# e-infrastructure

As part of the Digital Single Market strategy, we support the deployment of e-infrastructures so that every European researcher can exploit digital skills and tools, and contribute to a seamless and open Digital European Research Area.

**@eInfraEU**
**https://ec.europa.eu/digital-agenda/en/e-infrastructures**

# EC e-Infrastructures projects supporting researchers and Open Science

## AARC - Authentication and Authorisation for Research and Collaboration

AARC enables the research and education (R&E) community to access innovative and cutting-edge resources and services with one set of verified identity credentials (username & password). AARC champions federated access, which removes the need for multiple accounts so preserving security. AARC seeks interoperability among existing R&E authentication and authorisation infrastructures and facilitates service delivery across them.

**https://aarc-project.eu/**

## BlueBRIDGE - Building Research environments fostering Innovation, Decision making, Governance and Education to support blue growth

Today important societal challenges raise questions that are not restricted to a specific sector or discipline. Nevertheless, most of the data and knowledge exchange still occurs in "silos". BlueBRIDGE fills this gap, by simplifying sharing and re-use of knowledge produced in these sectors and facilitating collaboration among their actors on relevant societal challenges or community specific questions. In particular, BlueBRIDGE supports activities contributing to the H2020 Blue Growth Societal challenge with a strong focus on sustainable growth.

**www.bluebridge-vres.eu  @BlueBridgeVREs**

## EarthServer2- - Big Earth Data at your fingertips

Big Earth Data at your fingertips - this is the vision of EarthServer, an intercontinental initiative for unleashing the potential of Big Data through a disruptive paradigm shift in technology.  EarthServer has set out to transform the way we are doing science on spatio-temporal Big Data. Instead of millions of files, EarthServer introduces direct interaction with any-size datacubes. All Sentinel 1a images - one cube. All Landsat 7 images - another cube. EarthServer in its second phase will do intercontinental fusion on datacubes crossing Petabyte sizes.

**http://earthserver.eu   @EarthServer_EU**

## EDISON - Building the data science profession

The EDISON project has been established in order to support Universities, Research Centres, Industry and Research Infrastructure organisations cope with the potential shortfall of Data Scientists and to define the framework of competences as well as the body of knowledge for this profession.

**http://edison-project.eu/ @EdisonEU**

# e-infrastructure

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## EGI-Engage: Engaging the Research Community towards an Open Science Commons

The EGI-Engage supports open science by consolidating and innovating services from EGI -an international collaboration that federates compute, storage, data, knowledge and expertise of national and international research communities in Europe and worldwide. The project also works with research-infrastructures to co-create new services they need and lowers barriers for entry to the long tail researchers and SMEs.

**http://go.egi.eu/engage @EGI_eu**

## e-IRG - Paving the way towards a general purpose European e-Infrastructure

The e-IRG, supported by the e-IRGSP4 project, focuses on high-level policy support for harmonising and forecasting of e-Infrastructures in Europe. It produces White papers, Guidelines and Road maps that are useful in e-Infrastructure, Research Infrastructure development and sustainable usage.

