EGI Council Participant: IFIN-HH

Participating in EGI Impact Report: Romania

2024

egi.eu

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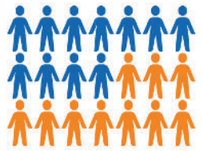
Infographic

152 service users

In 2024, 152 researchers from Romanian institutions used the services provided by the EGI Federation



1,337 publications

The research communities, projects and scientific collaborations from Romania supported by the EGI led to 1,337 peer-reviewed scientific publications

16 Supported communities

In 2024, the Romanian infrastructure supported 16 research communities in the following disciplines: Climate Research, Health and Medicine, Physics

Projects

Romanian partners participate in 3 collaboration projects

Compute Delivery

In 2024, the infrastructure providers from Poland federated in EGI delivered 120,720,369 HTC CPU Hours and 7,235,351 Cloud CPU Hours.

Country overview

Number of supported publications	1,337
Number of total service users	152
Scientific Communities supported	16
Data Centres contributing to the Federation	2
Collaboration projects	3
Total HTC CPU hours delivered	120,720,369
Total Cloud CPU hours delivered	7,235,351

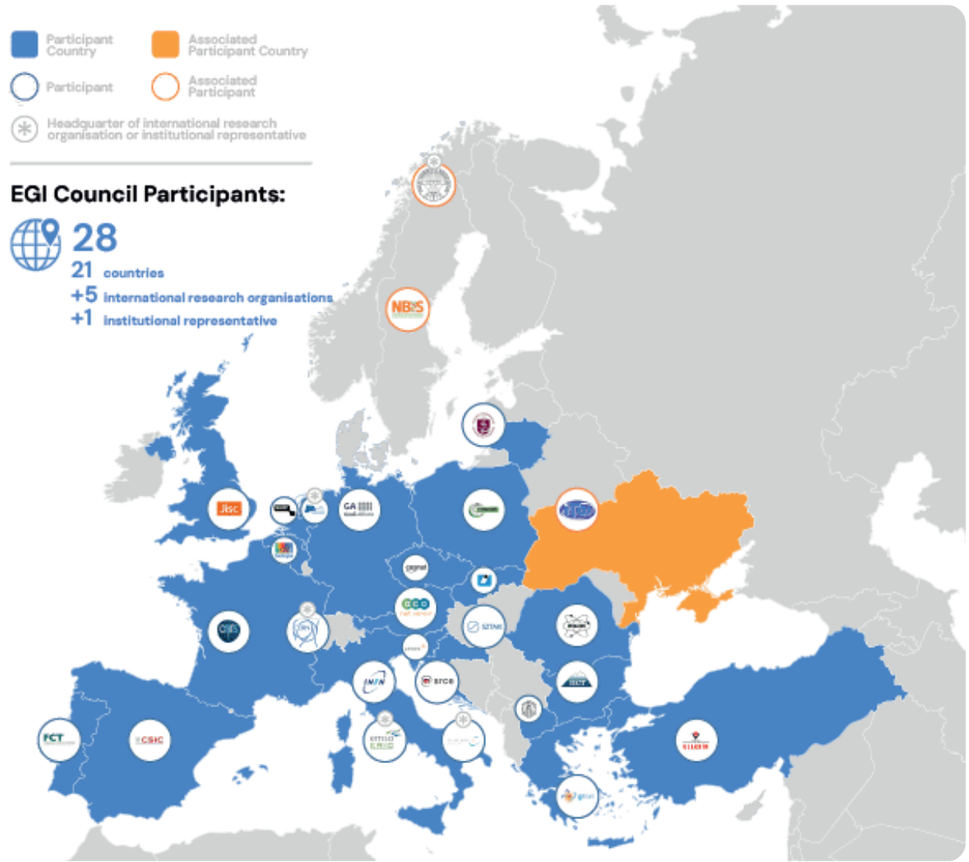
About EGI

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

The EGI Federation believes that all researchers should have seamless access to services, resources and expertise to collaborate and conduct world-class research and innovation. The EGI Federation is coordinated by EGI Foundation, an organisation with headquarters in Amsterdam. The Foundation offers a service federation and management platform, enabling the data centres to harmonise and integrate their services by connecting to a common hub. Moreover, it engages with international research communities using these services in order to understand and satisfy their demands for advanced computing for research.

