EU policy drives and EC support
to the European Open Science Cloud (EOSC)

EOSC tripartite event by eoscFrance 2023

Montpelllier, 13 June 2023

Michel Schouppe, Teamleader, Open Science and Research Infrastructures (RTD.A4)
*Tobias Wiesenthal, DHoU Open Science and Digital Modelling (CNECT.C1)*

EOSC support by the European Commission

- Keeping the **policy momentum: EOSC as a pillar of the digital transition**
  - 'Open Science including EOSC' fully embedded in the ***ERA Policy Agenda***
  - EOSC as a sectoral data space of the ***European Strategy for Data***

- Support through the **Horizon Europe programme**
  - Implementation of ***Research Infrastructure Calls***: direct EU investment in EOSC developments of up to €490 million
  - Including also ***procurement of EOSC managed services*** by the EC
  - ***Studies*** commissioned by the EC, e.g. the European Research Data Landscape study

- Continued involvement notably in:
  - The ***EOSC governance*** (EOSC Steering Board, EOSC Partnership Board)
  - EOSC ***coordination with ERA-Forum, ESFRI*** *and various MS-driven think tanks*
  - ***EOSC thematic demonstrators and good practices*** (e.g. the European Covid-19 Data Platform, the Blue Cloud, the science clusters)
  - The ***monitoring*** of the uptake of Open Science and 'EOSC readiness'

European Commission

Some figures about Open Science …

<50%
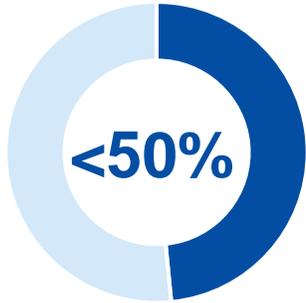
**Scientific publications[1]
available in open access
(aggregated figure over time)
[> 65 % in 2021]**
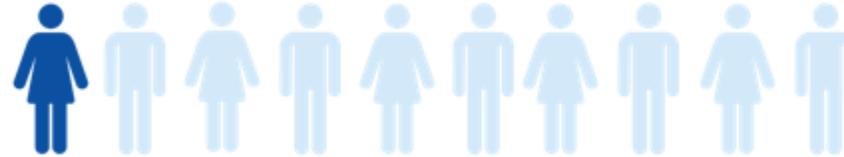
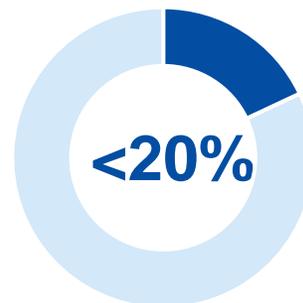**Authors who retain copyright[2] in contracts
with largest subscription journals**

3€ billion per year

**National public funding for
pan-European Research
Infrastructures[3]**

**Researchers who occasionally store
research data in shared repositories[4]**

<20%

**Researchers who put FAIR
principles into practice[5]**

Sources:
1   Open Science observatory by OpenAIRE
     https://osobservatory.openaire.eu/home
2   Morrison, J Secker, B Vézina, I Labastida I Juan,
     V Proudman (2020)
3   ESFRI roadmap 2021
4 & 5 European Research Data Landscape study (2022)
     https://data.europa.eu/doi/10.2777/3648

Strategic objectives for Open Science in Europe

Immediate and **unrestricted** open access to research outputs

**Responsible** research output management, in line with **FAIR** principles

Early and **open** sharing of research: methods, data, preprints

European ecosystem of research infrastructures that is more **effective** and **efficient**, **open** and **accessible**, and **sustainable**

