

VRE as an open scientific gateway to connect EOSC user and resource environments

EGI Conference 2024

2 October 2024, Lecce

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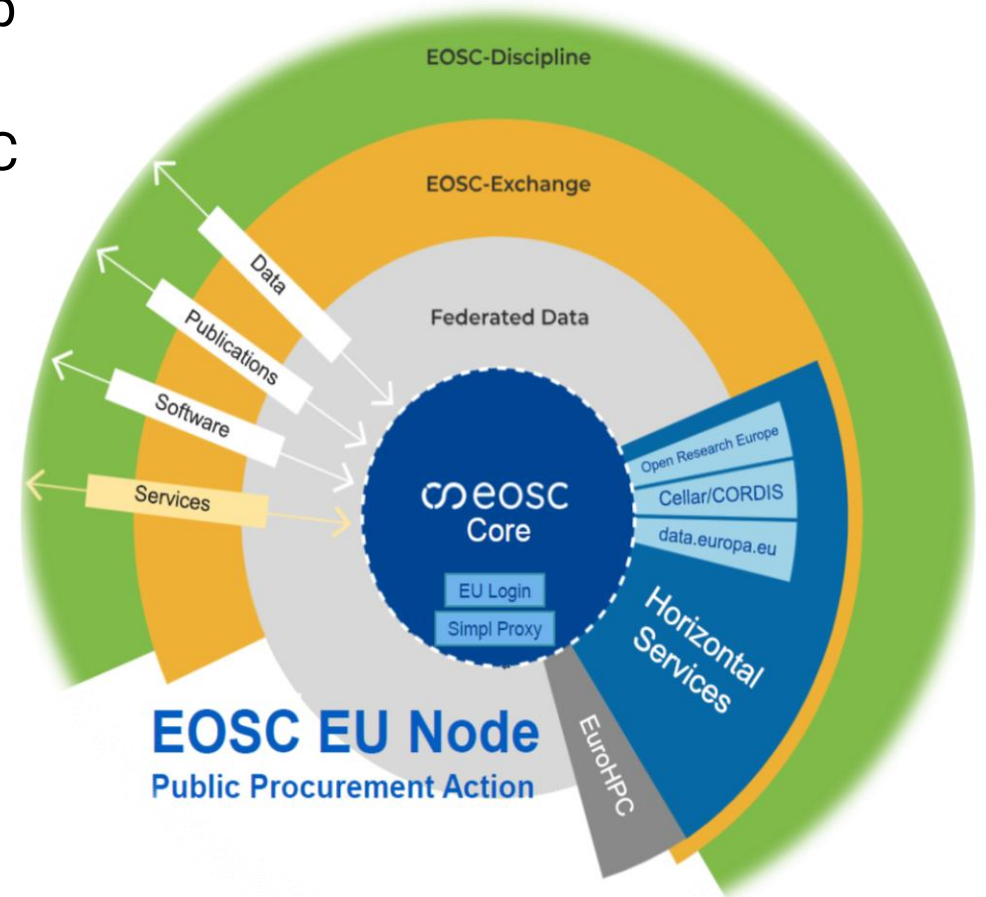
Opportunity Area
Expert Group



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European Open Science Cloud (EOSC)

- ❑ An **open** multi-disciplinary ecosystem to develop a Web of **FAIR** data and services for research and innovation
 - ❑ Deployment of EOSC Core services to expand the EOSC federation
 - ❑ Implementation by **INFRA-EOSC** projects
- Horizon 2020 (2018-2020)
Horizon Europe (2021-2027)



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EOSC Focus Project



HORIZON-INFRA-2021-EOSC-01

(Coordination Support Action)

