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EOSC-PL

Project Charter

<EOSC-PL: connecting researchers to federated European science>



NATIONAL SCIENCE CENTRE
POLAND



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1. Project Summary

EOSC Poland (EOSC-PL) is a candidate national node in the EOSC Federation build-up phase, contributing to the development of a federated European research ecosystem that advances open science, collaboration, and seamless access to FAIR (Findable, Accessible, Interoperable, and Reusable) data, services and tools. As a partnership between NCN, Cyfronet, Gdańsk Tech, Institute of Oceanology of Polish Academy of Sciences and UW, EOSC-PL works alongside other nodes across Europe to establish federated services that enhance data findability, accessibility, and interoperability across research infrastructures and research performing organizations.

EOSC-PL supports the EOSC Federation's mission by integrating high-value, country-based resources, such as research data stored at the trustworthy repositories, computing services, high-level, domain-specific data processing services and other technical infrastructures, into the federation while ensuring compliance with FAIR and CARE principles. Through the single sign-on authentication and authorization (AAI), open science interoperability, and federated access management, EOSC-PL facilitates seamless cross-border collaboration and efficient resource utilization for researchers.

The EOSC-PL national node will connect the EOSC Network PL with the broader EOSC ecosystem. However, the geographic and disciplinary scope of EOSC-PL extends beyond Poland.

A key focus is on developing use cases that demonstrate the EOSC Federation's value for researchers and research communities, including small research groups, and interdisciplinary teams. These use cases highlight how federated services enable collaborative research, cross-border data access, and shared computing power, improving research efficiency and innovation.

EOSC Poland will also contribute to the EOSC interoperability framework, access management, service monitoring, and standards development. By promoting inclusivity, interoperability, and open science, EOSC-PL is committed to building a sustainable, federated research environment that strengthens Poland's role within EOSC and broader European collaboration.

Currently, the EOSC-PL node consists of five institutions, but it is committed to expanding participation and inclusivity. Two options for participation will be available: by becoming a member of the EOSC-PL or onboarding services to the node via eosc.pl platform. By enabling these participation models, EOSC-PL aims to align with the EOSC Federation and create an inclusive and dynamic research environment that will welcome contributions from a wide range of institutions and disciplines.

EOSC-PL will be working closely on the development of multi-node use cases w, as well as on internal scientific use cases in collaboration with CLARIN-PL and SIOS Svalbard (Center for Polar Studies) through Polish consortium participating in this initiative. In the context of e-infrastructures, EOSC-PL will cooperate with EuroHPC. Additionally, EOSC-PL will seek alignment with other European data initiatives, particularly the European Health Data Space (EHDS).

2. Value Proposition

- **Main Goal:**

The main goal is to contribute actively to the building of the EOSC Federation by:

- integrating national resources into EOSC ecosystem,
- integrating European research resources to enhance accessibility for the Polish scientific community,
- ensuring interoperability, and developing use cases demonstrating the benefits of a federated research ecosystem for researchers and research communities.

- **Needs addressed:**

- Lack of a unified national research data infrastructure assimilated into a larger European context, like EOSC,
- Challenges in cross-border access to research data, computing power, and services,
- Limited interoperability and data-sharing frameworks among European institutions,
- A need for aligned / synchronized AAI to ensure seamless and secure access to federation resources across multiple nodes,
- Insufficient resource support for small research groups,
- Insufficient level of standardization in data repositories and computational frameworks.

- **Key Benefits:**

- EOSC-PL will provide a consistent framework for national institutions regarding their integration with EOSC ecosystem, ensuring that they move from isolated approaches to a coordinated structure, enhancing collaboration and interoperability; the establishment of the EOSC-PL node will contribute to shaping a coherent and inclusive vision for integrating diverse but crucial scientific components within the EOSC Federation; by aligning research infrastructures, computational resources, domain-specific repositories, and interdisciplinary collaboration frameworks, the project will foster a unified yet flexible ecosystem that accommodates the needs of various scientific disciplines, ensuring balanced development and equitable access to resources across the federation;
- Seamless integration of national research resources, which will enable interoperability of Poland's research data repositories, computing services, and analytical tools within EOSC, ensuring efficient access for researchers;
- FAIR Data implementation, which will enhance findability, accessibility, interoperability, and reusability of country-based research data through standardized metadata, searchability tools, and open-access frameworks;
- Federated authentication, identity management, and service monitoring, which will ensure secure, harmonized authentication and authorization (AAI), comprehensive identity management, and seamless user provisioning across European research infrastructures;
- Support for multi-disciplinary, long-tail and cross-border research, which will facilitate integrated workflows that promote collaboration across disciplines and national borders, supporting large-scale scientific initiatives;
- Interoperability between domain-specific and general-purpose infrastructures, which will bridge the gap between specialized research repositories, large-scale infrastructures, and interdisciplinary research workflows for comprehensive scientific collaboration;

- Development of common policies, which will establish aligned governance, security, access rights, and sustainability policies within EOSC, ensuring cross-institutional and cross-national consistency;
- Developing and facilitating research data support through competence center/s and beyond, raising awareness, and promoting EOSC services and knowledge transfer;
- Gathering the necessary knowledge and insights that will support the sustainability and long-term operations of the EOSC-PL node.

- **Who Benefits:**

EOSC-PL's contributions benefit a broad spectrum of stakeholders, including:

- a) Research communities, including:
 - Structured and operational communities focusing on a given scientific discipline or scientific matter,
 - Long-tail researchers (individuals and small research groups) who gain access to federated resources, computing capabilities, and data services they would not otherwise have,
 - Interdisciplinary research teams that can collaborate more efficiently across disciplines using shared infrastructures and open science workflows;
- b) Research organizations, which benefit from integrated national and European infrastructures, shared services, and common standards for research data management and interoperability;
- c) Public sector bodies and policymakers, who gain better access to open research outputs and data-driven insights to support evidence-based policy and decision-making;
- d) Citizens and society at large, who benefit from more transparent, collaborative, and impactful scientific research outcomes, increasing public engagement in open science and knowledge dissemination;
- e) Research organisations and technology providers developing and delivering services and other resources for the scientific community. They will gain access to the best standards of the resource delivery and they will be aligned with practices of other resource providers.

