EGI, the EOSC and the Hub

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EGI is a federation of over 300 computing and data centres spread across 40+ countries in Europe and worldwide.

EGI delivers services to support scientists, multinational projects and research infrastructures.

www.egi.eu
EGI’s mission is to create and deliver open solutions for science and research by federating digital capabilities, resources and expertise between communities and across national boundaries.
EGI National pillars: NGI

- Major National e-Infrastructures: **22 NGIs**
- EIRO: CERN
- EGI Foundation
- (ERICs)

www.egi.eu/about/egi-foundation/
EGI Federated Infrastructure

- 300+ HTC providers
- 20 Cloud providers
- 970K CPU cores
- 355 PB online storage
- 380 PB tape storage
- 1.6 Million jobs/day
- 3.8+ Billion CPU hours/year
- 240 Virtual Organisations
- ~60 000 users
Why a federation?

• Leverage national e-Infrastructure investments
• Open access to national infrastructures and services, support international user groups
• Integrated community, private and/or public infrastructures into a scalable data/computing platform for research.
• Ease of access via federated identity provisioning and single authentication and authorization framework
• Interoperability of scientific applications and data across multiple providers bringing distributed computing to data.
A global system of e-Infrastructures

Africa-Arabia, Asia and Pacific region, China, Europe, India
North and South America, Ukraine

Europe (mainly)
Africa and Arabia: Council for Scientific and Industrial Research, South Africa
India: Centre for Development of Advanced Computing
USA

China: Institute of HEP, Chinese Academy of Sciences
Latin America: Universida de Federal do Rio de Janeiro
Australia: Nectar Research Cloud
Canada
EGI serves researchers and innovators

Size of individual groups

International Research Infrastructures
- WLCG
- ELI
- CTA
- ELIXIR
- EPOS
- EISCAT_3D
- BBMRI
- CLARIN
- LOFAR
- EMSO
- LifeWatch
- ICOS
- EMSO
- CORBEL
- ENVRIplus
- …

Multinational communities, (e.g. H2020 projects)
- VRE projects
- OpenDreamKit
- WeNMR
- DRIHM
- VERCE
- MuG
- AgINFRA
- CMMST
- LSGC
- SuperSites Exploitation
- Environmental sci.
- neuGRID
- …

Industry, SMEs
- PeachNote
- CEBA Galaxy eLab
- Semiconductor design
- Main-belt comets
- Quantum physics studies
- Virtual imaging (LS)
- Bovine tuberculosis spread
- Convergent evol. in genomes
- Geography evolution
- Seafloor seismic waves
- 3D liver maps with MRI
- Metabolic rate modelling
- Genome alignment
- Tapeworms infection on fish
- …

‘Long tail of science’
- Agroknow
- CloudEO
- CloudSME
- Ecohydros
- Gnubila
- Sinergise
- SixSq
- TEISS
- Terradue
- Ubercloud
- …

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Use cases...

To be featured, please contact press@egi.eu
A wide offer of services for Research and Innovation
### EGI Service Catalogue

The list of services that EGI as a federation offers for research & innovation

<table>
<thead>
<tr>
<th>Compute</th>
<th>Storage and Data</th>
<th>Training</th>
<th>Applications</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Compute</td>
<td>Online Storage</td>
<td>FitSM Training</td>
<td>Applications on Demand BETA</td>
<td>Check-in BETA</td>
</tr>
<tr>
<td>Cloud Container Compute BETA</td>
<td>Archive Storage</td>
<td>ISO 27001 Training</td>
<td>Notebooks BETA</td>
<td></td>
</tr>
<tr>
<td>High-Throughput Compute</td>
<td>Data Transfer</td>
<td>Training Infrastructure</td>
<td></td>
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<tr>
<td>Workload Manager BETA</td>
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</tbody>
</table>

[https://www.egi.eu/services/](https://www.egi.eu/services/)
Ported applications and tools
## EGI Internal Service Catalogue

The list of services delivered internally to the EGI federation to enable the EGI providers to work together

<table>
<thead>
<tr>
<th>Coordination</th>
<th>Operations</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
<td>Accounting</td>
<td>Attribute Management</td>
</tr>
<tr>
<td>Project Management and Planning</td>
<td>Collaboration Tools</td>
<td>Check-in</td>
</tr>
<tr>
<td>Strategy and Policy Development</td>
<td>Configuration Database</td>
<td></td>
</tr>
<tr>
<td>Community Coordination</td>
<td>Helpdesk</td>
<td></td>
</tr>
<tr>
<td>Operations Coordination and Support</td>
<td>Operational Tools</td>
<td></td>
</tr>
<tr>
<td>ITSM Coordination</td>
<td>Service Monitoring</td>
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<tr>
<td>Security Coordination</td>
<td>Validated Software and Repository</td>
<td></td>
</tr>
<tr>
<td>Technical Coordination</td>
<td>Marketplace BETA</td>
<td></td>
</tr>
</tbody>
</table>

