



FAIR data and the European Open Science Cloud

EOSC, un atout pour la recherche

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Carlos Casorrán

European Commission

Directorate-General for Research and Innovation

Open Science unit

Data



530%

increase of global
data volume

From 33 zettabytes
in 2018 to 175
zettabytes



**€829
billion**

value of data
economy in the
EU27

From €301 billion
(2.4% of EU GDP)
in 2018



**10.9
million**

data
professionals in
the **EU27**

From 5.7 million in
2018



65%

Percentage of EU
population with
basic digital skills

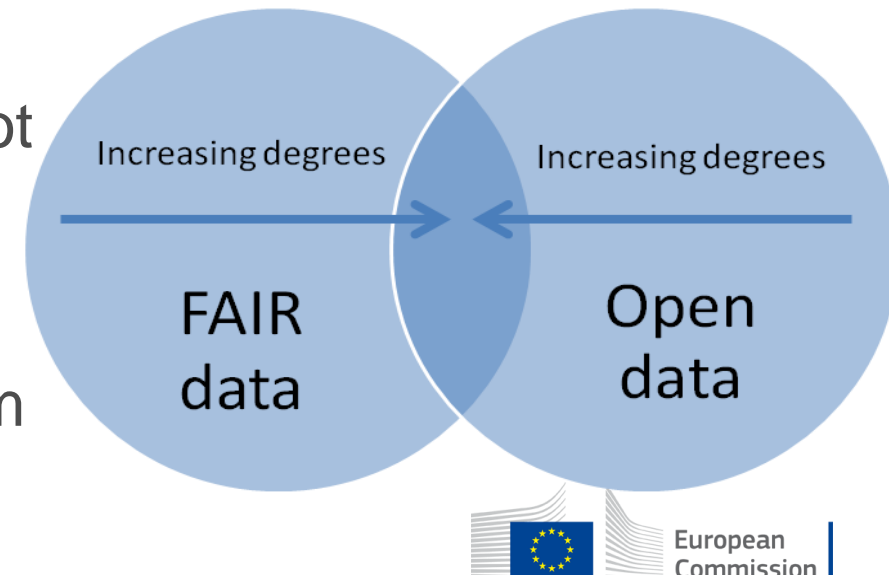
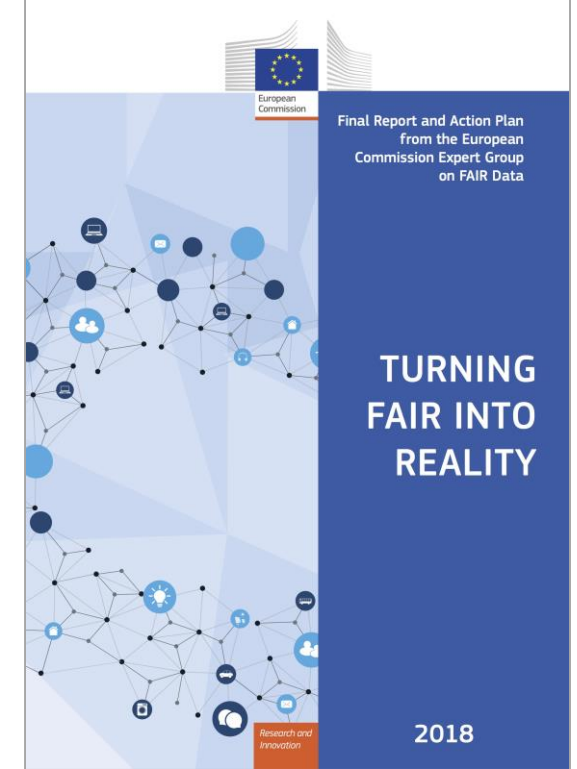
From 57% in 2018