June 2022 – May 2025

Focusing on **Open, Collaboration and Useful Science**

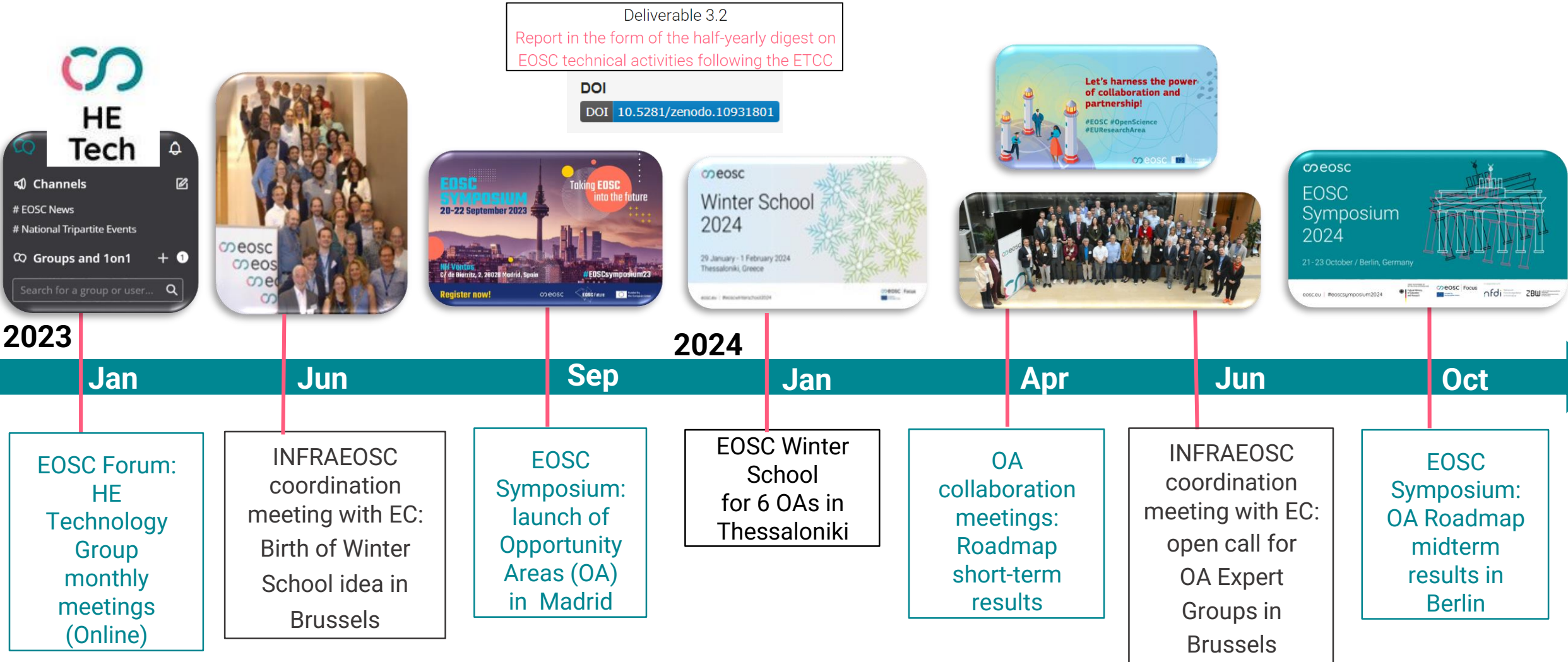
- Provide an effective stakeholder forum
- Identify strategic gaps to inform future integrations of the Strategic Research and Innovation Agenda (**SRIA**)
- Coordinate 'Enabling an operational, open and FAIR EOSC ecosystem (**INFRAEOSC**)' projects under the Horizon Europe (HE)

- ✓ WP1: Project Coordination
- ✓ WP2: Stakeholder Engagement & Management
- ✓ **WP3: SRIA Update & Technical Development**
- ✓ WP4: Monitoring and Impact Assessment
- ✓ WP5: Sustainability of EOSC
- ✓ WP6: Communication, Dissemination & Stakeholder Forum



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Evolution of INFRAEOSC Projects Collaboration



Opportunity Areas (OA)

