

# National Initiatives for Open Science in Europe

## European Open Science Cloud - EOSC

Lidija Milosavljević

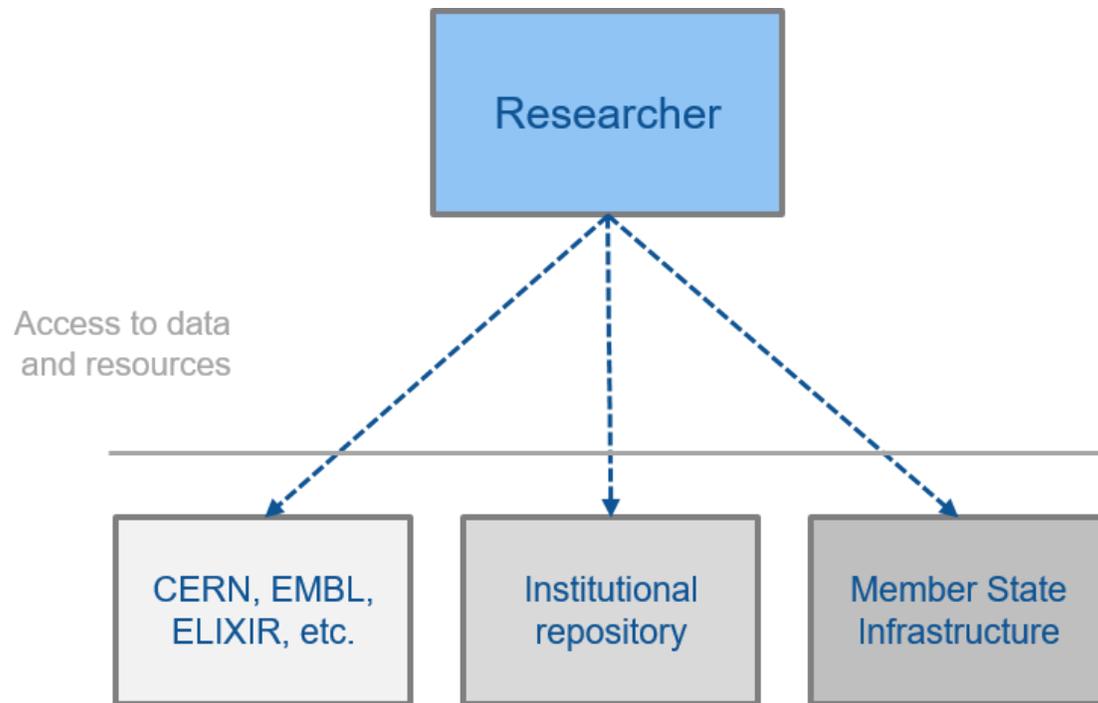
University of Montenegro, Centre of Information System

