



# Participating in EGI Impact Report: Swiss 2022

EGI Council Participant: EnhanceR

[egi.eu](http://egi.eu)

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# Infographic

## +1000 service users

In 2022, +790 researchers from Swiss institutions used the services provided by the EGI Federation



## +580 publications

The research communities, projects and scientific collaborations from Switzerland supported by the EGI led to more than 580 peer-reviewed scientific publications

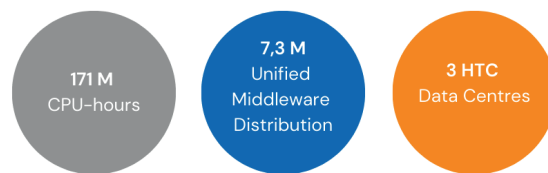
## 13 Supported communities

In 2022, the Swiss infrastructure supported 13 research communities in the following disciplines: Agriculture, Climate Research, Health and Medicine, Linguistics, Physics



## Projects

Swiss partners participate in 7 collaboration projects + EGI-ACE and interTwin



# Country overview

Number of supported publications **582**

Number of total service users **792**

Scientific Communities supported **13**

Data Centres contributing to the Federation **5**

Collaboration projects **7**

Total CPU hours delivered **171,960,108**

Unified Middleware Distribution updates pulled **7.337.369 (1.62%)**

# 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 2022.

In 2022, EGI consolidated its ability to serve an expanding group of scientific collaborations. In fact, the Council also approved the participation of AConet (Austria) and Vilnius University

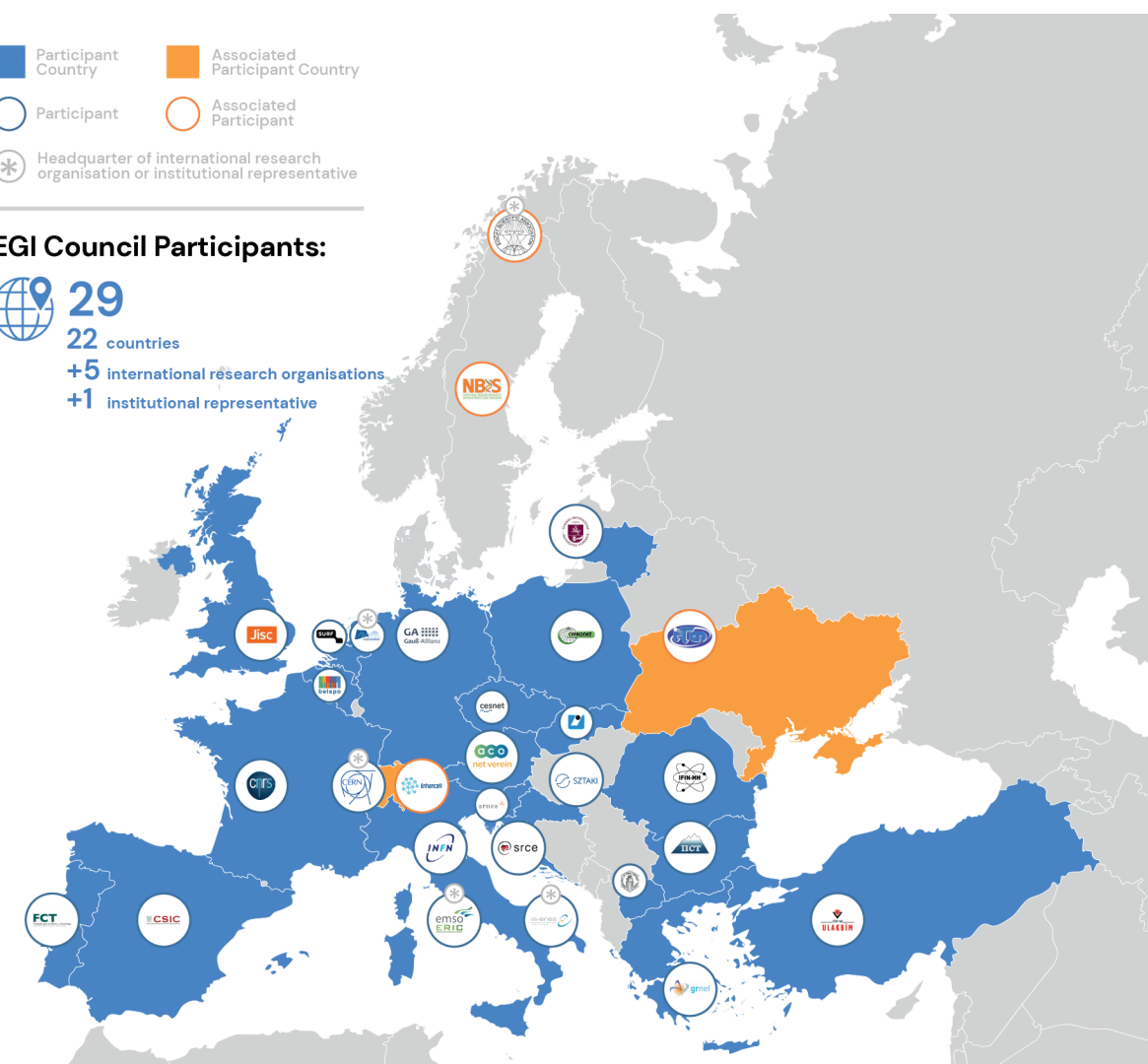
(Lithuania) starting from 2022. NBIS (Sweden) also joined as an associate participant as of November 2022, helping to provide reliable services to the life sciences community with the cloud resources provided by the EGI, and moreover, to

