

EOSC nodes

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Bologna, July 3rd 2024

Entry point

<https://eosc.eu/building-the-eosc-federation/>

The screenshot shows the top navigation bar of the EOSC website. It includes a dark header with links for 'Calls & Grants', 'Newsletter', 'Forum', and social media icons for LinkedIn and Zenodo. Below this is a white navigation bar with the EOSC logo and menu items: 'EOSC', 'Collaborations', 'The Association', 'Activities', and 'EOSC Focus'. A search bar is also present. The main banner features the EOSC logo and the text 'Tripartite Building the EOSC Federation' on a dark background. To the right of the text is a network diagram with nodes of various colors (pink, teal, grey, black) connected by lines.

The vision for EOSC is to put in place a system in Europe to find and access data and services for research and innovation. This is to help researchers store, share, process, analyse and reuse FAIR research outputs within and across disciplines and borders.

The deployment of a network between data repositories and services will be instrumental for Open Science to progress in Europe. For this, the EOSC Federation of nodes is being created.

A dark banner with the text 'EOSC Federation Handbook'. Below it is a pink banner with the text 'Questionnaire for parties interested in contributing to the build-up phase of the EOSC Federation' and 'DEADLINE: 18 AUGUST 2024, 23:59 CEST'.



Item 09:

Status: EOSC Federation & EOSC Nodes / Briefing for Day 2

Bob Jones, Director, EOSC-A



Paper G: The EOSC Federation and
the role of Nodes

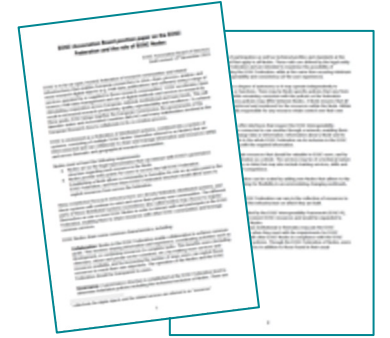
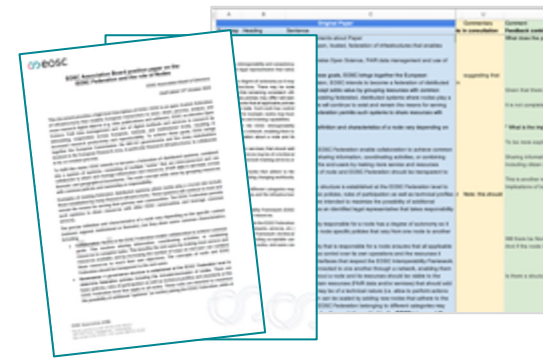
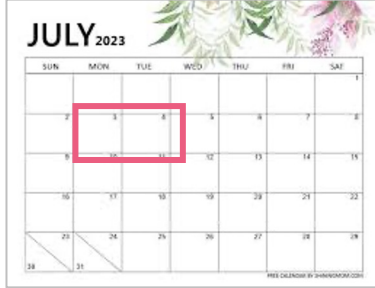
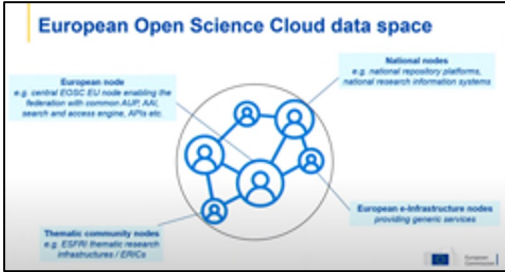


Task 2 - EOSC Federation and Nodes [Paper G]

- Evolution of Node concept
- Tripartite Group Process
- Minimum requirements for EOSC nodes
- Federation Handbook
- Next steps
- Breakout session on day 2



Evolution of Node Concept in 2023



Spring

July

September

October

November

Introduction EOSC EU Node and concept of nodes by EC

Meetings with Mandated Organisations and ESFRI RI Working Group to prepare September workshops

