The power of digital e-infrastructures: EOSC-Hub

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Project Overview

20 digital research infrastructures, EGI, EUDAT CDI and INDIGO-DataCloud jointly offering services, software and data for advanced, data-driven research & innovation

EOSC-hub: Integrating and managing services for the European Open Science Cloud

Grant Agreement ID **777536**

Tot budget: €33,287,542
EU Budget
€ 30 000 000

100 Partners, 76 beneficiaries
3830 PMs, 106 FTEs
+150 staff involved

Coordinator
STICHTING EGI

Consortium
100 partners
53 countries

36 Months Jan 2018 – Dec 2020

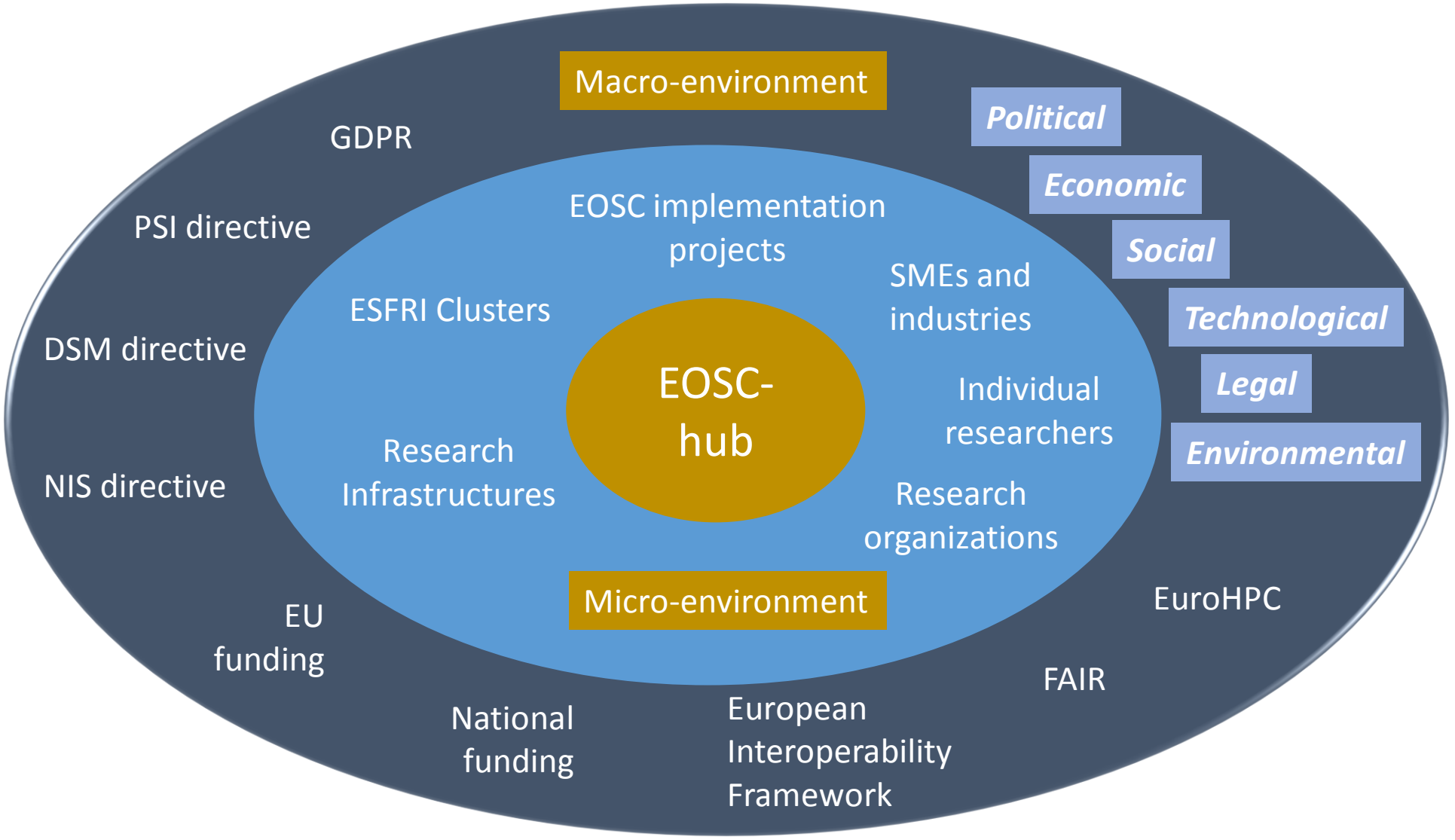
EOSC-hub

Mission

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

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.

