# EOSC - European Open Science Cloud
# An Overview

**Inter-University Research Institute Corporation**
**Research Organization of Information and Systems**
**National Institute of Informatics**

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# ZBW – Leibniz Information Center for Economics

https://www.zbw.eu/en/

**ZBW is the world's largest information infrastructure for economics**

- Responsible for providing the economic research community with scientific information
- Research Focus on Open Science
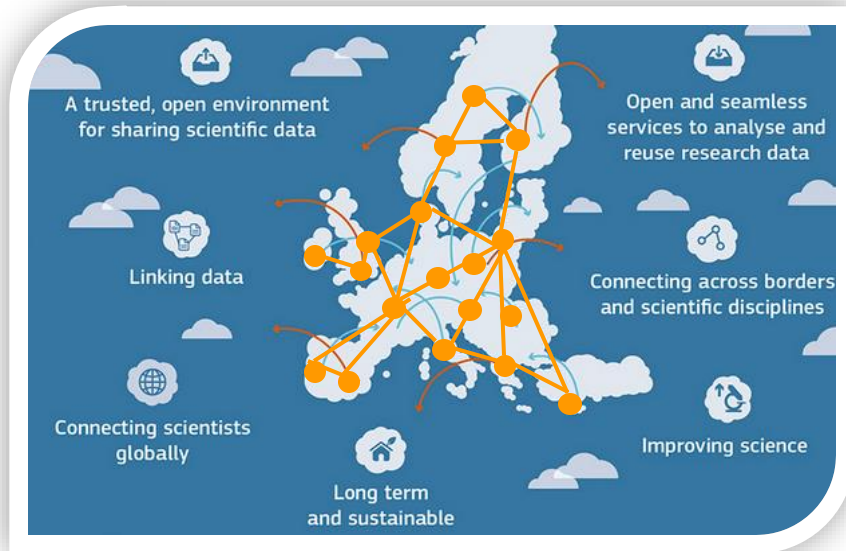
ca. 25 Mio. €

220,6 Full Time Equivalents

# Overview

- **Introduction to EOSC**

- Strategy and Status Quo of EOSC

- Advanced technical aspects

- Developments in cross-platform collaboration

- Avenues for cooperation with Japan

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# Introduction to EOSC

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# EOSC Vision

**What**

**EOSC is the European web of FAIR data and related services for research**
Research data that is easy to find, access, interoperate and reuse (FAIR)
Trusted and sustainable research outputs are available within and across scientific disciplines
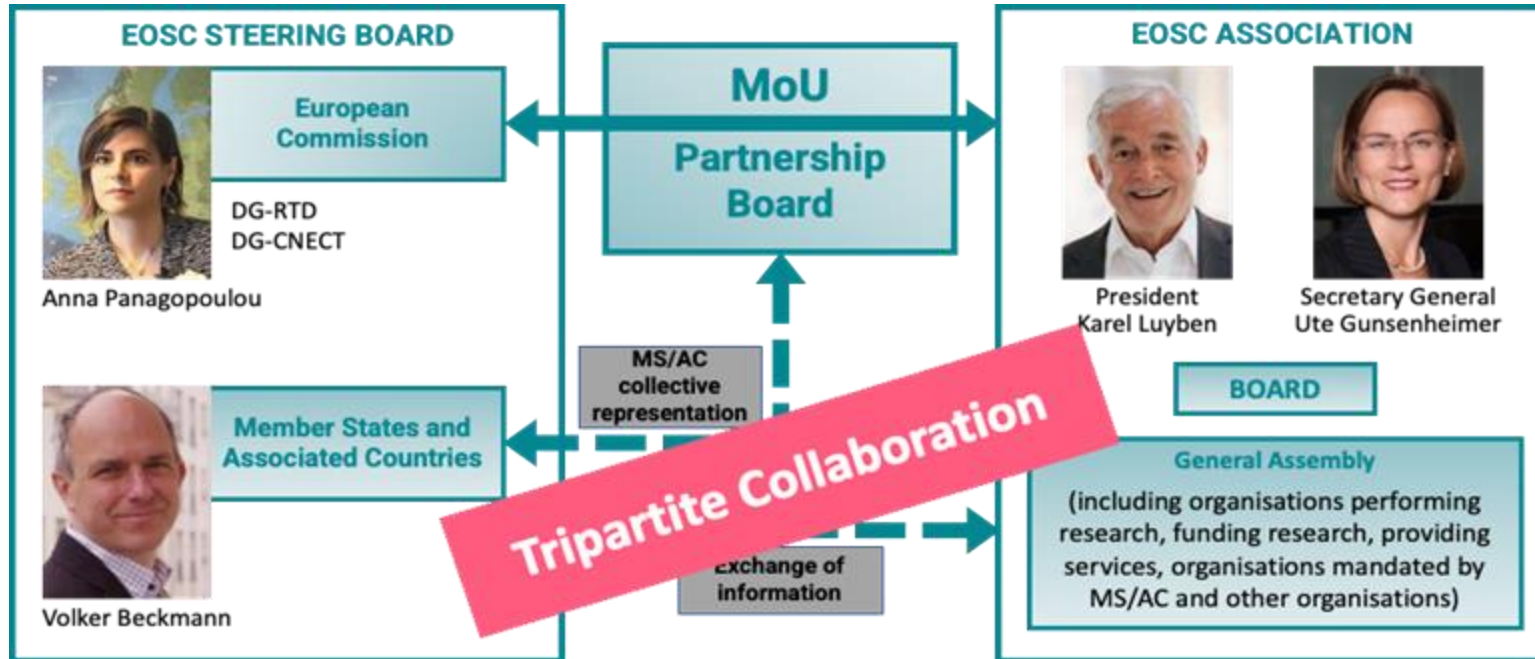
**Why**

