

# Proposals for EOSC Symposium 2024 Unconference

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## 1. Unleashing Synergies for FAIR AI development in the EOSC

*Organised by: AI4EOSC, EOSC-SIESTA, iMagine, CSIC, PSNC*

### Relevance for EOSC Symposium 2024

This session, organized from several ongoing projects (iMagine, EOSC-SIESTA, AI4EOSC, RAISE) and part of a broader community and collaboration, is essential for the EOSC Symposium as it tackles the intersection of AI and FAIR data principles within the EOSC ecosystem. By exploring collaboration opportunities and synergies with other projects, we can ensure that AI development aligns with the EOSC's SRIA and its mission of facilitating Findable, Accessible, Interoperable, and Reusable (FAIR) data practices. This dialogue will drive innovation and efficiency in data-driven research, ultimately advancing the EOSC objectives.

### Session description

This unconference session at the EOSC Symposium is focused on boosting AI development within the EOSC ecosystem.

It is organized through lightning talks and open discussions, so that participants will explore existing initiatives, challenges, and opportunities in AI implementation, identifying a handful of key priorities and opportunities, to be further elaborated in small breakout groups. The idea of these groups is to emphasize collaboration and synergies with ongoing projects to leverage collective expertise and resources, focusing into specific topics so that insights from these discussions will inform actionable next steps for advancing AI development in EOSC. These activities will be finally brought together into a synthesis report, shaping the future of AI within EOSC and forging valuable connections with the session participants.

## 2. EOSC Collaborative Frontiers to Achieve Interoperability and Enhance Scholarly Data

*Organised by: GraspOS, SciLake, OSTrails, FAIRCORE4EOSC*

### Relevance for EOSC Symposium 2024

This session aligns directly with the core theme of EOSC Symposium 2024 by putting the spotlight on the strides made toward achieving scholarly data interoperability in the context of EOSC-related projects and delving into the mechanisms to collect, validate, and track scholarly data.

### Session description

This session aims to provide an introduction to the Scientific Knowledge Graph - Interoperability Framework (SKG-IF) model and illustrate its application as a strategic tool for achieving interoperability among scholarly data sources in various EOSC-related projects. The SKG-IF aim is to serve as a lingua-franca for SKGs providing a common vocabulary for key entities, relationships, and attributes found in scholarly data sources. In this session, representatives from four projects will explain their experiences with utilizing and extending SKG-IF in their contexts. More specifically, GraspOS, SciLake, and OSTrails representatives will

present enhancements to the model to better accommodate specific applications: research assessment, domain knowledge discovery, and data management and FAIRness, respectively. Alongside, FAIRCORE4EOSC representatives will discuss how their Metadata Schema and Crosswalk Registry can facilitate conversions between SKG-IF and other formats. Through these presentations, the session will spotlight contributions to improving EOSC's data interoperability and provoke a dynamic exchange of ideas.

### 3. Digital Twins for EOSC – new approaches

*Organised by: BioDT, DT-GEO, interTwin*

#### Relevance for EOSC Symposium 2024

BioDT, DT-GEO and interTwin (the 'Cross-DT Working Group') address important societal challenges, such as climate change, through piloting the use of digital twin technologies, developing and delivering novel data and services to research communities, policy makers and industry.

In this session, the three projects aim to share the innovative approaches, building on the existing collaboration between them established to harmonise practices on data and service interoperability, and to help position their activities in the context of Destination Earth (DestinE). The EOSC community will benefit from DT interoperability will allow to maximise the development, uptake and use of DT across EOSC domains.

#### Session description

Digital Twins for EOSC – new approaches to data and service interoperability

Digital Twins have proven their potential in revolutionising approaches to challenging tasks in the industrial sector, and are increasingly being leveraged as a research method bringing similar innovative approaches to the way science is performed.

This session aims to build on the developments and collaboration of the BioDT, DT-GEO and interTwin projects (the 'Cross-DT Working Group'), specifically in the context of and in reference to the Destination Earth (DestinE) programme, highlighting new dimensions of interoperability at data and service levels. Thanks to the focus on interoperability, as well as on challenges and transferrable approaches and tools, the session will be a unique opportunity for the EOSC Community to discover the wide range of possibilities that Digital Twins can offer, in all research domains, and the role Digital Twin platforms can play in future EOSC Nodes.

