



Organisation: EUDAT

Project Charter

**EUDAT: an e-Infrastructure node to support
Research Data Management**

1. PROJECT SUMMARY

EUDAT Collaborative Data Infrastructure (CDI) is a pan-European e-infrastructure with the vision to enable data sharing across domains and borders. EUDAT CDI is a federation of data and computing centers, including national candidate nodes such as CSC, SURF, and thematic organisations (DKRZ, CERFACS, CLARIN,...) which have been working together to serve pan-European communities with services and infrastructure. EUDAT CDI is naturally positioned to be part of the EOSC Federation and provide a unique feature, transnational access to resources and essential data management services, to the other nodes of the federation and European wide research communities.

The contribution of EUDAT in the node federation is to provide a collaborative space for research projects, research infrastructure and communities enabling cross border collaboration while supporting the creation of **high-value FAIR-by-design datasets**. This workspace would be composed of the EUDAT services suite, all federated through a common AAI (B2ACCESS), compliant with AARC blueprint specifications and compatible with the EOSC Federation AAI. EUDAT operates a Monitoring service that is fully compatible with EOSC EU Node Monitoring, ensuring reliable tracking of service performance and availability. This workspace would be supported by a federation of resources (data storage, data archiving and connection to compute), leveraging the EOSC federating capabilities. It should also integrate/onboard complementary services provided by EUDAT members and/or other nodes contributing to the FAIRification of datasets and enable relevant scientific workflows to accelerate scientific discovery in Europe.

To achieve this, we will rely on the strong expertise within the EUDAT CDI in offering data management services to support research data life cycle and FAIR data and our strong involvement in defining interoperability frameworks and efficient and scalable technical infrastructure. Finally, all EUDAT services are operated and maintained in accordance with the FitSM framework, adhering to established procedures and best practices for effective IT service management.

The EUDAT federation covers 17 countries in Europe and supports scientific communities at different scales, and from a wide range of scientific domains since its inception. The activities of EUDAT will be focused toward extending our outreach to new scientific communities within/and outside of our geographical coverage. We will provide data management services essential for data provisioning and hosting, we will contribute to the development of the EOSC Interoperability Framework to enable the onboarding/integration of existing services provided by other nodes.

2. VALUE PROPOSITION

As of now, the EOSC Federation is composed of a “single” node, the EOSC EU Node, which provides federating capabilities and generic services with a predefined amount of accessible resources that is allocated to researchers based on the credit system. The credit system enables access to a limited amount of resources which might be insufficient for the EOSC EU Node users. Therefore there is a need for an alternative solution to have access to a larger amount of specific resources e.g. raw storage capacity, compute, extended storage for the sync and share service,...

In addition to this gap, the EOSC EU Node provides few data management services besides the sync and share service, while there is a need for publishing and sharing high quality FAIR datasets that will be preserved for a long period of time and identified by globally unique and resolvable identifiers (e.g. handle, DOI,...), for data replication and long term preservation/archiving.

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Furthermore, there is a clear need for easy sharing of data within the federation to support cross-border and cross-domain collaborations.

The current access provisioning to the services offered by the EOSC EU node is supported through a credit system that is linked only to the resources provisioned in the context of the EOSC tender. This credit system is local to the EOSC EU node and is not supported by a business model which would sustain access beyond the resources of the EOSC EU node and beyond the lifetime of the tender. For researchers, scientific communities and institutions, it is necessary to establish a business model that would sustain the access to a transnational pool of resources which will support collaboration across Europe. Business models with a long-term lifetime as compared to project and/or tender lifetimes are especially required for data services as high quality FAIR data needs to be stored and maintained even when not actively being used. Defining such a business model is currently a real challenge to be tackled in the build-up phase of the EOSC Federation.

- **Main Goal:**

The main goal of this project is to provide a FAIR enabling data management collaborative workspace to complement the services provided by the EOSC EU node and the other nodes of the federation (e.g. data publication, data curation, data preservation, data replication,...) as well as infrastructure resources (storage, compute,...) to support communities and researchers with needs going beyond the current capacities of the EOSC EU Node. This platform should support seamless migration of data from Nodes to the EUDAT provided storage and vice versa. The provisioning of the EUDAT capacities should be backed by a sound business model which will support the long term sustainability of the platform and the node, provide guarantees for long term data preservation as well as support the maintenance and improvements of the services suite.

