

Organisation: EOSC Life Sciences Connect Node

Project Charter 2026

## **EOSC Life Sciences Connect Node**

## 1. Project Summary

Four world-leading Research Infrastructures (RI) - ELIXIR, EMBL, Euro-BioImaging ERIC and Instruct-ERIC - are coming together to form an EOSC Life Sciences Connect Node. These infrastructures have actively engaged in the development of the European Open Science Cloud since its inception, including through engagement in EOSC Task Forces and coordination and engagement in numerous EOSC-related EU projects to date. In the Build up phase of the EOSC Federation, the LSC Node partners were involved in numerous sub-groups, and LSC Node partner ELIXIR led on the development of the Federation MOU, which officially brought the Federation into existence in November 2025. As the EOSC federation moves towards production, the LSC Node partners are driving several EOSC Federation Working Groups and Committees that will help operationalise the EOSC federation.

Each partnering RI has expertise, multiple services and sites/partner institutes across Europe, meaning the collective contribution to open science of partners is significant. The aim is that, by formalising this collaboration, the Node will play an instrumental and significant role in the deployment of the EOSC federation.

Several initial use cases were developed in 2025 with a view to demonstrating the potential and scientific relevance of the EOSC Federation at the Federation launch during the EOSC Symposium. Here these use cases, which cover the scientific domains of the infrastructures represented (including structural biology, data presentation layers covering a range of biological data-types and the provision of Galaxy analytics workflows to life scientists) are either updated or marked as complete. The EOSC Life Sciences Connect Node will continue to work closely with various types of other EOSC Nodes in Working Groups and in cross-node use cases, and partners will continue to support nodes wanting to onboard to the Federation, and explore the possibility of onboarding new RIs into the Node.

As a thematic Node comprising 4 RIs, we have developed our own fit-for-purpose governance and operational structures. These will ensure that the Node functions effectively as a collective yet respects the individual make-up and governance structures of the partners.

## **2. Value Proposition**

- **Main Goal:**

The goal of the EOSC Life Sciences Connect Node is to connect four existing RIs (ELIXIR, EMBL, Euro-BioImaging and Instruct) into a thematic Life Science Connect Node that supports the data and software related needs of a large and diverse user community in Europe and beyond.

- **Needs addressed**

The needs of many different stakeholders will be addressed through an effective Life Science Connect Node, including the needs of life scientists, service providers as well as users in other domains. The diverse services provided through the Life Science Connect Node will enable life science researchers to access biological data from different modalities and sources, as well as software, tools and other services to fully exploit the data. In addition, solutions developed by the partner RIs, like managing very large databases, specialised formats and standards for image data, working with sensitive data, efficient interface to compute including for AI methods, platform for access and data provenance management, and many others are agnostic of scientific domain and can benefit all researchers across domains.

- **Key Benefits:**

Large volumes of data are being generated through state of the art technologies and facilities provided by life science infrastructures including EMBL, Euro-BioImaging and Instruct. At the same time, many services and resources exist to support the data and software management needs of this community, alongside tools and expertise to support data analysis and visualisation, such as those offered by Instruct, Euro-BioImaging, EMBL and ELIXIR. Integrating these key infrastructures and the services they operate as effectively as possible is a critical first step to ensuring that a major life science component of the EOSC federation develops effectively, for the benefit of users, partners and funders. In addition, the EOSC LSC Node will further increase visibility and uptake of services across highly diverse user communities in Europe and beyond.

Across the RIs involved in the Life Science Connect Node, hundreds of services exist. These services range from foundational services such as Life Science Login and ARIA, collectively supporting access and identity management (including for sensitive data) to interoperable data, software and computational services (including those using AI methods) which can support researchers to process, analyse, visualise and annotate data. Ensuring data and digital assets that come from life science research are 'FAIR' and have the maximum opportunities for re-use by other scientists within and outside the life sciences is a primary focus of the EOSC Life Sciences Connect Node. Enabling this interoperability within the context of the European Open Science Cloud through integration with other EOSC Nodes as well as connecting to current and future initiatives that will help to implement other EU Data Spaces is critical. The connection of these RIs via the Life Science Node is an important step to achieve this, given the partners will engage closely with each other, as well as other Nodes within the Federation including national nodes, thematic nodes, and EOSC EU Node.

- **Who Benefits:**

### **End users**

- More closely connected and enhanced services offered through the thematic Node will save time and effort, and lead to higher research productivity.
- Further service integration within the life science domain and beyond will enable greater interoperability and facilitate cross-domain collaborations.
- Opportunities to utilise resources provided by other nodes in conjunction with resources provided by the LSC Node, e.g. federated compute, storage space.

