Enabling open science in Europe with EGI and CSIC with IberGrid

Mark Dietrich, EGI Foundation

TLP: WHITE Public

EGI-ACE receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101017567.

Cross-border, cross-domain open infrastructures

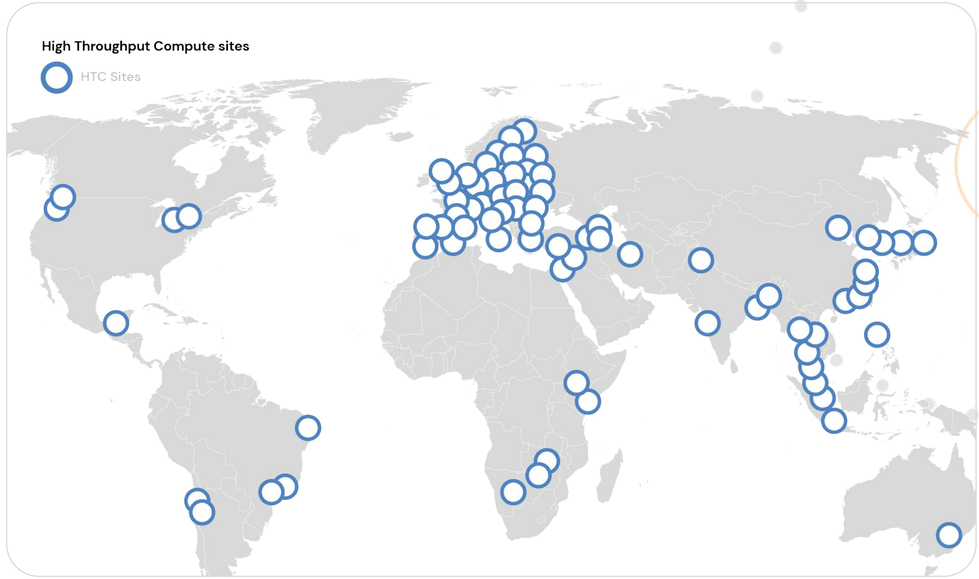
A federation for data-intensive computing

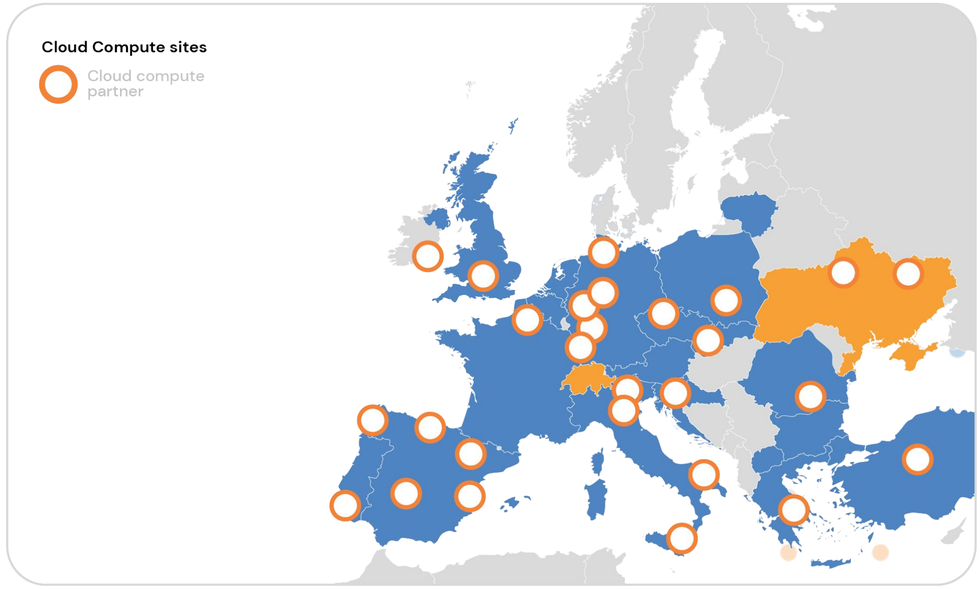
- Support science at international scale
- Build a hyperscale compute facility for research
- Invest nationally, access globally
- Bring computing to the data
- https://www.ibergrid.eu/

