EGI Council Participant: NBIS

Participating in EGI Impact Report: NBIS

2024

egi.eu

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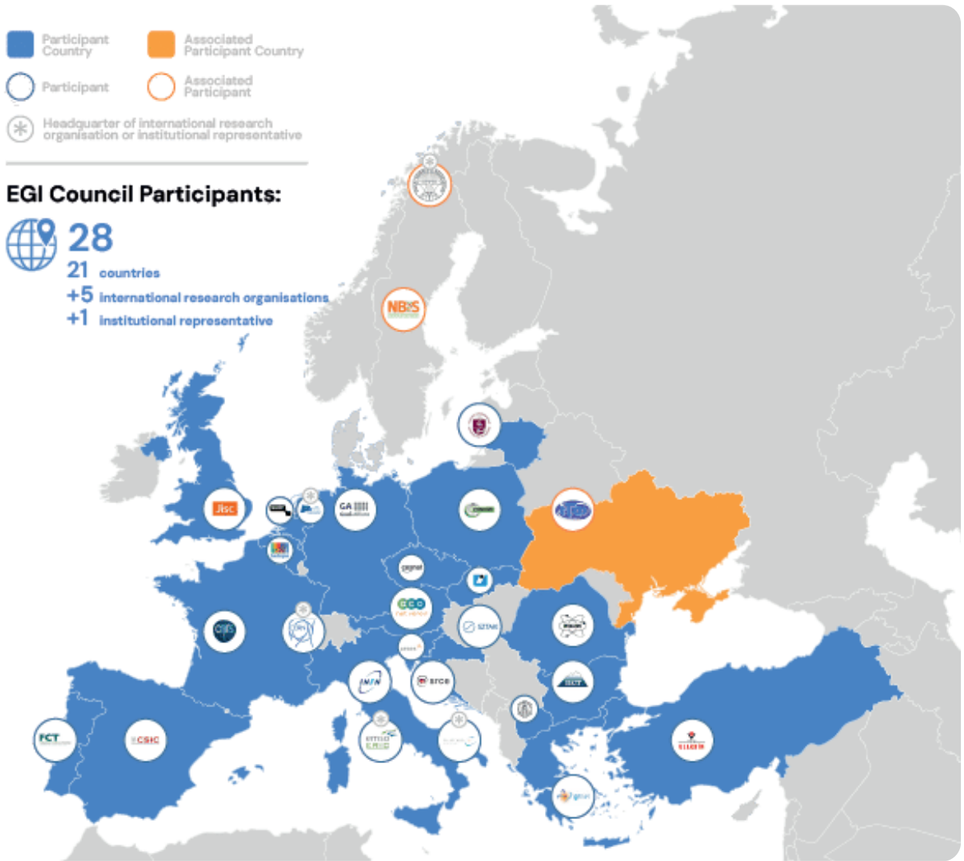
About EGI

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 2023.



Approved EGI Council map from 2024

About NBIS

NBIS (National Bioinformatics Infrastructure Sweden) is a distributed national research infrastructure supported by the Swedish Research Council (Vetenskapsrådet), Science for Life Laboratory, all major Swedish universities and the Knut and Alice Wallenberg Foundation, providing state-of-the-art bioinformatics to the Swedish life science researchers community. NBIS is also the Swedish contact point to the European infrastructure for biological information ELIXIR.

Present NBIS staff has expertise in protein bioinformatics, mass spectrometry (MS), next generation sequencing (NGS), large-scale data handling and integration, metagenomics, systems biology, biostatistics and RNAseq.

NBIS is predominantly offering bioinformatics support in various projects, depending on the user needs. In the projects, the NBIS persons are working close to the research group, and they spend part of their time to teach the users in order to propagate the bioinformatics knowledge. Furthermore, NBIS provides infrastructure and tools for bioinformatics analyses in order to facilitate these analyses for the users.

NBIS forms the bioinformatics platform at the Science for Life Laboratory.

Overall EGI impact

NBIS contributes to the Federation's mission to deliver open solutions for advanced computing in research and innovation, coordinating and provisioning an international federated infrastructure that pools together service providers from both the public and private sector in Europe to develop, integrate and deliver digital services for compute-and data-intensive research and innovation. In particular, NBIS provides reliable services to the life sciences community with the cloud resources provided by the EGI; moreover, it promote the collaboration with other European research infrastructures, especially for knowledge sharing and development of the e-infrastructure technology for research data and computing intensive science.The annual membership fee contributed by NBIS to the EGI Foundation in 2024 was 5,000 EUR.

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's contribution to NBIS excellence in science

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, we estimate that 1,748 users used the services provided by the EGI Federation.

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.

NBIS research collaborations in EGI

NBIS (Bioinformatics)

- Uppsala University
- Chalmers University of Technology
- University of Gothenburg
- Karolinska Institutet
- Royal Institute of Technology
- Linköping University
- Lund University
- Swedish Museum of Natural History
- Stockholm University
- Swedish University of Agricultural Sciences
- Umeå University

EGI supported activities and services

NBIS has been using compute resources from EGI partners since 2015. The services from the EGI federation that NBIS uses include:

- EGI Cloud services from 3 EGI federated sites from FR, IT and TR
- EGI AAI Check-in

Number of scientific papers published in 2024

89

Services from EGI and Providers

EGI and NBIS stipulated an SLA (Service Level Agreement) in 2015. Since then NBIS benefits from the following services:

- EGI Cloud Compute
- EGI Online Storage
- EGI Check-in

During 2024, the NBIS community consumed 6,324,744 Cloud CPU-hours through EGI: 2,606,349 from the TUBITAK-ULAKBIM site (Turkey), 1,831,422 from the IN2P3-IRES site (France), and 1,886,973 from the INFN-Bari site (Italy).

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

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