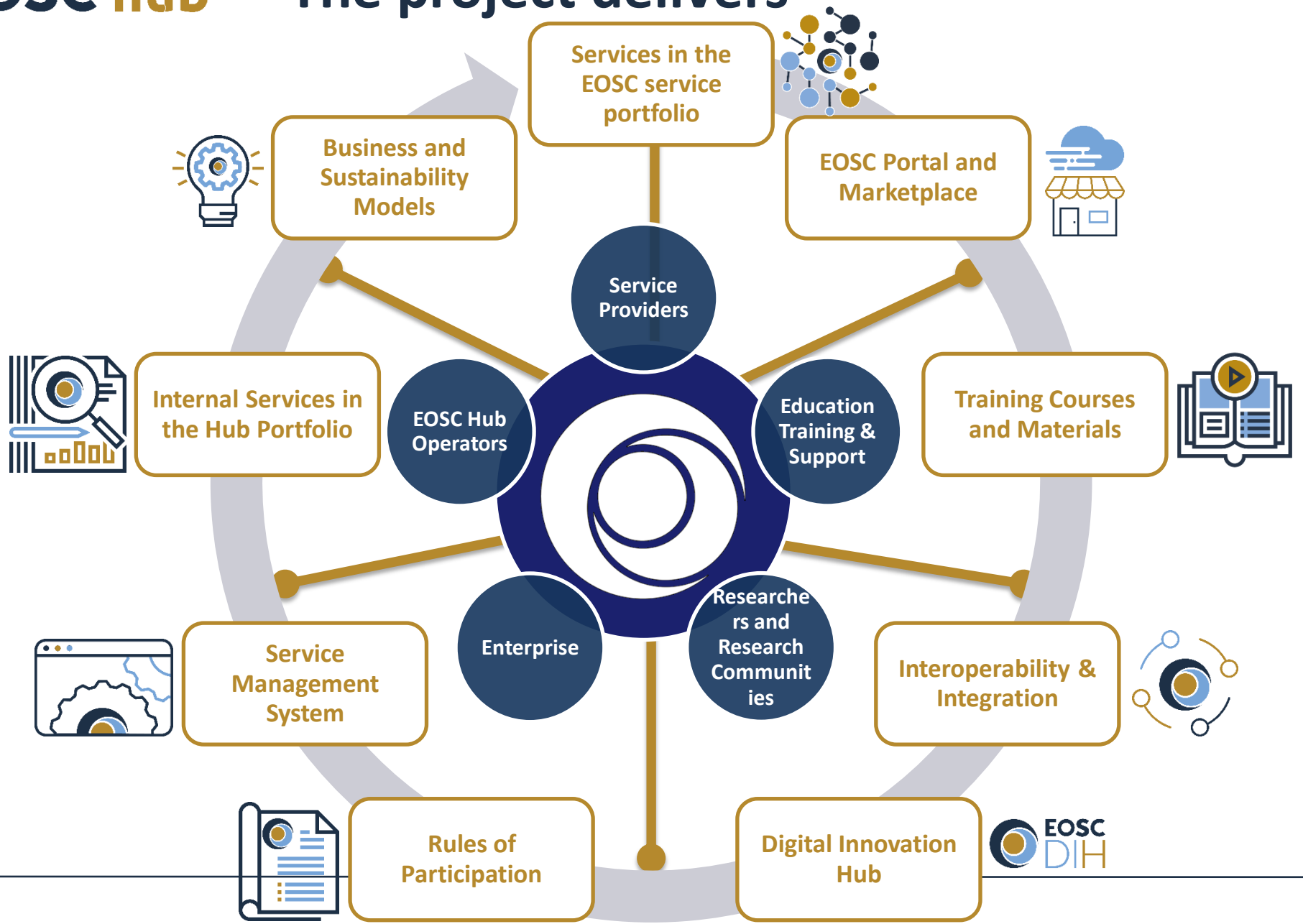
Stakeholders and Environment



Objectives

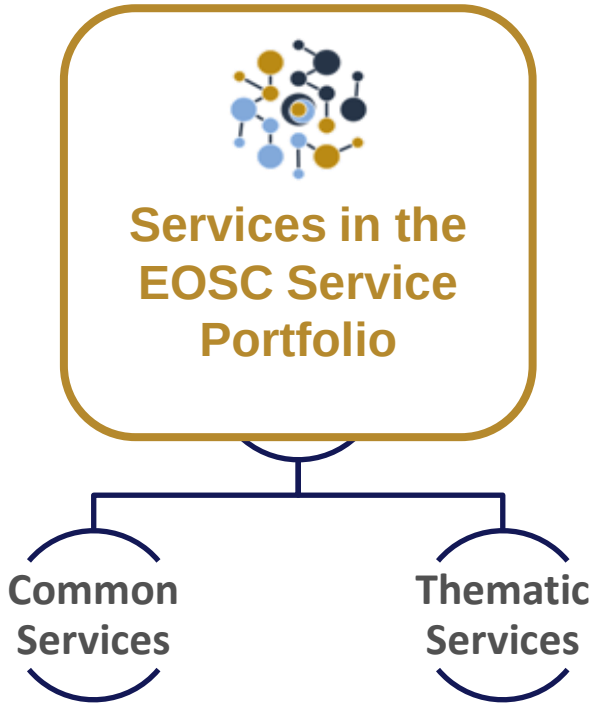
- Publish, discover, access services and resources for all scientific disciplines
- Open to national, regional, pan-European providers, and supports different exploitation models (e.g. free at point of use, commercial)
- Provide thematic services integrated with European compute/data platforms for data exploitation
- Single sign on, integrated access and order management