3. Repositories and services delivered

PLGrid - storage and computing is associated with: Poznan Supercomputing and Networking Centre; CI TASK; Cyfronet; Wroclaw Centre for Networking and Supercomputing; ICM University of Warsaw; National Centre for Nuclear Research

No.	Resource	Classification	TRL
1	PLGrid core services	Digital infrastructure Discovery and access services	9
2	BRIDGE of Knowledge	Open Science platforms; Discovery and access services	9
3	BRIDGE of Knowledge ORD catalog	Open data / research repositories; Discovery and access services	9

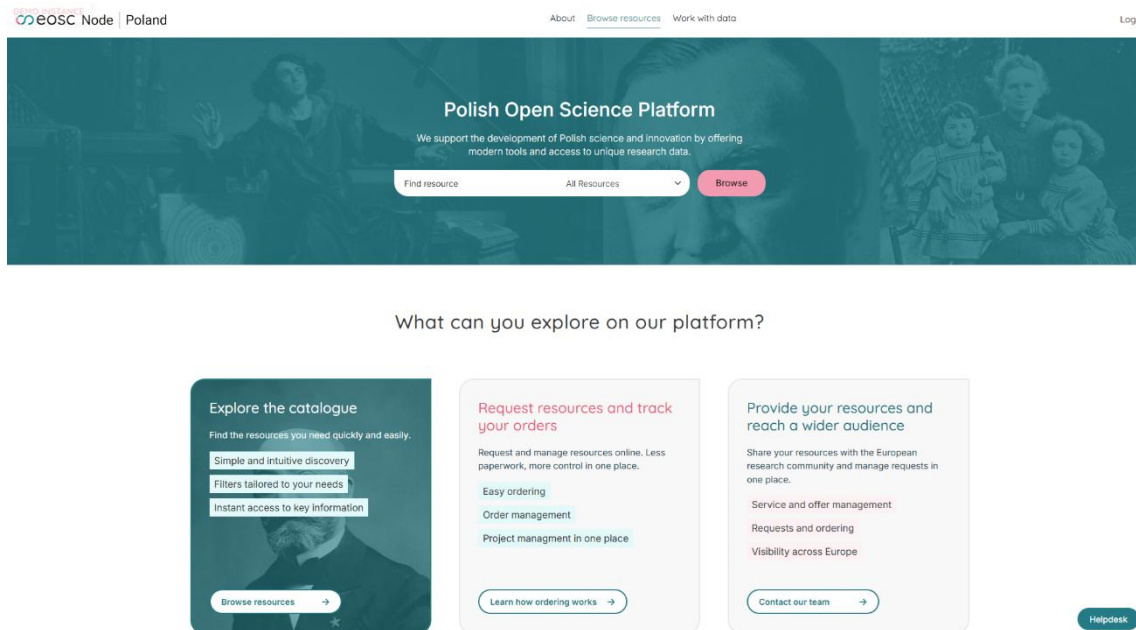
No.	Resource	Classification	TRL
4	RepOD	Open data / research repositories Discovery and access services	9
5	Social Data Repository	Open data / research repositories Discovery and access services	9
6	Macromolecular Xtallography Raw Data Repository	Open data / research repositories Discovery and access services	9
7	RADOGOST - Archaeological Data Repository	Open data / research repositories Discovery and access services	9
8	University of Warsaw Research Data Repository	Open data / research repositories Discovery and access services	9
9	OPEN - the Repository of Open Scientific Publications	Open Science platforms Discovery and access services	9
10	RODBUK	Open data / research repositories Discovery and access services	9
11	PLGrid - storage and computing	Digital infrastructure Discovery and access services	9
12	RODBUK as a technology	Digital infrastructure	9
13	OS Competence Centre	Knowledge sharing / training	n/a
14	OS, FAIR and EOSC trainings	Knowledge sharing / training	n/a
15	Data Stewardship MOOCs	Knowledge sharing / training	n/a
16	RDM MOOCs	Knowledge sharing / training	n/a
17	Polish OS Platform	Knowledge sharing / training	n/a
18	Digital Tissue and Cell Atlas and the Virtual Microscope	Specialized research tools Discovery and access services	9
19	Library of Science	Open Science platforms	9
20	ICON - storage and computing	Digital infrastructure Discovery and access services	7
21	Onedata	Digital infrastructure Open data / research repositories	9
22	Eosc.pl platform	Digital infrastructure Open data / research repositories Open Science platforms	7

No.	Resource	Classification	TRL
23	eCUDO.pl	Open data / research repositories Discovery and access services	9
24	FEGA.pl	Open data / research repositories Discovery and access services	8
25	DAMAP-PL	Research lifecycle support tools	5
26	ARGOS-PL	Research lifecycle support tools	7

4. Federating Capabilities / Status

FC	Status	Expected time of implementation
AAI	Pre-production	July 2026
Resource catalogue	Completed	
Service catalogue	Completed	
Helpdesk	Preparation	December 2026 (depends of the availability of the services in EU node and the support process from EOSC Beyond)
Monitoring	Preparation	December 2026 (depends of the availability of the services in EU node and the support process from EOSC Beyond)
SMS	Preparation	June 2027

5. EOSC.pl platform



EOSC.PL is the Polish Open Science Platform and the main digital access point for the EOSC-PL Node. It provides researchers, research organisations and service providers with a national hub for discovering, accessing and onboarding research resources that can be connected to the wider EOSC Federation.

The platform brings together different types of research outputs and services, including datasets, publications, software, services, data sources, interoperability guidelines and training resources. In this way, it supports both resource discovery by end users and the onboarding of new providers who want to make their data, tools or services visible within the Polish and European open science ecosystem.

