

**EUROPEAN
SPACE
DATA SPACE**

Alpine Privacy Days

Zuoz, Switzerland

March 7, 2024

**DE GAULLE
FLEURANCE**

LEGAL STEP

TO CHANGE

Space and the Addams Family

Credit: [Frank M. Salzgeber](#) (ex-ESA)

Coming from page 15/29 of

<https://ec.europa.eu/docsroom/documents/16672>

at 2nd Workshop on Access to Finance for Space Industry

3rd of May 2016



From Space down to Earth...



© World Economic Forum's Global
Agenda Council on Space Security
March 2015

According to EIB [1], Space Means any of the following:

- a) “Upstream space”: including the research, development, manufacturing and exploitation of space, launcher systems, technologies, services, products including their space, ground, user segments; or

- b) “Downstream space”: including the use of space data and information in order to provide new technologies, services or products.

[1] https://www.eif.org/what_we_do/equity/efsi/call/Addendum_innovfin_space.pdf

Space Cooperative Europe SCE (SCE²)

- First *Societas Cooperativa Europaea* (SCE)
 - dedicated to space domain
 - statutes signed on the 20th of November 2020 (same date than the 10th ESA/EU Space Council [1])
 - incorporated in Munich (Germany) on the 10th of March 2021
- Public opening
 - at European Space Week 2020 (7-11 December 2020 / <https://www.euspaceweek.eu/>)
 - thanks to the German presidency of the Council of the European Union
- 9 co-founders
 - 7 in Germany & 2 in France
 - 6 legal entities & 3 natural persons
 - Technical (IT & space) and financial expertises
- 15 additional partners
 - 8 joined in 2021/ 3 in 2022 / 3 in 2023 / 2 in 2024
 - 1 left in 2023
- As of March 6th, 2024:
 - 24 members from 6 countries (DE, FR, GR, IT, UK, USA),
 - the last 2 ones being De Gaulle Fleurance (France) and Heuking (Germany)
 - 34 shares for a total equity of EUR 170,000



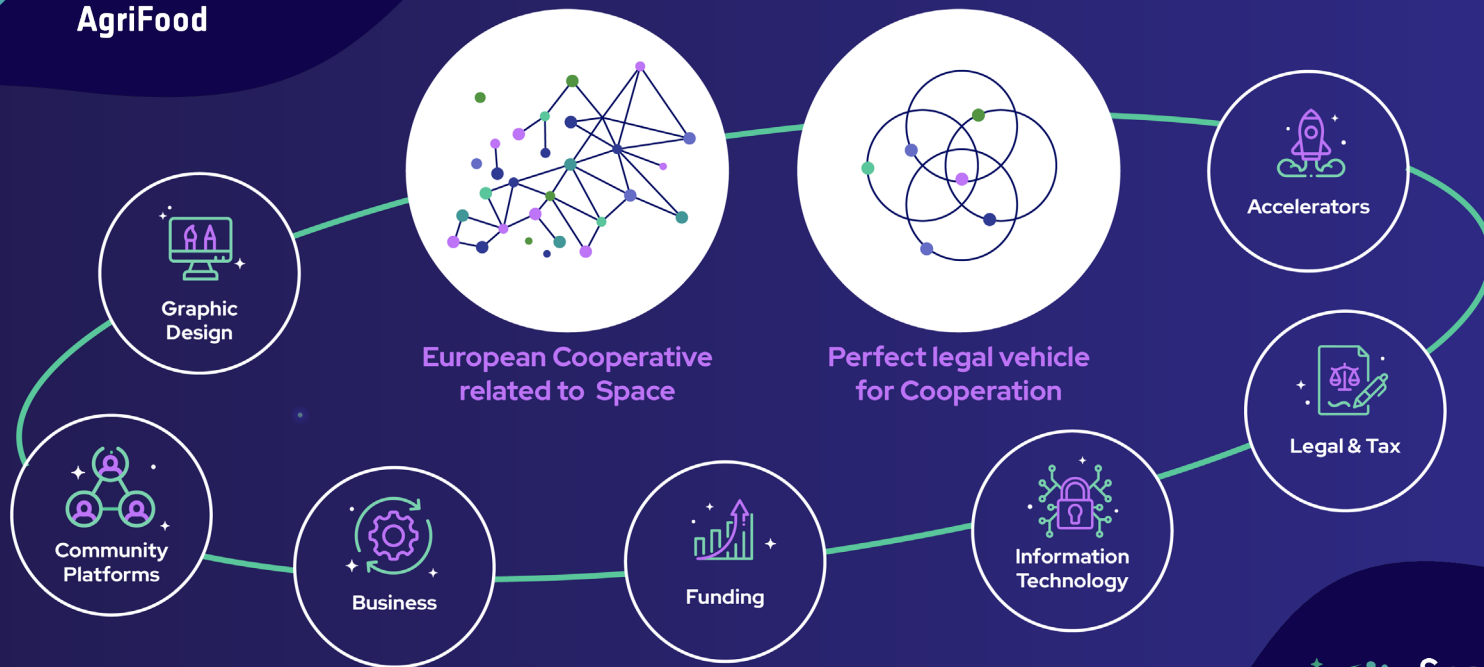
[1] https://www.esa.int/About_Us/Corporate_news/Tenth_EU_ESA_Space_Council



BSGN

Business in Space Growth Network

Accelerator AgriFood



**Key principles
to understand
Outer Space
and its applicable law**

**DE GAULLE
FLEURANCE**

LEGAL STEP

TO CHANGE

OUTER SPACE IN 8 QUESTIONS

1. Where Does Space Begin?

- The boundary between Earth's atmosphere and space is established at approximately 100 kilometers, known as the Karman line.
- However, determining a precise limit for space is subject to debates, especially regarding the sovereignty of states' airspace and the contested zones located between 80 and 120 kilometers above sea level.

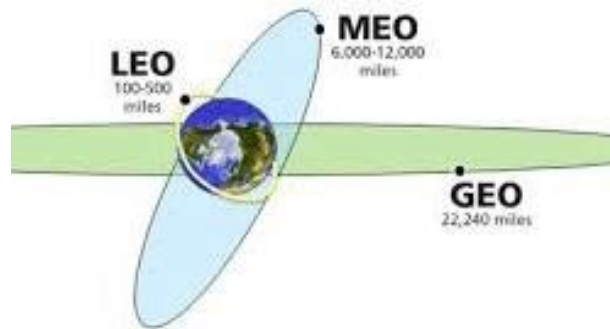
OUTER SPACE IN 8 QUESTIONS

2. What are the Uses of the Different Orbits around Earth?

Earth is surrounded by different orbits, each with specific applications:

- **Low Earth Orbit (LEO)** for observation and telecommunications,
- **Medium Earth Orbit (MEO)** for radionavigation, and
- **Geostationary Earth Orbit (GEO)** for satellites in a fixed position.

This structuring of near-Earth space is crucial for space activities, while the presence of space debris poses a major challenge for the safety and sustainability of space missions.



OUTER SPACE IN 8 QUESTIONS

3. Can Space Have Military Uses?

- Although the Outer Space Treaty of 1967 limits the military use of space, notably by prohibiting weapons of mass destruction, countries continue to develop strategies for defense and surveillance from space. The increasing dependence on space technologies for national security has transformed space into a strategic domain where global powers seek to assert their influence.