Community Workshops MOs & ESFRI RI WG, Unconference @ EOSC Symposium

Publication of Draft Position Paper on the EOSC Federation and the role of Nodes & Consultation

Publication of revised version of Draft Position Paper & Consultation

eosc Evolution of Node Concept in 2024



January



February



March



April



May

2 Community webinars giving updates on federation & nodes

Integration of community feedback & drafting of table of contents for EOSC Federation Handbook

Discussion of EOSC Federation Handbook concept with EC and EOSC-SB Policy Group

Presentation of "Minimum requirements of Nodes" draft at European Tripartite Event

Tripartite group discussed co-creation of Federation Handbook and candidate nodes

Ongoing activities

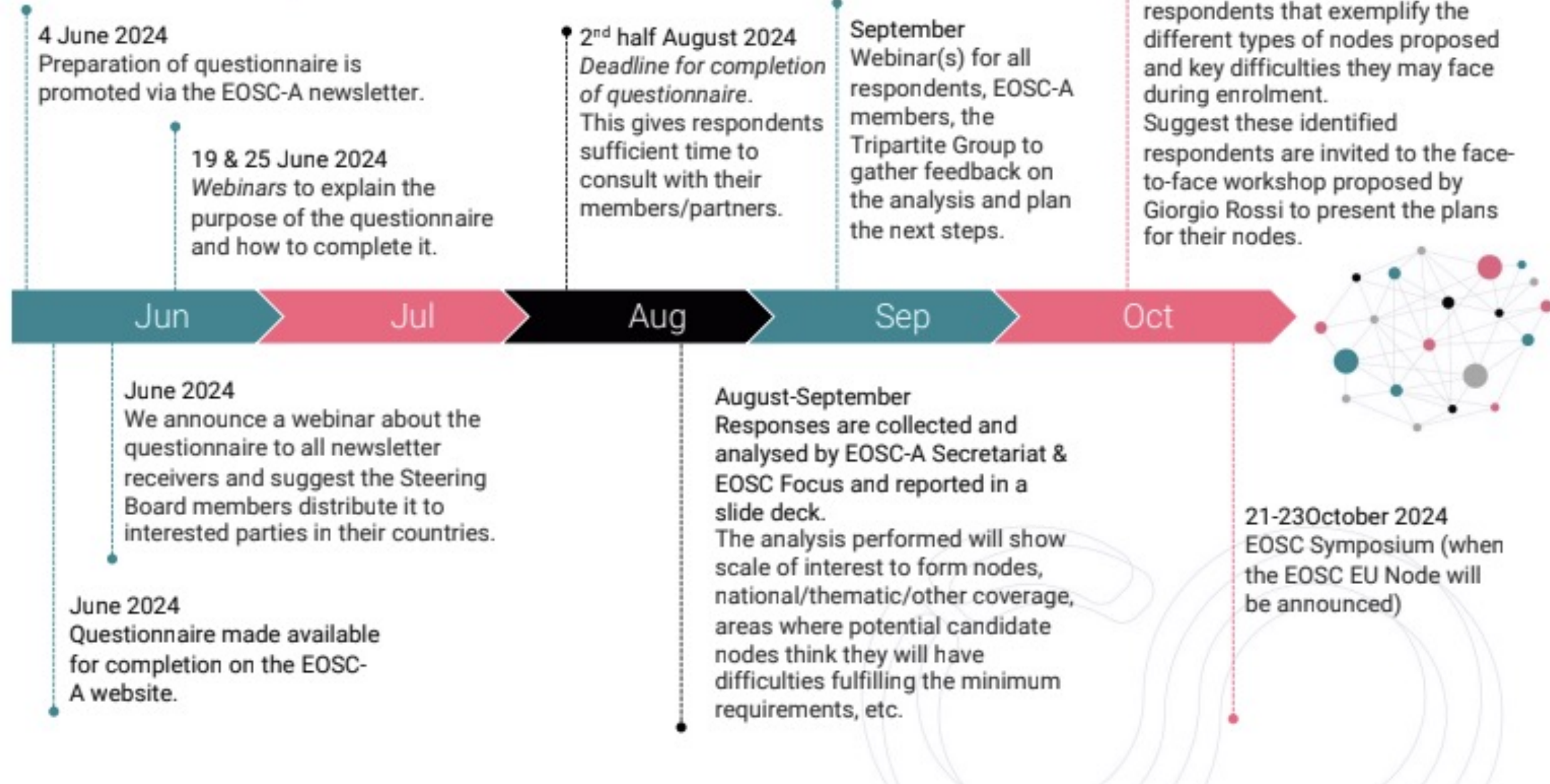
- Definition of the “**node**” **concept**:
minimum requirements for being a node;
benefits of becoming a node;
duties of a node, etc.
- Definition of the “**rules of participation**”
(**enrolment of nodes**) in the EOSC Federation
- Definition of the **process to enrol new nodes**
(multiple waves of enrolment foreseen)
- **Financial and governance implications**
of the EOSC Federation