**The four participating RIs in the EOSC Node**

- They benefit because the governance and operational frameworks developed as part of the thematic node will support deeper integration between the expertise and services they provide and increased uptake by new user communities. As a result this will also streamline and improve efficiencies across the RIs.
- They will also benefit from additional interactions with other nodes in the federation

**Funders**

- They benefit from efficient implementation of their investments and better connections between the RIs involved, avoiding fragmentation and duplication.

**Other EOSC Nodes**

- Opportunities for closer collaboration and information exchange particularly with other EOSC Thematic Nodes.
- Integrated deployment of diverse Life science services on national infrastructure through EOSC National Nodes.

**EOSC Nodes in subsequent waves**

- They benefit as they will be able to adopt good practice in forming EOSC Nodes or connect to the Life Science Connect Node

### **3. Use Case(s)**

**Use Case 1: Federated data storage of structural biology data (2025-2027)**

**Use Case 2: Cross-domain interactive image data analysis with BAND virtual desktop (2025-2027)**

**Use Case 3: Galaxy multi domain graphical workflows platform (2025-2027)**

**Use Case 4: FAIR Image Analysis across Sciences (2025)**

**Use Case 5: Harmonising biodiversity observations (2025)**

#### **Use case description 1: Federated storage of Structural Biology data**

From the initial stages of data collection through the various processing steps required for the final presentation of results, structural biologists rely on substantial storage capacity to manage their data. For example in cryo-electron microscopy, where recent advances in instrumentation and data processing has led to widespread adoption, datasets can be in the range of up to 10TB in size. To ensure data FAIRness there is a requirement to store this data, but to also ensure that it is appropriately tracked so it can be reused for subsequent applications. This presents a significant challenge for both research facilities and individual investigators, as the required storage infrastructure is often costly to maintain and may be insufficient or unavailable, particularly for long-term data retention.

Through a number of lines of communication, many Instruct centres have indicated a likely future requirement for additional data storage space. As such Instruct aims to establish a pilot federated data storage model enabling remote storage of research data. Through existing collaborations with other EOSC nodes providing data storage, including EOSC-PL/EGI (OneData) and exploring collaborations with other nodes that could support storage capacity (e.g. EUDAT, B2DROP), data collected at Instruct centres will be securely stored in the cloud, with the location of the data indexed in the Instruct access management tool ARIA. Moreover, when this data is collected at Instruct facilities, the ARIA platform will present the researcher with one or more options for the storage of their data via the dedicated middleware tool FandanGo. The process of negotiation, provisioning, and final data transfer will be orchestrated by the Instruct FandanGO software.

This use case will demonstrate the potential for federated data storage for structural biologists, and for other researchers who may wish to implement a federated data storage model at a facility level going forward.

- **Value proposition:**
  - Benefitting from EOSC
    - Benefit from federating capabilities and interoperability framework to facilitate storage across different nodes in the future, especially at the facility level in research infrastructures.
    - Visibility through EOSC
    - Sharing of good practices with European communities
    - Assistance on the implementation of FAIR
  - Benefit to EOSC
    - ARIA access management platform (Corbel, EOSC-Life), which has already been used outside of the life sciences (CESSDA data access – EOSC Future, non-Structural Biology projects and Research Infrastructures)
    - Provenance tracking of raw and processed data, linked to the original science case
    - Proof of concept for inter-node federated data storage
    - Proof of concept for integrating federated data storage at cutting-edge instrumentation.

- Audience
  - Researchers (data users and providers) to use services
  - Infrastructures to handle users and user data in a federated and FAIR way
- **In-scope:**
  - Federated data storage
  - Fandango ARIA selection of storage location based on user attributes
- **Out of scope:**
  - Storage is proof of concept at this stage, we will not be offering long term storage for all Life Science users currently. This may be expanded to specific thematic areas within Instruct where there is a real demand that can be reasonably met according to facility feedback

### **Use Case Description 2: Cross-domain interactive image data analysis with BAND virtual desktop (Euro-BiolImaging, EMBL)**