**Unlock the full potential of research data to accelerate discoveries and innovation**

# Minimum Viable Environment of the EOSC



EOSC-Exchange

EOSC Interoperability

Data Federation
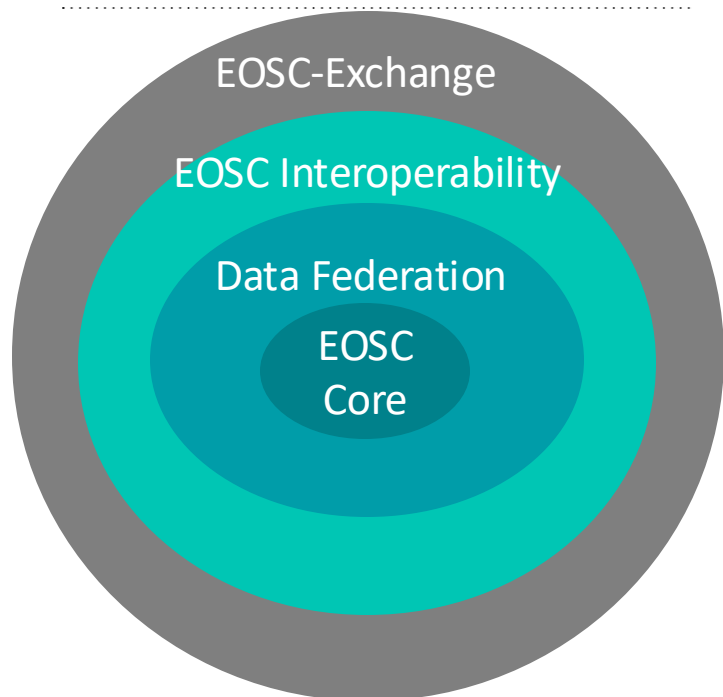
EOSC Core

**EOSC-Core**
The prerequisite **service component enabling** the large-scale brokering of research data and services between the participants in the **EOSC Federation**

**Data Federation**
**FAIR Data need to be federated** in such a way that **metadata on research outputs is harvested into a cross-search to enable** greater **discovery and reuse** of data residing in multiple institutional, domain-specific and national repositories across Europe

**EOSC Interoperability Framework**
**Set of standards and guidelines to support interoperability and composability of resources across borders and disciplines** while respecting privacy and security

**EOSC-Exchange**
The Exchange is the **pan-European marketplace for the EOSC federated resources.** It enables the **brokering of community services between federation participants and** gives **access to procurement contracts.**

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# Governance Structure

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# Strategic Approach: SRIA

https://eosc.eu/sria-mar



**Strategic Research and Innovation Agenda (SRIA)**

**of the European Open Science Cloud (EOSC)**

Version 1.2 – 1 November 2023

EUROPEAN PARTNERSHIP

EOSC Association AISBL
Rue du Luxembourg 3, BE-1000 Brussels, Belgium
+32 2 537 73 18 | info@eosc.eu | www.eosc.eu
Reg. number: 0755 723 931 | VAT number: BE0755 723 931