Open Science for us at the EC

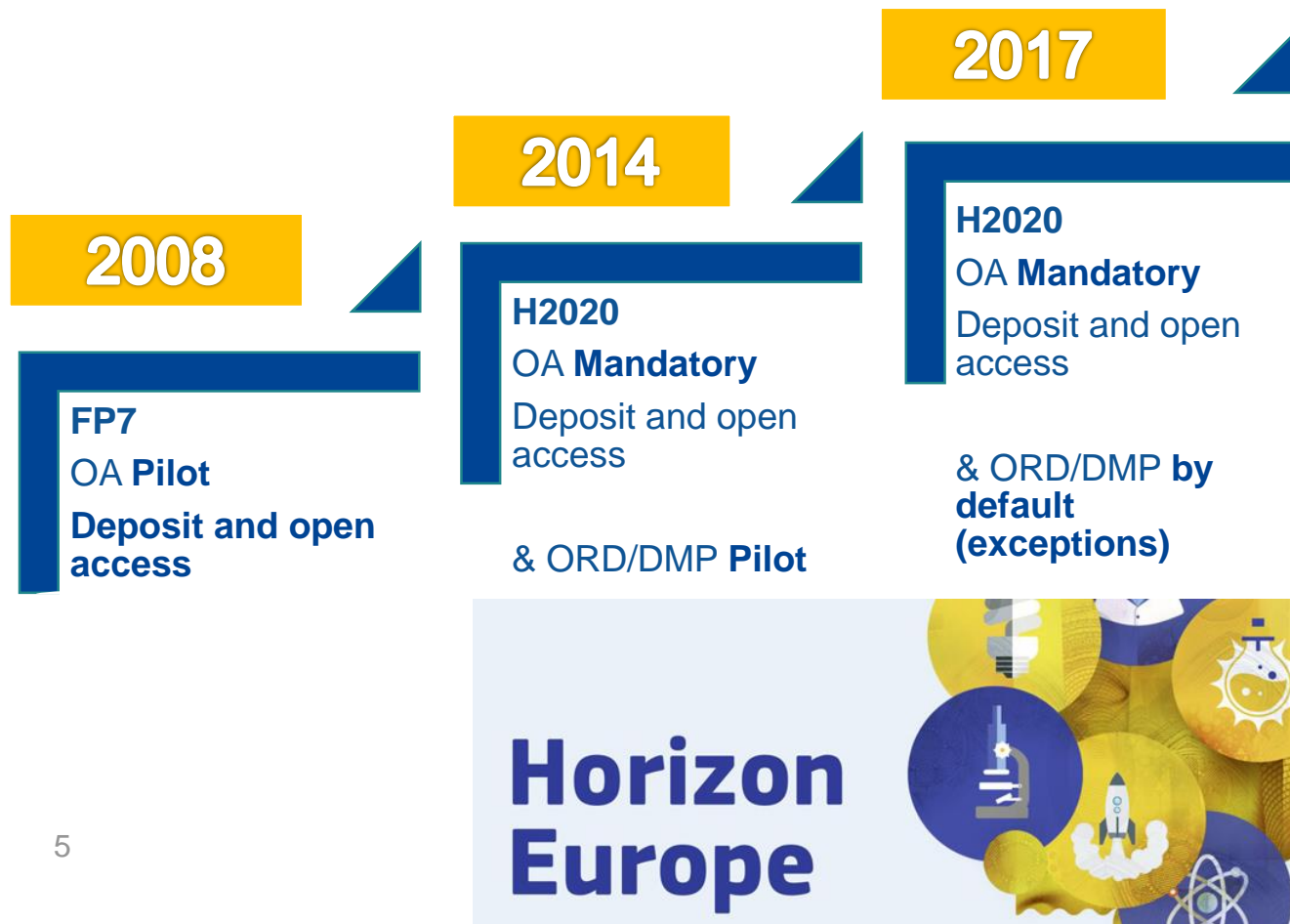
- **Open Science** means **sharing knowledge and tools as early as possible**, not only **between researchers** and **between disciplines**, but also with **society at large**.
- Open Science improves the **quality**, **efficiency** and **creativity** of research and the **trust by society in science**. In particular, OS is beneficial for science, scientists and funders, e.g.:
 - tackles the reproducibility crisis;
 - faster response to societal challenges e.g. Coronavirus, Ebola;
 - access to and sharing results yields higher impact through collaborations;
 - generates new research findings and decreases inequalities;
 - large opportunity costs of non-FAIR data—**€10.2bn/year** (source: Cost-benefit analysis of FAIR research data, 2017).
- The Commission acts as **policy maker** (propose legislation and encourage MS), a **funder** (we set requirements to our projects) and a **capacity builder** (we fund ‘enabling’ projects).

