EGI Federation Annual Report 2024_

Driving European Research with Advanced Digital Solutions

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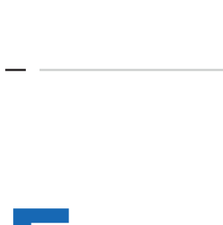
Foreword_

Tiziana Ferrari
Director of the EGI Foundation

This annual report offers a view of the EGI community's efforts in support of science and research. These achievements are the result of a passionate and committed global community, spanning 42 countries, working side by side with scientists and researchers. Together, we co-develop cutting-edge IT solutions, deliver training and technical support, and ensure coordinated access to essential compute and storage infrastructures.

I am proud that 2024 marked the year when EGI reached a record-breaking milestone of over 116,000 users from more than 160 countries. It is truly an amazing result! I would like to dedicate this report to the many scientists and researchers who, by dedicating their lives to science and research, contribute to the advancement of knowledge. In a world that often feels increasingly divided, your collaborations—crossing national and institutional boundaries—are a beacon to us all.



Volker Guelzow
EGI Council Chair

In a time when research is increasingly global, data-intensive, and urgent, federation is no longer an ideal—it is a necessity. The EGI Federation stands as a living example of how diverse organisations, infrastructures, and expertise can come together to support a shared goal: enabling excellent science and research at scale.

The 2024 Annual Report reflects how our model of collaboration continues to evolve—becoming more integrated, more strategic, and more essential. From forging new technical collaborations across research disciplines, the contribution to the implementation of the European Open Science Cloud and European Data Spaces,to driving innovations in AI and Digital Twins, EGI is proving that federation works—not just technically, but practically and sustainably across all domains, from data-rich, computation-heavy science to climate change, cancer research, cultural heritage and beyond.

As Chair of the EGI Council, I am proud of how our federation continues to adapt, expand, and lead. Our strength lies in collaboration, and our impact grows with every new connection we forge.

About EGI_

Advanced Computing Services for a Data-Driven Future

In 2024, the ever-growing volume of scientific data continues to drive the need for powerful, sophisticated computing solutions. EGI, Europe's leading infrastructure for advanced computing services, remains at the forefront of this transformation. For over two decades, the EGI infrastructure has empowered a vibrant international community by prioritising complex, large-scale research computing needs.

At EGI, we believe that research is the driving force behind human progress. Our mission is to empower data-intensive science through a comprehensive suite of services, including high-throughput and cloud computing, data storage and management, analytics, consultancy and support, as well as training and co-development opportunities. Through continuous innovation, we enhance our technologies, foster international collaboration, share knowledge, and create pathways for professional growth and expertise development—fueling groundbreaking discoveries across scientific disciplines.

VISION

All researchers should have seamless access to services, resources and expertise to collaborate and conduct world-class research and innovation.

MISSION

EGI Federation

Deliver open solutions for advanced computing and data analytics in research and innovation.

MISSION

EGI Foundation

Enable the EGI Federation to serve international research and innovation together.

Key Highlights_

January

We kicked off the year strong with the **launch of the SPECTRUM Project**, setting the stage for next-generation research support.

March

The collaboration with environmental research took a big leap forward with the official **launch of ENVRI-Hub NEXT**.

April

EOSC-Beyond gathered momentum with its dynamic kickoff meeting, bringing together key players in the EOSC landscape, and launching new efforts for the implementation of the EOSC federation.

May

interTwin reached a major technical achievement by delivering its first software module powering the upcoming Digital Twin Engine.

June

A warm welcome to **Ss. Cyril and Methodius University in Skopje (UKIM) from North Macedonia**, joining the EGI Federation as a full member and strengthening our reach to research communities in the country.

September

A big moment of the year: the **EGI Conference 2024 in Lecce**!

280+ participants, 30+ countries, 100+ talks, Satisfaction score: 8.5/10

We also celebrated the **launch of the European e-Infrastructures Assembly**, joining forces with **EUDAT, GÉANT, OpenAIRE, and PRACE** to drive collective action.

October

A major EOSC milestone: the **EOSC EU Node became operational**, marking the creation of the first node of EOSC 'system of systems'—with EGI leading key components in Lots 1 & 3.

We also initiated the EGI Strategy 2025–2029 process, shaping our roadmap for the future.

December

We closed the year with **EGI's presence at ICRI 2024**, leading influential side events that helped shape global conversations on **climate resilience**, the **digital and green transition** in research infrastructures.

Accelerating Research

+116K
Users

62,7M
Cloud CPU hours

7,4B
HTC CPU Hours Consumed

402M
HTC Computational Jobs

2,8K[1]
Enabled Open Access Articles

37
EU Funded Projects Contributing to Co-Design, Innovation and User Support

28
EGI Council Participants

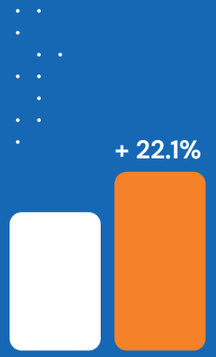
42
Countries Connected Through the EGI Infrastructure

[1] The number of publications is based on data provided by OpenAIRE.

Our Trends in Numbers

Legend

2023 2024



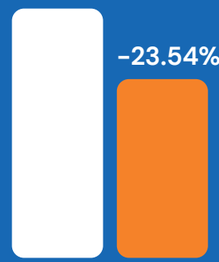
116K
Users

37
Number of Projects

2,839
Articles [2]

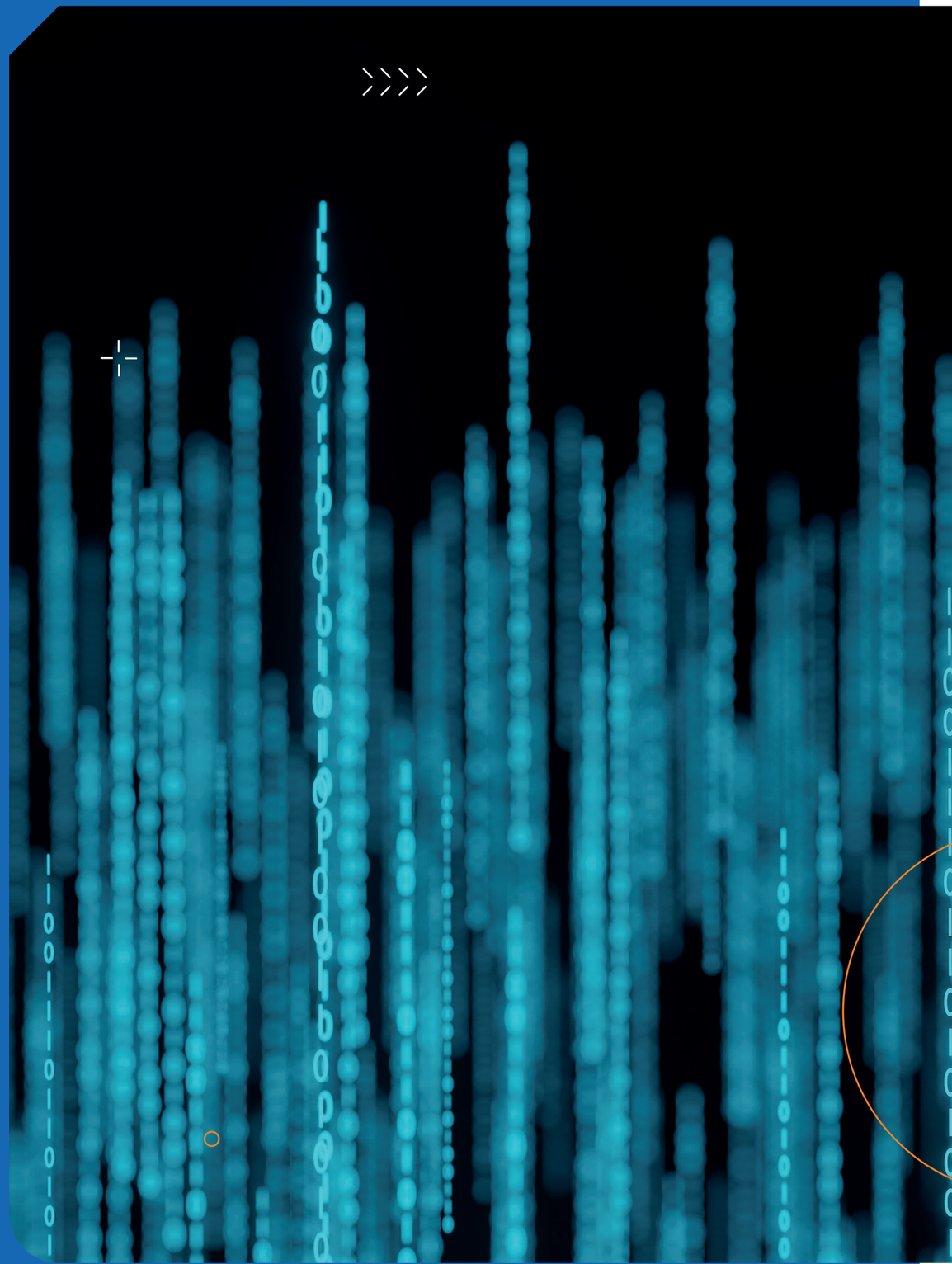
[2] These figures are based on the OpenAIRE dashboard for EGI. Due to the complexity of the metric and potential inconsistencies in article indexing, slight year-on-year changes fall within the expected margin of error and should be interpreted as a stable trend.

7,4B
HTC CPU Hours Consumed



62,7M
Cloud CPU Hours [3]

[3] In 2024, several support actions enabling transnational access for research communities came to a close. The programme is continuing—and intensifying—in 2025.



EGI Structure

EGI Federation

EGI is a federation of computing and storage resource providers united by a mission of delivering advanced computing and data analytics services for research and innovation.

EGI Foundation

EGI Foundation is a not-for-profit organisation created to coordinate and develop the EGI infrastructure and engage diverse users of our broad service portfolio.

EGI Community

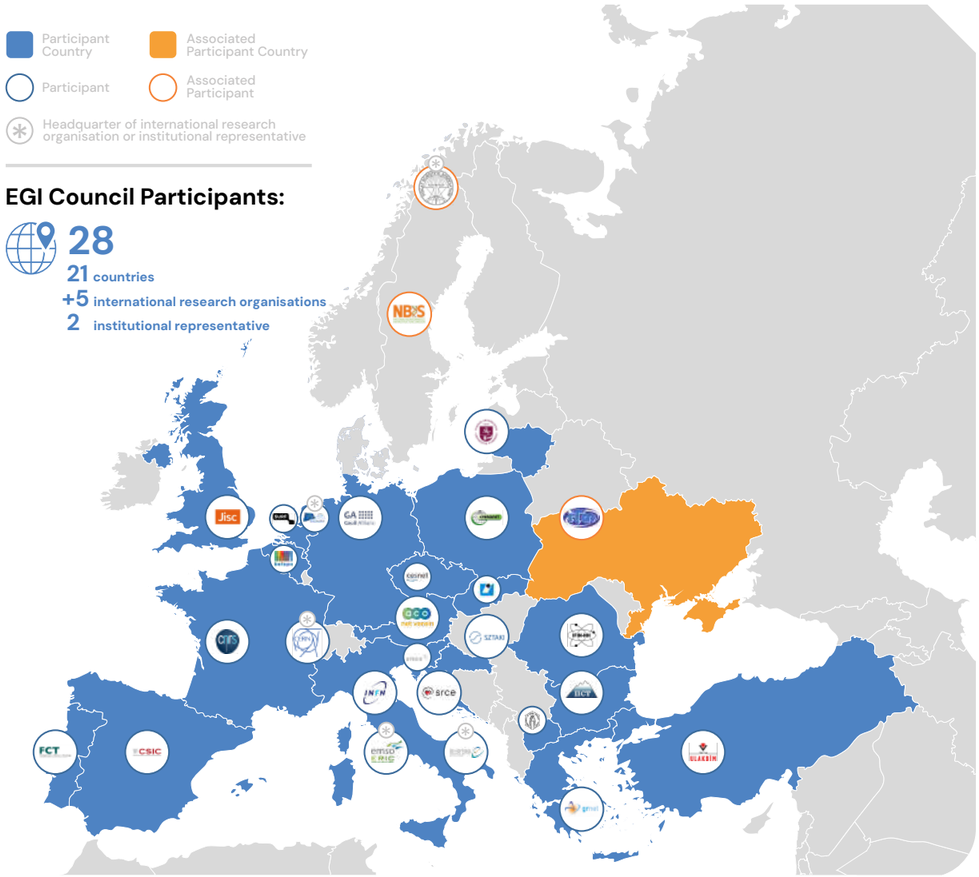
The EGI community is a community of researchers, developers, funders, technologists, dreamers and do-ers: anyone with a stake in advanced computing for research.