4. What are the Space Powers?

- The concept of a space power is reserved for states capable of autonomously manufacturing and launching their satellites. Countries like Russia, the United States, Canada, China, Japan as well as Europe as a whole, are recognized for their advanced space technology capabilities, each with their own strengths, challenges, and ambitions in space exploration and utilization.

OUTER SPACE IN 8 QUESTIONS

5. What is New Space?

- **“New Space”, means a significant transformation in the space industry, characterized by the emergence of new actors, major technological advancements, and a new commercial approach based on the exploitation of space data.**
- **This dynamic is largely driven by private companies and is supported by both public and private investments, altering the traditional landscape of space activities.**

6. Who Oversees the Space Sector? The French example

- The oversight of the French space sector was recently transferred from the Ministry of Research to the Ministry of Economy, reflecting a desire to align with the dynamics of New Space and foster innovation and commercial development.
- This transition aims to bolster the participation of companies and startups in the space sector, although it raises concerns about the funding of space research and the balance between innovation and traditional scientific projects.

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Source: <https://www.vie-publique.fr/questions-reponses/285492-lespace-en-huit-questions>

OUTER SPACE IN 8 QUESTIONS

7. Is there a Law of Space?

- **International space law:** consists of one declaration and five main treaties and principles established by the United Nations, governing space activities
 - ❑ Declaration of Legal **Principles Governing the Activities of States in the Exploration and Use of Outer Space** (1962)
 - ❑ Treaty on **Principles Governing the Activities of States in the Exploration and Use of Outer Space**, including the Moon and Other Celestial Bodies (known as the "Space Treaty", January 27, 1967)
 - ❑ Agreement on the **Rescue of Spationauts, the Return of Spationauts and the Return of Objects Launched** into Outer Space (April 22, 1968)
 - ❑ Convention on **International Liability for Damage Caused by Space Objects** (March 29, 1972)
 - ❑ Convention on **Registration of Objects Launched into Outer Space** (January 14, 1975)
 - ❑ Agreement Governing the **Activities of States on the Moon and Other Celestial Bodies** (December 18, 1979)
- **Goal:** to promote the peaceful use of space, prevent its appropriation by nations, and establish the responsibility of states for damages caused by their space objects¹¹

Governance of Space Activities

Hints from International Space Treaties

Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space (1962) (Resolution XVIII):

- ☐ The outer space and its exploration should be carried out for the benefit and interests of mankind
- ☐ The outer space shall remain free for exploration on a basis of equality in accordance with international law
- ☐ The outer space cannot be subject to national appropriation by claim of sovereignty
- ☐ The activities led in outer space shall be carried out in accordance with international law
- ☐ States shall bear the responsibility for national activities led in outer space
- ☐ States shall co-operate, provide mutual assistance, and respect the interests of other States in outer space
- ☐ Any State that launches and registers an object into outer space shall retain jurisdiction and control over that object

Governance of Space Activities

Hints from International Space Treaties

Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies' ('Space Treaty') (1967):

- ☐ Signatory countries shall bear **responsibility for national activities in outer space carried on by their nationals (astronauts), governmental agencies or non-governmental entities** (art. VI)
 - ☐ Any signatory country launching an object into outer space may be held **internationally liable for damage caused by this object** to another signatory country or its nationals (art. VII)
 - ☐ A signatory country having **registered an object launched into outer space will retain jurisdiction** and control over this object (art. VIII)
- => Governments have sole responsibility to **authorize and monitor space activities**

Convention on International Liability for Damage Caused by Space Objects ('Liability Convention') (1972):

- ☐ In the event of damage being caused elsewhere than on the surface of the earth, to a space object of one launching State or to persons or property on board (for instance by the space object of another launching State), the latter shall be liable only if the **damage is due to its fault or the fault of persons for whom it is responsible** (art. III)

OUTER SPACE IN 8 QUESTIONS

8. What about Space at the EU level? A law under construction...

All European states (with the exception of Latvia) are parties to the [1967 Outer Space Treaty](#).

11 national legislations in the EU => no harmonization

Given the growing number of non-governmental entities conducting space activities and New Space development, European states must cooperate to comply with their international obligations.

Draft EU Space Law under way: rather than a multiplication of national legislations, the European Commission is considering adopting a legal instrument that would serve as a framework for the Member States in setting up an **organized single market**.

Aims to support (i) the development of sovereign capabilities in outer space and (ii) the strategic need for the EU to develop its industry and maintain its autonomy in the space sector.



Governance of Space Activities in the EU



Some figures:

- **Second largest space industry** in the world
- Employs **over 231,000 professionals**
- Valued (estimate) at 53-62 billion €
- **Regulation (EU) 2021/696**: legislative framework establishing the European Union's space programme and its agency: EUSPA
- **EU Space Programme** (under Horizon Europe 2020-2027): 14.88 billion € for 7 years

OUTER SPACE IN EIGHT QUESTIONS

8. What about Space at the EU level ?

December 2009: the Treaty of Lisbon has given the EU international legal personality and new competencies in security, defence and space policy (Article 189 TFEU).

This treaty enables the EU to sign international agreements. It strengthens the role of the European Parliament in establishing a space policy aimed at promoting scientific progress, industrial competitiveness and the application of European policies, without, however, being able to harmonize national legislation.

2021: adoption of [Regulation 2021/696](#), established the European Union Space Programme Agency (EUSPA) and organizes the operational and commercial aspects of the most important European space initiatives (e.g. navigation through the Galileo satellite system and Earth observation with the Copernicus services). => Foundation stone for Europe's space strategy to position itself alongside other space powers at the international level.

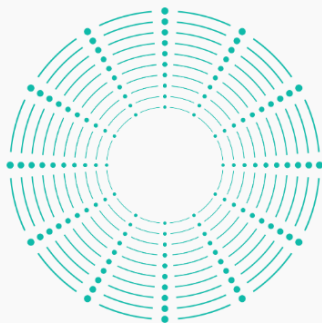
2022: [the EU recognised space as a strategic domain](#) whose role is critical for society, the economy, security and defence (working on a common understanding of space threats, their identification and their perception by other major powers + development of a [strategic compass](#) designed to strengthen the EU's security and defence policy between now and 2030.



Governance of Space Activities

FUTURE EUROPEAN UNION LAW

An EU Space Law was presented by President von der Leyen as one of the **Commission's priorities** for 2024 in the context of the State of the Union in September 2023:



A Europe fit for the digital age

- EU Space Law
- Strategy on Space Data Economy
- Initiative to open up European supercomputer capacity to ethical and responsible AI start-ups

Three pillars:

SAFETY

RESILIENCE

SUSTAINABILITY



On January 2024, **Belgium took over the Presidency of the Council of the EU** for the next 6 months, and restated that **EU Space Programme** is a **major priority**.



Governance of Space Activities

FUTURE EUROPEAN UNION LAW

CURRENT DISCUSSIONS:

The European Commission has issued a **stakeholder consultation** (industries, small businesses, etc.) on the EU legislative initiative, which is now closed → Private sector involvement

- Assessing the current situation and problems
- Evaluating the effectiveness of current international and national space laws and the need for new regulations or guidelines
- Gathering opinions on the potential benefits or drawbacks of different policy options, including non-binding measures, EU legislative acts, and bilateral agreements

Today, the consultation is closed, and the discussions on this text go on.