IBERGRID

CSIC
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

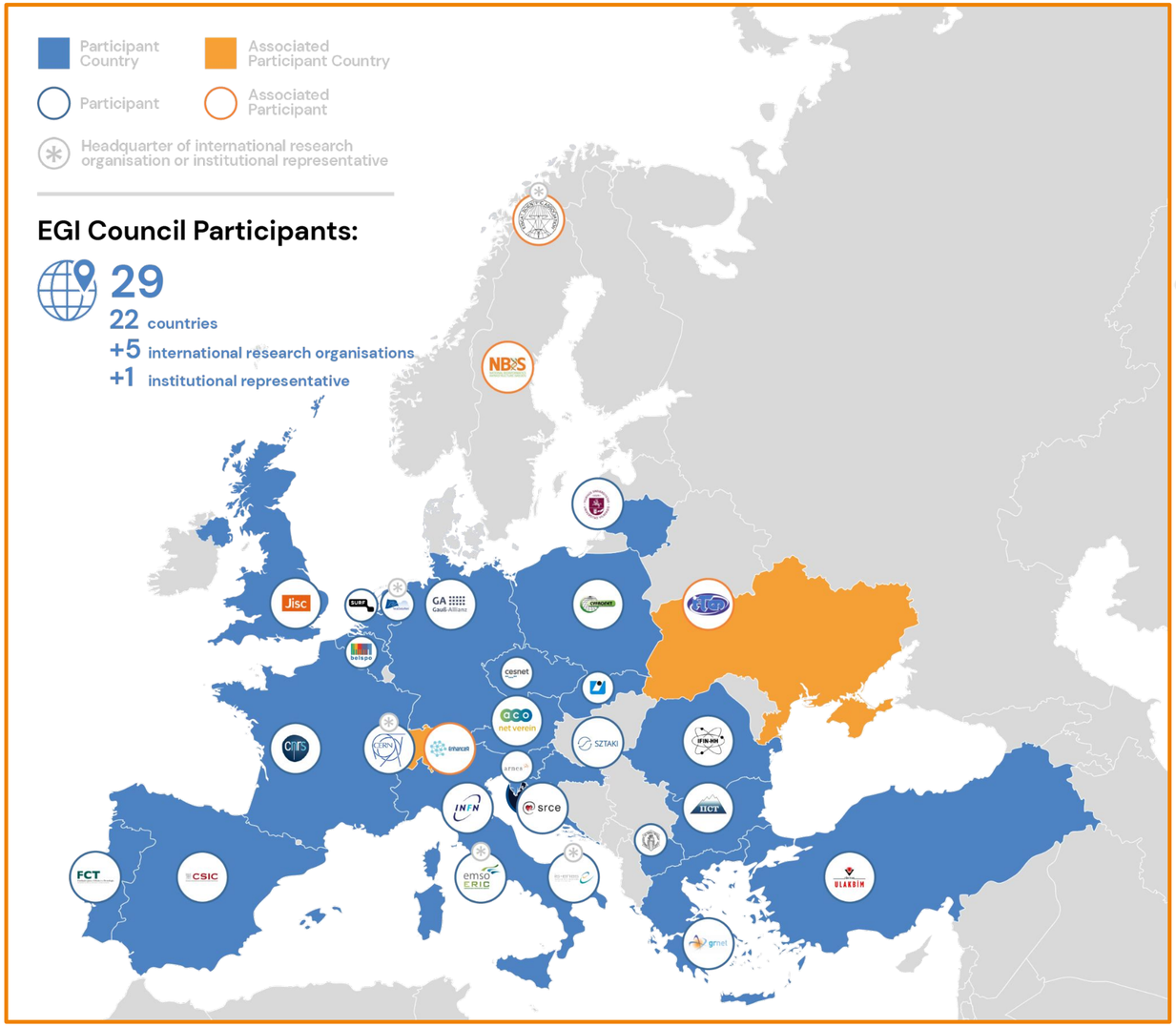
- BIFI, CSIC EBD Lifewatch, CESGA, CETA-CIEMAT, IFCA, IFAE, IFIC, PIC, UAM, UPV, USC (EGI certified, 09-2023)
- IberGrid accounts for 28% of the usage of the EGI Federated Cloud
- IberGrid is a source of innovation with solutions for federated computing used in our production environment





EGI Council participants

https://www.egi.eu/publication/annual-report-2022/



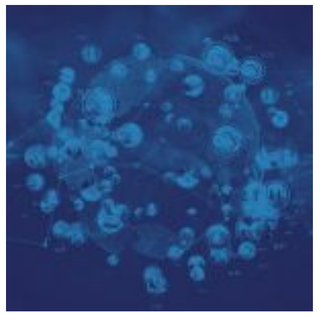
Scientific users and communities relying on EGI in Spain

865 peer reviewed publications

The research communities, projects and scientific collaborations from Spain supported by EGI led to more than 865 publications

1,422 users

The collaborative efforts within Spain, empowered by EGI's resources and services, have catered to the requirements of a remarkable 1,422 users.



27 Supported communities

In 2022, Spanish infrastructure supported 27 research communities from Agriculture, Climate Research, Health and Medicine, Physics