EGI Members

Participant Country
Associated Participant Country
Participant
Associated Participant
Headquarter of international research organisation or institutional representative

EGI Council Participants:

28
21 countries
+5 international research organisations
2 institutional representative



Why to Join Us?

Join the EGI Federation

https://www.egi.eu/join-the-egi-federation/

EGI Services

Services for Research

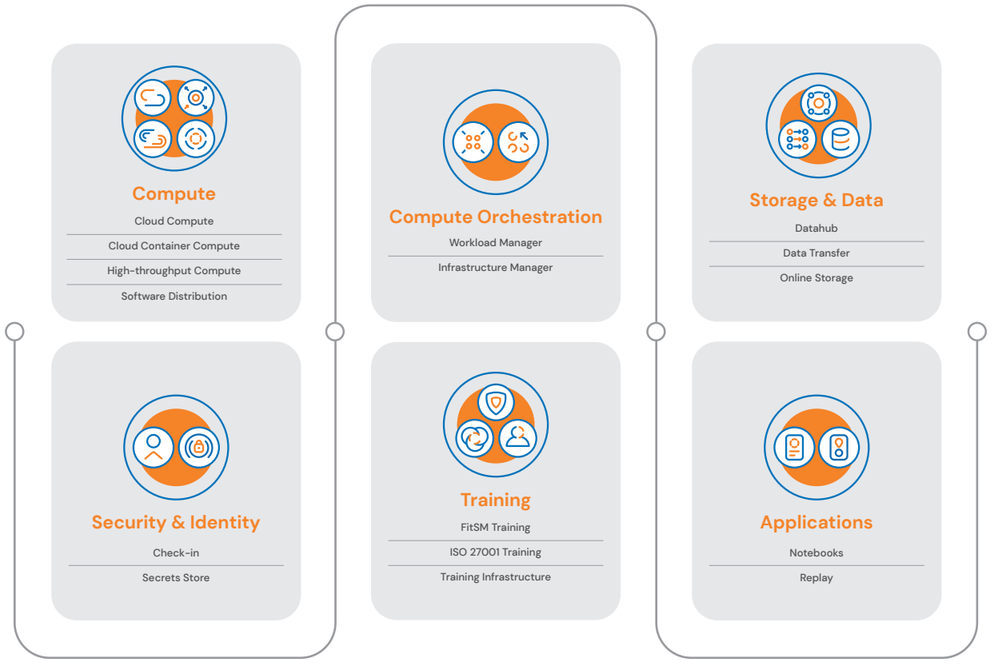
Our large-scale computing and data analytics services are helping scientists to accelerate the process leading to research outputs.

Services for Federation

Our internal services are primarily serving the EGI Council members and affiliated organisations. They improve how we, as a federation, work together.

Services for Business

Our business engagement programme is organised within EGI DIH, a virtual space where companies and technical service providers meet to test solutions before investing.



Services for Research

Service Catalogue

Service Catalogue

https://www.egi.eu/publication/egi-service-catalogue/

Our Users

Key Numbers

Total number of users
+116,000

New users in 2024
21,000

Countries with EGI user base
160

Top 5 Cloud Communities

By number of registered users

51,5K	33,6K	10,1K	1,5K	1,2K
WeNMR	NBIS	ENVRI	Biomed	SeaDataNet

Top HTC Communities

7K	2,9K	1,2K	850	820	37
CMS: The Compact Muon Solenoid experiment at CERN	**ATLAS:** A general-purpose particle physics experiment at CERN	**LHCb:** The Large Hadron Collider beauty at CERN	**Belle II:** The particle physics experiment designed to study the properties of B mesons and other particles	**ALICE:** The Large Ion Collider Experiment at CERN	**Virgo:** The interferometer near Pisa, Italy, for detecting gravitational waves

Essential Partners and Largest Adopters:

11	20	18
New scientific communities	RIs from the ESFRI roadmap	RIs engaged through projects

ESFRI Research Infrastructures Supported by EGI

Physical Sciences & Engineering

Landmarks
CTA, ELI ERIC,
HL-LHC
SKAO
European XFEL

Projects
KM3NeT 2.0

Health & Food

Landmarks
Euro-BioImaging ERIC
EMPHASIS
EU-OPENSCREEN ERIC
INSTRUCT-ERIC

Project
METROFOOD-RI

Environment

Landmarks
EISCAT_3D
EMSO-ERIC
EURO-ARGO ERIC
LifeWatch ERIC

Social & Cultural Innovation

Landmarks
CLARIN ERIC
CESSDA ERIC

Projects
E-RIHS
OPERAS

Data Computing & Digital RIs

Projects
SoBigData++

RIs Engaged Through Projects

ACTRIS ERIC, AnaEE ERIC, Data Terra, EPOS ERIC, eLTER, IAGOS, ICOS ERIC, SeaDataNet, SIOS, EMBRC ERIC, EIRENE RI, IS-ENES, EBRAINS, ECRIN ERIC

EGI Federated Cloud User Groups

Active Service Level Agreements

36

Supporting Research Clouds

31

Participating Countries

15

Top 6 Cloud Compute User Communities Based on CPUh Consumption:

CLOUD CPU/H

12,6M

vo.ai4eosc.eu

AI4EOSC's move towards implementing real-world use cases led to a significant increase in computing demands. AI4EOSC is currently supporting use cases in the following 5 scientific domains: Climate Change Adaptation, Ocean Monitoring, Space Weather Forecasting, Biomedical Imaging, and Cultural Heritage Preservation. Utilising the EGI Infrastructure, the project consumed over 12.6M Cloud CPU hours.

CLOUD CPU/H

6,6M

vo.imagine-ai.eu

The uptake of the iMagine AI platform, powered by AI4OS technology, peaked in the second year of the project, consuming over 6.6M Cloud CPU-hours and more than 183K GPU-hours. This significant computational usage supported 8 scientific cases from the project consortium and 4 external use cases onboarded through an open call. These 12 science cases involved porting and labelling aquatic images, training object detection AI models, validating their accuracy, and publishing them as publicly available online services to support image analysis for marine and freshwater researchers.

CLOUD CPU/H

2.4M

virgo

The Virgo group in Rome undertook a highly demanding computational task, utilising 2.4M Cloud CPU hours to search for elusive Continuous Gravitational Waves. This research involved analysing an immense parameter space—on the order of 10^15 points—to potentially detect signals from isolated Neutron Stars.

CLOUD CPU/H

1.2M

vo.usegalaxy.eu

The EuroScienceGateway project leveraged over 1.2M Cloud CPU hours offered in-kind by 3 EGI Federation members with the support of the Italian National Institute for Nuclear Physics (INFN), the International Institute for Applied Systems Analysis in Slovakia and the National Academic Network and Information Centre (ULAKBIM) in Turkey, to connect the Galaxy Platform with external computing and storage capacity available in the EGI Federated Cloud, enabling "Bring Your Own Compute" and "Bring Your Own Storage" concepts.

CLOUD CPU/H

550K

vo.radiotracers4psma.eu

A consortium of three Italian research teams utilised 550K Cloud CPU hours to advance studies on theranostic probes for Prostate-specific membrane antigen. This work aims to understand the molecular mechanisms involved.

CLOUD CPU/H

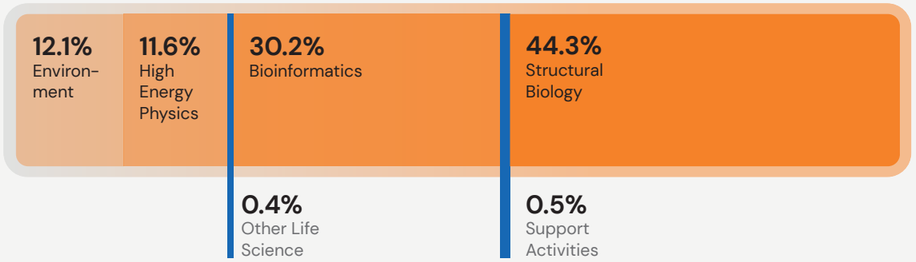
500K

vo.aneris.eu

The ANERIS project started production deployment and used over 500K CPU hours. The Centro de Supercomputación de Galicia (CESGA) in Spain hosts the Minka platform[4], a citizen science portal that facilitates the collection of observational data about Life below water and Life on Land.

[4] https://minka-sdg.org/

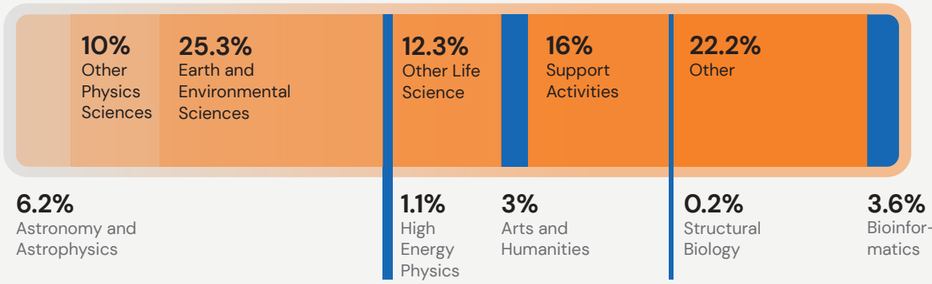
Spread of EGI Users Across Disciplinary Areas



The Medical and Health Sciences and Bioinformatics fields continued to grow, showing an increase in users compared to 2023. Within MHS, WeNMR remains the leading structural biology initiative, with a recorded user base of 51.5K. In the Bioinformatics domain , the National Bioinformatics Infrastructure Sweden (NBIS) plays a key role, with ~376K users worldwide leveraging EGI's resource pool to execute bioinformatics jobs.