Imaging data is one of the fastest growing research data types in the life sciences. Imaging technologies bridge across domains from biological and biomedical fields to astronomy and agroecology, making imaging data near ubiquitous. However, as technological developments lead to dramatic increases in size and complexity of the data, storage and computational requirements are quickly outgrowing the capacity of local desktop workstations. Added to this, a specificity of bioimage analysis workflows is their inclusion of interactive visualization tasks which are supported by a rich ecosystem of desktop-bound tools with complex graphical user interfaces. To address the challenges of providing scalable compute resources with access to the tool ecosystem scientists are familiar with, we developed a dedicated cloud-based virtual desktop platform. **BioImage ANalysis Desktop (BAND)** is an easy to use, dedicated virtual platform accessible directly through a standard web browser, and providing users a fully equipped analysis environment with a wide range of preinstalled tools and programming frameworks, especially used for image analysis. Designed to replicate the user experience of a local workstation, BAND runs on a high-performance computing cluster, enabling efficient large-scale image processing. Many applications support GPU acceleration, allowing users to execute computationally intensive tasks such as deep learning workflows with ease. The ready-to-use and configurable nature of BAND makes it a platform of choice for training courses, including global, distributed training, for advanced image analysis.

This use case will aim to deploy an instance of BAND on compute resources available through the EOSC, providing the power of high performance compute, GPU powered AI methods, and other cloud-based resources to the imaging community. The platform will also foster cross-domain interactive analysis of image data and integrate with EOSC federating capabilities, promoting use of EOSC resources. It will also enable upskilling of research infrastructure users and staff through training in advanced image analysis methods, and serve as a sandbox for testing the latest image analysis algorithms. The use case will connect across EOSC Nodes, including the EOSC Node Germany, EOSC Node EGI and EOSC Node Czechia to leverage the collaborative EOSC environment.

- **Value Proposition:**
  - Enable access to HPC, GPU and cloud resources for image analysts
  - On-demand access to image analysis virtual desktop configured with latest image analysis tools
  - Provide a common training platform for advanced image analysis methods
- **In scope :**
  - Alignment with EOSC federating capabilities
  - Cross-Node service workflows
  - Research Infrastructure user and staff training
- **Out of scope:**

- Access and analysis of sensitive data.

### **Use Case Description 3: Galaxy multi-domain graphical workflows platform used by tens of thousands of researchers (ELIXIR)**

ELIXIR offers approximately 500 national Node provided services through their ELIXIR Service Delivery Plans which can be found here: <https://elixir-europe.org/services>. The exact requirements for EOSC Federation Node service provisioning will impact ELIXIRs choice of service provisioning at an EOSC Node level. A strong candidate as a set of key mature services and associated cross domain use cases in the Life Science Connect Node is provided by the ELIXIR Galaxy Community.

Galaxy is an open-source platform enabling researchers to analyse and share scientific data through interoperable APIs and various user-friendly web interfaces. Launched in 2005, the Galaxy project has evolved into a robust framework utilised across diverse research fields, including \*omics, biodiversity, machine learning, cheminformatics, NLP, material science, and climate research. Key features of the Galaxy platform emphasise transparency, reproducibility, and reusability. Its multi-user environment supports the sharing of tools, workflows, notebooks, visualisations, and data, facilitating the reproduction of results for verification and enabling future studies to build on previous work.

Galaxy captures all provenance information of a dataset, such as tool versions, parameters, and execution environments, which can be reused or exported using standards like BCO or RO-Crate, as developed in the EOSC Life Project, to public archives. This high level of provenance tracking also ensures traceability and reduces the environmental impact of data analysis. Centralised user support enhances efficiency, allowing simultaneous resolution of tool failures and promoting the use of more efficient or accurate tools.

The INFRA-EOSC project EuroScienceGateway has been implementing a shared vision for an open, collaborative digital space for European scientists by advancing six national Galaxy servers and the European Galaxy server, currently serving 100,000 users. To accommodate future growth, the service has developed technologies enabling scientists to integrate their own compute or storage infrastructure with their preferred Galaxy instance, known as Bring Your Own Compute (BYOC) and Bring Your Own Storage (BYOS).

In the EOSC United project, commencing in 2025, Galaxy will demonstrate the capability to utilise the storage and compute resources of the EOSC EU Node, including connected services such as BlueCloud from the marine domain, in order to meet real user needs, serving the long tail of science with the Galaxy framework. This will include deploying a Pulsar endpoint into the EOSC EU Node.

We plan to submit entire scientific workflows, e.g. the ones stored in the EOSC-Life co-developed WorkflowHub, to the EOSC-EU node Pulsar endpoint. Every Galaxy server connected to this Pulsar endpoint could also provision Notebooks (e.g. Jupyter Notebooks, RStudio instances) using the EOSC-EU resources. We will also create customised and user-centric training material using the [GTN infrastructure](#)

The compute resources made available via Pulsar and the storage resources of the EOSC-EU Node will then serve hundreds of thousands of researchers and enable use cases including the Biodiversity Genomics Europe (BGE)<sup>1</sup>.

