



## Enabling European Open Science Cloud

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**25. ASIC-Labor Symposium 18.09.2019**



eosc-hub.eu

Dissemination level: Public



@EOSC\_eu



2019:

## Karlsruhe Institute for Technology

- 25k Students
- 10k Employees
- Budget: 884 million annually
- Main research areas: Energy, Information, Mobility

## Steinbuch Computing Center

- KIT IT-Infrastructure:
  - E-Mail: 45k boxes, 450k incoming mails/d
  - Databases: 1250 MS-SQL/Oracle DB
  - Web: 600k web pages, 800 virt. web servers
- GridKa Tier-1: 29k physical cores, 100PB (Disk,Tape)
- Supercomputing: ForHLR ( 34k cores, 1.4 PF/s)
- Projects: EU federated data infrastructures - **EOSC Project**



- European Open Science Cloud
- EOSC-hub project
- EOSC Services and offers
- Enabling EOSC

# EOSC-hub What is European Open Science Cloud?

*The **federated infrastructure** and supporting initiative, which provides European researchers, innovators, companies and citizens seamless access to open, efficient, virtual environment for storing, accessing, reusing data, tools, publications and other scientific outputs for research, innovation and educational purposes.*





**EOSC-hub**

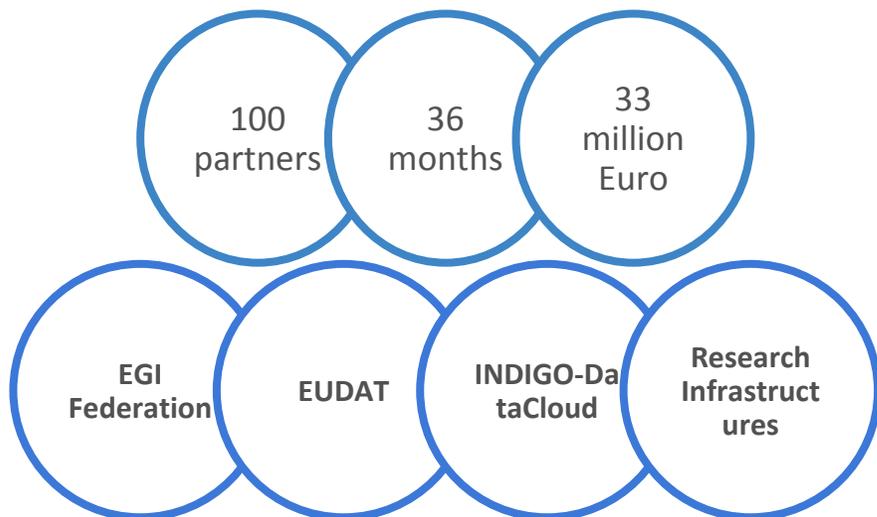
# What is EOSC-hub Project



## Mission

*The EOSC-hub project mobilises providers of pan-European relevance offering services, software and data for advanced data-driven research and innovation.*

**EOSC-hub**



*These resources are offered via the Hub – the integration and management system of the European Open Science Cloud, acting as a European-level entry point for all stakeholders.*

# EOSC-hub EGI and EUDAT - federations of compute and storage providers

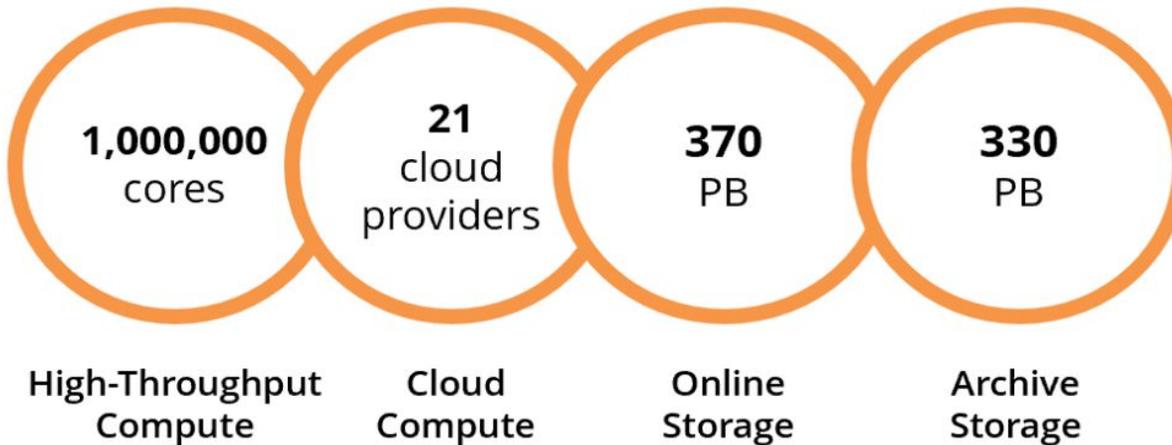
## EGI

EGI resources are provided by:

- The EGI Federated data centres
- The EGI Federated Cloud providers

Examples of how researchers use the EGI resources can be found in the [EGI Use Cases publication](#).