Within the EOSC-PL Node, the platform is used to support the federation of Polish research resources with European EOSC services. This includes trusted Polish repositories and databases, metadata harvesting, semantic interoperability, computing and storage services, analytical environments, and domain-specific data-processing services. The platform is therefore positioned as a practical bridge between national research infrastructures and the broader EOSC Federation.

Key integration work already visible around the EOSC-PL Node includes federated Authentication and Authorization Infrastructure (AAI) and helpdesk capabilities. Further integration work concerns onboarded service catalogues, order management and management-system functions, with planned extensions around workflow management, service monitoring, and accounting for services and research products.

For researchers, EOSC.PL is to serve a single national entry point that makes research data, tools and services easier to find, access and reuse. For providers, it offers a route to onboard and federate resources according to EOSC principles. For the EOSC Federation, it demonstrates how national assets can be connected into a wider European system-of-

EOSC.PL Platform: integrated components and current status

- **Core platform components**
 - Federated Authentication and Authorization Infrastructure, or AAI, integrated for secure access,
 - Helpdesk functionality available to support users and service providers,
 - Service catalogue integration ongoing, enabling providers to onboard and expose services through the platform,
 - Order management and management-system functions available,
 - Planned extensions include application workflow management, service monitoring, and accounting for services and research products,
- **Research resources integrated in the platform**
 - Polish generic repositories,
 - Domain-specific repositories,
 - Trusted databases and data sources,
 - Datasets and research products,
 - Publications,
 - Software,
 - Research services,
 - Interoperability guidelines,
 - Training materials and support resources,
- **Interoperability and federation layer**
 - Metadata harvesting from national resources and providers,
 - Semantic interoperability to improve consistency and reuse of data and services,
 - Harmonised discovery of resources through the EOSC.PL platform,
 - EOSC-compliant AAI to support federated access,
 - Alignment with FAIR and CARE principles for responsible, reusable and interoperable research outputs,
- **Workflow and technical service layer**
 - Integrated discovery of data, services and tools,
 - Storage and scalable data-management capabilities,
 - End-to-end federated research workflows connecting national resources with the wider EOSC ecosystem,
- **Example service available through EOSC.PL**
 - AI4EOSC Platform, a software ecosystem supporting the development and deployment of AI, machine learning and deep learning models and applications,
 - Cloud and storage services of PLGrid Infrastructure
 - Most important data sources from Poland
 - Domain -specific portals of Polish research Infrastructures

6. Use Cases

List of use cases

ID	Title	Nodes involved	Status (as of June 2026)
UC_EOSCPL_001	Federated data discovery for FAIR Research	EOSC-PL	Implemented
UC_EOSCPL_002	End-to-End federated scientific workflow structure for data-intensive research	EOSC-PL CERN	Partially completed Ongoing
UC_EOSCPL_003	Facilitating integration of environmental thematic nodes with National Node EOSC-PL	EOSC-PL EOSC DTO	Partially completed Ongoing
UC_EOSCPL_004	Collaborative platform for scientists: fostering environmental research through plugging in the services into National Node	EOSC-PL EOSC DTO	Ongoing
UC_EOSCPL_005	Cross-Border Surveillance of Antimicrobial Resistance: Genomic Sequence Analysis	EOSC-PL EOSC Node Slovakia EOSC Node Slovenia (since 2026)	Modified Partially completed Ongoing
UC_EOSCPL_006	Development scientific use case in cross-collaboration (sensitive health data): Multi-centric validation of AI model for prostate-cancer screening (MCVAL)	EOSC-PL EOSC BBMRI	Partially completed Ongoing
UC_EOSCPL_007	Federated Urban Mobility Datasets and AI-based Handover Prediction (FUMD-AI)	EOSC-PL EOSC North Macedonia	New, kick-off July
UC_EOSCPL_008	Onboarding DAMAP to EOSC-PL for FAIR, Machine-Actionable Data Management Planning	EOSC-PL	Ongoing
UC_EOSCPL_009	Integration of METROFOOD Catalogues with EOSC Node Poland for Production-Level Federated Discovery	EOSC-PL EOSC Metrofood EOSC Switzerland	Partially accomplished Ongoing
UC_EOSCPL_010	Waldur-Based Integration	EOSC-PL EOSC Switzerland	New
UC_EOSCPL_011	Advancing FAIR Metadata Stewardship Across the Federation	EOSC-PL EOSC Switzerland	New
UC_EOSCPL_012	Enabling Galaxy-Based Reproducible Workflows Across Federated Resources	EOSC-PL EOSC Switzerland EOSC Germany EOSC Life Sciences	New (partially completed internally)

UC_EOSCPL_013	Onboarding ROHub and FAIROs for FAIR Research Object Management	EOSC-PL	New
UC_EOSCPL_013	Competence Centre Integration Toolkit	EOSC-PL EOSC-MK EOSC-IT	New

6.1. Federated data discovery for FAIR Research

Use Case ID UC_EOSCPL_001

Use Case Title Federated data discovery for FAIR Research

Use Case Description

It will address two key aspects of data discovery:

- 1) data aggregation on a national and EOSC Federation level

Main user stories supported:

- As a scientist, I want a single entry point to discover open data in Poland and across Europe, ensuring access to high-quality FAIR data.
 - As a scientist, I want my data to be discoverable across various FAIR discovery tools, ensuring greater recognition for my work and enabling other scientists to build upon it.
 - As a repository manager, I want my tool to be interconnected with a broader range of scientific resources to enhance its recognition and contribute to larger initiatives.
 - As a repository manager, I want to stay up to date with the latest implementations of FAIR and CARE principles and have access to expert support, so I can provide the highest level of quality and assistance to my users
- 2) semantic interoperability of data discovery.

Main user stories supported:

- As a Blue-Cloud researcher, I want to discover data relevant to my research from other scientific communities using the discovery parameters I apply daily. This process should be intuitive, straightforward, and occur within an acceptable timeframe.

As a Blue-Cloud researcher, I want to merge datasets from Blue-Cloud and LifeWatch that are essential for my research so that I can process them as a single dataset in a specialised data processing tool.