EOSC promoter for Montenegro

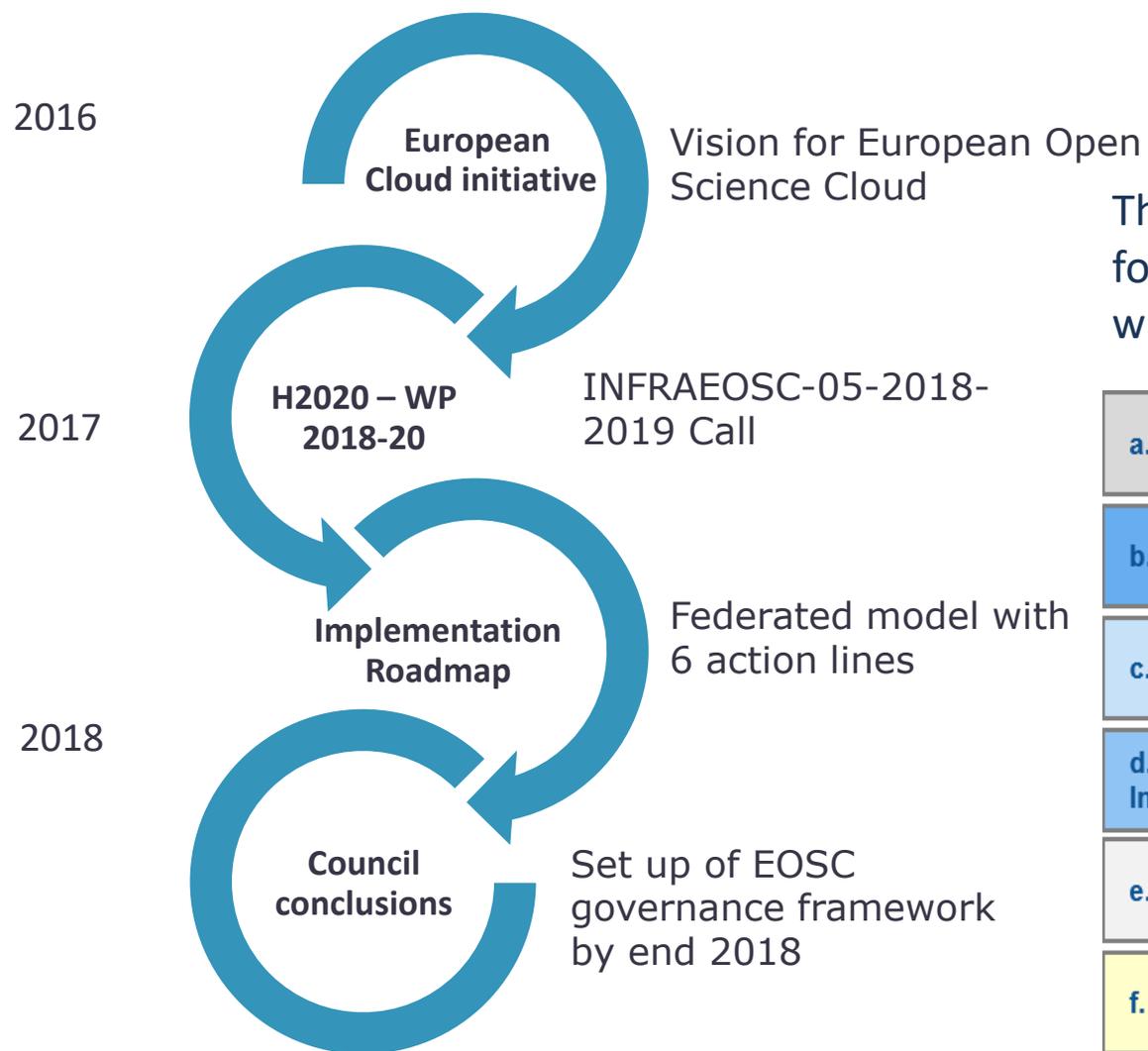
lidija@ucg.ac.me



- ❑ European researchers face data fragmentation and unequal access to quality information sets



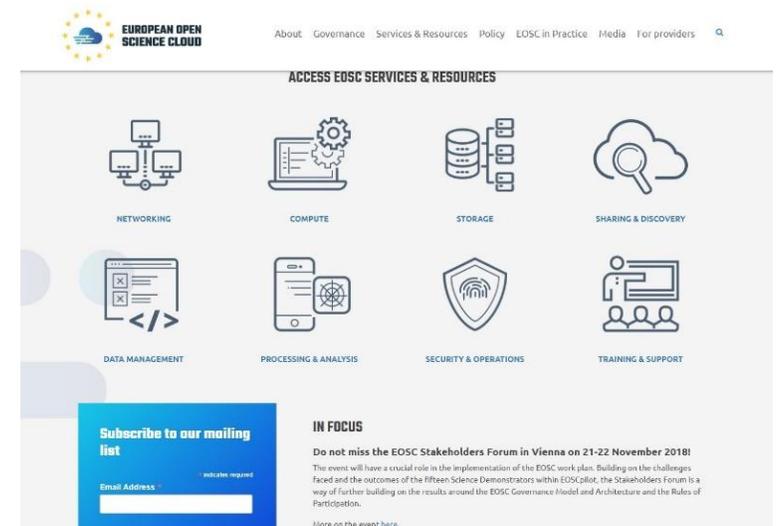
- ❑ Fragmented access (across scientific domains, countries and governance models; varying access policies)
- ❑ Limited cross-disciplinary access to data sets (i.e. interdisciplinary research)
- ❑ Non-interoperable services and data
- ❑ Closed data



The **EOSC implementation roadmap** describes **six action lines** for the implementation of the European Open Science Cloud with specific examples and related milestones

<b>a. Architecture</b>	Architecture of the federated infrastructures as the solution to the current fragmentation in research data infrastructures which are insufficiently interoperable.
<b>b. Data</b>	FAIR data management and tools. A common data language to ensure data stewardship across borders/disciplines based on FAIR principles.
<b>c. Services</b>	Available services from a user perspective. A rich environment offering a wide range of services covering the needs of the users.
<b>d. Access &amp; Interface</b>	Mechanisms/interfaces for accessing EOSC. A simple way for dealing with open data obligations or accessing research data across different disciplines.
<b>e. Rules</b>	Rules of participation for different EOSC actors. An opportunity to comply with existing legal and technical frameworks and increase legal certainty & trust.
<b>f. Governance</b>	Governance of the EOSC, aiming at ensuring EU leadership in data-driven science but requiring new governance frameworks.

