EBRAINS

Project Charter

EBRAINS EOSC Node

Last update: 17/02/2026

1. PROJECT SUMMARY

EBRAINS is Europe's digital infrastructure for brain research and an **ESFRI Landmark research infrastructure**, on Data, Computing and Digital Infrastructure (*see ESFRI Landscape Analysis 2024*). EBRAINS provides unique tools and data bringing together neuroscience, computing and AI to accelerate progress in brain science and medicine. EBRAINS enables researchers to explore the brain across all levels - from the molecular and cellular levels, to the whole organ, fostering a deeper understanding of brain structure, function and mechanisms to facilitate the development of more effective treatments, diagnostics and preventive measures for neurological and psychiatric disorders.

EBRAINS AISBL is an international non-profit association (AISBL), headquartered in Brussels, comprising 8 Full and 33 Associate Members. It acts as the central hub of EBRAINS and coordinates a pan-European network of services delivered through 11 National Nodes.

EBRAINS is committed to fully participating in and supporting the growth of the EOSC Federation, grounded in shared principles of Open Science, co-design, and FAIR access to high-quality sovereign data and services. Established on these values, EBRAINS provides expert-curated brain research data, advanced tools, and interoperable FAIR digital objects by design.

EBRAINS will contribute to the EOSC Federation: (i)**reference and expert-curated data**[1] for brain-related research, (ii)**quality-assured tools and services**[2] for users working in brain-related and brain-inspired technologies (*e.g., brain atlases, medical analytics, modeling and simulation*), (iii)**new federating capabilities** supporting scalable and cost-effective service provision, (iv)**best practices and guidelines** to support the Federation's growth (*e.g., design system, handbook, automated software distributions for cloud/HPC*), (v)**training programs** and **community coordination** built on co-design, (vi)operational and organizational capacity to **onboard third-party services** and research objects to the EBRAINS EOSC Node, and (vii)scientific **use cases** demonstrating the value of EOSC for promoting brain-related research.

EBRAINS in a nutshell: *11 National Nodes, 41 Institutional Members, 16.000 Registered Users, 1.128 Datasets, 258 Software tools*

[1] https://search.kg.ebrains.eu/
[2] https://ebrains.eu/data-tools-services/tools/complete