- **Needs addressed:**

- Extension beyond the capacities of the EOSC EU Node
- FAIR enabling tools: data repositories, data catalogue,...
- Transnational pool of resources supported by a business model
- Long term preservation of the high quality FAIR datasets

- **Key Benefits:**

This project is a unique opportunity to:

- strengthen data sharing across borders and disciplines
- establish a business model to provide a transnational pool of resources independent from European Commission funding
- interconnect with other nodes to provide an enriched data management and data science experience
- investigate solutions for long term preservation of high quality FAIR data

- **Who Benefits:**

- Research infrastructures with needs for scalability. The offer would enable them to focus their resources on the development of research specific services instead of infrastructure needs and maintenance.
- Institutions: provide research data management services and associated infrastructure to reduce the burden of the management of the infrastructure.
- Individual researchers and scientific communities
- EU-funded and/or transnational research projects. The offer would provide an integrated environment for sharing and working with the data in the project and possibly offer solutions to manage the data after the lifetime of the project.

3. USE CASE(s)

In the table below, we are presenting a short description of the use cases involving multiple nodes of the EOSC Federation.

<i>Use Case ID</i>	<i>Use Case Description</i>	<i>Federation Contributions & Value to Users</i>	<i>Status</i>
1	Federating File Sync & Share Services EUDAT offers B2DROP, SURF offers Research Drive and the EOSC EU Node offers an Enterprise File Sync & Share service (EFFS). This use case is focussing on building up a federating capability on the EFFS services across the nodes. In addition, we will link this use-case with the scientific communities through the collaboration with the thematic multi-node use-case proposed by Data Terra. In this context, B2DROP will be used as a collaborative working space to share datasets from different EFSS used by the communities.	To support this use case, the Nodes offering an EFSS service enable the OpenCloudMesh API (https://github.com/cs3org/OCM-API) on their EFSS service and enable federated sharing. Through this use case, users can easily share data across the EOSC Federation from their own File Sync & Share service without the need to have access and/or an account on EFSS service on which the data is residing. This supports the collaboration between researchers across nodes within the EOSC Federation. Resources: B2DROP (https://eudat.eu/service-catalogue/b2drop) Access policies: The resources are accessible to any European researchers after review of their account request. The default free offer provides 20 GB of storage space and collaborative editing functionalities. Additional storage capabilities can be offered on demand based on the current B2DROP freemium business model. Multi-node interactions: As an infrastructure demonstrator, we will interact with service providers offering EFSS services (EOSC EU Node, SURF,...) to establish the federation of EFSS services As a scientific demonstrator, we will work with the thematic multi node use-case proposed by Data Terra and our communities to highlight the scientific value of this service.	Done
2	Enabling access to File Sync & Share Services across cloud computing resources Multiple nodes provide access to cloud computing resources	Most of the EFSS services support WebDav endpoints to allow remote mounts of user shares in computing environments. To enable this use case, nodes providing cloud computing resources as virtual machines, containers and jupyter notebooks need to enable access to	Done

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	as virtual machines, containers and Jupyter notebooks. While in use case 1 a federation of File Sync & Share Services has been established, this use case is focussing on enabling the access from cloud computing services to the EFSS services across the Federation. For example the EUDAT B2DROP service can be mounted within EOSC EU Node or SURF Research Cloud virtual machines, containers and/or jupyter notebooks. To provide a scientific demonstrator of this functionality, we will work with the thematic multi node use-case proposed by Data Terra to connect B2DROP to the Galaxy workflow engine to upload data for computation and deposit computing results in B2DROP	remote mounts of EFSS endpoints in cloud computing environments. This allows easy access to data residing in a EFSS service from one node to computing resources offered through another node. The added value is that users do not need to copy first the data from one node to another to make the data available for computing. Resources: B2DROP (https://eudat.eu/service-catalogue/b2drop) Access policies: The resources are accessible to any European researchers after review of their account request. The default free offer provides 20 GB of storage space and collaborative editing functionalities. Additional storage capabilities can be offered on demand based on the current B2DROP freemium business model. Multi-node interactions: As an infrastructure demonstrator, we will interact with service providers offering Jupyter notebook services (EOSC EU Node, SURF, NFDI,...) to establish the connection between B2DROP and the different Jupyter notebook services. As a scientific demonstrator, we will work with the thematic multi node use-case proposed by Data Terra and our communities to highlight the scientific value of this connection with the computing services, extending our initial plan to connect with Galaxy, a widely used workflow engine.	
3	Support publishing within the EOSC Federation One of the main aims of the EOSC is enabling the Web of FAIR data. The Web of FAIR data can only be achieved by allowing users to make FAIR research data and outputs available. Multiple nodes enable access to data repositories through which researchers can publish their research outputs. In this use case, we are focussing on allowing	While one of the main aims of EOSC is the Web of FAIR data, at this moment no data repository service is being offered within the EOSC Federation, the EOSC EU node does not offer a publication and/or data repository service. Through this use case, users within the federation can make research outputs available in a FAIR way, for example by allowing researchers to publish research outputs in the EUDAT B2SHARE and/or Zenodo service offered by CERN. To enable this use case an EFSS app needs to be developed to allow the publication of data into a repository service (e.g. B2SHARE, Zenodo). Nodes offering an EFSS service need to enable this app within their EFSS service.	Done