# EOSC Launch: Vienna, 23/11/2018



**EUROPEAN OPEN SCIENCE CLOUD**

About Governance Services & Resources Policy EOSC in Practice Media For providers

### ACCESS EOSC SERVICES & RESOURCES

- NETWORKING
- COMPUTE
- STORAGE
- SHARING & DISCOVERY
- DATA MANAGEMENT
- PROCESSING & ANALYSIS
- SECURITY & OPERATIONS
- TRAINING & SUPPORT

**Subscribe to our mailing list**

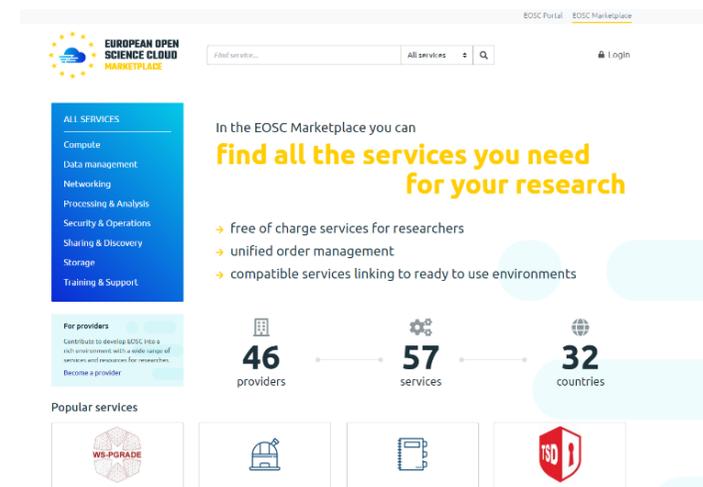
Email Address:

**IN FOCUS**

**Do not miss the EOSC Stakeholders Forum in Vienna on 21-22 November 2018!**

The event will have a crucial role in the implementation of the EOSC work plan. Building on the challenges faced and the outcomes of the Fifteen Science Demonstrators within EOSC-pilot, the Stakeholders Forum is a way of further building on the results around the EOSC Governance Model and Architecture and the Rules of Participation.

[More on the event here.](#)



**EUROPEAN OPEN SCIENCE CLOUD MARKETPLACE**

Find service... All services

**ALL SERVICES**

- Compute
- Data management
- Networking
- Processing & Analysis
- Security & Operations
- Sharing & Discovery
- Storage
- Training & Support

**For providers**

Contribute to creating EOSC, into a rich environment with a wide range of services and resources for researchers. Become a provider

In the EOSC Marketplace you can **find all the services you need for your research**

- free of charge services for researchers
- unified order management
- compatible services linking to ready to use environments