FAIR data

- **FAIR data** are data that are curated to satisfy the principles of **F**indability, **A**ccessibility, **I**nteroperability, and **R**eusability.
- 2016: Publication of the scientific article introducing the **FAIR data principles** (<https://www.nature.com/articles/sdata201618>)
- “**FAIR data**” (curated along the FAIR principles) is not equivalent to “**open data**” (publicly available for everyone to access and reuse).
- 2018: Publication of the **report and action plan** from the EC expert group on FAIR data



Evolution of our policies across the FPs



Horizon Europe (2021):

- Open Science (OA, **RDM**, Cit. Eng., etc.) embedded throughout the FP. OS to play a role in the:
 - **Evaluation** of proposals (methodology)
 - **Grant Agreement**
 - **Reporting**—during the project's lifetime
- **Responsible RDM in line with FAIR**
- **“as open as possible, as closed as necessary”**

Key documents for proposers

The following documents **clarify the requirements** beneficiaries have to comply with, and provide **detailed and actionable guidance** for proposers and Project Officers alike.

- The [Model Grant Agreement](#) (Legal obligations)
- The [Annotated Model Grant Agreement](#) (Details on how best to comply with the MGA)
- [Guidelines](#) for proposers (Additional guidance, best practices, trove of resources, etc.):
 - Open Science in Horizon Europe
 - Evaluation of Open Science practices
 - Addressing Open Science practices in proposals
 - Open Science practices & resources
 - Horizon Europe DMP template

EOSC in the European Data Strategy

(February 2020)

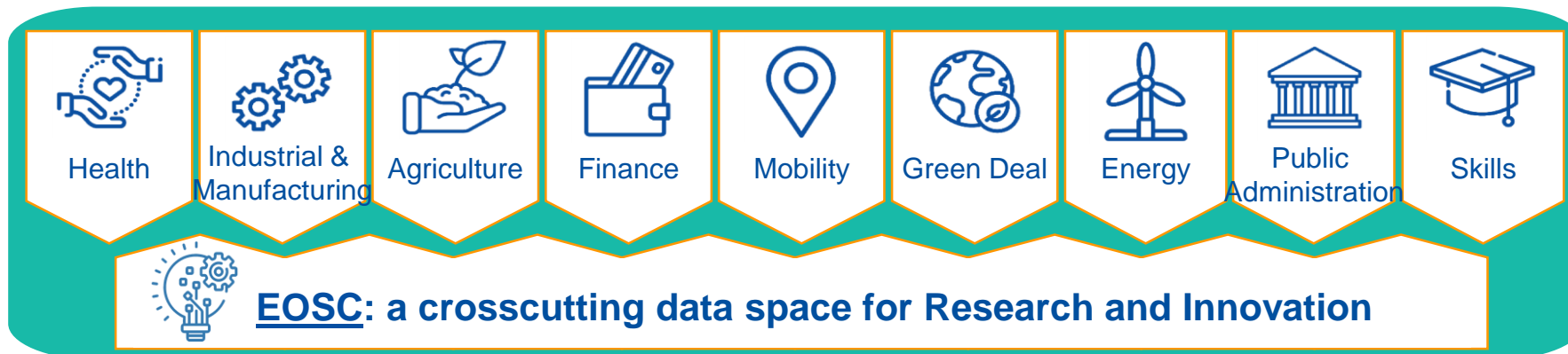


The EU will create a single market for data by:

- ❑ Setting clear and fair rules on access and re-use of data;
- ❑ Investing in next generation standards, tools and infrastructures to store and process data;
- ❑ Joining forces in European cloud capacity;
- ❑ **Pooling European data in key sectors, with EU-wide common and interoperable data spaces;**
- ❑ Giving users rights, tools and skills to stay in full control of their data.