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	researchers to publish data from EFSS services to the user data repository of choice within the federation.	Resources: B2DROP, B2SHARE (https://eudat.eu/service-catalogue/b2share-0) B2HANDLE (https://eudat.eu/service-catalogue/b2handle)/DOI (https://eudat.eu/service-catalogue/datacite) services Access policies: The service is accessible to any European researcher to deposit and document an unlimited number of datasets which will be identified with a handle and a DOI provided by the B2HANDLE/DOI service for free. Multi-node interactions: As an infrastructure demonstrator, we will interact with service providers offering EFSS services (SURF, EOSC EU Node, ...) to develop an application to publish datasets from the different EFSS service to different data repository services (B2SHARE, Zenodo, Dataverse,...). As a scientific demonstrator, we will work with the thematic multi node use-case proposed by Data Terra and our communities to highlight the scientific value of this connection with data repositories, supporting data publication.	
4	INSTRUCT-ERIC	This use case aims at investigating the possibility to federate data storage and storage brokering in conjunction with access management system, ARIA. The PoC will involve different nodes (INSTRUCT-ERIC, EUDAT and Polish node)	In progress

4. CONTRIBUTION TO THE EOSC FEDERATION CAPABILITIES

In the table below, we are summarising activities that will contribute to the EOSC Federation capabilities implementation.

1	Federation Help Desk	This use case aims at investigating how to federate helpdesks across three nodes: the EUDAT node, the Finnish node and the Dutch node. In this use-case, we will consider aligning our practices and investigate different scenarios where helpdesk federation will bring value to our users e.g. a support request sent via EUDAT Node should be addressed to one of	Under definition
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		the two National nodes and vice versa. This use-case is related to the use-case 7	
2	Status of Integration	These federating capabilities (AAI, Service Catalogue, Service Monitoring and Helpdesk already implemented) are cross-cutting enablers underpinning all use cases, rather than being tied to a specific service. Through B2ACCESS/OpenID Connect (MyAccessID), users benefit from a single, trusted identity to access services across the EOSC Federation, consistent service discovery via the Catalogue, and reliable support via the Helpdesk. The node portal acts as the single user entry point through which these capabilities are made accessible, providing users with one consistent interface to discover, request and manage federated services rather than interacting separately with each underlying system. Once completed, Monitoring and SMS will further improve service reliability and lifecycle management across the federation.	In progress
3	Cross node use case This use case explores technical interoperability between EOSC National Nodes. The ambition is to demonstrate the technical capability of exposing each node's services through other National Nodes' catalogues (the Finnish National Node, the Dutch National Node, and the EUDAT Node). At this stage, the focus is on a technical demonstration rather than on resolving governance or contractual aspects, achieving this alone would already represent a valuable milestone. A parallel objective is to identify what would be needed afterwards to move from a technical demonstration towards a more sustainable operational collaboration.	This use case validates that services offered by one National Node can be discovered and exposed through another Node's catalogue, respecting each node's principle of curating only the services that are genuinely open/free for its own research community. It surfaces practical requirements for future integration i.e. mapping to shared metadata vocabularies, and manual curation where structured metadata is not yet available/or they are not sufficient. For users, it offers a broader, federated view of services beyond their home node's own catalogue.	In progress
4	Federation of Monitoring Services	This use-case is based on the interaction between EUDAT and two national nodes i.e. the Finnish and Dutch nodes (see use-case 5 and 7). In this context, we will investigate how	Technical discussion ongoing

