EGI Council Participant: SRCE

Participating in EGI Impact Report: Croatia

2024

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Infographic
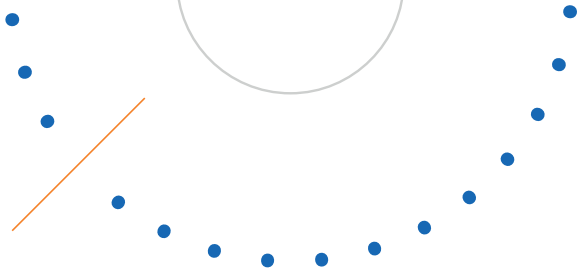
88 service users

In 2024, 88 researchers from Croatian institutions used the services provided by the EGI Federation

1,183 publications

The research communities, projects and scientific collaborations from Croatia supported by the EGI led to 1,183 peer-reviewed scientific publications

10 Supported communities

In 2024, the Croatian infrastructure supported 10 research communities in the following disciplines: Agriculture, Climate Research, Health and Medicine, Linguistics, Physics

Projects

Croatian partners participate in 1 collaboration project

Country overview
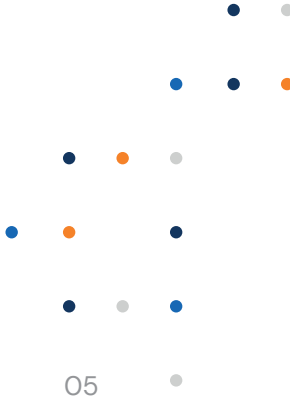
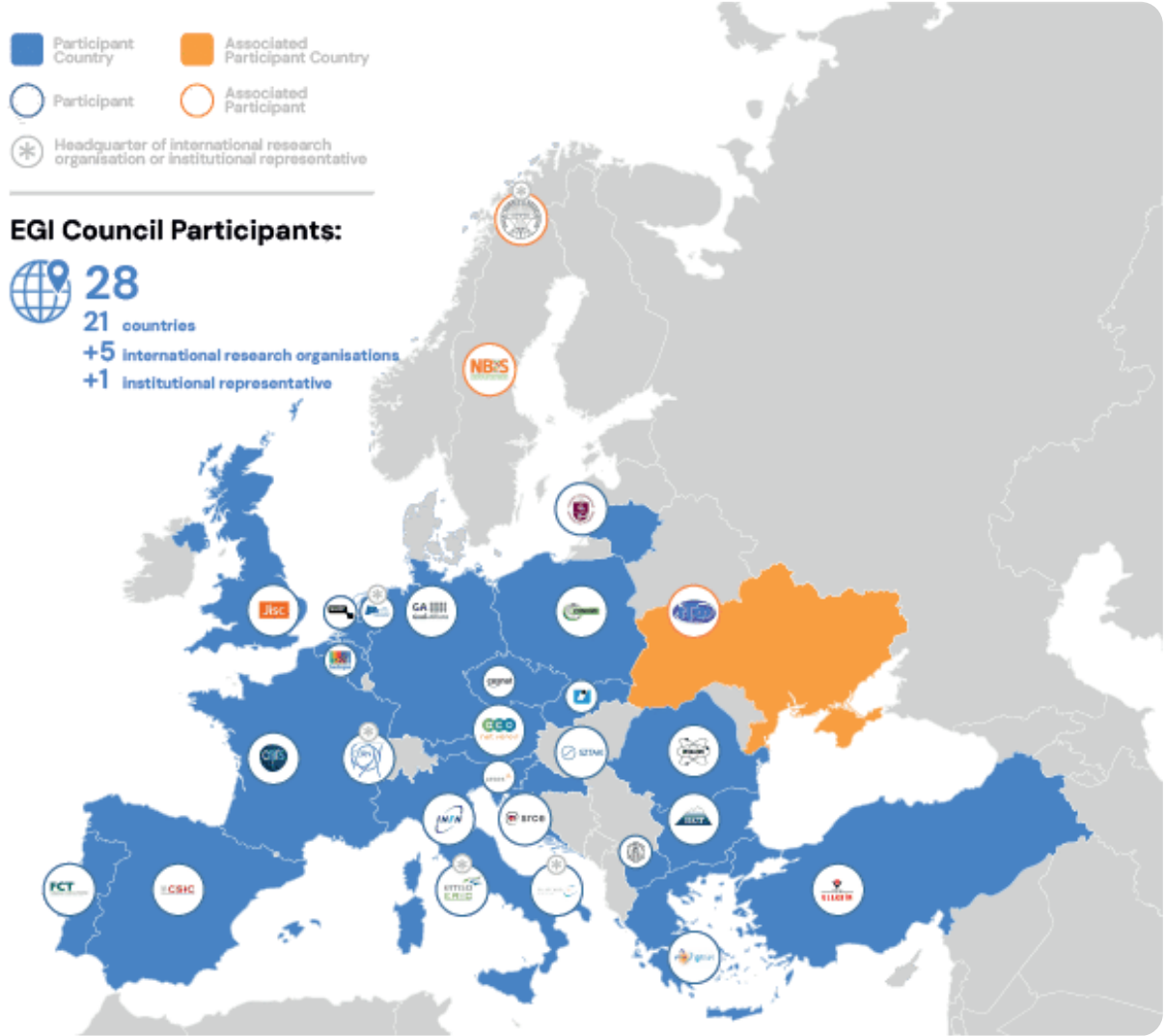|	
Number of supported publications	1,183
Number of total service users	151
Scientific Communities supported	10
Data Centres contributing to the Federation	2
Collaboration projects	1