The process

- **EOSC-A Handbook**
The EOSC Association is collecting contributors to draft the Handbook of the EOSC Federation
- **New EOSC tripartite group**
Representatives of the Tripartite Governance (EC DG RTD and DG CNECT; EOSC Steering Board members; EOSC-A Board of Directors) and experts appointed by the 3 parties are meeting every 2/3 weeks to discuss

development of the Handbook
governance and financial implications of the EOSC Federation
- **EOSC Tripartite Governance**
The EOSC tripartite group will inform the current EOSC Tripartite Governance that will take the final decisions concerning the EOSC Federation

eosc Proposed timeline



eosc Requirements for EOSC Nodes (I)

- **Legal status** – an EOSC Node must be represented by a legal entity which can engage in legal agreements, including the agreement with the EOSC Federation legal entity, as well as with any other partners participating in the activities of the EOSC Node itself (e.g. providers making their data or services available to EOSC).
- **Governance** - nodes must agree to comply with the governance rules of the EOSC Federation and compliance with technical interoperability standards as defined by the EOSC interoperability specifications.
- **Rules of participation** - an EOSC Node must comply with the EOSC Federation Rules of Participation in terms of access for authorized communities and users. Some services e.g. FAIR data may be openly accessible to all (anonymous) users while others may need specific authorization and could be subject to charges.
- **Multi-sites** - an EOSC Node can regroup multiple sites, data sources and services from multiple providers under a single legal representation. The legal representative will be responsible for the compliance of all the sites/providers which they represent.

eosc Requirements for EOSC Nodes (II)

- **Monitoring** - all EOSC Nodes must support monitoring of data, services, usage and other relevant activities to ensure the quality of service, compliance with access and use restrictions (if any), as well as compliance with applicable legal and regulatory requirements, as defined by EOSC Federation Handbook, are respected.
- **Cataloguing**: recognise the need for a catalogue of nodes with the possibility in the future that nodes be collectively capable to hold the combined catalogues of data and services of all nodes in the EOSC Federation, including its own catalogue and link to the other catalogues.
- **Connectivity** – EOSC Nodes should be connected to other EOSC Nodes and/or the EOSC EU Node through common protocols that enable seamless access through the EOSC common AAI, to harvesting of FAIR metadata to enable global searching, monitoring of usage statistics, and other functions that enable interoperability.
- **Sustainability** - nodes must have a foreseen lifetime of at least 5 years and ideally longer to ensure that they are viable members of the EOSC Federation, and they should be transparent about their guaranteed lifetime.