**46** providers    **57** services    **32** countries

**Popular services**

- WB-PGRADE
- TSO

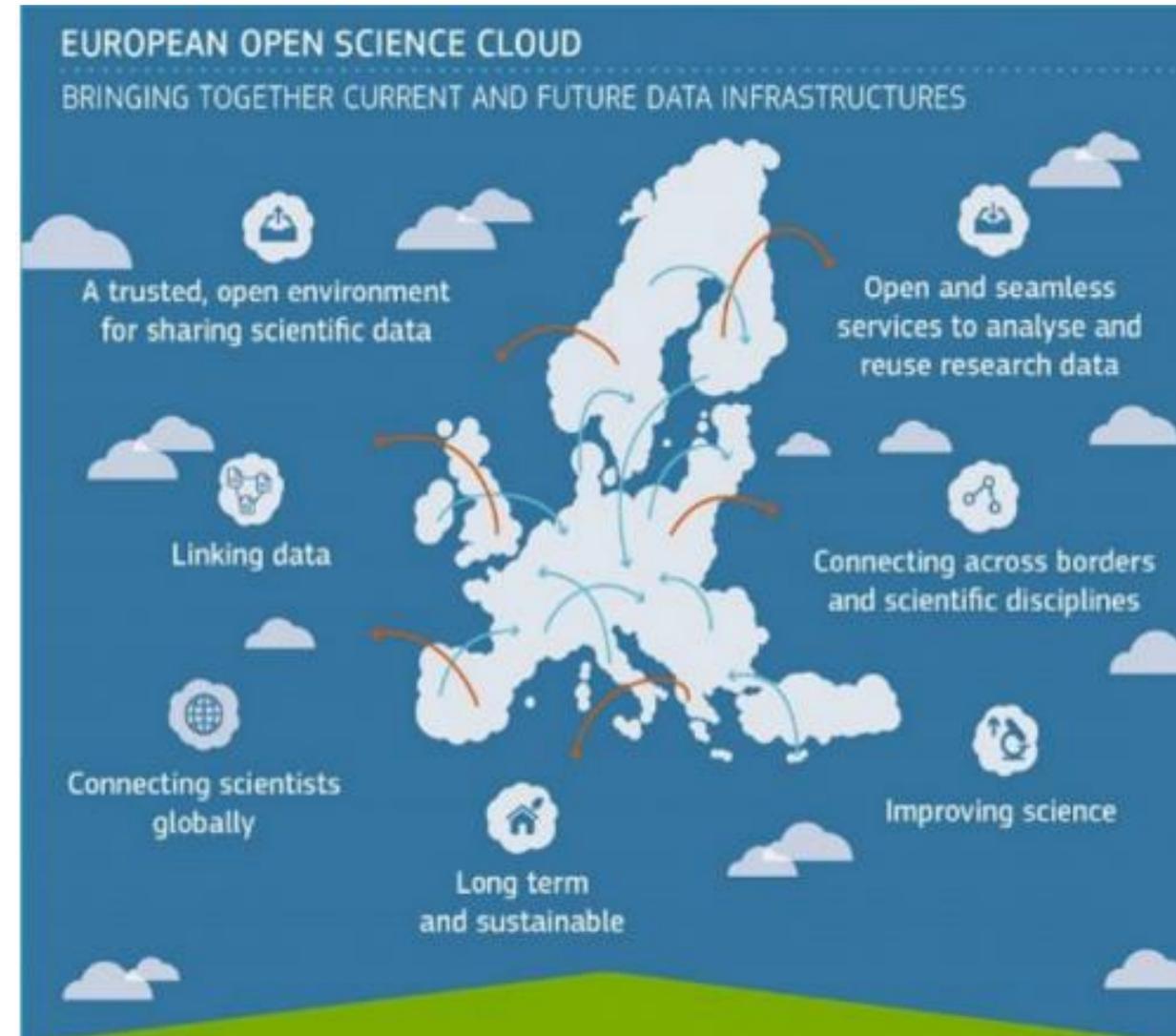
# European Open Science Cloud EOSC

EOSC has the ambition to be a virtual environment for Europe's 2 million researchers and 70 million science and technology professionals from every research, innovation and educational area.

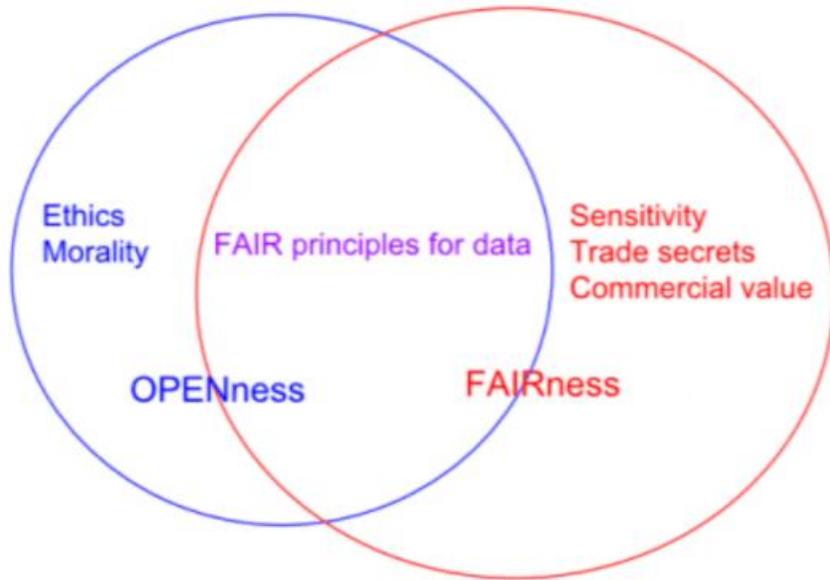
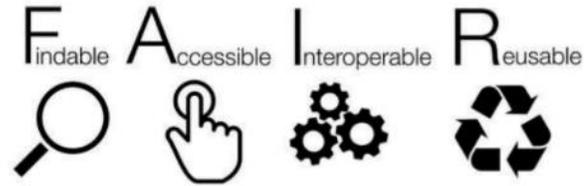
EOSC will provide researchers an environment with free, open services for data storage, management, analysis and re-use across disciplines.

EOSC will join existing thematic data Infrastructures.

EOSC will add value and leverage past infrastructure investment (10b per year by MS, two decades EU investment).