*“**EOSC** is 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.”*

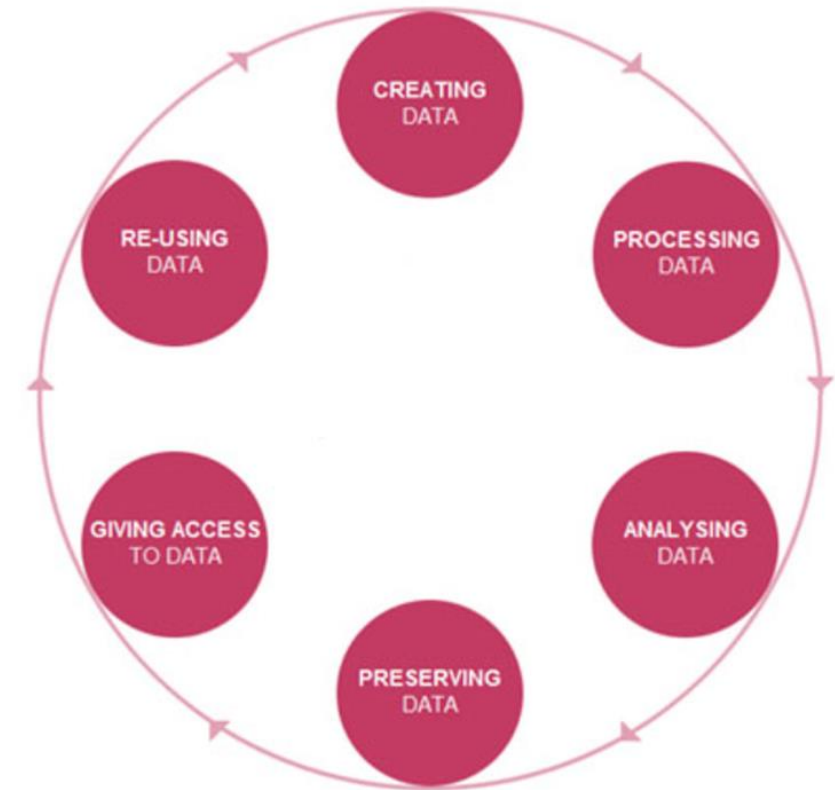
(European Data Strategy, COM(2020) 66 final)



European Open Science Cloud



- The European Open Science Cloud (EOSC) ([European Cloud Initiative Communication, 2016](#)) will federate existing and emerging infrastructures to offer a **trusted** and **open distributed** system for the scientific community, providing **seamless access to data** and **interoperable services** addressing the **whole research data lifecycle**
- EOSC will enhance the possibilities for researchers to find and share publications, data and software leading to **new insights** and **innovations**, higher researcher **productivity** and **solutions** for society
- EOSC engages all relevant stakeholders to co-design and deploy a Web of FAIR data and related services for Science



EOSC implementation: a two-stage approach

EOSC phase 1: prototyping

2018 - 2020

H2020 calls/grants approach

EOSC roadmap 2018-2020
by the European Commission

Initial EOSC Governance

- Executive Board (EB)
- Governance Board (GB)

- **Launch event in Vienna**
- **EOSC Declaration**
(AT Presidency of the EU)

EOSC phase 2: continued EOSC rollout

2021 - 2030

Partnership approach in Horizon Europe

EOSC Strategic Research and Innovation Agenda (EOSC SRIA) 2021-2027 by the EOSC community

New EOSC Governance (tripartite)

(increasingly stakeholder-driven, high-level steering role maintained for the European Commission and the Member States)

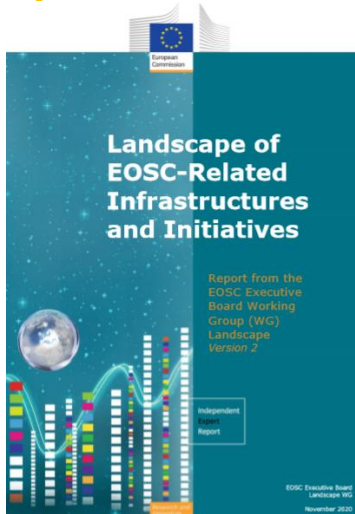
- **Assessment of EOSC Phase 1**
- **EOSC Declaration**
(DE Presidency of the EU)