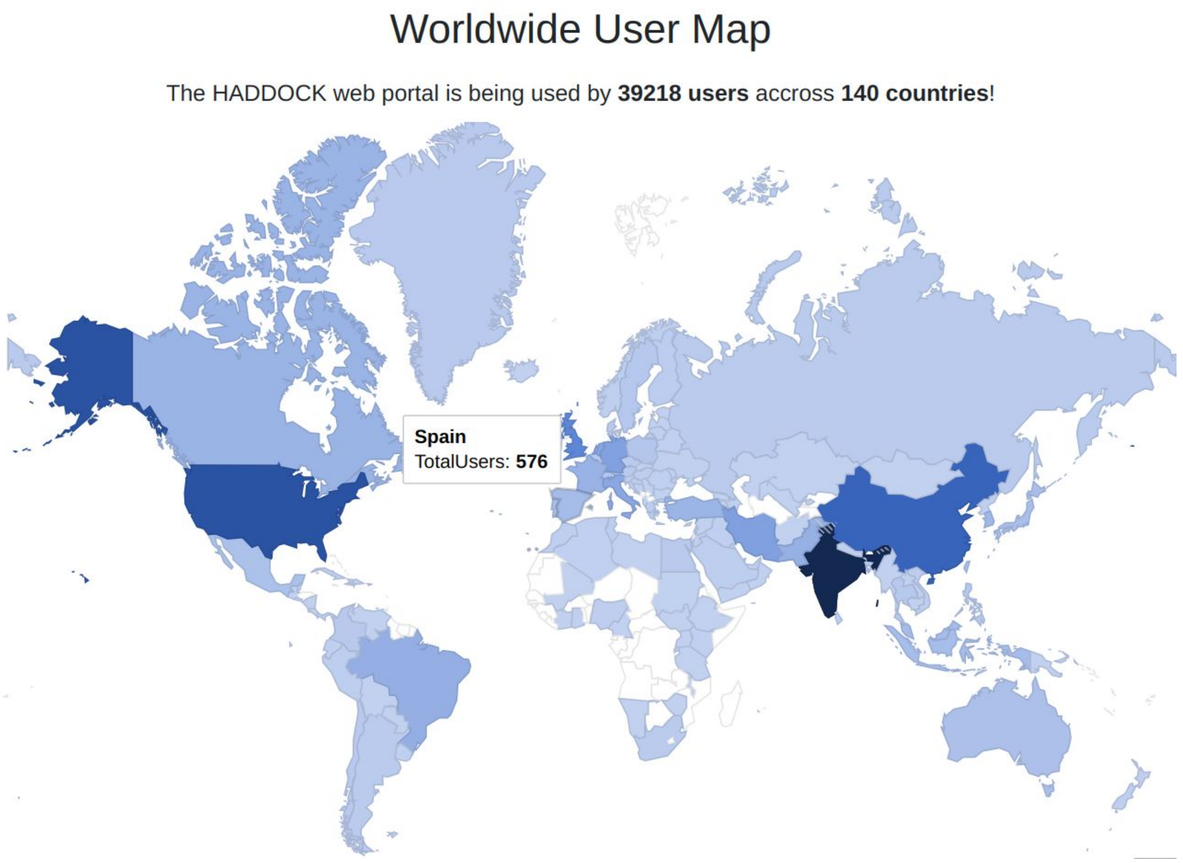
Spain is a key contributor in EGI to data-intensive computing

01	**Biology**	• Bioinformatics, Structural Biology
02	**Environmental Science & Agriculture**	• Oceanography, Marine Science, Climate Research, Biodiversity Conservation
03	**Health and Medicine**	• Population Health, Toxicology
04	**Natural Sciences**	• Fusion, High Energy Physics, Astronomy, Astro-particle physics
05	**Social Sciences and Humanities**	• Linguistics

Open Research Software

Opening tools for simulation addressing the COVID-19 pandemic

A joint effort of WeNMR, EGI Federation (Europe),
Open Science Grid (USA), CBPF (Brazil), Chinese Academy of Science: +100% capacity during 2020-2022



CESGA

IFCA

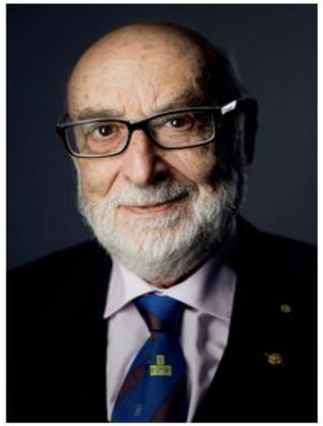
140 Countries

+39,000 users

+570 scientists in Spain

Open Data

The Nobel Prize in Physics 2013



© Nobel Media AB. Photo: A. Mahmoud

François Englert

Prize share: 1/2

© Nobel Media AB. Photo: A. Mahmoud

Peter W. Higgs

Prize share: 1/2

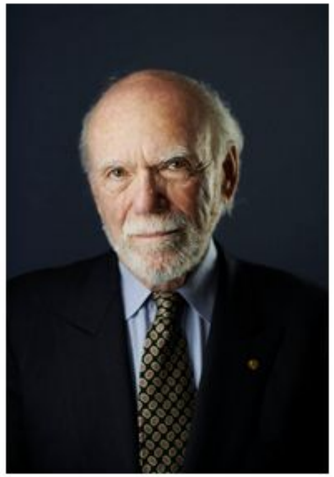
The Nobel Prize in Physics 2013 was awarded jointly to François Englert and Peter W. Higgs "for the theoretical discovery of a mechanism that contributes to our understanding of the origin of mass of subatomic particles, and which recently was confirmed through the discovery of the predicted fundamental particle, by the ATLAS and CMS experiments at CERN's Large Hadron Collider."