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.

- Participant Country
- Associated Participant Country
- Participant
- Associated Participant
- \* Headquarter of international research organisation or institutional representative

## EGI Council Participants:

 **29**  
 22 countries  
 +5 international research organisations  
 +1 institutional representative



Approved EGI Council map from 2022



# About EnhanceR

EnhanceR is a nationally and internationally recognized network for Swiss research IT expertise. It is an association according to Swiss law.

The association's goal is facilitating research excellence in Switzerland to ensure it maintains its leadership position. It achieves this goal by federating Research IT specialist groups at various academic institutions across Switzerland. It creates value by allocating its expertise where and when it is most needed, the interests of the community of users and support teams of scientific computing applications nationally and internationally. EnhanceR builds on the foundation of the Swiss National Grid Association (SwiNG) and continues the national and international roles and mandates of the former association. It is the legal entity sustaining the outcomes of the completed swissuniversities EnhanceR project.

As of 2020, it counts 11 Swiss higher education, infrastructure and research institutions as members. Membership is open according to its articles. EnhanceR is supported by Swissuniversities.

# Overall EGI impact

The Swiss participation in the EGI Federation is coordinated by EnhanceR (Enhancing Research through IT Expertise), the nationally and internationally recognized network for Swiss research IT expertise. This report provides an overview of the activities of EnhanceR in EGI, and the impact that was achieved thanks to this participation. The annual membership fee contributed by EnhanceR to the EGI Foundation in 2022 was 27,500 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 2022, the EGI Federation served almost 84,000 users (+7.5%) from around 200 research

communities. EGI users consumed 7 Billion HTC CPU hours (+7,6%), 27.650 Million Cloud CPU hours (-45%), ran 328 M computational jobs (-27%) and published over 2,500 open access publications.

Among the largest adopters of EGI services, the research community with the largest number of users is Medical and Health Sciences (+107% annual increase in 2022); the one with the most extensive HTC CPUh consumption is WLCG, while for Cloud CPHh consumption, PERLA-PV is the most notable one.

Moreover, EGI engaged with 19 new scientific communities in 2022; 7 additional research infrastructures EGI collaborates with and support were included in the ESFRI Roadmap in 2022, raising the total number of ESFRI partners/users of EGI to 25.