New strategic
orientations

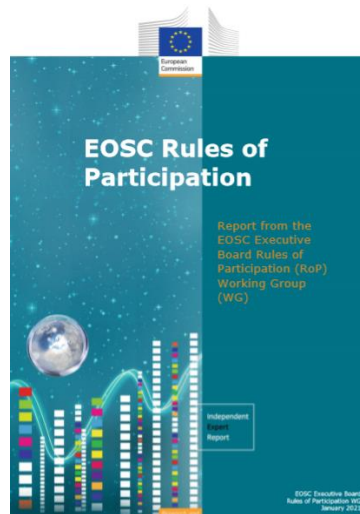


*Strategic Research and
innovation Agenda for EOSC*

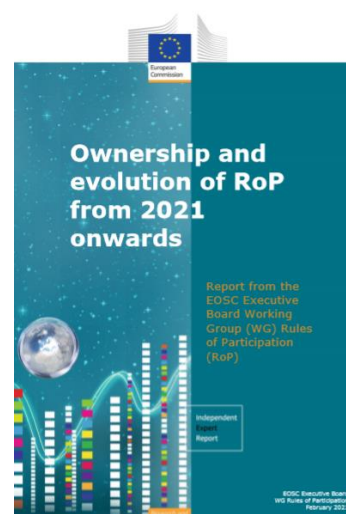
Strategic orientations for the decade (EOSC Phase 2 in 2021-2030)