2. VALUE PROPOSITION

EBRAINS is a world-leading digital infrastructure for brain research, offering mature and intuitive access to brain atlases, unique reference datasets, advanced simulation tools, multiscale brain models, and robust cloud and HPC infrastructure. By integrating digital technologies and computing in a community-driven framework, EBRAINS accelerates scientific progress in neuroscience, medicine, and related fields. Within the EOSC Federation, EBRAINS contributes expertly curated reference data, specialised software covering all levels of brain research, trusted research environments, FAIR-by-design tools and workflows, and scalable base infrastructure. It also brings a strong cross-disciplinary community spanning neuroscience, health, medicine, AI/ML, and neuromorphic computing. The primary beneficiaries of these contributions are researchers, as well as citizens and society at large. EBRAINS provides more than **260 specialized tools and 38 services** for brain-related research (overview) and **1,200+ reference data** curated by experts for the brain (e.g., *Julich-Brain Atlas*), and **cloud/HPC resources** (*e.g., the first European Exascale supercomputers, "JUPITER" and the upcoming "Alice Recoque"*). The EOSC ecosystem in its current interim phase is making its first concrete steps towards establishing a FAIR, sovereign, and inclusive **European Research Commons**, spanning borders and scientific disciplines. EBRAINS, as the direct output of the decade-long Human Brain Project (FET Flagship, ~1billion euros in EU funding) which assembled 300+ partners and tens of thousands of researchers, engineers, architects, and support specialists, has *treated a similar pathway in the past* with the EOSC Federation. We can observe *comparable challenges* which we have effectively addressed for EBRAINS, and *relevant solutions* which we can contribute to the broader EOSC ecosystem across all its levels (from the federation to individual nodes). Next, we provide selected highlights of our potential contributions: (i) Systematic application of **co-design** principles to deliver researcher-driven, cost-effective solutions supported by clear **technical guidelines**. (ii) Operational workflows and technical solutions for handling the lifecycle of **reference**, **expertly curated** FAIR scientific data, ensuring **sovereignty**. (iii) Integrated technology solutions **bridging local, cloud, and HPC** environments to support scalable, end-to-end scientific workflows. (iv) Industry-standard solutions for **federating compute and storage** resources and their **cost-effective scaling** affording vendor-independence. (v) Results-driven federation based on portable, **standardised FAIR research software artefacts** (e.g., workflows, notebooks, curated software distributions). (vi) Cost-effective solutions for **monitoring**, **accounting** and **support** at scale and across providers. (vii) Production-level **onboarding processes** and facilities for third-party resource and service providers. EBRAINS has also identified multiple areas where the concepts and work introduced by the only production Node of the Federation (EOSC EU Node) can be **adopted** and harness **significant value** to our current services and operational footprint. Among others, these include: (i) the streamlined onboarding of users by exploiting their home organization credentials and affiliation, (ii) the automated authorization for various services and service quota/types, (iii) the use of virtual credits and user/group wallets for effectively managing demand and ensuring fair and equitable access, (iv) sovereign solutions for personal and group file management. EBRAINS, as a prospective member of the EOSC Federation, can (i) **better serve** its user base (16K active users) by bringing our **data and software closer to the users** and across the federation, (ii) achieve **economies of scale** in demand-aware and vendor-agnostic service provision, (iii) harness Federation and Node services that **complement** our service portfolio and achieve **added value**, and (iv) promote the **cross-disciplinary** research of the **brain** and the **uptake** of brain-related output and research across diverse scientific disciplines. In more detail: (a) EBRAINS services and resources are built to ensure FAIRness, portability, and reproducibility. Through a secure reference software distribution (ESD), tools and data can be deployed across containers, HPC systems, and virtual research environments (e.g., notebooks, CWL workflows). This enables seamless reuse of EBRAINS outputs across the Federation. (b) Services are cloud-native, vendor-agnostic, and scalable, allowing flexible deployment across infrastructure providers and decoupling software use from specific infrastructure costs. Over 80% of EBRAINS tools are already deployable on EOSC EU Node infrastructure. (c) Several production (EOSC EU Node) or in development Federation and Node services can provide meaningful value to EBRAINS and its user base. For example, LFTS can streamline day-to-day large data transfers for our researchers. Also, the Notebook service can include (via the ESD) EBRAINS software, thus allowing researchers across the Federation to harness our software and data. Finally, the Workflows subWG of the Buildup phase has introduced standardized workflow engines as one of the multiple enactments of the federation at the data and software levels. (d) Brain-related and brain-inspired research has inherently cross-border and cross-disciplinary relevance, spanning health/medicine/clinical applications (*e.g., Alzheimer's, epilepsy*) and computing (*e.g., AI, neuromorphic hardware*), with more thematic areas emerging (*e.g., digital twins, precision medicine*).

3. REPOSITORIES AND SERVICES DELIVERED

The EBRAINS Node will provide **all Federated Capabilities** presented in **Section 5** (*including all mandatory and recommended*) and the **resources** (**data sources and services**) identified in the following table. This presentation is consistent with the EOSC Handbook (v2.0) and the guidelines produced during the Build up phase of the first wave Nodes (AAI, Service Catalogues, Data Source onboarding).
Please note that the list of services **will be expanded** in the future when the RoP and Access Policies of the EOSC Federation are defined.

Service ID	Service Description	Access Policies to the Service	Federation Contributions & Value to Users	TRL
S1	EBRAINS Knowledge Graph	Open Access	Provides access to reference and expert curated research objects (data sets, software, services, models) for brain research	9
S2	Collaboratory	Excellence-based (orderable)	Integrated environment for scientific research (wiki, file sync and share, notebooks, workflows, group management)	8
S3	EBRAINS Software Distribution	Open Access	Curated software distribution for containers and HPC including all EBRAINS software	8
S4	Nest	Excellence-based (orderable)	NEST delivers scalable, scientifically validated brain network simulations, enabling researchers to model complex neural dynamics at an unprecedented scale and reliability.	8
S5	BrainScaleS	Excellence-based (orderable)	The Neuromorphic Computing Platform enables energy-efficient, large-scale spiking neural network experiments on custom hardware—combining accelerated analogue emulation (BrainScaleS) and real-time digital many-core processing (SpiNNaker).	8
S6	TVB	Excellence-based (orderable)	TheVirtualBrain enables biologically grounded simulation of large-scale brain network dynamics by combining tractography-based connectivity with flexible neural mass models to generate multimodal outputs (EEG, MEG, fMRI, LFP).	8
S7	SpiNNaker	Excellence-based (orderable)	sPyNNaker enables real-time simulation of PyNN-defined spiking neural networks on the SpiNNaker neuromorphic platform, providing efficient, event-driven execution and performance profiling for large-scale SNNs.	8
S8	Siibra	Excellence-based (orderable)	Interactive and programmatic access to multi-scale, multimodal brain atlases, enabling researchers to explore, integrate, and analyse detailed brain structures across species and resolutions	9
S9	LivePapers	Excellence-based (orderable)	EBRAINS Live Papers provides interactive, structured supplementary documents for scientific publications, enabling users to access, visualize, download, and simulate the underlying data, models, and results.	8