### 4. EOSC for Energy (Researchers)

*Organised by: NDFI4Energy, Open Energy Family, Helmholtz Metadata Collaboration, DLR, OFFIS, KIT*

#### Relevance for EOSC Symposium 2024

The EOSC Strategic Research and Innovation Agenda (SRIA) is concerned with the strategic objectives regarding Open Science and FAIR data topics. With our Unconference Session we want to tackle those important aspects from an energy research perspective and its interested stakeholders. In line with SRIA's interests and EOSC's objective tree, the proposed session contributes as an informational session for open research data infrastructures and as a networking event for individuals in the energy sector who are interested in exchanges about FAIR data and Open Science.

#### Session description

Energy and energy systems research is a data intensive research field which uses very heterogeneous data as input for its modeling exercises and produces a lot of new data which is again picked up by other researchers or society in the process of steering the energy transformation. To improve data sharing and to improve transparency and open science, the Open Energy Family has evolved through a number of research projects. The EOSC has evolved in parallel and has already started with different thematic streams. With this Unconference session, we want to gather stakeholders in energy research in order to collaborate to bring forward energy research data within the EOSC.

## 5. Fitting infrastructures: Multidisciplinary approaches to socio-environmental challenges

*Organised by: NFDI consortia FAIRagro, NFDI4Biodiversity, NFDI4Earth, KonsortSWD*

### Relevance for EOSC Symposium 2024

Data infrastructures should be capable of meeting diverse and evolving multidisciplinary research needs. The session aims to leverage synergies between the EOSC and NFDI communities by actively exploring potential collaborations and especially identifying, promoting, and assessing Multidisciplinary Use-Cases (MDUC).

This effort aligns with the goals of the OSCARS consortium, which seeks to consolidate achievements from various projects into interdisciplinary services and practices.

Fostering community engagement and driving the uptake of FAIR-orientated data-intensive research throughout the European Research Area is compatible with the thrust of NFDI's MDUC, i.e. advancing open science and enhancing data interoperability for researchers across disciplines.

### Session description

This session spotlights the critical role of Multidisciplinary Use-Cases (MDUC) in leveraging research data across various disciplines, underscoring that infrastructures must adapt to new data and quality standards. It emphasizes the integration of data, software, and methods to tackle complex research questions unresolvable within single-discipline confines. Challenges explored are heterogeneities in handling data (and data users), proposed solutions include helpdesks for streamlined expert consultations in cross-disciplinary collaboration. MDUCs cover lessons learned from the BMBF - FEaA BiodiWert call for nature conservation RDM in Germany and the Hydorgraphr R package, facilitating user-friendly functions. The session will be open for short impulses on further MDUC examples, like the One Health approach, illustrating the interconnectedness of human, animal, and environmental health. This session targets infrastructure experts, to raise awareness, exchange experiences, and potentially broaden the scope of MDUC including an international perspective. It aligns with NFDI's approach of a bottom-up, service-oriented approach.

## 6. Increase community understanding of the EOSC Exchange - its benefits

*Organised by: Sikt, DeIC, GEANT, CERIC-ERIC, MeiseBG, EGI, HEAnet, Trust-IT, TU-Graz, OSCARS*

### Relevance for EOSC Symposium 2024

The 2024 EOSC Symposium will feature the launch of the EOSC EU Node with an almost empty EOSC Exchange service catalogue. The EOSC Beyond project will have started in April 2024 to evolve the EOSC platform including the Exchange. That makes the EOSC Symposium a good point in time to make the opinions and interests of the wider EOSC community regarding the EOSC Exchange visible and increase the chances that a usable Exchange will emerge. The output of the discussion can serve as community input to further development of the EOSC EU Node and the Exchange.

### Session description

The EOOSC vision features the Exchange, a pan-European (market)place for service sharing across organisational and national boundaries. There is little consensus on what the Exchange should and should not be, what value it should provide for whom, and how this should be implemented. While there are vibrant community discussions about the EOOSC Federation of Nodes, the Exchange remains under-discussed, even though the first implementation (EOOSC portal) is retired to be replaced by the EOOSC EU Node in fall 2024. This session aims to facilitate a bottom-up community discussion inviting different stakeholders to exchange their views about the Exchange and what it should do for different

stakeholders. The discussion will focus on centrally financed services that could be available through the Exchange and on the facilitation of service sharing (and related cost recovery), i.e. the brokering of services. Potential scenarios and key questions will be prepared in advance.

