Fondazione ICSC

Project Charter

# EOSC Italian Node

## 1. Project Summary [1]

ICSC 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, whose Members are also Members of ICSC Foundation.
ICSC/Italian Node is committed to contributing to the EOSC Federation beyond 2025/26 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 Italian Node, based on the distributed ICSC infrastructure, 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.

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

## 2. Value Proposition[1]

- **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 the EOSC federation with services and procedures that could help in federating both compute and storage resources.
  - 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),

[1]() Refer to Guidance Material Page 3

    - improve user experience on the adoption of resources and services,
    - establish access policies both for user specific services, and for general purpose compute and storage resources
- **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.

## 3. Use Case(s) [1]

- Use Case Description: **Cross-node use-case with CERN - Indico**
  Deploy an Italian instance of CERN's INDICO Agenda Service, exploring the realization of a federation of INDICO services through common AAI solutions.
- Value proposition: Provide to the Italian community an Indico Agenda Service and create a framework for other nodes towards a federation of INDICO services. Create a potential backup and disaster recovery solution for the EU-Node Indico Services.
- In-scope: Deploy an Italian instance of CERN's INDICO Agenda Service and a proposed architecture and solutions to provide backup and disaster recovery for the EU-Node services. Providing best practises for implementing national (or thematic) instance of Indico service.
- Out of scope: Further development of the Indico software.

- 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 provided by different nodes (ICSC, CERN, EU Node).
- 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.

- 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.

## 4. External Dependencies & Key Risks[2]

| External Dependencies & Risks | Actions | Deadline |
|---|---|---|
| *The needed manpower effort is underestimated.* | *Potential problems will be monitored at an early stage and can results in rescheduling efforts.* | *Entire project* |
| *Difficulty in achieving sustainable collaboration between the agencies, the partners, or the associated communities.* | *A roadmap will be delivered as a living document. A special focus will be given to collaborations with National and International initiatives* | *Draft of the roadmap by month 3 from the kick-off of the project* |
| *Policies and recommendations proposed by ICSC and related partners are not endorsed or adopted* | *ICSC will organize and/or participate in periodic meetings with relevant high-level National and International stakeholders, to ensure reaching consensus on adopted policies* | *Entire project* |
| *Misalignment between Italian Node policies and EOSC federation adopted policies* | *ICSC will organize and/or participate in periodic meetings with relevant high-level National and International stakeholders, to ensure reaching consensus on adopted policies* | *Entire project* |
| *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.* | *The ICSC infrastructure is largely based on a homogeneous platform ran by few very experienced partners, where updates and patches will be rolled out much more easily than with a disjoint model.* | *Entire project* |
| *A participant may find itself locked into the procedures, tools, services, or data formats offered.* | *ICSC is strategically focused and built on open solutions, interfaces, and full support of the FAIR paradigm for data, thus minimizing the risk of vendor lock-in* | *Entire project* |
| *The Italian national node project is not funded through specific measures, scaling down the ambitions of the project and thus of its impact* | *The Italian national node will be monitoring every possible funding opportunity (at multiple levels) in order to sustain the initiative.* | *Entire project* |

[2]() Refer to Guidance Material Page 4

## 5. Contributions[3]

**Role in Project:** Data provider, infrastructure, research communities, actor in training and education, providing federation services for compute and storage resources.

| ID | Deliverable Name | Deliverable Description | Deliverable Owner (the partner within the organisation responsible for producing the deliverable, if applicable) |
|---|---|---|---|
| *1* | ***Project Charter*** | Description of the Italian Node purpose, goals and use-cases | *Foundation ICSC and all involved members (e.g. INFN, CNR, GARR,…)* |
| *2* | ***Analysis of the EOSC EU-Node federating capabilities and Plan for federation build-up*** | Analysis of the EOSC EU-Node federating capabilities and Plan for federation build-up | *Foundation ICSC and all involved members (e.g. INFN, CNR, GARR,…)* |
| *3* | ***EOSC Italian Node Governance and Management*** | Governance documentation<br>IT Security Plan<br>Architecture Design Plan<br>ELSI Services | *Foundation ICSC and all involved members (e.g. BBMRI.it, INFN, CNR, GARR,…)* |
| *4* | ***Stakeholder and community engagement strategy*** | Communications Plan<br>Training Development Plan | *Foundation ICSC and all involved members and partners (e.g. INFN, CNR, GARR,…)* |
| *5* | ***Interoperability policies and procedures*** | Data Management and interoperability policies and procedures (including data protection) | *Foundation ICSC and all involved members and partners (e.g. INFN, CNR, GARR,…)* |
| *6* | ***EOSC Italian Node core services*** | Service and research product catalogue<br>Accounting and monitoring services<br>Helpdesk<br>AAI | *Foundation ICSC, INFN, CNR, GARR and additional actors if deemed useful* |
| *7* | ***Use-cases*** | *Reports and documentation on selected developed use-cases* | *Foundation ICSC and all involved members and partners (e.g. BBMRI.it, INFN, CNR, GARR,…)* |

## 6. Timing and Milestones[4]

- **Start Date:** 01/04/2025
- **Expected Duration and Key Milestones:**
  <u>The structure of the activities reflect the list of deliverables as per the previous section.</u>
  1 Project Charter  Expected at Month 2 (first version) – end of May 2025
  2 Analysis of the EOSC EU-Node federating capabilities and Plan for integration  Month 4 – end of July 2025

[3]() Refer to Guidance Material Page 5
[4]() Refer to Guidance Material Page 6

3 EOSC Italian Node Governance and Management  Expected at Month 3 – end of June 2025
4 Stakeholder and community engagement strategy  Expected at Month 3 – end of June 2025
5 Interoperability policies and procedures  Expected at Month 6 (first version) – end of September 2025
6 EOSC Italian Node core services
    - First wave. Expected at Month 7  end of September 2025
    - Second wave. To be defined
7 Use-cases  Timeline to be agreed with the other nodes (including CERN and BBMRI). First results expected in Month 8  end of October 2025

## 7. Contact & Submission[4]

- A **Coordinator** who represents the Node in the Federation: Matteo Zanaroli, matteo.zanaroli@supercomputing-icsc.it
- An **Operation Officer** for operational and technical aspects: Alessandro Costantini, alessandro.costantini@cnaf.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.