# EOSC, new level playing field for EU researchers



- ❑ The EOSC will allow universal access to data, as a universal access point for ALL European researchers
- ❑ Cross-disciplinary access to data and services unleashes potential of interdisciplinary research
- ❑ Services and data are interoperable (Findable, Accessible, Interoperable and Reusable-FAIR)
- ❑ Data funded with public money is in principle open (as open as possible, as closed as necessary)
- ❑ EOSC will help increase recognition data intensive research and data science



# An ecosystem more than an infrastructure



- Sharing & Discovery
- Processing & Analysis
- Data Management
- Compute
- Storage
- Networking
- Training & Support
- Security & Operations
- Help Desk



**EUROPEAN OPEN  
SCIENCE CLOUD**

**APPLY NOW**

**Deadline for first round of application  
October 2020**



**Join  
the EOSC  
Association**

**ACCESS EOSC SERVICES & RESOURCES**

- ❑ Entities of all kinds – diversity in the EOSC range from data sets to storage to computing to publications
- ❑ An open ecosystem – rules of participation will favour no barrier to entry regarding operational maturity, service management quality
- ❑ A diverse ecosystem – providers will come from e-Infrastructures, from member states, from research infrastructures, and private sector
- ❑ An interdependent ecosystem – aim includes composability and collective service design through an open AAI (Authentication and authorisation infrastructure ) federation

## EOSC is much wider than what we have known before

<b>Architecture</b>	federated infrastructures and (data) resources
<b>Data</b>	FAIR data management and tools
<b>Services</b>	environment of user-oriented services
<b>Access &amp; Interface</b>	access across disciplines, and compliance with open data
<b>Rules</b>	rules of participation for services, compliance with legal & trust needs
<b>Governance</b>	governance of the ecosystem and leadership in data-driven science



From: EOSC portal, by way of *The added value of EOSC for research in EOSC* Zoe Cournia (NI4OS-Europe)

# First phase of EOSC: 2018-2020

H2020 EOSC-related projects:  
ca. €600 million

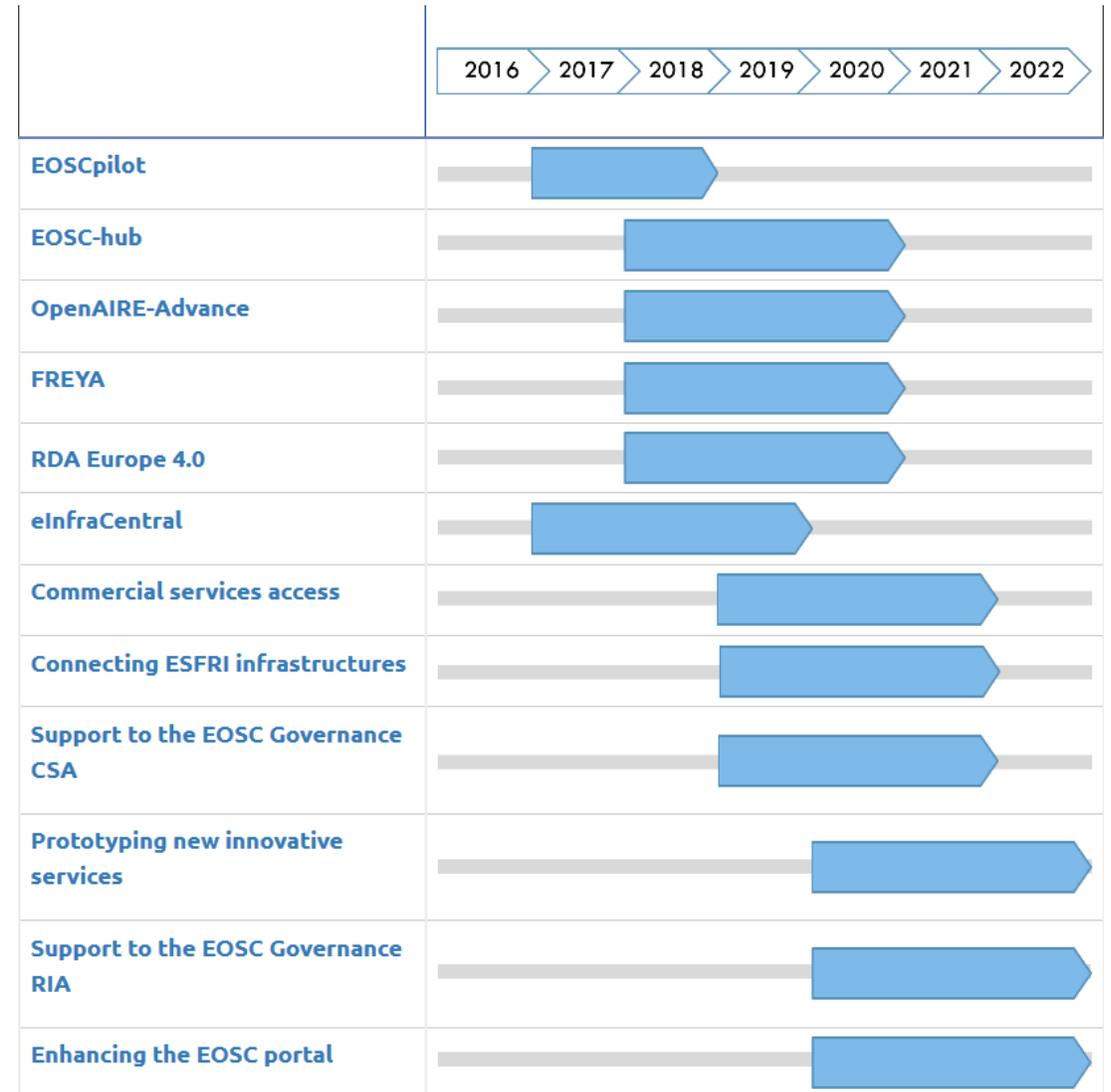
Address six roadmap action lines:  
◆ Data ◆ Services ◆ Architecture  
◆ Access ◆ Rules ◆ Governance