## 7. Co-creating Equitable and Sustainable Futures for EOOSC

*Organised by: SoBigData-RI, SLICES-RI, SeaDataNet-RI*

### Relevance for EOOSC Symposium 2024

This session targets Research Infrastructures (RI), focusing on their seamless integration with the EOOSC through sustainable and inclusive practices. It highlights the EOOSC's commitment to inclusivity, interoperability, and sustainability, which are crucial for the development of RIs. Initiatives like SoBigData-RI and SeaDataNet-RI discuss inclusive data governance and open practices in emerging technologies, aiming for an equitable EOOSC ecosystem. SLICES-RI introduces new applications of FAIRness in experimental research, emphasizing reproducibility, automation, and efficient data management. This demonstrates the EOOSC's dedication to ethical and sustainable research, aiming to elevate global RI standards fostering an inclusive scientific community.

### Session description

This session delves into strategically embedding FAIRness from the outset in emerging research infrastructures, emphasizing the pivotal role of the EOOSC in catalyzing this paradigm shift. Our discourse seeks to illuminate and champion innovative strategies and exemplary practices that epitomize EOOSC's commitment to enhancing inclusivity, ensuring interoperability, and fostering sustainable growth of emerging RIs and platforms. SoBigData-RI and SeaDataNet-RI explore inclusive data governance practices, while assessing the application of Trustworthy and Explainable AI for creating transparent, inclusive strategies for EOOSC. SLICES-RI showcases EOOSC innovations like FDO and ROCrate, supported by a FAIR-IMPACT grant, broadening FAIR, aiming to enhance access and inclusivity in digital infrastructure research. Employing a co-creative approach with diverse stakeholders, we endeavor to formulate solutions that are ethically sound and FAIR-compliant. This dialogue underscores the critical importance of ethical data governance and equitable access, envisioning EOOSC as a leading exemplar for future digital ecosystems.

## 8. Findability in FAIR: touchpoints between EOOSC and Open Web Search

*Organised by: FAIRCORE4EOOSC, FAIR-IMPACT, OpenWebSearch.eu*

### Relevance for EOOSC Symposium 2024

This session explores novel ways for current and future collaboration in the field of findability (F) in FAIR, and how it contributes to the future goals on FAIR data and principles in the context of EOSC.

The session addresses the importance of transparency and collaboration in the development of search applications and tools, and discusses how widening collaboration, beyond the EOSC 'usual suspects', may benefit the whole research community.

### Session description

This session investigates synergies within science-search-focused contexts through examples from OpenWebSearch.eu, FAIRCORE4EOSC and FAIR-IMPACT.

European web search technology is a crucial element in Europe's independence in searching, finding and using information based on European values and regulation. The new open web index developed by OpenWebSearch.eu will provide researchers with accessible, accurate and high-quality web data at scale. FAIRCORE4EOSC develops horizontal, general-purpose

technical solutions for EOSC core to improve Findability, Accessibility, Interoperability and Reusability of research outputs. FAIR-IMPACT supports the implementation of FAIR-enabling practices, tools and services across scientific communities at European, national, and institutional levels.

The session presents solutions developed for findability and the means to deploy them through the above-mentioned projects and discusses how this improved findability impacts science, industry and society as a whole. The above also contributes to the objectives outlined in the EOSC SRIA and to Europe's sovereignty for accessing and using the web.

## 9. Enabling Transnational Access to Services for EOSC through eInfrastructures

*Organised by: EUDAT CDI & other pan-European eInfrastructures*

### Relevance for EOSC Symposium 2024

European wide access to research data storage services is prerequisite for the next generation of EOSC.

### Session description

Supporting collaboration among European researchers requires provision of access to shared data storage services that fills the data management gap between analysis and publication between countries. E-infrastructure provide services such as storage and compute transnationally or across borders. In this session, we would like to bring perspectives of 3 main stakeholders: RIs, e-infrastructure & EOSC to discuss the challenges and solutions to enable a pan-European storage space for the next-generation European Open Science Cloud. We will consider the relationship of the current model of EOSC with the services from EUDAT and other eInfrastructure when it comes to cross border use and discuss different possibilities for the future of EOSC data storage with invited guests.

## 10. Towards a barrier-free research data management in European plant sciences

*Organised by: NFDI consortia DataPLANT and FAIRagrode.NBIELIXIR Plant CommunityEOSC FAIR-EASE and EuroScienceGateway*

### Relevance for EOSC Symposium 2024

The session will identify concrete contact points between stakeholders in the European plant RDM infrastructure and further opportunities for future synergistic collaboration. In particular, impulses will be given for possible interactions with the European consortia, such as ELIXIR, de.NBI, EOSC-live and NFDI. With regard to RDM solutions, developed services are more likely to be tied to individual project goals or based on national initiatives. Overarching interactions and jointly maintained and operated infrastructures are the key to a needs-based, sustainable infrastructure landscape. An EOSC unconferenced session is a tremendous platform to integrate existing initiatives and hubs into an international discourse.