– 1 –



∧  **Implementation challenges**

Based on the guiding principles and recommendations, action areas to help deploy the EOSC ecosystem. The se implementing the EOSC ecosystem are:

- Identifiers;
- Metadata and ontologies;
- FAIR metrics and certification;
- Authentication and authorisation infrastructure;
- User environments;
- Resource provider environments;
- EOSC Interoperability Framework.

# Strategic Approach: Multi-Annual Roadmap
(Chapter 8 of SRIA)

**Stage 1 (2021–2022): Development towards added value from a functional federation of infrastructures**
Enabling the European Open Science Cloud operations (the EOSC-Core) to provide necessary core functions of the Minimum Viable EOSC (MVE) that allow federation of existing and future infrastructures, according to associated Rules of Participation and governance that provision growth and expansion in the following stages.

**Stage 2 (2023–2024): Expansion to production that generates added value**
Expanding and building the core data infrastructure to support the full lifecycle of scientific research in key thematic areas. During this period, activities will build on pilots / demonstrators and work towards linking EOSC beyond the research communities to the wider public sector and the private sector.

**Stage 3 (2025–2027 and beyond): Expansion to develop impact from Open Science**
Deployment of federated research infrastructures with functionality that allows multiple European research communities to deliver impactful Open Science. In addition to European infrastructures, the national research infrastructures delivered from the Member States and Associated Countries in particular will help in this expansion phase.

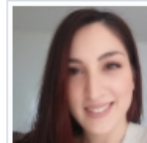# Community Involvement:
# Advisory Groups and Task Forces