Current EOSC governance tasks:  
◆ steer initial implementation  
◆ involve all R&I stakeholders  
◆ transition to 2nd stage 2020+

“Start of the second phase of the implementation is dependent on an evaluation by the Commission and the Member States of the first phase and without prejudice to the Multiannual Financial Framework after 2020”

# EOSC Timeline

- The European Commission is providing financial support to implement the EOSC by means of projects under the EU Framework Programme for Research and Innovation (Horizon 2020).
- The presented table shows various ongoing and future projects that will contribute to the development of the European Open Science Cloud by 2021



- ❑ Researchers are the first and ultimate target group of EOSC.
- ❑ Their role within the EOSC is two-fold: they will primarily be users of the EOSC services, but they can also offer their assets (research output such as data, software and other tools) to the EOSC.
- ❑ Not formed in homogeneous networks.
- ❑ Many individual researchers may not (yet) be aware about the EOSC or may be sceptical about it.
- ❑ Need to reach out to mediate target groups may include:
  - rectors,
  - research networks,
  - funding bodies or funders' associations,
  - research support units or other representatives of researchers.

# Researchers: Main motivation for engagement

- They are the main beneficiaries and users of EOSC services and infrastructures
- They can help to shape EOSC so that it fits their needs and visions for future, digitalized, data-driven R&D...

- ❑ The EOSC governance structure currently has no defined mechanism for engaging with the private sector/industry.
- ❑ The EOSC Governance Board and Executive Board have been formed and there is no representative in these boards who has a specific mandate to represent the private sector.
- ❑ This target group includes:
  - commercial service providers,
  - business organizations,
  - small and medium-sized enterprises' clusters,
  - European Cluster Observatory,
  - Enterprise Europe Network,
  - EU Associations of SMEs and
  - EOSC related projects.

# Industry: Main motivation for engagement

- They deliver services/technologies that can be relevant for inclusion in EOSC.

## Phase 1, until 2020:

- ❑ the Commission will invest EUR 300 million to support the core functions of the EOSC as per milestones.
- ❑ Member States would flag the national initiatives that they want to federate into the EOSC (e.g. the work of the Helmholtz Data Alliance); and the resources they are willing to provide in kind.
- ❑ Research funders would start making costs eligible for FAIR data only.