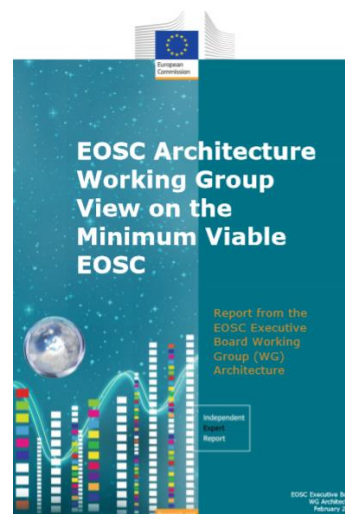
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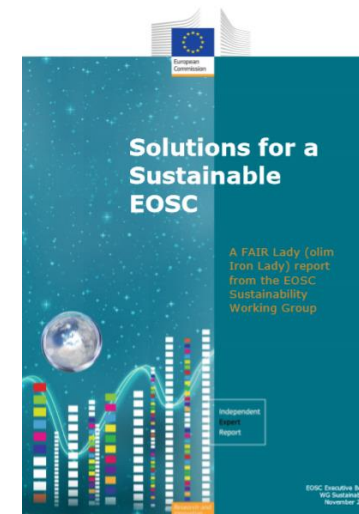
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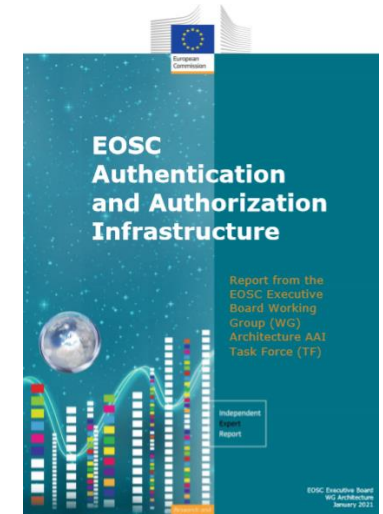
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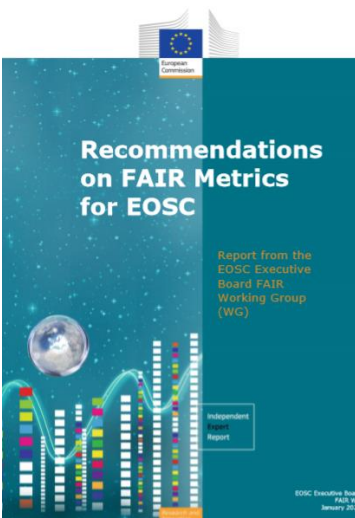
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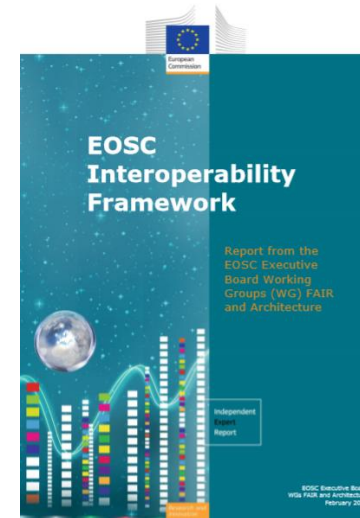
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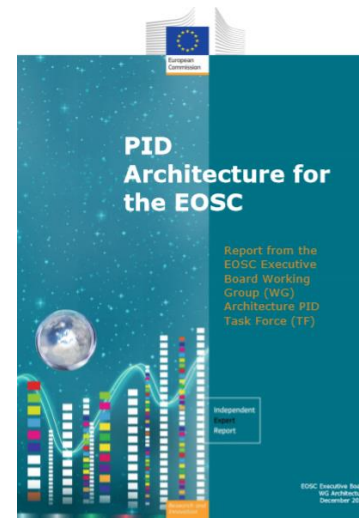
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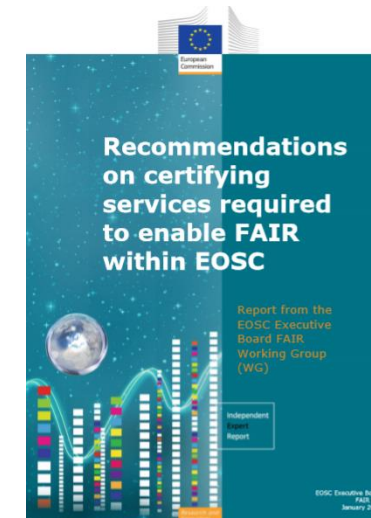
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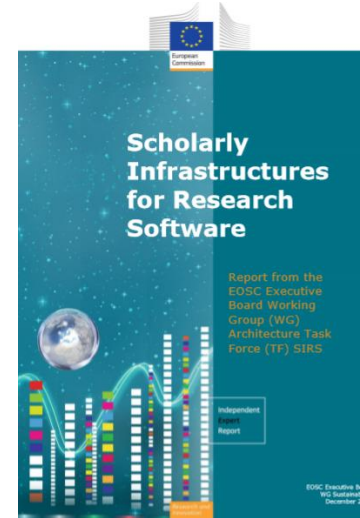
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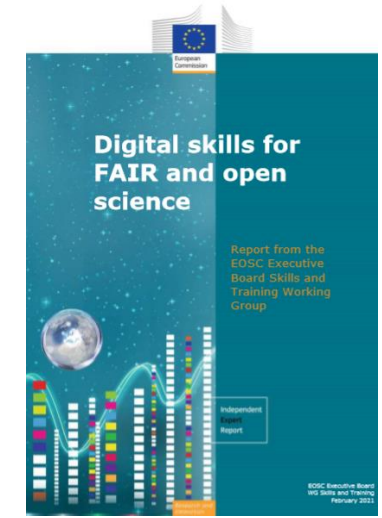
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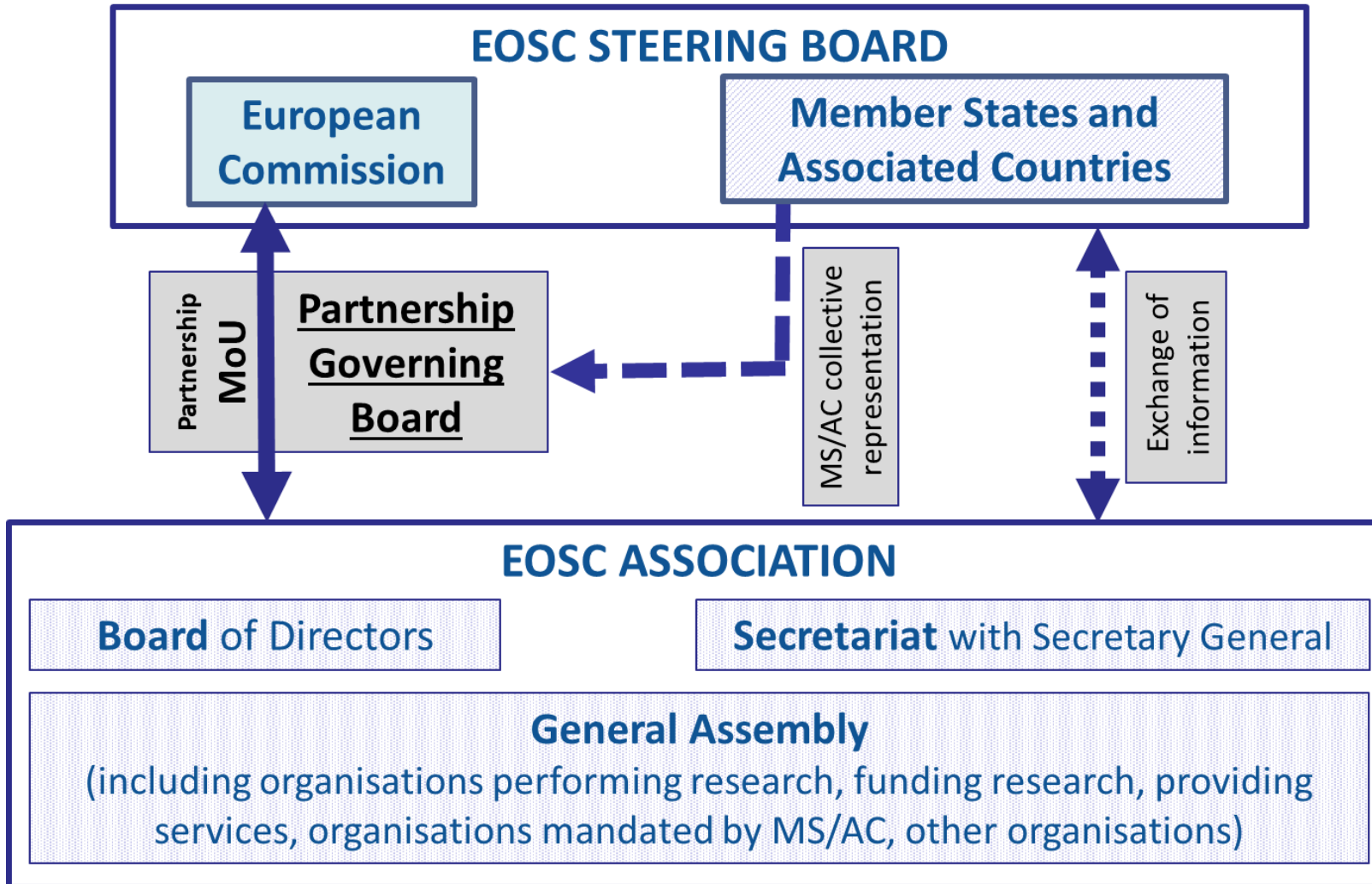