eosc Return on investment for EOSC Nodes

- **Visibility** – EOSC Nodes will gain wider visibility for their data and services, offered through EOSC’s portals and search capabilities, encouraging secondary re-use of data, increased impact for data and service providers.,
- **Cross domain** - cross domain research will be fostered by joining the EOSC Federation, as well as exploitation of research outcomes by industry and the public sector by being part of the EU Data Spaces. The EOSC Federation will form a data space that will have direct linkage with multiple Common European Data Spaces now being deployed as part of the EU Strategy for Data.
- **Common services** - joining the EOSC Federation will provide access to common federating services e.g. AAI, data transfer, monitoring, and accounting, etc.
- **Training** - common training for data stewards and researchers
- **Financial support** - making data and services available to a wider community has a cost for nodes. Joining the EOSC Federation may open the possibility for future financial support to address the additional costs incurred through increased usage of data and services. The exact form of this funding i.e. if it is funded through services or externally, will depend on the future funding of the EOSC and how the Federation evolves.

eosc Requirements for 'Candidate EOSC Nodes'

It is foreseen to start with an initial group of approximately 10 candidate nodes (like National nodes (nodes in a certain country / nation), Thematic nodes, RI nodes, E-Infra nodes, etc) and then progressively expand the federation and evolve the requirements based on the experience gathered.

Capacity, financial and other means:

- The legal entity representing the candidate EOSC Node should have the **authority to sign** an agreement with the EOSC Association.
- The candidate EOSC Node should have **sufficient financial means** to ensure its operation through to the end of 2027 and ideally 5 years or more.
- The candidate EOSC Node should have **sufficient capacity and expertise** to be able to ensure the data and services it includes can be operated to a production level.
- The candidate EOSC Node should **abide by the operating procedures of the federation** including those concerning cybersecurity.
- **Data and Services** should be at least Findable and Accessible (FAIR) for registered EOSC users while rivalrous services (such as compute and storage) should be available to multiple users in non-trivial volumes.

Questionnaire for parties interested in contributing to the build-up phase of the EOSC Federation

EOSC Association

14 June 2024

Revised version integrating Tripartite Group feedback.

Please visit the [EOSC Federation web page](#) on eoscc.eu and read the following brief papers before completing this questionnaire:

- [EOSC Association Board position paper on the EOSC Federation and the role of EOSC Nodes](#). This paper explains the concept of the EOSC Federation and Nodes.
- [Building the EOSC Federation: requirements for EOSC Nodes](#): This paper elaborates on the requirements for the formation of an EOSC Node.

The construction of the future EOSC has entered an important phase. The EOSC EU Node is expected to be presented to the scientific community in the frame of the EOSC Symposium in October 2024. Meanwhile, the discussions are intensifying on the aims, structure and tasks of the individual EOSC Nodes that will complement the EOSC EU Node to initiate the formation of the EOSC Federation.

The Tripartite Governance of EOSC is therefore launching a questionnaire to gauge the scale and scope of general interest and readiness in build-up of the EOSC Federation. Interested parties are invited to reply to the questionnaire as the first step in their eligibility to contribute to a testbed of potential EOSC nodes representing the different stakeholders involved in the research communities of Europe.

Based on the replies to the questionnaire, several organisations will be invited by the Tripartite Governance to contribute to the refinement of the EOSC Federation concept during the build-up phase. The build-up phase will help the Tripartite to gain experience from cooperation between the future EU Node and the individual future EOSC nodes, and to test the different aspects of the [EOSC Federation Handbook](#) in practice. The invited organisations shall reflect the different types of stakeholders and organisations to ensure the best possible representation of the various European research communities.

No additional funding is associated with this activity. Submitting the questionnaire **does not commit the respondent to onboard their resources (i.e. services/data repositories) nor to establish a future EOSC node.** At the same time, the invitation to form a node **does not automatically guarantee the status of a federated EOSC Node at a later stage. The decision of the future structure, organisation and funding of EOSC will follow the negotiations of the next European Framework Programme for Research and Innovation, FP10.**

An overview of the results of this questionnaire will be shared with respondents and will be used to plan the next steps in the building of the EOSC Federation.

Please proceed to the questionnaire by following this [link](#) . **The deadline for answering the questionnaire is 18 August 2024.**

Questions

All questions (except 10) are mandatory.