**Out of scope:** Processing of sensitive data until appropriate legal and technical frameworks to support this are in place.

### **Use case description 4: FAIR Image Analysis across Sciences (Euro-BiolImaging, ELIXIR, EMBL, Instruct, other EOSC Nodes)**

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<sup>1</sup> <https://biodiversitygenomics.eu/>

*This use case was shown as part of a cross-node demonstrator at the EOSC Symposium 2025*

The fragmentation of quantitative image data analysis across disciplines leads to inefficiencies, limiting the reuse of methodologies and computational tools. This use case addresses these challenges by establishing cross-disciplinary FAIR image analysis workflows and integrating best practices from bioimaging, environmental sciences, and astrophysics.

By leveraging existing EOSC services, such as the European Galaxy server and WorkflowHub, we enable researchers to develop, share and reuse interoperable workflows across different EOSC nodes. For example, a workflow optimised for processing large-scale astrophysical data on one node using a Galaxy server can be adapted for bioimaging or environmental science applications on another. Achieving this cross-disciplinary, multi-node collaboration requires robust data interoperability and using ontologies to annotate tools and workflows accurately.

The EOSC's infrastructure, including communities from Science Clusters (LS RI, ENVRI, and ESCAPE) and research infrastructures like Euro-BioImaging and ELIXIR, provides a strong foundation for integrating AI methods, high-performance computing, and workflow management systems. Embedding FAIR principles at every stage ensures machine-actionability, transparency, and long-term usability of image analysis workflows. It also creates potential for extending the interoperable workflows to domains like structural biology within the EOSC LSR Node, as well as cross EOSC Node interaction with for example, the DataTerra, BlueCloud Nodes on a thematic level, and NFDI and EOSC PL Node on an infrastructure level.

To maximise impact and usability, we will develop comprehensive documentation and training materials for these workflows. Tutorials will be made available through the Galaxy Training Network (GTN), ensuring accessibility and reusability by researchers across disciplines. These tutorials will guide users in adopting and adapting workflows for their specific scientific needs.

This use case demonstrates how the EOSC Federation facilitates interdisciplinary collaboration, enhances computational scalability, and accelerates scientific discovery. By embedding these workflows within EOSC, we establish a sustainable framework for FAIR-driven image analysis, maximising impact across scientific domains.

- Value proposition
  - Enables cross-disciplinary reuse of image analysis workflows by integrating FAIR principles and EOSC services, creating a space for collaboration and reducing redundancy.
- In-scope
  - Development and adaptation of FAIR workflows (proof of concept)
  - Use of ontologies for tool and workflow annotation
  - Interoperability across EOSC nodes
  - Creation of FAIR training materials and tutorials in the GTN
- Out of scope
  - Maintenance of EOSC services

While this use case has been completed and presented at the EOSC Symposium 2025, additional work to go wider and include different kinds of image data, or to go deeper and include more tools and functionalities for image analysis in each image data type, is currently being explored. Many such exploratory collaborations have started as a result of interactions with other Nodes in the EOSC federation.

### **Use case description 5: Harmonising biodiversity observations (EMBL, ELIXIR, Euro-Biolmaging ERIC)**

*This use case was shown as part of a cross-node demonstrator at the EOSC Symposium 2025*

Omics-based observations have transformed how biodiversity is monitored across different environments, with major hubs such the Global Biodiversity Information Facility now taking species observations based on DNA sequences and/or images. However, such approaches present two challenges to research infrastructures: firstly the utility of multi-omics datasets relies entirely on interoperability of omics layers, i.e. on formalised data linking. Secondly, omics-derived data typically lead to computationally expensive analyses, and so rely on the availability of high performance computing or cloud infrastructures. To address this, common workflows have been produced by ELIXIR core data resources (e.g. MGnify<sup>2</sup>), communities (Galaxy<sup>3</sup> and Microbiome<sup>4</sup>) and more broadly. The [Biodiversity Portal](#) housed at EMBL-EBI connects multiple ELIXIR Core Data Resources, and is currently expanding to connect genomes to observations. Other omics data types, such as imaging, can be used to link phenotypes and genotypes with sequence data and allow modelling of ecological dynamics and adaptations to environmental conditions (including climate change).