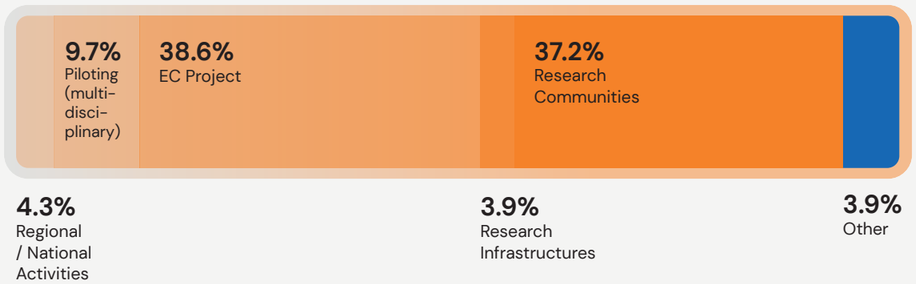
Within the Environmental community (Earth and Environmental Sciences), the ENVRI community achieved a notable milestone, as its Data Portal exceeded 10.2K visits. The HEP and the Astronomy and Astrophysics scientific areas account for the majority of compute-hour consumption on computers connected with EGI's 'Services for Federation' (about 98% of CPU hours) and they represent 12% of the overall users supported by EGI services.

Spread of EGI Cloud CPU-Hour Use Across Disciplinary Areas



We observed a reduction in the Cloud CPU/h used in the Support Activities sector due to the end of production activities of a few research projects, which have been successfully supported through open calls. Since then, the support programme is being intensified to engage with new communities. The Structural Biology, Bioinformatics and Other Life Sciences fields experienced a surge in Cloud CPU/h usage, particularly in the Bioinformatics domain. This growth is largely due to an increase in jobs run by the NBIS and BioMed communities on the EGI Infrastructure—highlighting the growing demand for cloud resources in life sciences research. In the area of Earth and Environmental Sciences, the trend remains strong, with ENVRI, Pangeo, and SeaDataNet leading the way in Cloud CPU/h utilisation. These communities continue to harness EGI's cloud capabilities to advance environmental monitoring, data analysis, and modeling.

Spread of Cloud CPU-Hour Across Type of Activity



The EGI Access Call kept drawing in stakeholders. We recorded a significant rise in the CPU/h consumed from EC projects and Research Community:

- 7 new R&D projects using our cloud serviced started
- New platform services supported by the EGI infrastructures became operational, attracting an increasing number of users from research community

EGI User Journey

Curious About How Researchers Turn Growing Data and Computing Needs Into Real-World Solutions With EGI?

Check out the infographic below to explore the user journey—from first contact to co-development and community adoption—and see how EGI helps research communities scale, innovate, and thrive.

Tina is part of the Pangeo community, a collaborative effort to make big data analysis accessible to scientists worldwide.

Tina's challenge

Pangeo is growing rapidly, and the demand for computational resources is skyrocketing. Managing this increasing load while maintaining optimal performance for users is becoming a significant challenge.

01

Discover

Tina recognises the growing computational demands of the PANGEO user base and identifies EGI as a potential solution provider due to its reputation for advanced computing resources for research.

02

Engage

Tina reaches out to EGI to explore potential solutions, detailing PANGEO's specific requirements and highlighting the need for a scalable and robust computing platform.

03

Co-develop

Tina collaborates closely with EGI's technical experts to define the optimal configuration, resources, and technical support. A joint technical integration plan is developed to initiate the collaboration.

04

Use

Tina and EGI successfully validate and operate a big data analytics platform, leveraging EGI's advanced solutions and scalable resources. This platform is tailored to meet the specific needs of the PANGEO community.

05

Grow

Tina and EGI collaborate to promote the newly deployed environment through joint training workshops and user guides to maximise user adoption and leverage the platform's capabilities.

Our Impact in 2024:

Advancing Science and Innovation_

IMPACT

01

Empowering Research_

Through strategic partnerships, cutting-edge digital services, and a robust engagement programme, EGI supported over 260 scientific communities and SMEs with its tailored IT solutions.

This year's achievements include the onboarding of eight new communities, the establishment of two new partnerships with Research Infrastructures (RIs) listed on the ESFRI Roadmap, and continued efforts to accelerate innovation through direct collaboration and co-development.

The following stories highlight how EGI's infrastructure and expertise are transforming research—enabling it to be conducted, scaled, and shared in more effective and impactful ways across diverse domains.

Highlights

248
Scientific communities supported, from co-development to production

2
New partnerships with RIs listed on the ESFRI Roadmap

11
Collaborations with SMEs

8
New research communities engaged

Impact 1 – Succes Stories

Spotlight on User Success Stories

NEURO SCIENCES

Supporting Reproducible Neuroimaging Research with Neurodesk Partnership with Neurodesk

Neurodesk is a community-driven IT platform that simplifies complex data analysis by providing a containerised environment that ensures reproducible results across diverse computing infrastructures. EGI partners with University of Queensland to provide cloud hosting capabilities to Neurodesk.org at CESNET, and by securely hosting vital neuroimaging data repositories on its Stratum-1 infrastructure at NIKHEF. This collaboration is streamlining neuroimaging workflows and accelerating scientific discovery.

OCEANOGRAPHY

Advancing Global Coastal Monitoring with Cloud Innovation for CoastPredict

CoastPredict is a worldwide initiative supported by the United Nations Decade of Ocean Science for Sustainable Development, striving to transform the observation and forecasting of the Global Coastal Ocean. Its emphasis encompasses river catchments and urban regions to oceanic slope waters, combining real-time observational data with predictive models to improve the understanding of coastal dynamics and bolster community resilience. Under the lead of CMCC (Euro-Mediterranean Center on Climate Change), EGI supports the CoastPredict initiative to create a prototype of the GlobalCoast cloud infrastructure and services for the comprehension of coastal regions impacting ecosystems, economies, and human populations. The cloud infrastructure prototype covers various regions and pilot locations.

HEALTH AND MEDICINE

Supporting Euro-BioImaging's Innovative Distributed Image Analysis Training Course

The EGI's Federated Cloud Infrastructure helps Euro-BioImaging deploy BAND, a platform for remote desktop applications. This platform is used in training sessions to provide hands-on experience in bioimage analysis, reducing the need for extensive travel, thereby cutting costs and minimising environmental impact. EGI's collaboration with Euro-BioImaging will continue in the coming years, ensuring a production-quality service for the broader research community.

OCEANOGRAPHY

Enhancing Ocean Monitoring with Cloud Innovation for Euro-Argo ERIC

Euro-Argo ERIC, a key contributor to global ocean monitoring through the Argo programme, partnered with EGI to strengthen its capacity for managing large-scale oceanographic data. Enabled through a technical collaboration with IFREMER and supported by CNRS at IN2P3-IRES, this initiative leverages EGI's Cloud Compute, Online Storage, and Check-in services.

With access to 50 CPU cores for cloud computing and 1 TB of secure storage, Euro-Argo can now rapidly process data from Argo floats, delivering timely insights into ocean conditions.

GEOSCIENCE

Pangeo: an Open Science Gateway for Big Data Science

Pangeo is a global, open ecosystem dedicated to collaboration and scalability in big data analytics for geoscience. It brings together scientists, developers, and research software engineers to build software and infrastructure that tackle complex geoscience challenges. In partnership with EGI, the Pangeo Europe Community has established a DaskHub, which includes a Dask Gateway and JupyterHub, running on a Kubernetes cluster through the EGI Federation infrastructure. These resources enable users to perform large-scale data analysis efficiently while gaining hands-on experience with tools like Xarray and Dask. By eliminating the need for personal infrastructure setup and package installation, Pangeo can foster a collaborative environment where researchers, software engineers, and open science advocates can easily share knowledge and advance open science.

IMPACT

02

Delivering Innovation & Advancing Services_

EGI remains committed to IT research and development to meet the evolving needs of European research communities.

With a strong focus on continuous improvement, the Federation introduced significant upgrades to existing services and launched new capabilities to address emerging requirements.

From modernising cloud computing and data services to enabling seamless authentication and supporting the rise of AI and Digital Twins, these developments are enhancing efficiency, security, and scientific impact across disciplines.

This section showcases the major service enhancements and strategic innovations that are shaping the future of research through EGI.

Impact 2

Enhancements to the Service Portfolio

A New Registry for Cloud Artefacts

UPGRADE

Cloud Compute

EGI has launched a new Artefact Repository to support both virtual machines and container images. This upgrade brings advanced features like content vulnerability scanning and image signing, helping ensure the integrity and trustworthiness of software used in the cloud. The repository is integrated with EGI Check-in, enabling Single Sign-On and streamlined access control. Communities can now start publishing their software artefacts in EGI using this new repository. The system is based on Harbor, an open-source, OCI-compliant registry with a robust ecosystem of interoperable tools.

DataHub Enhancements and Integrations

UPGRADE

DataHub

EGI's DataHub service has seen major upgrades, improving both functionality and integration with other research tools. A key enhancement is the addition of S3 support, making DataHub compatible with the widely used standard for accessing object storage. This was developed as part of the interTwin project, which is also working on an S3 Gateway for DataHub—expected to be completed in 2025.

In the EuroScienceGateway project[5] DataHub was integrated with the Galaxy platform as both a data source and storage solution. This was enabled by creating a new Python library, now part of Galaxy since version 24.1.

DataHub has also played a vital role in the Eureka3D project[6], where it supported improvements to data workflows and added compatibility with the Europeana data model. Thanks to these updates, Europeana can now automatically harvest datasets via the OAI-PMH interface[7].

[5] galaxyproject.org/projects/esg/
[6] eureka3d.eu/
[7] eureka3d.eu/wp-content/uploads/2024/11/EUreka3D-D3.3-v1.0-and-annex.pdf

AAI: Enhancing Interoperability, Scalability and Policy Management with Keycloak

UPGRADE

Check In

EGI's Authentication and Authorisation Infrastructure (AAI) evolved with a focus on interoperability, scalability, and advanced policy management, powered by Keycloak as the federated identity and access management platform. Key improvements include:

- **Adoption of the latest Keycloak releases**, ensuring compatibility with identity standards like OpenID Connect (OIDC), SAML, and OAuth2.
- **Enhanced introspection mechanism**, improving access token validation and federated service integration.
- **Upgraded Statistics tool**, offering deeper insights into authentication trends.
- **Refined policy management**, particularly in policy expiration handling, reducing administrative overhead and ensuring continuous access.

These updates reinforce Check-in as a scalable, interoperable AAI solution, enhancing security and policy enforcement across the federation while providing seamless authentication for researchers and service providers.

Managing User Access with Community AAI and Infrastructure Proxy

NEW SERVICE

We introduced two key AAI services: Community AAI and Infrastructure Proxy, designed to streamline user authentication and authorisation for research communities and infrastructures. Both services align with the AARC Blueprint Architecture[8], ensuring full interoperability with federated environments, such as the EOSC Federation.

Community AAI offers research communities a dedicated identity and access management solution. It enables the integration of multiple identity providers—such as institutional, social, or community-managed—and the enforcement of community-specific access policies. Through standardised protocols like OpenID Connect and SAML, Community AAI ensures secure and smooth authentication across EGI and other AARC-compliant infrastructures.

On the other hand, Infrastructure Proxy acts as a central trust anchor for RIs, enabling access control across distributed services. It differs from the Community AAI in that it supports infrastructures with multiple services, providing a unified point of integration. The Infrastructure Proxy centralises policy enforcement, simplifying the authentication and authorisation process and allowing service providers to delegate these responsibilities to a federated proxy layer. This approach reduces complexity while enhancing security and compliance.

Together, these services provide scalable, interoperable, and standards-compliant solutions for managing user access. By adopting Community AAI and Infrastructure Proxy, research organisations can easily integrate with the broader EOSC ecosystem and other federated infrastructures, enhancing collaboration and improving the overall research environment.

