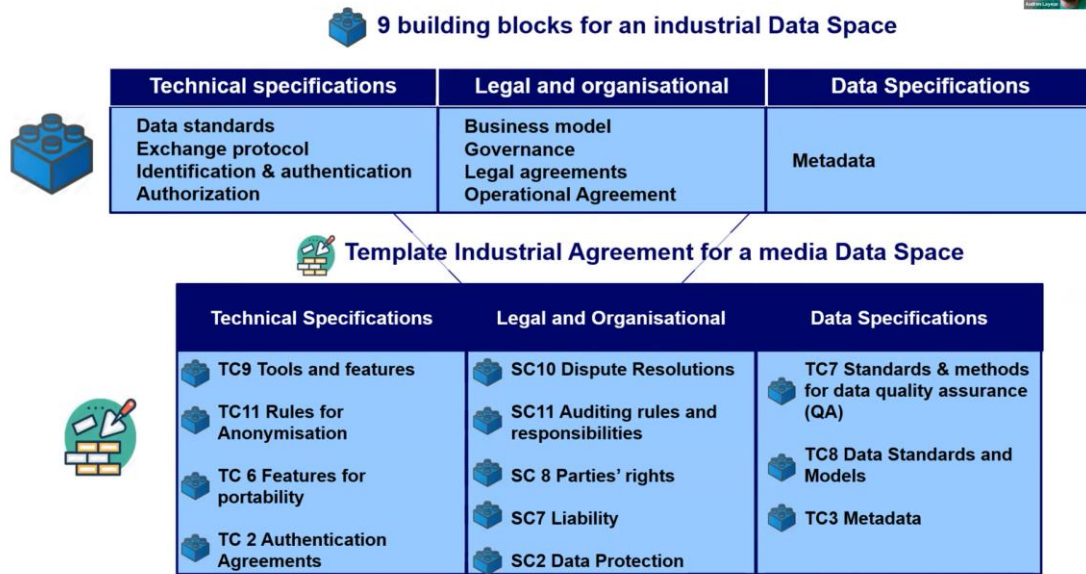


Figure 16 - Template Industrial agreement for a media Data Space presented by Europe's MediaLab

#### Additional sources of information (if not yet referred to in the text)

- Commission Staff Working Document on Common European Data Spaces (see [R5])
- DG Connect (8 July 2022), The European strategy for a Common European Data Space for Cultural Heritage, presentation made by Anne Bajart will present the activities led by DG CONNECT. Available at: <https://youtu.be/N-tXC8BIWSM>
- Europe's Media in the Digital Decade: An Action Plan to Support Recovery and Transformation: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0784>
- DIGITAL EUROPE PROGRAMME (Dec 2021), Data space for media (deployment), presented by Anne Bajart will present the activities led by DG CONNECT at Brokering event DEP - Data for EU. Available at: <https://www.bdva.eu/sites/default/files/Media%20Data%20Space%20BDVA%20%20-%2016122021.pdf>
- French Gaia-X Hub (2022) 'WG Cultural and Creative Industries', Position Paper, version 1.2. Available at: [https://www.cigref.fr/wp/wp-content/uploads/2022/06/French-Gaia-X-Hub-position-paper-GTICC\\_v1.2\\_eng.pdf](https://www.cigref.fr/wp/wp-content/uploads/2022/06/French-Gaia-X-Hub-position-paper-GTICC_v1.2_eng.pdf)
- European Broadcasting Union (EUB, version 2.0. Available at: [https://gaia-x.eu/wp-content/uploads/2022/10/EBU\\_position-paper\\_Media-Data-Space.pdf](https://gaia-x.eu/wp-content/uploads/2022/10/EBU_position-paper_Media-Data-Space.pdf)
- Towards a Data Space for media: <https://youtu.be/6ZbbMJqSHqw>

[⇒ Back to the overview of the Common European Data Spaces](#)

# Data Space for Tourism

## 1. Overview

“Tourism is a major economic activity in the European Union with wide-ranging impact on economic growth, employment, and social development. It can be a powerful tool in fighting economic decline and unemployment. Nevertheless, the tourism sector, one of the hardest hit by the pandemic, needs support to face sectoral challenges exacerbated by the recent developments.

A tourism Data Space, through its connection to other sectoral Data Spaces (e.g. cultural heritage) will provide access to information to the ecosystem, with an impact on productivity, greening and sustainability, innovative business models and upskilling. It will give the possibility of align offer to tourists' expectations, adapting service proposals to new tourist groups, predict a high influx of tourists, and thus plan resources more efficiently, and even create new business opportunities” (cited from [R7] WP 2021-22).

### Key actor of EC

DG Grow (Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs)  
Directorate G (Ecosystems in Tourism and Proximity)

## 2. Current state

### Approach EC

No particular legal framework or sectoral legislation is mentioned in the policy initiatives relating to tourism which have led up to the proposal to create a Tourism Data Space, other than recognition of the horizontal regulation applicable to data, such as the Data Governance Act, Data Act and GDPR.

### Focus

Mix of commercial and public.

### Governance structure

None yet but the EC's Communication Towards a Common European Tourism Data Space suggests that member states consider creating an EDIC.

### Involvement of the countries

Tourism is of interest and relevance to all countries however tourism is particularly important for the economies of those member states which border, or are in, the Mediterranean.

### Beneficiaries of the current approach EC

One of the one-year preparatory actions, the Dates project, was coordinated by AnySolution SL, a Spanish company based on Palma de Mallorca. This company specialises in communication and pilot projects however, so may not be the main driver of the imminent Tourism Data Space project.

### Related initiatives (public & commercial)

Strongest links to other Data Spaces are to mobility, agro-food, cultural heritage.

### 3. Legal and policy frameworks connected with the DS

Tourism was not included in the original list of ten Common European Data Spaces identified by the European Commission [European Strategy for Data](#). The European Council, in its [Conclusions in May 2021](#), emphasised however that tourism has a role to play within the EU Digital Single Market and the Common European Data Spaces initiatives, leading to publication by the European Commission in February 2022 of the [Transition Pathway for Tourism](#). The 27 areas for action in the Pathway include

- Topic 9: Data-driven Tourism Services. recognition that better and innovative use of data is a key factor to boost competitiveness and innovation in tourism services
- Topic 14: Technical implementation for tourism Data Space: privacy and data protection legislation and users' fundamental rights recognised; interoperable technical specifications for tourism data sharing could facilitate sharing data.