OA1: PIDs

OA2: Metadata, Ontologies & Interoperability

OA3: FAIR Assessment & Alignment

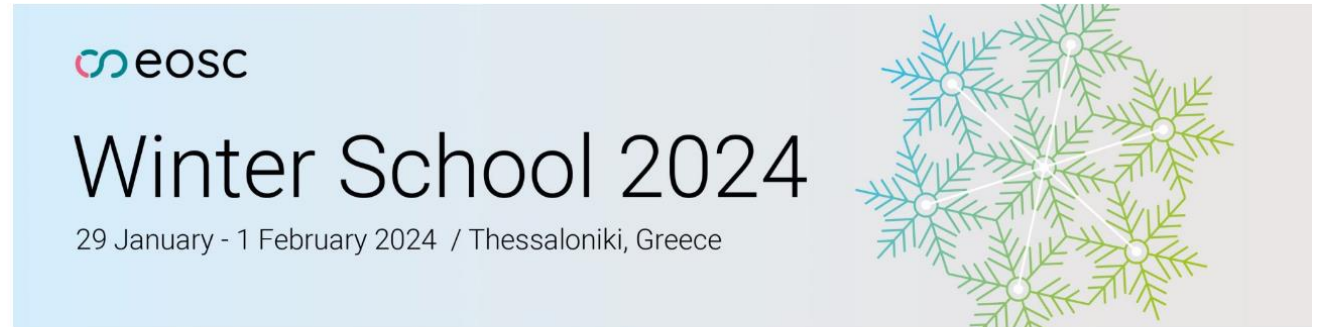
OA4: User & Resource Environments

OA5: Skills, Training, Rewards, Recognition & Upskilling

OA6: Open Scholarly Communication

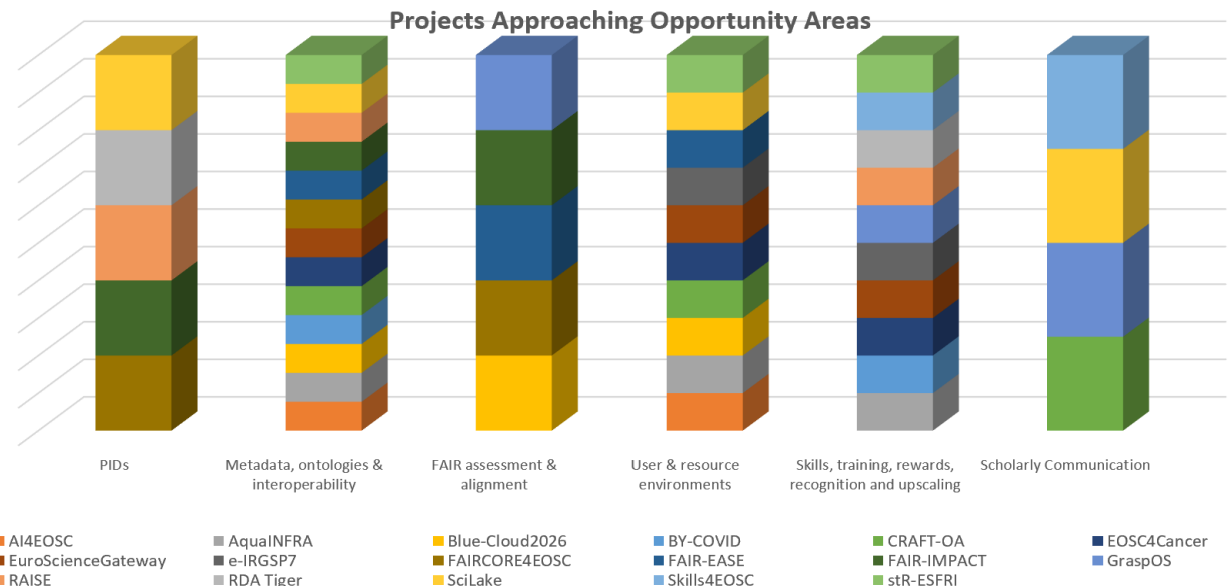


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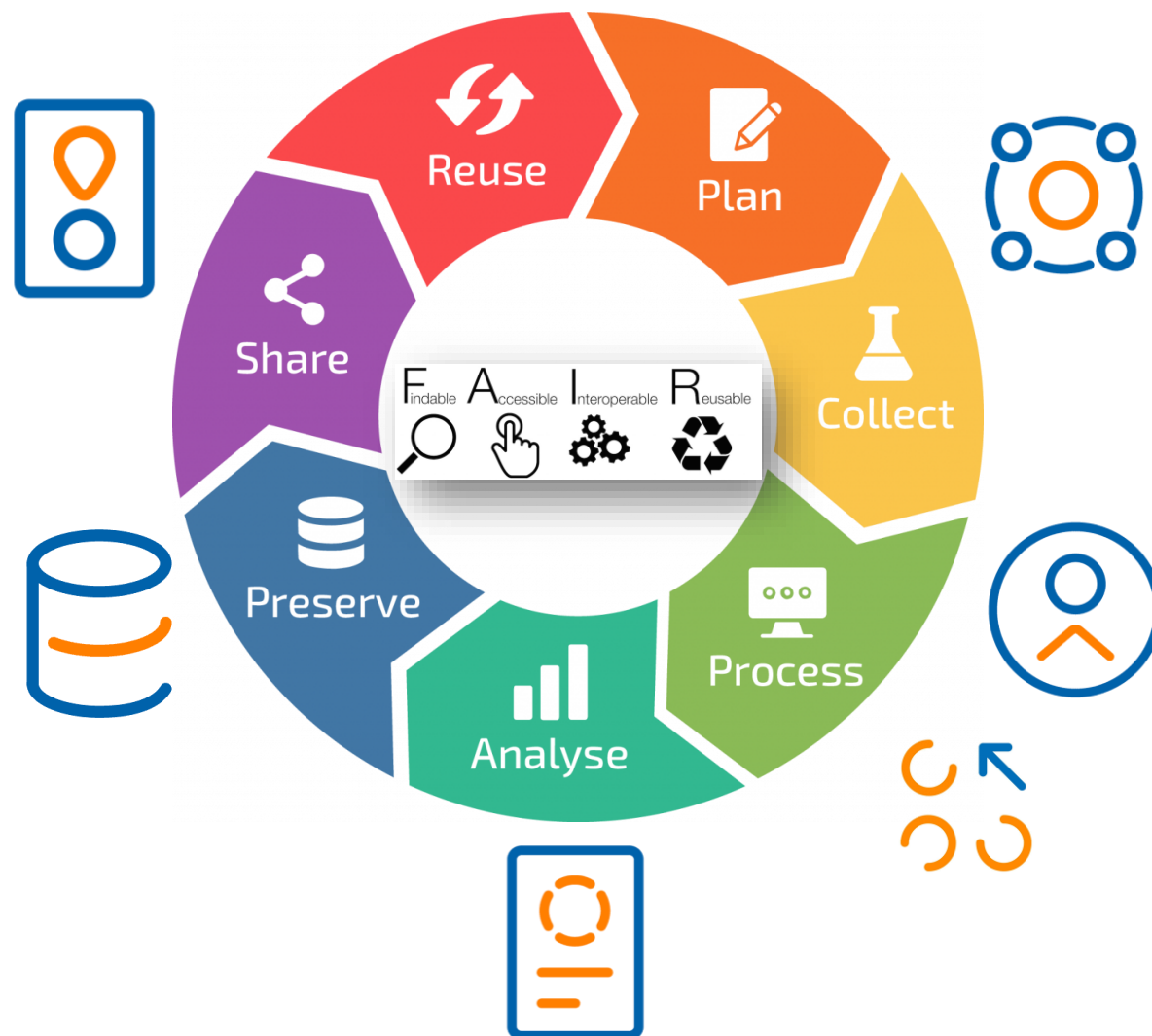


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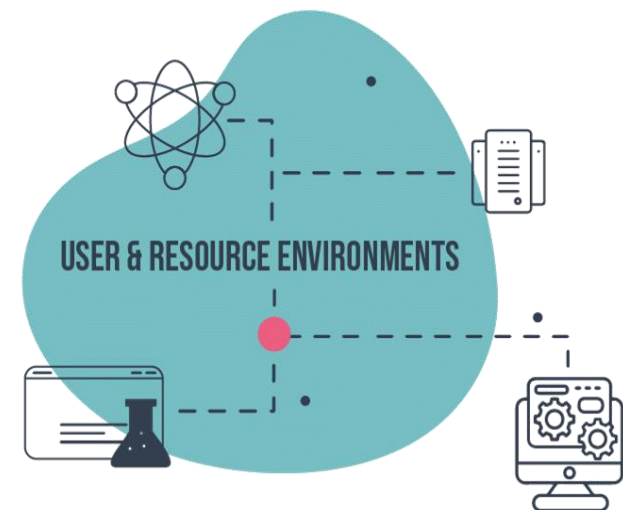
OA4 Scientific Workflow



OA4: User & Resource Environments

User and Resource Environments is one of the key concepts of EOSC

- ❑ Addressing many of the challenges of this ever-evolving ecosystem, with a focus on **Virtual Research Environments (VREs)** that act as an **open scientific gateway** and connect EOSC users and communities.
- ❑ Covering tools and services to facilitate data transfers, data discovery and data access as well as to orchestrate heterogeneous IT infrastructures



OA4: User & Resource Environments

Objectives

- ❑ Providing support to help harmonize the progress of systems and VRE services in joint efforts to address bigger challenges or develop state-of-the-art EOSC use-cases
- ❑ Highlighting the adoption of EGI resources in their scientific workflows, supported by EGI and Galaxy initiatives and EOSC-A Task Force members in INFRAEOSC projects