Governance of Space Activities

FRENCH LAW

FRENCH LAW ON SPACE OPERATIONS

adopted on June 3, 2008

OF PEOPLE	PROPERTY	PUBLIC HEALTH	THE ENVIRONMENT
-----------	----------	---------------	-----------------

Before 2008:

despite the absence of specific legislation, there was a framework (through agreements and specific contracts) governing the authorization and monitoring of French space activities as well as issues of liability

Objectives:

- Establish a coherent national framework for authorizing and controlling space operations under French jurisdiction or for which the French government bears international responsibility as a launching state.
- **Comply with the principles of the United Nations treaties.**
- **Reflect the international agreements** regularly signed between France and ESA since 1975, particularly those related to the Guiana Space Centre (CSG).
- **Implement the commitments made by France** in the context of the Declaration on the Exploitation of Launchers (AGI since 1980) with respect to other European states participating in the Ariane, Vega, and – more recently – Soyuz programs.

Governance of Space Activities

FRENCH LAW

The distinction introduced between the launch phase and the control phase aims to establish a division of responsibilities (towards third parties) between successive operators.

- **Launch Phase:** the period that starts when launch operations become irreversible and ends when the object to be placed in outer space is separated from its launch vehicle.

- **Control Phase:** the period that begins when the object to be placed in outer space is separated from its launch vehicle and ends upon the occurrence of certain events.

Space Operations:

Art 1.3: any activity consisting of launching or attempting to launch an object into outer space, or ensuring the control of a space object during its journey in outer space [...], as well as during its return to Earth.

- **Launch or launch attempt**
- **Command in orbit (or command transfer)**
- **Return of a space object**

Exclusions:

- ☐ Manned space flights (applicable law = ISS)
- ☐ Suborbital flights (applicable law = combination of air and space laws TBD)
- ☐ Command of interstellar vehicles (probes for exploration): because they are not considered satellites since there is no Earth orbit after the launch phase (Law 2008, art. 1-5)
- ☐ Sounding rockets and balloons: do not fall within the scope of the definition of a space operation (air law applies)

Governance of Space Activities

Example of FRENCH LAW

IN FORCE

- Definitions
- Authorization of space operations: insurance
- Registration of space objects
- Financial responsibilities
- Provisions relating to the Research Code
- Intellectual property
- Space-origin data: limitations
- Transitional and final provisions
- Business law
- Contract law
- Law of obligations
- Digital and data law
- Taxation
- Sectoral rules: e.g. life sciences, agrifood...
- Telecommunications
- Consumer protection
- Satellite applications

UNDER DISCUSSION

- Current framework
- New activities: exploration, new launchers, orbital activities, and large constellations

**Préparer le droit spatial français
aux nouvelles ambitions lunaires**

ENCADRER L'UTILISATION DES CORPS CÉLESTES



NOVEMBRE / 2023

Note d'approfondissement stratégique n°1

Auteur : Alban Guyomarch, coordinateur d'Objectif Lune pour l'ANRT
Directrice de publication : Carlène Angéles, déléguée générale de l'ANRT

Outer Space Activities & Applicable Law

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BSGN Industry Accelerators

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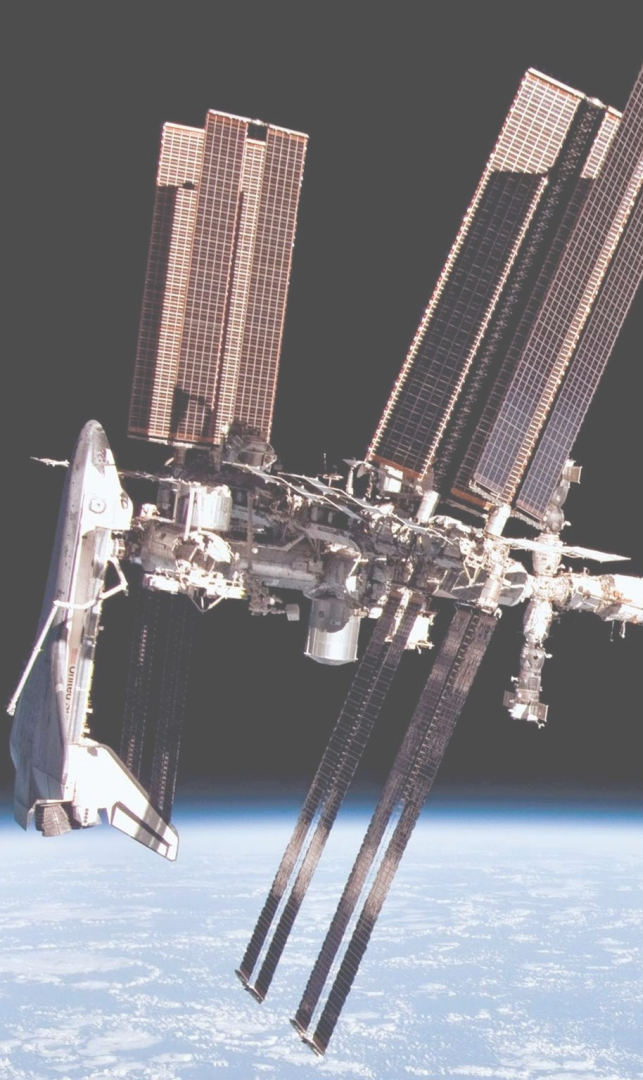
Advanced Materials & Manufacturing

Agriculture & Food

Life Sciences, Biotech & Pharma

Feedback

Connecting European Industry to new Business Opportunities



Focus on the International Space Station

A Lab Off the Earth, For the Earth

remarks

A world-renowned laboratory in space enabling more than 4,400 researchers in 109 countries to conduct more than 3,000 experiments in persistent microgravity

2000-2030+	Decades of exploration & use
2000-2010	Decades of assembly
2010-2020	Decades of utilization
2020-2030	Decades of results
2028 -	



Transition to commercial LEO destinations
and LEO national or regional labs

1998 International Space Station Intergovernmental Agreement (IGA) – Overview

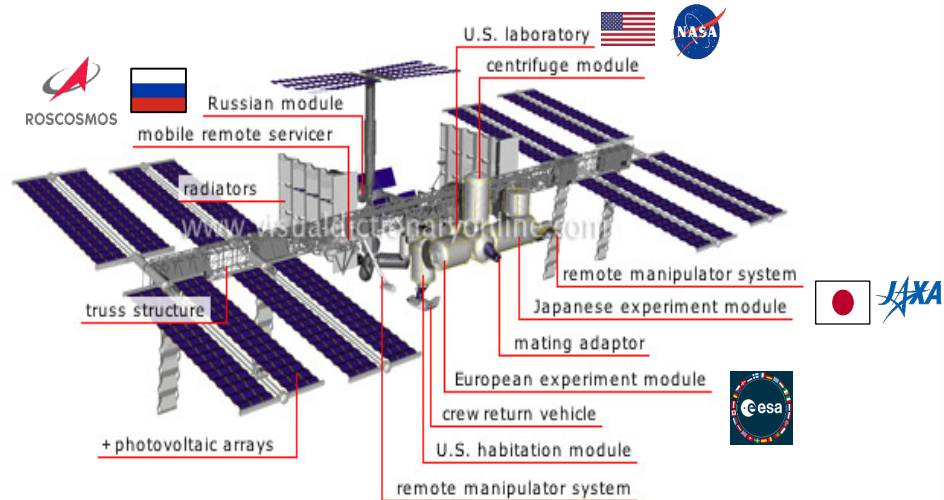
- Participation of **15 governments**



Fundamental philosophy: Exchange of goods and services between space agencies without the exchange of funds

- Partners' rights:
 - utilize equipment and facilities on each other Partner's elements
→ Art 9 IGA
 - those who provide ISS user elements retain the use of those elements (e.g., research laboratories like Columbus)
 - those who contribute resources and infrastructure elements to operate and use the ISS elements receive a fixed share of the use of specific elements in return
(e.g., Canadian robotic arm)

International Space Station - ISS



Source : ESA

Determining Applicable Law

The ISS Intergovernmental Agreement (IGA) sets up a legal framework for ISS activities.