- Services to share and discover research artefacts (publications, datasets, software, workflows etc.), research artefacts data sources (publication repositories, publishers, data archives, software archives, etc.)

The project delivers



EOSC-hub Simplify and Integrate

Simplify access to a broad portfolio of products, resources and services provided by the major pan-European and international organizations through an open and integrated service catalogue



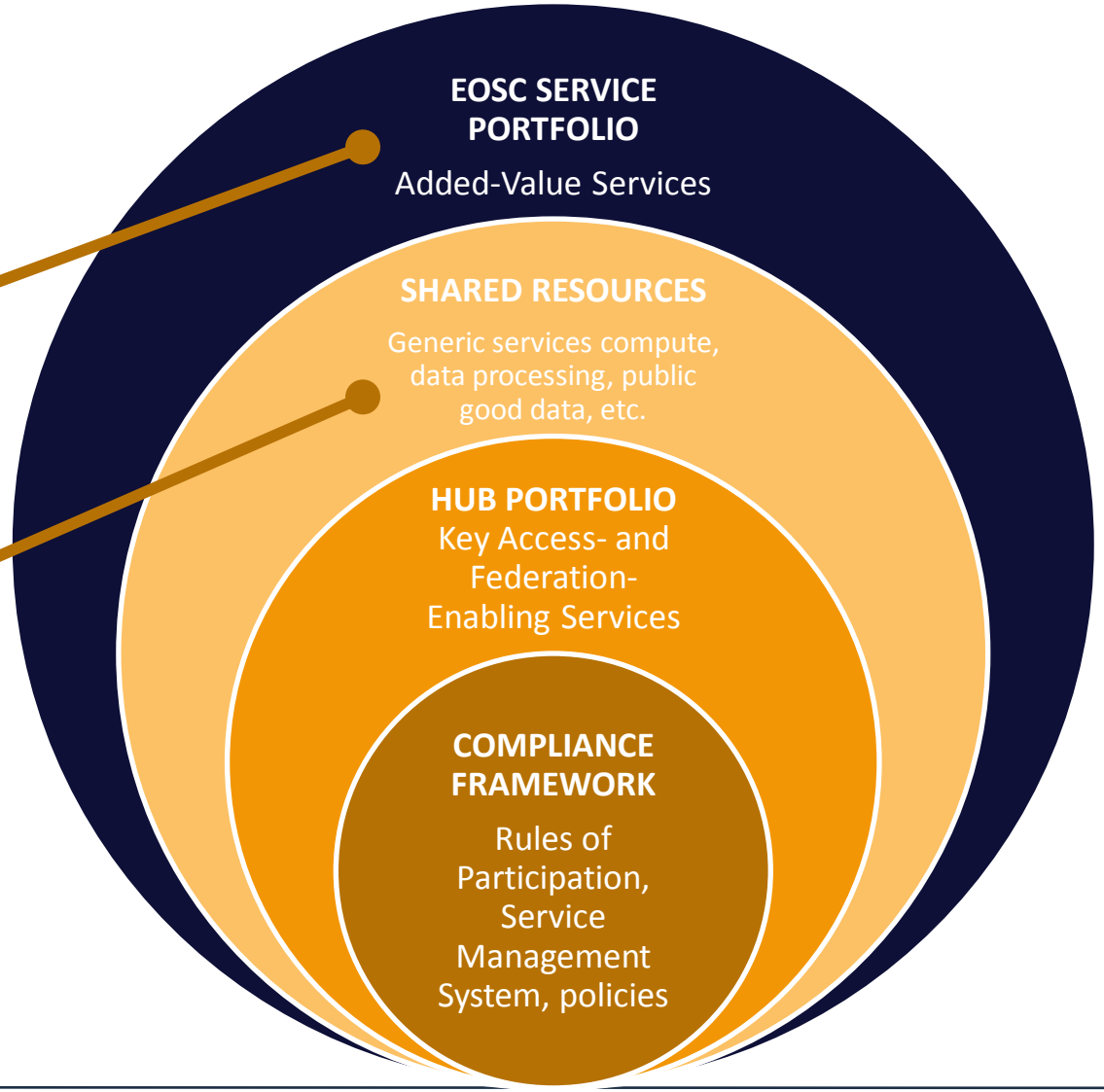
Support a federated service ecosystem:

- service discovery
- access to market

Federating Core and Service Portfolio

Arts and Humanities
Medical and Health Sciences
Physical Sciences Earth Sciences
Biological Sciences, etc …

Data Lifecycle Management, Compute, Scientific Applications



Services to Support to the Research Data Lifecycle

Access, Deposition & Sharing

- Application DB (software & VM)
- B2DROP (data)
- B2Note (data)
- B2SHARE (data)
- DataHub

Discover & Reuse

- B2FIND (data)
- Marketplace (Services)

Processing & Analysis

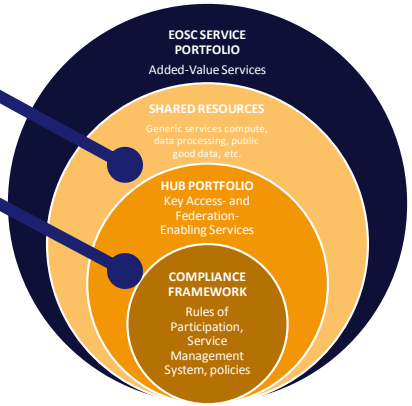
- Applications on Demand
- Federated HTC & Cloud Compute IaaS & PaaS
- Processing of sensitive data
- Jupyter Notebook
- Thematic data analytics
- Scientific Workflow Management, Orchestration (DIRAC, PaaS Orchestrator)

Data Management, Curation & Preservation

- B2HANDLE
- B2SAFE
- European Certified Trusted Repository

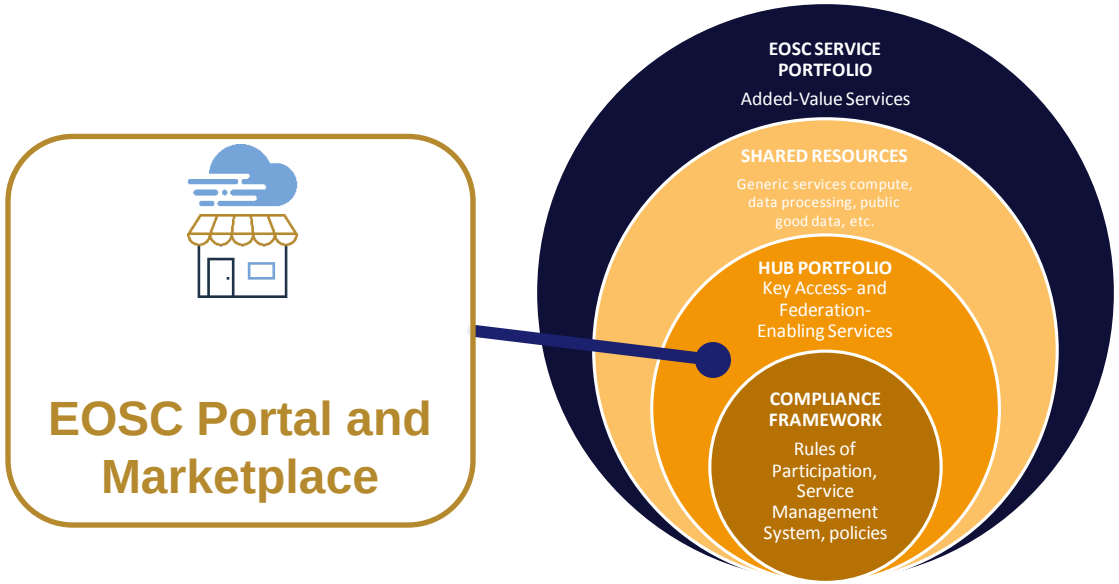
Access enabling Services

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



Widen demand side → Portal and marketplace

Expand the access to services to all user groups including researchers, high-education, business organizations and enlarge the user base