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		to align our monitoring services and guarantee interoperability between our internal services and together with the EU Node Monitoring service. For this purpose, we work together with EOSC Beyond project which defines specific metrics which would be useful to start defining common KPIs to be measured between our three nodes.	
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5. EXTERNAL DEPENDENCIES & KEY RISKS

External Dependencies & Risks	Actions/mitigation measures	Type(s)
The basic components for building up the node platform are available as presented during the 2nd dialogue meeting. With these components EUDAT is able to implement the use cases. However, how these components are being offered to the federation depends on the requirements of the policies and procedures of the EOSC Federation. Depending on policies, procedure, requirements and required efforts needed to be implemented in the node platform potential delays can occur.	The creation of the node platform and the integration of the separate components within the node platform is one of the activities planned during the build up phase. An assessment of the requirements will be made at the start of the project. If the requirements change during the build up phase, the efforts and plans need to be revised leading to a less ambitious MVP at the end of the project.	External dependency/Risk
Integration with EOSC federated services. The EOSC Interoperability framework is still not completely defined and the integration may introduce complexities or service availability risks.	Follow the evolution of the interoperability framework and proactively provide feedback.	External dependency/Risk
Strong dependency on the other nodes' resources and capabilities for the multi-node use-cases	Investigate which other Nodes offer similar services and get in contact with those node operators and discuss/demonstrate mandatory steps to deploy the necessary parts and demonstrate the benefits for the users.	External Dependency (for Use case 1 and Use case 2)
Aligning EUDAT policies and procedures with the EOSC Federation policies and procedures and finding consensus among the EUDAT members will take time as it	The majority of the EUDAT Council members are active contributors to the EUDAT node build up phase; EUDAT council will be continuously kept up to date on	Risk

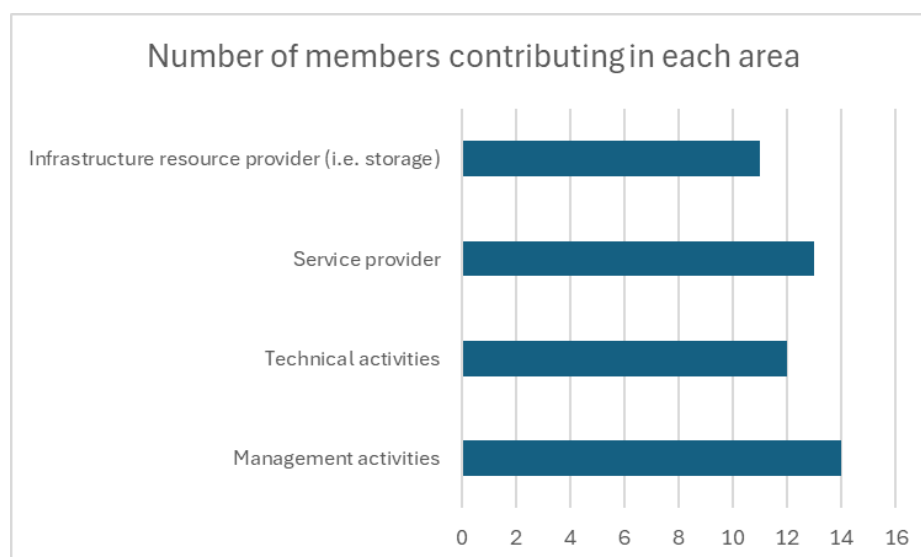
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will require decisions on structural changes to be validated by the EUDAT CDI Council.	the EUDAT node activities to reach a wider consensus in advance to the EUDAT council meetings.	
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6. CONTRIBUTIONS

The EUDAT node development will be supported by 15 EUDAT organizations with the contributions summarised in the graph below. Each of the members will contribute to one or more areas, and all activities will be supported by different partners so as to rely on a wide range of expertises.

EUDAT Ltd will be coordinating the activities among the partners and monitoring the progress with respect to the project plan.