The Nobel Prize in Physics 2017

© Nobel Media AB. Photo: A. Mahmoud

Rainer Weiss

Prize share: 1/2



© Nobel Media AB. Photo: A.Mahmoud

Barry C. Barish

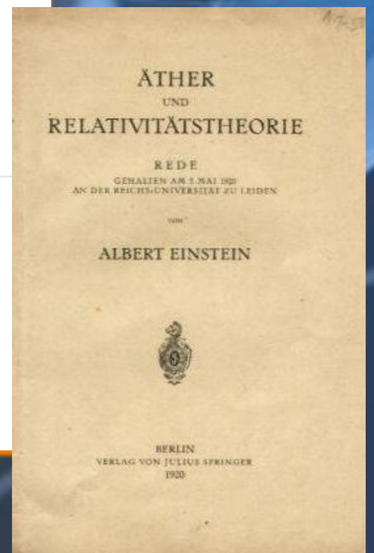
Prize share: 1/4

© Nobel Media AB. Photo: A.Mahmoud

Kip S. Thorne

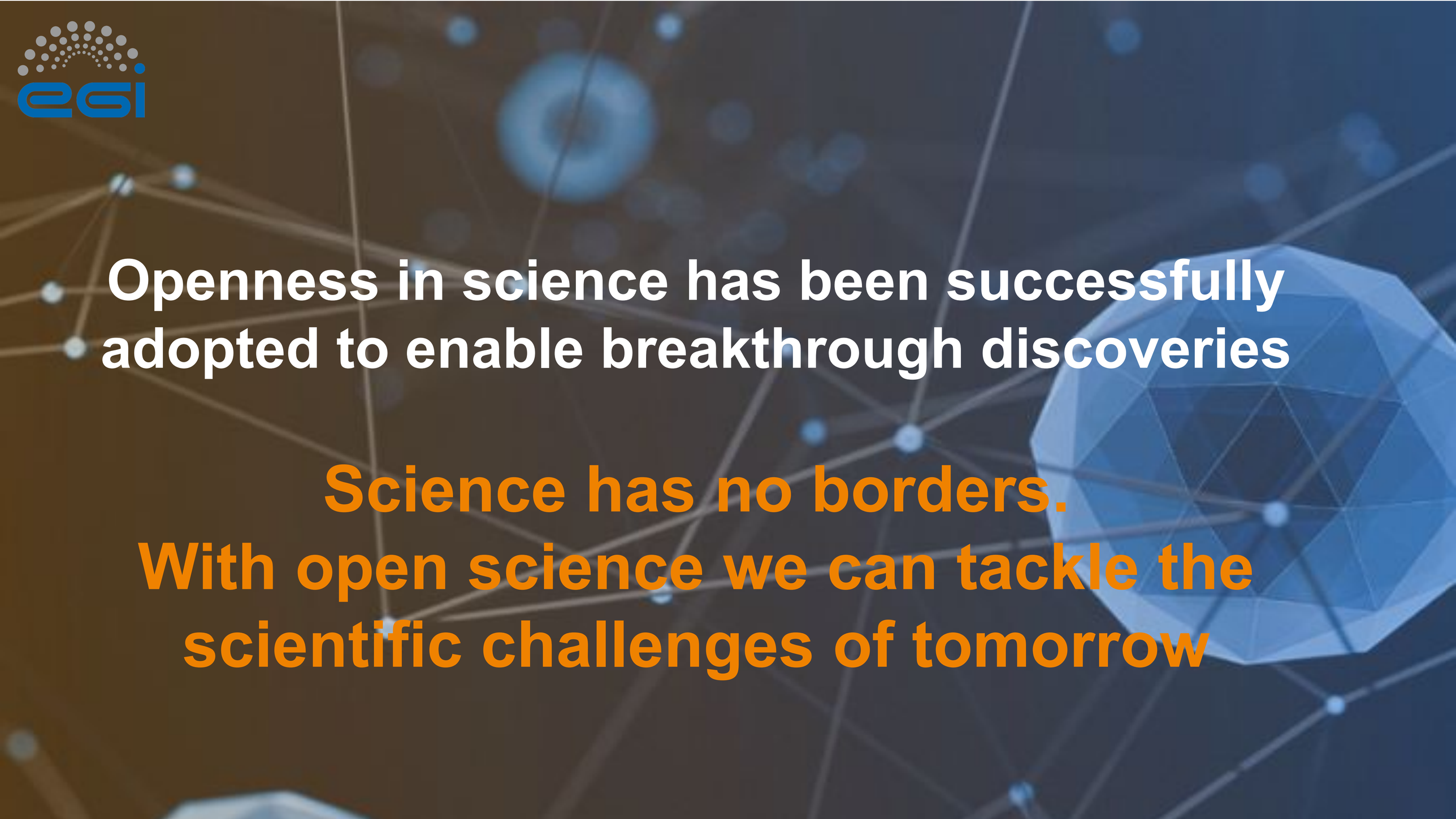
Prize share: 1/4

The Nobel Prize in Physics 2017 was divided, one half awarded to Rainer Weiss, the other half jointly to Barry C. Barish and Kip S. Thorne "for decisive contributions to the LIGO detector and the observation of gravitational waves."