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.
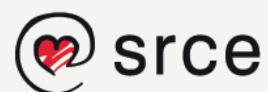
The EGI Federation believes that all researchers should have seamless access to services, resources and expertise to collaborate and conduct world-class research and innovation. The EGI Federation is coordinated by EGI Foundation, an organisation with headquarters in Amsterdam. The Foundation offers 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.

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
+1 institutional representative

Approved EGI Council map from 2024

About SRCE

SRCE - University of Zagreb University Computing Centre (http://www.srce.unizg.hr/en) as the major national infrastructural ICT institution is providing a modern, sustainable and reliable e-infrastructure for the research and education community in Croatia. It was founded in 1971 within the University of Zagreb, the only Croatian university at the time, with the purpose to enhance the implementation of information technologies in the academic community as well as in Croatia in general.

Today, SRCE is the main computing centre and the architect of the e-infrastructure, covering the whole Croatian research and high education system. Furthermore, SRCE is the competence centre for information and communication technologies as well as the centre for education and support in the area of ICT application.

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 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 contribution to Croatian excellence in science

SRCE is the legal representative of Croatia in the EGI Federation; as such it participates in EGI Council and performs all activities such as operation of EGI infrastructure services, providing user support and promoting EGI services to national users. SRCE promotes the building and operation of a multidisciplinary national Distributed Computing Infrastructure open to all scientists. This report provides an overview of the activities and the impact that was achieved thanks to this participation. The annual membership fee contributed by SRCE to the EGI Foundation in 2024 was 25,000 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.

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 88 researchers from Croatia in 2024. The estimated annual scientific output in 2024 produced by research communities, projects and scientific collaborations from Croatia and supported by the EGI Federation is estimated to amount to 1,183 peer reviewed scientific publications.