1. Do you intend to offer your institutional resources through a future EOSC Node of the EOSC Federation?
2. Do you wish to join the build-up phase with the intention to build a potential future EOSC Node?
3. Are you able to identify the legal entity that would assume legal responsibility for the potential EOSC node?
4. Please list the resources your organisation intends to make available via the node (text list, for each entry give the TRL (1-9)₁ and any restrictions that apply to use of the resource), and describe their added value to the EOSC Federation.
5. Are all these resources owned/operated by your organisation (yes/no)?
If no, please indicate the owner/operators (text, select country)
6. Please estimate when you would be able to start offering resources to the EOSC Federation? (month/year)
7. What support/competences/training will be offered to the users of the resources made available via the potential node? (text)
8. What is the added value that you see for you and for your users in contributing to the EOSC Federation? (text)
9. Please add any additional remarks you would like to make about the EOSC Federation (text)
10. Upload supporting documents (optional)

Consent

No additional funding statement:

By checking this box, you acknowledge that you understand that there is no additional funding associated with this activity.

By checking this box, you acknowledge that you have read and understood the [EOSC-A Privacy Policy](#).

EGI Contribution to the EOSC Federation

Position paper published on 7/May/2024: <https://zenodo.org/records/11128540>

- EGI recognises EOSC as the European initiative to support the implementation of the Global Open Research Commons across Europe (RDA GORC), and the EGI Federation has provided many of the essential elements identified by GORC
- EGI Federation aspires to be part of the EOSC Federation as a Node contributing EOSC-dedicated capacity, available for transnational access to

- Users and services operated within the EGI Node
- Services operated within the other EOSC Nodes (EU Node; Future other nodes incl. Those emerging in EOSC-Beyond)

• Recommendations for EOSC:

1. EOSC should be focused on grand challenges that require the integration of research data, computing, storage, services and tools, knowledge and user support from multiple disciplines
2. Increase adoption of AI/ML solutions
3. EGI aspires to be part of the EOSC Federation as a Node AND in the EOSC Core
4. EU Commission funding should catalyse Member State funding
5. Research Infrastructures and e-Infrastructures need EU support for Transnational Access to overcome limitations of national funds and short-lived projects



EGI Contribution to the EOSC Federation

Discussion paper
V.1.2 07-05-2024

Abstract

Compute, storage, research objects, services and analytics tools are integral to the Open Science Commons and the realisation of the EOSC vision. This paper describes how EGI Federation envisages their provision as a collaborative effort of Research Infrastructures and e-Infrastructures, to jointly provide compute and co-located data services for international, grand challenge applications under the EOSC Node architecture.

This discussion paper reflects the EGI Federation's current thinking on collaborative service provision within the EOSC framework. We believe a strong, collaborative approach is essential for the success of EOSC. We welcome your feedback and insights, which will inform the further development of this position.

Punti critici

- E' possibile che l'INFN partecipi attraverso piu' canali... occorre capire bene le implicazioni e definire le condizioni al contorno
 - Ad esempio: come interfacciarsi con EGI?
- Cosa succede a livello nazionale?
 - ICSC candidato "naturale"...
 - ...ma e' in corso una discussione anche in ICDI
 - ...e anche nel GLOS del CoPeR (incidentalmente, P. Valente e' segretario)
 - Riunione il 16 luglio
- Cosa implica una proposta per nodo EOSC sulle attivita' aggiuntive in-kind che dichiariamo e rendicontiamo annualmente alla EOSC association)?

Aside: AAR 2023 & AAP 2025

Deadline July 12th



1. MoU between the EOSC-A and the EU (21st of June 2021)

- Obligations:
 - Monitoring Framework (KPIs)
 - Report on delivery of in-kind contributions and investments to additional activities
 - Provide Impact Use Cases

EOSC-A, April 2024

EN Annex 5

Memorandum of Understanding for the Co-programmed European Partnership for the European Open Science Cloud (EOSC)

The European Open Science Cloud Association, representing the partners other than the Union (its constituent entities¹), the registered offices of which are in Rue du Trône 62, 1050 Bruxelles, hereafter referred to as the “Partners other than the Union”, and the European Union, represented by the European Commission, (jointly hereinafter referred to as “the Partners”),