**http://e-irg.eu @eirgeu**
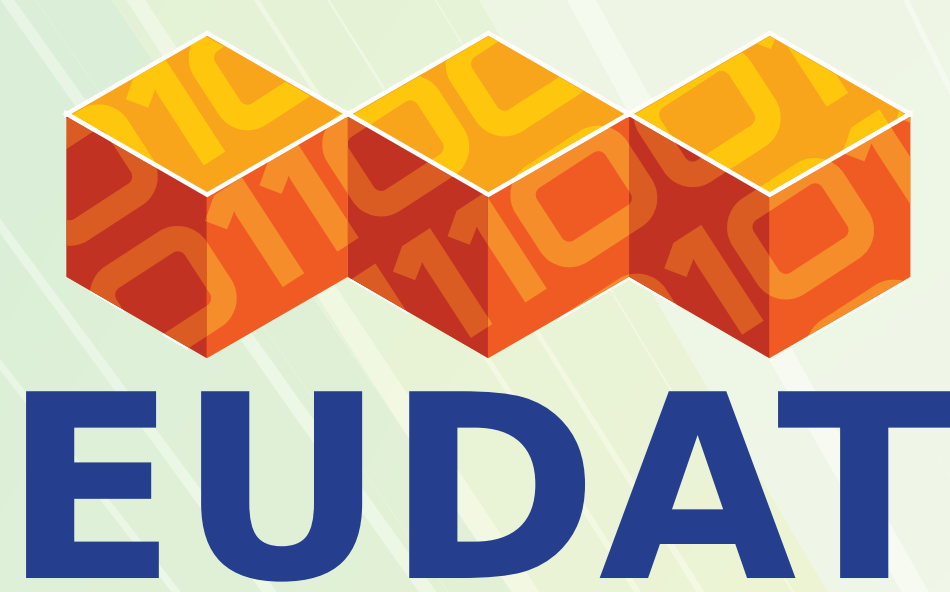
## EUDAT - European Data Infrastructure

EUDAT's vision is to enable European researchers and practitioners from any research discipline to preserve, find, access, and process data in a trusted environment, as part of a Collaborative Data Infrastructure (CDI). Conceived as a network of collaborating, cooperating centres, EUDAT combines the richness of numerous community-specific data repositories with the permanence and persistence of some of Europe's largest scientific data and computing centres.

**www.eudat.eu   @Eudat_eu**

## EVER-EST: A Virtual Research Environment for the Earth Sciences

EVER-EST will develop a generic Virtual Research Environment (VRE) tailored to the needs and validated by the Earth Science domain. It will create an innovative framework which enhances the ability of the Earth Science communities and, observational scientific disciplines in general, to interoperate and share knowledge and expertise. The EVER-EST VRE will incorporate selected innovative and state-of-the-art technologies, systems and tools developed by previous relevant FP7 projects.

**http://www.everest-eu.eu  @EVEREST_EU1**

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## GÉANT Project (GN4-1) - Accelerating research, driving innovation and enriching education

The GÉANT project is a fundamental element of Europe's e-infrastructure, delivering the pan-European GÉANT network for scientific excellence, research, education and innovation. Through its integrated catalogue of connectivity, collaboration and identity services, GÉANT provides users with highly reliable, unconstrained access to computing, analysis, storage, applications and other resources whenever and wherever they need them, to ensure that Europe remains in the forefront of research.

**www.geant.org/geantproject    @GEANTnews**

## INDIGO-DataCloud - INtegrating Distributed data Infrastructures for Global ExplOitation

INDIGO-DataCloud develops an Open Source data and computing platform provisioned over private, public or hybrid e-infrastructures. By filling gaps of current Cloud technologies, INDIGO-DataCloud helps scientists, software developers, resource providers and e-infrastructures to efficiently exploit computing, data and network technologies: Better Software for Better Science.

**https://www.indigo-datacloud.eu @indigodatacloud**

## LEARN – LEaders Activating Research Networks

LEARN is focused on best practice in research data management and research data policy development. The project will take the LERU Roadmap for Research Data produced by the League of European Research Universities (LERU) and develop this through a series of international stakeholder workshops. LEARN will deliver a model for RDM policy, a best practice Toolkit, and an Executive Briefing in five core languages.

**http://www.learn-rdm.eu    @learnRDM**

## MuG - Multi-scale complex Genomics – Exploring genome beyond sequence

3D/4D genomics represents one of the biggest challenges for biology and biomedicine in the next decade. However, heterogeneity of data, disconnection among databases and lack of standardization in analysis and simulation tools, are threatening to hold back advances in this field. MuG responds to the latest computational challenges of 3D/4D genomics by bringing this community closer to the HPC world and providing a suitable set of tools and infrastructure to integrate the navigation in genomics data from sequence to 3D/4D chromatin dynamics data.