A multi-disciplinary environment where researchers can publish, find and re-use data, tools and services, enabling them to better conduct their work

- Builds on existing infrastructures and services supported by the European Commission, Member States and research communities.
- Brings these together in a federated ‘system of systems’


Openness in science has been successfully adopted to enable breakthrough discoveries
Science has no borders.
With open science we can tackle the scientific challenges of tomorrow

Backup slides

Delivering the EOSC Compute Platform

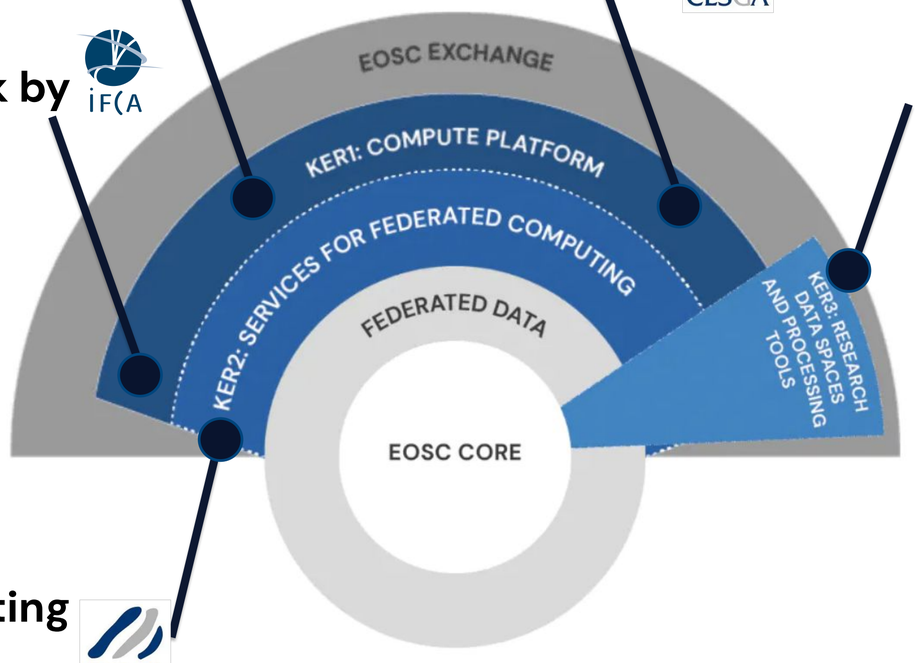
Federated Compute Continuum

Cloud

cloud.srv.cesga.es (Centro de Supercomputacion de Galicia)
api.cloud.ifca.es (Instituto de Fisica de Cantabria)