[8] https://aarc-community.org/architecture/

Technical Evolution of EGI Notebook

UPGRADE

Notebooks

The Interactive Notebook service is an upgraded version of EGI Notebooks, introducing new features that improve collaboration, usability, and integration with other research tools:

- Real-time collaborative editing, so multiple users can work on the same notebook at once.
- Simplified login, using a secure token-based system linked with EOSC's authentication service.
- Integrated usage tracking, with daily statistics available through EOSC Accounting.
- File management support, including integration with ownCloud for easier syncing and sharing.
- A new version of JupyterHub (v5.0), with improved features and a modernised interface.

This enhanced service also powers the D4Science platform within Blue-Cloud[9], a collaborative marine science initiative. Thanks to EGI's infrastructure, it can scale using commercial cloud providers and support future cloud-based developments.

Transformation of the EGI Cloud Container Compute

UPGRADE

Cloud Container Compute

The Cloud Container Compute service, part of the EGI portfolio since 2014, underwent a significant evolution. Initially, it provided flexibility for users to run containerised applications, but required extensive manual setup and configuration, often leading to deployment issues due to varying hardware and network configurations across different providers. In 2024, the service transitioned into a fully managed offering, freeing users from the complexities of container orchestration platforms such as Kubernetes or Docker Compose.

Users can now access a streamlined web interface powered by Rancher, along with robust command-line interfaces (CLIs), to easily deploy and manage applications on top of shared or dedicated Kubernetes clusters. EGI operates and manages these clusters behind the scenes, ensuring high availability and scalability in line with industry best practices. Additionally, the service is complemented by the EGI Artefact Repository, a secure private container registry that allows users to store and share their application images with confidence.

[9] blue-cloud.d4science.org

Cutting Edge Technologies

Advancing the Adoption of AI

To make this possible, several open-source AI frameworks were integrated into EGI's platform, including:

- MLflow[10]: a framework used for model storage, serving, evaluation, and monitoring. It served as the tracking tool for AI experiments in iMagine and as model registry in interTwin.
- Kubeflow[11]: an orchestration framework for AI pipelines deployed on top of Kubernetes. Integrated into the EGI Notebook through the Elyra[12] extension, it enabled seamless pipeline creation in iMagine and managed distributed training orchestration in interTwin.
- interLink[13]: a framework for offloading Kubernetes workloads to remote resources capable of managing containers. In interTwin, it was deployed to offload computations to HPC for AI training.
- Infrastructure Manager[14]: a tool for deploying and configuring complex virtual infrastructures, including MLflow and KubeFlow, and used by both projects.
- OSCAR[15]: a framework designed for serverless and elastic computing, which facilitated the serving of AI models in both projects.

iMagine

PROJECT HIGHLIGHT

iMagine is a Horizon Europe project accelerating the adoption of AI in aquatic and environmental sciences. Running from September 2022 to August 2025, it brings together RIs, environmental scientists, AI developers, and e-infrastructure providers to build a shared foundation for AI innovation in research.

At the heart of the project is the iMagine AI Platform, a scalable, open-access infrastructure that supports the full AI lifecycle—from data preparation to model development, training, deployment, and monitoring—tailored to image analysis in marine and freshwater research. Integrated with major European digital initiatives like EOSC and AI-on-Demand, the platform democratises access to AI tools, empowering researchers to run advanced analyses, collaborate across domains, and create customised solutions to environmental challenges.

iMagine also offers a service catalogue, showcasing a growing set of AI services, models and science use cases from diverse aquatic science domains. The Competence Centre has supported four external use cases, expanding the reach and applicability of the project's solutions. A 2025 webinar series, endorsed by the Ocean Decade Initiative, further helped share knowledge and encourage adoption.

By replacing fragmented, manual workflows with automated AI pipelines, iMagine boosts efficiency, reproducibility, and objectivity in environmental monitoring. Through hands-on collaboration, coaching, and best practice sharing, the project builds lasting capacity between aquatic scientists, IT experts, and AI developers.

By promoting open, responsible, and interoperable science, and openly sharing datasets, services, and methodologies, iMagine ensures its outcomes are reusable and adaptable for future research—laying the groundwork for sustained innovation across disciplines and borders.

Read more on the website
https://www.imagine-ai.eu/

[10] mlflow.org
[11] www.kubeflow.org
[12] www.kubeflow.org/docs/external-add-ons/elyra
[13] github.com/interTwin-eu/interLink
[14] www.egi.eu/service/infrastructure-manager
[15] docs.oscar.grycap.net

Digital Twins for Science and Society

Digital Twins are redefining how researchers model, analyse, and respond to complex systems—from environmental dynamics to cultural heritage preservation. We advanced this frontier through its contributions to the interTwin project, which is developing a robust, open-source Digital Twin Engine (DTE) grounded in a co-designed Blueprint Architecture

PROJECT HIGHLIGHT

Digital Twins—virtual replicas of physical systems—are transforming research by enabling advanced simulation, prediction, and real-time decision-making. However, their broad adoption faces challenges related to data complexity, heterogeneous computing needs, and system interoperability.

Launched in September 2022, the interTwin project addresses these barriers by developing a prototype Digital Twin Engine (DTE) based on a co-designed Blueprint Architecture to support interdisciplinary use and integration.

We released its first Digital Twin Engine (DTE) open-source components and established testbeds across Cloud, HTC, and HPC centers to integrate and validate ten pilot DT applications. A first version of the pilot DT Applications in both Physics and Environment domains have been delivered.

Collaboration among interTwin stakeholders expanded, including joint efforts with projects like DECICE, AI4EOSC, and the LISA interferometer. Project components such as interLink gained traction with SMEs, including adoption by Nunet.io and HilixAI. Cooperation with ECMWF and sister Digital Twin projects (DT-GEO, BioDT) advanced through a shared DT/DTE Glossary. Connections with ocean-focused initiatives (DT Iliad, AquaINFRA) were also established. interTwin is now contributing to a new IEEE Working Group on Digital Twin standardisation.

interTwin components have been incorporated into newly funded EGI project proposals set to launch in 2025. The project's advancements in HPC federation and the computing/data continuum now serve as the foundation for EGI Federation's HPC integration strategy.

Read more on the website
https://www.intertwin.eu/

Data Exploitation Platforms

Turning vast amounts of scientific data into knowledge requires more than just storage and access—it requires smart, scalable environments that bring together data, computing, and advanced analytics. Data Exploitation Platforms (DEPs) are EGI's response to this challenge. Designed to support the full research data lifecycle, DEPs offer integrated solutions for data discovery, staging, processing, and AI-driven analysis.

PROJECT HIGHLIGHT

RI-SCALE empowers RIs that generate massive amounts of scientific data with the tools they need to truly exploit it. The project develops scalable Data Exploitation Platforms (DEPs) that allow RIs to extend their services with powerful computational environments and preconfigured AI applications.

EGI and data-intensive research infrastructures (ENES, EISCAT, BBMRI and Euro-Bioimaging) are intensifying their collaboration to advance technical solutions for secondary research data exploitation in multiple scientific domains.

The RI-SCALE project, launched in 2025, aims to develop and deploy Data Exploitation Platforms (DEPs) to bridge the gap between RI data holdings and advanced computational resources. These platforms will enable seamless access to data, facilitate complex analysis, and accelerate the development of AI applications.

The DEP technology will act as a prototype for scalable computational platforms designed to support AI-driven data exploitation. The impact of these platforms will be far-reaching, as they will offer proper tools for data staging, analysis, and the generation of AI-driven insights. Ultimately, the project will significantly enhance the reuse of data within scientific communities, driving innovation and ensuring future scalability in data-driven research.

RI-SCALE is actively seeking new partners from RIs, compute centers, academia or industry to co-design, validate, and benefit from the DEPs. You can find more information on how to get involved on the website.

Read more on the website
https://www.riscale.eu/

Scaling for Future

Keeping pace with next-generation science means looking beyond current infrastructure and anticipating the demands of data-driven discovery at scale. This requires coordinated action across technologies, communities, and policy. In this section, we highlight efforts aimed at shaping the strategic and technical foundations that will support Europe's most ambitious research endeavours in the coming decades.

SPECTRUM

PROJECT HIGHLIGHT

The EU-funded SPECTRUM project brings together leading European science organisations and e-Infrastructure providers to formulate a Strategic Research, Innovation, and Deployment Agenda (SRIDA) along with a Technical Blueprint for a European computer and data continuum. This collaborative effort is set to create an Exabyte-scale research data federation and compute continuum, fostering data-intensive scientific collaborations across Europe.

The explosive data growth from next-generation scientific instruments—like HL-LHC, LOFAR, and the upcoming SKA—is putting immense pressure on today's computing and data infrastructures. To proactively address this challenge, EGI co-launched the SPECTRUM project with partners across the digital infrastructure and research landscape.

Running over 30 months, SPECTRUM is developing a Strategic Research, Innovation, and Deployment Agenda (SRIDA) and a technical blueprint for a compute and data continuum that can meet the needs of data-intensive domains such as High-Energy Physics and Radio Astronomy.

In its first year, the project established the SPECTRUM Community of Practice, bringing together more than 60 experts in a cross-disciplinary forum. This community drives collaboration, co-creation, and the reduction of fragmentation across computing ecosystems.

Early project outputs—including a landscape analysis, use case insights, and policy recommendations—will be delivered in April 2025. A public draft of the SRIDA and technical blueprint will follow in Q4 2025.

Read more on the website
https://www.spectrumproject.eu/

IMPACT

03

Fostering Collaboration_

Collaboration lies at the heart of EGI's mission to support research excellence across Europe and beyond. EGI deepened its engagement with RIs, scientific communities, and international partners to address emerging digital challenges and drive innovation at scale. This section showcases how our strategic collaborations empower diverse research domains—demonstrating the tangible impact of working together to build a more open, data-driven, and sustainable research ecosystem.

Impact 3

Empowering ESFRI Research Infrastructures Through Collaboration and Support

Strong collaboration with ESFRI RIs is essential for advancing European research. By working together, we address digital challenges, enhance data processing capabilities, and ensure seamless access to computing resources across scientific domains.

Our partnerships with RIs foster innovation, drive technological advancements, and support the long-term sustainability of RIs. In this section, we highlight key examples of our ongoing collaborations and the impact of our joint efforts.

SOCIAL & CULTURAL INNOVATION

CESSDA ERIC

Since joining the ESFRI Roadmap in 2006, CESSDA has grown into a major European RI, offering a wide, sustainable platform for accessing and sharing social science data. To strengthen its services, CESSDA signed a Service Level Agreement with EGI in January 2024. This partnership gives CESSDA users access to EGI's powerful computing resources—including the interactive EGI Notebooks service—so they can easily share, analyse, and process research data.

CESSDA is also actively involved in EOSC Beyond, a project led by EGI. Their role focuses on integrating social science-specific services into the EOSC and helping improve how metadata is created and shared using FAIR principles. Together, these efforts are making social science data easier to find, use, and share across Europe—advancing Open Science and encouraging more transparent, collaborative research.

HEALTH & FOOD

EMPHASIS

EMPHASIS is a distributed RI on the ESFRI Roadmap since 2016, which focuses on advancing multi-scale plant phenotyping across diverse agro-climatic conditions.

To support its mission, EMPHASIS partnered with EGI to harness advanced computing and data management services for large-scale plant science. Through this collaboration, researchers can process and analyse complex phenotypic, genomic, and environmental data more efficiently—enabling high-throughput experiments and sophisticated simulation models.

This partnership highlights how combining powerful digital infrastructure with specialised research needs can drive innovation in plant science and support more data-driven, sustainable agriculture.