The mission of EGI is pursued by coordinating and provisioning an international federated infrastructure that pools together service providers from both the public and private sectors in Europe to develop, integrate and deliver digital services for compute and data-intensive research and innovation. As an open initiative with a global outlook, the EGI Federation also connects service providers beyond Europe, following the collaboration needs of the served communities.

The latest Annual Report provides an extensive overview of the results that have been achieved through our collaborative efforts in 2024.



Approved EGI Council map from 2024

About IFIN-HH

With a contribution of almost 10% of the national scientific output, IFIN-HH is one of the most important public R&D organizations in Romania. The institute is dedicated to the research and development in physical and natural sciences, mainly Nuclear Physics and Nuclear Engineering, and in related areas including Astrophysics and Particle Physics, Field Theory, Mathematical and Computational Physics, Atomic Physics and Physics of Condensed Matter, Life and Environmental Physics. In all these fi elds, IFIN-HH conducts theoretical and experimental research.

Overall EGI impact

The EGI Federation is composed of e-infrastructure providers from national and community initiatives, forming one of the largest distributed computing infrastructures for researchers in the world, integrating about 1,243,400 CPU cores and over 1,4 Exabyte of storage space from hundreds of data centres.

In 2024, the EGI Federation served around 116,000 users (+23%). EGI users consumed 7,4 Billion HTC CPU hours (+5.7%), 62,7 Million Cloud CPU hours (-23,5%), ran over 402 M computational jobs (+8%) and published over 2,560 open access publications.

As of the previous year, the research community with the largest number of users is Medical and Health Sciences, while the community with most extensive HTC CPU/h consumption is CMS.

From the scientific communities engaged in 2024, the one with most extensive Cloud CPU/h consumption is WeNMR.

Moreover, EGI engaged with a total of 249 scientific communities; 11 SMEs and business pilots, and 2 additional Research Infrastructure included in the ESFRI Roadmap, raising the total of number of ESFRI partners/users of EGI to 25.

EGI contribution to Romania excellence in science

IFIN-HH coordinates the Romanian participation to the EGI Federation, representing the NGI-RO (National grid initiative for Romania). NGI-RO promotes the building and operation of a multidisciplinary national Distributed Computing Infrastructure open to all sciences and to developing countries in Romania. This report provides an overview of the activities of IFIN-HH in EGI, and the impact that was achieved thanks to this participation. The annual membership fee contributed by IFIN-HH to the EGI Foundation in 2024 was 40,000 EUR.

EGI federates hundreds of resource centres that are located at participant countries, organizations and at collaborating e-Infrastructures worldwide. This federated infrastructure supports data- and compute-intensive research across Europe and the world. In 2024, our federation was used by over 260 scientific communities, and has been accessed by around 116.000 users.

Research Infrastructures and multi-national research collaborations are the largest adopters of EGI Services, the main contributors of thematic portals, and operate community-specific compute, storage and data systems based on EGI federation capabilities.

The services of the EGI federation have been used by 152 researchers from Romania in 2024. The estimated annual scientific output in 2024 produced by research communities, projects and scientific collaborations from Romania and supported by the EGI Federation is estimated to amount to 1,337 peer reviewed scientific publications. The EGI Federation is currently working with over 40 Research Infrastructures, 16 of which include Romanian partners. These EGI-enabled research infrastructures, their Romanian members and their 2024 scientific output (publications) are detailed in the following pages of the report.