• Deliverables

ID	Deliverable Name	Deliverable Description	Expected Deadline
1	EUDAT node architecture	Definition of the architecture of the EUDAT Node	May 2025
2	Description of the scientific use-cases and demonstrators	one or two use cases agreed and defined with other nodes	May 2025
3	EUDAT node - Proof of Concept	First demonstrable version of the EUDAT Node	M14 - June 2026
4	Scientific demonstrators implemented	Demonstration of 1-2 multi node use cases	M18 - October 2026
5	EUDAT node - production roll-out	Production roll-out of the EUDAT Node	M19 - October 2026

• Resources Provided

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Personnel

The EUDAT members have committed to provide in-kind contribution for the development of the EUDAT node which will be internally organised in 2 working groups: one to address management and organisational issues (refine operational processes, define governance of the EUDAT federation, define business model, ...) and one to discuss and coordinate the technical development (define the architecture, define service integrations and development,...).

These two groups will be coordinated by EUDAT Ltd via the EUDAT secretariat and interact with the working groups of the EOSC Federation.

Working group	Committed Effort	Expertise
EUDAT Management WG		• Infrastructure and organisational management • Service delivery processes • Business models • Legal/contractual aspects
EUDAT Technical WG		• AAI • PIDs • Security • Metadata • Data discovery • FitSM processes • OSCARS Account & Order Management • Portal development

Infrastructure

The EUDAT Node relies on significant custom development. The self-service portal uses the Drupal CMS to facilitate the management of core functionalities and, thanks to its modular architecture, to integrate with virtually any external system or service. Most of the required functionalities are however being built as custom modules on top of it.

Users authenticate through MyAccessID/B2ACCESS, and an organisation and a personal group are created automatically for each of them on first login, so that a researcher can browse and order services without any manual setup. Groups are the unit of collaboration and of accounting: they can be created and administered by the users themselves, with invitations and role management, and their membership is propagated to the underlying services through the integration with UpMan. Consumption is governed by a credit system, where each group holds a wallet and every allocation, order and refund is recorded in an append-only ledger.

The catalogue covers both the EUDAT services and those offered by third parties. As a proof of concept, we have so far imported data from the CSC Node: since the catalogue is exposed through a standard interface, the implementation is technically ready to ingest from any other Node with no further development. The portal in turn exposes its own catalogue through a public API (/api/services), so that the offer of the Node is interoperable with, and directly harvestable by, the EOSC Marketplace.

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Resource orchestration and provisioning is implemented through Waldur, kept fully synchronised with the portal in both directions through outbound calls and inbound webhooks, so that the state of orders and resources is always aligned. The portal remains the only interface used by researchers to log in and activate services. Urpo

7. TIMING AND MILESTONES

The EUDAT Node build-up is under development. Several federating capabilities have already been implemented, namely the AAI, the Catalogue, and the Helpdesk. Integration of the Service Monitoring and the SMS (Software Management System) capabilities is currently in progress. The EUDAT Node is not yet publicly available, a beta version is expected to be released shortly.

- **Start Date:** 01-04-2025
- **Expected Duration:** 18 months
- **Key Milestones:**

ID	Milestone Description	Target Delivery Date
1	Definition of the Minimum Viable EUDAT Node and core capabilities	July 2025
2	Selection of services to offer for the EUDAT node and onboarding policies	August 2025
3	Plan to connect the EUDAT Node to the EOSC Federation federating capabilities	September 2025
4	Legal framework between the EUDAT CDI members refined in the context of the EOSC Federation (SDA, OLAs, SLAs,...)	October 2025
5	EUDAT Node operational guidelines and documentation	September 2026
6	Contribution to the EOSC Federating capabilities achieved	September 2026

ID	Use-case 1 - Federating File Sync & Share Services	Target Delivery Date
1	Description of the scientific use-case(s) and demonstrator(s)	May 2025
2	Enabling and testing the EFSS federation (infrastructure “use-case”)	September 2026
3	Enable and test the scientific demonstrator(s).	September 2026 (completed)

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ID	Use-case 2 - Enabling access to File Sync & Share Services across cloud computing resources	Target Delivery Date
1	Description of the scientific use-case(s) and demonstrator(s)	May 2025
2	Enabling and testing the connection with Jupyter notebooks and Galaxy workflow engine (infrastructure “use-case”)	2026
3	Enable and test the scientific demonstrator(s).	2026 (completed)

ID	Use-case 3 - Support publishing within the EOSC Federation	Target Delivery Date
1	Description of the scientific use-case(s) and demonstrator(s)	May 2025
2	Developing the EFSS application to connect and upload datasets to different repositories (Zenodo, B2SHARE, Dataverse,...)	2026
3	Enable and test the scientific demonstrator(s).	2026 (completed)

8. Contact & Submission

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