Service discovery and access to market

- Entry point to access the services
- Researchers can compare solutions and reuse their credentials and knowledge
- Higher service visibility and reach out
- Service providers will obtain increased interest in their services

Services: thematic and common

EOSC (hub) Service Portfolio

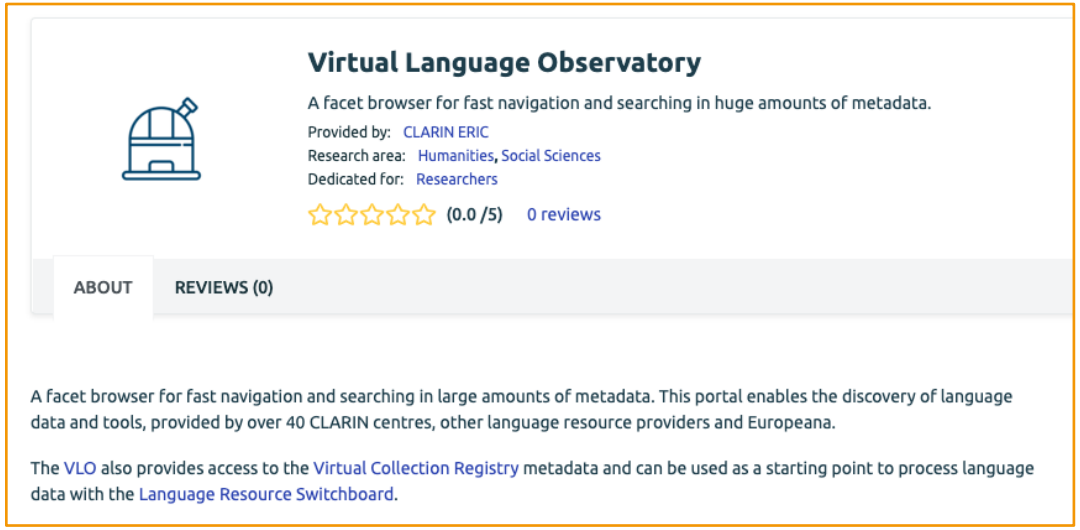
Thematic Services

- Scientific applications and data
- Addressing a specific research community or multidisciplinary
- From ESFRIs, national projects, international initiatives

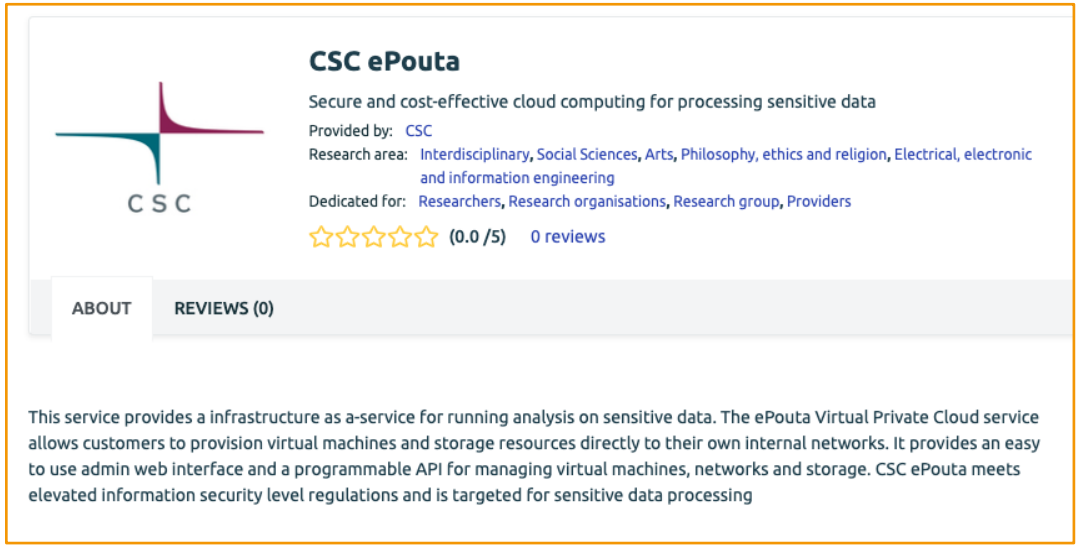
Common Services

- Provide generic functionalities that can apply to multiple domains
- From technology providers, research projects, national groups
- Includes services also seen as components in **Hub Portfolio**