- The ISS shall be operated and developed in accordance with international law.
- **Space Station Partner States extend their national jurisdiction to outer space, so that the elements they provide (e.g. laboratories and equipment) are assimilated to the territories of the Partner States.**
- **Each Partner State shall retain jurisdiction and control over the elements it registers and over national personnel (Article 5 IGA).**

Law applying when an activity is conducted aboard the ISS:

- The law of the country having registered the said module.
- For ESA's module, a national law selected in the agreement between the module user and ESA will apply, subject to EU law.

→ *Applies in particular to biomedicine experiments or production activities conducted aboard the ISS.*

The governance of outer space activities

1998 International Space Station Intergovernmental Agreement

- The IGA establishes a '**cross-waiver of liability**' which prohibits any of the Partners or their related entities (contractor, sub-contractor, user, customer) to claim against another Partner (or its related entities) for damage sustained as a result of ISS activities
→ Article 16 IGA (but with exclusions)
- Regarding activities aboard the ISS, IGA **derogates** from the 1962 Declaration and the 1967 Space Treaty under which States are responsible for the activities led by their nationals in outer space



The governance of outer space activities

Focus on Intellectual Property Rights

1998 International Space Station Intergovernmental Agreement

- **Regarding IP Law**: an activity occurring in or on an ISS flight element shall be deemed to have occurred only in the territory of the Partner State of that element's registry, except that for ESA-registered elements any European Partner State may deem the activity to have occurred within its territory (Article 21 IGA)
- Specific marking procedures to protect the proprietary and confidentiality of each other's data and goods.
- Protection of intellectual property rights (IPRs): The main objective of the Space Station Partners is to avoid the infringement of rights owned by another Partner and their entities (e.g. contractors, subcontractors, users)

→ **HOWEVER** : *the IGA's waiver of liability does not apply to IPRs*

Outer Space Activities & Data driven economy

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LEGAL STEP

TO CHANGE

CONTEXT

2018



Silos, winner takes all
& privacy issues



Privacy regulation
global landmark
(GDPR, portability, rights)



Data-sharing
as a cornerstone
(DGA, DSA, DMA, DA)



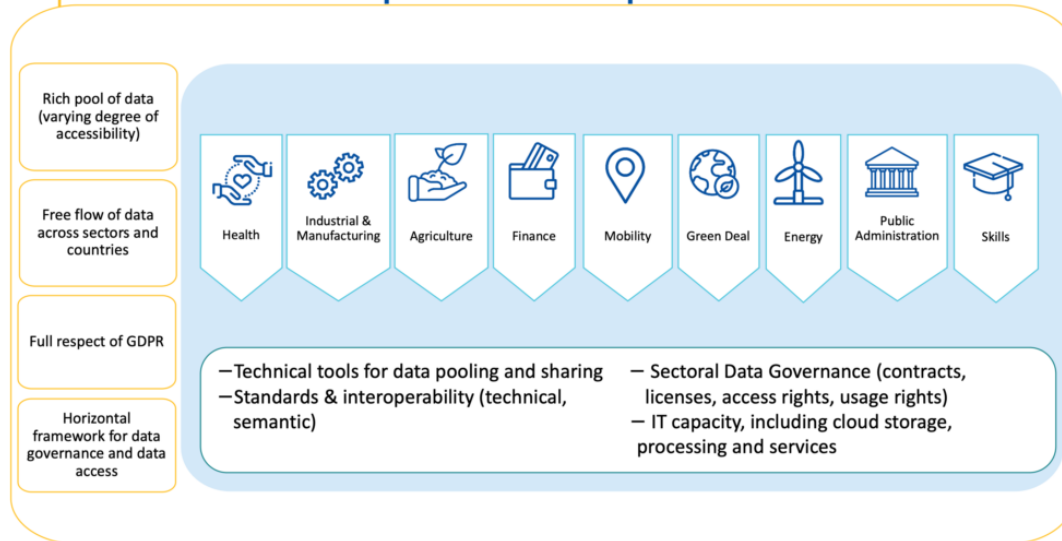
Data Spaces
Standardization
(Data Spaces projects)

2022

+10 B€ EU Investment
325 B€ Global Market Size*

*‘ Today we are defining a truly European approach to data-sharing. Europe needs **an open but sovereign single market for data**. Our regulation, coupled with the right investments and key infrastructure, will help Europe lead the world in data. ‘* Thierry Breton – EU Commissioner for Internal Market

Common European data spaces



* <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020SC0295&rid=6>

Remarks on data spaces



93% of daily produced data are not exploited to their full potential (issues with access, interoperability & exploitation system)

Lack of **proper data usage** within the EU => may not become an emerging data power with leading role

The EU project is to increase its potential as a **global leader in data sciences** and provision => hence the **creation of sectorial European Data Spaces** to:

- foster an ecosystem for companies, public actors, civil society, and individuals that stimulates the creation of new products and services
- contribute to the establishment of a single market for data, and fill the gap between data and users
- further develop trust in data-sharing practices, increase accessibility to data, guarantee fairness in the digital environment, as well as stimulate a competitive data market

Remarks on data spaces



⇒ **A Data Space** = a framework allowing for the establishment of such an ecosystem through organizational, technological, regulatory and governance measures

⇒ **“Soft digital infrastructures”** aimed to provide easy and reliable access to data across various stakeholders and boundaries under a single governance framework



⇒ **Data Spaces feature several characteristics:**

- ❖ federated ecosystems where data are easily accessed in a secure, trusted and standardized manner, based on shared rules (e.g., access rights);
- ❖ not centralized platforms nor common databases;
- ❖ participation is open to governmental, institutional or public organizations, companies, user communities and individuals;
- ❖ data that are made available can be reused against compensation or for free;
- ❖ rely on a few key principles: trust, transparency, security, traceability, etc.