# EGI's contribution to Swiss 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 2022, our federation was used by around 200 scientific communities, and has been accessed by about 84,000 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 792 researchers from Switzerland in 2022. The estimated annual scientific output in 2022 produced by research communities, projects and scientific collaborations from Switzerland and supported by the EGI Federation is estimated to amount to more than 580 peer reviewed scientific publications. The EGI Federation is currently working with over 40 Research Infrastructures, 13 of which include Swiss partners. These EGI-enabled research infrastructures, their Swiss members and their 2022 scientific output (publications) are detailed in the following pages of the report.

## Swiss research collaborations in EGI

### ATLAS (High-Energy Physics)

- Albert Einstein Center for Fundamental Physics and Laboratory for High Energy Physics, University of Bern
- Département de Physique Nucléaire et Corpusculaire, Université de Genève,
- CERN

### CMS (High-Energy Physics)

- Paul Scherrer Institut
- ETH Zurich Institute for Particle Physics and Astrophysics (IPA)
- Universität Zürich

## EGI supported activities and services

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)

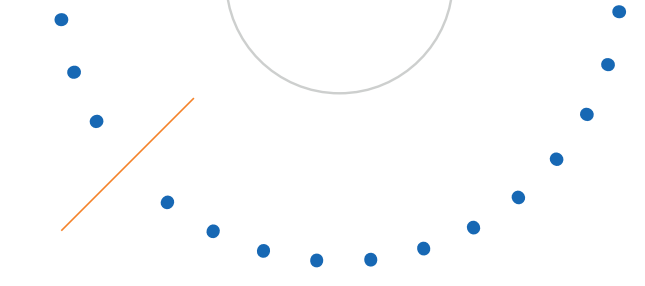
CMS has been supported since 2012 as part of the EGI WLCG collaboration, formally agreed in an MoU. Federated services delivered in the context of the WLCG MoU, including:

- 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)

## Number of scientific papers published in 2022

87

84



## Swiss research collaborations in EGI

## EGI supported activities and services

## Number of scientific papers published in 2022

### CTA (Astronomy)

- Astronomical Institute of the Czech Academy of Sciences,
- Charles University, Institute of Particle & Nuclear Physics,
- Palacky University Olomouc

The CTA experiment has been using compute resources from EGI partners for more than a decade. The services from the EGI federation that CTA uses 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)

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### DUNE (Astroparticle Physics)

- ETH Zürich – Institute for Particle Physics and Astrophysics (IPA)
- Universität Basel (University of Basel)
- Albert Einstein Center for Fundamental Physics and Laboratory for High Energy Physics, University of Bern

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)

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### EMPHASIS (Agriculture)

- Agroscope
- University of Bern
- University of Zürich
- ETH
- University of Lausanne
- University of Geneva

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

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## Swiss research collaborations in EGI

## EGI supported activities and services

## Number of scientific papers published in 2022

### IceCube (Neutrino Observatory)

- Université de Genève

The IceCube experiment has been using compute resources from EGI partners for more than a decade. The services from the EGI federation that IceCube uses include:

- EGI HTC services from 8 sites of 4 EGI participant countries (Belgium, Denmark, Germany and 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)
- EGI is currently expanding its resource pledge to IceCube with an increase of GPU capacity.

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### ILC (High-Energy Physics)

- ETH Zürich – Institute for Particle Physics and Astrophysics (IPA)
- ETH Zurich, Institute for Theoretical Physics (ITP), Zurich

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)

85





## Swiss research collaborations in EGI

## EGI supported activities and services

## Number of scientific papers published in 2022

### LHcB (High-Energy Physics)

- Lausanne, EPFL
- Zürich, Univ.

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)

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### LSST (Astronomy)

- ETH Zurich, Institute for Astronomy

The LSST survey federates High Throughput Compute (HTC) resources from France and the UK and run an analysis campaign in 2020 to prepare for the opening of the Vera C. Rubin Observatory. The campaign consumed over 11 million CPU-hour in 2020 to analyse generated images, imitating the telescope images that are expected to become available from 2023. The LSST 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)

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## Swiss research collaborations in EGI