CLARIN



Sensitive data



Onboarding Process for Services

Submit the request for onboarding

- Send an email to join@mailmain.eosc-hub.eu or fill the form available on the EOSC portal
- Receive a service description template to fill in

Information gathering

- Fill the service description template
- Receive support from EOSC-hub team in filling in the information

Validation

- Validation team examines filled template
- Ensures the services meets the Rules of Participation
- Requests clarifications if required
- Enters service in Service Portfolio

Publication

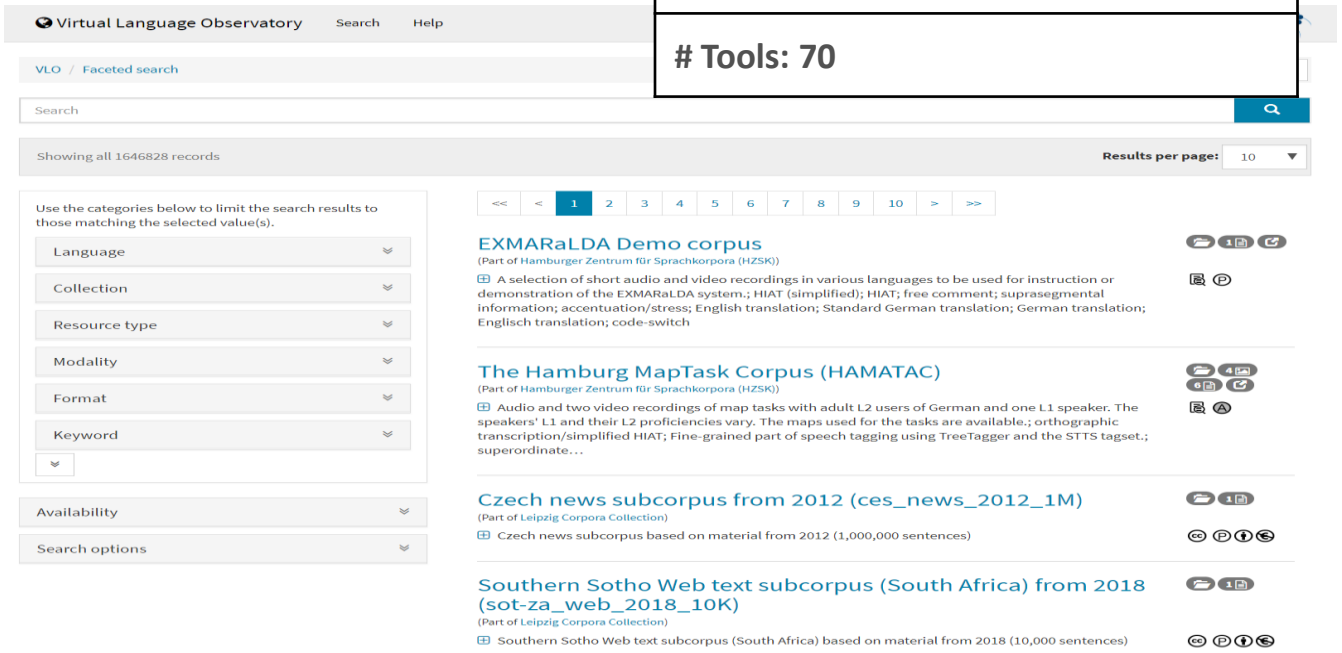
- Transfer subset of data from the portfolio to the Marketplace on EOSC portal
- Provide draft of entry to service provider
- Publish the service in the EOSC portal Marketplace

CLARIN - European Research Infrastructure for Language Resources and Technology

- **Virtual Language Observatory**: uniform search and discovery functionality for language resources and tools
- **Virtual Collection Registry**: a registry of collections pointing to digital objects, enabling easy citation
- **Language Resource Switchboard**: find a matching tool for a given (language) dataset

LRS - VA Metrics
Visits: 528/month
Harvested metadata records: 909’388
VCR - VA Metrics
Collections: 7
VLO - VA Metrics
Tools: 70

Service	Integration with Hub
Virtual Language Observatory (VLO)	EGI Cloud Compute, B2FIND, B2SHARE
Virtual Collection Registry	B2FIND, B2SHARE
Language Resource Switchboard	B2DROP, B2SHARE



DARIAH - Digital RI for the Arts and Humanities

Main use cases:
Publication of collections of research data from the Arts & Humanities with integrated meta-data handling and search