[www.egi.eu/internal-services/](http://www.egi.eu/internal-services/)
Services offered to SMEs and Industry

- Pilots
- Proof of concepts
- EU visibility
- Networking
- Datasets
- Tools/Software
- Applications
- Products/Services
- Integrate
- Share expertise

https://www.egi.eu/business/
Commitment to excellence & continuous improvement
The EGI Strategic and Innovation Fund

• Created by the EGI Council in 2017
• To stimulate agile innovative projects that align with the vision, mission and strategy of the EGI Federation.
• Every year, the Fund will support strategic and innovative projects with a lifetime of 3 to 12 months that can be used either in the production environment or validate concepts and justify further investments.
• The Fund is accessible to EGI Council Participants and Associate Participants including the organisations under the affiliated program.
• More info

Apply to the 2nd call until 11 November 2018
EOSC-hub support to the European Open Science Cloud

eosc-hub.eu
@EOSC_eu

Dissemination level: Public
A EC high-level initiative addressing the fragmentation of today’s European digital infrastructures for research

<table>
<thead>
<tr>
<th>EOSC Objectives</th>
<th>Actions</th>
</tr>
</thead>
</table>
| Increase the ability to **exploit research data across scientific disciplines** and between the public & private sector | > **Publish, discover, access** services and resources for all scientific disciplines  
> **Open** to national, regional, pan-European providers, and supports different exploitation models (e.g. free at point of use, commercial) |
| Increase interoperability, **interconnect the existing and the new research digital infrastructures across Europe** | > Provide **thematic services integrated with European compute/data platforms** for data exploitation  
> **Single sign on, integrated access and order** |
| Support **open science**                                                         | > **Services to share and discover research artefacts** (publications, datasets, software, workflows etc.), research artefacts data sources (publication repositories, publishers, data archives, software archives, etc.) |
20 digital research infrastructures, EGI, EUDAT CDI and INDIGO-DataCloud jointly offering services, software and data for advanced, data-driven research & innovation

The Hub: a European contact point to discover, access, use and reuse resources for advanced data-driven research

→ contact@mailman.eosc-hub.eu
# EOSC-strategic actions 1/3

<table>
<thead>
<tr>
<th><strong>Architecture</strong></th>
<th>Provides a framework to manage services sourced from a number of service providers and plays the role of service integrator.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data</strong></td>
<td>Through the EOSC-hub Marketplace, provides a discovery and access channel to FAIR-accredited datasets.</td>
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</tbody>
</table>
## EOSC strategic actions 2/3

<table>
<thead>
<tr>
<th>Services</th>
<th>Contributes to the definition of a participatory and lightweight <strong>service portfolio management process</strong> in collaboration with the participating service providers.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Engages with the demand and supply side of the EOSC, and will <strong>co-develop and operate a marketplace</strong> as one entry point to EOSC.</td>
</tr>
<tr>
<td><strong>EOSC strategic actions 3/3</strong></td>
<td></td>
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<tr>
<td>--------------------------------</td>
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</tr>
<tr>
<td><strong>Rules of Participation</strong></td>
<td>Collaborates with partners and external projects/initiatives to <strong>establish and maintain a corpus of policies</strong> that is attractive and provides value for both service providers and service users.</td>
</tr>
</tbody>
</table>
EOSC-hub Service catalogue

Arts and Humanities
Medical and Health Sciences
Physical Sciences
Earth Sciences
Biological Sciences
Data Lifecycle Management, Compute, Scientific Applications

e.g. Marketplace, AAI
Accounting and Monitoring
Helpdesk, ...

https://www.eosc-hub.eu/catalogue/

The Hub

Access Enabling Services

Research Enabling Services

JCAD 2018 - 24 October 2018 - Lyon, France
EOSC-hub (external) service portfolio ➔ Research enabling

- The set of customer-facing services that are offered by the EOSC Hub

EOSC-hub internal service portfolio ➔ Access enabling

- The set of supporting services needed to operate the EOSC Hub
Another view on the services based on the Research Data Lifecycle

Access, Deposition & Sharing
- Application DB (software & VM)
- B2DROP (data)
- B2Note (data)
- B2SHARE (data)
- DataHub

Federation Services
- Federated AAI. monitoring, accounting
- SLA and order Management
- Security incident response and policies
- Technical support & Training

Discover & Reuse
- B2FIND (data)
- Marketplace (Services)

Data Management, Curation & Preservation
- B2HANDLE
- B2SAFE
- European Certified Trusted Repository

Processing & Analysis
- Applications on Demand
- Federated HTC & Cloud Compute IaaS & PaaS
- Processing of sensitive data
- Jupyter Notebook