This was followed by publication in December 2022 of the [European Agenda for Tourism 2030](#), in the form of Council Conclusions, containing an EU work plan with voluntary actions for the future. The conclusions contain a priority area of digital transition: public data sharing for encouraging innovative tourism services.

These initiatives led to publication in March 2023 of the [Code of Conduct on Data Sharing in Tourism](#), which aims to build trust and foster data sharing in the EU tourism sector.

The DIGITAL Europe programme launched a call - [DIGITAL-2021-PREACTS-DS-01-TOURISM](#), deadline February 2022 - for preparatory work to create a Data Space for tourism, resulting in two 1-year, €1m CSA projects, called [DATES](#) and [Tourism Data Space](#) (DSFT). DATES explored approaches and options for the deployment of a secure and trusted tourism Data Space. Its work focussed on development of governance and business models and a shared roadmap to coordinate tourism ecosystem stakeholders and connection between data ecosystems at EU level. DSFT, which runs until October 2023, is creating a Tourism Data Inventory (TDI) that provides an overview of available tourism data sources and platforms and enables the identification of gaps between the demand for and availability of data. It is also providing technical and regulatory specifications.

Following on from this, the [Digital Europe 2023-24 Work Programme](#) envisages publishing a call during 2023 for a 3-year project with an indicative budget of €8m, to develop a Tourism Data Space. This is described in the very recently-published [EC Communication Towards a Common European Tourism Data Space: boosting data sharing and innovation across the tourism ecosystem](#).

### 4. Data governance

The Tourism Data Space will combine commercial data from the many commercial tourism operators, large and small, with public information from Tourism Ministries and other public bodies.

### 5. Technical building blocks for the DS

Not known, other than that the Tourism Data Space should comply with the Simpl middleware.

**Additional sources of information** (if not yet referred to in the text)

- Preparatory project DATES: <https://www.tourismdataspace-csa.eu/>
- Commission Staff Working Document on Common European Data Spaces (see [R5])
- DIGITAL Europe Work programme 2021–2022 (see [R7])
- DIGITAL Europe Work programme 2023–2024 (see [R7])

[⇒ Back to the overview of the Common European Data Spaces](#)

# Financial Data Space

## 1. Overview

Enhanced access to data and data sharing within the financial sector will encourage the financial sector to embrace data-driven innovation. This should lead to more innovative products for consumers and businesses. At the same time, the Commission is particularly vigilant about ensuring consumers remain in charge of their data. Therefore, compliance with data protection rules, in particular the General Data Protection Regulation (GDPR) is a prerequisite for a financial sector driven by data.

The goal of the Financial Data Space is to stimulate innovation, market transparency, sustainable finance, as well as access to finance for European businesses and a more integrated market.

### Key actor of EC

FISMA - DG Financial Stability, Financial Services and Capital Markets Union  
Corporate reporting, Audit and Credit Rating Agencies, DG FISMA, EC  
Expert group on European financial Data Space (E03763)

## 2. Current state

### Approach EC

The Digital Finance Strategy<sup>19</sup> announced the creation of a European financial Data Space. Data has always been at the core of financial services and data-driven finance necessitates the use of varied datasets, such as publicly and privately held personal and non-personal data.

The European financial Data Space includes **three** main components.

#### 1) Digital access to publicly disclosed financial and sustainability related information.

“As part of its Capital Markets Union Action Plan<sup>20</sup>, the Commission proposed, in November 2021, a regulation to set up a European Single Access Point (ESAP)<sup>21</sup>, which will interconnect various sources of publicly disclosed information.

**Lead:** European Securities and Markets Authority (ESMA)

**Aim:** The ESAP<sup>22</sup> will be a common source of free<sup>23</sup> public information about EU companies and investment products, regardless of where in the EU they are located or originated.

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<sup>19</sup> COM/2020/591 final.

<sup>20</sup> COM/2020/590 final.

<sup>21</sup> COM/2021/723 final.

<sup>22</sup> ESAP is expected to be operational from 2024 and will be gradually developed in a phased-in approach.

<sup>23</sup> Additional services may be offered by ESMA for a fee.



**Complementary activities:** The Commission has proposed<sup>24</sup> amendments to EU financial services legislation requiring public disclosures to be made systematically available on ESAP and in a data extractable or machine-readable format. ESAP will in that way contribute to the creation of the European financial Data Space and facilitate data sharing among various stakeholders. It is expected that the availability of such high-value data will strengthen the use of technologies like artificial intelligence, machine-learning and natural-language processing in the near future.

**Synergies:** Starting from 2022, the set-up of the ESAP will also be supported under DIGITAL, as announced in the DIGITAL Work Programme 2021-2022.” (cited from [R5]).

## 2) Easier reporting and sharing of supervisory data among EU and national supervisory authorities.

“The Commission has adopted a supervisory data strategy<sup>25</sup> which aims to streamline EU-level supervisory reporting and facilitate data sharing between supervisory authorities at EU and national level, as well as making more information available to the industry<sup>26</sup>.

**Aim:** this action envisages the development of a common data dictionary to ensure consistency and standardisation across the financial sector, making it easier to share and reuse data, and contributing to making reporting requirements machine-readable and executable.

**Synergy:** The Commission will continue the work in cooperation with the ESAP, in particular during the development of the technical standards for the ESAP (cited from [R5])

## 3) Business-to-business (B2B) and business-to-consumer (B2C) data sharing and reuse in the EU financial sector (open finance<sup>27</sup>).

“The final component is business-to-business and business-to-consumer data sharing and reuse in the EU financial sector (open finance). The revised Payment Services Directive (PSD2)<sup>28</sup> led the way in opening up data sharing on payments accounts. Further steps towards enhanced data sharing and openness across and within the various types of financial services will enable the financial sector to fully embrace data-driven innovation, in full compliance with personal data protection and competition rules. The Commission intends to adopt a broad but gradual and cooperative approach to open finance. They plan to adopt a legislative proposal for an open finance framework in 2022, building on and in full alignment with the broader data access legislative initiatives” (cited from [R5]).

## Focus

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<sup>24</sup>The Regulation establishing the ESAP is accompanied by a Directive and a Regulation, which specify in the relevant EU legislation the information to be made accessible in the ESAP, as well as certain characteristics of that information in relation to formats.

<sup>25</sup> The supervisory data strategy will help enable the use of innovative technologies, including regulatory technology (RegTech) tools for supervisory reporting by regulated entities and supervisory technology (SupTech) tools for supervision by authorities. The strategy was adopted in November 2021. COM/2021/720 final.