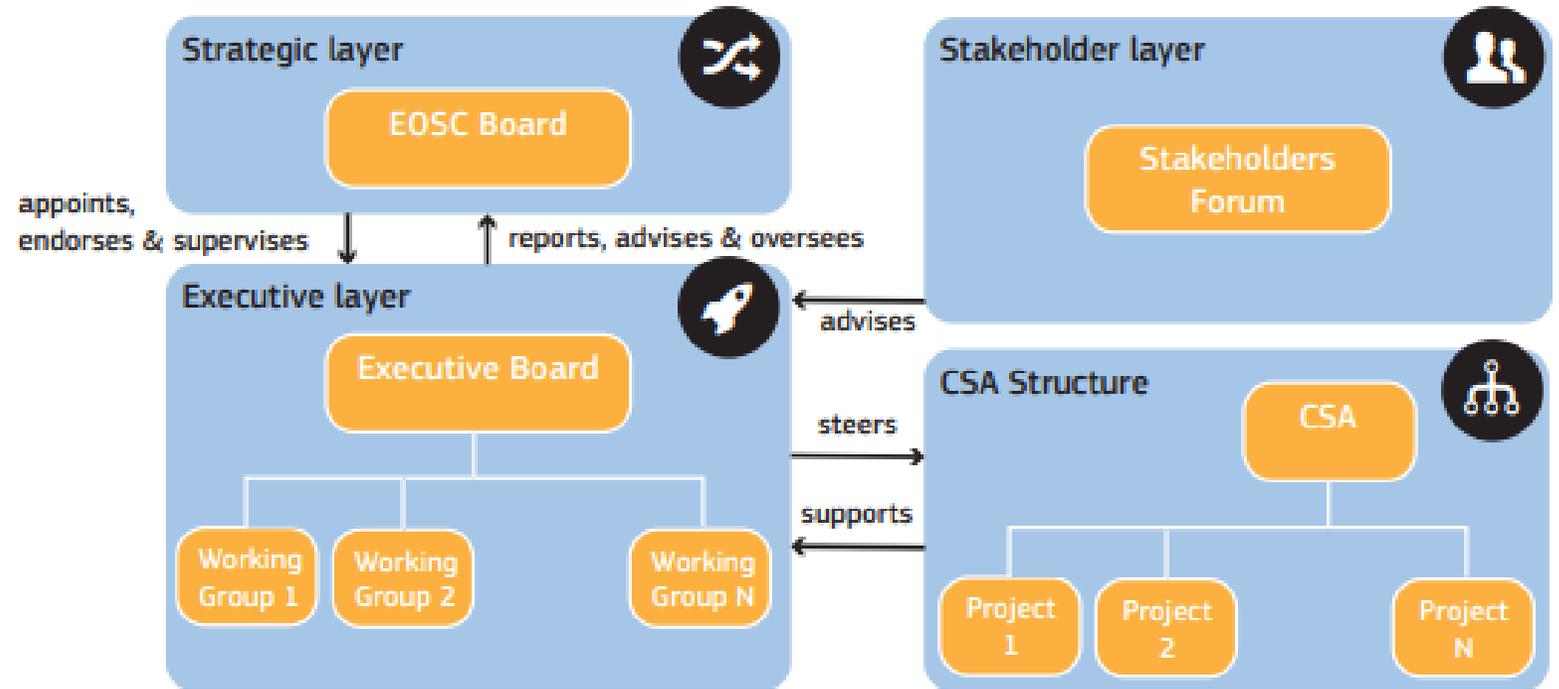
## Phase 2, after 2020:

- ❑ To explore a mix of funding including possibly deposit fees from national funders, based on a full cost estimate for the running of the EOSC, conducted by the EOSC governance framework in Phase 1.

# EOSC Governance framework

## Three-layer structure

- ❑ **Strategic Layer** in the form of an EOSC board to combine state-of-the-art expertise on scientific cloud infrastructures with the Funders and Policy Makers.
- ❑ **Executive Layer** in the form of an executive board to manage day-to-day operation of the EOSC and procurers designing and planning work-related future developments
- ❑ **Stakeholder layer** organised in the form of a stakeholders forum to provide a medium for stakeholders: Users (Consumers), Providers and Intermediaries of EOSC Resources.





[About](#) [Services & Resources](#) [Policy](#) [Use Cases](#) [Media](#) [For providers](#) [Subscribe](#) [Using the Portal](#) 

## ACCESS EOSC SERVICES & RESOURCES



NETWORKING



COMPUTE



STORAGE



SHARING & DISCOVERY



DATA MANAGEMENT



PROCESSING & ANALYSIS



SECURITY & OPERATIONS



TRAINING & SUPPORT

# EOSC Portal Catalogue and marketplace

<https://marketplace.eosc-portal.eu>

Branch of science

Categories

 Interdisciplinary	 Humanities	 Social Sciences
 Natural Sciences	 Engineering and Technology	 Medical and Health Sciences
 Agricultural Sciences	 Support Activities	 Other

[Browse all services](#)

Branch of science

Categories

 Compute	 Data management	 Networking
 Processing & Analysis	 Security & Operations	 Sharing & Discovery
 Storage	 Training & Support	

[Browse all services](#)

# EOSC is here to stay!

- EOSC aims at creating a virtual research environment to access and interoperate research data and other research outputs in Europe across the different disciplines.