Remarks on data spaces



⇒ Up to now, 8 common EU Data Spaces have been created in 7 different domains:

Cultural Asset

[Espace européen commun de données pour le patrimoine culturel](#)

Health

[HealthData@EU Pilote](#)

[Action commune vers l'espace européen des données de santé — TEHDAS](#)

Language

https://language-data-space.ec.europa.eu/index_en

Media

[l'espace de données pour les médias](#)

Public administrations

[L'espace de données sur les marchés publics \(PPDS\)](#)

Research & innovation

[Le nuage européen pour la science ouverte \(EOSC\)](#)

Skills

[L'espace de données pour les compétences \(DS4Skills\)](#) »

Common European data spaces

Rich pool of data
(varying degree of
accessibility)

Free flow of data
across sectors and
countries

Full respect of GDPR

Horizontal
framework for data
governance and data
access

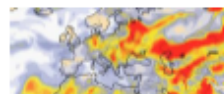


- Technical tools for data pooling and sharing
- Standards & interoperability (technical, semantic)
- Sectoral Data Governance (contracts, licenses, access rights, usage rights)
- IT capacity, including cloud storage, processing and services

Personal data spaces



High-value data sets from the public



sector
e.g. weather,
geospatial,
statistics.



European
Commission

High-Value Datasets (HVD)

<https://eurogeographics.org/news/high-value-datasets/>

According to the Directive on open data and the re-use of public sector information (PSI),

‘high-value’ means data with the potential to:

- generate significant socio-economic or environmental benefits and innovative services;
- benefit a high number of users, in particular small to medium sized enterprises (SMEs);
- assist in generating revenues; and
- be combined with other datasets.

Six thematic categories of high-value datasets are identified in the Directive:

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

"the thematic categories listed in the Annex could inter alia cover postcodes, national and local maps (Geospatial), energy consumption and satellite images (Earth observation and environment), in situ data from instruments and weather forecasts (Meteorological), demographic and economic indicators (Statistics), business registers and registration identifiers (Companies and company ownership), road signs and inland waterways (Mobility)."

Remarks on space data space



In parallel, the **space sector is growing:**

- Increasing the number of data produced by public, private and institutional actors
- More companies provide services using space => more users looking towards space data to find solutions and develop their own markets

- ⇒ **Unlocking the full potential of space infrastructure and the data they produce will contribute to economic growth.**
- ⇒ In this context, developing appropriate mechanisms to share data in a secure environment and with appropriate governance will be key. **The creation of a Space Data Space (SDS) is a cornerstone for achieving this objective.**
- ⇒ Facilitating **the combination of space data** (of all types, e.g., remote sensing, PNT, satellite communications, weather forecast) **with other sources of data** (social media, in-situ, open source, Internet of Things, etc.)

Remarks on space data space



Questions:

- 1) A Space Data Space for which objectives?
- 2) Which governance for the Space Data Space?
- 3) How to connecting the Space Data Space with third parties, existing Space projects and other Data Spaces.

1st takeaways:

- ❖ Clear use cases first need to be identified before creating the SDS (civil security as a relevant starting point)
- ❖ The SDS is a key enabler for facilitating the accessibility and ability to search for relevant data
- ❖ The security of and trust towards the SDS must be ensured to guarantee its adoption
- ❖ A proper governance framework necessary to address the diversity of stakeholders' backgrounds and interests and ensure smooth public-private collaboration
- ❖ Standardisation and harmonisation between existing data, products, services and methodologies should be promoted over the development of new ones

Remarks on space data space



Many questions remaining, e.g.:

- ❖ Should the SDS focus on improving access to space-based data or should it facilitate data sharing within the space sector?
- ❖ About the nature of data that should be accessible through a SDS: should only space-based data be included in the SDS or also non-space data?
- ❖ Openness of an SDS remains an open question. For instance, should U.S. and Chinese providers and users be allowed to access a European SDS if they abide by established standards, although it may create risks for European data security?

European Space Data Space

OBJECTIVES

- ❑ **Easing access to Space Data**, which can be useful for many use cases: **natural disasters** management, **customs and border controls**, **civil safety**, **agriculture** and **food security**, **meteorology**, **transport** and **mobility**...
- ❑ For **all phases of crisis management** (prevention, response, recovery):
 - └ Ex: search/rescue efforts, mapping, insurance coverage, ...
 - └ Ex: civil security: requires the right data, the right place, and the right time
- ❑ Ensuring high data quality and facilitating access to users could **enhance data sharing initiatives** and **bolster support security missions**

STRATEGY

- ESA **supports** such a project
- It is part of the **EU's overall policy** establishing a **space program for 2021-2027**
- It is designed to **connect with** other **European common data spaces**

To be continued...

A few examples

Disaster Management



- **Anticipate, monitor and respond** to natural disasters
Ex: hurricanes, earthquakes and floods
- Enable **better planning of rescue and evacuation** operations
- Identify **areas at risk**, and the people or facilities at risk

Epidemiology



- **Map the spread** of disease
- Identify **areas at risk**
- Plan **targeted interventions** to control epidemics

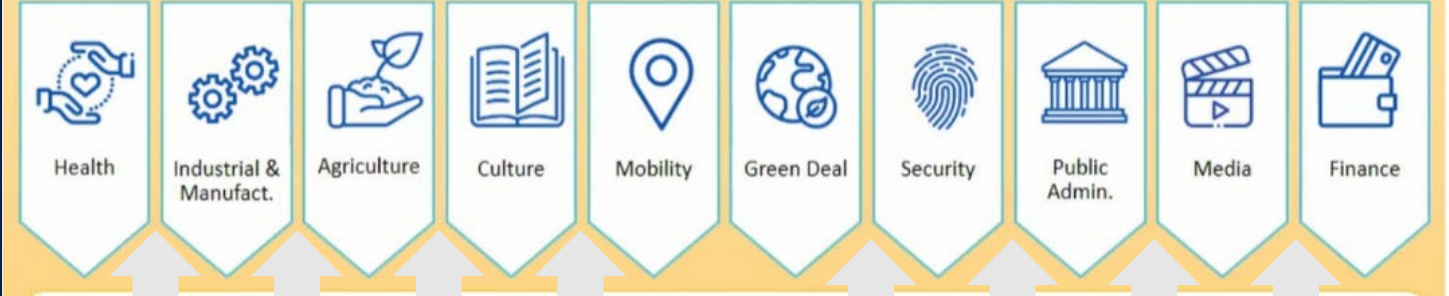
Copernicus Project



- **EU'Earth observation** program, coordinated and managed by the **European Commission**
- **Focus on our planet** and its environment for the benefit of all **EU citizens**
- Offers **information services** based on **satellite**
- Assists EU in numerous sectors, including **security** (reduce **illegal immigration**/prevent loss of life at sea...)

Use-cases
(€€)

Domain Data Spaces



Federation Services (SW)

Space
Data Space
i.e.
a secure and privacy preserving
IT infrastructure
to pool, access, process, use and share
data coming/derived
from Space Assets

Infrastructures (HW)



END USERS

Subscribe to
Services

Deliver
Information

Domain Data Spaces



Health



Industrial &
Manufact.



Agriculture



Culture



Mobility



Green Deal



Security



Public
Admin.



Media



Finance

Connector / Agent bringing interoperability across Data Spaces :
Simpl, FIWARE NGSI API, Eclipse Dataspace Connector, etc...