Romanian research collaborations in EGI	EGI supported activities and services	Number of scientific papers published in 2024
ALICE (High-Energy Physics) • Institute for Space Science (ISS) • National Institute for Physics and Nuclear Engineering	ALICE has been supported since 2012 as part of the EGI WLCG collaboration, formally agreed in an MoU. Federated services delivered in the context of the WLCG MoU, including: • Software support (consultancy to users and system administrators, (software maintenance and validation) Infrastructure and operations Services (infrastructure catalogue, accounting repository and portal, helpdesk, monitoring, operations portal, AAI) • Software distribution services (UMC, CMD, operations documentation) • Operations coordination (middleware deployment campaigns, procedures, innovation of tools) • Security services and activities (CSIRT, Software vulnerability group, international security coordination, policies, IGTF distribution)	47
ATLAS (High-Energy Physics) • Transilvania University of Brasov • Horia Hulubei National Institute of Physics and Nuclear Engineering • National Institute for Research and Development of Isotopic and Molecular Technologies • Alexandru Ioan Cuza University of Iasi • University Politehnica Bucharest • West University in Timisoara	ATLAS has been supported since 2012 as part of the EGI WLCG collaboration, formally agreed in an MoU. Federated services delivered in the context of the WLCG MoU, including: • Software support (consultancy to users and system administrators, (software maintenance and validation) • Infrastructure and operations Services (infrastructure catalogue, accounting repository and portal, helpdesk, monitoring, operations portal, AAI) • Software distribution services (UMC, CMD, operations documentation) • Operations coordination (middleware deployment campaigns, procedures, innovation of tools) • Security services and activities (CSIRT, Software vulnerability group, international security coordination, policies, IGTF distribution)	126

Romanian research collaborations in EGI	EGI supported activities and services	Number of scientific papers published in 2024
AUGER (Astronomy) • "Horia Hulubei" National Institute for Physics and Nuclear Engineering • Institute of Space Science, Bucharest-Magurele • University Politehnica of Bucharest	The Pierre Auger Observatory has been using compute resources from EGI partners for more than a decade. The services of the EGI federation that the Auger observatory benefi ts from include: • EGI HTC services from 9 EGI participant countries (CZ, DE, IT, FR, ES, NL, RO, PT, SI) • Software distribution services (UMC, CMD, operations documentation) • Operations coordination (middleware deployment campaigns, procedures, innovation of tools) • Security services and activities (CSIRT, Software vulnerability group, international security coordination, policies, IGTF distribution)	12
vo.compass.cern.ch (Physical Sciences) • Tomsk Polytechnic University	COMPASS has been supported since 2017 as part of the EGI - WLCG collaboration, formally agreed in an MoU. Federated services delivered in the context of the WLCG MoU, including: >Software support (consultancy to users and system administrators, (software maintenance and validation) • Infrastructure and operations Services (infrastructure catalogue, accounting repository and portal, helpdesk, monitoring, operations portal, AAI) • Software distribution services (UMC, CMD, operations documentation) • Operations coordination (middleware deployment campaigns, procedures, innovation of tools) • > Security services and activities (CSIRT, Software vulnerability group, international security coordination, policies, IGTF distribution)	2

Romanian research collaborations in EGI	EGI supported activities and services	Number of scientific papers published in 2024
DUNE (Astroparticle Physics) • University of Bucharest	The DUNE experiment has been using compute resources from EGI partners for more than a decade. The services from the EGI federation that DUNE uses include: • EGI HTC services from 6 EGI participant countries (CH, CZ, ES, FR, NL, UK) • Software distribution services (UMC, CMD, operations documentation) • Operations coordination (middleware deployment campaigns, procedures, innovation of tools) • Security services and activities (CSIRT, Software vulnerability group, international security coordination, policies, IGTF distribution)	37
ELI-NP (Nuclear Physics) • ELI-NP (Nuclear Physics) • National Institute for Laser, Plasma & Radiation Physics (INFLPR) • National Communications Research Institute (INSCC) • National Institute of Material Physics (INFM) • National Research and Development Institute for Cryogenics and Isotopic Technologies (ICIT) • Optoelectronica-2001 SA • Technical University of Civil Engineering • National Research and Development Institute in Electrical Engineering (ICPE-CA) • "Victor Babes" National Institute of Pathology • University "Politehnica" of Bucharest • Accent Pro 2000 • National Institute for Research and Development of Isotopic and Molecular Technologies (INCDTIM) • National Institute for Research and Development in Microtechnologies (IMT) • Politehnica University of Timisoara (UPT) • Institute of Cellular Biology and Pathology "Nicolae Simionescu" • Military Equipment and Technologies Research Agency • Technical University for Civil Engineering of Bucharest (UTCB)	ELI has been working with EGI since 2016 on exploring and validating approaches for off-site computing and data management. ELI-NP setup a High Throughput Compute Service on EGI resources and works with EGI providers on: • Refining the user requirements and translating these to • e-infrastructure requirements, and • Identifying and validating services from EGI that can be • relevant for ELI (besides HTC and compute). • Mobilising already existing HTC compute, cloud compute • and storage resources from EGI for ELI piloting and • demonstration activities	19