4. USE CASES

Use Case ID	Use Case Description	Federation Contributions & Value to Users	List of the participating organisations	List any other Nodes involved	Timeline of realisation of the use case
1	**Portable federated data sharing and processing.** This use case explores a multi-node scientific workflow within the EOSC Federation, using epilepsy research as an example of collaboration on sensitive health-related data. It brings together the EBRAINS Software Distribution (ESD), the Medical Informatics Platform (MIP), and EBRAINS high-performance computing (HPC) resources to support federated analysis of distributed electrophysiological data across the EBRAINS EOSC Node and the EOSC Node Switzerland, without requiring data centralisation. ESD provides a curated and validated software stack enabling consistent execution environments across virtualized and HPC infrastructures, while the MIP allows clinicians and researchers to analyse harmonised medical and neurophysiological data across institutions while preserving local data governance. Together, these components enable portable and reproducible federated clinical research.	The EBRAINS Software Distribution (ESD) promotes federation by providing a validated and portable software standard for sustainable scientific computing. It can be deployed across participating EOSC nodes while accommodating local technical and regulatory constraints without diverging from the central software baseline. For GDPR-compliant platforms such as the MIP, ESD enables the code-to-data principle by allowing standardized analytical environments to be deployed directly within secure hospital infrastructures or protected computing environments, where sensitive clinical data cannot be moved. This supports reproducible analysis while preserving data sovereignty and compliance with privacy regulations. The objective of this use case is to demonstrate how EOSC federation enables researchers to access complementary resources across nodes, perform cross-site validation of analytical approaches, and generate reusable outputs such as models or synthetic data for benchmarking and	EBRAINS AISBL, ATHENA, CHUV, CSCS	EOSC Node Switzerland	**Months 1-6:** MIP adjustments and clinical software tool onboarding into the ESD **Months 7-12:** Compatibility and integration testing **Months 13-18:** Implementation of automated deployment process **Months 19-24:** Testing with real clinical researchers and hospital nodes

		education. In this context, the MIP may be exposed as a federated EOSC service, while ESD supports workflow reproducibility by ensuring consistent deployment of validated tools and services across participating nodes.			
2	**Federating Monitoring Service for EOSC Nodes** This use case demonstrates how the Open Monitoring Framework (OMF) -see also section 5- will be made available as a federating capability within EOSC to provide end-to-end monitoring, operational intelligence, and performance transparency across multiple EOSC Nodes and services. Currently, monitoring approaches may differ across Nodes, limiting comparability, transparency, and federation-level oversight. The OMF will be provided as a reusable federating service that EOSC Nodes can adopt voluntarily to monitor their services and infrastructure components. The OMF will support monitoring of service availability and uptime, performance metrics collection and analysis, usage and uptake tracking, cross-node aggregated reporting. It will operate at production level and will be offered as a ready-to-integrate capability aligned with	The OMF will support integration with EOSC AAI and federation-level services. Nodes adopting the OMF will retain operational autonomy while benefiting from harmonised metrics and shared monitoring intelligence. The OMF directly enhances the value of the EOSC Federation by transforming distributed services into a transparent, measurable, and performance-aware ecosystem. For EOSC Users: -Increased trust in service availability and quality -Greater transparency regarding performance and reliability -Improved user experience through proactive issue detection and optimisation For EOSC Nodes: - Reduced duplication of monitoring development efforts -Data-driven service improvement and resource optimisation -Enhanced visibility of service uptake and impact For EOSC Governance and Funders:	EBRAINS AISBL, ATHENA, CSCS	EOSC Node Switzerland, other EOSC nodes	**Months 1–6:** -Formal onboarding of OMF to the EBRAINS KG -Alignment with EOSC interoperability, AAI, and reporting requirements -Definition of common monitoring indicators and governance reporting needs **Months 7–12:** -Formal onboarding of OMF to the EOSC Catalogue -Initial pilot integration with EOSC Node Switzerland -Validation of monitoring data collection -User and operator feedback collection **Months 13–18:** -Deployment of OMF in EOSC Node Switzerland -Performance optimisation -Alignment with EOSC governance reporting cycles **Months 19–24:** -Extension to additional Nodes