Space

Data

Space

INTERMEDIATE USERS

Use-cases
(€€)

Mentioned
by CNECT G.1
on 4/02/2022

Mentioned by Liina Munari (CNECT.C.1)
on 26/01/2022
at the 14th European Space Conference

Federation Services (SW)

Gaia-X
Federation
Services
(GXFS)

Infrastructures (HW)

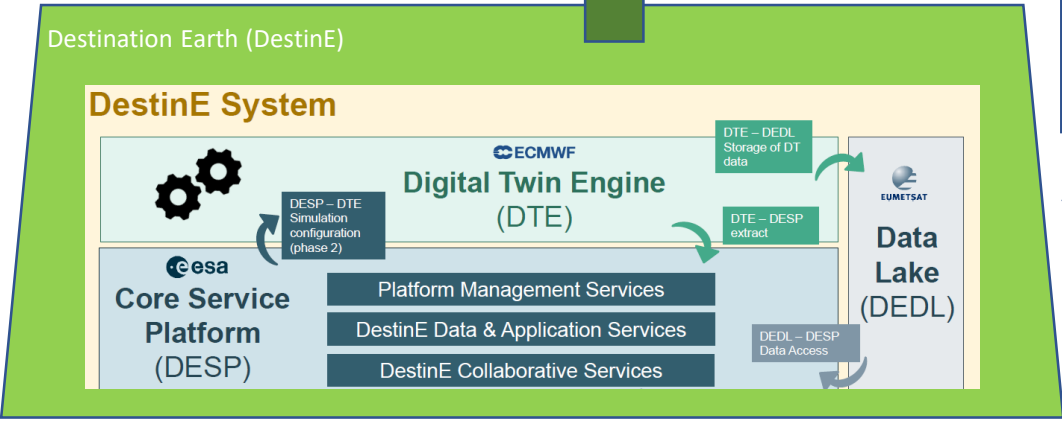
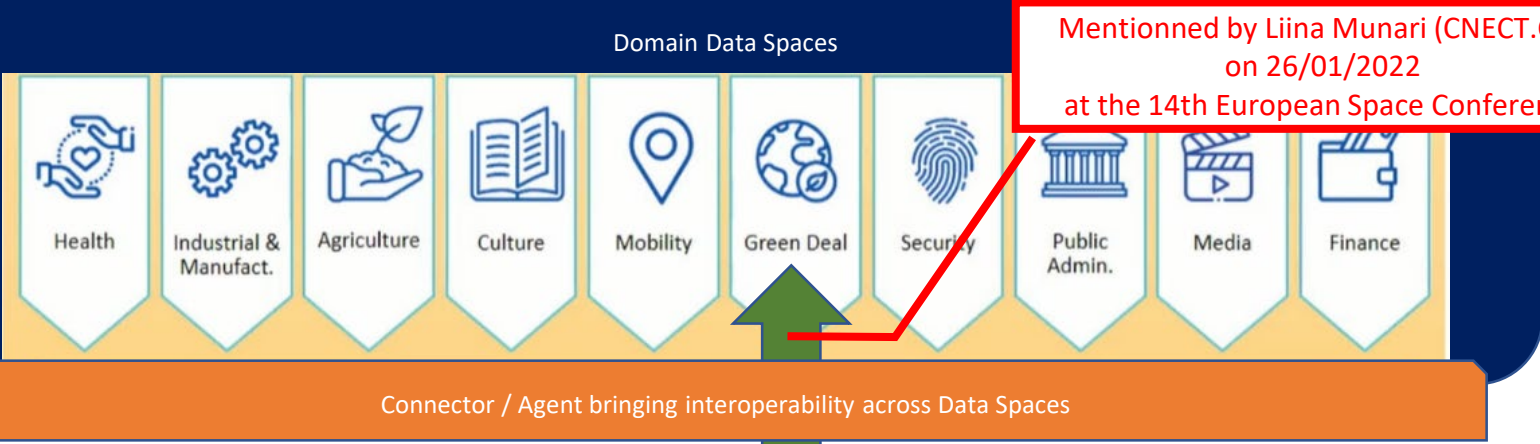
Space Safety
Missions

Space Assets

SatNAV

Sat EO

SatCom



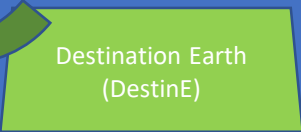
Use-cases
(€€)



Federation Services (SW)

Public Sector Open Data
for AI and Open Data Platform
DIGITAL-2022-CLOUD-AI-02-OPEN-AI
20ME

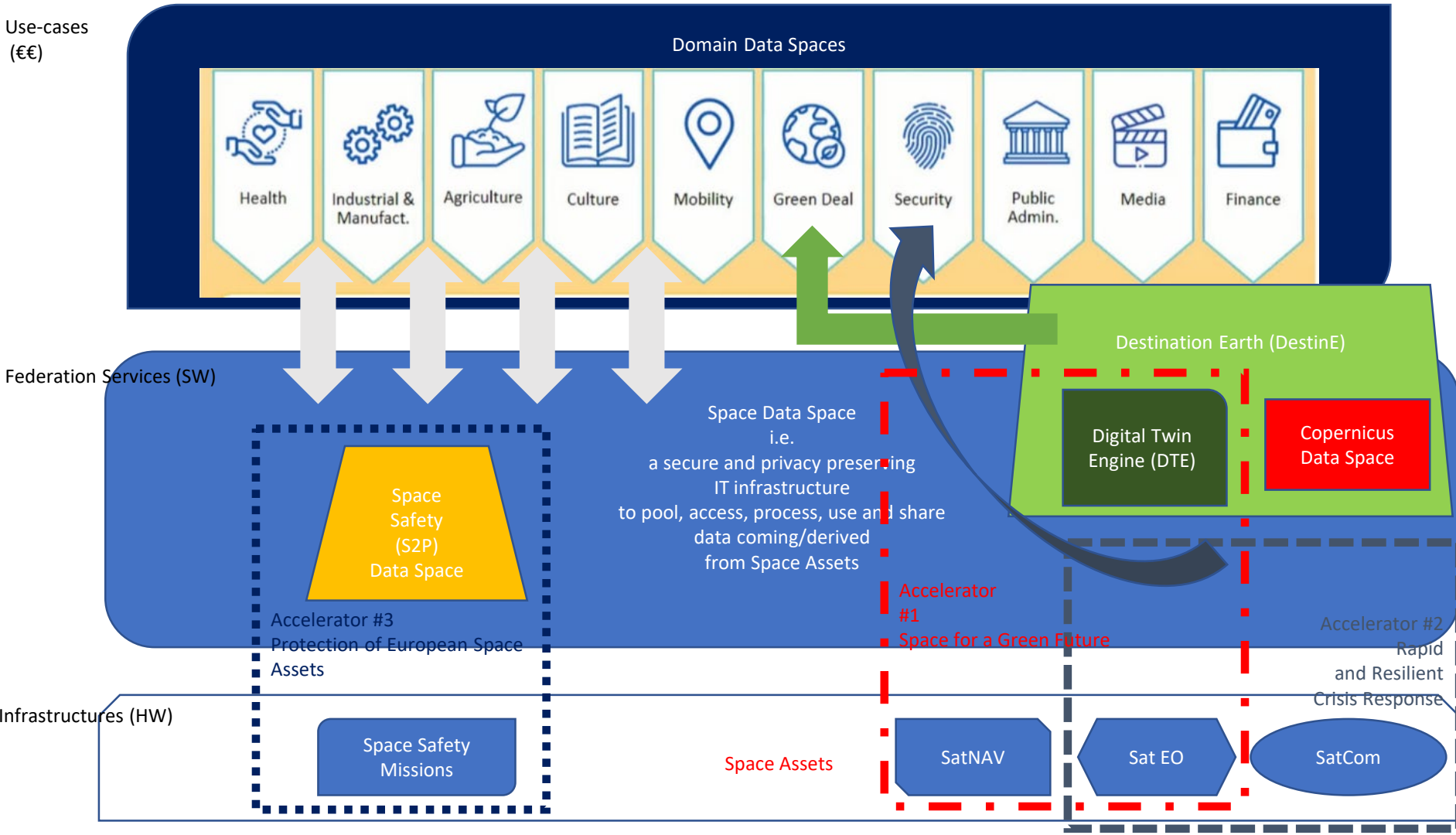
Space Data Space
i.e.
a secure and privacy preserving
IT infrastructure
to pool, access, process, use and share
data coming/derived
from Space Assets