Romanian research collaborations in EGI	EGI supported activities and services	Number of scientific papers published in 2024
EMPHASIS (Agriculture) • Biological Research Center Jibou • Babes-Bolyai University Cluj-Napoca	EMPHASIS has been supported through the establishment of a Data Space in the EGI-ACE project. Since 2017 EMPHASIS using the following services from EGI: • EGI Check-in • EGI Cloud Compute • EGI Online Storage • EGI DataHub • Technical support • Software integration and piloting	0
EMSO (Oceanography) • GeoEcoMar	The collaboration with EGI started back in 2017 when 4 cloud providers of the EGI Federation agreed to support the EMSODEV project during the design and implementation of the EMSODEV Data Portal. EMSO-ERIC setup the EMSO ERIC Data Management Platform on the EGI providers in order to harmonize the data sets following Oceansites specifications, FAIR principles, and EOSC guidelines.	0
ILC (High-Energy Physics) • IFIN-HH	The ILC experiment has been using compute resources from EGI partners since 2004. The services from the EGI federation that ILC experiments uses include: • EGI HTC services from 27 EGI federated sites from IL, DE, FR, ES, NL, PL, UK • Software distribution services (UMC, CMD, operations documentation) • Operations coordination (middleware deployment campaigns, procedures, innovation of tools) • Security services and activities (CSIRT, Software vulnerability group, international security coordination, policies, IGTF distribution)	75

Romanian research collaborations in EGI	EGI supported activities and services	Number of scientific papers published in 2024
KM3NET (Neutrino Observatory) • Institute for Space Sciences (ISS)	The Km3Net experiment has been using compute resources from EGI partners since 2013. The services from the EGI federation that Km3Net uses include: • EGI HTC services from 2 EGI federated sites from IT and PL • Software distribution services (UMC, CMD, operations documentation) • Operations coordination (middleware deployment campaigns, procedures, innovation of tools) • Security services and activities (CSIRT, Software vulnerability group, international security coordination, policies, IGTF distribution)	25
LHcB (High-Energy Physics) • IFIN-HH	LHCb has been supported since 2012 as part of the EGI WLCG collaboration, formally agreed in an MoU. Federating services delivered in the context of the WLCG MoU, including: • Software support (consultancy to users and system administrators, (software maintenance and validation) • Infrastructure and operations Services (infrastructure catalogue, accounting repository and portal, helpdesk, monitoring, operations portal, AAI) • Software distribution services (UMC, CMD, operations documentation) • Operations coordination (middleware deployment campaigns, procedures, innovation of tools) • Security services and activities (CSIRT, Software vulnerability group, international security coordination, policies, IGTF distribution)	49

Romanian research collaborations in EGI	EGI supported activities and services	Number of scientific papers published in 2024
LZ (Physical Sciences) • Institute for Space Sciences (ISS)	The LZ survey federates High Throughput Compute (HTC) resources from UK. The LZ compute federation benefited from the following EGI services: • Software support (consultancy to users and system administrators, (software maintenance and validation) • Infrastructure and operations Services (infrastructure catalogue, accounting repository and portal, helpdesk, monitoring, operations portal, AAI) • Software distribution services (UMC, CMD, operations documentation) • Operations coordination (middleware deployment campaigns, procedures, innovation of tools) • Security services and activities (CSIRT, Software vulnerability group, international security coordination, policies, IGTF distribution)	6
NA62 (High-Energy Physics) • Horia Hulubei National Institute of Physics and Nuclear Engineering	The NA62 experiment has been using compute resources from EGI partners since 2012. The services from the EGI federation that NA62 uses include: • EGI HTC services from sites in the UK, Italy, Belgium and CERN • Software distribution services (UMC, CMD, operations documentation) • Operations coordination (middleware deployment campaigns, procedures, innovation of tools) • Security services and activities (CSIRT, Software vulnerability group, international security coordination, policies, IGTF distribution)	0
perla.pv (Physical Sciences) • NIMP • IFIN-HH • Wattrom	• PERLA-PV has been using compute resources from EGI partners since 2021. The services from the EGI federation that PERLA-PV uses include: • EGI Cloud services from 1 EGI federated site from RO • EGI Online Storage • EGI AAI Check-in	1