Considering that:

- Parts of Horizon Europe – the Framework Programme for Research and Innovation (“Horizon Europe”) ² – may be implemented through Co-Programmed European Partnerships, on the basis of a Memorandum of Understanding between Partners determined to support the development and implementation of research and innovation activities of strategic importance to enable the Union to address global challenges and maintain its competitiveness in line with EU priorities, including the Sustainable Development Goals;
- The Strategic Plan for Horizon Europe³ has identified a candidate for a Co-Programmed European Partnership for the European Open Science Cloud (EOSC) considered instrumental to deliver scientific, economic and societal impact in line with the Horizon Europe objectives;
- The proposal received from the Partners other than the Union has been positively assessed by the European Commission in that it fulfils the new ambition and the selection criteria referred to in Article 10 and Annex III of Regulation (EU) 2021/695 of the European Parliament and of the Council⁴ (“Horizon Europe”);
- The implementation, monitoring and evaluation of the European Partnerships will comply with the criteria referred to in Annex III of Horizon Europe, including an alignment with Horizon Europe monitoring and evaluation provisions, set out in Article 50 and Article 52, as well as Annex V on Key Impact Pathways;
- The multi-annual Strategic Research and Innovation Agenda (SRIA) agreed by the Partners will provide the basis for the development of the co-operation under this

¹ Constituent entities are the members of the Association.

² Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination (OJ L 170, 12.5.2021, p. 1–68.)

³ <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/3c6f1d74-8ac3-11eb-b85c-01aa75ed71a1>

⁴ OJ L 170, 12.5.2021, p. 1–68.

RTD	DATE: 20/08/21
ADFC	N°

eosc 2. Definition of additional activities

- Activities that are in scope with the [the EOOSC Partnership Strategic Research and Innovation Agenda \(SRIA\)](#)
- Activities that are **NOT** covered by European Union funding (except for EC Structural Funds and Recovery and Resilience Facility)
- Activities and investments contributed in-kind or cash by the Members

EOOSC-A, April 2024



eosc 3. AA Monitoring & Reporting Annual Cycle

- AA Planning survey for year x+1
- AA Reporting survey for year x-1

HE EOOSC
Partnership's
Board Approval










1 calendar year

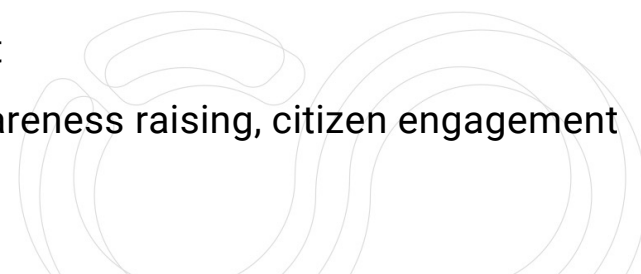
- Analysis, communication, adaptation
- Preparing next round of surveys

EOOSC-A, April 2024

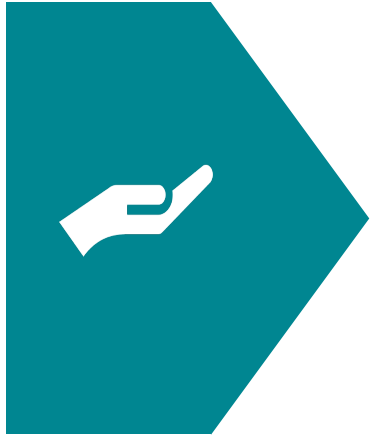
4. Categories of additional activities

9 MAIN CATEGORIES

-  1. Support to additional R&I
-  2. Scale up of technologies
-  3. Demonstrators
-  4. Creating new business opportunities
-  5. Training & skills development
-  6. Contribution to development of new standards, regulations, and policies
-  7. Supporting ecosystem development
-  8. Communication, dissemination, awareness raising, citizen engagement
-  9. Other