<sup>26</sup> COM/2021/798 final.

<sup>27</sup> Open finance refers to the sharing, access, and reuse of personal and non-personal data for the purposes of providing a wide range of financial services. The objective of open finance is to promote innovative financial products and services to the direct benefit of consumers and firms. A key condition for open finance is strong consumer trust and confidence. Further steps towards enhanced data openness across and within sectors will increase opportunities for data-driven innovation and support the creation of a broader single market for data. Source: [https://finance.ec.europa.eu/system/files/2022-10/2022-10-24-report-on-open-finance\\_en.pdf](https://finance.ec.europa.eu/system/files/2022-10/2022-10-24-report-on-open-finance_en.pdf)

<sup>28</sup> OJ L 337, 23.12.2015, p. 35–127.



Public information, financial data<sup>29</sup> (personal and corporate) and non-financial data. Therefore, to ensure interoperability, the European financial Data Space needs to be developed in close connection with Data Spaces in other sectors (see [R5]) to ensure the desired interoperability.

Among the most common types of financial data are those related to savings accounts, mortgages, credits, investments, pensions, insurance. In addition, innovation in finance increasingly relies on non-financial information, but has some relation to the latter.

### Governance structure

“To ensure maximum coherence and synergies among these three elements of the European financial Data Space (1. Digital access to publicly disclosed financial and sustainability related information; 2. Easier reporting and sharing of supervisory data among EU and national supervisory authorities; and 3. Business-to-business and business-to-consumer data sharing and reuse in the EU financial sector), the Commission will aim to use common governance structures to the extent possible. The objective is to help integrate European capital markets, channel investments into sustainable activities, support innovation and bring efficiencies for consumers, businesses and authorities alike.

- Under DIGITAL, the Commission will launch in 2022 a procurement to deliver a prototype of an ESAP-like architecture, as a first technical step in setting up the ESAP
- The Commission plans to adopt a proposal for an EU open finance framework in 2022 to enhance access to and reuse of customer data across a wide range of financial services, building on and in full alignment with the broader data access legislative initiatives.”

(cited from [R5])

### Involvement of the countries

In the desk research, it is not clear who the beneficiaries are. In this case, it would be Europe in general. However, it is interesting to point out the countries involved in the projects mentioned in item 3 Current situation, letter g, as the main beneficiaries in ascending order. With higher involvement in the creation of this specific SD to that of lower involvement.

**DATAMITE:** Spain, Germany, Ireland, Greece, Poland, Netherlands, Estonia, Bulgaria, Austria, Portugal, Italy and Finland.

**DIH<sup>2</sup> – Digital Innovation Hubs:** Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kosovo, Latvia, Lithuania, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye, Ukraine and United Kingdom.

**TRUST:** Austria, Belgium, Cyprus, Germany, Greece, Israel, the Netherlands, Romania, and Spain.

**REACH:** France, Spain, Portugal, Ireland, Estonia, Greece, Türkiye, Belgium and Italy.

**DataBri-X Project:** Greece, Cyprus, Germany, Austria, Spain, Estonia and UK.

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<sup>29</sup> Financial data includes publicly disclosed company information and business registry data, as well as data reported by financial institutions to supervisory authorities. Financial data also relates to data about individual savings, mortgages, consumer credit, investments, pensions and insurance. Furthermore, innovation in finance also increasingly relies on non-financial data.

**Data Spaces Business Alliance:** are Gaia-X European Association for Data and Cloud AISBL, the Big Data Value Association (BDVA), FIWARE Foundation, and the International Data Spaces Association (IDSA). Together they represent 1,000+ leading key industry players, associations, research organisations, innovators, and policymakers worldwide. With this cross-industry expertise, resources and know-how, the Alliance drives awareness, evangelises technology, shapes standards, and enables integration across industries.

**Gaia-X:** German, France. Actors represented: banks, insurance companies, financial institutions, fintechs, cloud service providers, software editors, academic institutes, and governmental agencies of the German-French Gaia-X Financial community

### Transnational involvements

The Open Data Directive stimulates cross-border reuse of public sector data for the benefit of the European economy and society. This Directive addresses the remaining and emerging barriers to the wide re-use of publicly funded information across the European Union and brings the legislative framework up to date with the advances in digital technologies. Once implemented by Member States, the Directive will increase the amount of public sector data available for reuse. Most public sector data will be free or available at a low cost.

### Beneficiaries of the current approach EC

The benefits to Digital Finance.

- Better financial products for consumers and new ways of channelling funding to EU businesses, in particular SMEs.
- Supports Europe's economic recovery strategy and opens up new channels to mobilise funding to support the Green Deal and the New Industrial Strategy for Europe.
- Cross-border digital finance will enhance financial market integration in the Banking Union and the Capital Markets Union.
- Strengthen Europe's ability to retain and reinforce our open strategic autonomy in financial services.

### Related initiatives (public & commercial)

Consider all the projects mentioned in the previous topic. Below is a brief description of these projects.

**DATAMITE - DATA Monetization, Interoperability, Trading & Exchange** will provide a modular framework for European companies to facilitate data monetization, interoperability, trading and exchange. To this end, the project will provide users with tools and open-source training materials to help improve data management and compliance with FAIR principles.

**DIH<sup>2</sup> – Digital Innovation Hubs** is a network of twenty-six digital innovation hubs aiming at supporting SMEs with agile production and unleashing their digitalization potential by enabling robot solutions. DIH<sup>2</sup> will transform this network into a self-sustaining non-profit association with members all over Europe. DIH<sup>2</sup> will demonstrate that publicly funded research can help SMEs and mid-caps achieve digital excellence and global competitiveness by adopting advanced robotics solutions in agile production.

**TRUSTS – Trusted Secure Data Sharing Space** aims to develop a data sharing platform for secure, trustworthy, and GDPR-compliant data exchanges.

**REACH** aims to be the main innovation mechanism that supports experimentations on secure and trusted data value chains across several sectors and launching of new data-fuelled products and services to the market, leveraging the capacities of the best data-driven DIHs in Europe. Over its lifetime, REACH will support +100 business ideas from SMEs and select among them 30 solid business cases through a total of three open calls in the coming three years, distributing a total amount of €3.5M. Ultimately, REACH aims to demonstrate that Data Silos can be broken by enabling a multi-stakeholder cross-sectoral incubator to boost data-fuelled sustainable solutions.