## EGI supported activities and services

## Number of scientific papers published in 2022

### SKA (Radioastronomy)

- École polytechnique fédérale de Lausanne

The Square Kilometre Array (SKA) is an intergovernmental radio telescope project being planned to be built in Australia and South Africa. 8 countries that participate in SKA are also represented in the EGI Council (France, Germany, Italy, Portugal, Spain, Switzerland, The Netherlands and the United Kingdom). Between 2017-2019 SKA worked with the EGI federation in the AENEAS Horizon 2020 project. The collaboration resulted in recommendations on how to:

- organize federated service management within the SKA European Science Data Centre (ESDC) and across multiple SKA Regional Centres to address the management of the SKA community-specific services.
- federate the ESDC services with existing e-Infrastructure federated services (Identity Provisioning, Authentication and Authorization, tools for federated service management)
- collect SKA and e-Infrastructures requirements to federate and eventually enhance existing federation services.

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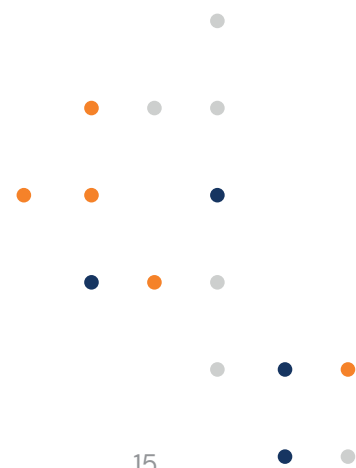
### WeNMR (Structural Biology)

- FRIEDRICH MIESCHER INSTITUTE FOR BIOMEDICAL RESEARCH
- UNIVERSITY OF ZÜRICH
- ETH ZÜRICH
- UNIVERSITY OF FRIBOURG
- EPFL
- UNIVERSITÉ DE GENÈVE
- UNIVERSITY OF BERN
- UNIVERSITY OF LAUSANNE
- PAUL SCHERRER INSTITUTE
- ZHAW School of Life Sciences and Facility Management
- University of Basel

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, Germany, 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.

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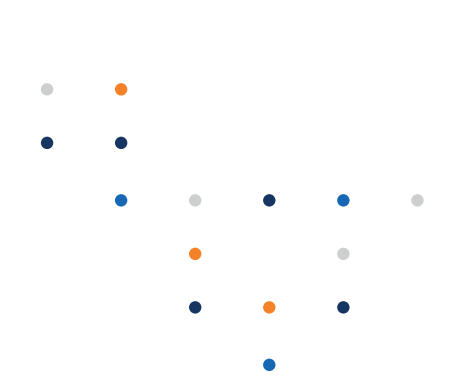
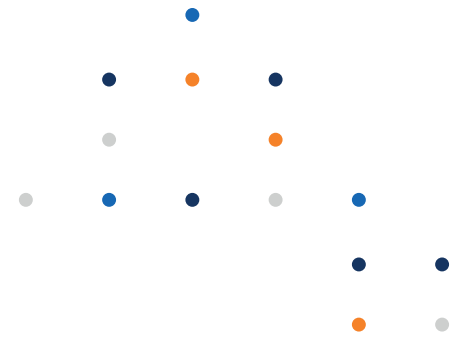
# Community Engagement

During 2022, EGI organised several trainings and tutorials involving the community. In particular, expert speakers from Switzerland participated in 1 webinars organised by EGI. Moreover, there were 6 Swiss participants to the EGI Conference 2022.

# Participated projects

The EGI Foundation coordinated one Horizon 2020 projects, EGI ACE (January 2021–June 2023). Moreover, it leads two Horizon Europe Projects, iMagine (September 2022–December 2025) and interTwin (September 2022–August 2025). Furthermore, the EGI Federation was involved in 8 additional projects, increasing the innovation potential of its participants.

The EGI Federation participates in Horizon 2020 and Horizon Europe projects together with Swiss 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**

**ExPaNDS**

EGI contributes to the EOSC data catalogue services for EU Photon and Neutron national RIs, in particular to the integration of the metadata catalogue services into EOSC and to the technical documentation about the integration. Moreover, it works on the EOSC Data Analysis Services and the provision of training activities through the EOSC platforms.