### Session description

The development and establishment of research data management along the data life cycle is a task that spans across various funding and infrastructures. The synergetic, efficiency-enhancing cooperation between European and national initiatives can be illustrated particularly well on the basis of specific experiences in the field of plant research in recent years. Services and activities such as work on metadata standards, provision of cloud and research data infrastructures, maintenance and support on workflow and information systems, as well as the creation of system and data interfaces could only be established through broad cross-border and cross-domain cooperation.

The aim of this session is to present current RDM initiatives in plant sciences, to get into dialogue with stakeholders from related disciplines, to discuss possible barriers and solutions towards a barrier free RDM in European RDM, and, not least, to identify and use existing synergies.

## 11. Strategies for Advancing FAIR Research Outputs with and among European Funders

*Organised by: EOSC Funders Group*

### Relevance for EOSC Symposium 2024

This session is highly relevant for European funding bodies striving to promote Open Science and enhance FAIR-compliant research outputs. The session presents a unique opportunity to gain insights from the "European Research Data Landscape" survey, enabling a deep-dive understanding of current gaps in adopting FAIR practices among researchers. Through this interactive platform, participants can discuss and explore potential solutions to support improved FAIR data practices. The session aims to enhance synergy among participants, facilitating sharing of best practices and innovative approaches to advance FAIR research outputs.

### Session description

To foster a dialogue that will aid funders in identifying and applying effective methods to assist researchers in generating FAIR-compliant research outputs, we seek to:

- present recent findings from the "European Research Data Landscape" survey, examining the gaps in FAIR practice adoption among researchers.
- highlight the challenges and potential solutions for supporting FAIR and FAIR by designing research outputs as funders.
- discuss collaborative strategies to address obstacles hindering the full realisation of FAIR data practices.

Participation in this discussion promises substantial benefits:

- Sharing of best practices and innovative approaches.
- Strengthened synergy among European funders toward a common goal of supporting Open Science.

- Enhanced understanding of barriers to implementing FAIR guidelines and collective problem-solving.
- Opportunity to contribute to the framework reflecting a broader range of funder perspectives on facilitating FAIR research outputs.

## 12. Open as possible, restricted as necessary; EOSC sensitive data exchange

*Organised by: ELIXIR, EUDAT, EOSC-ENTRUST, UNIVERSIDAD DE MURCIA, TITAN, EOSC-SIESTA, CSIC*

### Relevance for EOSC Symposium 2024

Many of Europe's significant medical, social and environmental research programmes challenge Open Science principles. Researchers collaborate, reusing and combining data sets which include sensitive personal, private or medical data, subject to legal or ethical constraints, and want to control the way they share their data and with whom. Three Horizon Europe projects will develop the European Open Science Cloud's capabilities to handle this data, SIESTA, TITAN and EOSC-ENTRUST. This session will introduce the shared concepts of these projects and invite the wider EOSC community to consider the special requirements of sensitive data and the technology solutions which might address them.

### Session description

The session will address the topic from two points of view.

First, a series of flash talks will introduce the problem space we seek to address - drivers and use cases from biomedical research and the social sciences, and the challenges specific research communities face in finding, sharing and analysing data sets while respecting the rights and ethical principles which apply. This will be followed by a panel of the speakers, and open discussion with the audience to develop a shared understanding of the requirements. Second, talks from the providers of proposed solutions will sketch out the future design of EOSC solutions for sensitive data - technologies for the deployment of secure Cloud or physical technologies, and the development of operational, policy and legal frameworks.

Again the speakers and audience will engage in a conversation about what this will mean for the future capabilities of EOSC service providers.

## 13. Open Science Competence Center in the EOSC and beyond

*Organised by: Skills4EOSC, OSCARS, EOSC-EuroScienceGateway, EOSCFocus, EVERSE, OA5 expert group*

### Relevance for EOSC Symposium 2024

The Competence Centres in the context of the EOSC are gaining attention as they are crucial pillars in advancing open science and facilitating collaboration and innovation. This session aims to explore the concrete initiatives undertaken by Competence Centres and their impact on the EOSC ecosystem. Additionally, the session will report on the recent developments regarding Open Science Competence Centres and on key related initiatives and projects such as Skills4EOSC Network of Competence Centres and OSCARS project Community-based Competence Centres. This proposal can be expanded becoming a full session at the EOSC Symposium in the topics of Skills, training and careers.