### The federation in numbers



As of January 2019

## EUDAT





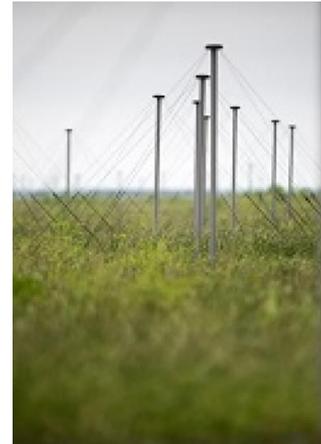
# **EOSC-hub** Research Infrastructures



**Disaster Mitigation  
Centre**



**ELIXIR  
Bioinformatics**



**LOFAR  
Radio Astronomy**



**Marine Research  
Centre**



**Fusion Research  
ITER**



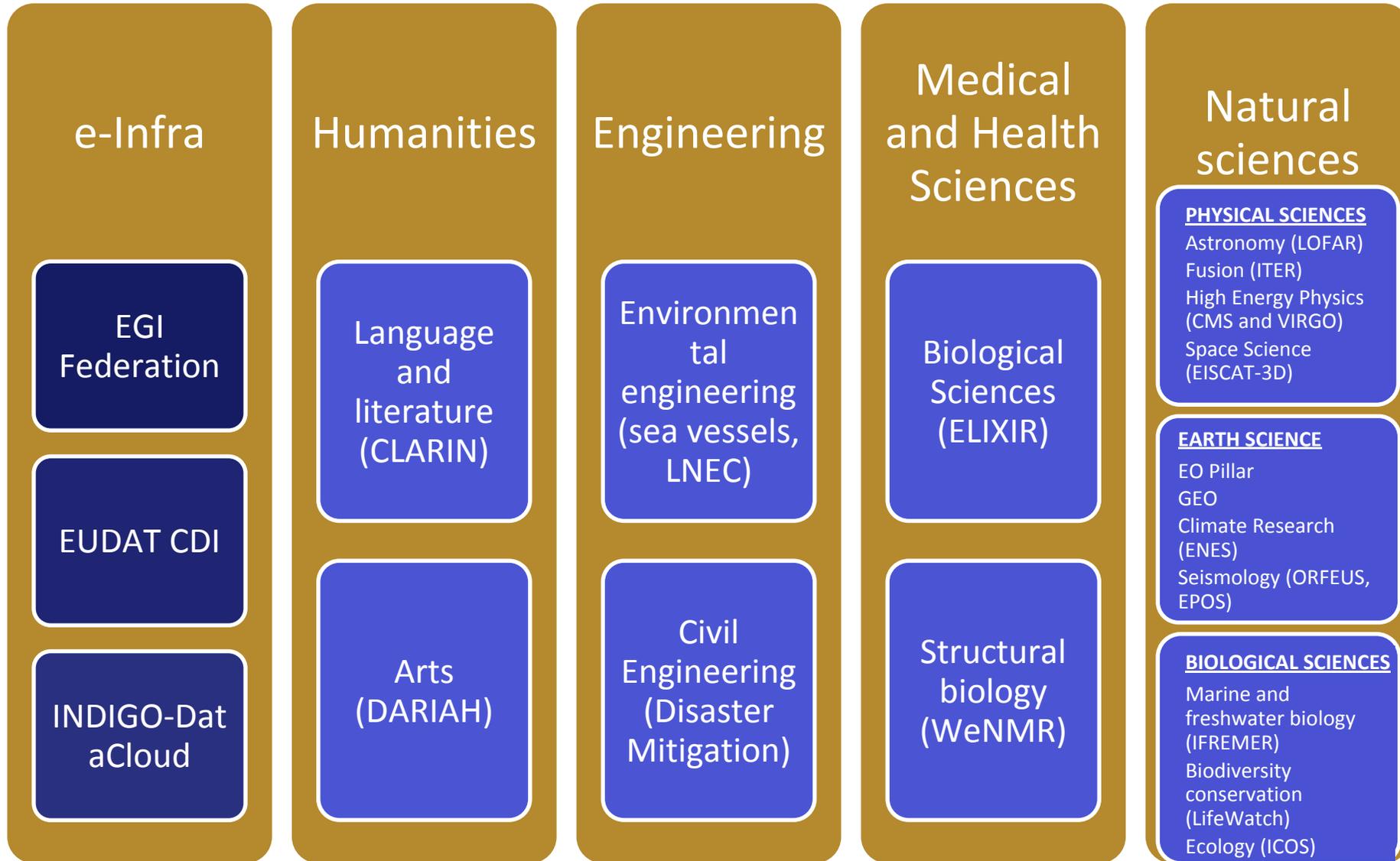
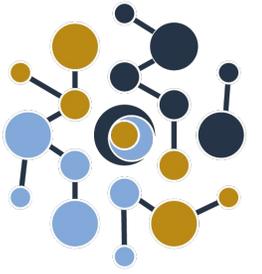
**ICOS  
Climate Modeling**



**EISCAT\_3D  
Geophysics**



**EPOS  
Seismology**



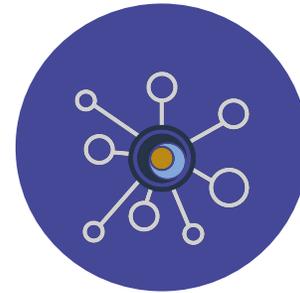
## Competence Centre

Usage experience with common services and guidelines; requirements collection



## Service integration, training, documentation and best practices

Best practices on Open Science, Service Management, IT Security trainings, etc.