<http://doi.org/10.2777/28598>



<http://doi.org/10.2777/59065>

EOSC governance



In the second phase [post-2020] the EOSC governance should become mainly stakeholder-driven, while maintaining a higher-level steering role for all Member States and the Commission.

(Council conclusions on EOSC, 19 May 2018)

The council of the Union calls on the Commission and participating States to serve in an tripartite governance and to further develop and implement the European Open Science Cloud (EOSC) [...].

(Council conclusions on the new ERA, 1 Dec. 2020)

Translating the SRIA to thematic disciplines

- The SRIA informs the **€1bn** investment over the next 7 years
- EOSC development is **modular** and requires interoperable **domain-specific services** and **use-case pilots** to demonstrate their value
- Different communities **contribute towards SRIA priorities** from within their communities
- Two good examples of **mature communities**:



FAIR data sharing in action: The European COVID-19 Data Platform



20 April 2020, launch of the
European COVID-19 Platform

*“The platform is an important
part in the building of the
EOSC”.*

President U. von der Leyen

- Launched on 20 April 2020
- Pilot implementation of the **European Open Science Cloud** for establishing a “Web of FAIR data and services”
- Data from different domains: omics, clinical, epidemiology, social sciences, ...
- Nucleus of a European Health Data Space
- Crucial lesson: Researchers need **quick** and **unrestricted** access to data sources to accelerate their research. **FAIR data** is an essential component in this.