This use case will demonstrate how EOSC federation can be used to execute different Workflows to meet the growing demands of data-driven biodiversity observations. We will develop and showcase data and metadata validation, reshaping, and packaging tooling to support federation between EOSC Nodes and other hubs like GBIF, supporting interoperability through RO-Crate and Darwin Core Archive standards. These developments will enable data presentation across a wide range of Nodes and resources. Current estimates indicate that there are millions of potential DNA datasets that could be systematically processed to produce species observations, demonstrating sharing of the compute burden, and removing redundancy that currently exists in the life-cycle. This use case builds upon a proof of concept established at an ELIXIR hackathon<sup>5</sup>.

- Value proposition
  - Demonstration of how federated analysis can be performed in the EOSC cloud.
  - Potential to connect to NFDI (specifically NFDI4Microbiota, de.NBI) and BlueCloud
- In-scope
  - Validation of pipeline outputs via Research Objects (proof of concept)
  - Use workflows (Nextflow and Galaxy) for sequence annotation
  - Multiomics data into context: third-party curation of metadata (sample annotation)
  - Multiomics data integration
  - Interoperability across EOSC nodes
  - Presentation of data products suitable for BlueCloud Node
- Out of scope
  - Long-term compute resources

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<sup>2</sup> <https://workflowhub.eu/projects/9/workflows>

<sup>3</sup> <https://galaxyproject.org/news/2024-11-15-mgnify-v5/>

<sup>4</sup> <https://doi.org/10.1093/gigascience/giad078>

<sup>5</sup> [http://osf.io/preprints/biohackrxiv/3x274\\_v1](http://osf.io/preprints/biohackrxiv/3x274_v1)

#### 4. External Dependencies & Key Risks

##### External Dependencies:

| External Dependencies & Risks                                                       | Actions                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Deadline |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Sustainability                                                                      | Support for the implementation of the Life Science Connect Node comes, in part, from current and future EU project funding, as well as institutional support of the RIs involved.                                                                                                                                                                                                                                                                       | Ongoing  |
| Connections to EOSC EU Node                                                         | This is supported by e.g. engagement with the EOSC United Coordination and Support Action (Sep 2025 to Aug 2028), involving ELIXIR and Instruct-ERIC directly. Operational interactions also mediated through EOSC Nodes Operations Committee and Working Groups.                                                                                                                                                                                       | Ongoing  |
| Connections with other EOSC Nodes including other thematic Nodes and national nodes | Efforts are being made to find suitable opportunities to collaborate with, in particular, but not exclusively BBMRI, BlueCloud and PANOSC, where the life science research focus of the node has greatest potential for touching points with other thematic Nodes.<br><br>In addition, institutes involved in national EOSC Nodes will also jointly be involved in the Life Science Connect Node, so these are being mapped and interactions developed. | Ongoing  |

##### Key Risks & Mitigation Measures:

| Risk                                                                                                       | Mitigation                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lack of adequate funding risks delivery of activities (technical, operational, integration of new members) | Partners to work to secure appropriate institutional support or new EU funding to cover actual costs of effective engagement in EOSC Node. The partners will be able to maintain the current LSC Node status and contribute to the EOSC Federation. |
| Visible success of the EOSC Node obscures the value of the underlying Research Infrastructures involved    | Partner's communication channels work to ensure that the successes of the Node are communicated, but make clear that this is possible due to the importance and availability                                                                        |

|                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                       | of the underlying RIs and their services.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Additional coordination challenges that come with being a multi-RI thematic Node                                      | Partners have established a light-weight MoU and effective operational processes to ensure the Node operates as efficiently as possible. Partners are looking into establishing stronger legal structures towards an EOSC Federation in production.                                                                                                                                                                                                                     |
| Lack of clarity on obligations of offering a service through EOSC Node (e.g. SLAs, service review process/governance) | Engage closely in the discussions on these topics during 2026 through Node Coordinators and Operations Committees and Working Group participation.<br><br>Contribute to the development of the EOSC Node Handbook.                                                                                                                                                                                                                                                      |
| Limited sustainability and scalability                                                                                | Even if the Node is successful in its early stages, there could be challenges in maintaining momentum, expanding to additional members and ensuring long-term financial and operational sustainability.<br><br>Planning for scalability from the outset, by designing flexible governance and operational frameworks.                                                                                                                                                   |
| Lack of end-user engagement                                                                                           | Researchers and other end-users might not fully engage with the services offered by the EOSC Node if the services do not align with their needs or are not visible enough.<br><br>Engaging with end-users early in the process to ensure that the services provided are user-centric. Continuous feedback mechanisms and regular communication efforts through the LSC Node Partner Community to raise awareness about the benefits and available services of the Node. |