HPC

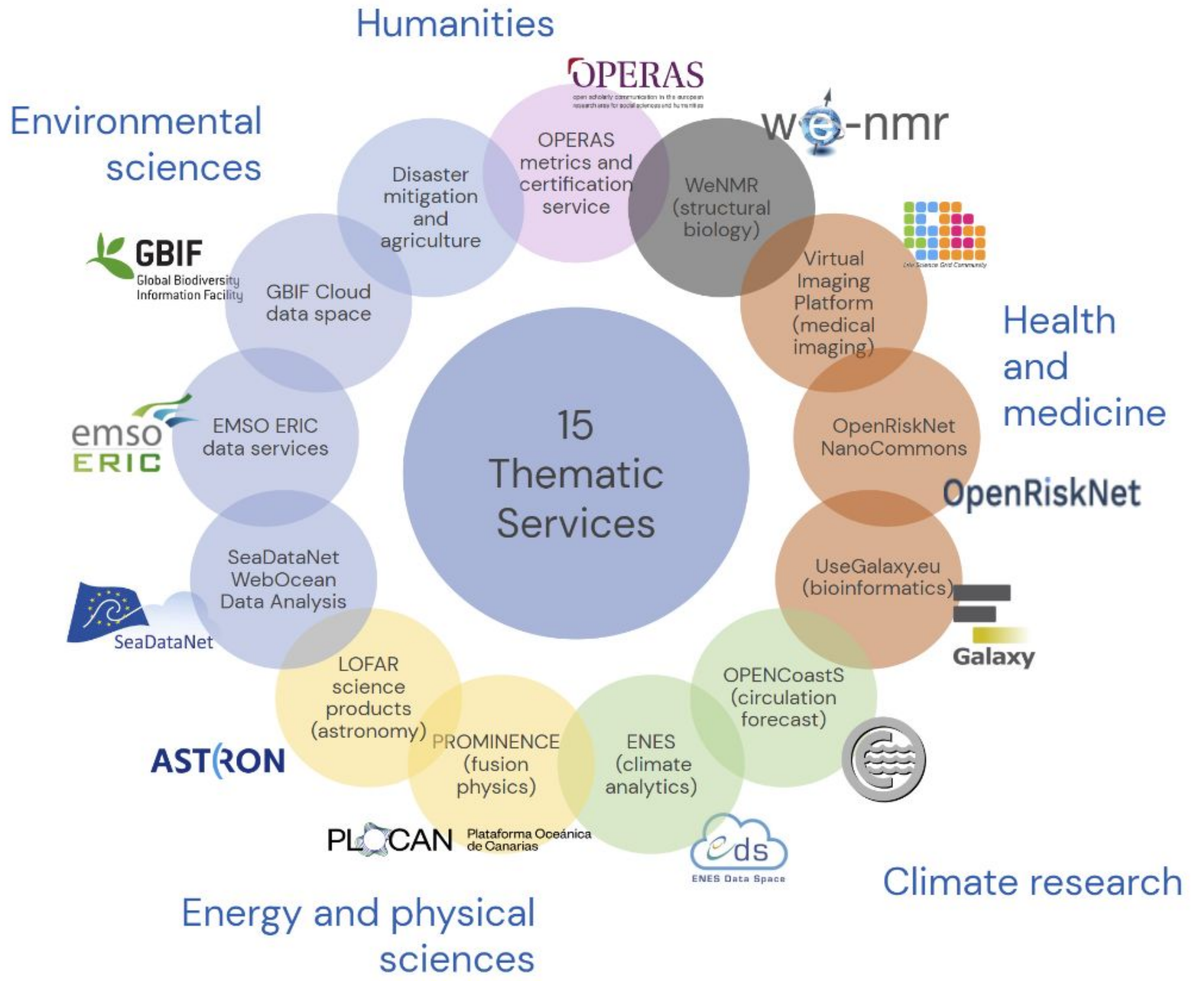
EOSC Compute Platform

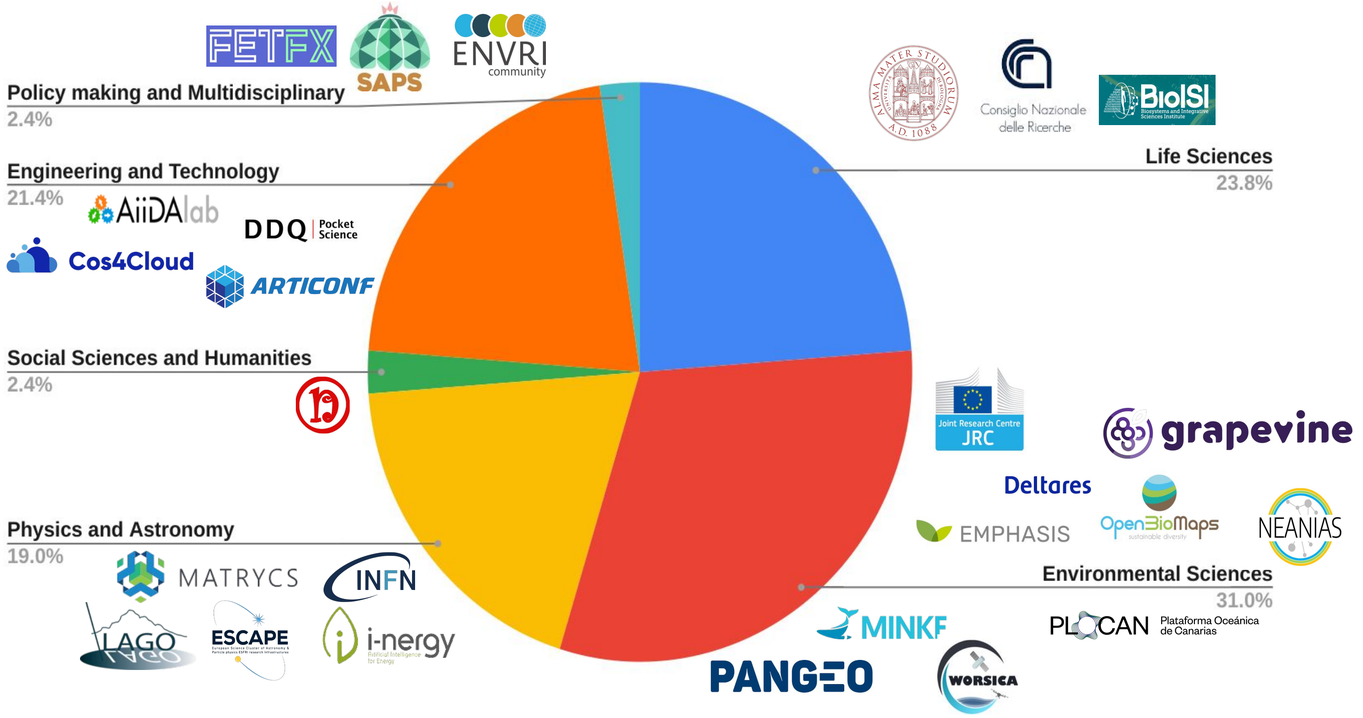


Gbif.es
grapevine
PLOCAN Plataforma Oceánica de Canarias
SAPS
Deltares

Total vCPU/h accounted: 11,912,574

Enabling a thematic service* ecosystem



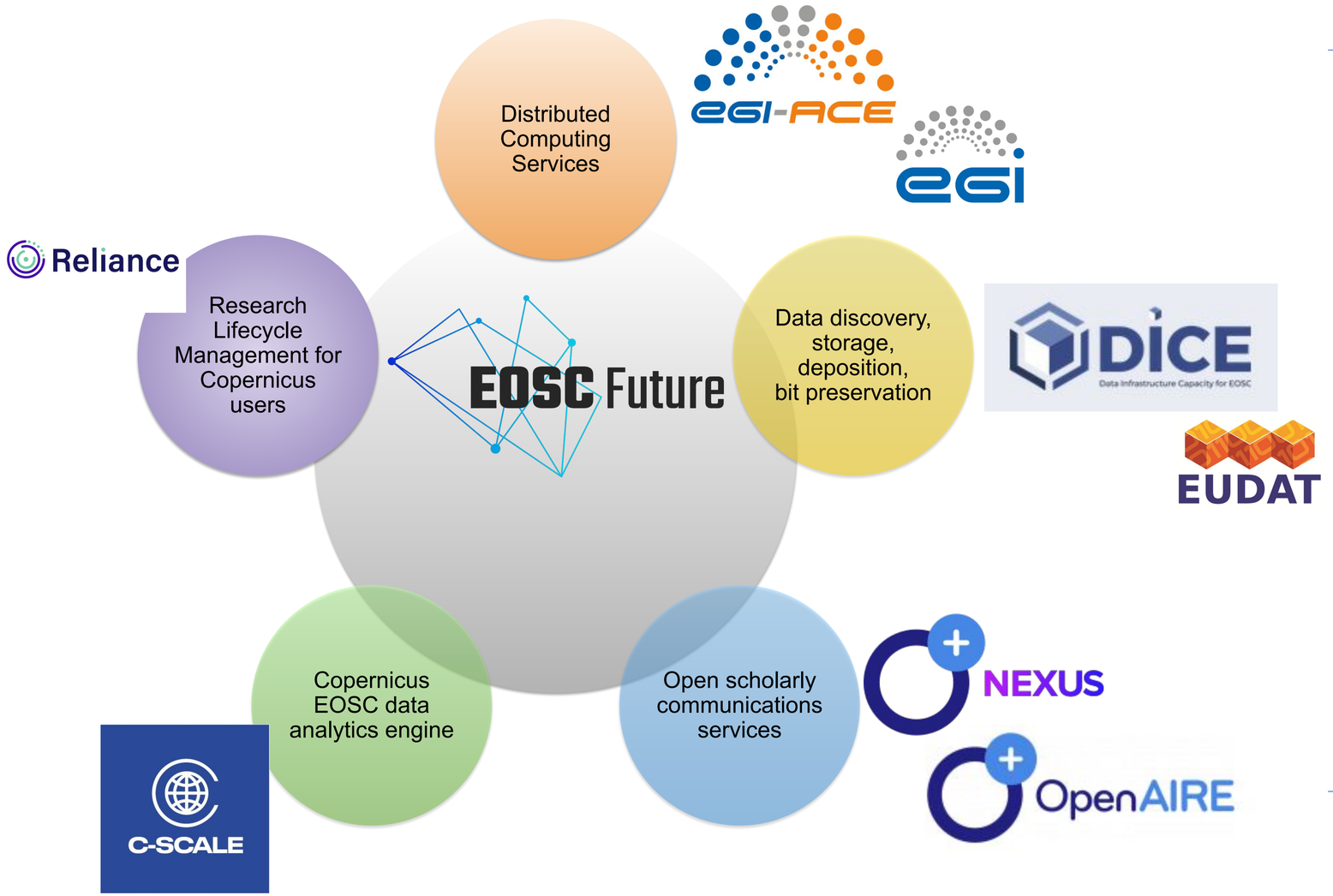