HEALTH & FOOD

Euro-BioImaging ERIC

Euro-BioImaging is a leading RI offering state-of-the-art biological and biomedical imaging services to life science researchers across Europe.

Euro-BioImaging partnered with EGI to deliver the multi-site training course "Introduction to Image Analysis with Python[16]." Powered by EGI's Training Infrastructure and the BAND remote desktop platform, the course enabled hands-on bioimage analysis from any location—cutting travel costs and environmental impact.

Euro-BioImaging is an active contributor to the EGI-coordinated RI-SCALE project, which focuses on developing AI-powered Data Exploitation Platforms (DEPs) to enable scalable analysis and reuse of large volumes of imaging data. Within RI-SCALE, Euro-BioImaging is particularly involved in two key use cases: Colorectal Cancer Risk Prediction using Explainable AI, and the use of Synthetic Data for Computational Pathology.

Together, these efforts demonstrate the power of integrating cutting-edge imaging and computational infrastructures to drive progress in life sciences.

HEALTH & FOOD

METROFOOD-RI

METROFOOD-RI is a distributed RI dedicated to providing high-quality metrology services, knowledge, and tools in the fields of food and nutrition. EGI and METROFOOD-RI have established a collaborative partnership to enhance metrology services in food and nutrition through shared digital infrastructures and expertise. This collaboration addresses the sector's complex challenges by combining precise measurement capabilities with powerful computational resources.

Since March 2025, METROFOOD-RI has been participating in the EGI-coordinated EOSC Beyond project. Within this framework, the RI is developing FoodCASE—a pilot data space tailored to the food domain. This initiative showcases how the synergy between computational platforms and specialised metrology services can drive forward research and innovation in food quality, safety, and sustainability.

ENVIRONMENT

LifeWatch ERIC

LifeWatch is a distributed RI providing e-Science facilities and services to the biodiversity and ecosystem research community.

EGI and LifeWatch ERIC have established a robust partnership to advance biodiversity and ecosystem research through shared e-Science solutions. This collaboration has been solidified through joint participation in several European projects, including ENVRI-Hub NEXT, EOSC Beyond, and ANERIS. These initiatives aim to enhance data-intensive research and promote open science across Europe.

A notable example of their collaboration is the adoption of EGI Check-in AAI service for the implementation of the LifeWatch Engagement Plan. Within EOSC-Beyond, the RI is developing a pilot to provide tools for the automation and management of scientific workflows, enabling researchers to execute and share workflows across federated nodes. The node will implement advanced monitoring solutions and detailed accounting services to track resource usage and performance, ensuring reliability and efficiency. The partnership between EGI and LifeWatch ERIC exemplifies how collaborative efforts can lead to innovative solutions that address complex environmental challenges.

[16] https://www.egi.eu/event/distributed-training-course-intro-bioimage-analysis-python-life-scientists/

HEALTH & FOOD

EU-OPENSCREEN ERIC

Included in the ESFRI Roadmap since 2008, EU-OPENSCREEN ERIC is an RI dedicated to the development of novel small chemical compounds that trigger specific biological responses in organisms, cells, or cellular components.

To support this work, EGI provided robust data storage capabilities, enabling EU-OPENSCREEN researchers to manage large-scale screening datasets efficiently. In total, approximately 2,7 TB of data, including over one million image files, were transferred using EGI services—avoiding the need for significant investment in dedicated data transfer infrastructure.

The collaboration between EGI and EU-OPENSCREEN demonstrates how coupling cutting-edge computational infrastructure with domain-specific research efforts can drive progress in chemical biology and drug discovery, fostering scientific innovation across Europe.

ENVIRONMENT

Euro-ARGO ERIC

Established in 2014, Euro-ARGO ERIC coordinates Europe's contribution to the global Argo program, aiming to sustain a quarter of the international effort. The Argo program maintains a global array of profiling floats that measure temperature and salinity every ten days across the deep oceans, providing data for climate change research and operational services like Copernicus.

EGI provided essential computation resources and infrastructure to deploy the ARGO Global Data Assembly Centre, improving ocean observation abilities.

Starting from September 2022, Euro-ARGO has been participating in the EGI-coordinated iMagine project, and since February 2024 also in the ENVRI-Hub Next project. These partnerships enable Euro-ARGO to efficiently process and manage the substantial data generated by its network of Argo floats, which are autonomous instruments measuring oceanic parameters.

Launched in February 2024, ENVRI-Hub NEXT builds on the foundational work of the previous cluster project, ENVRI-FAIR, advancing both the conceptual and technical infrastructure of its key output: ENVRI-Hub[17]. This strategic initiative is designed to empower the ENVRI Science Cluster, facilitating the delivery of interdisciplinary, data-driven environmental services.

In its first year, the project successfully identified key operational services and established a cohesive ENVRI-Hub architecture. RIs worked together to develop a shared understanding of how to deliver Essential Climate Variables via the Hub's services. A cloud-adapted staging environment was deployed, allowing service owners to release the first versions of these services while project partners tested critical ENVRI-Hub components.

Strategic collaboration between the ENVRI Community and over 20 projects and RIs has been central to the success of this initiative, particularly in communications, events, and knowledge-sharing activities. These collaborations have also extended to involving RIs in surveys and internal training sessions, fostering deeper engagement and alignment.

Looking ahead, ENVRI-Hub NEXT will focus on strengthening collaboration across Environmental RIs (ENVRIs), leveraging complementary data and services to enhance interdisciplinary environmental research. By partnering with e-infrastructures, the project will integrate cloud-based solutions, align with the (EOSC), and optimise resource sharing. These efforts aim to increase coordination within the ENVRI Science Cluster, ultimately driving more efficient, cohesive, and impactful environmental research outcomes.

ENVRI-Hub Next supports the following RIs: ACTRIS, AnaEE, Data Terra, EPOS, EURO-ARGO, eLTER, IAGOS, ICOS, LifeWatch ERIC, SeaDataNet, SIOS

[17] https://envrihub.vm.fedcloud.eu/

Strengthening the EGI Federation: Welcoming UKIM as a Full Member

> **Restoring our full membership in the EGI Federation will enable us to provide much more to the research community in North Macedonia, bridging the digital divide and enabling our researchers to access the possibilities offered by EGI.**

Professor
Anastas Mishev

Ss. Cyril and Methodius University in Skopje (UKIM), the lead institution behind MARGI—Macedonian Academic Research Grid Initiative—was formally reinstated as a full member of the EGI Federation. This recognition reflects UKIM's renewed commitment and long-standing contributions to the EGI community, particularly through its role in EGI helpdesk and second-level support services.

Founded in 2005, MARGI has been central to advancing Grid, cloud, and high-performance computing in North Macedonia. Its mission includes fostering national infrastructure development, supporting research communities, coordinating training and dissemination, and enabling participation in European and international e-Infrastructure programmes.

UKIM's return as a full member marks a new chapter in its collaboration with EGI.

Building Global Bridges: EGI's Expanding International Partnerships

EGI deepened its global engagement through strategic partnerships and high-level participation in international forums. EGI participated in the Zhongguancun Forum in Beijing—the largest innovation-focused event in China—where EGI joined a panel on Open Science alongside leaders from GBIF, Elsevier, Springer Nature, and the Chinese Academy of Sciences, where we highlighted the importance of federated data and computing infrastructures in enabling global, quality-driven open science. EGI also held meetings with long-standing partners at NSL CAS and CNIC, strengthening collaboration on the Global Open Science Cloud and exploring joint activities supporting communities such as WeNMR.

Between April and September, EGI and the Korea Institute of Science and Technology Information (KISTI) conducted a six-month bilateral project to validate technical interoperability between the Korean Research Data Commons and the EGI compute federation and its contribution towards EOSC. The project explored user authentication via EGI Check-in, data access through EGI DataHub, and various content-oriented interoperability scenarios. A follow-up phase is under consideration to support cross-continental research use cases that require coordinated access to data and compute resources in Europe and Asia.

These activities reflect EGI's strategic commitment to fostering intercontinental open science and building bridges across e-Infrastructure ecosystems.

Partnering for Success: EGI's Memoranda of Understanding

We launched a campaign to establish Memorandum of Understanding (MoUs) with key international communities and major RIs, based on contributions from the EGI community. The new MoUs define partnerships with KM3NeT[18], the next generation neutrino telescopes, the JUNO experiment[19], which aims to determine the neutrino mass hierarchy and perform precision measurements of the Pontecorvo–Maki–Nakagawa–Sakata matrix elements, and the Institute of Atmospheric pollution Research[20] (IIA), which delivers advanced Earth Observation data-centric services to support multidisciplinary communities. EGI also established long-term collaborations to support the operation of the services developed in the context of the FAIR-EASE[21] and the PITHIA-NRF[22] Horizon Europe projects supporting multiple RIs.

Strengthening Collaboration Across European e-Infrastructures

The European e-Infrastructures Assembly was established through a MoU signed by EGI, EUDAT, GÉANT, OpenAIRE, and PRACE during the EGI2024 Conference in Lecce.

This strategic collaboration brings together Europe's leading e-Infrastructure organisations with a shared commitment to strengthen research support, promote service innovation, and advocate collectively for the role of e-Infrastructures in enabling Open Science.

By combining their expertise in advanced computing, data services, connectivity, and knowledge exchange, the partners aim to:

- Advocate jointly at the European level to raise the visibility of e-Infrastructures.
- Coordinate activities to maximise efficiency and impact, including joint funding efforts.
- Drive innovation through collaborative R&D and shared service development.
- Deepen engagement with research communities and align services with evolving user needs.
- Shape policy discussions on the digital transformation of research and education.

The Assembly will serve as a platform for ongoing dialogue, coordinated action, and shared communication. Regular meetings and collaborative outreach will ensure the alliance remains aligned with the scientific community's needs and policy landscape.

> **We are thrilled to officially launch this collaborative partnership at the EGI Conference. By working together, we can create a more vibrant and innovative ecosystem that supports the next generation of researchers.**

Tiziana Ferrari, Director
EGI Foundation

[18] https://www.km3net.org/
[19] http://juno.ihep.cas.cn/
[20] https://en.iia.cnr.it/
[21] https://fairease.eu/
[22] https://pithia-nrf.eu/

Growing the EGI Community Through the EGI Conference

The EGI yearly conference acts as a crucial venue for promoting development and cooperation within the EGI community. At EGI2024, over 280 participants from more than 30 countries, including 19 exhibitors, gathered in Lecce, Italy for three days of sessions, talks, project meetings and inspiring plenary sessions. More than 100 talks and contributions focused on topics such as Scientific Computing, Data Innovations, Environmental Informatics, and EOSC and Open Science. With a satisfaction score of more than 8.5/10, the EGI conference remains an annual community highlight, bringing together scientific communities, service providers, and industry experts in an informal setting, facilitating the exchange of knowledge, showcasing advancements, and strengthening partnerships.

EGI2024

70+
Scientific Communities and Projects represented

350+
Attendees for the 5 days (including side meetings)

50+
Sessions, side meetings and trainings

123
Abstracts

26
Posters

16
Demonstrations

19
Exhibitors

8,5/10
Satisfaction score

IMPACT

04

Developing Skills and Competences_

Enhancing researchers' skills and advancing the maturity of service providers necessitates a systematic method that incorporates training, process refinement, and ongoing enhancement.

As described in the EGI Federation Strategy 2020-2024, EGI has presented a thorough plan to improve the capabilities of its users and service providers. This approach emphasises two key elements:

1. Providing specialised training and consulting to assist scientific communities in gaining the essential expertise needed for developing domain-specific platforms on the EGI Infrastructure, and
2. Promoting best practices in IT Service Management and Information Security to enhance the overall maturity of the service providers of the EGI Federation.