Technical and Semantic Interoperability Task Force

FAIR Metrics and Digital Objects Task Force

Health Data Task Force

Long-Term Data Retention Task Force

Board Liaison

Klaus TOCHTERMANN
ZBW

Co-chairs

Elli Papadopoulou
Athena RC

Mark Wilkinson
UPM

# Achievements of finished Task Forces

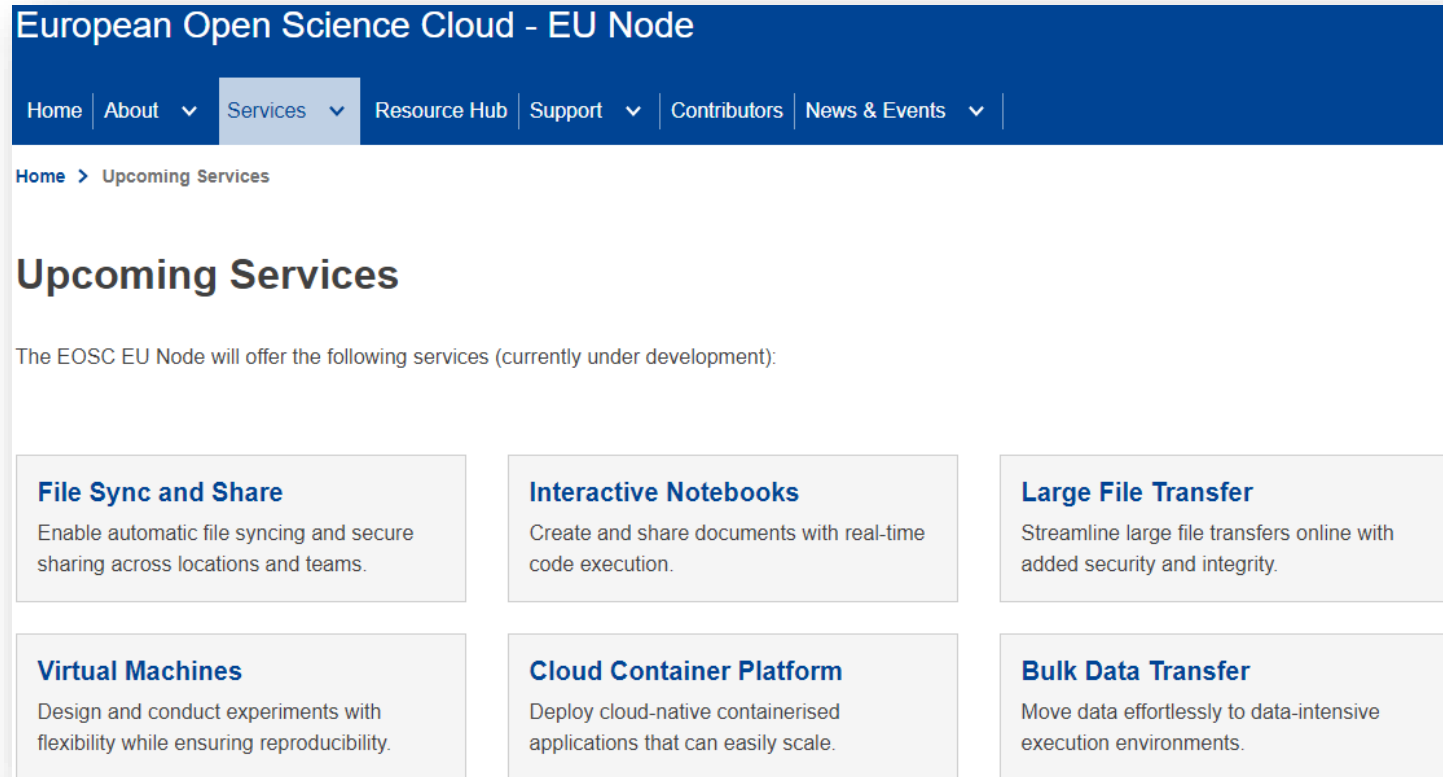https://eosc.eu/eosc-association/eosc-task-forces/eosc-a-task-forces-2021-2023/
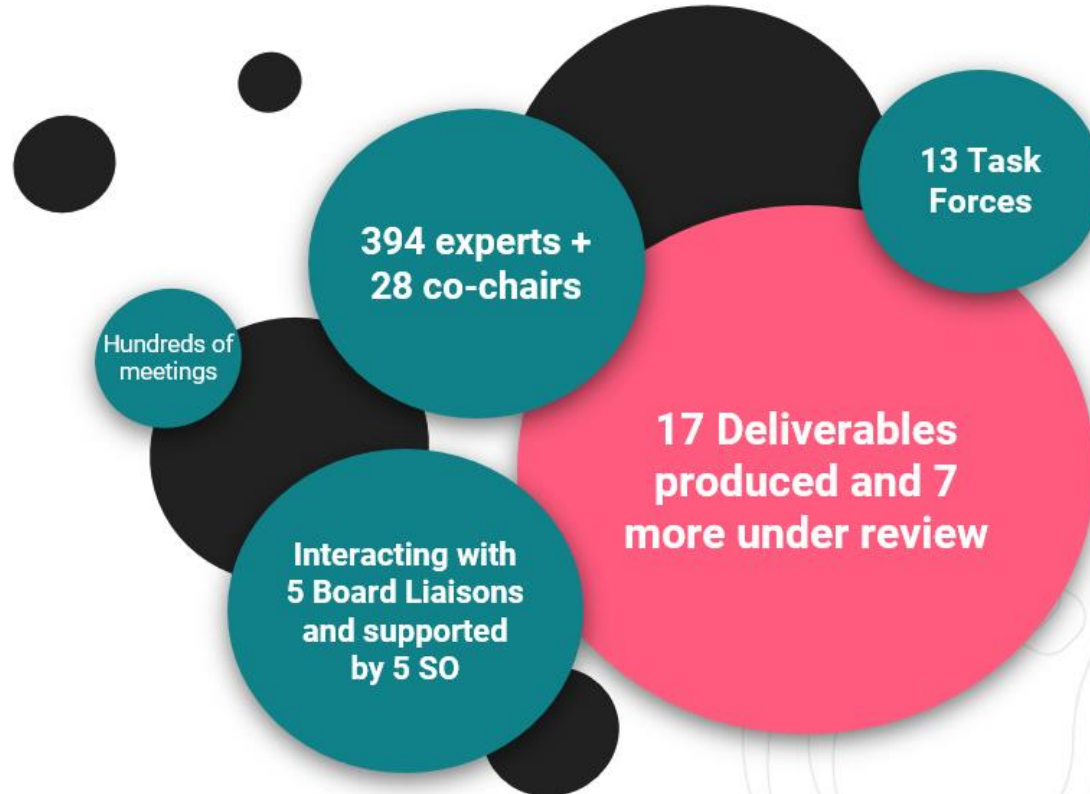
# Services of the EOSC EU Node?

https://open-science-cloud.ec.europa.eu/

## European Open Science Cloud - EU Node

Home | About | Services | Resource Hub | Support | Contributors | News & Events

**Home > Upcoming Services**

## Upcoming Services

The EOSC EU Node will offer the following services (currently under development):

**File Sync and Share**

Enable automatic file syncing and secure sharing across locations and teams.