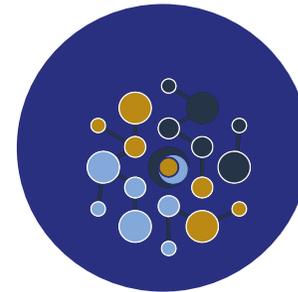


## The Hub

A system with: federation services, processes & policies, business models, strategy etc.

## EOSC Service Catalogue

Marketplace and EOSC portal with list of common & Thematic services



## EOSC Digital Innovation Hub

a platform that facilitates engagement between private industry and public institutions participating in the EOSC.



# EOSC-hub EOSC Service Catalogue snapshot

<https://marketplace.eosc-portal.eu/>

## Compute



EGI Cloud Container Compute    EGI Cloud Compute    EGI High-Throughput Compute

## Tools & Applications



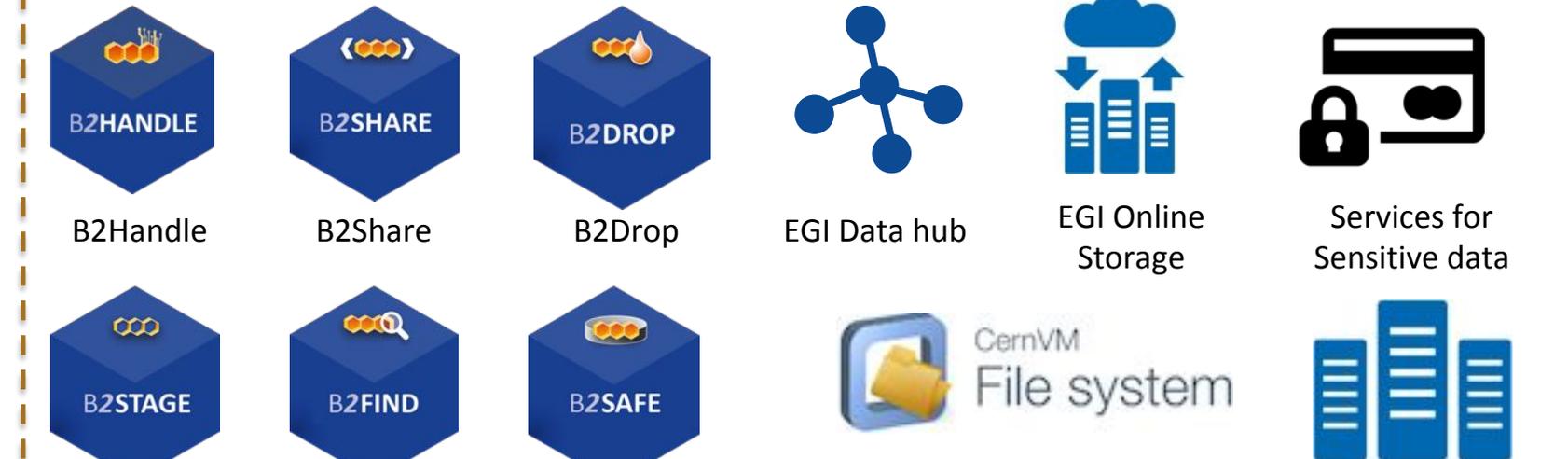
Climate Analytics    Arts & Humanities    Structural biology    Particle Physics    Atlantic Coast Forecast    Earth Observation