These efforts are part of EGI's broader mission to be a trusted service and technology partner for research and innovation, consistently adapting to address the needs of the research community.

Impact 4

Improving User Experience Through Training

EGI supports the upskilling of scientific communities primarily through the EGI Webinar Programme, complemented by targeted training at international conferences and workshops. Experts and service providers from the EGI Federation deliver hands-on sessions to help researchers make the most of EGI's computing and data services. Training topics include data processing, data management, analytics, machine learning, and AI. EGI also offers a well-organised and easy-to-access training catalogue and promotes a diverse portfolio of events regularly hosted by its members.

EGI and its members organised a total of 10 webinars and 6 training sessions/workshops.

Highlight

EGI played a key role in supporting the 3rd edition of the D4GEN Hackathon, organised by Genopole. Over 48 hours, 20 researchers, students, and entrepreneurs tackled medical and environmental challenges using AI. EGI enabled the teams to develop and prototype their solutions by providing cloud-based computing and storage resources, including GPU access via the EGI Federated Cloud. This technical support was instrumental in powering the hackathon's innovation.

Key Numbers

6
Webinars through EGI webinar programme

4
Additional webinars organised through our flagship projects

6
Training sessions with 198 live participants from 19 countries

732
Views on YouTube

> **EGI provisioned the computing resources that contributed to make the Statistical Magnetic Resonance Imaging in Neuroscience course organised at the Max Planck Institute for Biological Cybernetics a success. With Neurodesk on EGI's Federated infrastructure, students had seamless access to advanced neuroimaging tools, a Python coding environment, and significant computing power—regardless of their local hardware limitations. This support enhanced their learning through hands-on interaction with complex structural and functional imaging datasets and fostered innovation and collaboration. EGI's contribution greatly impacted our educational efforts, and we truly appreciate your commitment to advancing education.**

Vinod Kumar, Max Planck Institute for Biological Cybernetics, Tuebingen, Germany

Standardising Service Delivery Across the EGI Federation

Training for service providers encompasses topics such as: IT Service Management, following the FitSM certification scheme, and Information Security.

A total of 5 IT Service Management training sessions for service providers were organised. These courses were effectively attended by 41 service providers across the EGI Federation. Each participant completed the certification programme and received official certification recognised by the APMG certification authority.

Key Numbers

5

FitSM training courses + 1 workshop

41

Participants in the FitSM training courses

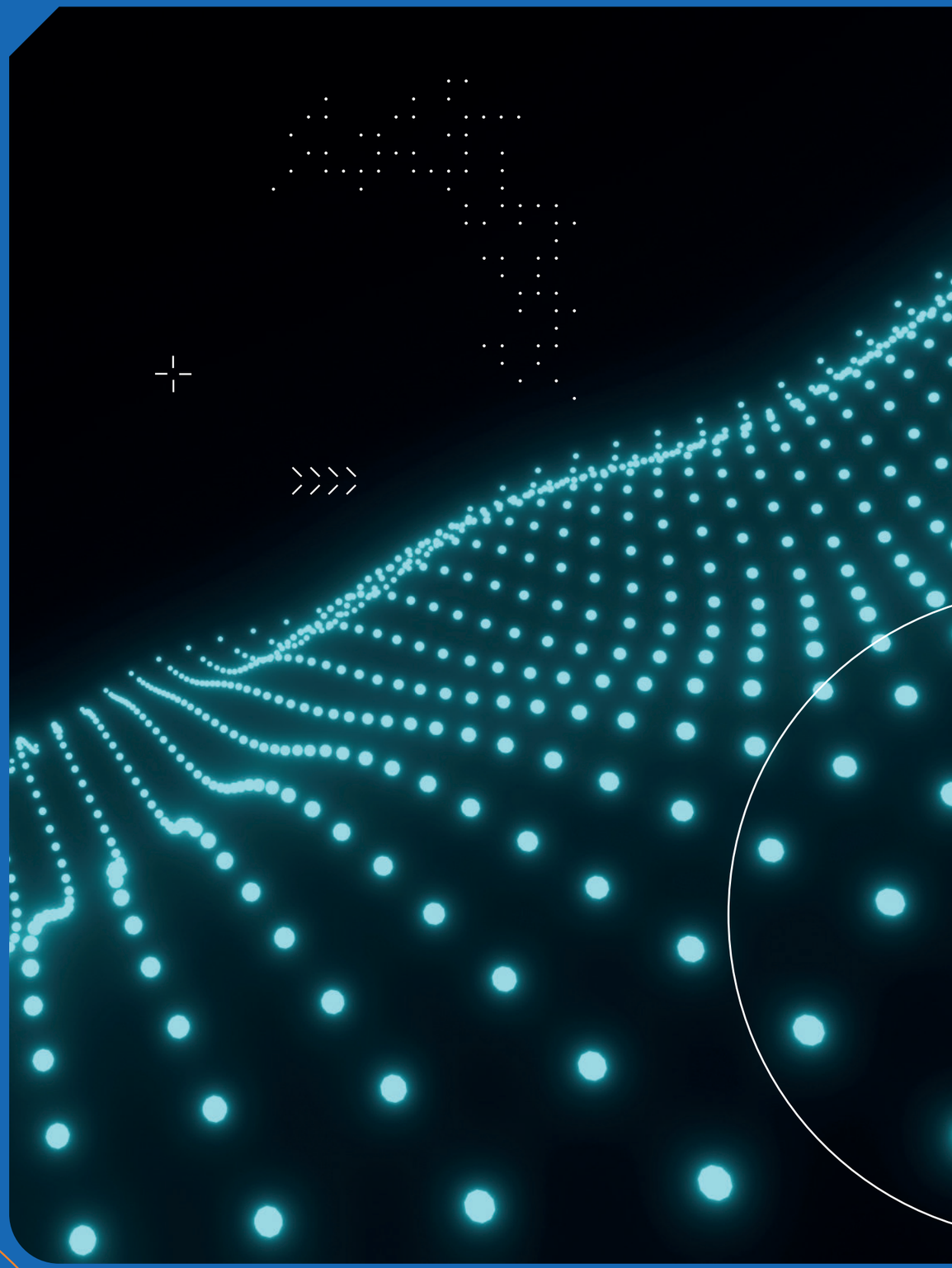
37

Participants received official certification

Did You Know?

Did you know that 80% of IT service disruptions stem from people and process issues rather than technical failures? Efficient IT Service Management is essential for ensuring high-quality services, especially in distributed infrastructures where coordination across multiple organisations is key. At EGI Foundation, we regularly organise several face-to-face and online FitSM trainings each year to help research infrastructures and other service managers streamline operations while maintaining flexibility.

Read more on the website https://www.egi.eu/service/fitsm-training/



Driving EOSC Forward

EGI's Contributions and Impact_

EGI has contributed significantly to many of the activities involved in implementing an operational EOSC to realise the vision of EOSC as a European Knowledge Commons, in line with its strategic aim of being a recognised foundation of EOSC.

Development & Implementation of the EOSC EU Node

EOSC is being implemented as a federation of EOSC Nodes—entry points through which researchers can access services and resources aligned with common federation rules. The EOSC EU Node, the first operational Node, launched in October 2024, offers a robust, interoperable infrastructure with access to a wide range of FAIR data and domain-spanning services for data handling, computing, processing, analysis, and storage.

Established through a public procurement structured into three Lots, the EU Node benefits from EGI's key contributions in Lots 1 and 3.

Lot 1 provides managed services for the development, integration, deployment and operations of the federated EOSC core platform. EGI Foundation, together with partners from GRNET and GWDG, is a participant in the 'Open Science Agora Consortium,' working alongside the lead partner Athena Research Centre, and joined by OpenAIRE AMKE, Netcompany-Intrasoft and GÉANT. EGI's responsibilities include the provision of:

- Monitoring and accounting frameworks, application workflow management, the helpdesk and the configuration management system
- IT services management framework and the onboarding of services
- Software verification and testing
- Single-Sign-On (SSO)
- Security coordination, including coordination of the risk management process for data protection.

EGI also contributes to communications, community outreach, and training activities to ensure strong user engagement. Finally, EGI manages its subcontractors, GRNET and GWDG. GRNET's responsibilities include PID management, SSO, monitoring, accounting for services, messaging, configuration management system, and verification and testing. GWDG will take the lead in PID management.

Lot 3 provides EOSC Exchange infrastructure and application services including a file synchronisation and sharing service, an interactive notebook service, and a large file transfer service. In Lot 3, EGI and CESNET are members of a consortium led by EGI's partner PSNC, which also includes ownCloud, Safespring and NORDUnet. The support provided by EGI Foundation includes the provisioning, together with CESNET, of Jupyter notebooks, and the overall service management coordination and integration with the services in other Lots.

Shaping the Future EOSC Federation

Efforts to define the structure and operation of the EOSC Federation[23] progressed significantly, including the selection of candidate EOSC Nodes through a call for expressions of interest. These candidate Nodes will help refine the technical, operational, and interoperability requirements of EOSC Nodes, as well as their interactions with each other and with the federating services offered by the EOSC EU Node.

EGI played a key role in this evolution, contributing expertise through multiple channels. In May 2024[23], EGI published a discussion paper outlining its vision for contributing to EOSC within the broader context of the Global Open Research Commons. Becoming a recognised EOSC Node aligns fully with this vision, and EGI aspires to take on this role in the future.

In parallel, EGI was actively involved in drafting the first edition of the EOSC Federation Handbook[25]—the foundational reference for how the Federation will function. Coordinated by the EOSC Association with support from the EOSC Focus project, the Handbook development benefited from EGI's deep technical and policy knowledge, including contributions drawn from its leadership of the EOSC Beyond project.

[23] https://open-science-cloud.ec.europa.eu

[24] https://doi.org/10.5281/zenodo.11128539

[25] https://eosc.eu/eosc-about/building-the-eosc-federation/eosc-federation-handbook/

Launched in April 2024 and coordinated by EGI, the EOSC Beyond project is developing new EOSC Core technical solutions to support the creation of integrated, machine-composable scientific environments. Its goal is to empower developers and researchers to compose and access diverse EOSC resources through a unified, federated infrastructure.

In its first year, the project delivered key advancements including the EOSC Integration Suite and the first release of the EOSC Core Innovation Sandbox, supporting internal pilot Nodes. It also proposed a detailed interaction model that lays the foundation for the EOSC Federation Architecture, contributing directly to the first edition of the EOSC Federation Handbook. EGI played a central role in coordinating technical development, establishing pilot regional and thematic Nodes, and leading communication and innovation strategies.

EOSC Beyond is expected to accelerate Open Science adoption by enabling interoperable, scalable access to services and resources across disciplines and geographies. By connecting national, regional, and thematic infrastructures to the EOSC EU Node, the project is fostering a cohesive EOSC Federation that delivers tangible value to European researchers and supports the next generation of federated scientific services.

EOSC Data Commons is dedicated to strengthening EOSC as the European Research Commons - a trusted global ecosystem that ensures seamless access to high-quality, interoperable research outputs and services. Innovative EOSC Exchange services are at the core of EOSC Data Commons: they will improve and accelerate the research data lifecycle, from discovery and analysis to deposition, preservation, sharing, and reuse. The project integrates a European data and compute continuum, leveraging the EOSC EU Node, national and European RIs, and a federated network of repositories across institutional, national, and thematic initiatives.