# Questions?

## Credits to:

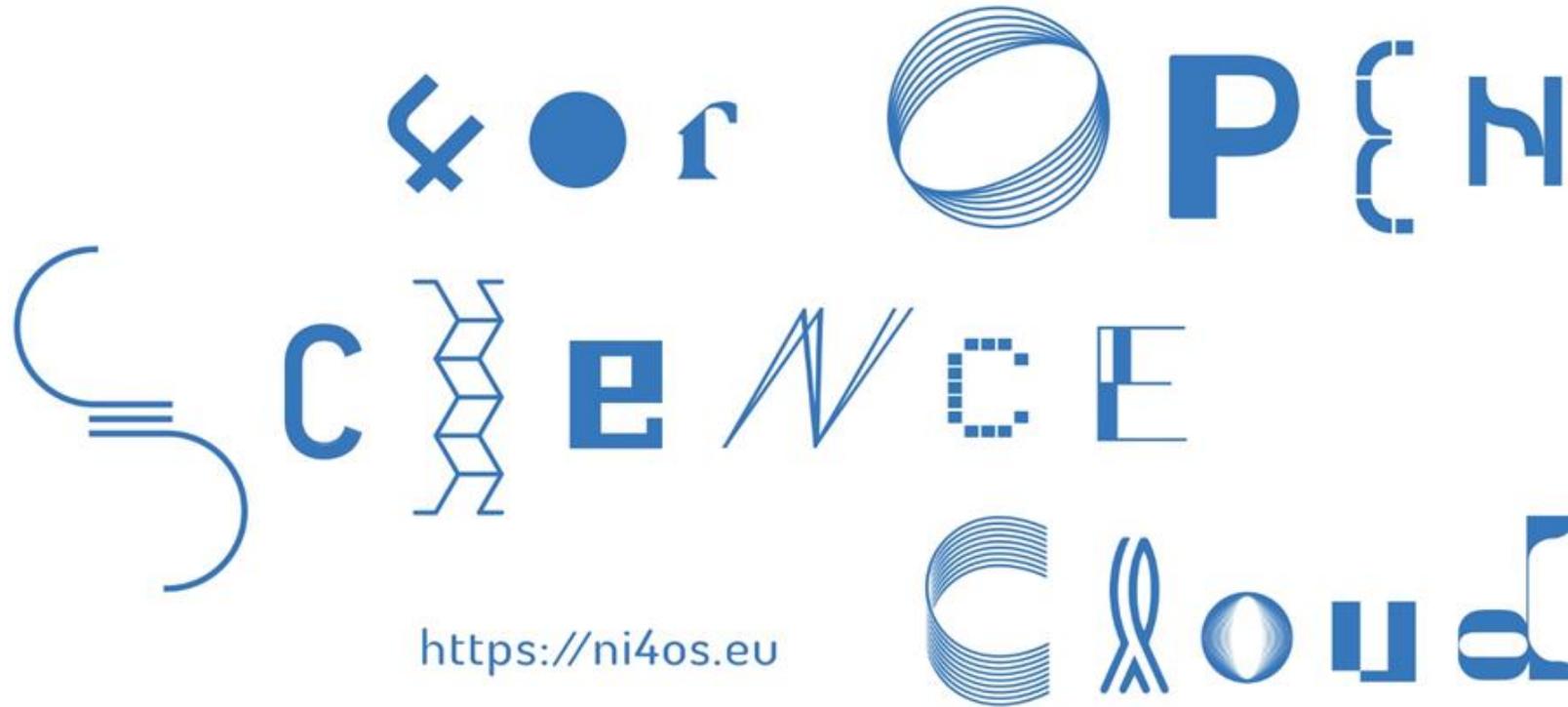
- ❑ [Emma Lazzeri Consiglio Nazionale delle Ricerche – CNR – Italy EOSC Secretariat.eu Supporting EOSC Governance and its stakeholders Introduction to EOSC, NI4OS webinar](#)
- ❑ [David Groep, chairman of EUGridPMA, NSF Cybersecurity Summit 2020 50th EUGridPMA, AARC & EnCo meeting, September 2020](#)
- ❑ <https://www.eosc-portal.eu/>
- ❑ <https://marketplace.eosc-portal.eu/>
- ❑ <https://www.eoscsecretariat.eu/news-opinion/eosc-strategic-research-and-innovation-agenda-version-08>

## Get in touch with EOSC:

- ❑ <https://eosc-portal.eu/contact-us>
- ❑ [info@eoscsecretariat.eu](mailto:info@eoscsecretariat.eu)
- ❑ [www.eoscsecretariat.eu](http://www.eoscsecretariat.eu)

<https://www.youtube.com/watch?v=3Hgnle1Xu8I>

# Thanks!



 [@NI4OS\\_eu](https://twitter.com/NI4OS_eu)

 [@NI4OS](https://www.facebook.com/NI4OS)