## Authentication



B2access    EGI Check-in

## Storage & Data Management

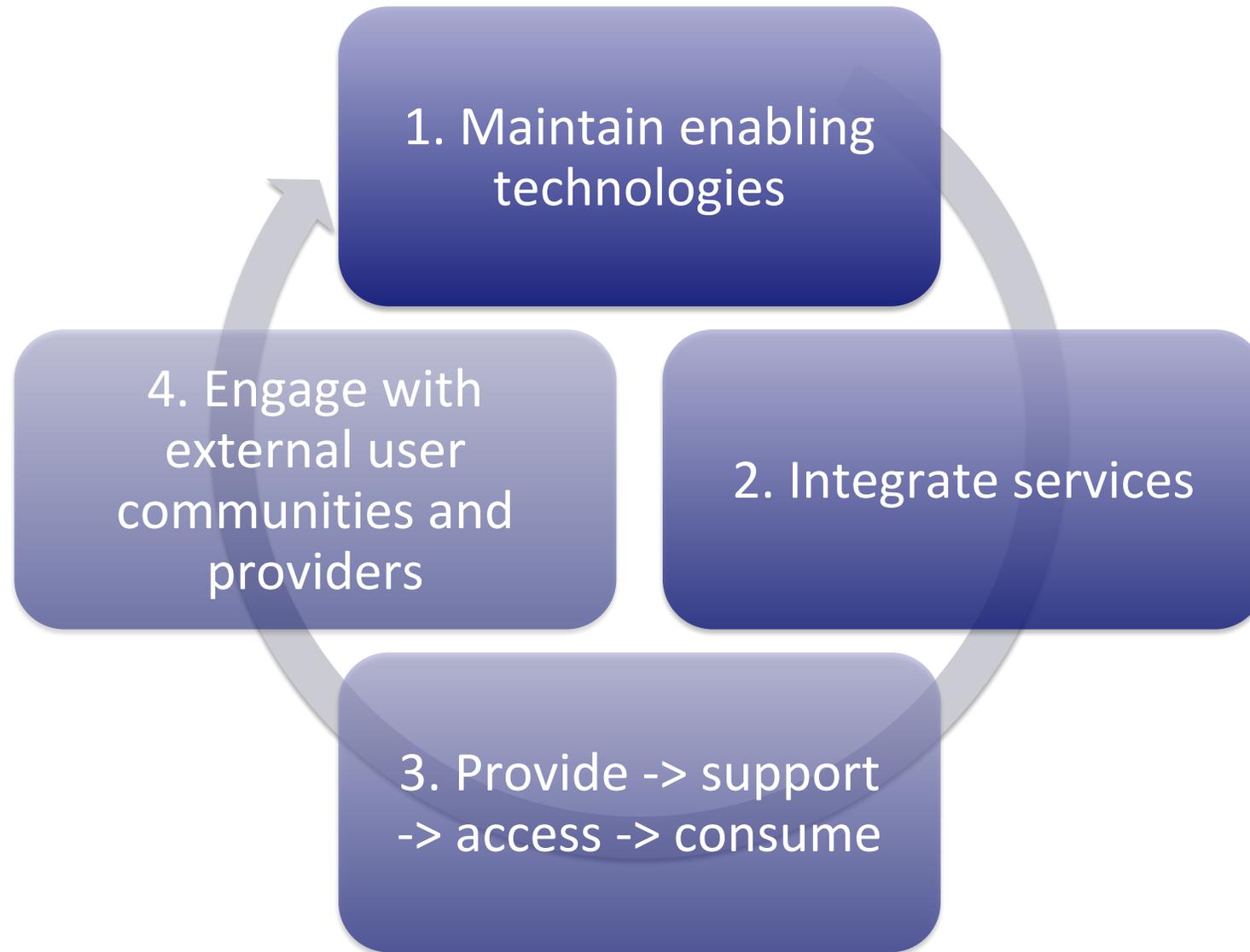


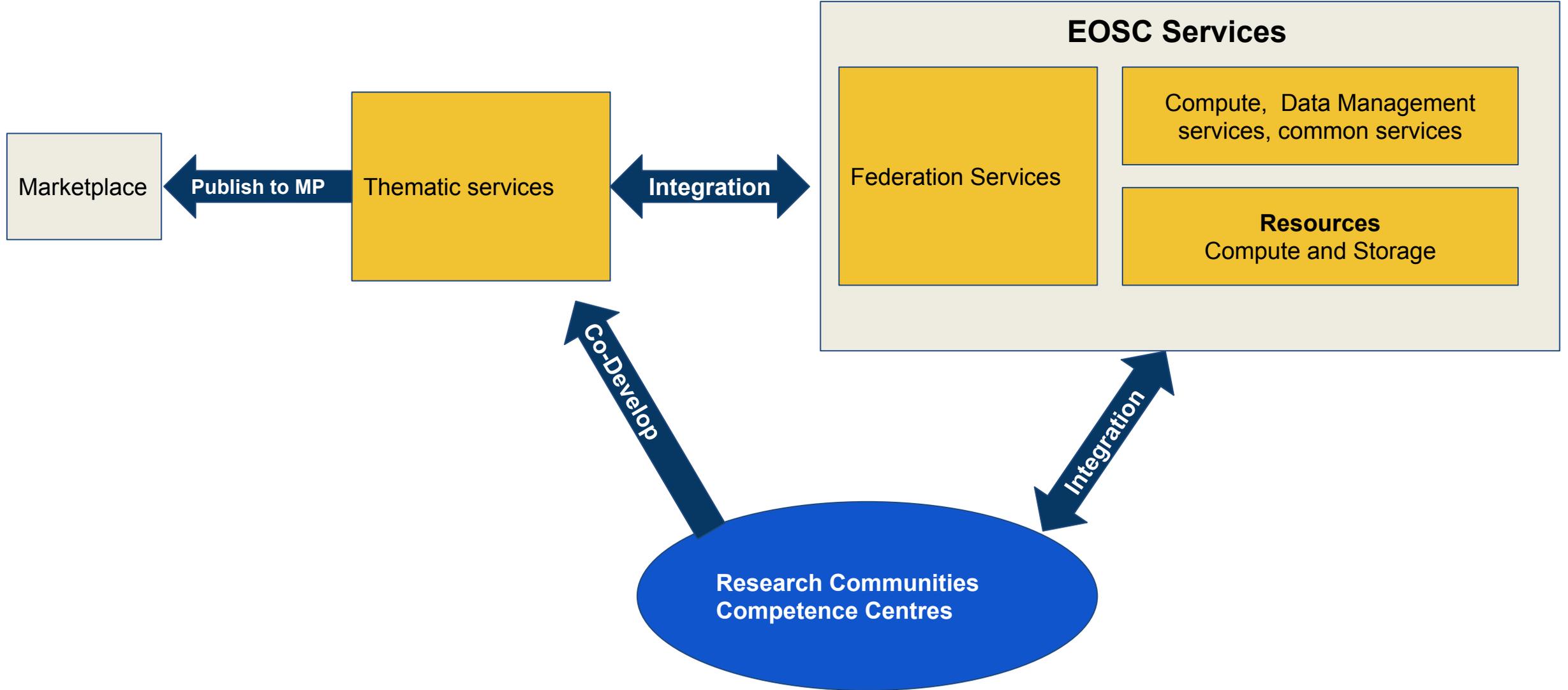
B2Handle    B2Share    B2Drop    EGI Data hub    EGI Online Storage    Services for Sensitive data