**DataBri-X Project** aims at equipping European Data Spaces, platforms and marketplaces and their wide range of stakeholders with a holistic and flexible data governance process and a seamless integrated standards-based toolbox for data- and metadata management.

**Data Spaces Business Alliance (DSBA)** accelerates business transformation in the data economy. It's the first initiative of its kind, uniting industry players to realize a data-driven future in which organizations and individuals can unlock the full value of their data.

**Gaia-X** is an initiative that develops, based on European values, a digital governance that can be applied to any existing cloud/ edge technology stack to obtain transparency, controllability, portability and interoperability across data and services. [Gaia-X Domain Finance](#), Position Paper Version 1.0 2021.

### 3. Legal and policy frameworks connected with the DS

- **EU Digital Finance Strategy**: aims to make the EU a leader in a data-driven society. Creating a single market for data will allow it to flow freely within the EU and across sectors for the benefit of businesses, researchers and public administrations.
- **European data strategy**
- **EU Data Governance Act (DGA)**: see [R9]
- **Data Act**
- **EU Regulation on Markets in Crypto Assets (MiCA)**. The purpose of MiCA is to create a regulatory framework for the crypto-assets market that supports innovation and draws on the potential of crypto-assets in a way that preserves financial stability and protects investors.
- **EU Digital Operational Resilience Act (DORA)**. DORA aims to create a regulatory framework on digital operational resilience whereby all firms ensure they can withstand all types of ICT-related disruptions and threats, in order to prevent and mitigate cyber threats.
- **Open Data directive**: see [R17]
- **Free Flow of Data**. The [Regulation on a framework for the free flow of non-personal data in the EU](#) aims at removing obstacles to the free movement of non-personal data between different EU countries and IT systems in Europe.
- **GDPR**: see [R14]

- **Digital Market Act (DMA)**. The DMA aims to ensure that these platforms behave in a fair way online. Together with the Digital Services Act, the Digital Markets Act is one of the centrepieces of the European digital strategy.
- **European Data Innovation Board (EDIB)**: see [R9], chapter VI

## 4. Data governance

The Commission has pointed out the need for better access to data and data sharing within the EU and aims to help integrate European capital markets, channel investments into sustainable activities, support innovation and bring efficiencies for consumers and businesses.

The aim is that by 2024:

- Disclosures of information requiring public release under EU financial services legislation will be standardised and through machine-readable formats. As part of the Capital Markets Union Action Plan, the Commission will support the development of an EU infrastructure and interoperability to facilitate access to all publicly available disclosure relevant to capital markets.
- The necessary conditions to enable the use of innovative technologies will be put in place for supervisory reporting by regulated entities and supervision by authorities, also promoting the sharing of data between supervisory authorities.

An open finance framework should be in place in the EU. Indeed, the upcoming Data Act, and Digital Services Act show a focus on data access. Similarly, the revised Payment Services Directive (PSD2) is an important step towards the sharing and use of customer-permissioned data by banks and third-party providers to create new services.

## 5. Technical building blocks for the DS

This information is present in the document.

**Additional sources of information** (if not yet referred to in the text)

- Commission Staff Working Document on Common European Data Spaces (see [R5])
- <https://dataspaces.info/common-european-data-spaces/#page-content>
- Report of the Expert Group on European financial Data Space (2022). Available at: [https://finance.ec.europa.eu/system/files/2022-10/2022-10-24-report-on-open-finance\\_en.pdf](https://finance.ec.europa.eu/system/files/2022-10/2022-10-24-report-on-open-finance_en.pdf)
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- EU Financial Data Space and Cloud Infrastructure, Eurofi Seminar – summary (April 2021). Available at: [https://www.eurofi.net/wp-content/uploads/2021/08/eu-financial-data-space-and-cloud-infrastructure\\_summary\\_lisbon-virtual-seminar\\_april-2021.pdf](https://www.eurofi.net/wp-content/uploads/2021/08/eu-financial-data-space-and-cloud-infrastructure_summary_lisbon-virtual-seminar_april-2021.pdf)
- A brief run-through of the European Union’s Digital Finance Package. Available at: <https://www.pwc.com/mt/en/publications/asset-management/a-brief-run-through-of-the-european-union-digital-finance-package.html>
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- International Data Spaces Association: <https://internationaldataspaces.org/>

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# Data Space for Public Administrations

## 1. Overview

Public administrations are big producers and also users of data in different areas. The Data Spaces for public administrations will reflect this. Actions in this area will focus on law and public procurement data and other areas of public interest such as data use for improving law enforcement in the EU in line with EU law, including the principle of proportionality and data protection rules.

The goal of the Data spaces for Public Administrations is to improve transparency and accountability of public spending and spending quality, fighting corruption, both at EU and national level.

### Key actor of EC:

#### Public administrations legal Data Space

Data Policies and Innovation, DG CNECT, EC<sup>30</sup>

Communications Networks, Content and Technology (DG CNECT)

#### Public Procurement Data Space (PPDS)

Internal Market, Industry, Entrepreneurship and SMEs (DG GROW)

## 2. Current state

### Approach EC

The Public Administration Data Space is constituted by three Data Spaces, namely:

**Public administrations Legal Data Space.** “The Legal Data Space aims at providing easily accessible, reusable, interoperable data in the area of legislation and case-law across the EU. These data can be then used in decision-making, research and the development of innovative legal tools. The legal Data Space will support legal practitioners, public administrations and society in general as well as further uphold justice and the rule of law. These data can be then used in decision-making, research and the development of innovative legal tools. Building a legal Data Space requires closer cooperation among EU institutions and with Member States. The Publications Office of the European Union (OP) will consolidate a number of initiatives to lay the foundations of the legal Data Space. The OP works to promote interoperability, both at EU and national level, and to facilitate linking, access to and reuse of EU and national legal data” (cited from [R5]).

**Public Procurement Data Space (PPDS).** “Public procurement data is essential to improve transparency and accountability of public spending, fighting corruption and improving spending quality. The PPDS will cover both the EU dimension (e.g., the Tenders Electronic Daily – TED<sup>31</sup>) and online portal for public procurement notices form across the EU, managed by the Publications Office of the EU and the national dimension. The aim will be the creation of a Public Procurement Data Space (PPDS) at EU level in a federated manner” (cited from [R5]).

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<sup>30</sup> <https://reform-support.ec.europa.eu/system/files/2022-10/Session%20%20-%20Data%20Spaces%20for%20Public%20Administrations.pdf>

<sup>31</sup> See the Tenders Electronic Daily [website](#).