**Interactive Notebooks**

Create and share documents with real-time code execution.

**Large File Transfer**

Streamline large file transfers online with added security and integrity.

**Virtual Machines**

Design and conduct experiments with flexibility while ensuring reproducibility.

**Cloud Container Platform**

Deploy cloud-native containerised applications that can easily scale.

**Bulk Data Transfer**

Move data effortlessly to data-intensive execution environments.

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# Resource of the EOSC EU Node?

https://open-science-cloud.ec.europa.eu/

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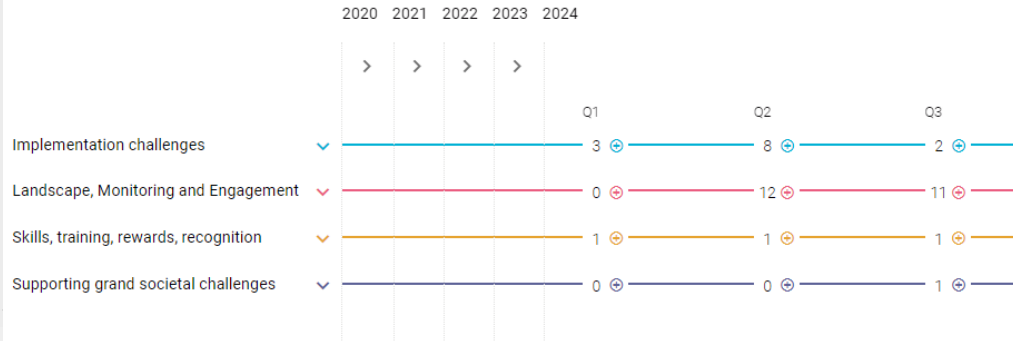for Economics

# Advanced technical aspects

- Generic **FAIR assessment** tools
- FAIR for AI and AI for FAIR
- Criteria for **generic and community-specific** (metadata) **standards**
- **Semantic Interoperability**
- **Knowledge graphs** for storage, management and provision of information

**Macro Roadmap of EOSC**
Project Results 2021-2027 - EOSC Association

EOSC-Related HE Project Results 2021-2027

Horizon Europe Project results = ○○○○○○○○

|  | 2020 | 2021 | 2022 | 2023 | 2024 |
|--|------|------|------|------|------|

|  | Q1 | Q2 | Q3 |
|--|----|----|----|
| Implementation challenges | 3 ⊕ | 8 ⊕ | 2 ⊕ |
| Landscape, Monitoring and Engagement | 0 ⊕ | 12 ⊕ | 11 ⊕ |
| Skills, training, rewards, recognition | 1 ⊕ | 1 ⊕ | 1 ⊕ |
| Supporting grand societal challenges | 0 ⊕ | 0 ⊕ | 1 ⊕ |