Open collaboration, within science and with broader public and private sector

Key enablers of Open Science practices
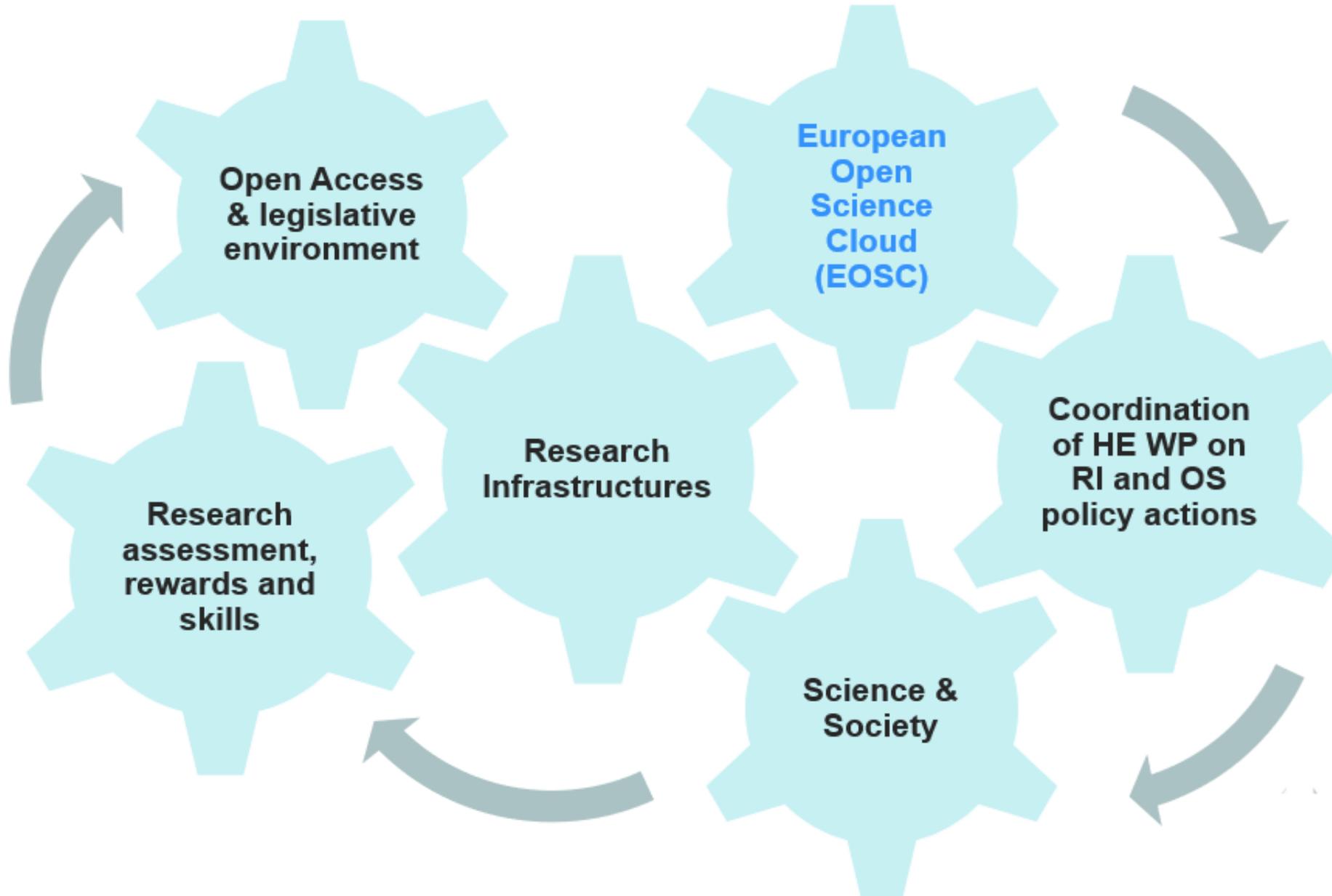
EOSC in the ERA policy Agenda (2021-2024)

ERA Policy Action 1: "*Enable the open sharing of knowledge and the re-use of research outputs, including through the development of the EOSC*"

➢ **Deploy Open Science principles and identify Open Science best practices**
- • Mainstreaming OS across national programmes, catalogue of OS practices, tools and services, data scientists and data stewards, national EOSC tripartite events …

➢ **Deploy the core components and services of EOSC and federate existing data infrastructures in Europe, working towards the interoperability of research data**
- • Horizon Europe support to EOSC Partnership, connection of national/regional research infrastructures to EOSC federation, community frameworks for interoperability & quality control …

➢ **Establish a monitoring mechanism to collect data on investments, policies, digital research outputs, open science skills and infrastructure capacities related to EOSC**
- • Co-development of EOSC national surveys, roll-out of key layers of monitoring mechanism …

Enabling Open Science through EOSC

- **A community-driven process** (commitments by EU Member States, Associated Countries, research stakeholders)

- **Gradual implementation** based on **mutual alignment** and pooling of resources at European, national and institutional levels. Move **from prototyping to operations**
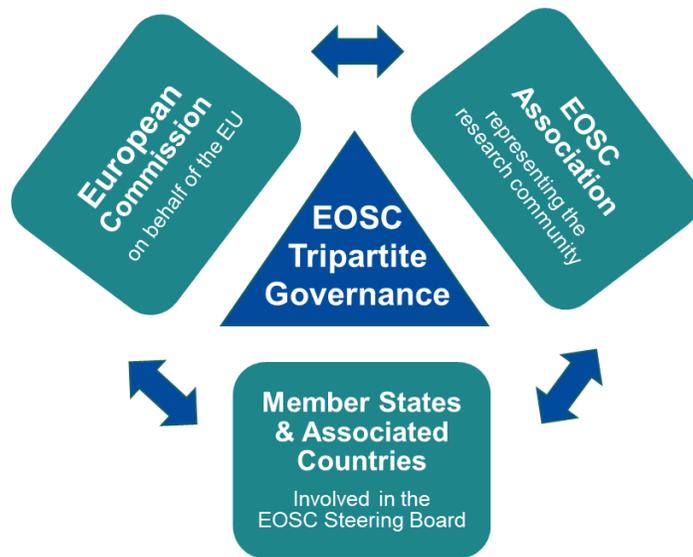
With direct support by: **eosc**