B2Stage    B2Find    B2Safe    CernVM File System    EGI archive storage

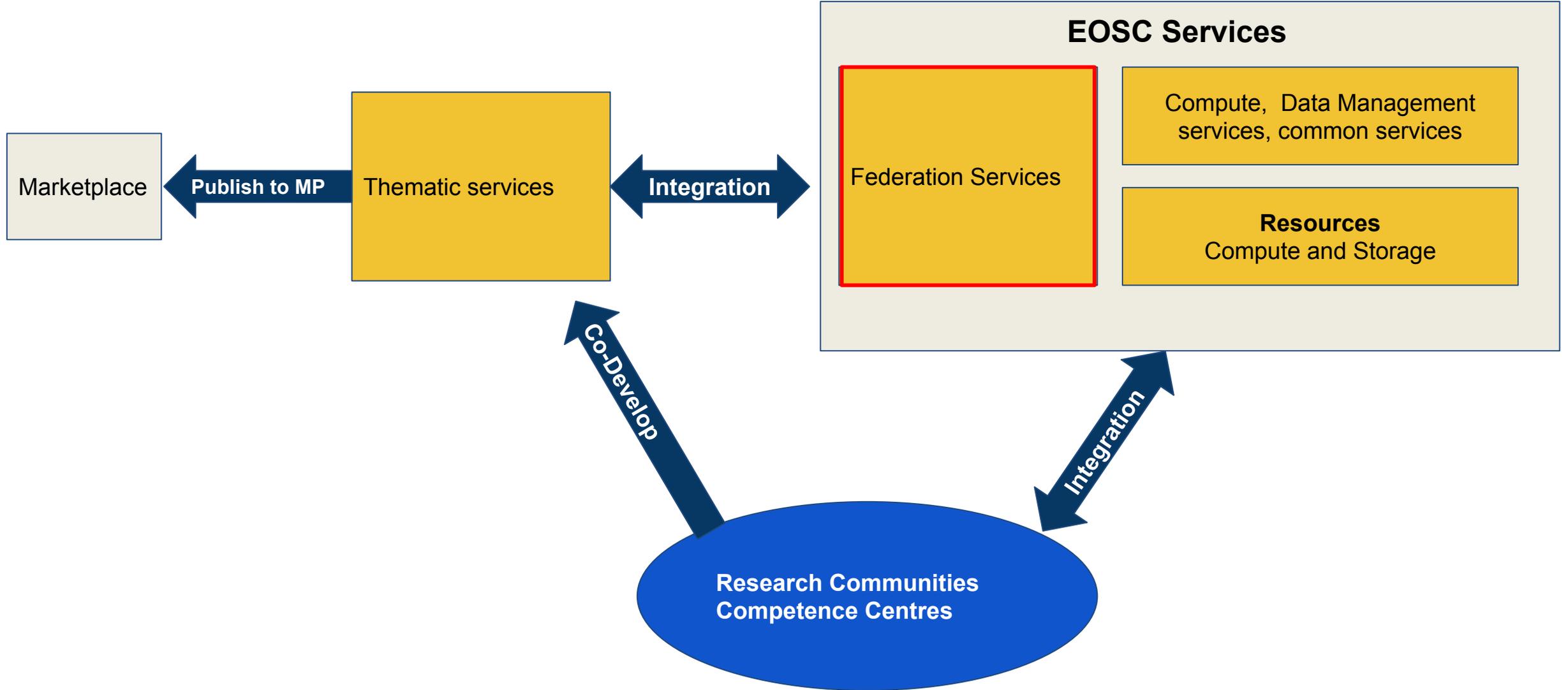
## Research Data

100 100 100  
1010 1010 1010  
01 01 01





# EOSC-hub Integration of Research Communities in EOSC



# EOSC-hub EOSC Federation Services ( functional roles)

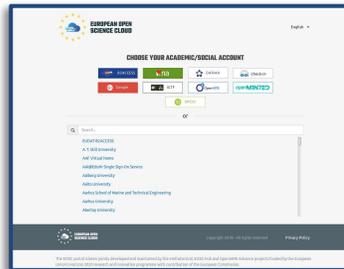
Access

Service Discovery and Ordering

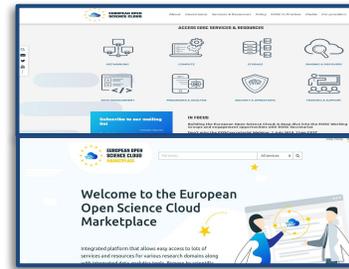
Operations Support

Software and App Repositories

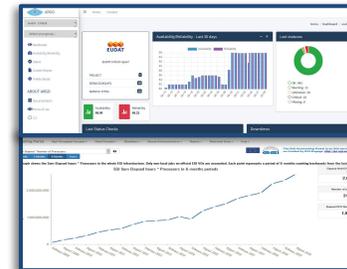
Check-in



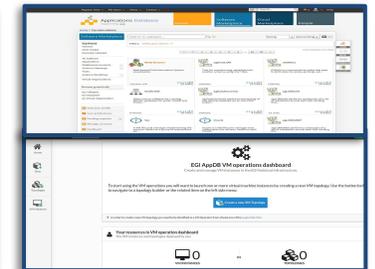
EOSC Portal / Market place



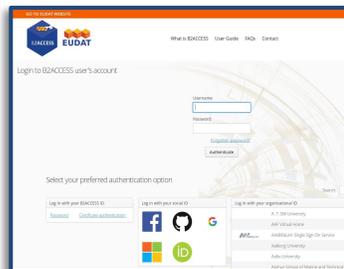
Monitoring Accounting



AppDB



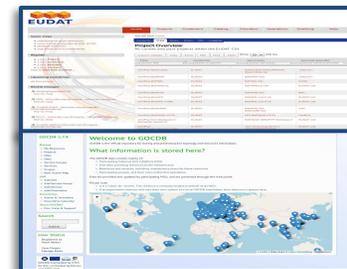
B2ACCESS



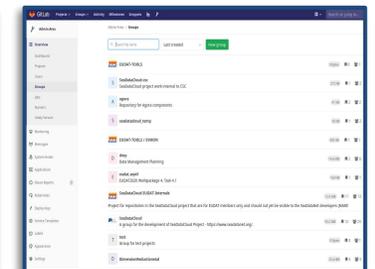
Service Portfolio Tool

Service Name	Service Category
EDM-HELIX	Data Management
EDM-Classic Analysis Service	Planning and analysis
ETS	Operations
EOS Data Catalog	Computing
Infra-Service Management (ISM)	Operations
EOS Workload Manager	Platform
Data Physics Management Tool (DPMT)	Storage & Data
Configuration database (EOSDB)	Operations
EOS-CLM-DB	Data Management
EOSDB	Operations

Config. Database



GitLab



eduTEAMS IAM



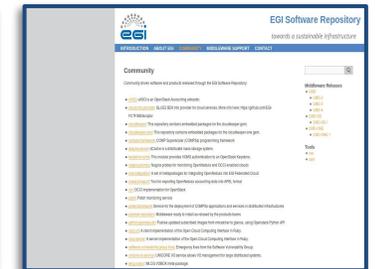
SOMBO

ID	Service	Service Order	Order	Status	Project Customer	Project	Order Reference	Project Reference
1000000001	EOSDB	1000000001	1000000001	OK	Project: EOSDB	EOSDB	1000000001	1000000001
1000000002	EOSDB	1000000002	1000000002	OK	Project: EOSDB	EOSDB	1000000002	1000000002