Federation Contributions & Value to Users

Researchers across Europe require seamless access to high-quality, FAIR-compliant datasets from various domains and institutions. EOSC-PL enhances federated data discovery by integrating Polish repositories into the National Resource Discovery Hub and enabling semi-automated metadata harvesting. This ensures that national datasets are both findable and accessible within the EOSC ecosystem. With the prospect of mutually beneficial collaboration and integration with the EU Node and other national or thematic nodes, EOSC-PL strengthens the European research infrastructure.

Federating Contributions & Value for users:

1. EOSC-PL harmonises metadata schema to align with EOSC's common standards, ensuring interoperability across repositories;
2. Researchers benefit from automated metadata aggregation and federated search tools, enhancing cross-border and cross-disciplinary data reuse.

In-Scope:

- Integration of country-based generic and domain-specific data repositories (compliant with established standards) into EOSC,
- Implementation of metadata harvesting,
- Analysis of semantic interoperability in data discovery,
- Proof-of-Concepts (PoCs) for semantic interoperability in data discovery, applied to two domain-specific repositories (on a best-effort basis).

Out of Scope:

- Development of new repositories (EOSC-PL will integrate and federate existing infrastructures),
- Comprehensive support for semantic interoperability.

6.2. End-to-End federated scientific workflow structure for data-intensive research

Use Case ID	UC_EOSCPL_002
Use Case Title	End-to-End federated scientific workflow structure for data-intensive research

Use Case Description

The diverse resources of EOSC-PL will be integrated into the EOSC Interoperability and Execution Framework mechanisms to facilitate the creation of functional research environments across Europe. As a researcher, I require access to computing resources to run molecular dynamics simulations for characterising perovskite materials. My research group at the university also needs access to the model to evaluate the results.

Federation Contributions & Value to Users

EOSC-PL facilitates an integrated scientific workflow by federating data discovery, analysis, computation, storage, and visualisation into a seamless, interoperable research environment. This use case demonstrates how EOSC-PL supports researchers in efficiently finding, analysing, computing, storing, and visualising research data using federated services—transforming raw data into meaningful insights.

Data findability and access:

EOSC-PL integrates national and European research data repositories into the EOSC Federation, ensuring easy discovery and access to domain-specific and interdisciplinary datasets through standardised metadata and adherence to FAIR principles.

Federated analytical and computational tools:

Researchers can access and perform data analysis in a Jupyter Notebook environment, eliminating the need for local software installations and enhancing reproducibility.

On-demand / Grant-based (depending on the scientific or technical use case) access to computing resources:

Researchers can execute computationally intensive tasks on federated computing infrastructures via federated authentication (AAI), ensuring seamless access across institutions. Access provisioning will be regulated by explicitly defined policies and eligibility criteria, established separately (but in line with the EOSC Federation standards) to ensure transparent, FAIR, and practical resource allocation

- Large-scale data transfer and storage: EOSC-PL enables secure, high-speed, and scalable data transfers between research facilities, analytical platforms, and computational environments, ensuring efficient processing of large datasets.
- Processed data storage and long-term availability: EOSC-PL federates research storage solutions, allowing researchers to store processed results within a scalable, distributed storage infrastructure.
- Visualization and interpretation: Researchers can utilise integrated visualisation tools within EOSC-hosted Jupyter Notebooks and interactive dashboards, facilitating data interpretation and insight generation.

Computational “up-scaling”

Users can leverage computational resources from various infrastructures available within the EOSC Federation.

All of the above depends on the availability and readiness of given kinds of resources in other nodes joining the build-up phase.

In-Scope:

- Federated authentication (AAI) for secure access to data, tools, and computing resources,
- FAIR-compliant data repositories to enable seamless dataset discovery and access,
- On-demand or grant-based access (depending on the scientific or technical use case) to computing resources for intensive data processing,
- High-speed large-file transfer between research institutions and computing centres,
- Scalable storage solutions for processed data and research outputs,
- Integration with visualisation platforms for real-time data analysis,
- Vertical interoperability for the computing resources,
- Horizontal interoperability across computing resources, processing services, and data.

All of the above depends on the availability and readiness of given kinds of resources in other nodes joining the build-up phase

Out of Scope:

- The development of new visualisation or computing tools (EOSC-PL federates and integrates existing resources),
- Mechanisms that are not supported by other nodes or are not yet ready to be delivered by other nodes participating in this use case.

6.3. Facilitating integration of environmental thematic nodes with National Node EOSC-PL

Use Case ID	UC_EOSCPL_003
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Use Case Title	Facilitating integration of environmental thematic nodes with National Node EOSC-PL
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Description:

This use case aims to streamline the integration of specialized environmental thematic nodes—data repositories, analytical platforms, and research infrastructures—with the national European Open Science Cloud Node in Poland (EOSC-PL). The integration will enhance data discoverability, interoperability, and accessibility, thus significantly improving the effectiveness of environmental research. Organizations (scientific institutes and broader organizations engaging multiple units as well) conducting environmental research generate and manage extensive datasets, often spanning multiple organizational units. These datasets frequently consist of comprehensive, long-term data series essential for advanced comparative studies, enabling researchers to analyze environmental trends, assess changes, and forecast future conditions.

Key Functionalities:

- **Data Integration and Interoperability:**
 - Standardized mechanisms and protocols for integrating diverse environmental data sources into EOSC-PL.
 - Ensuring interoperability across thematic nodes through standardized metadata schemas and data formats.
- **Enhanced Data Accessibility:**
 - Facilitating easy discovery, retrieval, and usage of environmental datasets for researchers across different organizations.
 - Providing federated access points and unified search capabilities across integrated thematic nodes.
- **Support for Comparative Studies:**
 - Enabling streamlined access to long-term environmental datasets crucial for comprehensive comparative analyses.
 - Providing analytical tools and platforms capable of handling and processing large, complex datasets.

Value proposition:

- Improved efficiency and collaboration among environmental researchers and institutions.
- Enhanced utilization of long-term datasets, resulting in more robust comparative research outputs.
- Strengthened national and international collaboration via seamless integration with EOSC-PL.

