



Fondazione ICSC

Project Charter

EOSC Node Italy

1. Project Summary ¹

The primary purpose of the EOSC Node Italy' participation in the EOSC Federation is to federate research data, infrastructures and services into a high-quality, trusted, interoperable system that is easy for Italian and European researchers to access and use.

EOSC Node Italy is managed by ICSC, an entity that federates resources of 50+ members including leading RPOs, e-Infra and RI. Founded in 2022, ICSC operates the EOSC Italian Node as a federated infrastructure providing services that have been active for 20+ years. The decision to apply as the Italian EOSC Node was fully supported by the Italian Computing and Data Infrastructure (ICDI), which has coordinated Italy's participation in EOSC since 2018. In line with this role representing the community, ICSC has become Italian Mandated Organization in EOSC-A and it is working on the engagement of the Italian community in line with the action made by ICDI.

EOSC Node Italy is committed to contributing to the EOSC Federation beyond 2026 and is strongly supported by the Italian government in alignment with the European strategy.

ICSC manages a shared, federated and open infrastructure, representing a unique strategic asset for Italy and for the international community, supporting Open Science and EOSC.

The main compute and storage services provided by CINECA and INFN, include HPC, cloud and quantum computing spread across multiple computing and data centers, and are connected via GARR/GEANT.

The Italian Node, based on the distributed ICSC infrastructure, made available for the Build-up phase of EOSC-Federation and will make available for users national academic, thematic, data, software repositories in addition to:

Node Core functions:

- Core federation functions, including monitoring, accounting, and helpdesk
- National research products registries/catalogues and service registries/catalogues
- AAI
- Integration with eduGAIN, IDEM, LifeScience-AAI, EOSC.eu node and others.
- Consistent authorization management via OAuth Tokens.
- Integration of AuthN policies via Open-ID Connect, SAML

Node Exchange:

- A national cloud supercomputing and storage federated infrastructure
- HPC and Cloud integration through the dynamic federation of data centers, VREs and data analysis tools, onboarding of services from partner RPOs and SPOs (CNR, INFN, INAF, ENEA, GARR, universities and others), 20+ ERICs and ESFRI-Ris.
- ISO27001 certified cloud regions available
- National academic, thematic, data, software repositories, with 200+ resource repos, 780k+ Open Access publications, 17k+ Open Access datasets;
- Training services
- Data analysis and Virtual research environments.

Through a coordination with the Italian AI Factory the national EOSC node will facilitate discovery and access to datasets and will also pilot cross-projects activities. This will promote interoperability between the EOSC Federation and the Euro-HPC projects.

⁽¹⁾ Refer to Guidance Material Page 3

2. Value Proposition¹

- **Main Goal:**
 - Enrich the EOSC community with state-of-the-art federated resources and services.
 - Fast prototyping of federation technologies and policies suited for the EOSC federation.
 - Contribute to resources, services and tools of the Federation
 - Provide access to infrastructures and technologies of the Italian Community.
- **Needs addressed:**
 - Evaluate and test integrating federating capabilities,
 - need for specialised computing capabilities,
 - interoperability framework development (both across communities and countries),
 - improve user experience on the adoption of resources and services,
 - establish access policies.
- **Key Benefits:**
 - Support and stimulate a strong federation of infrastructures for data-driven research,
 - contribution to the EOSC developments and policies,
 - definition of a credit system for a federation of cloud-based interoperable services,
 - participate in projects aimed at developing services able to exploit the full federation of EOSC Nodes,
 - having and giving access to high value multidisciplinary datasets and competencies,
 - develop education and training programs,
 - integration with HPC and quantum infrastructures (including, but not limited to, EuroHPC initiatives) with a general focus on AI.
- **Who Benefits:** Italian and European Research communities at large; in particular:
 - Italian and European researchers willing to have access to Italian and European datasets, tools and services made available through the EOSC Federation
 - Italian and European researchers willing to have access to training resources and initiatives
 - Italian public organisations willing to contribute to the EOSC Federation via their national node

3. Use Case(s) developed¹

- Use Case Description: **Cross-node use-case with CERN - Reana**
Exploit CERN's REANA (Reusable and reproducible research data analysis platform) to instantiate computational workflows on heterogeneous remote clouds.
- Value proposition: Provide to the Italian community towards a European federation of experimental workflow environments decoupled from cloud and resource providers
- In-scope: Deploy an Italian instance of REANA, definition of policies and customization for Italian Research Community.
Share experience and know-how with other nodes.
- Out of scope: Further development of the REANA software.
- Link to use-case output: <https://eosc.eu/wp-content/uploads/2025/10/EOSC-Federation-scientific-use-case-Federating-CERNS-REANA.pdf>

- Use Case Description: **Cross-node use-case with BBMRI**
Deploy a cloud-based use of interactive notebooks, with federated data access involving also integrated use of HPC-enabled distributed resources to support AI based algorithms.
- Value proposition: Exploit sensitive data storage and analysis facilities using the ICSC ISO-certified cloud regions. Provide compute and AI capacities in EHDS compliant manner for data-users to the research community leveraging ICSC resources.
- In-scope: Exploit sensitive data storage and analysis facilities and provide processing capacities for data-users in EHDS SPE compliant manner.
- Out of scope: Further development of BBMRI services.
- Link to use-case output: <https://eosc.eu/wp-content/uploads/2025/10/EOSC-Federation-scientific-use-case-MCVAL.pdf>