- Paul Scherrer Institut



EGI is one of the main contributors to the design and definition of the EOSC architecture and the federated service management framework, and coordinates service pilots participates by the scientific demonstrators. EGI also contributed to the definition of the governance framework and to the works on Rules of Participation. In the project, EGI will enhance the SoBigData platform with two services: Jupyter Notebooks and the Workflow manager Galaxy

- ETH – Eidgenössische Technische Hochschule Zürich



**DIGIT BRAIN**

EGI leads the processes related to setup and operate of testbed infrastructure, the Edge/cloud/ HPC orchestration, to secure resource access and user management. It also works on the commercial exploitation and sustainability plan and on dissemination activities.

- Scuola Universitaria Professionale Della Svizzera Italiana



The EGI Foundation is leading the technical requirements, service layer design and integration with the platform defining and describing. Additionally, EGI Foundation participates to build Vertical Matchmaking and hardware marketplace and to Open Call Management.

- Boneyes Community Association

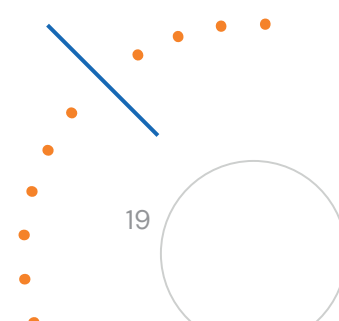


In the project, EGI will develop a workflow-based Gateway to computing and storage infrastructures and services for European scientists, contributing an innovative and customizable service for EOSC that enables operational open and FAIR data and data processing.

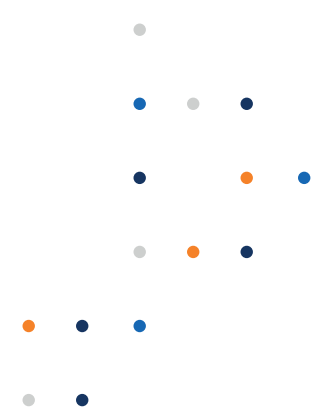
- VIB VZW Ecole Polytechnique Federale de Lausanne

# Innovation impact

The EGI Federation is the innovation driving force in EGI, continuously improving the service offering. Participation in EC funded projects supports the innovation process; EGI members take part in EC projects with the EGI Foundation, contributing valuable technical implementation contributions. In addition, the EGI Federation fosters the innovation processes in EGI by offering services for all EGI participants and their affiliates. EGI members fees and EC-funded projects support the running and operation of the internal services.



# Infrastructure contributions



The EGI Federation offers two complementary compute capabilities: the High- Throughput Compute (HTC) federation and the Cloud federation. 5 Swiss data centres contribute to these federations:

CSCS-LCG2 (CSCS, Swiss National Supercomputing Centre) T3\_CH\_PSI (HPCE Group, NES/LSM, Paul Scherrer Institut, CH-5232 Villigen PSI, CH)  
 UNIGE-DPNC (Grid computing cluster of the DPNC department at the University of Geneva)  
 UNIBE-ID (HPC cluster of the IT Services Office at the University of Bern)  
 UNIBE-LHEP (Grid computing cluster of the LHEP department at the University of Bern)  
 The data centres provided 52 service endpoints and delivered 171,960,108 CPUhours in total to EGI communities in 2022. The data centres responded to 68 support tickets through the EGI Helpdesk.

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

- ATLAS (55.65%)
- CMS (25.98%)
- LHCB (18.22%)
- FERMILAB (0.13%)
- DUNE (0.02%)

The Swiss sites pulled 7.337.369 Unified Middleware Distribution updates from the EGI Software Repository and, with the help of the EGI Security Vulnerability Group, avoided 44 critical vulnerabilities in foundational software systems during 2022.