In-scope:

- Guidance of the processes needed for integration the Nodes
- Recommendations and good practices for data management processes
- Case Study of integration

Out of scope:

- Development of the infrastructure elements

Additional implementation considerations:

- Compliance with FAIR principles (Findable, Accessible, Interoperable, Reusable),
- Use of internationally recognized standards for environmental data and metadata,
- Coordination with stakeholders for continuous development and sustainability of integrated infrastructures.

6.4. Collaborative platform for scientists: fostering environmental research through plugging in the services into National Node

Use Case ID	UC_EOSCPL_004
Use Case Title	Collaborative platform for scientists: fostering environmental research through plugging in the services into National Node

Description:

Context and Background:

Environmental research increasingly depends on collaboration across diverse scientific disciplines and institutions. Scientists require efficient platforms to share data, methodologies, and results, enhancing collective understanding and accelerating scientific discovery. The European Open Science Cloud Node in Poland (EOSC-PL) provides a national hub for such collaborative research activities.

Objective:

This use case aims to establish a collaborative platform enabling environmental scientists to easily plug their research services and tools into the EOSC-PL national node. The platform will support seamless collaboration, data sharing, and integration of analytical tools and methodologies, ultimately fostering more robust and impactful environmental research with focus on marine domain. There is expected synergy with Blue Cloud Marine Thematic Node.

Key Functionalities:

- **Collaborative Environment:**
 - Providing secure and user-friendly environments for researchers to collaborate, share, and co-develop research projects.
 - Facilitating real-time communication, data sharing, and knowledge exchange.
- **Integration of Research Services:**
 - Streamlined mechanisms for Thematic Nodes to integrate their specialized tools and services directly into EOSC-PL.
 - Offering compatibility and easy integration with diverse scientific workflows and applications.
- **Data Sharing and Interoperability:**
 - Supporting standardized data formats and metadata schemas to enable easy discovery, interoperability, and reuse of environmental datasets.
 - Providing robust mechanisms for data governance, security, and quality assurance.

Value proposition:

- Enhanced collaboration and productivity among environmental scientists across disciplines and institutions.
- Increased visibility, accessibility, and reuse of environmental data and methodologies.
- Accelerated scientific innovation and improved quality of environmental research outputs.

In-scope:

- The design of thematic services enabled on EOSC-PL site
- Deployment of pilot service redirecting metadata data discovery requests between EOSC-PL and Thematic Nodes

Out of scope:

- Development of analysis tools

6.5. Cross-Border Surveillance of Antimicrobial Resistance: Genomic Sequence Analysis

Use Case ID	UC_EOSCPL_005
Use Case Title	Cross-Border Surveillance of Antimicrobial Resistance: Genomic Sequence Analysis

Description:

This project establishes a collaborative framework for large-scale genomic sequence analysis of antimicrobial resistant (AMR) pathogens between CVTI SR and NCN Poland. Integration of European AMR data sources in the EU Node will enable effective monitoring of AMR pathogens in the European area. At the pilot stage, institutions from Slovakia (CVTI) and Poland (NCN) will be involved with the initiative. The Slovak side will provide specialized tools for genomic data management and Slovak AMR genomic datasets. NCN will engage with Polish scientific and healthcare stakeholders to help establish a collaborative ecosystem that supports access to Polish AMR genomic data, bioinformatics expertise, and analytical tools.

Federation Contribution:

Cross-node collaboration exemplifies the EOSC federation model by integrating complementary capacities from different European research nodes. NCN Poland can participate by establishing collaboration between Polish research institutions working on AMR to contribute to the EOSC infrastructure. Contributions may include collections of genomic sequences from clinical isolates, and/or the sharing specialized bioinformatic workflows developed by Polish researchers.

Integration of cross-country resources will be made possible by: a) using the involved nodes as entry points; b) using an EOSC-compliant data access policy, c) maintaining the EOSC policy of involving researchers across disciplines, d) gradually incorporating additional nodes as resource providers and entry points, e) managing data according to the standards adopted and promoted in EOSC A.

Value proposition:

For microbiologists and infectious disease researchers, this use case provides unprecedented access to diverse AMR genomic datasets spanning multiple neighboring European regions, enabling more comprehensive analysis of resistance patterns and evolutionary trends. Future integration with the EHDS may enable healthcare institutions to benefit from enhanced surveillance capabilities and early warning systems for emerging resistant pathogens, potentially informing more effective infection control strategies. Public health authorities can gain valuable cross-border insights into AMR transmission dynamics that transcend national boundaries, supporting evidence-based policy decisions. For bioinformaticians, the platform offers standardized workflows and valuable AMR related datasets.

In-scope:

- Establishment of a cross-node collaboration framework for integrating AMR genomic datasets and bioinformatic tools between Poland and Slovakia;
- Definition of technical, legal, and policy requirements for data sharing and access;
- Design and implementation of a pilot integration enabling shared access to AMR genomic data and analysis tools across involved nodes.

Out of scope:

- Development of new bioinformatics platforms or genomic data analysis tools;
- Full-scale implementation of surveillance systems or healthcare integration beyond the pilot phase;
- Clinical decision-making or direct application of results in public health systems.

6.6. Development scientific use case in cross-collaboration (sensitive health data): Multi-centric validation of AI model for prostate-cancer screening (MCVAL)

Use Case ID	UC_EOSCPL_006
Use Case Title	Development scientific use case in cross-collaboration (sensitive health data): Multi-centric validation of AI model for prostate-cancer screening (MCVAL)

Description:

Digital tissue and cell datasets collection and the Virtual Microscope application to access and browse these data. An extensive collection of histological and cytological slides was carefully selected and prepared by pathomorphological experts, processed, and digitized. The collection consists of over 20,000 high-definition images of human tissues and cells accompanied by structured clinical metadata data concerning information about the patient (age, sex, the year of a study, and a clinical description); diagnosis coded by International Classification of Diseases (ICD) the type of the tissue and the material, the way it was collected and the type of staining.