- ➤ **EOSC European Co-programmed Partnership** to pool commitments and resources along priorities set in the EOSC Strategic Research and Innovation Agenda

- ➤ **EOSC tripartite governance** to ensure dialogue and strategic coordination between EC, EU Member States and Associated Countries, and EOSC Association
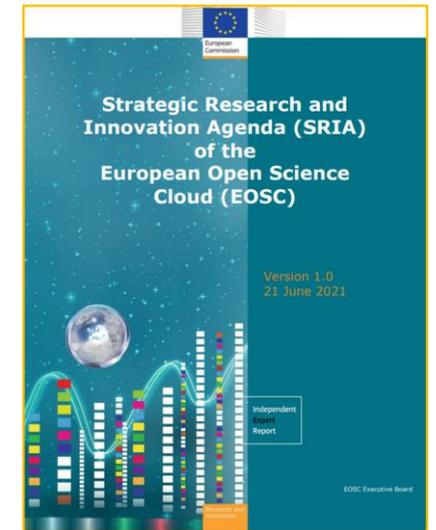
Monitoring national contributions to EOSC in 2022-2023

- Based on the **Monitoring framework for national contributions to EOSC**
  - Published in December 2022
    https://doi.org/10.5281/zenodo.7410762
  - 3 dimensions * 8 categories

dimensions

categories	Policies		Practices	[Impact]
Publications	Countries with a National Policy		Countries with National Monitoring	
Data				
Software	Countries with a Financial Strategy		Countries with Use Cases	
Services				
Infrastructure	Country RPOs with a Policy		Country Investments	
Skills/Training				
Assessment	Country RFOs with a Policy		Country Outputs	
Engagement				

Implemented through the **EOSC Observatory** (launched in Nov 2022)

- https://eoscobservatory.eosc-portal.eu/home

eosc OBSERVATORY   EOSC Readiness   Login

Monitoring the European Open Science Cloud (EOSC)

The EOSC Observatory is a policy intelligence tool being developed by the EOSC Future project for monitoring policies, practices, and impacts related to the European Open Science Cloud (EOSC). It will support the EOSC community in

Overview of EU investments…

Enabling Open Science

Supporting an EOSC-ready digitally skilled workforce
HORIZON-INFRA-2021-EOSC-01-01
SKILLS4EOSC (7Mɪᴏ€)

Services that underpin a research assessment system that incentivises Open Science
HORIZON-INFRA-2021-EOSC-01-06
GʀᴀꜱPOS (8 Mɪᴏ€)

Supporting institutional open access publishing across Europe
HORIZON-INFRA-2022-EOSC-01-02
CʀᴀꜰᴛOA (5 Mɪᴏ€)

FAIR implementation

Deploying EOSC-Core components for FAIR
HORIZON-INFRA-2021-EOSC-01-03
FAIRCORE4EOSC (10 Mɪᴏ€)

Enabling discovery and interoperability of research objects across communities
HORIZON-INFRA-2021-EOSC-01-05
FAIR-IMPACT (10 Mɪᴏ€)

Support to international standards and speciffcations for open sharing of FAIR research digital objects
HORIZON-INFRA-2022-EOSC-01-04
RDA TIGER (3 Mɪᴏ€)

Planning, tracking and assessing scientific knowledge production
HORIZON-INFRA-2023-EOSC-01-03 (8 Mɪᴏ€)

Improving the quality of scientific software and codes
HORIZON-INFRA-2023-EOSC-01-02 (8 Mɪᴏ€)

Uptake – Use cases

FAIR and open data sharing in support of the Cancer Mission
HORIZON-INFRA-2021-EOSC-01-06
EOSC4CANCER (8Mɪᴏ€)

FAIR and open data sharing in support of the Mission on oceans & waters
HORIZON-INFRA-2022-EOSC-01-03
BLUE CLOUD 2026 ᴀɴᴅ AꞯᴜᴀINFRA (16 Mɪᴏ€)

FAIR and open data sharing in support of the Mission climate adaptation
HORIZON-INFRA-2024-EOSC-01-01
(16 Mɪᴏ€)

Build on the science cluster approach to ensure EOSC uptake
HORIZON-INFRA-2023-EOSC-01-01
(25 Mɪᴏ€)

EOSC partnership

Supporting activities of the European EOSC Partnership
HORIZON-INFRA-2021-EOSC-01-02
EOSC-FOCUS (4Mɪᴏ€)