Helpdesk



EGI Software Repo

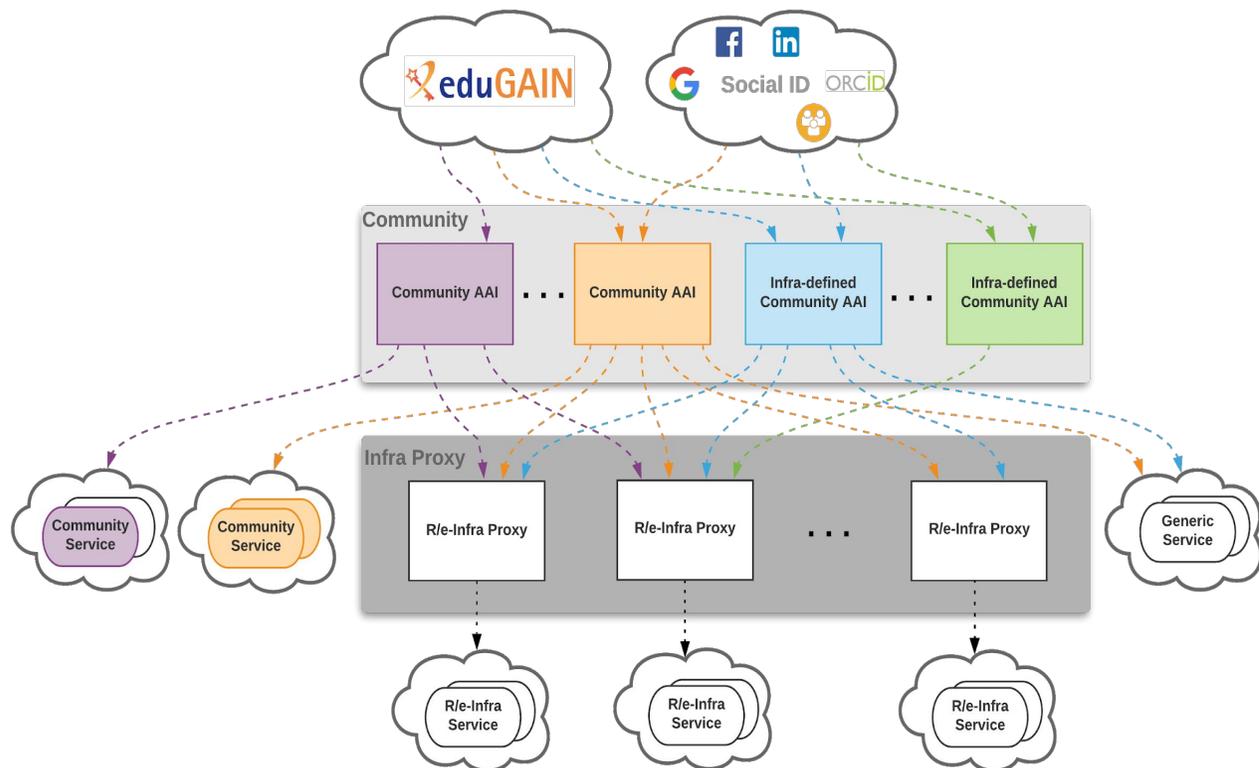


# EOSC-hub Integration of Federation Services

**Goal: design, develop and implement the future EOSC Core Architecture**

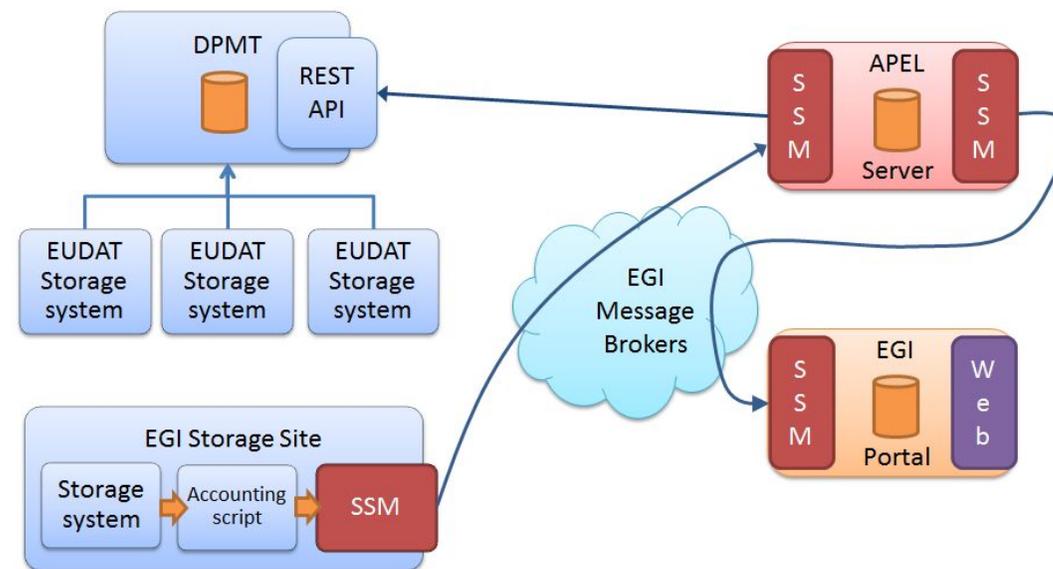
Seamless access to resources, Single Sign On

*Integration diagram of Authentication&Authorization Infrastructure*



Provide accounting service to other services

*Integration diagram of EUDAT and EGI Accounting systems*

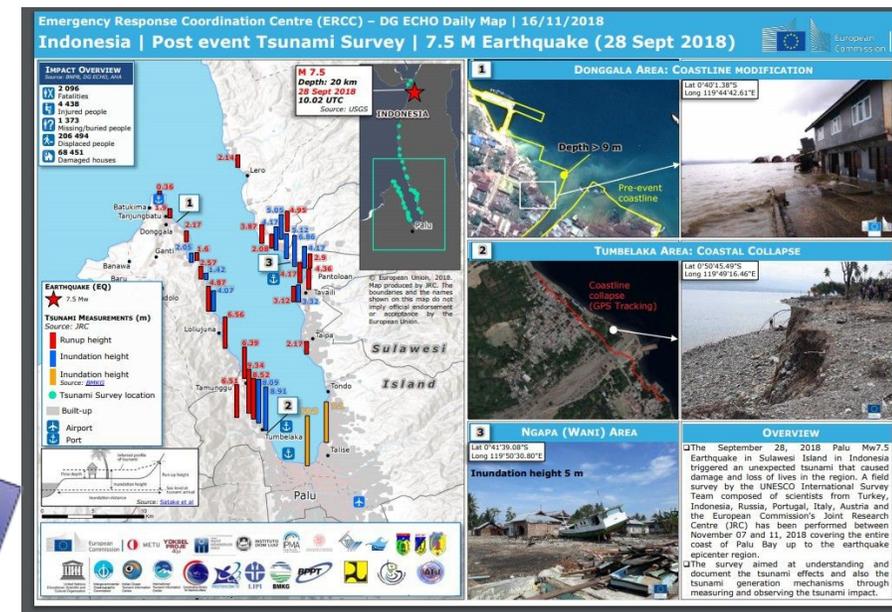


## Objectives

- Re-simulate past disaster events to increase our understanding of the nature of such events.
- Setup generic simulation portals for natural hazards (data from Asia-Pacific and **expertise from EOSC-hub**).