This collection includes more than 600 images of prostate gland organs presenting a diverse spectrum of abnormal lesions. It can be a significant contribution to tools created for early detection of prostate cancer, such as AI-based models being implemented into the EOSC research network.

Federation contribution:

Multi-centric validation of AI model for prostate-cancer screening (MCVAL) aims to validate an existing prostate cancer screening model that was initially developed through a collaboration between the Czech (BBMRI.cz) and Austrian National Nodes of BBMRI (BBMRI.at). The model uses data from research groups at the Masaryk Memorial Cancer Institute (MMCI), Medical University Graz (MUG), and RationAI at Masaryk University. The primary tasks in this use case involve collecting information on the technical requirements needed to validate MCVAL using data sourced from EOSC PL. This information will facilitate the development of a workflow that accommodates the large image sizes and computing capacities involved. Additionally, the workflow must ensure compliance with CEN/CENELEC AI standards relevant to the life sciences and HPC domain federation and support the Secure Processing Environment (SPE) specification under the European Health Data Space (EHDS) Regulation.

Value proposition:

- Contribution to creating a workflow for using diverse, multi-centric data from different EOSC nodes for the development and validation of AI-based tools;
- Including high-resolution tissue images provided by EOSC-PL, biopsy reports, and histopathological descriptions with grading of lesions attached to these images improves the accuracy and reliability of AI-based screening tools.

In-scope:

- Preparation and provisioning of high-resolution digital histopathological datasets, including structured clinical metadata, for cross-node research use;

- Coordination of technical and procedural requirements to support multi-centric validation of an existing AI model within the EOSC Federation framework.
- Design of a pilot workflow for secure, interoperable data sharing and AI validation.

Out of scope:

- Development of new AI models or algorithms for prostate cancer detection (only validation of an existing model is in scope);
- Full-scale deployment or clinical certification of the validated AI tool;
- Long-term storage infrastructure development (use case relies on existing federated storage services);
- Implementation of the Secure Processing Environment itself (only alignment with its requirements will be addressed);
- Broader integration with national healthcare systems or electronic health records (outside the pilot scope).

6.7. Federated Urban Mobility Datasets and AI-based Handover Prediction (FUMD-AI)

Use Case ID	UC_EOSCPL_007
Use Case Title	Federated Urban Mobility Datasets and AI-based Handover Prediction (FUMD-AI)

Description:

Federated workflow for generating urban mobility and network datasets using EOSC Poland, with AI handover prediction training supported by EOSC North Macedonia.

Value proposition:

Demonstrates how EOSC Federation resources enable reproducible, cross-node research, FAIR data publication, and reusable AI workflows for mobility and V2X studies.

In-scope:

- Dataset generation, processing and storage via EOSC Poland,
- FAIR dataset publication with metadata, schema and persistent identifier,
- Reproducible notebooks, scripts and workflow documentation,
- Cross-node integration with GPU-based AI training.

Out of scope:

- Real-time traffic management,
- Commercial deployment,
- Production-grade telecom optimisation,
- Support for all cities, traffic scenarios or network configurations.

6.8. Onboarding DAMAP to EOSC-PL for FAIR, Machine-Actionable Data Management Planning

Use Case ID	UC_EOSCPL_008
Use Case Title	Onboarding DAMAP to EOSC-PL for FAIR, Machine-Actionable Data Management Planning

Description:

Deployment and validation of DAMAP as an operational service within the Polish EOSC Node, supporting researchers and data stewards in creating structured, funder-aligned, machine-actionable Data Management Plans.

Value proposition:

The use case strengthens the EOSC Federation by adding a reusable, interoperable DMP service to EOSC-PL that can support other nodes, improve FAIR data planning, reduce fragmentation between RDM tools, and provide onboarding, training and sustainability guidance for wider federation uptake

In-scope:

- Deployment of DAMAP within EOSC-PL,
- Integration with relevant node services and information sources,
- Science Europe-compatible DMP template and EOSC-PL guidance,
- Scientific use cases producing example DMPs,
- Training materials, workshops and sustainability roadmap.

Out of scope:

- Development of a completely new DMP tool,
- Full automation of all RDM decisions,
- Guaranteed long-term production operation beyond the project period,
- Legal, financial or institutional commitments not agreed by partners,
- Coverage of every possible funder, discipline or national template.

6.9. Integration of METROFOOD Catalogues with EOSC Node Poland for Production-Level Federated Discovery

Use Case ID	UC_EOSCPL_009
Use Case Title	Integration of METROFOOD Catalogues with EOSC Node Poland for Production-Level Federated Discovery

Description:

Federation of METROFOOD catalogues, not only with the EOSC EU Node catalogues but also with EOSC Node Poland, and the EOSC Node Switzerland (candidate). The connection with the Polish Node was established in a test environment during the EOSC Beyond project and will now be deployed in production.

Value proposition:

Users across METROFOOD, Poland, and Switzerland will be able to discover repositories and services from all participating Nodes, enhancing cross-border visibility and reuse of research resources.

In-scope:

- Production deployment of the METROFOOD catalogue connection with EOSC Node Poland,
- Integration of METROFOOD catalogue records with Polish Node discovery services,
- Ensuring interoperability with EOSC EU Node and EOSC Node Switzerland catalogues,
- Validation of cross-node search and discovery of repositories and services,
- Improving visibility of METROFOOD resources through EOSC Node Poland,
- Supporting reuse of food-related research services and repositories across the Federation.

Out of scope:

- Primary data production or new data collection by EOSC Node Poland,
- Scientific curation of METROFOOD content beyond the agreed pilot scope,
- Development of new large-scale computing infrastructure by EOSC Node Poland,
- Provision of generic cloud services unrelated to food-related workflows,
- Full lifecycle data stewardship for third-party METROFOOD repositories,
- Responsibility for maintaining catalogues operated by other Nodes.