	EOSC interoperability and policy requirements. The use case will use the EOSC Node Switzerland and the EBRAINS KG as an example of the OMF adoption.	-Evidence-based policy and investment decisions -Measurable indicators of impact, sustainability, and growth			and services -Federation-level impact assessment (uptime, adoption, utilisation metrics) -Documentation of best practices and onboarding toolkit for new Nodes

In Scope

1. Activities, Services, and Deliverables

The EBRAINS EOSC Node will contribute mature (TRL 9 or 8), production-level services to the EOSC Federation, focusing on neuroscience and brain-related research, while remaining open to interdisciplinary use. The EBRAINS EOSC Node will actively deliver and support:

a) EBRAINS Knowledge Graph (KG): (i) Provision of the EBRAINS Knowledge Graph as a federated capability enabling semantically structured discovery, linking, and reuse of heterogeneous neuroscience data across modalities and onboarding of EBRAINS datasets, atlases, models, and tools to the EOSC Catalogue. (ii) Restricted access to Human Data Gateway datasets available to EOSC via Federation. (iii) Metadata harmonisation aligned with FAIR principles and EOSC interoperability requirements.

b) Scientific Workflow Enablement: (i) Support for multi-node scientific workflows integrating EBRAINS datasets, tools, and external EOSC services. (ii) Access to curated brain atlases, computational models, and analytics services. (iii) Reproducible research pipelines leveraging distributed computing resources.

c) Federating Monitoring Capability: (i) Provision of the EBRAINS Open Metrics Framework as a reusable federating capability. (ii) End-to-end monitoring of services and infrastructure, including availability, utilisation, performance, and uptake. (iii) Reporting dashboards and operational intelligence supporting EOSC governance and service optimisation.

d) Data and Service Onboarding Support: (i) Structured onboarding process for third-party neuroscience resources into EBRAINS and EOSC. (ii) Technical guidance on interoperability, FAIR compliance, metadata alignment, and integration. (iii) Validation and quality assurance procedures prior to federation exposure.

e) Community Engagement and Capacity Building: (i) Support to neuroscience researchers, RIs, universities, and clinical research communities. (ii) Training on FAIR data practices, workflow integration, and EOSC participation. (iii) Facilitation of cross-border and cross-domain collaboration through EOSC.

2. Stakeholder Support

The EBRAINS EOSC Node is designed to support: (i) Neuroscience and brain research communities (basic, clinical, translational). (ii) Universities and research-performing organisations. (iii) Research infrastructures in biomedical and life sciences. (iv) Interdisciplinary communities (AI, digital twins, health data science). (v) SMEs developing neuroscience-related services or digital health applications. (vi) Policymakers and infrastructure operators requiring monitoring and impact indicators.

The Node will provide domain-specific expertise while ensuring openness to broader EOSC user communities.

3. Integration within the EOSC Federation

The EBRAINS EOSC Node will ensure: (i) Compliance with EOSC AAI and interoperability frameworks. (ii) Full onboarding of services to the EOSC Catalogue. (iii) Alignment with FAIR principles. (iv) Support for cross-node scientific workflows. (v) Reuse of EOSC Core and Exchange services where applicable. (vi) Provision of the Open Metrics Framework as a federating capability available to other Nodes.

Out of Scope

1. Excluded Activities: (i) Development of new, experimental research services. (ii) Provision of general-purpose commercial cloud infrastructure outside EBRAINS RI's mandate.

2. Limitations: Direct end-user technical support for all EOSC services (support limited to EBRAINS-provided services).

3. Dependencies: (i) Cross-node orchestration capabilities requiring federation-level agreements. (ii) Legal and policy harmonisation across countries handled at EOSC Federation level. (iii) External computing or storage resources provided by partner infrastructures or other Nodes.

5. COMPLIANCE WITH TECHNICAL REQUIREMENTS

The EBRAINS EOSC Node will fully comply with the mandatory technical specifications regarding integration in the EOSC Federation.

EBRAINS is an **ESFRI Landmark research infrastructure**, on Data, Computing and Digital Infrastructure (*see ESFRI Landscape Analysis 2024*), specializing in providing digital services across scientific domains. EBRAINS provides a digital platform for brain research and neuroscience, as an output of the Human Brain Project (HBP), a FET Flagship research initiative focused on studying the human brain and developing new technologies and approaches for brain research. EBRAINS provides a collaborative and integrated platform connecting researchers, data, and computational tools to advance our understanding of the brain and its functions. The platform is designed to facilitate data sharing, analysis, and modelling across different disciplines and research areas related to neuroscience.