Outcomes

- ❑ Establishment of hands-on interest groups to fix common VRE-related problems and EOSC pain points regarding VREs together

Participated Projects

 | BEYOND ▶▶

 | EuroScienceGateway

AI4 | 

 | RAISE

 | FAIR-EASE

 | AquaINFRA



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VRE-Centric Workshop



PULSAR



Exercise steps

1. The credentials of a MinIO account on EGI resources will be distributed to users, for a test deployment
2. Users will register the MinIO account in Galaxy <https://usegalaxy.eu/user/information>
3. Users will import data from MinIO into Galaxy
4. It will be explained how flexible the importing is and that it works for Copernicus, S3
5. FAIR-EASE and AquaINFRA will explain one of their tools that they integrated
6. Those tools will be run on the European Galaxy server
7. It will be explained that those tools can run everywhere with the Pulsar Network - and that EGI IM can host pulsar servers
8. The results will be exported back to the MinIO or any other remote object storage as a FAIR Digital Object

OA4 Roadmap (January 2024 - Present)

Action	Lead	Timeline	Status
Replicate infrastructure	EuroScienceGateway (ESG), AqualNFRA, FAIR-EASE	Short	Progress
Increasing user communities (e.g. 100,000 users)	Galaxy	Short	Completed
EGI-checkin integration with Galaxy	EGI, Galaxy	Short	Completed
Best practices for Quality Research Software	EVERSE	Short	Progress
Organisation of hackathons and technical meetings	EGI, Galaxy	Medium	TBD
Integration of data discovery across EOSC projects	EOSC Beyond	Medium	TBD
Common training framework	Skills4EOSC, ESG	Medium	Progress
Guidelines for VRE	FAIR-EASE	Medium	Progress
Explore evolution of VREs to trusted VREs	ENTRUST, OSCARS, ESG	Long	Progress







DOI [10.5281/zenodo.11165100](https://doi.org/10.5281/zenodo.11165100)



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Report on the EOSC Winter School 2024

Galaxy Subdomains

Aquatic Science	 eOSC AquaINFRA		aqua.usegalaxy.eu
Cancer Research			cancer.usegalaxy.eu
Climate Science			climate.usegalaxy.eu
Computational Chemistry with Galaxy			cheminformatics.usegalaxy.eu
CLIP-Explorer			clipseq.usegalaxy.eu
Earth System Science	 eOSC FAIR-EASE		earth-system.usegalaxy.eu
Ecology	 eOSC FAIR-EASE		ecology.usegalaxy.eu



Inter-project collaborations



- ❑ ESG, AquaINFRA and FAIR-EASE developing tools and workflows



- ❑ Galaxy Community Conference in Brno, June 2024



- ❑ EOSC-Cancer and ESG working VRE Trusted VRE (ENTRUST)



- ❑ Skills4EOSC and ESG meeting for joint training networks



- ❑ RAISE and AI4EOSC are working with RAISE synthetic data to be analysed in the AI4EOSC platform



- ❑ Infrastructure Manager (IM) for the EGI Federated Cloud will now enable:

- ❑ Extending Galaxy with IM Pulsar (BYOC)



- ❑ Extending Galaxy with EGI OneData (BYOS)



Galaxy News

<https://galaxyproject.org/eu/news>



[All GTN training data are now automatically mirrored via Onedata](#)



As part of the EuroScienceGateway and in cooperation with Onedata and EGI that Galaxy is providing all GTN training data on a publicly accessible cloud storage



[EGI Check-in now available as login option in UseGalaxy.eu](#)

EuroScienceGateway project enables EGI users in UseGalaxy.eu



[EuroScienceGateway project: Easy deployment of ARC endpoints with Infrastructure Manager](#)

Deploy ARC endpoints in the EGI Federated Cloud easily with Infrastructure Manager



[EuroScienceGateway project: new EGI Check-in and WLCG IAM backends available in python-social-auth](#)

Python-social-auth release 4.5.0 includes two new backends contributed by EuroScienceGateway

[EuroScienceGateway project: Easy deployment of Pulsar endpoints with Infrastructure Manager](#)



Deploy Pulsar endpoints in the EGI Federated Cloud easily with Infrastructure Manager