Romanian research collaborations in EGI	EGI supported activities and services	Number of scientific papers published in 2024
SeaDataNet (Oceanography) • NIMRD National Institute for Marine Research and Development "Grigore Antipa"h	SeaDataNet has been supported by EGI partners in the EOSC-hub project in the setup and validation of a data access service on federated cloud resources. Since 2021 the SeaDataNet community is represented in the EGI Council by MARIS, and works with several EGI members in the EGI-ACE Horizon 2020 project. In EGI-ACE, SeaDataNet and EGI partners from Spain are setting up and operating a WebOcean Data Analysis service in the EGI cloud federation, and deliver the service in EOSC.	0
WeNMR (Structural Biology) • UNIVERSITY OF BUCHAREST • INCDSB • INSTITUTE OF BIOCHEMISTRY OF THE ROMANIAN ACADEMY • WEST UNIVERSITY OF TIMISOARA • ȘTEFAN CEL MARE UNIVERSITY OF SUCEAVA	WeNMR is supported by EGI since 2011 and has a Service Level Agreement since 2016. The EGI Services used by the community include: • High-Throughput, Cloud + Online Storage services from 23 EGI federated sites from the Netherlands, Italy, France, Romania, UK, Poland, the Asia Pacific region, IberGrid (Spain and Portugal), Italy, the Latin America region. • EGI Workload Manager • Trust and identity management with Check-in • Technical support: WeNMR benefited from continual support through dedicated support activities in various EGI flagship projects: EGI-Engage, EOSC-hub and EGI-ACE.	939

Service Level Agreements

During 2024, CLOUDIFIN supported 2 Service Level Agreements for international scientific communities via EGI, delivering Cloud Computing, Online Storage and HTC services

Participated projects

The EGI Foundation leads five Horizon Europe Projects, three of which started in 2024:

- iMagine (September 2022-December 2025)
- interTwin (September 2022-August 2025)
- ENVRI-Hub NEXT (February 2024-January 2027)
- EOSC Beyond (April 2024-March 2027)
- SPECTRUM (January 2024-June 2026)

Furthermore, the EGI Federation was involved in 3 additional projects, increasing the innovation potential of its participants.

The EGI Federation participates in Horizon 2020 and Horizon Europe projects together with Austrian institutions to facilitate the uptake and use of e-infrastructure services for science. A summary of these projects, the involved institutes and the scope of the collaboration is provided in the next table.

Project title	Scope of collaboration	Participating beneficiaries from the country
AI4EUROPE Supporting AI4D 2022-2025	EGI is contributing to the architectural design and implementation of open distributed software to ensure that AI4Europe evolves as a distributed ecosystem. EGI is also providing its expertise on physical resources, usability, development of systems, distributed systems and new technologies to develop mechanisms for the AI tools to deploy/make use of private/public Cloud and HPC resources.	• INSTITUTUL E-AUSTRIA TIMISOARA
BD4NRG Big Data for Next Generation Energy	The EGI Foundation delivers a reference architecture for Smart Energy and extend COSMAG specification to enable B2B multi-party data exchange, while providing full interoperability of leading-edge big data technologies with smart grid standards and operational frameworks; evolve and upscale a number of TRL 5-6 technology enablers; delivers a TRL8 open modular big data analytic toolbox as front-end for one-stop-shop analytics services development by orchestrating legacy and/or third party assets (data, computing resources, models, algorithms); validates such framework through the delivery of predictive and prescriptive edge AI-based big data analytics on 13 large scale pilots, deployed by different energy stakeholders.	• Terrasigna
IRISCC	EGI plays a key role in IRISCC by leading communication, dissemination, engagement, and exploitation efforts (WP1), including stakeholder mapping and promotion of the service catalogue. In WP3, EGI supports knowledge exchange and user training by developing climate risk training modules and providing access to its training and computing infrastructure.. For WP6, EGI helps assess integrated knowledge services by aligning access policies, analysing AAI services, and contributing to FAIR and interoperability frameworks.	• Terrasigna