## 5. Contributions

Contributions will come from each Research infrastructure of the Life Science Connect Node. All of the participating infrastructures are themselves distributed over multiple geographical locations and, in some instances, participating organisations. In the case of Instruct, ELIXIR and Euro-BioImaging each have a central hub and multiple RI nodes, distinct from EOSC Nodes. Some resources (both human and computational or data assets) are owned and hosted by the hub but others are owned or hosted by one or more nodes or third parties, or some combination thereof. Given that there are multiple resource providers within each of the current four RIs making up the Life Science Connect Node that each have their own capabilities and resource constraints, a sliding scale of contribution needs to be considered when a resource provider onboards to the Life Science Connect Node. For example, a simple wiki resource may only need to be added to a common node catalogue, but a more sophisticated tool may require integration with a common AAI.

We list below the initial sets of intended contributions from the four partner RIs. In the coming period more detailed plans will be developed including Deliverables assigned to the partners. This will be incorporated into a full set of Deliverables to include IT Governance documentation for appropriate services; data protection policies and procedures; operational deployment strategies and plans (including quality metrics and support); and stakeholder and community engagement plans.

The work of the LSC Node and the contributions of its partners have been significantly enhanced by partnership with and funding through the EOSC programme of Horizon Europe. The **EuroScienceGateway** project (Grant agreement: 101057388; Sep 2022 to Aug 2025) funded the development of the Galaxy technologies used in use cases 3 & 4, in particular systems integration of federated components and authentication. The **OSCARS** Open Call project **FIESTA** (Grant agreement: 101129751; Jan 2024 to Jun 2028) provided development and dissemination effort foundational to harmonised image data analysis in use case 4. **EOSC BEYOND** (Grant agreement: 101131875, Apr 2024 to Mar 2027) has informed the design of the LSC Node and is providing architectural insight and technology which the Node may adopt, and has facilitated collaborations with the EOSC Poland node. **EOSC UNITED** (Grant agreement: 101215594; Sep 2025 to Aug 2028) is providing further development to integrate Galaxy with the EOSC Federating services and make use of the capacity of the EOSC EU Node.

Instruct-ERIC Hub

- **Role in Project:**
  - Data generator of structural biology data
  - Provider of ARIA access management platform for cataloging infrastructure services and managing access to services.
  - Provider of ARIA IDSS an identity provider enrolled in MyAccess ID. Supports AuthN via LS AAI/LS Login
  - Co-developer of FandanGO data management orchestration software utilised in proposed federated data storage use case
- **Main Contributions and Deliverables:**
  - Onboard ARIA (and by extension, Instruct service catalogue) to the LSC Node
  - Support enrollment of services provided by Instruct community to LS Login to ensure MyAccessID compliance
  - Support enrollment of facilities with FandanGO data management software
  - Source data storage providers within EOSC Federation for expansion of federated data storage use case
  - Pilot data storage mediation for user research projects through ARIA/FandanGO
  - Provision of the LSC Node website, hosted in ARIA
  - Development towards an LSC Node catalogue, also hosted in ARIA according to stipulations of the Catalogue WG.

- **Resources Provided:**
  - Personnel: 0.7 FTEs for managing contributions listed above.
  - Provision of ARIA access management platform, and joint provider of the automated metadata capture tool FandanGo.

#### Instruct-ERIC Centres

- **Role in Project:**
  - Structural biology data generation
  - Resource managers: Instruct-ERIC Centres manage many of the services and data sources to be incorporated into the Life Science Connect Node.
- **Main Contributions and Deliverables:**
  - Collaboration with the Instruct hub to onboard relevant services to EOSC via LS Login, or other solution compliant with MyAccess ID where appropriate
  - Inclusion of services within Life Science Connect Node service portfolio
- **Resources Provided:**
  - Personnel: 0.4 FTE split across centre's contributing resources for managing contributions listed above
  - Instruct facility services and data sources, continually updated.