Supporting activities of the European EOSC Partnership
HORIZON-INFRA-2024-EOSC-01-02
(4 Mɪᴏ€)

Long term access and preservation infrastructures and data quality
HORIZON-INFRA-2024-EOSC-01-04 (8 Mɪᴏ€)

Enabling a network of EOSC federated and trustworthy repositories
HORIZON-INFRA-2024-EOSC-01-03 (5 Mɪᴏ€)

European Commission

Commission Communication of 20 February 2020:
European Strategy for Data

A common European data space, a single market for data

Data can flow within the EU and across sectors

Availability of high quality data to create and innovate

European rules and values are fully respected

Rules for improving access and use of data are fair, practical and clear & clear data governance mechanisms are in place

European Commission

Common European Data Spaces

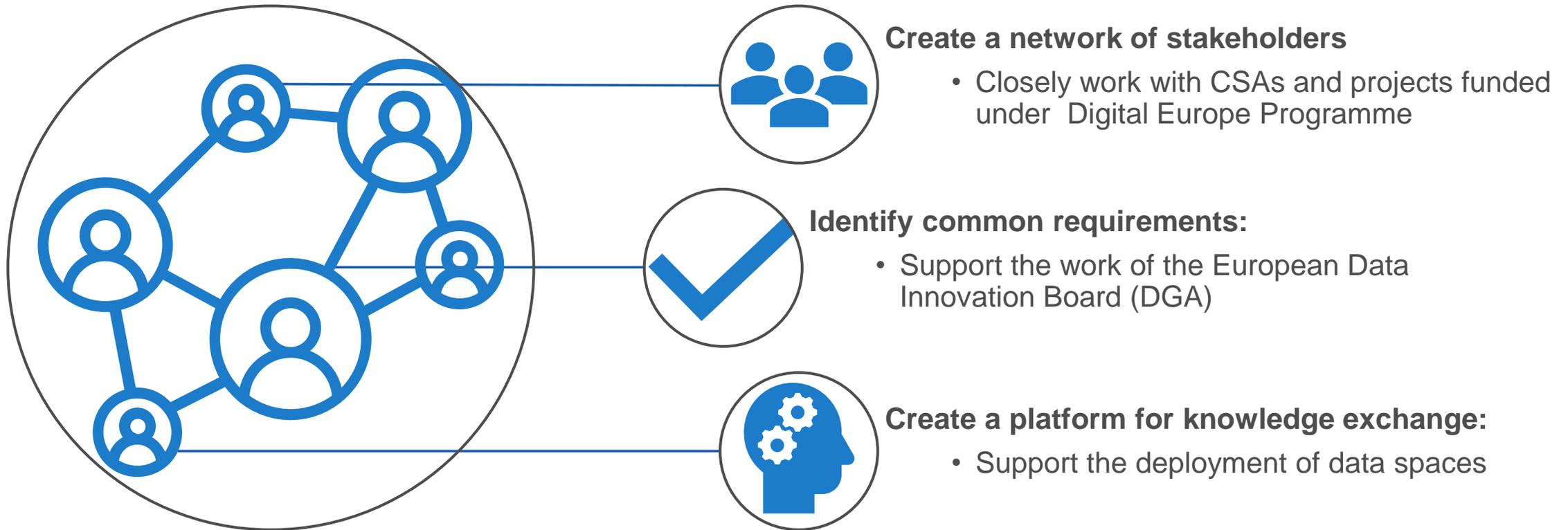| Health	Industrial & Manufacturing	Agriculture	Finance	Mobility	Green Deal	Energy	Public Administration	Skills	EOSC