The project launched in April 2025 and started contributing to shaping the EOSC Federation right from the start.

The EOSC Data Commons will significantly enhance Europe's research landscape by delivering a suite of cutting-edge services and infrastructure that accelerate discovery, foster collaboration, and ensure long-term research sustainability. Its key components include:

- An AI-powered Metadata Warehouse and Discovery Service to dramatically improve the findability and accessibility of research data across disciplines.
- A Federated Network of Enriched Data Repositories, integrated with scientific applications and advanced analytics, enabling scalable, cross-domain research.
- A Comprehensive Catalogue of Data Analytics Tools to streamline and support complex research workflows.
- An Execution Service that simplifies the deployment and operation of research tools, reducing technical barriers and increasing productivity.
- Robust Metadata Specifications that ensure analytical tools are interoperable and results are reproducible, bolstering scientific integrity.
- A FAIRness Assessment and Reproducibility Toolkit, coupled with clear policies, to drive adoption of best practices in open science.

By engaging with 12 national and institutional data repositories, the EOSC Data Commons will play a pivotal role in shaping the future of the EOSC Federation. This collaboration will lay the groundwork for a more integrated, innovative, and resilient European RI, empowering researchers to tackle global challenges with confidence and agility.

Voluntary Contributions to the EOSC Community Through the Task Forces

EGI continues to provide voluntary leadership and expertise within the EOSC community. It co-chairs the Technical and Semantic Interoperability Task Force and actively contributes to the Health Data Task Force, two of the four currently active EOSC Association Task Forces. Additionally, EGI staff participate in two of the EOSC Association's Opportunity Area expert groups—User and Resource Environments and Metadata, Ontologies and Interoperability—which bring together experts from across Horizon Europe EOSC-related projects.

Contributions to EOSC Supporting Projects

Numerous Horizon Europe-funded projects are driving the development and implementation of EOSC. EGI is actively involved in several of these initiatives. The EOSC-related projects in which EGI participated during 2024 include:

eosc | Focus

EOSC Focus

EGI supported the EOSC co-programmed partnership through contributions to multiple work areas, including updates to the multi-annual roadmap, strengthening collaboration between Horizon Europe-funded EOSC projects, fostering connections with European partnerships and common data spaces, and shaping the EOSC Federation Handbook. EGI also contributed to studies on sustainable financing models for EOSC and delivered recommendations to the EOSC Association Board.

eosc | EuroScienceGateway

EuroScienceGateway

EGI Foundation leads work to develop new functionality to bring support for new computing and storage systems and to deliver meta scheduling of computing jobs in a distributed infrastructure delivered by EOSC providers and beyond. It also leads the development of a sustainability model to maximise the project's impact and collaborates in the activities to integrate EuroScienceGateway in EOSC.

eosc | Blue-Cloud2026

Blue-Cloud 2026

EGI leads work on "Blue-Cloud VRE interaction with EOSC projects", and participates in several other aspects of the project, including evolving Blue-Cloud VREs, expanding them by federating multiple e-infrastructures, and progressing their interoperation with EOSC core services. EGI enhanced the Blue-Cloud VREs with instances of the Galaxy workflow system that includes the integration with the Blue-Cloud Cloud Computing Platform to execute reproducible workflows and the support for interactive tools for user-friendly data analytics. The JupyterHub instance of Blue-Cloud - based on the EGI Notebooks service - incorporated new features for data sharing for Blue-Cloud users and improved RStudio integration.

CRAFT-OA | eosc

CRAFT-OA

EGI plays a key role in strengthening the technical and organisational backbone of institutional open access publishing infrastructures. EGI contributed to defining an interoperability framework, analysing requirements, and promoting federated trust and identity standards. Through Task 6.3, EGI and GRNET developed a federated AAI proxy service in line with EOSC AAI guidelines, piloting seamless single sign-on for publishing platforms. EGI also supported training, community building, and sustainability planning. Helping Diamond OA platforms adopt FAIR-aligned practices and build long-term technical capacity. CRAFT-OA highlights EGI's essential role in advancing secure, interoperable infrastructure for open access publishing within the EOSC landscape

EGI's Growing Role in Advancing European Data Spaces_

EGI reinforced its role within the Data Spaces ecosystem by successfully completing the preparatory project for the Green Deal Data Space (GDDS), called GREAT, and securing a key position in its follow-up project, SAGE, which will focus on deploying and operationalising the GDDS.

Through the EUCAIM project, EGI contributes to creating a pan-European federated data space for cancer images.

Meanwhile, in the EUreka3D and EUreka3D-XR projects, EGI and its members are building a virtual space that enables cultural heritage institutions to utilise storage and computing resources for creating, enriching, and managing digital 3D assets.

The GREAT project laid the groundwork for the GDDS, based on four pillars: a community of practice, a technical blueprint, governance and business models, and a prioritised dataset portfolio. These efforts culminated in a deployment roadmap aligned with the European Green Deal's goals on climate adaptation and mitigation, zero pollution, and biodiversity.

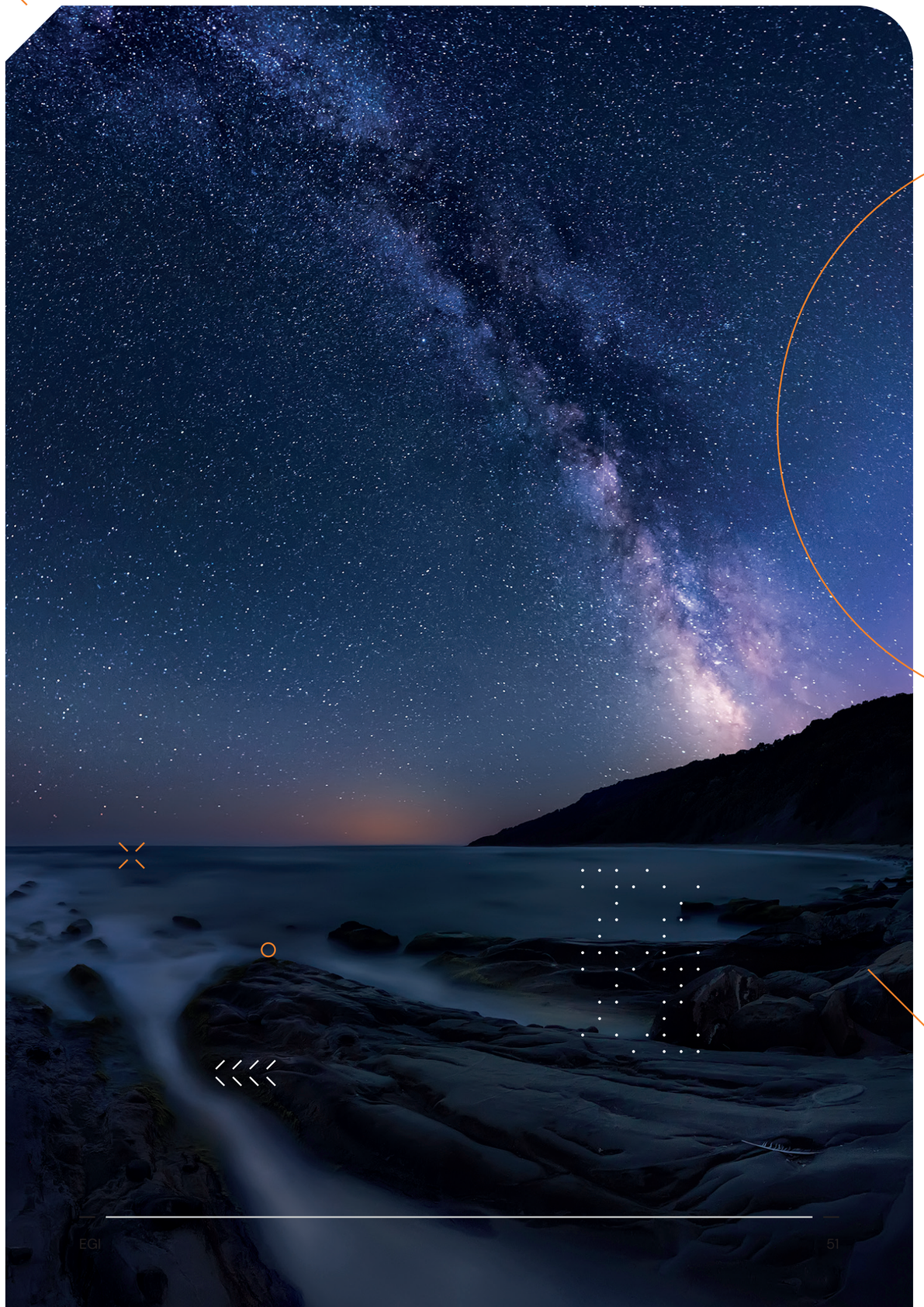
EGI played a central role in GREAT, leading technical coordination, governance, business model development, communications, stakeholder engagement, and managing liaison with the Data Spaces Support Centre (DSSC) and other sector-specific Data Spaces. The innovative outcomes from GREAT positioned EGI as a key technological partner for the SAGE project (2025–2028), which will oversee GDDS deployment.

The deployment will feature a suite of services organised within a technical architecture leveraging EOSC service providers' expertise—ensuring seamless interoperability between EOSC and GDDS from day one.

EGI also actively contributes to the Strategic Stakeholder Forum, established by DSSC. Initially composed of a select group of experts, the forum has expanded to include additional organisations with relevant expertise.

Furthermore, EGI participates in three DSSC Expert Teams—Data Value Creation, Trust and Data Sovereignty, and Legal—helping deliver essential public-facing assets for Data Spaces initiatives and encouraging external collaboration to shape and review content prior to publication.

Read more on the website



Looking Ahead:

EGI's Plans and Vision for the Future_

In 2025, the EGI Federation will embark on a series of strategic initiatives aimed at expanding its reach and increasing the value it provides to scientific and e-infrastructure communities. These plans will both build on EGI's strengths and pave the way for the organisation's evolving role in Europe's research ecosystem.

A key focus is the reinvigoration of the EGI Cloud, an essential service for research teams across multiple disciplines. By introducing new features, EGI aims to broaden the Cloud's appeal to a wider array of scientific use cases.

Looking further ahead, EGI envisions a transition to a data-and-compute-centric infrastructure, moving beyond its current compute-focused roots. This will be realised through projects like RI-SCALE and EOSC Data Commons, which will lay the foundation for integrated data services combined with high-performance computing. By bridging data and compute capabilities under one umbrella, EGI will better serve the evolving needs of research communities tackling data-intensive challenges.

At the same time, EGI plans to establish itself as the federator of AI assets for European science. Building on the momentum of initiatives such as iMagine, InterTwin, RI-SCALE, and EOSC Data Commons, EGI will offer a collaborative environment for AI tools and services. By harmonising resources and expertise, EGI aims to catalyse groundbreaking advancements in computational research and analytics.

Additionally, EGI seeks to formalise its HPC service as a fully-fledged offering within the federation. Building on initial progress, EGI will explore opportunities for large-scale computational partnerships, acting as a key facilitator to integrate and distribute HPC resources where they are needed most.

To bolster its role in the broader European Open Science Cloud, on top of the delivery of services and expertise in the context of the EOSC EU Node and related EOSC implementation projects, EGI will also progress on the potential creation of an EGI Node.

Through these coordinated efforts—spanning cloud services, data and compute integration, AI enablement, and HPC— EGI is well-positioned to address Europe's next wave of scientific challenges. By broadening its impact, strengthening strategic partnerships, and continuing to innovate, EGI will continue on its mission to advance and support data-intensive research.