Next, we elaborate on how the EBRAINS EOSC Node meets the minimum technical requirements to become a Node and also satisfies **all mandatory and recommended** requirements as elaborated in the EOSC Handbook v2.0.

- **FC-1 AAI (mandatory)**: Registration, authentication and authorization across all EBRAINS resources (*data, services, tools, etc.*) is performed via the EBRAINS IAM service (Keycloak-based), with highly granular group/user management and access policies enacted at the application level (IDM and EBRAINS Collaboratory) and onboarding policies (for organizations and services) implemented according to the established EBRAINS access policies. EBRAINS will **integrate with the EOSC Federation AAI**, being **already compatible** with the **EOSC AAI Architecture 2025** guidelines and the AARC **Blueprint Architecture**. Specific areas of interest for EBRAINS concern cross-node workflows and cross-node token introspection for the EOSC-compliant federated access and use of compute and storage resources across Nodes.
- **FC2 Resource Catalogue and Registry Services (mandatory)**: EBRAINS provides a wealth of reference, high-value and expert-curated free and open scientific data (e.g., Brain Atlases), computation workflows, services, and software tools via its EBRAINS Knowledge Graph. The EBRAINS KG brings together information from different fields of brain research and connects research data to software for using it. At the core of the EBRAINS Knowledge Graph lies a graph database linking neuroscientific research across modalities based on the openMINDS metadata model. This makes it possible for EBRAINS to support extensive data reuse and complex computational workflows. The resources of the **EBRAINS Knowledge Graph will be onboarded to the common EOSC Catalogue** (enacted by the EOSC EU Node Resource Hub), enabling the discovery and use of brain-related data from researchers across scientific domains (*e.g., medicine, health, AI/ML, data science, HPC*) and in full compliance with the "**Registration of EOSC Research Product Catalogues in the EOSC EU Node**" guidelines. In addition, the services of EBRAINS will be exposed to federation users by a dedicated service catalogue, in full compliance with the "**Registration of EOSC Service Catalogues in the EOSC EU Node**" guidelines.
- **FC-3 Helpdesk** (mandatory in 2026): EBRAINS already operates a centralized Helpdesk with integrated federated process for issue handling and resolution for its hundreds of TRL9 individual scientific services from their dedicated support units. **EBRAINS will participate in the delivery of this federated capability**, also contributing its extensive experience and pragmatic cost-effective operational solutions for effective user support across the EOSC federation.
- **FC-4 Service Monitoring** (mandatory in 2026): EBRAINS already operates an end-to-end comprehensive open-source monitoring framework (OMF - Open Metrics Framework) developed to monitor, analyse, and report among others the utilization, uptake, performance, and availability, of all its resources, services and infrastructure. It supports the tracking of Key Performance Indicators (KPIs) across multiple dimensions, enabling data-driven decision-making and continuous platform improvement. **EBRAINS intends to provision OMF as a Federating Capability** that can be used by other Nodes (i.e., acting as the federator).
- **FC-5 Service Management System** (mandatory in 2026): EBRAINS operates an ITIL services management framework, ensuring the continuous, quality-assured and secure provision of its resources and services to end users. **EBRAINS will participate in the delivery of this federated capability**, ensuring the alignment of its SMS with EOSC Federation policies.
- **FC-6 Service Accounting** (recommended): EBRAINS operates a service accounting framework within the scope of the OMF (see earlier), ensuring an integrated and end-to-end monitoring of service delivery. **EBRAINS will participate in the delivery of this federated capability.**

- **FC-7 Research Product Accounting** (recommended): EBRAINS operates a research product accounting framework within the scope of the OMF (see earlier), ensuring an integrated and end-to-end monitoring of research product accounting. **EBRAINS will participate in the delivery of this federated capability.**
- **FC-8 Order Management** (recommended): EBRAINS operates an automated order management framework, enacting the application of its access policies across all of its end users and groups. **EBRAINS will participate in the delivery of this federated capability.**
- **FC-9 Application Deployment Management** (recommended): EBRAINS operates a comprehensive software stack for the automated generation of curated software images bundling all its scientific software and tools (ESD - EBRAINS Software Distribution), with its output available for VMs/Containers, Notebooks, and HPC. **EBRAINS will participate in the delivery of this federated capability.**

In addition, EBRAINS will contribute the following **proposed federating capabilities**:

- **EBRAINS Design System**. The EBRAINS design system promotes coherence, scalability, and user-centricity across EBRAINS tools, empowering researchers, product teams, developers, and designers with a shared visual language and read-to-use libraries. It simplifies decision making through comprehensive documentation and analytics, ensures accessibility compliance (WCAG), and accelerates feature development. The EBRAINS Design System is proposed to be revised and adopted to achieve similar benefits and network effects across the EOSC Federation.
- **EBRAINS UI Ecosystem**. The ebrains-ui-ecosystem is a platform designed to manage the design systems, shared components, and frontend applications across EBRAINS. It is powered by the Nx monorepo build system, which enables efficient development, code sharing, and automation across multiple apps and libraries withing a single repository. This ecosystem consolidates all essential resources – design tokens, style guides, component libraries, utilities, and consumer applications – into one source of truth. The EBRAINS UI Ecosystem is proposed to be revised and adopted to achieve similar benefits and network effects across the EOSC Federation
- **EBRAINS Handbook**. The EBRAINS Technical Handbook is a strategic organization-wide resource aimed at supporting not only developers and engineers, but also researchers, educators, project coordinators, and contributors across all domains. The structure of the handbook follows the Diataxis framework, organizing content across four distinct pillars (*tutorials, how-to-guides, explanations, reference*). The EBRAINS UI Ecosystem is proposed to be revised and adopted as the basis for the future EOSC Federation Handbook to achieve similar benefits and network effects across the EOSC Federation.

6. EXTERNAL DEPENDENCIES & KEY RISKS

External Dependencies & Risks	Actions / mitigations measures	Dead line
Semantic and/or technical incompatibility and/or misalignment with EBRAINS metadata schemas and models	Identify and inform on potential issues, develop/extend cross-walks, contribute to the Working Groups/Task Forces, enact a separation of concerns and responsibilities for domain-specific metadata and search facilities	M2 (*)
Technical challenges in onboarding data sources (aggregation) from the EOSC Resource Hub	Extensive testing and validation in testing, collaboration with Resource Hub providers, revision of metadata schemas/standards support	M3 (*)
Technical challenges in service catalogue provision and/or unforeseen revisions	Use of proven open source software of the service catalogue (EOSC EU Node), participation in the responsible WG and collaborative evolution of guidelines (effort, timeline, transition, validation), manual import of services (last resort)	M4 (*)
Misalignment of EOSC Access policies and RoPs with EBRAINS policies	Analysis of potential challenges and early warning to governance, participation in the responsible WG, prioritization of resource/ service contributions to the federation with no alignment issues	M8 (*)
OMF provision and/or uptake challenges	Revise and improve documentation and training material, provide access to testing facilities, support interested Nodes with targeted consulting activities, increase available resources, focus efforts on select Nodes and service providers	M12 (*)
Challenges in adoption of digital wallets and credits for resources and services	Rapid prototyping and testing, limit scope in select services/resources, use of proven open source software (EOSC EU Node), extends the credits and cost model for EBRAINS services, create and manage multiple wallets per user and group (federation, local), revise automated credit allocation policy	M12 (*)
Service Management Incompatibility	Analysis of potential gaps and misalignments, enforce separation of concerns (federation vs. local scope), participate in the responsible WG and propose solutions, promote industry-standard approaches over proprietary frameworks	M12 (*)
Inadequate capacity of compute and storage resources	Scale offerings according to capacity constraints, transparent information to end users, offload demand to other Nodes and service providers, allocate additional resources	M14 (*)
Operational and policy requirements jeopardize the security posture of EBRAINS	Early warning of potential risks and their treatment, review security landscape and coordination activities within the federation, block access to select services and resources (last resort) in cases of non-compliance	M18 (*)
Low quality of support provided by EOSC's Federated Helpdesk	Participate in responsible WG and convey best practices on large-scale multi-vendor support environments, narrow support scope to select services and resources, revise federation-level triaging and responsibilities, introduce pragmatic operational solutions for complex support requests	M24 (*)

(*) Please note that all risks will be *treated as a continuous activity considering the evolving nature of the federation; the deadline column indicates the earliest point in time during which the risk is estimated to materialize and be treated*