- Thematic data analytics
- Scientific Workflow Management, Orchestration (DIRAC, PaaS Orchestrator)
## EOSC-hub (External) Service Portfolio - areas

<table>
<thead>
<tr>
<th>Compute</th>
<th>Data Management &amp; Storage</th>
<th>Thematic Services</th>
<th>Professional Services</th>
<th>Research Data</th>
<th>Aggregators</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGI High-Throughput Compute</td>
<td>B2Handle</td>
<td>ECAS</td>
<td>FitSM Training</td>
<td>(developing)</td>
<td>Applications Database</td>
</tr>
<tr>
<td>EGI Cloud Compute</td>
<td>B2Find</td>
<td>DARIAH Science Gateway</td>
<td>Data Management Planning</td>
<td></td>
<td>Repository of Validated Software</td>
</tr>
<tr>
<td>EGI Cloud Container Compute</td>
<td>B2Drop</td>
<td>GEOSS</td>
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<td></td>
<td>B2Safe</td>
<td>OOPENCoastIS</td>
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<td>B2Stage</td>
<td>EO Pillar</td>
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<td></td>
<td>CVMFS</td>
<td>WeNMR Suite</td>
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<tr>
<td>Platforms</td>
<td>EGI Datahub</td>
<td>LifeWatch Services</td>
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<tr>
<td>EGI Workload Manager</td>
<td>EGI Online Storage</td>
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<tr>
<td>IM (Infrastructure Manager)</td>
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<tr>
<td>PaaS Orchestrator</td>
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<tr>
<td>Identity &amp; Security</td>
<td>eTDR</td>
<td>Sensitive Data Service</td>
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<tr>
<td>EGI Check-in</td>
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<td>B2Access</td>
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<td>IAM</td>
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</table>
## Services by area

<table>
<thead>
<tr>
<th>e-Infra</th>
<th>Humanities</th>
<th>Engineering</th>
<th>Medical and Health Sciences</th>
<th>Natural sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGI Federation</td>
<td>Language and literature (CLARIN)</td>
<td>Environmen tal engineering (sea vessels, LNEC)</td>
<td>Biological Sciences (ELIXIR)</td>
<td>Physical Sciences</td>
</tr>
<tr>
<td>EUDAT CDI</td>
<td>Arts (DARIAH)</td>
<td>Civil Engineering (Disaster Mitigation)</td>
<td></td>
<td>• Astronomy (LOFAR)</td>
</tr>
<tr>
<td>INDIGO-DataCloud</td>
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<td>• Fusion (ITER)</td>
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<td></td>
<td>• High Energy Physics (CMS and VIRGO)</td>
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<td>• Space Science (EISCAT-3D)</td>
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<td>Earth Science</td>
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<td>• GEO</td>
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<td></td>
<td>• Climate Research (ENES)</td>
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<td></td>
<td>• Seismology (ORFEUS, EPOS)</td>
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<td></td>
<td>Biological Sciences</td>
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<td>• Marine and freshwater biology (IFREMER)</td>
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<td></td>
<td>• Biodiversity conservation (LifeWatch)</td>
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<td>• Ecology (ICOS)</td>
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EOSC-hub Compute Platform: EGI

970,600 computing cores; 356 PB disk & 380 PB tape storage

650+ open research publications from Jan 2018 (OpenAIRE stats)
EOSC-hub Data Platform: EUDAT CDI

- 10K records deposited in B2SHARE
- 1PB / 80M registered objects
- 13 community repositories integrated into the CDI
- 630K records in B2FIND

- EUDAT Ltd. formally established to operate on a non-profit making basis as the voice of European organisations working together as part of the EUDAT CDI
- Over 20 major European research organisations, data and computing centres currently part of the EUDAT CDI

+ 7000 Online community members
50 Communities using EUDAT services
34 e-training components for a total of over 20000 views
Become a service provider

https://www.eosc-hub.eu/join-as-service-provider

JCAD 2018 - 24 October 2018 - Lyon, France
Becoming a provider

Current process

- Initial validation
  - Service description
  - Service Readiness
  - Maturity level
  - SLA
  - Terms of Use
  - Constrains
  - Contact information
  - Order Management
  - Service options

Validate

- EOSC-hub catalogue entry form

Finalize in a phone meeting

EOSC-hub service catalogue entry
(and Marketplace entry)
EOSC-hub Marketplace
http://marketplace.eosc-hub.eu/

A platform where services can be:
• Promoted
• Discovered
• Ordered
• Accessed

3-steps process for users
• Authentication & registration
• Product discovery and specification
• Ordering and request processing
EOSC-hub started in Jan 2018 with an initial set of service selected
  - Thematic services were selected via an open call mechanism

Most of these services are already available for use

The EOSC Portal will be launched November 23rd
  - The EOSC-hub marketplace will be unveiled as one of the underpinning components
Thank you for your attention!

Questions?

eosc-hub.eu  @EOSC_eu