#### ELIXIR Hub

- **Role in Project:**
  - Provider of Galaxy Community infrastructure
- **Main Contributions and Deliverables:**
  - coordinate ELIXIR Galaxy Community who provide services, hosting
  - Coordinate use cases on Galaxy and ELIXIR On Cloud (de.NBI Cloud)
  - coordinate community events, meetings
- **Resources Provided (if any):**
  - appropriate coordination and effort

#### EMBL-EBI Data Resources

- **Role in Project:**
  - Provision of relevant databases or data slices
- **Main Contributions and Deliverables:**
  - Data from PDBe, ChEMBL, ENA, MGnify, BIA
- **Resources Provided (if any):**
  - APIs supporting data provision and support

#### EMBL-Grenoble/Heidelberg Compute Infrastructure

- **Role in Project:**
  - Provision of compute infrastructure for processing datasets, where appropriate
- **Main Contributions and Deliverables:**
  - Compute resources sufficient for demonstration of Use Cases.
- **Resources Provided (if any):**
  - resourcing and support expertise

#### Euro-Biolmaging

- **Role in Project:**
  - Generation of biological and biomedical image data
  - Provider of services connected to imaging data: Consultation services for image analysis, image data curation, data stewardship, development of data standards and general tools for large file handling

- Connection and outreach to a wide community of Users and Service providers
- **Main Contributions and Deliverables:**
  - Generate cross domain Image analysis workflows, including those using AI methods, as well as relevant standards and training materials.
  - Access to image analysis virtual desktop BAND
- **Resources Provided (if any):**
  - Personnel: 0.7 FTEs for strategic, technical, legal support and FAIR data expertise for integration of Euro-BiolImaging image data services.

LSC Node Partner Community - member Nodes/Institutes of the RI partners.

- **Role in Project:**
  - Providers of expertise and technology development through Task Forces, Working Groups and Horizon Europe projects.
  - Providers of Services - data, computational and integration tools - through unboarding as LSC Node Services.
  - Providers of training expertise and content on relevant technologies and use case solutions.
- **Main contributions and Deliverables**
  - Provide platforms, data and demonstration code for use cases.
  - Dissemination of results and EOSC capabilities to end user communities.
  - Engagement with national funders and National EOSC Nodes in their host countries.
- **Resources provided (if any):**
  - A broad range of data and computational services.

The major outputs of the development phase of the LSC Node are:

| ID | Deliverable Description                                                | Target Delivery Date | Status |
|----|------------------------------------------------------------------------|----------------------|--------|
| 1  | EOSC LSC Node Portal                                                   | October 2025         | Live   |
| 2  | Guidelines for Service integration and onboarding for Partners         | October 2026         |        |
| 3  | Guidelines for Expert participation in WG and Task Forces for Partners | October 2026         |        |
| 4  | Report on participation in build-up phase during Y1/2                  | April 2027           |        |

## 6. Adoption of EOSC Federating Capabilities

| Federating Capability                                    | Current status (July 2026)                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Federated AAI</b>                                     | EOSC LSC Node portal is accessible via LS-AAI. LS-AAI connects to EOSC federated AAI and is available in the Acceptance environment. Poised for inclusion Production environment by Oct 2026.                                                                                                                                                                                                                                                                                 |
| <b>Federated Service and Research Products Catalogue</b> | <p>Relevant research products are harvested in the federated research product catalog through OpenAIRE. We are identifying the first compatible research product repositories that will be onboarded.</p> <p>The LSC Node is active in the Service Catalogues WG and a leading participant in the development of integration between Node Catalogues and the EOSC Federation Catalogue. Once Services have been onboarded they will become available through both routes.</p> |
| <b>Helpdesk</b>                                          | Helpdesk support lies at the individual service level. No dedicated Node level Helpdesk currently available. Node representatives are part of the Helpdesk Working Group to foster discussion around a common solution.                                                                                                                                                                                                                                                       |
| <b>Service Monitoring</b>                                | Service Monitoring information can be accessed at the individual service level. No provision of monitoring information is currently available at the Node level.                                                                                                                                                                                                                                                                                                              |
| <b>Service Management System</b>                         | Two partners (EMBL, ELIXIR) already manage services through FitSM. FitSM is now being adopted at the LSC Node level. Node partners have received FitSM training.                                                                                                                                                                                                                                                                                                              |

## 7. Timing and Milestones

A complete set of Milestones will be developed in the coming months, but we envisage the following tasks to be important for the Node to function effectively.