4. External Dependencies & Key Risks²

External Dependencies & Risks	Actions	Deadline
<i>The needed manpower effort is underestimated.</i>	<i>Potential problems will be monitored at an early stage and can results in rescheduling efforts.</i>	<i>Entire project</i>
<i>Policies and recommendations proposed by ICSC and related partners are not endorsed or adopted</i>	<i>ICSC and members of the Italian Node organized and will organize and/or participate in periodic meetings with relevant high-level National and International stakeholders, to ensure reaching consensus on adopted policies</i>	<i>Entire project</i>
<i>Misalignment between Italian Node policies and EOSC federation adopted policies</i>	<i>ICSC and members of the Italian Node organized and will organize and/or participate in periodic meetings with relevant high-level National and International stakeholders, to ensure reaching consensus on adopted policies</i>	<i>Entire project</i>
<i>The services provided utilize various types of distributed hardware. Users will share hardware and software resources and, in several cases, will rely on logical isolation mechanisms to protect their data. These logical mechanisms may get compromised or exposed.</i>	<i>The ICSC infrastructure is largely based on a platform ran by few very experienced partners, where updates and patches will be rolled out much more easily than with a disjoint model.</i>	<i>Entire project</i>

⁽²⁾ Refer to Guidance Material Page 4

Guidance Material for Completing the EOSC Federation Build-Up Phase Project Charter

<i>A participant may find itself locked into the procedures, tools, services, or data formats offered.</i>	<i>The node must be focused and built on open solutions, interfaces, and full support of the FAIR paradigm for data, thus minimizing the risk of vendor lock-in</i>	<i>Entire project</i>
<i>The EOSC Node Italy is not yet supported by a funding framework.</i>	<i>The EOSC Node Italy is supported by the ICSC, which includes numerous partner organizations. The Node's activities are carried out and supported by these organizations. Multi-level funding opportunities are constantly monitored to attract resources. The Node enjoys strong political and institutional support.</i>	<i>Entire project</i>
<i>The node solutions are dependent on in the in-kind contribution of service providers in the Italian research landscape. This is a clear opportunity, but also a potential risk</i>	<i>Alignment with service providers on Federation-level activities, as well as the direct involvement and coordination of national service providers in task forces and working groups. Joint action in order to monitor and secure funds</i>	<i>Entire project</i>
<i>Geopolitical instability might lead to an unwillingness to share data and information across borders or across communities.</i>	<i>Potential problems will be monitored at an early stage. The principle of as open as possible, as close as necessary will be promoted. The Italian EOSC nodes, will promote federated approaches where data does not leave the original node, preserving data privacy, as demonstrated in the first use cases.</i>	<i>Entire project</i>

5. Contributions³

Role in Project: Data provider, infrastructure, research communities, actor in training and education

ID	Deliverable Name	Deliverable Description	Deliverable Owner (the partner within the organisation responsible for producing the deliverable, if applicable)
1	Revised Project Charter	Description of the Italian Node purpose, goals and use-cases	<i>Foundation ICSC</i>
2	Analysis of the EOSC EU-Node federating capabilities and practical steps to test a production ready node	Analysis of the EOSC EU-Node federating capabilities and test for production-ready node Test of a back-up node	<i>Foundation ICSC and all involved members (e.g. INFN, CNR, GARR,...)</i>
3	EOSC Italian Node Governance and Management	Governance documentation IT Security Plan Architecture Design Plan ELSI Services	<i>Foundation ICSC and all involved members (e.g. INFN, CNR, GARR,...)</i>
4	Stakeholder and community engagement strategy	Definition of dedicated agreements with the members of the community	<i>Foundation ICSC and all involved members and partners (e.g. INFN, CNR, GARR,...)</i>
5	Interoperability policies and procedures	Data Management and interoperability policies and procedures (including data protection)	<i>Foundation ICSC and all involved members and partners (e.g. INFN, CNR, GARR,...)</i>
6	EOSC Italian Node core services	Service and research product catalogue Accounting and monitoring services Helpdesk AAI	<i>Foundation ICSC, INFN, CNR, Cineca, GARR and additional actors if deemed useful</i>
7	Use-cases	<i>Reports and documentation on selected developed use-cases</i>	<i>Foundation ICSC and all involved members and partners (also external)</i>

⁽³⁾ Refer to Guidance Material Page 5

6. Timing and Milestones⁴

- **Start Date:** April 2025
- **Expected Duration and Key Milestones:**
The structure of the activities reflect the list of deliverables as per the previous section.
 - 1 Revised Project Charter → Delivered (first version was already delivered in mid-2025. Second version in late 2025)
 - 2 Analysis of the EOSC EU-Node federating capabilities and Plan for integration → Delivered in 2025
 - 3 Test of a back-up node → On-going. Completion expected in Q4 2026
 - 4 Test of a production ready-node (core services) → Completion expected in Q4 2026
 - 5 Onboarding of production-ready services from the partners willing to contribute to the life of Italian Node → started in 2025. Continuing activity
 - 6 Stakeholder and community engagement strategy → On-going
 - 7 Use-cases → Delivered in 2025

7. Contact & Submission⁴

- A **Coordinator** who represents the Node in the Federation: Matteo Zanolari, matteo.zanolari@supercomputing-icsc.it
- An **Operation Officer** for operational and technical aspects: Alessandro Costantini, alessandro.costantini@cnaif.infn.it
- A **Technical Officers** for all technical related issues: Paolo Manghi, paolo.manghi@isti.cnr.it and Giacinto Donvito, giacinto.donvito@ba.infn.it
- **Scientific Officer** who represents the Node's scientific content: Mauro Campanella, mauro.campanella@garr.it and Davide Salomoni, davide@supercomputing-icsc.it

Additional roles and responsibilities will be defined.

⁽⁴⁾ Refer to Guidance Material Page 6