The EGI Federation is currently working with over 40 Research Infrastructures, 33 of which include Croatian partners. These EGI-enabled research infrastructures, their Croatian members and their 2024 scientific output (publications) are detailed in

Croatian research collaborations in EGI	EGI supported activities and services	Number of scientific papers published in 2024
ALICE (High-Energy Physics) • University of Split • Ruđer Bošković Institute • University of Zagreb	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**
CLARIN (Linguistics) • HR-CLARIN University of Zagreb	CLARIN thematic services has been supported by EGI since 2018. CLARIN has a Service Level Agreement with EGI, using the following services: EGI services: • EGI Cloud (Compute + Online Storage) for hosting the Virtual Language Observatory (VLO) • Technical support • Service integration	**13**
CMS (High-Enery Physics) • University of Split • Ruđer Bošković Institute	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)	**109**

Croatian research collaborations in EGI	EGI supported activities and services	Number of scientific papers published in 2024
CTA (Astronomy) • University of Zagreb • FESB – University of Split • Josip Juraj Strossmayer University of Osijek • Ruđer Bošković Institute • University of Rijeka	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)	0
JUNO (Neutrino Observatory) • University of Zagreb • Ruđer Bošković Institute I	The JUNO experiment has been using compute resources from EGI partners for more than a decade. The services from the EGI federation that JUNO uses include: • EGI HTC services from 4 EGI federated data centres from France, Italy, Russia and China. • 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)	64

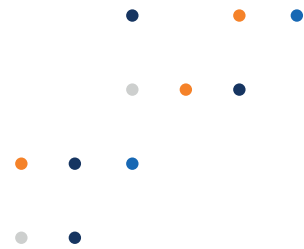| Croatian research collaborations in EGI	EGI supported activities and services	Number of scientific papers published in 2024
LSST (Astronomy) • Ruđer Bošković Institute	The LSST survey federates High Throughput Compute (HTC) resources from France and the UK and run an analysis campaign in 2020 to prepare 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)	11
SeaDataNet (Oceanography) • Institute of Oceanography and Fisheries	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

Croatian research collaborations in EGI

WeNMR (Structural Biology)
- Ruđer Bošković Institute
- University of Zagreb
- Medicinski Fakultet Osijek

EGI supported activities and services

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.

Number of scientific papers published in 2024

939

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
CRAFT-DA eosc	EGI coordinates the task dedicated to the Single Sign-On access with the EGI Check-in service.	• SRCE • University of Zadar

Infrastructure contributions

The EGI Federation offers two complementary compute capabilities: the High-Throughput Compute (HTC) federation and the Cloud federation. 2 Croatian data centres contribute to these federations:

HTC Federation:
egee.srce.hr (University Computing Centre, Zagreb, Croatia)

Cloud Federation:
fedcloud.srce.hr (University of Zagreb)

The data centres provided 2 service endpoints to EGI communities and delivered 142.00 Cloud CPUhours to EGI communities in 2024. The data centres responded to 3 support tickets through the EGI Helpdesk.
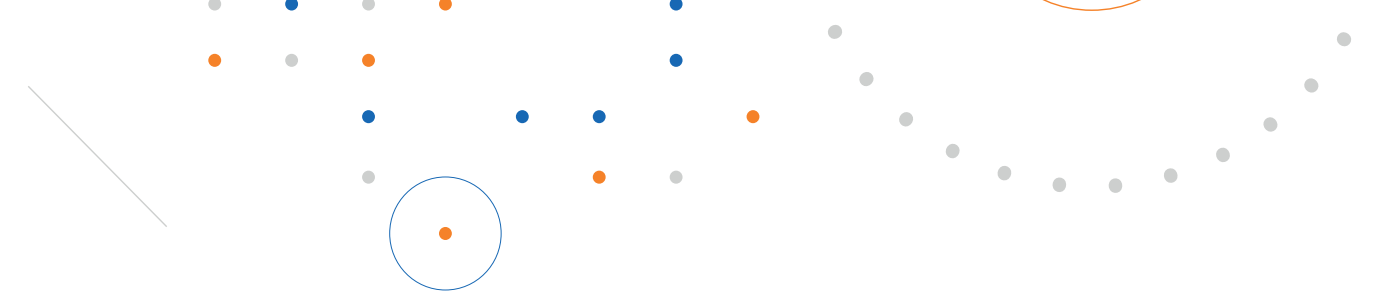
Methodology

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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