| ID | Milestone Description                                                                                       | Target Delivery Date | Status                                                                       |
|----|-------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------|
| 1  | Establish membership of governance bodies including Steering Committee and Operations team                  | April 2025           | Completed                                                                    |
| 2  | Node communication and collaborative working environments and processes established                         | April 2025           | Completed                                                                    |
| 3  | Establishment of links with other relevant nodes                                                            | May 2025             | Completed (w.r.t. 2025 Use Cases)                                            |
| 4  | Structural Biology data storage brokering managed by ARIA-FandanGO                                          | August 2025          | Initial implementation completed - extension to additional nodes in progress |
| 5  | Monitor service integration process in the EOSC federation and update LSC Node service portfolio, if needed | June 2025            | Ongoing                                                                      |
| 7  | Assessment of relevant Use Cases' maturity level ahead of presentation at the EOSC Symposium                | September 2025       | Completed                                                                    |
| 8  | Presentation of the cross-domain Use Cases 4, 5 at the Symposium                                            | November 2025        | Completed                                                                    |
| 9  | Establishment of the LSC Node partner forum                                                                 | January 2026         | Completed                                                                    |
| 10 | Development of a catalogue feature for the LSC Node website                                                 | July 2026            | Ongoing                                                                      |
| 11 | Review of Governance activities, rotation of Node Chair                                                     | May 2026             | Completed                                                                    |
| 12 | Implementation of dedicated Federation WG review meetings                                                   | May 2026             | Completed                                                                    |
| 13 | Use case 1: Identification of relevant nodes to expand federated data storage use case to                   | May 2026             | Completed                                                                    |
| 14 | Use case 1: Establishment of requirements to federate storage                                               | September 2026       |                                                                              |

| <b>ID</b> | <b>Milestone Description</b>                                                                            | <b>Target Delivery Date</b> | <b>Status</b> |
|-----------|---------------------------------------------------------------------------------------------------------|-----------------------------|---------------|
| <b>15</b> | <b>Use case 2: Adopt EOSC federating capabilities (Federated AAI and Service Catalog) for BAND</b>      | <b>October 2026</b>         |               |
| <b>16</b> | <b>Use case 1: First demonstration of federated storage with new storage providers</b>                  | <b>March 2027</b>           |               |
| <b>17</b> | <b>Use case 3: Galaxy Use Case integrates LSC Node and EU Node</b>                                      | <b>January 2027</b>         |               |
| <b>18</b> | <b>EOSC United WP1 M1.2 ELIXIR On Cloud (de.NBI Cloud) Use Case</b>                                     | <b>January 2027</b>         |               |
| <b>19</b> | <b>Use case 2: Deploy cross-node workflow for BAND</b>                                                  | <b>February 2027</b>        |               |
| <b>20</b> | <b>Use case 1: Upload of data from Instruct facility to selected storage provider via ARIA-FandanGO</b> | <b>June 2027</b>            |               |

## 8. Contact & Submission

The EOSC Life Sciences Connect Node has the following governance structure, set out in a Memorandum of Understanding between the four partners:

- An Executive Board, with each of the 4 RIs represented and a Chair rotating between the members every six months.
- An Operational team, with the roles set out in the EOSC Handbook provided by staff of the partners.

With respect to the operational team, the role of Coordinator will be tasked by and report to the Executive Board. The current role holders are as follows:

| Role                            | Name                       | Email                                    |
|---------------------------------|----------------------------|------------------------------------------|
| Coordinator                     | Peter Maccallum            | peter.maccallum@elixir-europe.org        |
| Operations Manager              | Aastha Mathur              | aastha.mathur@eurobioimaging.eu          |
| Operations Manager (deputy)     | David Lloyd                | david.lloyd@elixir-europe.org            |
| Operations Manager (deputy)     | David Marshall             | david.marshall@instruct-eric.org         |
| Operations Manager (deputy)     | Sina Bayrsch               | sina.barysch@embl.de                     |
| Technical Officer               | Marcus Povey               | marcus@instruct-eric.org                 |
| Scientific Officer              | Martin Beracochea          | mbc@ebi.ac.uk                            |
| Scientific Officer (deputy)     | Fabio Liberante            | fabio.liberante@elixir-europe.org        |
| Communications Officer          | Elaine Harrison            | elaine.harrison@elixir-europe.org        |
| Communications Officer (deputy) | John Dolan                 | john@instruct-eric.org                   |
| Communications Officer (deputy) | Marianna Childress<br>Poli | marianna.poli@eurobioimaging.eu          |
| Legal Officer                   | Vera Herkommer             | Vera.herkommer@elixir-europe.org         |
| Legal Officer (deputy)          | Amaranta Amador<br>Bernal  | amaranta.amador.bernal@eurobioimaging.eu |
| Security Officer                | Jonathan Tedds             | jonathan.tedds@elixir-europe.org         |

This version last updated 31 July 2026