Key Contributions to the EOSC Landscape

- ❑ Improve user environments to increase EOSC **end-users across disciplines**
- ❑ Leverage resource environments to offer **versatile solutions** through services and infrastructures available from EOSC Providers such as EGI and Galaxy
- ❑ Integrate with EOSC Exchange **horizontal services** (i.e. IaaS, SaaS) being procured in the EOSC EU Platform
- ❑ Share **guidelines** for VRE and a **common training framework** across INFRAEOSC projects
- ❑ Establish **trusted VREs** supported by relevant EOSC projects such as ENTRUST and EVERSE / OSCARS

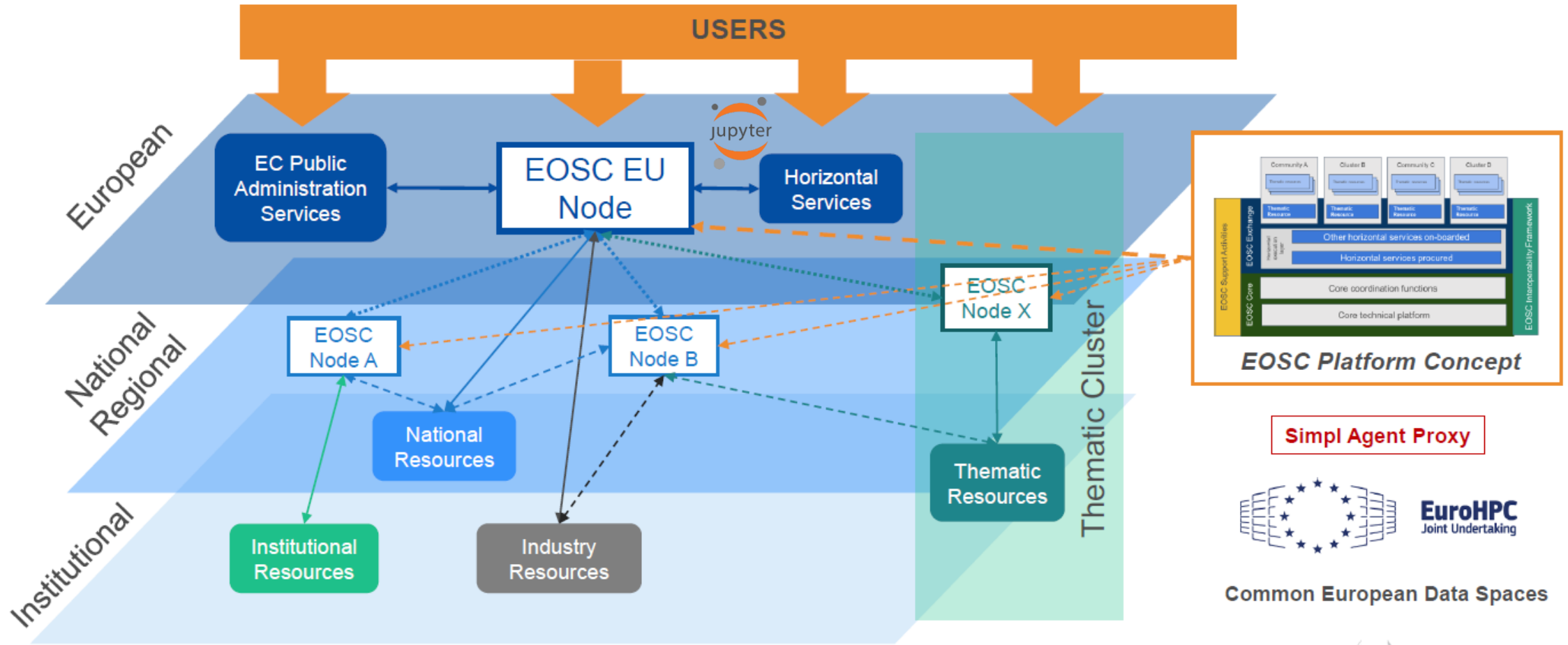


78.000+
Users




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EOSC Federated System



EOSC Federated "System of Systems" (DG CNECT 2024)