Press release:

https://ec.europa.eu/commission/presscorner/detail/en/ip_20_680

Video: <https://audiovisual.ec.europa.eu/en/topnews/M-004711>

European COVID-19 Data Platform: <https://www.covid19dataportal.org/>

The Blue Cloud Roadmap to 2030



- **Blue-Cloud** is an initiative to **federate and pilot innovative services** for Marine Research & the Blue Economy and an **aggregator for 'blue' stakeholders**.
- As part of its deliverables, the project will produce in 2022, **the Blue Cloud Roadmap to 2030**.
- It will be a policy document laying out the future **strategic integration** of the **marine community** to EOSC along 4 key pillars:
 - **Uses and applications:** Development of use cases to deliver science-based solutions to address policy needs.
 - **Thriving community:** Promotion of Open Science, and the encouragement of wide and open sharing.
 - **FAIR and open ocean data:** Mainstreaming of the FAIR principles across many data generators and data consumers.
 - **Federation of blue data infras:** Promotion of interoperability standards to facilitate cross-disciplinary data use across different sectors linked to Oceans.

What is EOSC?



A process

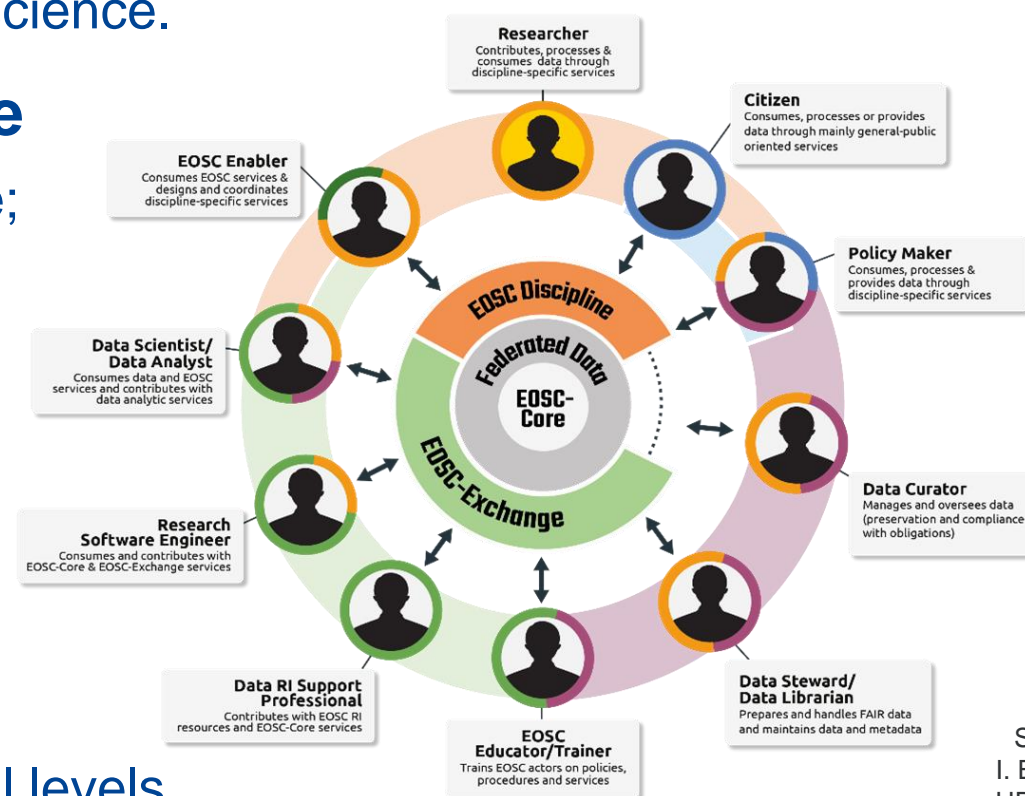
- To accelerate Open Science, FAIR data management and use of digital methods and services
- To stimulate co-operation in science and research, new insights and innovations, higher research productivity and improved reproducibility in science.

An open, trusted, federation of infrastructure

- To access existing Research Infrastructures in Europe;
- To enable circa 2 million European researchers to store, share, process, analyse, and reuse research digital objects (e.g. data, publications and software)

An evolving ecosystem

- Bringing together the European Commission, the governments and the many R&I stakeholders involved in the European Research Area
- Co-created across European, national and institutional levels



Source:
I. Blanquer
UPV, 2020



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Thank you



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EOSC timeline