Project and legal entity involved	Role in the project	Funding received (Jan 2021 June 2023)	
		EC Funding	EGI Foundation contribution to service delivery
EGI-ACE EnhanceR	Deliver OpenRDM 'FAIR research data management' service in EOSC.	€ 46,250	€ 34,688
<b>TOTAL</b>		<b>€ 46,250</b>	<b>€ 34,688</b>

Project and legal entity involved	Role in the project	Funding received (Sep 2022 Dec 2025)	
		EC Funding	EGI Foundation contribution to service delivery
interTwin ETZH	Provide use cases on Lattic QCD Digital Twin	n.a.	n.a.
<b>TOTAL</b>		<b>n.a.</b>	<b>n.a.</b>

# 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](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>

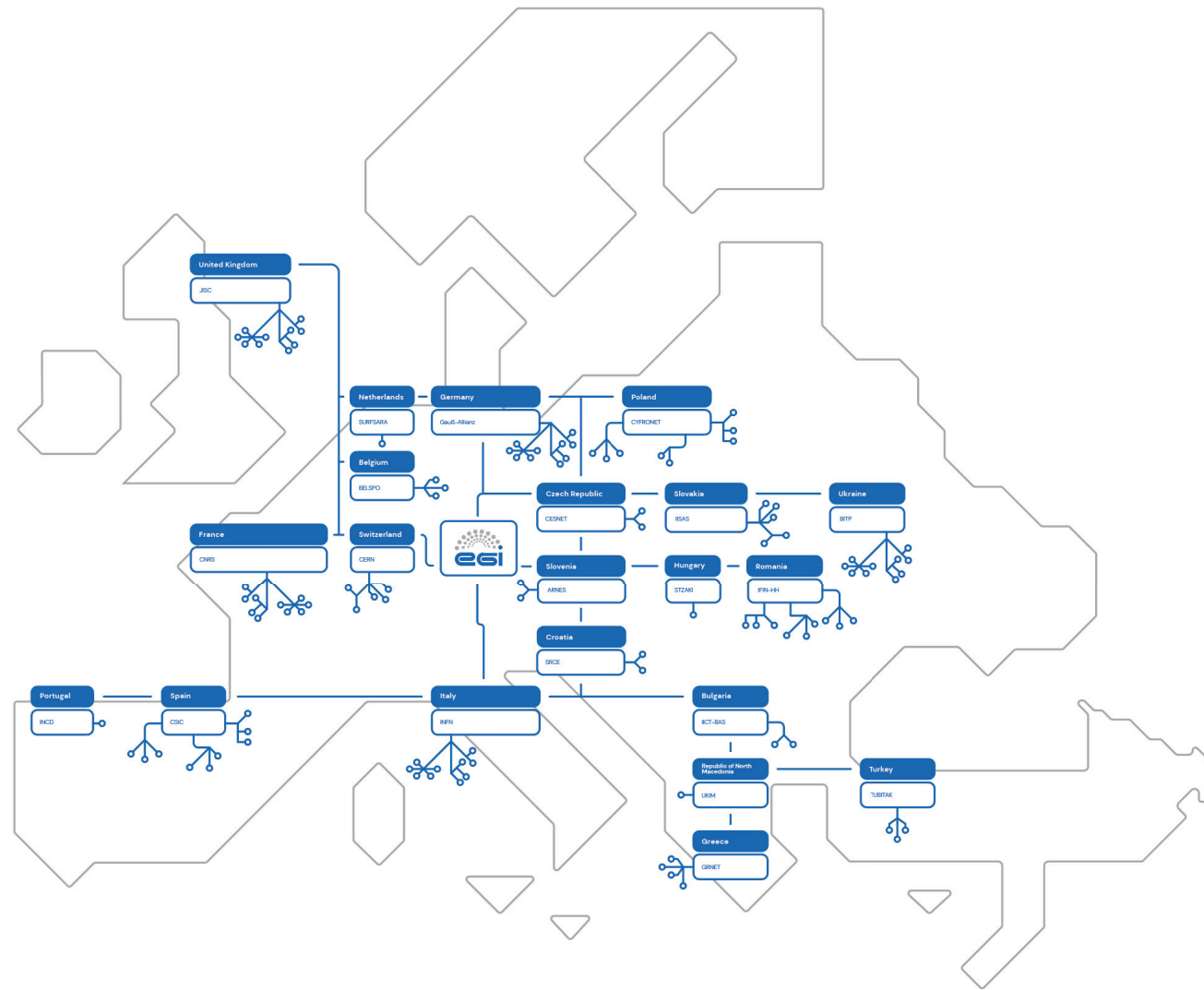
**JUNO**  
<https://inspirehep.net/>

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

**KM3NET**  
<https://www.km3net.org/about-km3net/publications/publication/>  
[https://inspirehep.net/literature?q=collaboration:KM3NeT\\_year:2021](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](https://inspirehep.net/literature?q=collaboration:belle_year:2021)