High Value Datasets from public sector

- Driven by stakeholders
- Rich pool of data of varying degree of openness

- Sectoral data governance (contracts, licenses, access rights, usage rights)
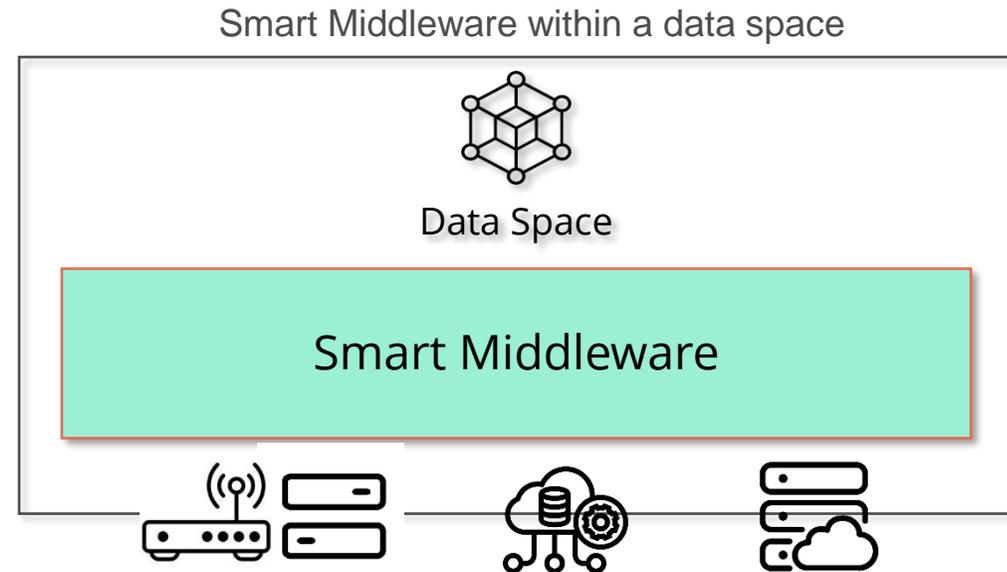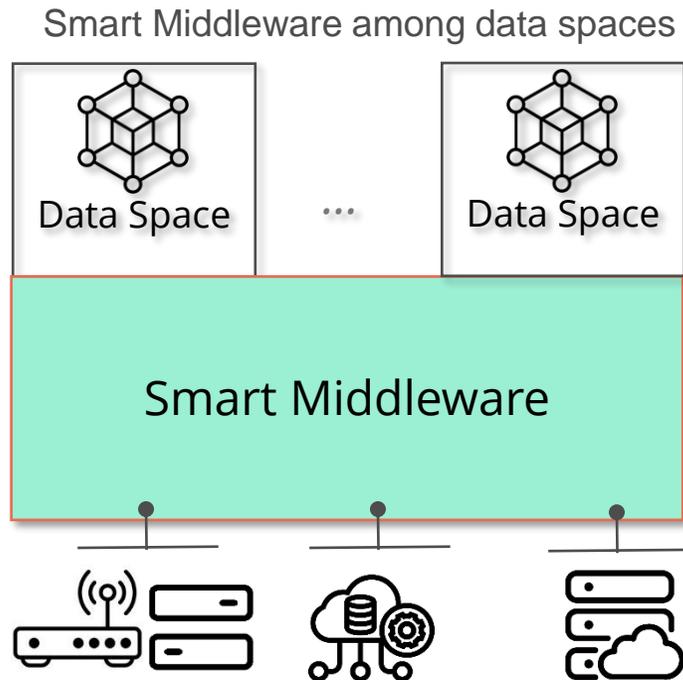- Technical tools for data pooling and sharing

"**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 Commission

Data Spaces Support Centre

Create a network of stakeholders

- Closely work with CSAs and projects funded under Digital Europe Programme

Identify common requirements:

- Support the work of the European Data Innovation Board (DGA)

Create a platform for knowledge exchange:

- Support the deployment of data spaces

http://dssc.eu

European Commission

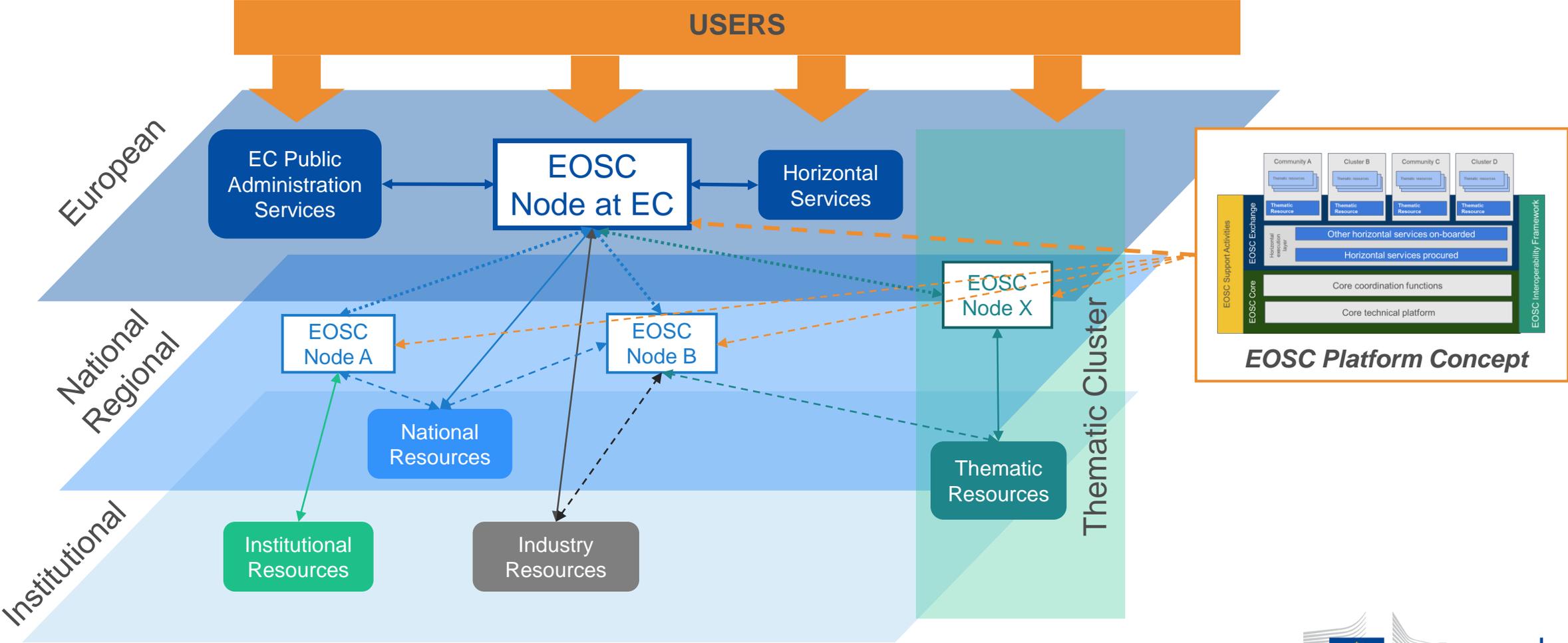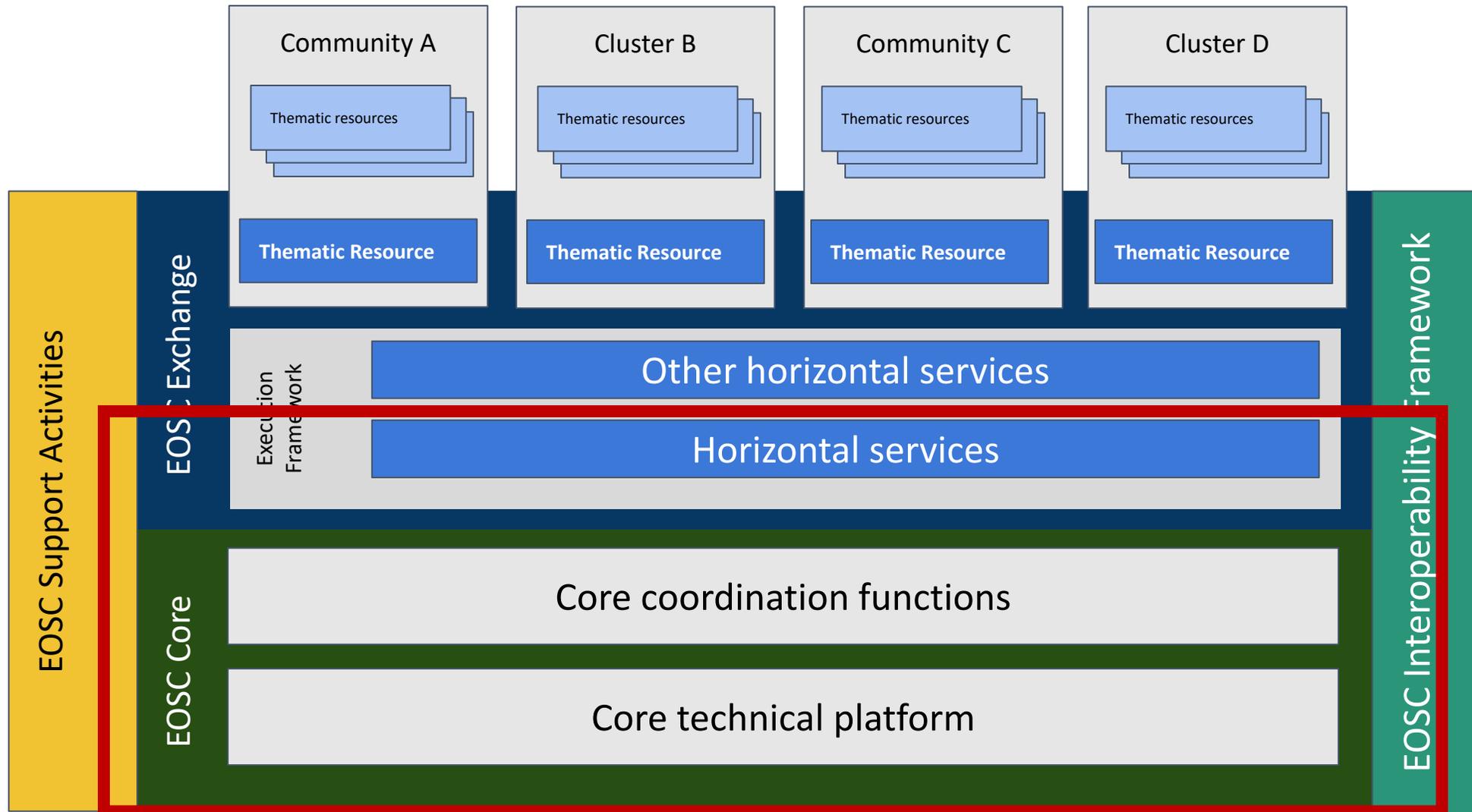# Smart Middleware to support Data Spaces

