EGI Council Participant: NBIS

Participating in EGI Impact Report: NBIS

2023

egi.eu

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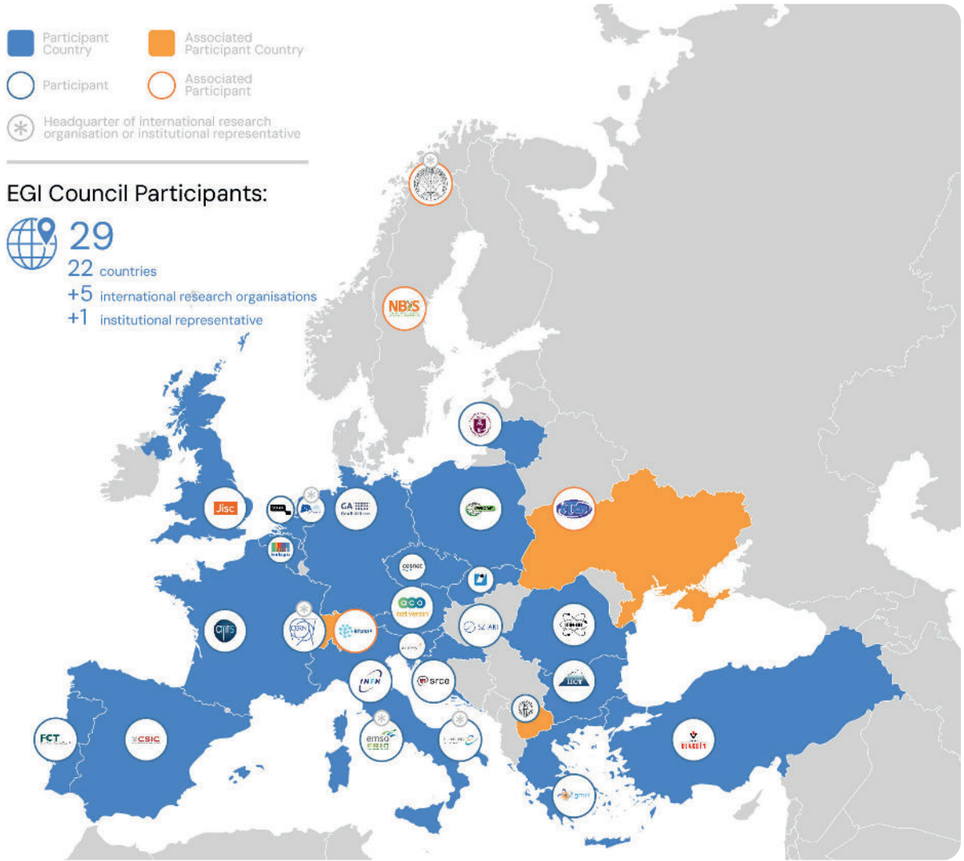
About EGI

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.



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 2023 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 2023, the EGI Federation served around 95,000 users (+12%) from over 260 research communities. EGI users consumed 7 Billion HTC CPU hours (-1.04%), 12 Million Cloud CPU hours +17%), ran over 372 M computational jobs (+13.4%) and published over 2,900 open access publications.

As of the previous year, the research community with the largest number of users is Medical and Health Sciences (+43% annual increase in 2023), while the community with most extensive HTC CPU/h consumption is WLCG.

From the scientific communities engaged in 2023, the one with most extensive Cloud CPU/h consumption is Pangeo (+2959% annual increase in 2023).

Moreover, EGI engaged with a total of 265 scientific communities (10 new communities); 19 SMEs and business pilots, and 1 additional Research Infrastructure included in the ESFRI Roadmap, raising the total of number of ESFRI partners/users of EGI to 23.

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 2023, our federation was used by over 260 scientific communities, and has been accessed by around 95,000 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.

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
- GI Check-in

During 2023 the NBIS community consumed 1,525,254 cloud compute CPU-hours through EGI: 809,361 from the TUBITAK-ULAKBIM site (Turkey), 367,821 from the IN2P3-IRES site (France), and 348,072 from the INFN-Bari site (Italy).

Methodology

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

- Infrastructure contributions, infrastructure usage by research communities: EGI Accounting System
- List of research publications by supported research communities (table 1)

AMS-02
https://ams02.space/publications

ILC
https://inspirehep.net/literature?sort=mostrecent&size=25&page=1&q=international%20Linear%20Collider%20&earliest_date=2021--2021

ALICE
https://alice-publications.web.cern.ch/publications

INSTRUCT
https://instruct-eric.eu/content/publications-list

ATLAS
https://cds.cern.ch/collection/ATLAS%20Papers?ln=en

JUNO
https://inspirehep.net/

AUGER
https://www.auger.org/science/publications/journal-articles

KM3NET
https://www.km3net.org/about-km3net/publications/pubblication/; https://inspirehep.net/literature?q=collaboration:KM3NeT year:2021

BELLE
https://belle.kek.jp/belle/publications.html; https://inspirehep.net/literature?q=collaboration:belle year:2021

LifeWatch
https://www.lifewatch.eu/catalogue-of-virtual-labs/medobis/publications/

BIOMED
https://vip.creatis.insa-lyon.fr/documentation/

CTA
https://www.cta-observatory.org/science/library/

CLARIN
https://beta.clarin.openaire.eu/search/advanced/research-outcomes?sortBy=resultdateofacceptance,descending&type=publications&year=range2021:2021

CMS
http://cms-results.web.cern.ch/cms-results/public-results/publications/CMS/index.html