***15** from the consortium*

***14** from external communities*

* Thematic services are online services setup and operated on top of EGI-ACE infrastructure and platform services to serve specific disciplinary/thematic groups.

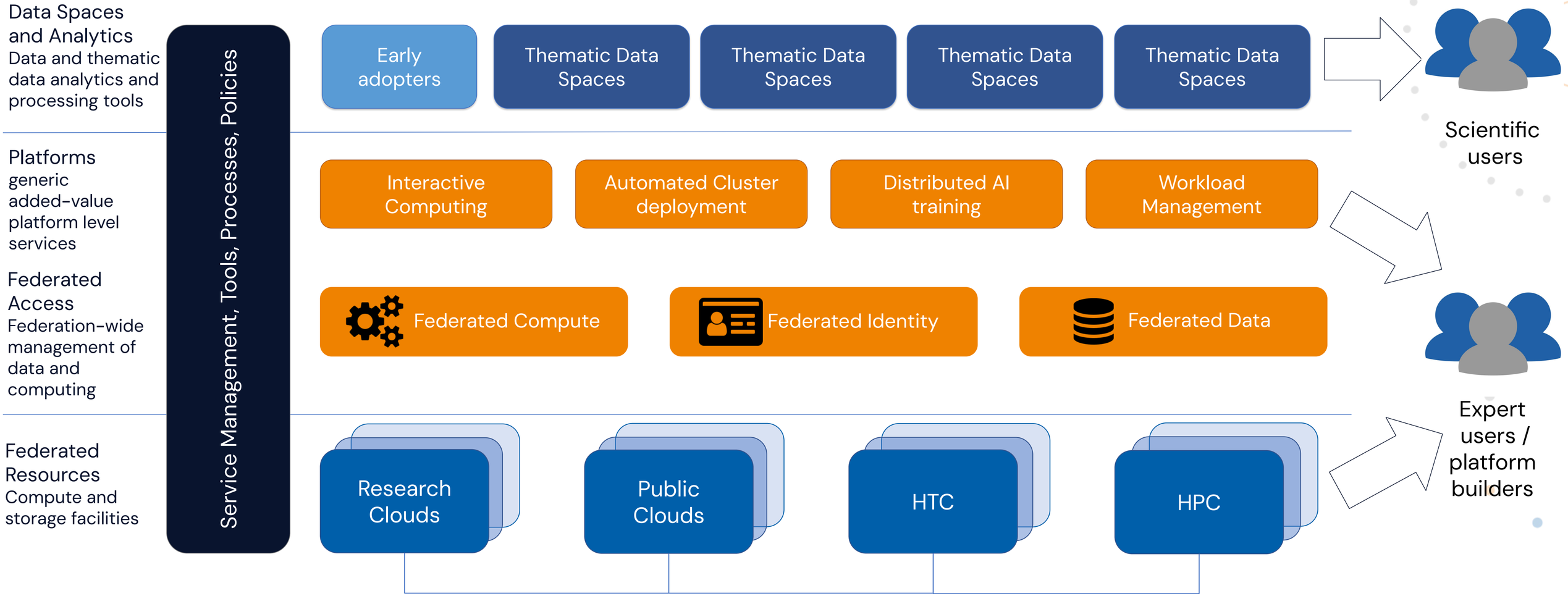
INFRAEOSC projects - Powered by e-infrastructures