**http://www.multiscalegenomics.eu  @MuG_genomics**

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## OpenAIRE- Science set free

OpenAIRE fosters and furthers Open Science in Europe. It is an open, service-oriented scholarly communication e-Infrastructure that empowers everybody, from researchers to citizens, to access, share and re-use research outcomes to create new knowledge and promote innovation.

**https://www.openaire.eu/   @OpenAIRE_eu**

**OpenDreamKit**

## OpenDreamKit: Open Digital Research Environment Toolkit for the Advancement of Mathematics

OpenDreamKit aims to deliver a flexible toolkit enabling research groups to set up Virtual Research Environments, customised to meet the varied needs of research projects in pure mathematics and applications, and supporting the full research life-cycle from exploration, through proof and publication, to archival and sharing of data and code. To reach that aim, OpenDreamKit builds on and fosters a sustainable ecosystem of community-developed open software, databases, and services, including popular tools such as Linbox, MPIR, Sage, GAP, PariGP, LMFDB, Singular, and the interactive computing environment Jupyter.

**http://opendreamkit.org**

## OpenMinTed- Open Mining Infrastructure for Text and Data

The vast amounts of new scientific information and data offer new insights and give rise to new opportunities for improved analytics and understanding.
OpenMinTeD initiates an infrastructural approach to open up research outputs for text and data mining, to foster knowledge discovery, and advance research and innovation within the Open Science ecosystem.

**http://openminted.eu/   @openminted_eu**
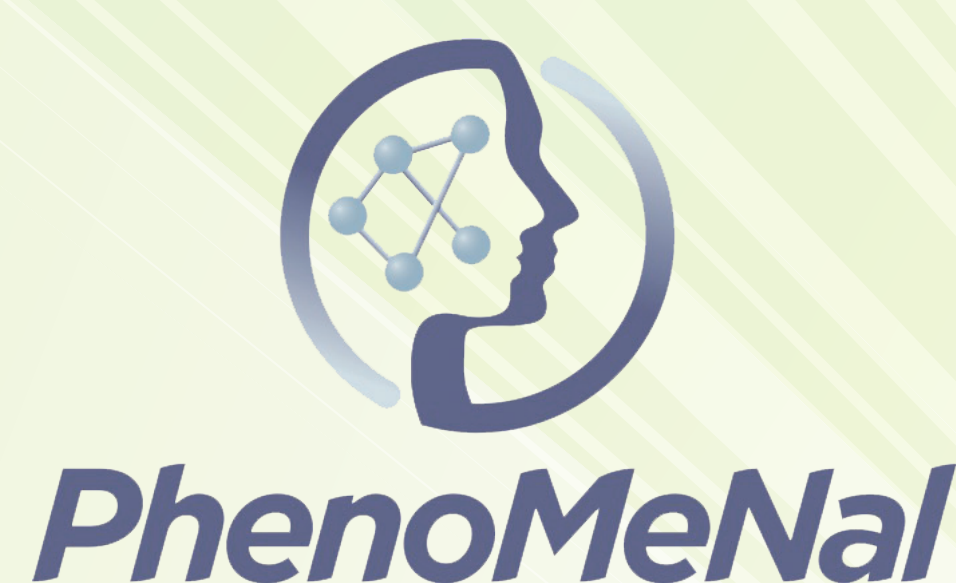
## PhenoMeNal - Phenome and Metabolome aNalysis - A comprehensive and standardised e-infrastructure for analysing medical metabolic phenotype data

The PhenoMeNal project is an integrated, secure, permanent, on-demand service-driven, privacy-compliant and sustainable e-infrastructure for the processing, analysis and information-mining of the massive amount of medical molecular phenotyping and genotyping data that will be generated by metabolomics applications now entering research and clinic. It will be one of the key enabling e- infrastructures addressing the H2020 Societal Challenge in Health, Demographic Change and Wellbeing.
**http://phenomenal-h2020.eu  @PhnmlH2020**