6.10. Waldur-Based Integration

Use Case ID	UC_EOSCPL_010
Use Case Title	Waldur-Based Integration

Description:

EOSC Node Poland contributes experience with Waldur to support interoperable catalogues and cross-border provisioning of HPC and cloud resources.

Value proposition:

Strengthens the Federation by promoting aligned resource catalogues, automated access workflows, and easier integration of heterogeneous providers across EOSC and EuroHPC-related environments.

In-scope:

- Sharing EOSC Poland experience with Waldur,
- Supporting interoperable resource catalogue models,
- Enabling cross-node provisioning workflows,
- Contributing best practices for HPC/cloud access.

Out of scope:

- Development of Waldur from scratch,
- Operation of resources owned by other Nodes,
- Guaranteeing full automation for all providers,
- Replacing existing national provisioning systems.

6.11. Advancing FAIR Metadata Stewardship Across the Federation

Use Case ID	UC_EOSCPL_011
Use Case Title	Advancing FAIR Metadata Stewardship Across the Federation

Description:

EOSC Node Poland collaborates on metadata structuring, FAIR information management, and exchange of tools, guidance, and process models.

Value proposition:

Improves the Federation's ability to offer consistent, FAIR-compliant and legally robust metadata practices across research communities and Nodes.

In-scope:

- Exchange of metadata tools and best practices,
- FAIR-compliant metadata guidance,
- Support for legally compliant information management,
- Process models for metadata stewardship

Out of scope:

- Scientific curation of all domain datasets,
- Legal responsibility for third-party metadata,
- Creation of one universal metadata standard,
- Long-term stewardship of external repositories.

6.12. Enabling Galaxy-Based Reproducible Workflows Across Federated Resources

Use Case ID	UC_EOSCPL_012
Use Case Title	Enabling Galaxy-Based Reproducible Workflows Across Federated Resources

Description:

EOSC Node Poland supports strategic activities around Galaxy to enable reproducible workflows across cloud, HPC and AI resources.

Value proposition:

Adds user-friendly workflow capabilities to the Federation, reducing technical barriers and enabling researchers to run reproducible workflows across cross-node computing environments.

In-scope:

- Galaxy integration with federated access,
- Connection with resource catalogues,
- Support for reproducible workflow execution,
- Cross-node cloud/HPC/AI workflow scenarios.

Out of scope:

- Development of the Galaxy platform itself,
- Support for every scientific workflow,
- Provision of unlimited computing capacity,
- Full management of external execution environments.

6.13. Onboarding ROHub and FAIROs for FAIR Research Object Management

Use Case ID	UC_EOSCPL_008
Use Case Title	Onboarding ROHub and FAIROs for FAIR Research Object Management

Description:

Onboarding ROHub and FAIROs as federated services for managing, publishing, preserving, and assessing FAIR Research Objects and FAIR Digital Objects.

Value proposition:

Strengthens the EOSC Federation by adding reusable services for FAIR-aligned Research Object management, FAIRness assessment, metadata enrichment, and lifecycle support for scientific investigations.

In-scope:

- Onboarding ROHub and FAIROs via EOSC-PL,
- Support for RO-Crate 1.2-based FAIR Digital Objects,
- FAIRness assessment through FAIROs,
- Integration of existing FAIR assessment tools,
- Automatic metadata enrichment and analytics services

Out of scope:

- Development of ROHub or FAIROs from scratch,
- Full curation of all Research Objects,
- Replacement of existing repositories or preservation systems,
- FAIR assessment of every possible digital object type,
- Long-term preservation responsibilities beyond agreed service scope.

6.14. Competence Centre Integration Toolkit

Use Case ID	UC_EOSCPL_014
Use Case Title	Competence Centre Integration Toolkit

Description:

A strategic collaboration between the EOSC North Macedonia, EOSC Poland, and EOSC Italy nodes. All three hosts have active Skills4EOSC Competence Centers. The goal is to develop and test a unified methodology for embedding these centers into the formal Node structure.

Value proposition:

This addresses a critical gap: defining "Training" as a standardized Node function. The use case will produce a "Competence Integration Toolkit" that allows other Nodes to seamlessly deploy their own training capabilities aligned with EOSC standards

In-scope:

- Joint methodology for integrating Competence Centres into EOSC Node structures,

- Collaboration between EOSC Poland, North Macedonia and Italy,
- Definition of training as a standard Node function,
- Development of a reusable Competence Centre Integration Toolkit,
- Testing the toolkit with existing Skills4EOSC Competence Centres,
- Guidance for other Nodes to deploy training capabilities aligned with EOSC standards

Out of scope:

- Creation of new Competence Centres from scratch,
- Replacement of existing national training structures,
- Long-term operation of Competence Centres beyond the agreed Node scope,
- Development of a full EOSC-wide training platform,
- Mandatory adoption of the toolkit by all EOSC Nodes.

7. External Dependencies & Key Risks

External Dependencies

- Availability and alignment of common standards for metadata, semantic interoperability, APIs, authentication, and authorization;
- Dependent functionalities, services, and technical resources provided by other nodes;
- Cross-node coordination and collaboration mechanisms;
- Availability of shared infrastructure, computing capacity, and data-intensive resources;
- Common policies related to GDPR, licensing, security, access, and user management;
- Compatibility of tools, workflows, and technical components across nodes;
- Institutional and stakeholder engagement across the project ecosystem;
- Availability of support structures, documentation, and helpdesk services.