CSC Data Access Service
(ESA ITT 1-11056)



Use-cases
(€€)



Space Data Space (SDS) Milestones

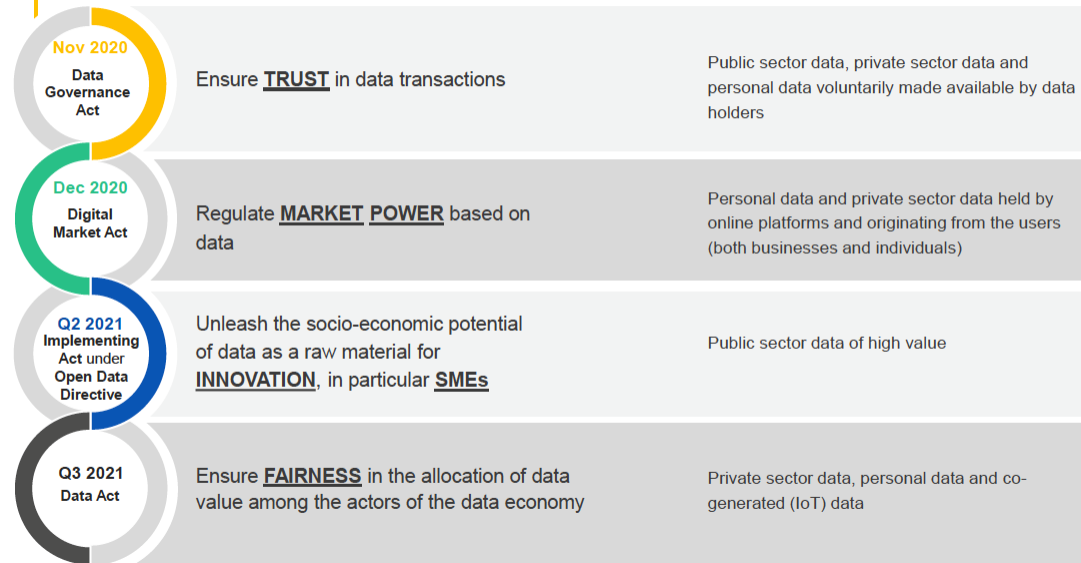
- Idea triggered 3 years ago in the context of ESA Civil Security from Space (CSS)
<https://artes.esa.int/news/civil-security-space-industry-day>
- « Space Data Space » (SDS) presentation to ESA representatives (EOP, TIA, SG5) on the 26th of November 2021
- SDS Preliminary Study kicked-off in August 2022 and Report delivered to ESA beginning of 2023:
 - Regulatory environment (EU Data Strategy, GDPR, DGA, DA, DSA, DMA, AI Act)
 - Use-cases
 - Business Models
 - Governance and Potential Stakeholders
 - Next steps (funding, phases, synergies, etc...)
- ESA-ESPI Space Data Space Workshop at the EU Satellite Centre on 22-23 November 2023
<https://www.satcen.europa.eu/News/satcen-hosted-the-esa-espi-space-data-space-workshop>
- SDS Next Activities Working Team started last Monday, 4 March 2024 for the next 4 months (March-June 2024), 25 entities (8 Space, 7 IT, 2 data sharing, 5 users, 3 others) gathering 40+ people, working on the first implementation of SDS in:
 - Identifying usage-scenario and describing related use-cases, related to Civil Security as a starting point
 - Shaping SDS governance
 - Considering legal topics including legal entity for managing and operating SDS
 - Designing the first technical architecture
 - Finalizing the version 1.0 of SDS Blueprint

EU DATA REGULATION PACKAGE

GDPR+ additional legislation pieces:

- ❑ **Data Governance Act (DGA):** Trust in Data Sharing
- ❑ **Digital Markets Act (DMA):** Ensuring fair and open digital markets
- ❑ **Digital Services Act (DSA):** Responsibilizing platforms
- ❑ **Data Act (DA):** Level-playing field in the Data Market
- ❑ **Regulations on Data Spaces (EHDS Act to start with)**

European Strategy for Data: 4 key instruments



The poster features the European Commission logo and the aNG logo. It has a colorful background with a cityscape at night and a network of nodes. The title 'EUROPEAN DATA GOVERNANCE' is prominently displayed, followed by the subtitle 'A NEW APPROACH FOR THE DIGITAL DECADE' and the date 'November 2020'.

Setting up a new European way of data governance will facilitate data sharing across sectors and Member States. It will create wealth for society, and provide control to citizens and trust to companies.

The economic value of data sharing

- ◆ Data access and reuse can generate social and economic benefits of 1% to 2.5% of GDP¹.
- ◆ The new measures could increase the annual economic value of data sharing by up to €7-11 billion by 2028².
- ◆ In addition, the new rules will have a wider impact on the EU economy and society as a whole

€ 1.3 trillion
In increased productivity in manufacturing through Internet-of-Things data by 2027³

€ 120 billion
of savings per year in the EU health sector⁴

The EU will boost the development of trustworthy data-sharing systems:

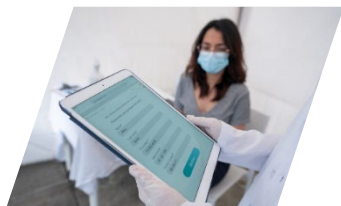
- ◆ Empower Europeans to decide what happens to their data, and what data they would like to share with whom.
- ◆ Facilitate data altruism to make it easier and safer for companies and individuals to voluntarily make their data available for the benefit of society.
- ◆ Enhance the reuse of public sector data that cannot be made available as open data.
- ◆ Create new EU rules on neutrality to allow novel data intermediaries to function as trustworthy organisers of data sharing.
- ◆ Set up a European Data Innovation Board to steer data governance and prioritise standards.

¹ OECD (2019), *Enhancing Access to and Sharing of Data: Recording Risks and Benefits for Data Re-use across Societies*, OECD Publishing, Paris.
² European Commission (2020), *Support Study to the Impact Assessment accompanying the proposal for a Regulation on European data governance*, SMART 2019/0024, prepared by Deloitte.
⁴ McKinsey (2020), *Shaping the digital transformation in Europe*.

European Strategy for Data

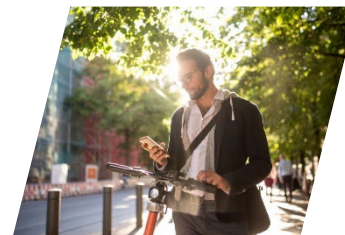
Aim of The European Strategy for Data of February 2020: establishing a single market for data, ensuring Europe's competitiveness on the global stage

The EU Data Strategy announced the creation of common European data spaces in key sectors, including health, mobility, agriculture, banking, ...