7. CONTRIBUTIONS [DELIVERABLES (INCLUDING DOCUMENTATION)]

Deliverable ID	Deliverable Name	Responsible	Deadline
EN.1a	EBRAINS Node Architecture & Operational Framework	EBRAINS AISBL, ATHENA	M4
EN.1b	AAI integration (testing environment)	EBRAINS AISBL, ATHENA	M4
EN.2	Data Source and Service Catalogue onboarding (testing environment)	EBRAINS AISBL, CSCS (EOSC Node Switzerland)	M5
EN.3	Access Policies for EBRAINS Node services and resources	EBRAINS AISBL, ATHENA	M6
EN.4	AAI integration (production environment)	EBRAINS AISBL, ATHENA	M6
EN.5	Data Source and Service Catalogue onboarding (production environment)	EBRAINS AISBL, ATHENA CSCS (EOSC Node Switzerland)	M7
EN.6	Use Case #1 end-to-end prototype available (testing)	EBRAINS AISBL, ATHENA, CHUV (EOSC Node Switzerland)	M10
EN.7	Use Case #2 -Open Metrics Framework (federator)	EBRAINS AISBL, ATHENA	M12
EN.8	Onboarding Policies for the EBRAINS Node	EBRAINS AISBL, ATHENA	M12
EN.9	User onboarding and automated Access Policies (EOSC-aligned)	EBRAINS AISBL, ATHENA	M12
EN.10	Credits and digital wallets (testing)	ATHENA	M16
EN.11	Use Case #2 prototype with EOSC Node Switzerland	EBRAINS AISBL, ATHENA CSCS (EOSC Node Switzerland)	M18
EN.12	Provision of EBRAINS Software Distribution (ESD) for federated base infrastructure and service providers	EBRAINS AISBL, ATHENA	M18
EN.13	Use Case #1 end-to-end prototype available (production)	EBRAINS AISBL, ATHENA, CHUV (EOSC Node Switzerland)	M20

EN.14	Use Case #2 end-to-end prototype available (production)	EBRAINS AISBL, ATHENA CSCS (EOSC Node Switzerland)	M22
EN.15	Credits and digital wallets for EBRAINS EOSC services (production)	ATHENA	M24

8. COMMUNITY ENGAGEMENT

EBRAINS confirms its capacity to implement activities that enable the broader represented community to engage and participate in the EOSC Federation.

Specifically, EBRAINS will implement a structured engagement framework to ensure that EBRAINS users actively participate in and benefits from the EOSC Federation. The approach combines governance alignment, capacity building, onboarding support, and continuous feedback mechanisms.

EBRAINS EOSC Node will establish thematic working groups to identify domain-specific requirements, interoperability gaps, and opportunities for cross-node collaboration. It will also organize regular workshops and webinars to inform stakeholders about Federation services, onboarding procedures, and funding opportunities, offering continuous EOSC-related technical support to EBRAINS Community.

EBRAINS EOSC Node will also provide onboarding guidelines aligned with EOSC Federation rules and technical requirements, metadata harmonisation and FAIR alignment support. In parallel, it will make available technical assistance for interoperability, authentication and authorisation integration, and monitoring compliance, organizing training sessions on EOSC policies, FAIR principles, interoperability frameworks, and monitoring requirements.

EBRAINS EOSC Node will actively collaborate with other EOSC Nodes to:

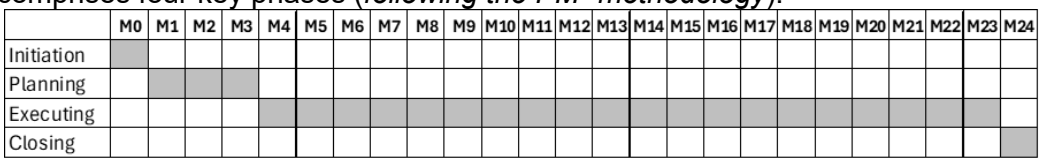
- Develop multi-node workflows and shared services.
- Exchange onboarding practices and validation procedures.
- Align governance and operational processes to ensure coherence across the Federation.

Regarding the use of Lessons Learned from the current wave of Nodes, EBRAINS EOSC Node will focus on early alignment with Federation requirements to avoid delays in technical and governance compliance, will i**mprove communication channels** between Node operators and EOSC governance bodies and will integrate **monitoring and reporting**, enabling measurable performance and uptake indicators.

In addition, EBRAINS EOSC Node will use the lessons learned regarding interoperability challenges, metadata harmonisation gaps, and user support needs, informing its operational design and support services.

9. TIMING AND MILESTONES

The project comprises four key phases (*following the PM² methodology*):



1.Initiation: Starts before the official project start (M0). Setups the project and project team, ensures all resources are available (RfP gate: MS1)

2.Planning: Develop the detailed project work plan, appoint personnel in the EOSC Federation governance, establish contact points with EOSC EU Node, validate availability of resources from all involved stakeholders across EOSC-A, the EC, collaborating nodes, and service providers (RfE: MS2)

3.Executing: Implement, validate and operationalize all technical, operational and administrative work to deliver the EBRAINS Node and its services to the Federation (RfC: MS7). The phase is organized into three parallel lines of work, focused on different aspects of the node's lifecycle: (i) **Build-up**: Deliver the EBRAINS Node into production, satisfying the minimum requirements of the second wave. (ii) **Use Cases**: Elaborate, develop, iterate, validate and showcase the identified cross-node use cases. (iii) **Federation services**: Deliver the federating capabilities beyond the mandatory ones (i.e., FC-3/4/5/6/7/9).