**Public administration security Data Space for innovation.** “This Data Space will lay the foundations of a federated data infrastructure<sup>32</sup> at EU level specifically tailored to the needs of security and immigration stakeholders, including national authorities, EU agencies in charge of European security and justice representatives<sup>33</sup>.” (cited from [R5]).

## Focus

“The **Legal Data Space** will support legal practitioners, public administrations and society in general as well as further uphold justice and the rule of law.”

The **PPDS** will benefit Policy makers at EU, national and regional level and they will gain a wealth of insights that will enable them to predict future trends. Companies, and SMEs in particular, will have an easy-to-use portal that gives them access to a much greater number of open calls for tenders with better data quality. In addition, citizens, civil society, taxpayers and other interested stakeholders will have access to much more public procurement data than before, thereby improving transparency and accountability of public spending.

## Governance structure

### Public administrations Legal Data Space

“The OP contributes to the development of common standards to enable the exchange of legal information held at European and national level. In this sense, it aims to:

- the development of interinstitutional standards for the structuring of content and the secured and automated exchange of legal data within the Interinstitutional Metadata and Formats Committee (IMFC)<sup>34</sup>;
- providing EU related interoperability assets in the field of reference data (such as ontologies, core vocabularies, controlled vocabularies) contributing to better quality, discoverability and semantic interoperability of EU legal data;
- making these assets available for reuse to facilitate data exchange with and among Member States;
- raising awareness about the benefits of the common standards, core vocabularies and semantic interoperable models, and interoperable frameworks in the domain of legal information and documentary management (such ELI and ECLI162) within the EU institutions and with Member States.”

**Key action:** Consolidation and streamlining of a number of initiatives by the OP to lay the foundations of the legal Data Space.

### Public Procurement Data Space (PPDS)

As stated in the Staff working document on Data Spaces of the EU (2022) a first step has been taken place, under the Work Programme 2021-2022, DIGITAL has funded a procurement action<sup>35</sup> aimed at increasing the interoperability and interconnectivity of existing open datasets, to facilitate a more

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<sup>32</sup> A federated data infrastructure refers to a technical infrastructure connecting distributed data resources and services.

<sup>33</sup> C(2021) 7914 final.

<sup>34</sup> See IMMC Core Metadata [website](#).

<sup>35</sup> C(2021) 7914 final.

comprehensive overview of public procurement in the EU, including many important policy areas. The procurement action was based on an existing pilot project, which combines data sets on Public Procurement from different Member States and data from the TED.

The mapping was done using the ontology on eProcurement<sup>36</sup> funded under the previous Multiannual Financial Framework through the ISA<sup>37</sup> programme. The ontology was the basis for a common understanding of concepts that allowed linking and reusing different datasets in the public procurement Data Space. The current version of the ontology covers the electronic notification phase of the procurement lifecycle and is intended to cover all phases of the procurement lifecycle. In the same document, it is also mentioned that an open-source pilot project integrating Member States open datasets with EU data from TED is currently ongoing and will be used to build the foundation of the PPDS. The drafting of the functional requirements of a new analytic IT tool for processing above thresholds data is ongoing.

The PPDS foresees a gradual implementation and will allow Member States to share their openly available public procurement data in a collaborative manner.

This Data Space will revolutionise the access to and use of public procurement data:

- It will create a platform at EU level to access for the first-time public procurement data scattered so far at EU, national and regional level.
- It will considerably improve data quality, availability, and completeness, through close cooperation between the Commission and Member States and the introduction of the new eForms<sup>38</sup>, which will allow public buyers to provide information in a more structured way.
- This wealth of data will be combined with an analytics toolset including advanced technologies such as Artificial Intelligence (AI), for example in the form of Machine Learning (ML) and Natural Language Processing (NLP).

The PPDS will be set up progressively. The objective is to have the basic architecture and analytics toolkit in place and procurement data published at EU level available in the system by mid-2023. By the end of 2024, all participating national publication portals would be connected, historic data published at EU level integrated, and the analytics toolkit expanded. As of 2025, the system could establish links with additional external data sources.

## Public administrations security Data Space for innovation

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<sup>36</sup> See About eProcurement Ontology: <https://joinup.ec.europa.eu/collection/e-procurement/solution/e-procurement-ontology/about>

<sup>37</sup> See Multi-stakeholder Expert Group on eProcurement [webpage](#).

<sup>38</sup> Commission Implementing Regulation (EU) 2019/1780 establishing standard forms for the publication of notices in the field of public procurement and repealing Implementing Regulation (EU) 2015/1986, published on 25 October 2019. The Regulation and the extended version of its annex in the Excel file can be found here <https://ec.europa.eu/docsroom/documents/38172>. eForms will replace the current Standard Forms (see Commission Implementing Regulation (EU) No 2015/1986, published on 11 November 2015 (<https://si-map.ted.europa.eu/standard-forms-for-public-procurement>)).



“The Commission will support the creation of such Data Space. In the 2021-2022 Work Program of DIGITAL, there is an action to lay down the framework of a federated data architecture<sup>39</sup> at EU level for security innovation by funding the creation of the national components of a European security Data Space for innovation. This would allow innovation and development by setting up an EU-wide ecosystem for sharing, developing, testing, training, and validating algorithms for AI tools for law enforcement and security purposes based on various different types of datasets, including pseudo-operational and anonymized datasets, in line with the European strategy for data and in full compliance with applicable data protection rules.” (cited from [R5])

### Involvement of the countries

National and EU level. Also, Public authorities.

### Beneficiaries of the current approach EC

There are different beneficiaries. They are described throughout the document.

### Related initiatives (public & commercial)

#### Legal Data Space

Gaia-X is an initiative that develops, based on European values, a digital governance that can be applied to any existing cloud/ edge technology stack to obtain transparency, controllability, portability and interoperability across data and services. Gaia-X Domain Public Sector, Position Paper Version 1.0 2021.

International Data Spaces Association (IDSA) is an initiative dedicated to creating the future of the global, digital economy with International Data Spaces (IDS), a secure, sovereign system of data sharing in which all participants can realize the full value of their data. IDS enables new “smart services” and innovative business processes to work across companies and industries while ensuring that the self-determined control of data use (data sovereignty) remains in the hands of data providers.