DUNE
https://inspirehep.net/literature?q=collaboration:DUNE year:2021

EISCAT_3D
https://eiscat.se/scientist/publications/

LOFAR
http://old.astron.nl/radio-observatory/lofar-science/lofar-papers/lofar-papers: https://lofar-surveys.org/publications.html, or https://ui.adsabs.harvard.edu/search/q=full%3A(%22designed%20and%20constructed%20by%20ASTRON%22)%20OR%20title%3A%22LOFAR%22%20year%3A2021-2021%20property%3Arefereed%20-bibstem%3A(%22AN%22%20OR%20%22MNRAS.tmp%22)&sort=date%20desc%2C%20bibcode%20desc&p_=0

LCHb
https://cds.cern.ch/collection/LHCb%20Papers?ln=en

LSST
https://ui.adsabs.harvard.edu/ with year:2021 author:("LSST*" OR "Vera C. Rubin*") collection:astronomy property:refereed

NA62
https://cds.cern.ch/collection/NA62%20Papers?ln=en

OPENCOASTS
http://opencoasts.lnec.pt/index_en.php

PANOSC
https://www.panosc.eu/publications/

ELI-BEAM
https://www.eli-beams.eu/publikace/

ELI-NP
https://www.eli-np.ro/scientific_papers.php

EMSO-ERIC
from the community representative; SLA https://documents.egi.eu/document/3539

FUSION
https://documents.egi.eu/public/ShowDocument?docid=3484

HESS
https://www.mpi-hd.mpg.de/hfm/HESS/pages/publications/

Ice-Cube
https://icecube.wisc.edu/science/publications/

SeaDataNet
https://www.seadatanet.org/Publications/Scientific-publications

SKA
https://ui.adsabs.harvard.edu/search/fq=%7B!type%3Daqp%20v%3D%24fq_database%7D&fq_database=database%3A%20astronomy&q=pubdate%3A%5B2021-01%20TO%202021-12%5D%20title%3A(SKA)&sort=date%20desc%2C%20bibcode%20desc&p_=0

SNO+
https://snoplus.phy.queensu.ca/results/collaboration-papers.html

VIRGO
https://pnp.ligo.org/ppcomm/Papers.html

WeNMR
https://explore.openaire.eu/ advanced search project outcomes. field to search "project" enter project name; Citation of HADDOCK web server: https://scholar.google.nl/scholar?hl=en&as_sdt=2005&cites=10355645612647046441&scipsc=&as_ylo=2021&as_yhi=2021; Citations of the AMBER web portal publication: https://scholar.google.com/scholar?as_ylo=2021&hl=en&as_sdt=0,5&sciodt=0,5&cites=6696812766870837905&scipsc=; Citations of the FANTEN web portal publication: https://scholar.google.com/scholar?as_ylo=2021&hl=en&as_sdt=0,5&sciodt=0,5&cites=10578718345045994565&scipsc=; Citations of the DISVIS/POWERFIT web portals publication: https://scholar.google.com/scholar?as_ylo=2021&hl=en&as_sdt=2005&cites=6482114501244947208&scipsc=’; Citations of the SpotON web portal: https://scholar.google.com/scholar?as_ylo=2021&hl=en&as_

XENON
https://inspirehep.net/literature?q=collaboration:XENON year:2021

National institutional members of supported research communities (table 2)

AMS-02
https://ams02.space/collaboration/institute

ALICE_
https://alice-collaboration.web.cern.ch/General/Members/List_Institutes.html

ATLAS
https://atlas.cern/discover/collaboration

AUGER
https://www.auger.org/collaboration/institutions, https://www.auger.org/collaboration/funding-agencies

BELLE
https://belle.kek.jp/bdocs/collaboration.html

BIOMED
https://vip.creatis.insa-lyon.fr/

CTA
https://www.cta-observatory.org/about/cta-consortium/

CLARIN
https://www.clarin.eu/content/participating-consortia

ILC
https://linearcollider.org/team/

INSTRUCT
https://instruct-eric.eu/countries

JUNO
https://juno.ihep.ac.cn/collaboration.php

KM3NET
https://www.km3net.org/about-km3net/collaboration/members/

LifeWatch
https://www.lifewatch.eu/organisation-governance/

LOFAR
https://www.astron.nl/telescopes/

LCHb
https://lhcb-public.web.cern.ch/en/collaboration/Collaboration-en.html

LSST
https://www.lsstcorporation.org/international-contributors

CMS
https://cms.cern/collaboration/cms-institutes

DUNE
https://lbnf-dune.fnal.gov/about/countries-and-institutions-participating-in-dune/

EISCAT_3D
https://eiscat.se/wp-content/uploads/2016/12/EISCAT-Organogram-202x.jpg; https://eiscat.se/scientist/document/information/

ELI-BEAM
https://www.eli-beams.eu/about/cooperation/science/

ELI-NP
https://www.eli-np.ro/scientific_collaborations.php

EMSO-ERIC
http://emso.eu/organization/

FUSION
https://documents.egi.eu/public/ShowDocument?docid=3484

HESS
https://www.mpi-hd.mpg.de/hfm/HESS/pages/collaboration/

Ice-Cube
https://icecube.wisc.edu/collaboration/institutions/

NA62
https://greybook.cern.ch/experiment/detail?id=NA62

OPENCOASTS
http://opencoasts.lnec.pt/index_en.php

PANOSC
https://www.panosc.eu/partners/

SeaDataNet
https://www.seadatanet.org/About-us/SeaDataNet-AISBL/Members

SKA
https://www.skatelescope.org/participating-countries/

SNO+
https://snoplus.phy.queensu.ca/collaboration.html

VIRGO
https://apps.virgo-gw.eu/vmd/public/institutions

WeNMR
https://documents.egi.eu/document/2751

XENON
https://science.purdue.edu/xenon1t/?page_id=27

EGI Membership Impact Report

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