4.Closing: Document the lessons learned and propose a roadmap (services, resources, capabilities) for the next phase of the EBRAINS Node.

ID	Milestone Description	Target Delivery Date
MS 1	**Kick-off Meeting:** Participation in the KO meeting (EOSC-A, Nodes), expressed commitment to signing the established MoU of the Interim Phase of the Federation, and appointment of EBRAINS Node representatives in its governance structure	M1
MS 2	**Project Work Plan:** Delivery of the PWP elaborating the planned work to be performed according to this Project Charter	M3
MS 3	**EBRAINS Node Landing page (testing):** The official landing page of the EBRAINS Node is available in a testing environment: incorporated EOSC guidelines,presentation of the node and its scope, integration with AAI and select services in testing	M4
MS 4	**EBRAINS Node Enrolment (testing):** The EBRAINS Node enrolment is complete in the testing environment of the EOSC EU Node, fully satisfying the enrolment criteria and minimum requirements (i.e., AAI integrated in testing, at least one data source/service catalogue integrated in testing)	M6
MS 5	**EBRAINS Node Enrolment (production):** The EBRAINS Node is in production and successfully enrolled in the production environment of the EOSC EU Node, fully satisfying the enrolment criteria and minimum requirements (i.e., AAI integrated in production, at least one data source integrated in production, the service catalogue integrated in production, open access services available in production with documentation)	M8
MS 6	**EBRAINS Federator Services:** All EBRAINS Node services offered to the Federation and other Nodes (OMF, ESD) are available in production. At least one service with an EOSC access policy (i.e., not open access by default) is available in production with documentation.	M14
MS 7	**EBRAINS Node onboarding for 3rd party services:** EBRAINS Node officially launches support for onboarding 3rd party services from service providers to the node (onboarding policy published, onboarding guidelines and documentation available)	M18
MS 8	**Project-end Report:** Delivery of the report summarizing the activities, lessons learned, best practices, and a roadmap for the next phase of the EBRAINS Node	M24

10. CONTACTS

The project team will involve (i) the five individuals in the key roles identified for this project (Project Steering Team -PST), engaged throughout the build-up phase; and (ii) additional EBRAINS members (5–10) contributing to specific activities including design, development, testing, operations, and user support (Project Team -PT).

The PST will report directly to the CEO and CIO of EBRAINS and will liaise with relevant EBRAINS governance and operational bodies to ensure effective alignment with EOSC Federation requirements and representation of EBRAINS priorities. The responsibilities per role are:

- **Coordinator:** Overall responsible for delivery of this Project Charter and representation of EBRAINS during the build-up phase. Oversees planning, coordination of PST and PT activities, milestones achievement, and resource allocation across EBRAINS.
- **Operations Officer:** Responsible for operationalising software services and artefacts developed within the project, ensuring effective use of resources and technical management of activities. Serves as liaison with EBRAINS Operations and Service Management teams and represents them in the EOSC build-up phase.
- **Cybersecurity Officer:** Responsible for the security posture of the EBRAINS Node, including software, services, and processes. Acts as liaison with the EBRAINS CISO and CSIRT and serves as the primary contact for all security-related matters.
- **Legal Officer:** Provides legal guidance on matters related to the EBRAINS Node.
- **Communications Officer:** Ensures coordination with EBRAINS communications and outreach team, supports EOSC-related dissemination activities, and facilitates communication with the EBRAINS user community.

The PT will engage research software engineers, DevOps and DevSecOps engineers, scientists, Helpdesk and scientific support personnel, communications leads, and legal experts, assembled through the EBRAINS service and technology specialists. The PST and PT will keep the relevant EBRAINS fora (e.g., Technical Coordination, User Group) continuously updated and engaged in EOSC advances, bringing forward additional use cases and services.

Role	Name	Email
Coordinator	Amaryllis Raouzaiou	araouz@ebrains.eu
Operations Officer	Sofia Karvounari	s.karvounari@ebrains.eu
Cybersecurity Officer	Nikolaos Pappas	npappas@ebrains.eu
Legal Officer	Stephanie Heyman	legal@ebrains.eu
Communications Officer	Océane Collin / Andrea Bedorin	oceane.collin@ebrains.eu andrea.bedorin@ebrains.eu