**European Health
Data Space**

**Common European
Agricultural Data Space**



**European Mobility
Data Space**

➡ **European Space Data Space !**

Data Governance Act (DGA)



- **Data spaces are governed by the Data Governance Act** (Regulation (EU) 2022/868 of the European Parliament and of the Council of May 30, 2022)
- **Chapter III DGA:** requirements applicable to data intermediation services, in particular to data spaces
- **Data intermediation services (DIS):** Services (1) to establish commercial relationships, (2) for the purpose of data sharing, (3) between an undetermined number of data holders and users, (4) through technical, legal or other means, see DGA, rec. 28
- **Background:**
 - Data intermediation services will play a **key role in the European data economy**
 - EU plans to create several European data spaces («European way of data governance»)
 - Bilateral or multilateral sharing of data on a common platform, efficient pooling of data
 - Goal: **Create new data-driven ecosystems** independent from existing players, allowing non-discriminatory access to data economy for SMEs, start-ups etc.
 - **Possible use cases:** Development of new products/services, scientific research, civil society initiatives, ...
- **DGA should encourage interconnection between European data spaces:**
 - Recital(2): “Common European data spaces should make data **findable, accessible, interoperable and re-usable** (the ‘FAIR data principles’), while ensuring a high level of cybersecurity.”
 - Article 22: “1. The **Commission shall adopt delegated acts** in accordance with Article 32, supplementing this Regulation by establishing a rulebook laying down: [...] (d) **recommendations on relevant interoperability standards.**”

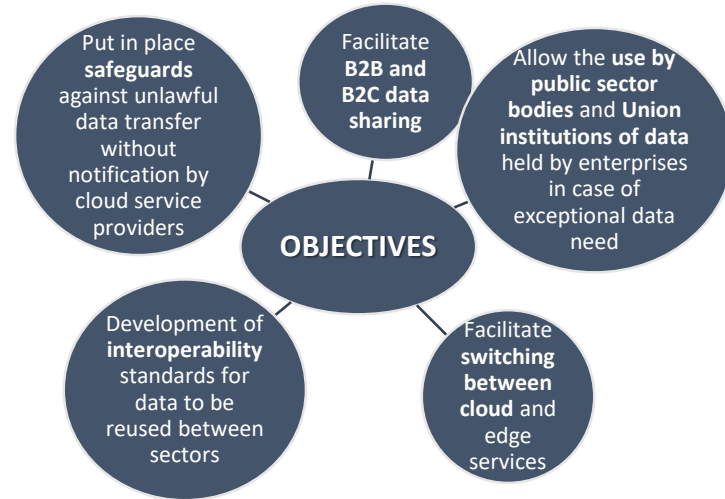
Data Act (DA)



Came into force in January 2024, but will not be implemented until 2025.

The Data Act (Regulation (EU) 2023/2854 of December 13, 2023) aims to preserve incentives to invest in data generation by ensuring a balanced control over the data for its creators while **removing barriers to access data** for private and public sector bodies such as:

- L **Lack of clarity** regarding **using and accessing data** from connected products
- L **Difficulties for SMEs** negotiating **balanced data-sharing agreements** with stronger market players
- L Barriers to switching between **competitive and trustworthy cloud and edge services** in the EU
- L Limited ability to **combine data** emanating from **different sectors**



The DA is also going to **encourage interconnection between European data spaces**:

- **“Provide for the development of interoperability standards** for data to be **reused between sectors**, in a bid to **remove barriers to data sharing across domain-specific common European data spaces**, in consistency with sectoral interoperability requirements, and between other data that are not within the scope of a specific common European data space. [...] They have the potential to provide data holders and data recipients with guarantees that conditions for sharing data are respected. “
- Article 2 (19) : ‘interoperability’ means the ability of two or more data spaces or communication networks, systems, products, applications or components to exchange and use data in order to perform their functions;

1st Project Owner as an example: European Health Data Space (EHDS)

OBJECTIVES

- ☐ Supporting individuals to take **control of their own health data**
- ☐ Supporting the **use of health data for better healthcare delivery, better research, innovation and policy making**
- ☐ Enabling the EU to make **full use of the potential offered by a safe and secure exchange, use and reuse of health data** within the EU

MAIN PROVISIONS

- ☐ The Proposal is **subject to the GDPR and EU Data Protection Regulation (EUDPR)**
- ☐ “Add-ons” on the **rights of data subjects** regarding their health data
- ☐ Implementation of a **EU platform “MyHealth@EU »** for the management of health data at EU level
- ☐ Dedicated framework on the **processing of health data for the two describe uses** of health data (primary and secondary uses)

A LARGE SCOPE OF CHALLENGES FOR OUTER SPACE ACTIVITIES



Military Programmation
Act / Defence Code

Standards and
sectoral
recommendations

Online platforms
Certification &
Cyberscore Act

GDPR, National
Data Protection
Acts and other
national texts on
personal data

FREE FLOW
OF NON
PERSONAL
DATA ACT

DATA
GOVERNANCE
ACT / DATA
ACT / DMA /
DSA

NIS 2 + Cyber Resilience Act
+ Cybersecurity regulations
for EU organizations and
institutions +
Cybersolidarity Act ..

EU
Regulations
on Data
Spaces
(health,
mobility
etc.)

ESA GDPR

EU Member
States National
Space
Legislations

EU
Cybersecurity
Program
Horizon 2020-
2030

EU Cybersecurity
Act (ENISA &
certification)

EU Space
Programme

New EU
Space law

Diplomatic Cyber
toolbox (targeted
sanctions) (early
2017, renewed
2020 & 2021)

AI ACT
+ national
texts

Sector-specific Cyber
rules: finance
(including DORA),
healthcare,
aeronautics, cars, etc.

Proposed IA +
Product Liability
Directives + national
texts

Promoting a global
cybersecurity strategy with
the EU taking the lead

Importance of
standards and
certification!!! Space
standards, LNE,
Europrivacy...

DE
SAULI
FI
URANC

ESA & Data Privacy

DE GAULLE FLEURANCE

DE GAULLE
FLEURANCE

AVOCATS
NOTAIRES

LEGAL STEP

TO CHANGE

ESA Data Privacy Policy

WHO ?

The **ESA collects/processes personal data**, including concerning:

- 1 **ESA Staff members**
- 2 **Personnel engaged by ESA contractors** and their subcontractors



WHAT ?

The Agency is subject to a **Personal Data Protection Framework** composed of:

- 1 The **Principles of Personal Data Protection** adopted by ESA Council on 13 June 2017 → Provide the **legal and ethical foundation** for ESA's data processing activities. They aim to ensure that data processing is conducted **transparently, legitimately, and securely**.
- 2 The **Rules of Procedure for the Data Protection Supervisory Authority** adopted by ESA Council on 13 June 2017 → Establish the **operational framework for overseeing and controlling personal data processing within ESA**, ensuring the agency adheres to its data protection principles.
- 3 The **Policy on Personal Data Protection** (including its Annex "Governance Scheme of the Agency's Personal Data Protection") adopted by Director General of ESA on 1 March 2022 → Aims to **provide consistent and secure management** of personal data in accordance with the adopted principles.

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AVOCATS
NOTAIRES

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