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



Map of the Data Centres of the EGI Federation

### BIOMED

<https://vip.creatis.insa-lyon.fr/documentation/>

### 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](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)

### CTA

<https://www.cta-observatory.org/science/library/>

### LCHb

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

### CLARIN

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

### LSST

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

### CMS

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

### NA62

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

### DUNE

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

### OPENCOASTS

[http://opencoasts.inec.pt/index\\_en.php](http://opencoasts.inec.pt/index_en.php)

### EISCAT\_3D

<https://eiscat.se/scientist/publications/>

### PANOSC

<https://www.panosc.eu/publications/>

### ELI-BEAM

<https://www.eli-beams.eu/publikace/>

### SeaDataNet

<https://www.seadatanet.org/Publications/Scientific-publications>

### ELI-NP

[https://www.eli-np.ro/scientific\\_papers.php](https://www.eli-np.ro/scientific_papers.php)

### 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](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)

### EMSO-ERIC

from the community representative; SLA <https://documents.egi.eu/document/3539>

### SNO+

<https://snoplus.phy.queensu.ca/results/collaboration-papers.html>

### FUSION

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

### VIRGO

<https://pnp.ligo.org/ppcomm/Papers.html>

### HESS

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

### 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](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&scioldt=0.5&cites=6696812766870837905&scipsc=](https://scholar.google.com/scholar?as_ylo=2021&hl=en&as_sdt=0.5&scioldt=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&scioldt=0.5&cites=10578718345045994565&scipsc=](https://scholar.google.com/scholar?as_ylo=2021&hl=en&as_sdt=0.5&scioldt=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=](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\\_sdt=2005&cites=6482114501244947208&scipsc=](https://scholar.google.com/scholar?as_ylo=2021&hl=en&as_sdt=2005&cites=6482114501244947208&scipsc=)