Finances_

Income

Items	Actual 2024 (€)
Projects Income* adjusted to provision	4,857,146
Commercial Contracts income	2,098,584
Other Income (paid service delivery)	227,413
EGI.eu Participants fee	1,211,037
Income adj after EC audit	203,340
TOTAL INCOME	**8,597,520**

Expenditure

Items	Actual 2024 (€)
Employee expenses	5,229,824
Other operating expenses Core activities grant to Council	722,507
ICT (incl depreciation)	126,405
Facilities	208,508
Non Project Travels	50,940
Project Travels	516,213
General expenses	172,628
Communications expenses	64,738
Project central budget	1,150,594
Financial income/expense	36,585
VAT	131,680
TOTAL	**8,377,452**

Expenses 2024

€ 8,597,520

Income 2024

€ 8,377,452

Equity 2024

€ 260,068

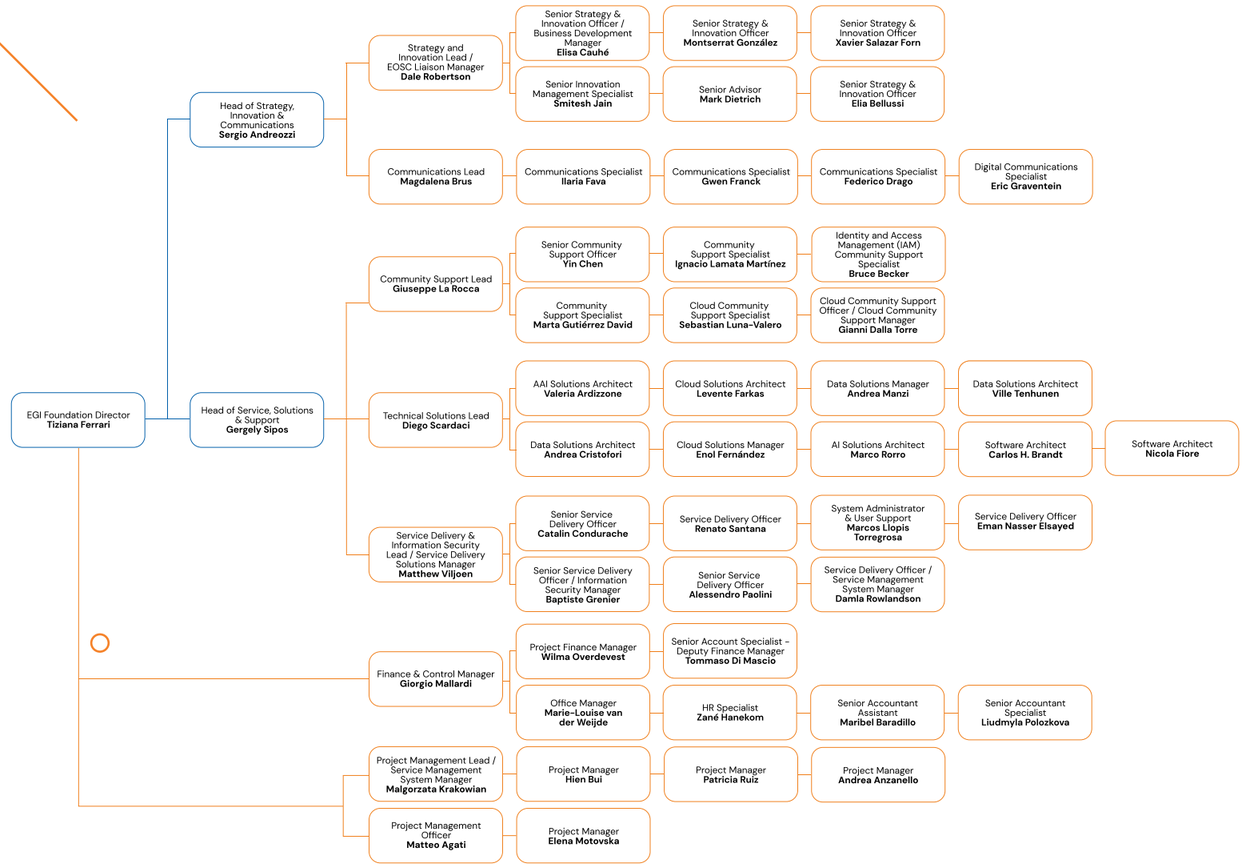
Our Team_

The EGI Foundation is the coordinating body of the EGI Federation. It was established in 2010 with a headquarters in Amsterdam, Netherlands.

The foundation staff is distributed across many countries and it ensures that the internal capabilities sustaining the federation are delivered professionally.

Our team is distributed in the following countries:

It comprises individuals from 19 different nationalities, fostering a rich tapestry of diverse perspectives and cultural backgrounds.



Glossary_

The entire glossary can be found at go.egi.eu/glossary

- EGI: Abbreviation of EGI Federation. Note: if EGI is mentioned, this only refers to the EGI Federation.
- EGI Federation: EGI Foundation, EGI Foundation Participants and Associated Participants, their linked organisations (e.g. service and resource providers) represented within EGI Foundation that contribute to the objectives of the foundation.
- EGI Federation Core: The EGI Federation Core is a suite of services that collectively form the backbone of the EGI infrastructure. These services are divided into two main categories: Services for Federation and Service for Research
- EGI Foundation: The legal entity whose objective is to coordinate and develop, in collaboration with its Participants, the EGI infrastructure that provides long-term distributed compute and storage resources for performing research and innovation activities.
- EGI Community: The EGI Federation plus the served research communities, the technology providers or any other organisation linked via an agreement with the EGI Foundation and contributing to the mission of the EGI Federation.
- EOSC: Initiative to offer researchers a virtual environment with open and seamless services for storage, management, analysis and re-use of research data, across borders and scientific disciplines.
- EOSC Federation: The EOSC Federation is the operational model that brings together national, regional, and thematic research infrastructures, service providers, and stakeholders to collaboratively build and operate the European Open Science Cloud.
- HPC: Abbreviation of High-Performance Computing. A computing paradigm that focuses on the efficient execution of compute-intensive, tightly-coupled tasks.
- HTC: Abbreviation of High-Throughput Compute. A computing paradigm that focuses on the efficient execution of a large number of loosely-coupled tasks.
- NGI: The national federation of shared computing, storage and data resources that delivers sustainable, integrated and secure distributed computing services to the national research communities and their international collaborators. The federation is coordinated by a National Coordinating Body providing a single point of contact at the national level and has official membership in the EGI Council through an NGI legal representative. Note: the name comes from “National Grid Infrastructure”, which is now deprecated.
- Virtual Organisations: A group of people (e.g. scientists, researchers) with shared interests and requirements, who need to work collaboratively and/or share resources (e.g. data, software, expertise, CPU, storage space) regardless of geographical location.

EGI Coordinated Projects

ENVRI-Hub NEXT

ENVRI-Hub NEXT consolidates and advances the robust conceptual and technical structure established by the ENVRI-Hub

EOSC Beyond

Advancing innovation and collaboration for research

EOSC Data Commons

Building a Collaborative Future for Research Data

iMagine

iMagine provides a portfolio of 'free at point of use' image datasets, high-performance image analysis

interTwin

interTwin co-designs and implements the prototype of an interdisciplinary Digital Twin Engine(DTE), an open

RI-SCALE

RI-SCALE empowers Research Infrastructures by providing scalable computational platforms for AI-driven data analysis, improving data

SPECTRUM

SPECTRUM brings together leading European science organisations and e-Infrastructure providers to formulate a Strategic Research,

EGI Community Participated Projects

See all projects
egi.eu/projects

Logo	Name	Start Date	End Date	Website
	SoBigData++	01 Jan 2020	31 Dec 2024	project.sobigdata.eu
	EUreka3D	01 Jan 2023	31 Dec 2024	eureka3d.eu
	LABPLAS	01 Jun 2021	31 May 2025	labplas.eu
	PITHIA-NRF	01 Apr 2021	31 May 2025	pithia-nrf.eu
	LETHE	01 Jan 2021	31 May 2025	www.lethe-project.eu
	TANGO	01 Sep 2022	31 Aug 2025	tango-project.eu
	EuroScienceGateway	01 Sep 2022	31 Aug 2025	galaxyproject.org/projects/esg
	SoBigData RI	01 Oct 2022	30 Sep 2025	www.sobigdata.eu
	AI4Europe	01 Jul 2022	31 Dec 2025	www.ai4europe.eu
	GraspOS	01 Jan 2023	31 Dec 2025	graspos.eu
	DATAMITE	01 Jan 2023	31 Dec 2025	datamite-horizon.eu
	CRAFT-OA	01 Jan 2023	31 Dec 2025	www.craft-oa.eu
	AARC Tree	01 Mar 2024	28 Feb 2026	aarc-project.eu
	Blue-Cloud 2026	01 Jan 2023	30 Jun 2026	blue-cloud.org
	EUCAIM	01 Jan 2023	31 Dec 2026	cancerimage.eu
	ANERIS	01 Jan 2023	31 Dec 2026	aneris.eu
	GreenDIGIT	01 Mar 2024	28 Feb 2027	egi.eu/article/greendigit-project-kicks-off
	PHENET	01 Jan 2023	31 Dec 2027	www.phenet.eu/en
	EOSC-Focus	01 Jun 2022	31 May 2025	eosc.eu/eosc-focus-project
	DSSC	01 Oct 2022	30 Sep 2026	dssc.eu
	IRISCC	01 Apr 2024	01 Oct 2028	www.iriscc.eu
	ECHOES	01 Jun 2024	31 May 2029	www.URLHERE.eu
	SAGE	01 Mar 2025	29 Feb 2028	www.URLHERE.eu

Key Publications_

EGI Annual Report 2023

The annual report offers a comprehensive overview of the remarkable achievements stemming from our collaborative endeavors in 2023. Uncover the notable milestones, projects, and initiatives that shaped the year.

egi.eu/publication/annual-report-2023/

EGI Service Catalogue

Discover the power of our large-scale computing and data analysis solutions.

egi.eu/publication/egi-service-catalogue/

EGI Communications Strategy 2024-2026

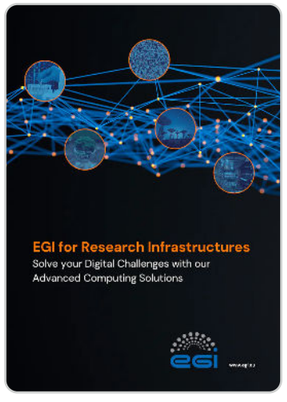
This summary provides an overview of the strategic direction that allows for greater consistency of communications actions over time, which will ultimately help EGI to achieve its vision and fulfil its goals.

egi.eu/publication/egi-communications-strategy-2024-2026/

EGI Brochure

Supporting data-intensive research with advanced computing services.

egi.eu/publication/2024-egi-brochure



EGI for Research Infrastructures

Solve your Digital Challenges with our Advanced Computing Solutions (2022)

egi.eu/publication/egi-for-research-infrastructures/

You can find all our publications at: egi.eu/publications

Acknowledgements

EGI extends its sincere thanks to everyone who contributed to this annual report—and even more importantly, to the continued advancement of the EGI Federation.

We offer special appreciation to the EGI Foundation for its coordination and leadership, and to all Federation members whose dedication remains the foundation of EGI's success.

We are also deeply grateful to the European Commission for its ongoing trust and essential funding, which enables EGI to support research, drive innovation, and advance the frontiers of open science and digital collaboration.

Funded by the European Union

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