### Session description

This unconference session will delve into the roles, design and possible definitions of Competence Centres (CCs) within the European Open Science Cloud (EOSC) context and

beyond. Participants will discuss the definitions and scopes of CCs, share examples of tangible initiatives, evaluate their impact, and identify challenges and opportunities. Discussion will be driven starting from concrete results and updates on, among others, the recent developments of both OSCARS project and of the Skills4EOSC Network. The format will be participant-driven, encouraging active participation and collaboration. Participants can contribute experiences from their own perspectives as well as framing already existing initiatives in the context of competence centres.

The panel discussion will be driven by initial questions posed by the session chairs and will then continue by engaging the audience through interacting tools such as slido or mentimeter.

#### 14. Data competencies: training, education, qualification for researchers and data stewards

*Organised by: NFDI (National Research Data Infrastructure) Section EduTrain, NFDI4Health National Research Data Infrastructure for personal health data, DALIA Knowledge-Base for FAIR data usage and knowledge graph*

##### Relevance for EOSC Symposium 2024

Training and education are important prerequisites for research data management and data science. At European level and within the EOSC, there are already a number of projects dealing with this topic, e.g. Skills4EOSC and ELIXIR/TeSS. At national level, the German NFDI addresses capacity building at both disciplinary and cross-cutting levels. In this unconference, we want to bring national and European actors together to raise awareness, share knowledge and perspectives, and encourage collaboration and discussion on alignment. Verifiable, trustworthy credentials will be a particular focus, as the responsible use of data within ethical and legal constraints becomes increasingly important.

##### Session description

After a brief introduction to the state of knowledge of different target groups such as researchers and data stewards on research data management and data science, a panel discussion will address important issues for the further development of training and education for these target groups. The focus will be on questions of verifiable qualification (certificate), e.g. to be allowed to work with sensitive data, suitable training and education formats and their international standardisation options.

#### 15. No data without software!

*Organised by: NFDI4CS, NFDI4DataScience, Software Heritage Foundation, FAIRCORE4EOSC*

##### Relevance for EOSC Symposium 2024

Research software is pivotal for long term archival of research data especially for reproducibility and reuse. By offering this workshop, the importance of supportive infrastructure wrt. software becomes visible. Moreover, there is a need to strengthen the discussion about the specific profile of software wrt. long-term preservation and its later use. The interactive discussion will help not only to understand the concepts, but also the design of services, tools and infrastructures that support scientific processes in more user-centric approach.

##### Session description

In a short introductory presentation, the audience will dive into two topics: (1) the role of software in scientific processes and (2) the profile of software and development processes required to achieve reproducibility and reuse of related research data. This will include



describing semantically the research process, archiving software and reopening time-capsules after a long time period.

While guiding through these topics, an interactive format will be used to give the audience the possibility to talk about existing experiences and pain points from (not) using long-archiving infrastructure. Lowering barriers, involving as many perspectives as possible from various scientific fields, could help to gather requirements and sharpen the idea of a supportive research environment.

The goal is to refine the needs for sustainable research software development within and across scientific disciplines, and to elaborate on related future infrastructure and methodological developments by reflecting on these needs.

## 16. Developing and Promoting Research Software Quality in EOSC

*Organised by: EVERSE and OSCARS Projects*

### Relevance for EOSC Symposium 2024

This session showcases EOSC's commitment to elevating research software quality across Europe. It leverages the OSCARS and EVERSE projects, pooling insights from diverse sectors. Through discussions on software's role in various fields, EOSC aims to significantly enrich its ecosystem. Engaging diverse research communities will help identify new needs and dependencies, tapping into the collective expertise of science clusters. It also features the EURISE Network's role in spreading outcomes within the Social Sciences cluster, ultimately enhancing research software quality and promoting an open, FAIR-compliant research environment, thereby directly benefiting researchers.

### Session description

EVERSE is developing a framework to enhance research software quality, introducing the research software quality kit (RSQkit) for best practices in software quality practice. Within the OSCARS initiative, this focus on software quality is essential for Science Clusters' Competence Centers and benefits researchers and software engineers across various domains.

In this interactive session, OSCARS' Science Clusters, EVERSE's software communities, and participants from EOSC projects like FAIR-IMPACT and FAIRCORE4EOSC, will showcase examples of software expertise. Through roundtable talks, we'll delve into domain-specific software support strategies and explore the needs and services essential for software development.

The session will also spotlight the EURISE Network, suggesting it as a model for other Science Clusters to spread research software best practices and share EVERSE/OSCARS

project outcomes with their communities. These discussions will drive project improvements and advancements, ultimately enhancing the research landscape for scientists.

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