Smart Middleware (SIMPL) will be a **software stack** that provides **common services and capabilities** to **Data Spaces** on top of what is offered by the operating systems of **Edge and Cloud computing infrastructures**

Smart Middleware among data spaces

Smart Middleware within a data space

European Commission

EOSC federated 'system of systems'

Scope of the EOSC Procurement Action

Community A

Thematic resources

Thematic Resource

Cluster B

Thematic resources

Thematic Resource

Community C

Thematic resources

Thematic Resource

Cluster D

Thematic resources

Thematic Resource

EOSC Support Activities

EOSC Exchange

Execution Framework

Other horizontal services

Horizontal services

EOSC Core

Core coordination functions

Core technical platform

EOSC Interoperability Framework

Input from the EOSC Future project public deliverables
https://eoscfuture.eu/library/

Scope of the EOSC Procurement Action

European Commission

Scope of the EOSC Procurement Action

EOSC Exchange Thematic/Regional Services

| EOSC Exchange Thematic Cluster A | EOSC Exchange Regional Cluster B | Other |

EOSC Exchange Horizontal Services

EOSC Support Activities

APIs and Web Interfaces

EOSC Exchange Application Services

EOSC Exchange Value-add Serv.

EOSC Exchange Infrastructure Services

EOSC Exchange eInfra Serv.