Simpl Agent Proxy



Common European Data Spaces



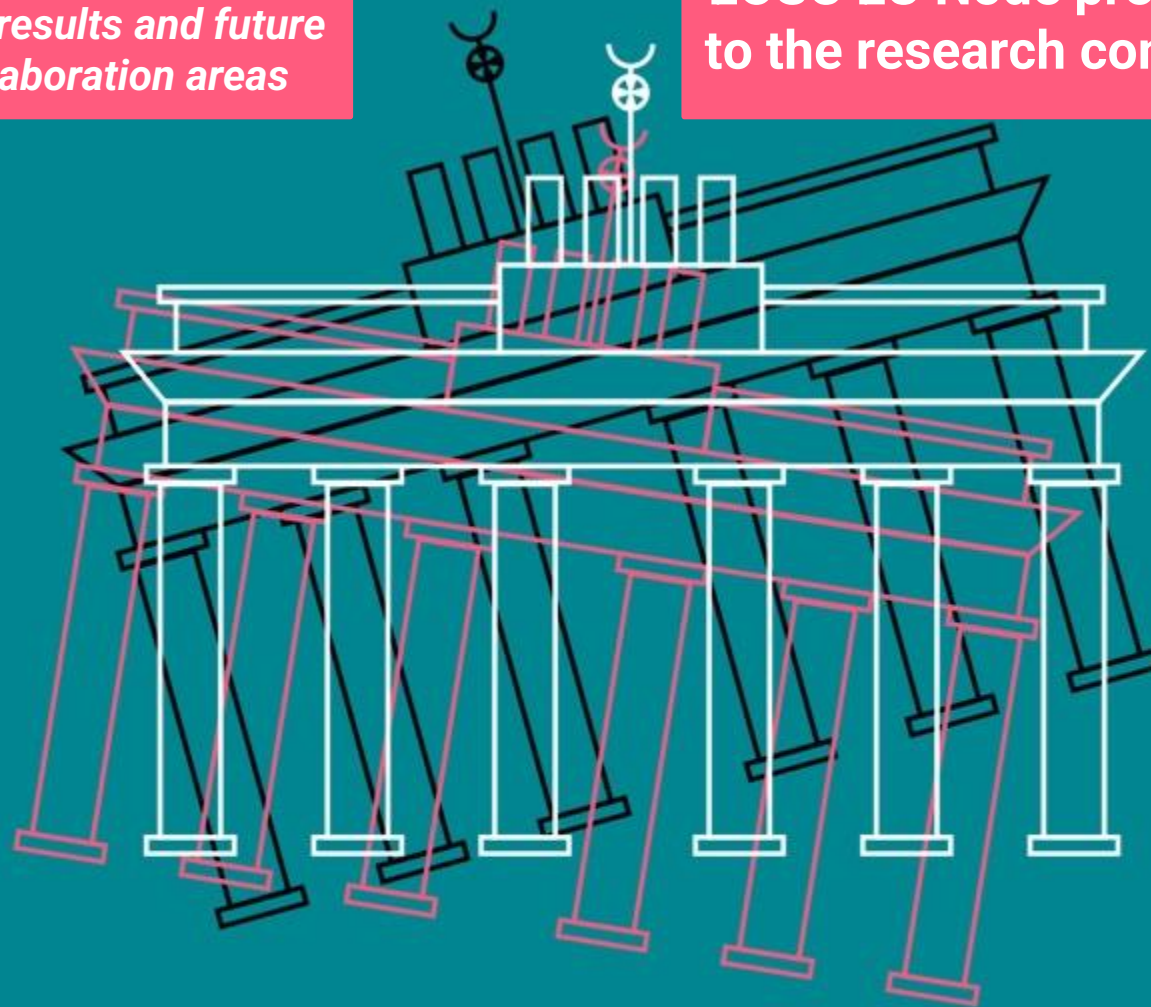
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EOSC Symposium 2024

21 - 23 October / Berlin, Germany

21 October 15:30 Session
*INFRAEOSC projects: Early results and future
plans for the common collaboration areas*

EOSC EU Node presented
to the research community



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In cooperation with



EOSC Opportunity Area Expert Groups



Open Call
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Expression of Interest to join an EOSC Opportunity Area Expert Group
<https://eosc.eu/eosc-opportunity-area-expert-groups/#interest>

I am interested in joining the EOSC Opportunity Area (OA) Expert Group *

- OA1: Persistent Identifiers
- OA2: Metadata, Ontologies and Interoperability
- OA3: FAIR Assessment and Alignment
- OA4: User and Resource Environments
- OA5: Skills, Training, Rewards, Recognition and Upscaling
- OA6: Open Scholarly Communication



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Winter School 2025

The week of
20 - 24 January 2025 / Spain

Save the date!

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Thanks! Grazie!

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