## 3. Legal and policy frameworks connected with the DS

- [European Data Strategy](#)
- [Digital Strategy](#): Digital technology is changing people’s lives. The EU’s digital strategy aims to make this transformation work for people and businesses, while helping to achieve its target of a climate-neutral Europe by 2050.
- [Data Act](#)
- [Digital Market Act \(DMA\)](#). The DMA aims to ensure that these platforms behave in a fair way online. Together with the Digital Services Act, the Digital Markets Act is one of the centrepieces of the European digital strategy.
- [EU Data Governance Act \(DGA\)](#): see [R9]
- [Open Data directive](#): see [R17]

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<sup>39</sup> A federated data architecture refers to a technical architecture connecting distributed data resources and services.

- **Free Flow of Data.** The [Regulation on a framework for the free flow of non-personal data in the EU](#) aims at removing obstacles to the free movement of non-personal data between different EU countries and IT systems in Europe.
- **GDPR:** see [R14]
- **ePrivacy Directive:** see [R15]

## 4. Data governance

- a. commercial or public data

## 5. Technical building blocks for the DS

### Legal Data Space

“To facilitate access to and linking and reuse of EU and national legal data, the OP has already put in place a common repository for automatic search and retrieval of legal data from the EUR-Lex website in open formats and is working on the development of infrastructure and tools such as:

- linking the ECLI-based search engine to EUR-Lex, allowing search for EU and national judicial decisions (to be operational in February 2022);
- offering a solution for a common search platform based on ELI metadata to offer an alternative search of EU and national legislation;
- implementing the extension of the ELI standard that covers draft legislation, thus allowing cross border findability of documents in the legislative process;
- making complete sets of files of chosen EU legal data available for download (legal data dump), to facilitate further reuse of this data in research, legal publishing and legal tech, among others;
- implementation on EUR-Lex of ELI identifiers for articles of EU legal acts for more precise linking, among others, between EU law and national law (to be available in 2022);
- a renovated digital repository infrastructure to underpin the hosting and dissemination of EU legal data, as well the modalities of operation of the repository for legislative and regulatory data coming from Member States.”

(cited from [R5])

### Public Procurement Data Space (PPDS)

The development of a truly integrated space for public procurement data will require a collaborative effort at EU, national and at the level of all public buyers across the EU. The PPDS will consist of four layers:

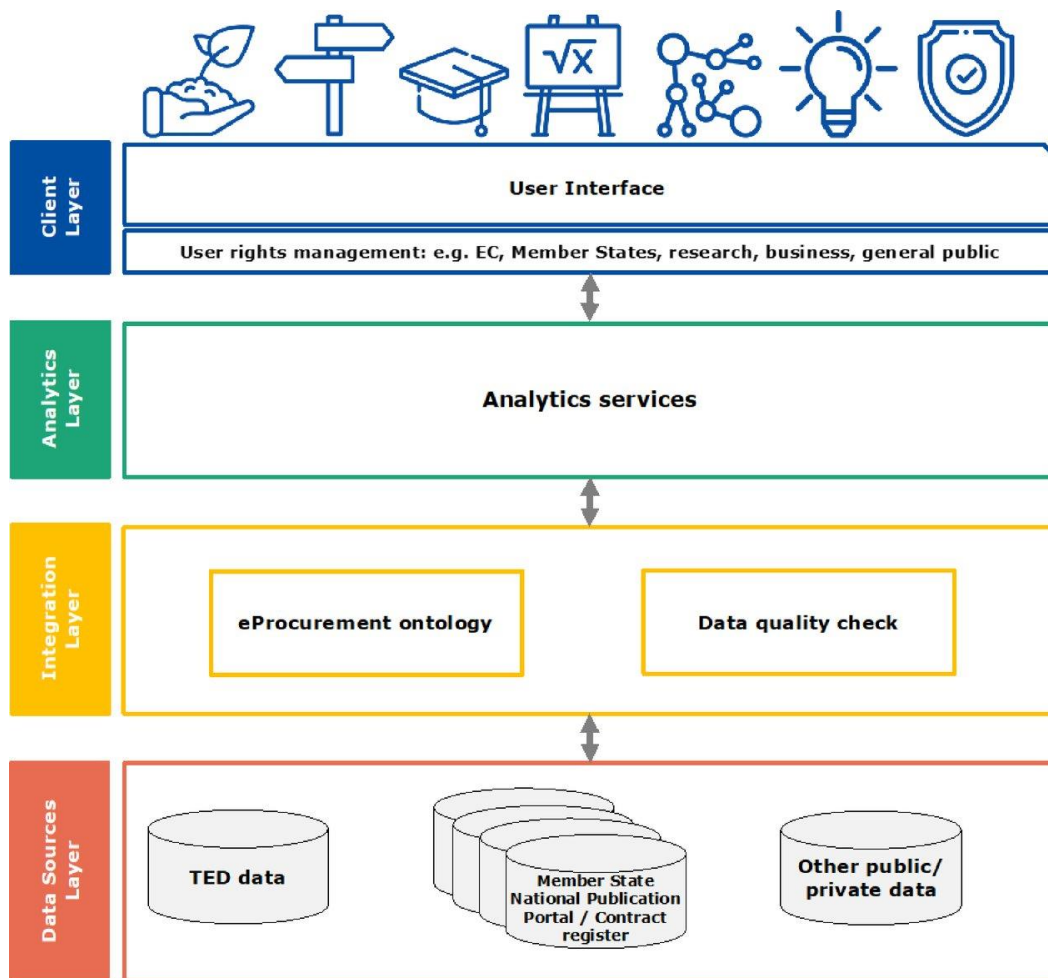


Figure 17 - The concept of a European public procurement dataspace<sup>40</sup>

The PPDS will be implemented progressively, so that the needs of Member States and other users can be discussed in dedicated workshops and taken on board while the implementation is ongoing. This collaborative approach will help to provide a useful product for stakeholders both at national and at EU level. The main three phases listed below can thus be adapted along the way, for example certain external databases could be connected with the PPDS already during the first two phases if there is user demand.

### Security Data Space for Innovation

“The governance of the European security Data Space will follow a hybrid model, namely a federation of national and local Data Spaces with central services at European level. It will require an incremental development in the coming years, which necessarily must comply with the existing legal framework and be in line with the competences of all stakeholders as conferred by their respective legal instruments.

<sup>40</sup> Communication from the Commission (2023), Public Procurement: A Data Space to improve public spending, boost data-driven policy-making and improve access to tenders for SMEs. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023XC0316%2802%29&qid=1679492590667>

The establishment of the European security Data Space for innovation would entail the definition and development of common training data sets, data quality control, documentation, testing and validation procedures (based on the new requirements in the AI proposal and the future harmonised standards for their implementation), cloud-based storage and computing capabilities, etc.