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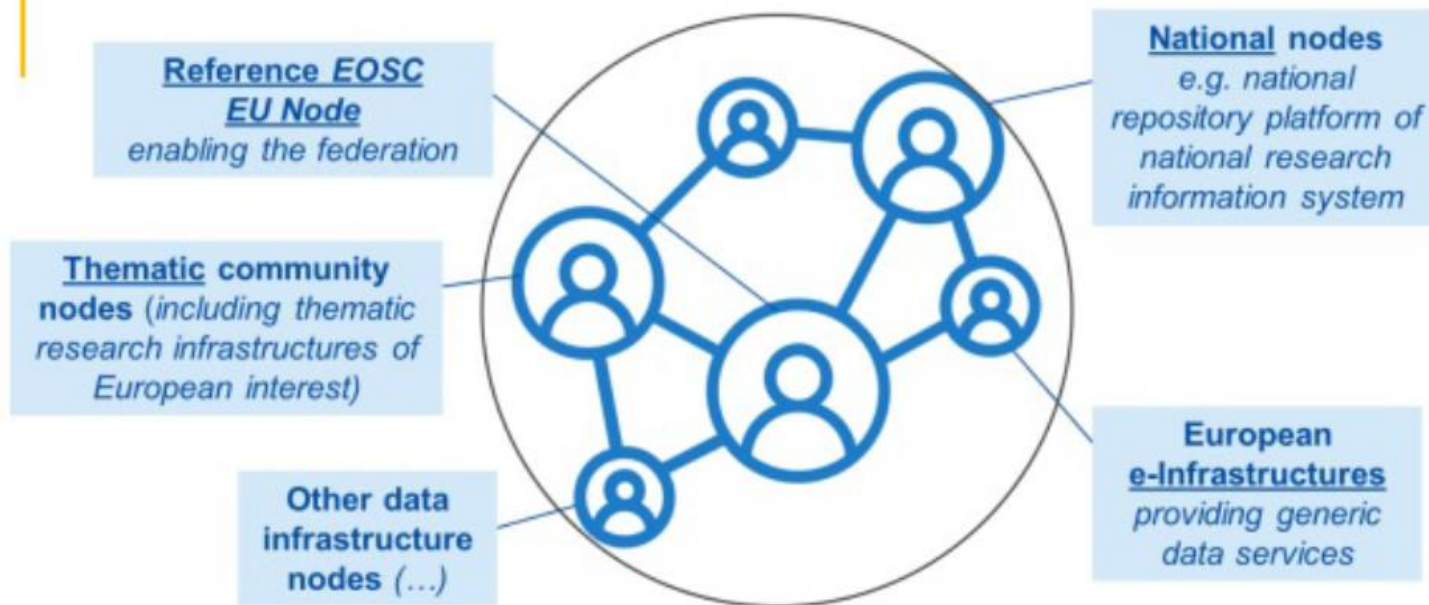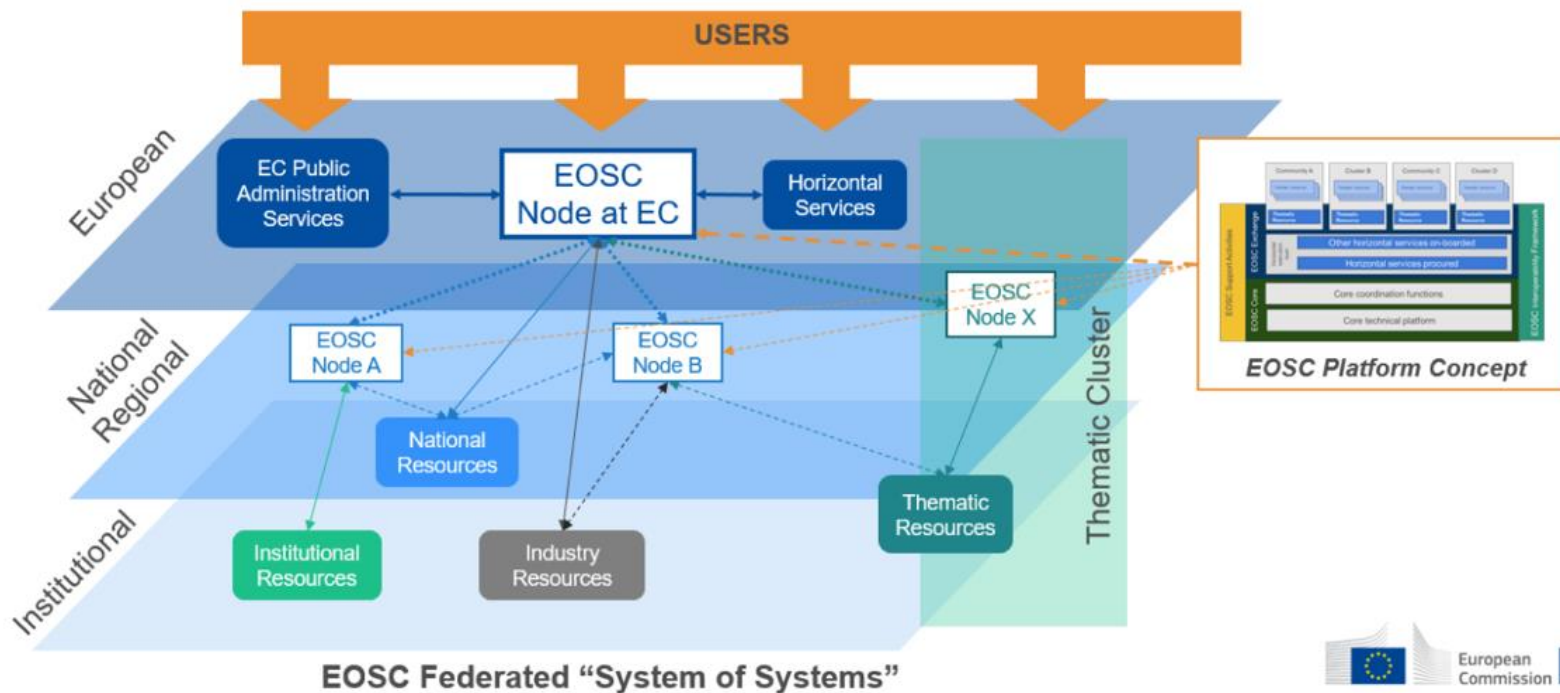Leibniz Information Centre for Economics