EOSC Interoperability Framework

EOSC Core Platform and Services

Procurement Lot Structure

Lot 3 — Managed Collaborative Data Platform, Interactive Data Analytics Platform and Visualization Services for the EOSC Exchange (Application Services)
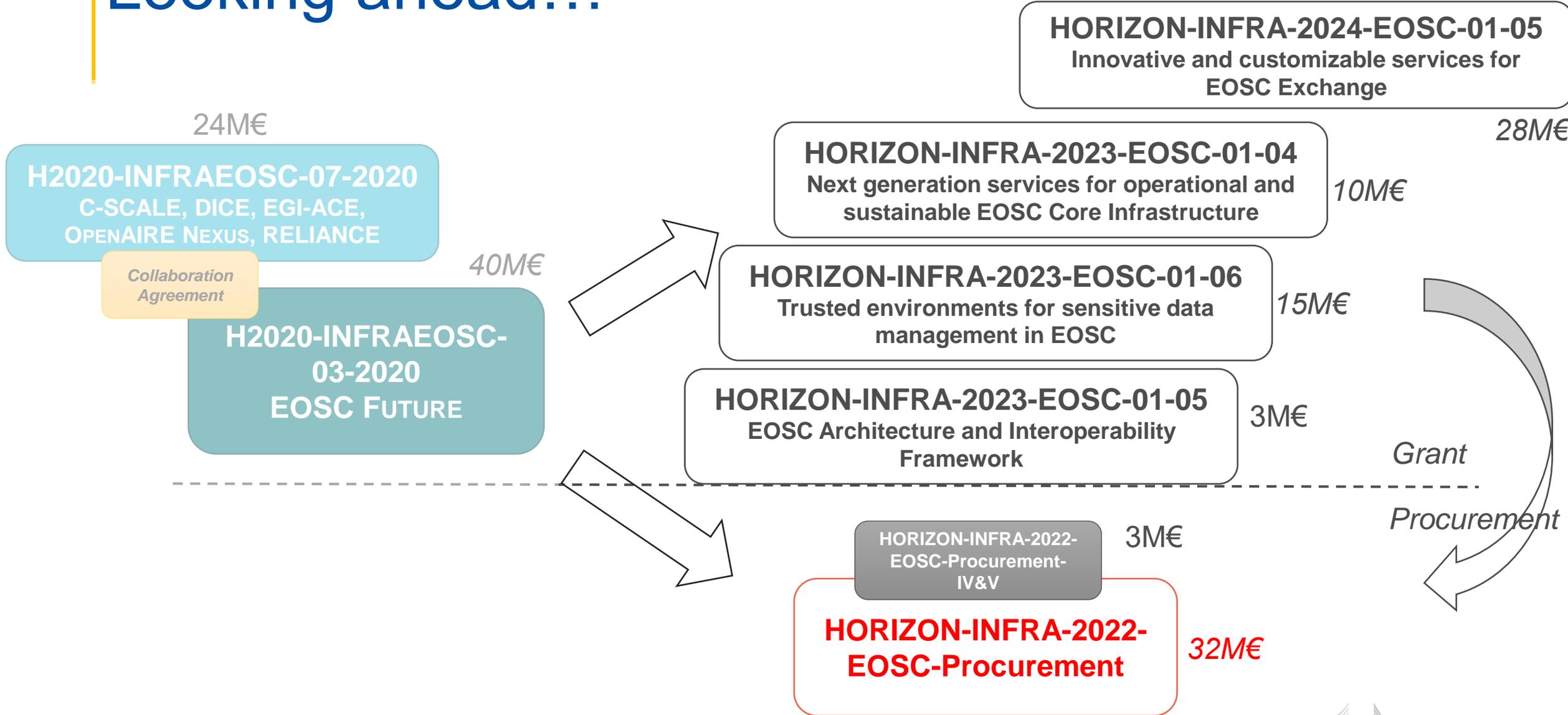
Lot 2 — Managed Container Platform and Virtual Machine Services for the EOSC Exchange (Infrastructure Services)
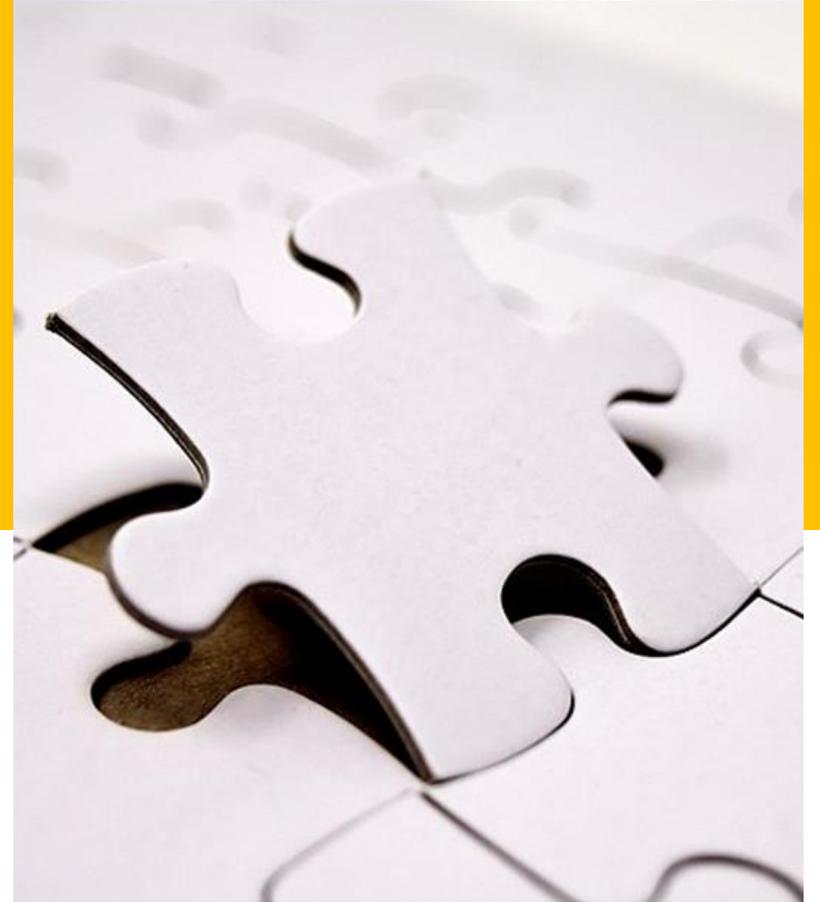
Lot 1 — Managed Services for the Development, Integration, Deployment and Operations of the Federated EOSC Core

European Commission

Looking ahead…

HORIZON-INFRA-2024-EOSC-01-05
Innovative and customizable services for EOSC Exchange

28M€

24M€

H2020-INFRAEOSC-07-2020
C-SCALE, DICE, EGI-ACE, OPENAIRE NEXUS, RELIANCE

Collaboration Agreement

HORIZON-INFRA-2023-EOSC-01-04
Next generation services for operational and sustainable EOSC Core Infrastructure

10M€

40M€

H2020-INFRAEOSC-03-2020
EOSC FUTURE

HORIZON-INFRA-2023-EOSC-01-06
Trusted environments for sensitive data management in EOSC

15M€

HORIZON-INFRA-2023-EOSC-01-05
EOSC Architecture and Interoperability Framework

3M€

Grant

Procurement

HORIZON-INFRA-2022-EOSC-Procurement-IV&V

3M€

HORIZON-INFRA-2022-EOSC-Procurement

32M€

European Commission

Thank you

European Commission