The European security Data Space will be grounded on the existing legal instruments setting out competences and responsibilities for the Member States law enforcement authorities as well as the European Agencies responsible for justice and home affairs, in particular Europol and eu-LISA. These agencies shall play a key role in the governance of the security Data Space, considering its hybrid nature.

This Data Space will contribute to fostering security research and development of AI technologies. It will strengthen technological sovereignty by creating high quality datasets that would enable national law enforcement authorities to develop and validate their own digital tools, which would 1) eliminate the threat of malicious interference of third countries/parties; 2) reduce the dependence on third-country vendors and allow for setting quality standards at EU level; and 3) increase the technological capabilities of national authorities” (cited from [R5]).

#### **Additional sources of information** (if not yet referred to in the text)

- <https://dataspaces.info/common-european-data-spaces/#page-content>
- European Commission (2023), Public Procurement: A Data Space to improve public spending, boost data-driven policymaking and improve access to tenders for SMEs: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023XC0316%2802%29&qid=1679492590667#ntc2-CI2023098EN.01000101-E0002>
- European Commission (2023), European Data Spaces for public administrations and the role of data.europa.eu: [https://data.europa.eu/sites/default/files/course/European%20data%20spaces%20for%20public%20administrations%20and%20data.europa.eu\\_.pdf](https://data.europa.eu/sites/default/files/course/European%20data%20spaces%20for%20public%20administrations%20and%20data.europa.eu_.pdf)
- Commission Staff Working Document on Common European Data Spaces (see [R5])
- European Commission (2022), Data Spaces for a Public Administration: <https://reform-support.ec.europa.eu/system/files/2022-10/Session%202%20-%20Data%20Spaces%20for%20Public%20Administrations.pdf>
- Gaia-X (2021h), ‘Gaia-X domain public sector’, Position Paper, version 1.0: <https://www.bmwk.de/Redaktion/EN/Publikationen/Digitale-Welt/211116-pp-public.pdf>

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# Energy Data Space

## 1. Overview

The Commission will take concrete steps to establish a Common European Energy Data Space for improving the access to, exchange of, and (re-)use of data. The goal is to broaden the availability of data, and to make smooth and transparent data exchanges possible for the benefit of different players and different use-cases throughout the entire value chain. They include: system operators, suppliers, aggregators, providers of storage and/or demand response services, energy service companies, building managers, financial institutions, consumers and prosumers, manufacturers of electric vehicles, smart equipment and appliances (including SMEs), operators of charging points for EVs. The best use of already available data must be ensured, including data from smart meters, to serve the interests of consumers and the energy system as a whole. The actions will also enhance the interoperability of energy assets and services, will facilitate the comparability of solutions, promote standardisation, enhance grids flexibility and responsiveness, and will ultimately contribute to the overall energy security and reliability of the energy system.

“To strengthen the European market for energy, including innovative energy services based on data, existing initiatives in the field of energy data interoperability need to be connected so that they can be scaled up.

Interoperability between different platforms and initiatives is also necessary to create a European energy Data Space in which (decentralised) renewable energy sources can be managed and CO2 emissions from key sectors (e.g. transport, buildings) reduced. A data sharing infrastructure in the form of a set of agreements, protocols and a governance system that defines who shall or can share data, under what conditions and in what format, is therefore needed. Innovative applications and services call for common baseline requirements in compliance with the data protection by design and by default. These should provide consumers and citizens with the tools to effectively exercise their rights in a digital energy market and continuously drive the energy sector to maintain the highest cybersecurity standards” (cited from [R5]).

**Key actor of EC:** DG ENER

## 2. Current state

### Approach EC

On the other hand, Horizon Europe’s 2021 work programme will fund an [innovation action](#) (**call for proposals closed in October 2021**) aimed at achieving a higher degree of interoperability between data platforms, making energy data available and re-usable, enabling new market roles, market participants and energy communities, and enabling new digital solutions and services supporting the energy transition.

Under HE the Commission launched a [CSA call](#) to facilitate the coordination and alignment of projects and support interaction between the various related initiatives happening at European and National level. The project should support a community of practice that includes interoperability expertise relevant to the energy transition that keeps track and maintains an expertise around changes in

requirements, emerging use cases and regulatory condition, development of IT/ICT, evolution of relevant standards and all activities impacting interoperability, virtualisation and digital twins, Data Spaces and support industrial and working groups' efforts towards interoperability (including ontologies, core models etc.).

The CSA has been awarded for an amount of 5 million Euro (3 years) to the project [INT:NET](#) coordinated by [Fraunhofer GESELLSCHAFT](#) which is a member of the EOSC-A.

The CSA will facilitate the coordination of the following 5 HORIZON-IA HORIZON Innovation projects with an EU contribution of 7.000.000 to 8.000.000 euro each with a duration of 3 years.

These projects will develop, validate, demonstrate an Energy Data Space that enables access to and use of energy data, comparison with different solutions and that has the following features:

- Interfaces for the exchange of information (i.e. APIs, connectors), and interoperable open standards.
- Pilot innovative solutions for a Common European Energy Data Space to promote a stronger availability and cross-sector sharing of data, in a customer-centric, secure and trustworthy manner.
- Support the establishment of a Common European Energy Data Space providing the tools and standards to connect and to make accessible as much data as possible covering the full energy value chain.
- All projects together need to demonstrate interoperability of their respective Energy Data Space with those of the other projects in this call. A joint analysis of the solutions is expected as part of this exercise (learnings, best practices, barriers to implementation ...).
- Protection of personal data, cybersecurity and data rights (e.g. right for a fair remuneration) are to be specifically considered, with a final aim to increase the trust of data subjects and data providers in the energy Data Space.
- And much more related to the establishment of an interoperable Energy Data Space.

1. [ENERSHARE](#)
2. [DATA CELLAR](#)

One of the consortium partners of this project is [Politecnico di Torino](#), member of the EOSC-A

3. [EDDIE](#) : European Distributed Data Infrastructure for Energy

One of the consortium partners of this project is the [University of Vienna](#), member of the EOSC-A

4. [Omega-X](#)
5. [Synergies](#)

One of the consortium partners of this project is the [Technical University of Denmark](#), member of the EOSC-A.