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# The Node Concept



Peter Szegedi (DG-CNECT)

**Reference EOSC EU Node** enabling the federation

**Thematic community nodes** (including thematic research infrastructures of European interest)

**Other data infrastructure nodes** (…)

**National nodes** e.g. national repository platform of national research information system

**European e-Infrastructures** providing generic data services

# The EOSC EU Node Concept



EOSC Federated "System of Systems"

# What is a „EOSC Node"?

**EOSC Nodes**

- contain resources adding value to EOSC
- act as the legal representative that can interact with EOSC's governance structure
- control their own operations and resources and ensure that policies are followed within the Node
- offer interfaces that comply with the EOSC Interoperability Framework

# EOSC Federation Handbook

https://eosc.eu/eosc-federation-handbook/

## EOSC Federation Handbook draft table of contents

A table of contents has been developed for the EOSC Federation Handbook by the core writing team, who have been working together since March 2024 under the mandate of the EOSC Focus project.

- ⌄ 1. Purpose

- ⌄ 2. Operational structure and responsibilities

- ⌄ 3. Governance and legal framework

- ∧ 4. EOSC platform

- FAIR data and services (Core, Exchange)
- Interoperability (EOSC Interoperability Framework)
- Links to external entities (e.g. other data spaces, EuroHPC, etc.)
- Scientific services (discovery)
- Training

- ⌄ 5. Technical operations

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# Join the EOSC Technology Form

https://open-science-cloud.ec.europa.eu/about/eosc-eu-node#available-forums

## Contributor Categories

Contributor Categories:

- **Repositories:** Offer curated and FAIR research products with unique identifiers and minimum semantic interoperability (such as publications, data, software, etc.) that are as open as possible and as closed as necessary.

- **Research Infrastructures:** Contribute specialised knowledge, tools, applications, and datasets, particularly in niche or cutting-edge areas of science.

- **Technology and Infrastructure Providers:** Offer infrastructure and/or platform services following the cloud-based delivery model, that can form the European backbone of computational and data storage capabilities.

- **Software Developers and IT Professionals:** Develop the models, tools, and applications that facilitate data management, analysis, collaboration, and other essential research activities within the EOSC ecosystem.

- **Industry Partners:** Engage with the EOSC EU Node for collaborative research activities spanning across public and private sectors and for potentially bridging the gap between scientific research and industrialised innovation.

Detailed information on how you can contribute to the EOSC EU Node will be available soon in this space. Rules of Participation are subject to apply.

## Interest Form

I am interested to join the *

◯ User Forum    ◯ Technology Forum

**Full name** *

[                              ]

**Email** *

[                              ]

**Organisation** *

[                              ]

☐ Please keep me updated for any EOSC EU Node developments

Privacy Policy

**Submit interest**

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# Join the Global Open Science Cloud

https://codata.org/initiatives/decadal-programme2/global-open-science-cloud/working-groups/

# Join the German National Research Data Infrastructure

https://www.nfdi.de/?lang=en



Network with institutions involved in NFDI – my visit to NII in Q1/2025

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VIELEN DANK

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