EOSC Category 1. Support to additional R&I

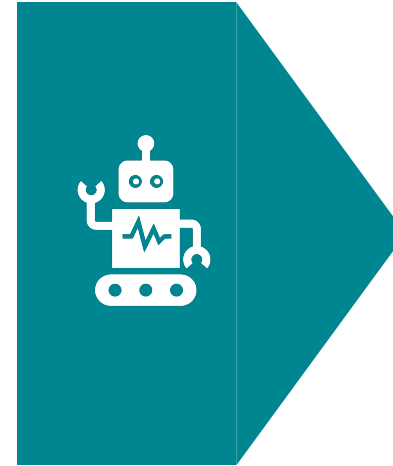


TYPES OF ACTIVITIES:

- Upgrade of existing research infrastructures and e-infrastructures that may be federated through EOSC
- Development and deployment of EOSC-compatible search engines
- Deployment of online tools for FAIRification
- Development and publication of large-scale studies
- Contribution to operating core functions of a Minimum Viable EOSC ecosystem

EOSC-A, April 2024

EOSC Category 3. Demonstrators

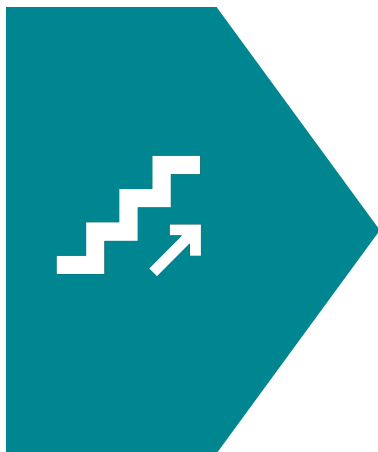


TYPES OF ACTIVITIES:

- Investment in new platforms, demonstrators, pilot use cases exploiting domain-specific user environments and supporting the EOSC vision
- New (pre-)commercial services and capabilities along the data life cycle

EOSC-A, April 2024

EOSC Category 2. Scale up of technologies



TYPES OF ACTIVITIES:

- Investment done complementing the results of a project, bringing it to a higher TRL level (e.g., EOSC thematic services) or to deployment
- Uptake of EOSC projects' outcomes
- Implementation of technical specifications required to provide services

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EOSC Upgrade of existing research infrastructures (1.1) vs. investments in new platforms (3.1)

1.1 Upgrade of **existing** research (e)infrastructures that may be federated through EOSC

Upgrade \neq maintenance

- **Scale up** the e-infrastructure capabilities of data centres and improving their connectivity with the EOSC and other European infrastructures
- **Implementation** of interfaces to integrate computer and data management solutions to ease access and reuse data
- **Integration** of FAIR-Data services in infrastructure

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3.1 Investments in **new** platforms, demonstrators, pilot use cases

- Contribution to the **development / establishment** (e.g. of new data centres)/ **building** (e.g. up-to-date infrastructure)
- Provision of funding for **new** infrastructures



eosc Category 4. Creating new business opportunities



TYPES OF ACTIVITIES:

- Invest in start-ups, spin-offs on solutions developed within the projects
- Start incubators/accelerators
- Matchmaking between different start-ups, SMEs, participating companies, stakeholders
- Investments in procurement of innovative solutions

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eosc Category 5. Training & skills development



TYPES OF ACTIVITIES:

- Education, training and skills development in Open Science and FAIR data management of research artefacts

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eosc Category 6. Contribution to the development of new standards, regulations, and policies



TYPES OF ACTIVITIES:

- Standardisation and certification activities related to EOSC trusted repositories (e.g. CoreTrustSeal)
- Contribution to the development of applicable FAIR guidelines and frameworks
- Continuous standardisation of persistent identifier (PID) resource types
- Support research communities to: develop and/or adopt domain-specific standards as well as to consolidate common metadata and/or data schema for use in the EOSC context

eosc Category 5. Training & skills development

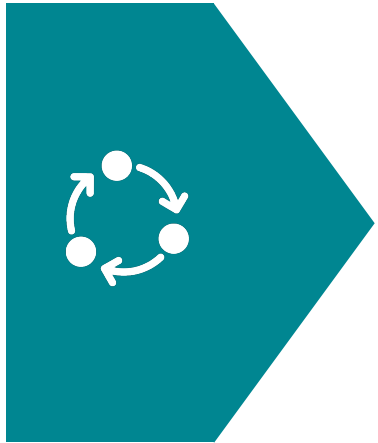
All training-related activities planned by your organisation (despite the subject) should be indicated in category 5

- Organisation of a series of **webinars** and **online course** about the development of DMPs and Domain Data Protocols
- Development of domain specific 'Hands on **Workshops** (HOW)' on topics like implementing FAIR, semantics, particularities of RDM
- **Training** and **dissemination activities** among the national RIs connected to ESFRI
- Support Data Stewardship **pilot course**

Category 5.
Training & skills
development

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eosc Category 7. Supporting ecosystem development

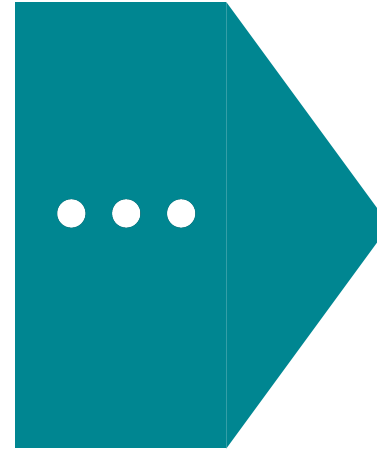


TYPES OF ACTIVITIES:

- Define and/or test financing models for a long-term EOSC sustainability framework
- Development of consensual EOSC frameworks and guidelines
- Support to knowledge building and sharing across various research domains
- Building industry-academia cooperation (e.g. GAIA-X, HPC or other industry-driven initiatives)
- Implementation and/or enforcement of the EOSC Persistent Identifier (PID) policy and architecture
- Encouraging and incentivising use of European Research Infrastructure for sharing of research software
- Monitoring of EOSC Key Performance Indicators (KPI's), investments and FAIR data production and management
- Contributing to a rewards and recognition framework – in and/or outside the organisation- that incentivises FAIR data and Open Science
- Activities contributing to strategic and operational alignment, coordination, or synergies with other structures such as Partnerships, Horizon Europe missions, data spaces etc.
- Being the contact point or coordination mechanisms for EOSC uptake at national or institutional level

EOSC-A, April 2024

eosc Category 9. Other



TYPES OF ACTIVITIES:

- Introduction of EOSC-specific references in research programmes and EOSC-related criteria for R&I funding opportunities
- Activities supporting open access publishing through the EOSC
- Adoption of national or institutional strategies for digital transformation and related roadmaps
- Adoption of new (national) policies on Open Science
- Outreach for creating a global cooperation framework for Open Science infrastructures
- Other

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eosc Category 8. Communication, dissemination, awareness raising, citizen engagement



TYPES OF ACTIVITIES:

- EOSC-related communication, dissemination, outreach, and awareness raising activities
- Promoting EOSC at all levels by engaging with relevant communities and stakeholders

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eosc What are impact case studies?

..Case studies, best practices, success stories..

- Real-life and practical examples, presenting a challenge or a situation that enables to identify and discuss approaches (e.g. pros and cons).
- A method or technique that has been proven to be effective in achieving a particular goal or objective.
- An accepted standard way of doing something within a particular industry or field.
- Presented as “narrative”, showcasing something that has happened or is happening in a particular context or environment.
- Detailed information about the context, the challenges faced, the strategies used, the target users/audiences and the outcomes achieved

Exemplifications

- description of implemented technological/organisational solution or practice aimed to improve certain aspects of the EOSC implementation.
- EOSC-related strategies, approaches and/or activities that have been shown through monitoring and evaluation to be effective, efficient, sustainable and/or transferable, and to reliably lead to a desired result.

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