The DIGITAL Europe Work Programme 2024 foresees funding for projects which will put in commercial service the Common European energy Data Space through the deployment use cases and corresponding data sets in at least half of the member states. This action will contribute to decreasing greenhouse gas emissions by maximising the utilisation of renewable energy, minimising the use of fossil fuel electricity generation capacities, electrification of sectors traditionally relying on fossil fuels, improving energy efficiency and local generation and use of renewable energy.

## Focus

Type of beneficiaries: Public and private entities

## Governance structure

The CSA will propose a governance structure in collaboration with the DSSC.

## Involvement of the countries

Some Ministries have expressed their willingness to be associated to the projects eg. BUNDESMINISTERIUM FUER KLIMASCHUTZ, UMWELT, ENERGIE, MOBILITAET, INNOVATION UND TECHNOLOGIE from Austria in the project INT:NET.

## Beneficiaries of the current approach EC

Across the EU, organisations are preparing for the crucial transition to green and sustainable energy. However, despite the existing forms of cooperation and interoperability between Member States, corporations, and institutions, this shift still requires a significant amount of interoperability. The EU-funded IntNET project will offer just that, bringing together researchers, policymakers and framework setters to achieve and monitor any changes required in testing procedures. It will also push for improved cooperation between energy services to ensure synchronisation between providers.

Some EOSC-A Members receive funding in the projects establishing the Energy Data Space (see higher)

## Related initiatives (public & commercial)

Seamless data exchanges between the energy and the financial Data Spaces could help unlocking additional private financing to support the energy transition.

## 3. Legal and policy frameworks connected with the DS

“Energy-sector legislation (in particular the Clean Energy for all Europeans Package and the Fit-for-55 Package) and cross-sectoral Data Space building blocks, such as those provided by the Data Governance Act, define the main elements to enable future-proof data exchange across multiple parties in the energy sector (and beyond).”

“On the one hand, detailed rules are being drafted on data exchange and governance as well as on cyber-security, in line with the Electricity Directive that was reviewed as part of the Clean Energy for all Europeans package. Also, as part of the renovation wave and the ongoing work on energy efficiency, the use and sharing of data for more efficient and smarter buildings is addressed in the Commission’s proposal for a revised Energy Performance of Buildings Directive which was adopted on 15 December 2021.”

“The Commission will propose an implementing act for metering and consumption data in 2022 and a network code on cyber-security by the end of 2022” (cited from [R5]).

#### 4. Data governance

Explore the potential of data sharing among companies and develop new use-cases for the benefit of the energy transition. The EDS will have to work with the DSSC.

#### 5. Technical building blocks for the DS

The EDS will have to comply with the Simpl middleware framework.

**Additional sources of information** (if not yet referred to in the text)

- [Digitalising the energy system - EU action plan, Commission staff working document \(COM\(2022\) 552 final\)](#)
- Commission Staff Working Document on Common European Data Spaces (see [R5])
- DIGITAL Europe Work programme 2021–2022 (see [R7])
- DIGITAL Europe Work programme 2023–2024 (see [R7])

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# Data Space for Smart Communities

## 1. Overview

“Time is critical in addressing the challenges of the twin digital and green transition. Cities and communities are ready for effective innovation, hence the need for the creation of a Data Space for smart communities as an enabler of the Green Deal goals and Sustainable Development Goals” (cited from [R7] WP 2021-22).

The Data Space for Smart Communities is an overarching Data Space and will **grow organically**, building on different EU initiatives and data ecosystems, and strengthening the connection between repositories of data.

## 2. Current state

### Approach EC

The DIGITAL Europe Work Programme 2021-2022 foresees 2 calls for proposals:

The first concerns a CSA of 1 million Euro with a duration of 1 year which will have to deliver (cited from [R7] WP 2021-22):

- A sustainable **data governance scheme** for the smart communities’ Data Space as well as a **blueprint** that connects existing local data ecosystems and EU systems and enables public and private stakeholders to develop cross-sector, cross-community, data services, including AI-enabled data services.
- A detailed **roadmap** towards a full-fledged pan-EU smart communities’ Data Space that will be interconnected with the **Green Deal Data Space**, and will include a set of technical specifications for interoperability with the European Data Spaces Technical Framework.

The resulting project is called the [Data Space for Smart and Sustainable Cities and Communities](#).

The [second call](#) has a EU contribution of 18 million for a duration of 3 years and will build upon the outcome and deliverable of the first call. Activities in this topic will pilot and apply the principles of the Data Space for smart communities defined in the blueprint developed in the first call, on a large scale and with good geographical coverage, to build EU capacity for connecting data from all relevant domains, following their specific legislation. They will also contribute to the fine-tuning and improving the blueprint via a continuous feedback loop to the outcome of the CSA. The second call will fund 10 to 12 cross sector data pilots of third-party consortia (cascading grants) covering the whole EU by making use of common data sets.

### Focus

Commercial and public data.

### Governance structure

Will be developed by the CSA in collaboration with the DSSC.

The awarded consortium will work (cited from [R7] WP 2021-22) “in partnership with the Data Spaces Support Centre in order to ensure alignment with Smart Middleware Platform and the rest of the ecosystem of Data Spaces thereof:

- The Data Space reference architecture, building blocks and common toolboxes to be used;
- The common standards, including semantic standards and interoperability protocols, both domain specific and crosscutting;
- The data governance models, business models and strategies for running Data Spaces. Outcomes and deliverables”
- An innovative and federated smart communities’ dataspace, including a large number of EU communities, supported by middleware service solutions.

### Involvement of the countries

None found

### Beneficiaries of the current approach EC

Not yet clear. At the moment the result of the cascading call is not unknown.

### Related initiatives (public & commercial)

Exploiting synergies with the data available on the mobility Data Space.

The cascading grant action should also establish links to those Horizon Europe missions that work with communities and cities as key implementing partners (e.g. **Mission on Climate Neutral and "**

“The funding of the DIGITAL Europe Programme 2021-2022 will enable the establishment of a data governance mechanism, with a detailed roadmap on how the Data Space for smart communities will connect local data ecosystems at the EU level that could be interconnected with the future **Green Deal Data space**” (cited from [R7] WP 2021-22).

## 3. Legal and policy frameworks connected with the DS

None found

## 4. Data governance

Will be delivered by the CSA in close collaboration with the DSSC.

## 5. Technical building blocks for the DS

Will use the Simpl Middleware framework architecture.

### Sources of information

- DIGITAL Europe Work programme 2021–2022 (see [R7])

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