Infrastructure contributions

The EGI Federation offers two complementary compute capabilities: the High-Throughput Compute (HTC) federation and the Cloud federation. 8 Romanian data centres contribute to these federations:

HTC Federation:

- GRIDIFIN (NIPNE, National Institute for Physics and Nuclear Engineering)
- NIHAM (NUCLEAR INTERACTIONS AND HADRONIC MATTER)
- RO-03-UPB (Politehnica University of Bucharest)
- RO-07-NIPNE (NIPNE, National Institute for Physics and Nuclear Engineering)
- RO-13-ISS (Institute of Space Science)
- RO-14-ITIM (National Institute for Research and Development of Isotopic and Molecular Technologies)
- RO-16-UAIC (Alexandru Ioan Cuza University of Iasi)

Cloud Federation:

- CLOUDIFIN (NIPNE, National Institute for Physics and Nuclear Engineering)

The data centres provided 8 service endpoints and delivered 124,344,557 HTC CPU hours and 6,250,935 Cloud CPUHours to EGI communities in 2023. The data centres responded to 65 support tickets through the EGI Helpdesk.

The most active international user groups of the Romanian compute resources were:

- ALICE 71.36%
- ATLAS 24.62%
- LHcB 3.99%

Methodology

Data for this impact report has been collected from the following sources.

Users

EGI uses the following methodology to capture the number of EGI users who rely on EGI services

- EGI serves users in the form of 'communities', called 'Virtual Organisations' (VO in short). A VO's members can range from one to tens of thousands. Members of a VO benefit from and use EGI services in different ways (e.g., by using Services for Federation or Services for Research).
- EGI establishes knowledge about its VOs as part of the user community support lifecycle; therefore, baseline information about VOs is collected through the Customer Relationship Management process (CRM).

At the end of 2024, there were 135 VOs in EGI.

EGI Virtual Organisations (VOs) can rely on different technical and non-technical mechanisms to manage their own members. Depending on their choice, the EGI Federation coordinator (EGI Foundation) has to follow different, corresponding approaches to know the number of members in a given VO, and to obtain additional information about these members (e.g. their 'country'). The EGI Foundation uses the following mechanisms to obtain information about the VO users:

- Obtain user number statistics from the EGI Operations Portal for VOs, where the members register personally in a 'VO membership management' system that is either operated by EGI or can be accessed by EGI.
- Obtain user number statistics from Community VRE REST APIs for VOs that operate Virtual Research Environments (VREs) on top of EGI resources. Those VREs implement a specific API to report users (e.g., WeNMR, Virtual Imaging Platform (VIP), NBIS).
- Obtain user number statistics from interviews with VO coordinators for VOs coordinated by one person.

Publications

Publications are collected from each community's public repository, if existing. Additional details are checked with the VO coordinators during the interviews to complement this information. EGI also consults OpenAIRE services to countercheck the data. You can check the list of repositories for each VO here (requires login): https://operations-portal.egi.eu/vo/#collapseVoListOther.

Institutional members supporting research communities

EGI relies on the information on each community's website to list institutions supporting research communities at the national level. Additionally, EGI appreciates the feedback from its national representatives to refine and improve those lists.

EGI Membership Impact Report

Contact us

Science Park 140
1098 XG Amsterdam
Netherlands

Phone:
+31 (0)20 89 32 007

Email:
contact@egi.eu

egi_einfra EGI Foundation EGI

www.egi.eu