## Progress

- Tsunami simulation (Sulawesi Tsunami, Indonesia 2018).
- Collecting data for Storm surge (Taiwan 2006, 2011); Smoke transportation (Thailand 2017); Flood (Thailand 2015).
- Cataloguing of iCOMCOT portal in EOSC started.



iCOMCOT Home About Simulation Status Contact Logout ericyen

### Status

In this page, user can view the status of running simulation, retrieve simulation result, and view the running history.

#	Simulation Name	Status	Start Time	Elapsed Time	Action
1	TWSim1	POST-PROCESS	Fri Apr 15 2016 17:11:02 GMT+0800 (CST)	0:06:01	<a href="#">View Detail</a> <a href="#">View Log</a>
2	Sim-2016032902	DONE	Tue Mar 29 2016 16:25:24 GMT+0800 (CST)	0:22:58	<a href="#">View Detail</a> <a href="#">View Log</a> <a href="#">View Result</a> <a href="#">Download Result</a>
3	Sim-20160329	DONE	Tue Mar 29 2016 12:43:53 GMT+0800 (CST)	1:33:08	<a href="#">View Detail</a> <a href="#">View Log</a> <a href="#">View Result</a> <a href="#">Download Result</a>
4	SCS6	DONE	Sun Mar 29 2015 15:13:11 GMT+0800 (CST)	0:04:50	<a href="#">View Detail</a> <a href="#">View Log</a> <a href="#">View Result</a> <a href="#">Download Result</a>
5	SCS6	DONE	Sat Mar 28 2015 17:55:53 GMT+0800 (CST)	0:05:13	<a href="#">View Detail</a> <a href="#">View Log</a> <a href="#">View Result</a> <a href="#">Download Result</a>
6	SCS5	DONE	Sat Mar 28 2015 17:50:25 GMT+0800 (CST)	0:03:08	<a href="#">View Detail</a> <a href="#">View Log</a> <a href="#">View Result</a> <a href="#">Download Result</a>

## Objectives

- To provide delivery platform (Argo Discovery).
- To federate and make accessible distributed data (SeaDataNet).

## Progress

- Argo
  - Discovery platform was developed with open source big data tools (Hadoop-Spark-Cassandra-Elasticsearch).
  - Moving the setup to CSC SeaDataNet.
  - OneData deployed at CINECA, CYFRONET, IN2P3, INFN-CNAF.



**GREY** - considered for adoption, but the integration is yet to start

**YELLOW** - integration is ongoing

**BLUE** - technology is integrated and assessment is yet to finish

**RED** - technology was assessed and was found unsuitable

**GREEN** - technology is integrated and positively evaluated

	Compute						Data							AAI		
	DODAS	INDIGO-PaaS	Cloud	DIRAC interware	EGI HTC	Jupyter	EGI DataHub	EGI Data Transfer	B2SAFE	B2Stage	B2Handle	B2Share	B2Drop	B2Find	Check-in	B2ACCESS
<b>ELIXIR</b>			BLUE					GREY							GREEN	
<b>Fusion</b>	RED	GREY					YELLOW		YELLOW				RED			
<b>Argo</b>						BLUE			GREEN				GREEN	BLUE		YELLOW
<b>SeaDataNet</b>							YELLOW									
<b>EISCAT_3D</b>			BLUE	GREEN	GREEN			YELLOW				GREY		GREY	GREEN	RED
<b>EPOS-ORFEUS</b>						GREEN			GREEN	GREEN	GREEN		GREY			GREEN
<b>Radio astronomy</b>												GREY		GREY	YELLOW	
<b>ICOS</b>			GREEN						GREEN	GREEN		GREEN				
<b>e-LTER</b>			YELLOW			YELLOW						GREEN		GREEN		
<b>DMCC+</b>			GREY		GREEN											

- The European Open Science Cloud will provide capabilities for storing, accessing, reusing data, tools and other scientific outputs for research, fostering the innovation, collaboration and education.
- Active integration work with research communities, providers and users.
- Shaping EOSC core infrastructure - development and integration of core EOSC services.
- More information: <https://eosc-portal.eu/> <https://eosc-hub.eu/>

**Thank you for your  
attention!**

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*Questions?*



**EOOSC-hub**

**Contact**

 [eosc-hub.eu](https://eosc-hub.eu)  [@EOOSC\\_eu](https://twitter.com/EOOSC_eu)



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