Key risks and mitigation measures

Risk: Cross-node dependencies may delay implementation or integration

Mitigation: Establish regular coordination channels, joint planning mechanisms, and cross-node testing activities;

Risk: Metadata and semantic interoperability issues may limit data discovery and reuse

Mitigation: Harmonize metadata schemas, align with EOSC metadata models, implement harvesting APIs, and align semantic schemas;

Risk: Authentication and authorization systems may not work consistently across nodes

Mitigation: Set up a cross-node AAI working group, standardize AAI implementation and policies, harmonize identity federation rules, and perform interoperability testing;

Risk: Lack of common policies may create GDPR, licensing, security, or access-management issues

Mitigation: Create a user policy task force, develop shared cross-node policies, user guidelines, and best practices, and provide user training;

Risk: Technical infrastructure may not be interoperable across project components

Mitigation: Develop and standardize common APIs, conduct interoperability testing, prepare technical integration documentation, and establish support channels;

Risk: Limited computing or storage resources may affect data-intensive and compute-heavy activities

Mitigation: Assess capacity needs, align access policies, and coordinate resource allocation across participating nodes;

Risk: Data integration challenges may reduce the effectiveness of shared services

Mitigation: Provide integration guidance, define common data standards, and support consistent implementation across partners;

Risk: Tools and workflows may be incompatible between nodes

Mitigation: Define minimum compatibility requirements and run joint validation activities;

Risk: Low stakeholder or institutional engagement may reduce adoption and project impact

Mitigation: Organize workshops, webinars, demonstrations, and use-case sharing activities to increase awareness and participation.

8. Contributions

ID	Deliverable Name	Deliverable Description	Deliverable Owner
1	Technical updates summary deliverable	The summary of the technical upgrades regarding the EOSC Federation state-of-the-art at the moment	Cyfronet
2;	Summary of the federation activities and lessons learned	The summary findings of the case study on building the EOSC Federation of Nodes from EOSC-PL perspective (documenting key milestones, technical integrations, and collaborative efforts within the EOSC ecosystem; it will highlights successes, challenges, and best practices); the summary will serve as a reference for future national nodes;	NCN
3	Case study on how to collaborate effectively in a diverse scientific environment	The outline of the methodologies and collaboration mechanism to ensure the successful implementation of goals set out in the EOSC Federation Build-Up Phase	All
4	Communication and Training Plan	This document describes the communication and training strategy for the EOSC-PL project; It includes stakeholder engagement, communication through existing networks and tools, and the development of a flexible training and education plan;	NCN, Gdansk Tech, UW
5	IT Architecture Design	The IT Architecture Design document outlines the technical landscape of the EOSC-PL node, describing in big picture the integration of	Cyfronet, UW, Gdansk Tech

		multiple national infrastructures and resources into the EOSC Federation; The content of this document will be shaped by developed solutions and agreements within the EOSC Federation, ensuring alignment with evolving standards and best practices; As an initial guideline, it will serve as a preliminary reference for both interoperability guidelines and use cases, helping define the technical requirements for system connections, authentication and authorization mechanisms (AAI), metadata harmonization, and data exchange protocols; This deliverable will provide a structured blueprint for how Polish research infrastructures integrate within the EOSC landscape, supporting long-term scalability, security, and usability for researchers;	
	Use Case Implementation Report	This deliverable will compile a consolidated report summarizing the implementation progress, technical integration, lessons learned, challenges encountered, and initial impacts of the prioritized EOSC-PL use cases; Each use case will be evaluated based on its alignment with EOSC Federation goals, technical deliverables, and expected value to end-users;	All

9. Timing and Milestones

Disclaimer:

The EOSC-PL Node is listing below only the milestones connected to EOSC Core, as all the other ones will depend on other nodes' development progress, therefore they cannot be assessed at this stage (only after the kick-off phase or later); However, based on their complexity and potential challenges, their expected delivery date is set for the end of the year;

For EOSC Core integrations, the Target Delivery Dates might also differ depending on the availability and responsiveness of the core service providers;

EOSC Federation Build-Up Phase Project Charter - <EOSC-PL: connecting researchers to federated European science>

Month key: M1 Mar 2025, M2 Apr, M3 May, M4 Jun, M5 Jul, M6 Aug, M7 Sep, M8 Oct, M9 Nov, M10 Dec;

M11-M22 = Jan-Dec 2026

M23-M34 = Jan-Dec 2027

Item	Active months	2025 M1-M10	2026 M11-M22	2027 M23-M34
Use cases				
UC001 Federated data discovery	M2-M10	M2-M10	-	-
UC002 Federated scientific workflow	M5-M34	M5-M10	M11-M22	M23-M34
UC003 Environmental thematic node integration	M5-M31	M5-M10	M11-M22	M23-M31
UC004 Environmental collaboration platform	M5-M34	M5-M10	M11-M22	M23-M34
UC005 AMR genomic analysis	M2-M34	M2-M10	M11-M22	M23-M34
UC006 MCVAl health-data AI validation	M5-M34	M5-M10	M11-M22	M23-M34
UC007 FUMD-AI urban mobility	M17-M21	-	M17-M21	-
UC008 DAMAP onboarding	M14-M21	-	M14-M21	-
UC009 METROFOOD catalogue integration	M10-M34	-	M19-M22	M23-M34
UC010 Waldur-based integration	M17-M34	-	M21-M22	M23-M34
UC011 FAIR metadata stewardship	M17-M34	-	M21-M22	M23-M34
UC012 Galaxy reproducible workflows	M17-M34	-	M21-M22	M23-M34
UC013 ROHub and FAIROs onboarding	M17-M34	-	M21-M22	-
UC014 Competence Centre Toolkit	M17-M34	-	-	M23-M34
Federating capabilities				
FC01 Resource catalogue (production + operations)	M2-M34	M2-M10	M11-M22	M23-M34
FC02 Service catalogue (production + operations)	M2-M34	M2-M10	M11-M22	M23-M34
FC03 AAI (production + operations)	M2-M34	M2-M10	M11-M22	M23-M34
FC04 Helpdesk (basic technical deployment + operational framework)	M14-M34	-	M14-M22	
FC05 Monitoring (basic technical deployment + operational framework)	M14-M34	-	M14-M22	
FC06 SMS / service management (support for the key SMS processes, crucial for EOSC PL, aligned with NOC decision)	M17-M34	-	M17-M22	
Cross-cutting activities				
CC01 EOSC.pl platform UX/UI development	M14-M34	M2-M10	M14-M22	M23-M34
CC02 Policies, documentation and training	M8-M34	M8-M10	M11-M22	M23-M34

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