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## PRACE - Partnership for Advanced Computing in Europe

PRACE is the pan-European High Performance Computing Research Infrastructure. Today, High Performance Computing (HPC) is a key scientific tool alongside theory-based and experimental methods. The Partnership for Advanced Computing in Europe (PRACE) ensures that European research and development institutions have access to high-performance computer systems to help them tackle the wide range of challenges facing humanity. Computer simulations speed up the process of acquiring knowledge enormously by shortening or even completely replacing complex, time-consuming laboratory experiments.

**www.prace-ri.eu  @PRACE_RI**

## Research Data Alliance (RDA) – Research Data Sharing without barriers

The Research Data Alliance (RDA) is an international organization focused on the development of infrastructure and community activities and recommendations designed to reduce barriers to data sharing and exchange, and the acceleration of data driven innovation worldwide.
RDA is facilitated in Europe through the RDA Europe initiative: the European plug-in to the Research Data Alliance (RDA).

**www.rd-alliance.org @resdatall @rda_Europe**

## READ – Recognition and Enrichment of Archival Documents

The overall objective of READ is to implement a Virtual Research Environment where archivists, humanities scholars, computer scientists and volunteers are collaborating with the ultimate goal of boosting research, innovation, development and usage of cutting edge technology for the automated recognition, transcription, indexing and enrichment of handwritten archival documents.

**http://read.transkribus.eu/**

## SESAME Net: Supercomputing Expertise for Small And Medium Enterprises

The SESAME Net is focused on establishing a network of HPC competency centres for SMEs. The aim is to build a pan-European network involving HPC service providers and SMEs. The network will facilitate the exchange of knowledge as well as the provision of technical support and HPC infrastructure for SMEs.

**http://www.sesamenetwork.eu/  @SesameNet**

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# EC e-Infrastructures projects supporting researchers and Open Science

## THOR - Technical and Human infrastructure for Open Research: Connecting researchers, data, and articles

THOR develops e-infrastructure services that enable the seamless linking of researchers, articles, and data using Persistent Identifiers (PIDs). This benefits both end-users and service providers. It makes research easier to discover, re-use, and trust. By enabling researchers to receive credit for more of their work, it encourages early sharing of results and supports Open Science.

**http://project-thor.eu/  @project_thor_eu**

## VI-SEEM- Virtual Research Environment (VRE) for regional Interdisciplinary communities in Southeast Europe and the Eastern Mediterranean

Provide user-friendly integrated e-Infrastructure platform for Scientific Communities in Climatology, Life Sciences, and Cultural Heritage for the SEEM (South East Europe and Eastern Mediterranean) region; by linking compute, data, and visualization resources, as well as services, software and tools. The integrated platform will encompass all e-Infrastructure layers including the networking and computing resources, and adding the specific data (and related data management services), software and tools relevant for the regional multi–disciplinary communities.

**https://vi-seem.eu/  @vi_seem**

## VRE4EIC- A Europe-wide Interoperable Virtual Research Environment to Empower Multidisciplinary Research Communities and Accelerate Innovation and Collaboration

VRE4EIC will provide an architectural model for a VRE (implemented on 2 large ESFRI e-Research Infrastructures namely EPOS and ENVRI+) and a set of generic software services to be used to build new or improve existing VREs.  The aim is for interoperation of VREs to allow multidisciplinary research and collaboration.

**http://www.vre4eic.eu/**

## West-Life: World-wide E-infrastructure for structural biology

West-Life will pilot an infrastructure for storing and processing data that supports the growing use of combined techniques of managing structural biology data. This proposal will develop application level service specific to uses cases in structural biology, enabling structural biologists to get the benefit of the generic services developed by EUDAT and the EGI.

**http://about.west-life.eu/  @WestLifeSB**