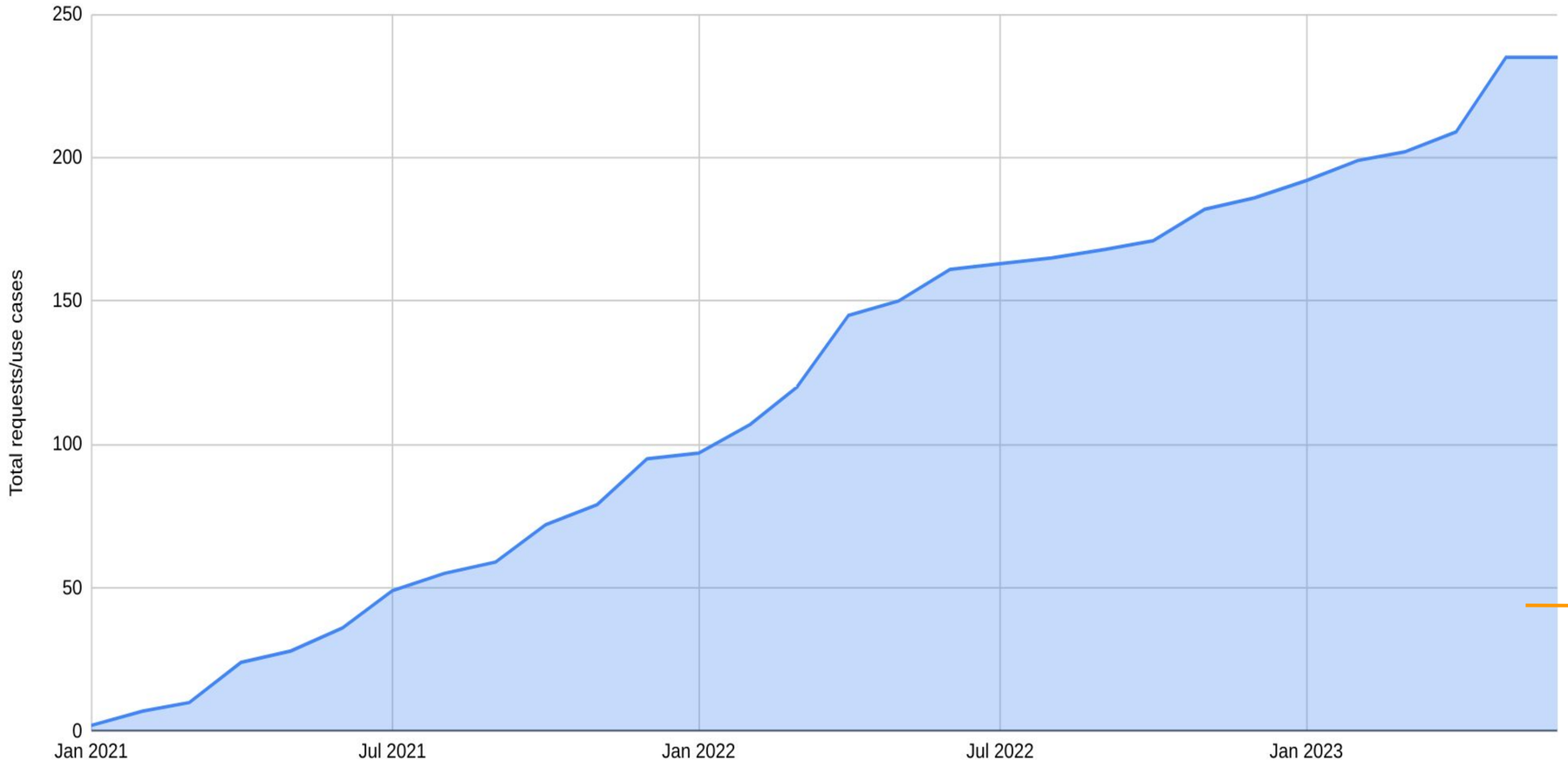
Collaboration agreement:

- Technical Activities
  - Architecture & Technical Interoperability
  - Service Provisioning
  - Technical Support
- Uptake
  - Joint promotion
  - Joint events
- Training
  - Joint EOSC training
  - Co-development of training materials

Architecture



Orders and call applications served



189 orders
(EOSC Marketplace)

EUROPEAN OPEN SCIENCE CLOUD

42 applications
(EGI-ACE Open Call)

22 use case shepherds* and Competence Centres

- Scalable and customised support

*** from:**