### Ice-Cube

<https://icecube.wisc.edu/science/publications/>

### XENON

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

# National institutional members of supported research communities (table 2)

<b>AMS-02</b> <a href="https://ams02.space/collaboration/institute">https://ams02.space/collaboration/institute</a>	<b>ILC</b> <a href="https://linearcollider.org/team/">https://linearcollider.org/team/</a>	<b>CMS</b> <a href="https://cms.cern/collaboration/cms-institutes">https://cms.cern/collaboration/cms-institutes</a>	<b>NA62</b> <a href="https://greybook.cern.ch/experiment/detail?id=NA62">https://greybook.cern.ch/experiment/detail?id=NA62</a>
<b>ALICE</b> <a href="https://alice-collaboration.web.cern.ch/General/Members/List_Institutes.html">https://alice-collaboration.web.cern.ch/General/Members/List_Institutes.html</a>	<b>INSTRUCT</b> <a href="https://instruct-eric.eu/countries">https://instruct-eric.eu/countries</a>	<b>DUNE</b> <a href="https://lbnf-dune.fnal.gov/about/countries-and-institutions-participating-in-dune/">https://lbnf-dune.fnal.gov/about/countries-and-institutions-participating-in-dune/</a>	<b>OPENCOASTS</b> <a href="http://opencoasts.lnec.pt/index_en.php">http://opencoasts.lnec.pt/index_en.php</a>
<b>ATLAS</b> <a href="https://atlas.cern/discover/collaboration">https://atlas.cern/discover/collaboration</a>	<b>JUNO</b> <a href="https://juno.ihep.ac.cn/collaboration.php">https://juno.ihep.ac.cn/collaboration.php</a>	<b>EISCAT_3D</b> <a href="https://eiscat.se/wp-content/uploads/2016/12/EISCAT-Organogram-202x.jpg">https://eiscat.se/wp-content/uploads/2016/12/EISCAT-Organogram-202x.jpg</a> ; <a href="https://eiscat.se/scientist/document/information/">https://eiscat.se/scientist/document/information/</a>	<b>PANOSC</b> <a href="https://www.panosc.eu/partners/">https://www.panosc.eu/partners/</a>
<b>AUGER</b> <a href="https://www.auger.org/collaboration/institutions">https://www.auger.org/collaboration/institutions</a> ; <a href="https://www.auger.org/collaboration/funding-agencies">https://www.auger.org/collaboration/funding-agencies</a>	<b>KM3NET</b> <a href="https://www.km3net.org/about-km3net/collaboration/members/">https://www.km3net.org/about-km3net/collaboration/members/</a>	<b>ELI-BEAM</b> <a href="https://www.eli-beams.eu/about/cooperation/science/">https://www.eli-beams.eu/about/cooperation/science/</a>	<b>SeaDataNet</b> <a href="https://www.seadatanet.org/About-us/SeaDataNet-AISBL/Members">https://www.seadatanet.org/About-us/SeaDataNet-AISBL/Members</a>
<b>BELLE</b> <a href="https://belle.kek.jp/bdocs/collaboration.html">https://belle.kek.jp/bdocs/collaboration.html</a>	<b>LifeWatch</b> <a href="https://www.lifewatch.eu/organisation-governance/">https://www.lifewatch.eu/organisation-governance/</a>	<b>ELI-NP</b> <a href="https://www.eli-np.ro/scientific_collaborations.php">https://www.eli-np.ro/scientific_collaborations.php</a>	<b>SKA</b> <a href="https://www.skatelescope.org/participating-countries/">https://www.skatelescope.org/participating-countries/</a>
<b>BIOMED</b> <a href="https://vip.creatis.insa-lyon.fr/">https://vip.creatis.insa-lyon.fr/</a>	<b>LOFAR</b> <a href="https://www.astron.nl/telescopes/">https://www.astron.nl/telescopes/</a>	<b>EMSO-ERIC</b> <a href="http://emso.eu/organization/">http://emso.eu/organization/</a>	<b>SNO+</b> <a href="https://snoplus.phy.queensu.ca/collaboration.html">https://snoplus.phy.queensu.ca/collaboration.html</a>
<b>CTA</b> <a href="https://www.cta-observatory.org/about/cta-consortium/">https://www.cta-observatory.org/about/cta-consortium/</a>	<b>LCHb</b> <a href="https://lhcb-public.web.cern.ch/en/collaboration/Collaboration-en.html">https://lhcb-public.web.cern.ch/en/collaboration/Collaboration-en.html</a>	<b>FUSION</b> <a href="https://documents.egi.eu/public/ShowDocument?docid=3484">https://documents.egi.eu/public/ShowDocument?docid=3484</a>	<b>VIRGO</b> <a href="https://apps.virgo-gw.eu/vmd/public/institutions">https://apps.virgo-gw.eu/vmd/public/institutions</a>
<b>CLARIN</b> <a href="https://www.clarin.eu/content/participating-consortia">https://www.clarin.eu/content/participating-consortia</a>	<b>LSST</b> <a href="https://www.lsstcorporation.org/international-contributors">https://www.lsstcorporation.org/international-contributors</a>	<b>HESS</b> <a href="https://www.mpi-hd.mpg.de/hfm/HESS/pages/collaboration/">https://www.mpi-hd.mpg.de/hfm/HESS/pages/collaboration/</a>	<b>WeNMR</b> <a href="https://documents.egi.eu/document/2751">https://documents.egi.eu/document/2751</a>
		<b>Ice-Cube</b> <a href="https://icecube.wisc.edu/collaboration/institutions/">https://icecube.wisc.edu/collaboration/institutions/</a>	<b>XENON</b> <a href="https://science.purdue.edu/xenon1t/?page_id=27">https://science.purdue.edu/xenon1t/?page_id=27</a>



# EGI Membership Impact Report

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