- **DARIAH Science Gateway**: provides a set of generic and customized services and tools
  - **Semantic Search Engine (SSE)**: allows users to search in Open Access Document Repositories and Data Repositories and to discover new correlations about document and data
  - **Parallel Semantic Search Engine (PSSE)**: enabling users to semantically correlate contents in geographically distributed digital repositories
  - **Simple Cloud Access**: workflow creation and execution
  - **DBO@Cloud**: Cloud repository of Bavarian dialects
- **Invenio-based repository in the cloud:**
  - enables users to easily create, deploy and configure their own Invenio-based repository instance in the cloud
- **DARIAH repository**: storing and searching objects in research projects

Service	Integration with Hub
DARIAH Science Gateway	EGI Cloud Compute EOSC-hub AAI Accounting Monitoring
Invenio repo	INDIGO IAM INDIGO Orchestrator EGI Cloud Compute
DARIAH repo	EOSC Federation Services

DARIAH - VA Metrics
Number of supported applications: 5
Country reached: 10

Domain specific training to data providers and data scientists

- Focused on the preparation, and delivery of training contents and events to target the data providers and data scientists within structured scientific communities, linked to the Competence Centres and Thematic Services

is-enes

CMS DODAS

EISCAT 3D

we-nmr

OPENCoastS

CLARIN

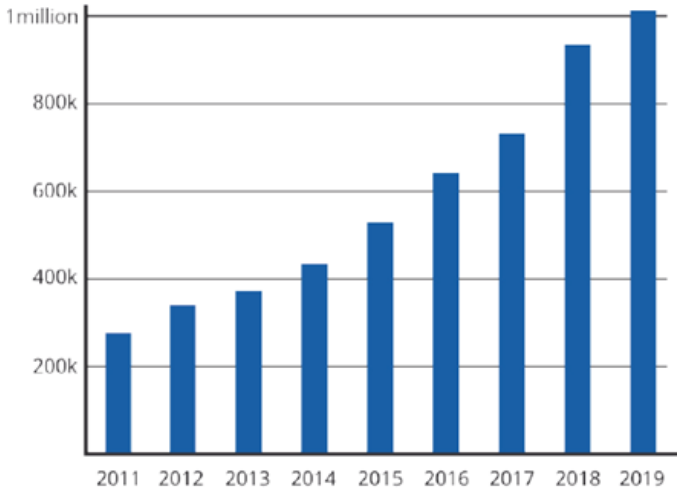
elixir

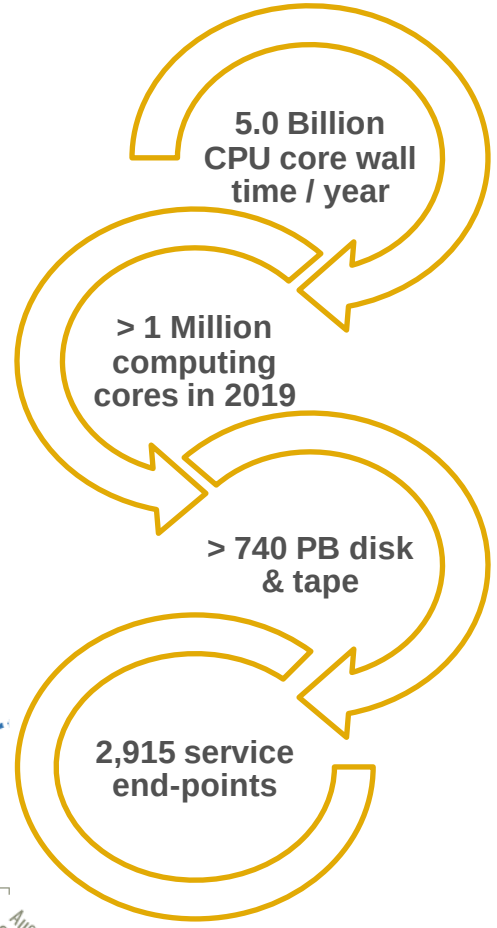
… and

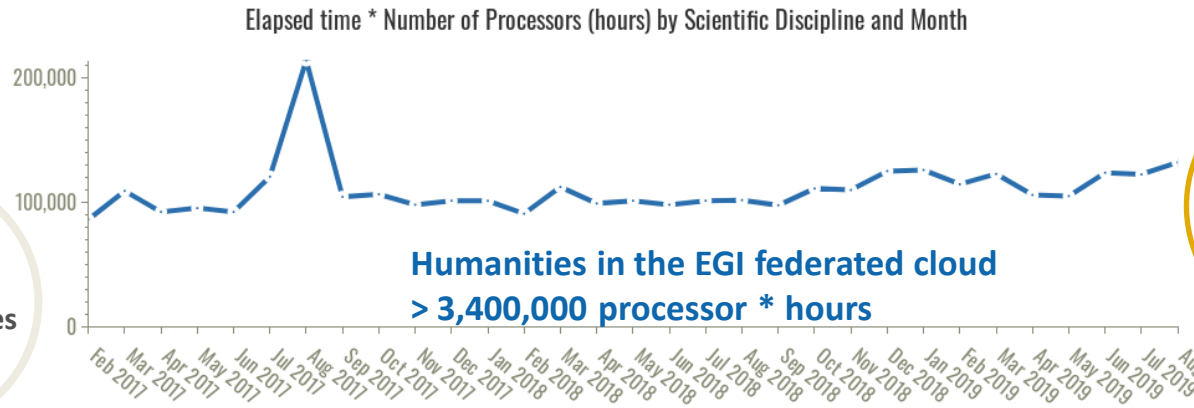
Infrastructures and resources: EGI example

- Enabling exploitation of publicly funded resources at pan-European level

EGI: more than 250 federated resource centres in 47 countries







Humanities in the EGI federated cloud
> 3,400,000 processor * hours

Research Infrastructures

Joining and using EOSC-hub

Early adopters
- *Pilot*
- *Use*
- *Co-develop*

early-adopter@mailman.eosc-hub.eu

Users
- *Access range of services*
- *Support*
- *Improve with feedback*
- *Use*

contact@mailman.eosc-hub.eu

Competence Centres
- *Planning & design*
- *Requirement collection*
- *Setup proof-of-concepts*
- *Service co-creation*
- *Training*

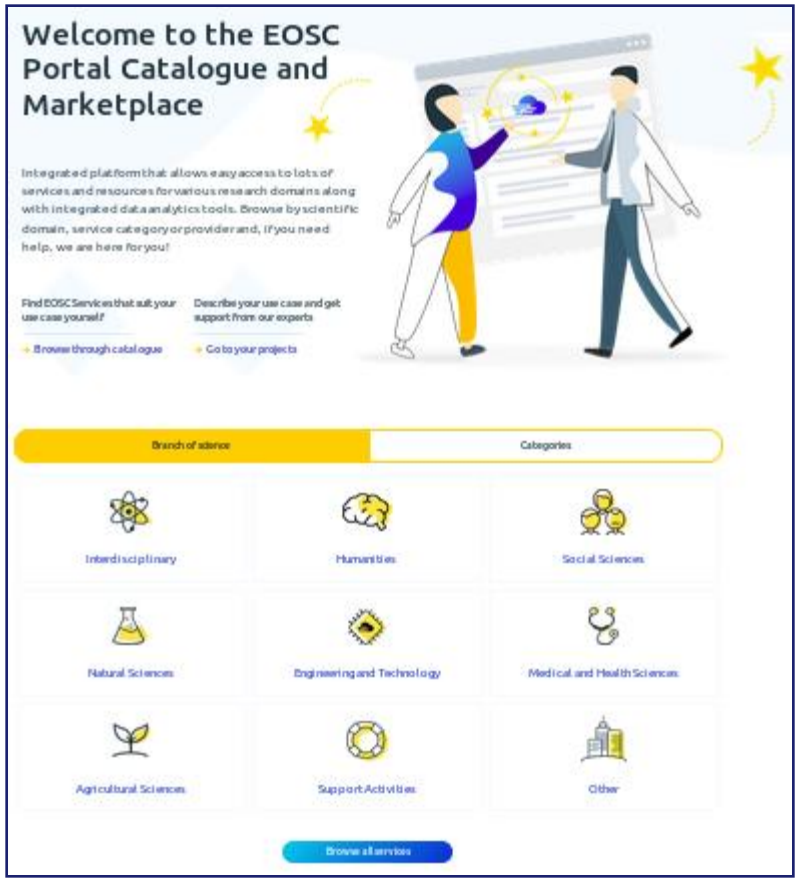
contact@mailman.eosc-hub.eu

Join as provider
- *Deliver open services*
- *Production quality*
- *Increase capacity*
- *Benefit from federation*
- *Reach wider audience*

https://eosc-portal.eu/join-provider

EUROPEAN OPEN SCIENCE CLOUD MARKETPLACE

EOSC Portal and Marketplace



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

Thank you
for your attention!

Questions?

EOSC-hub

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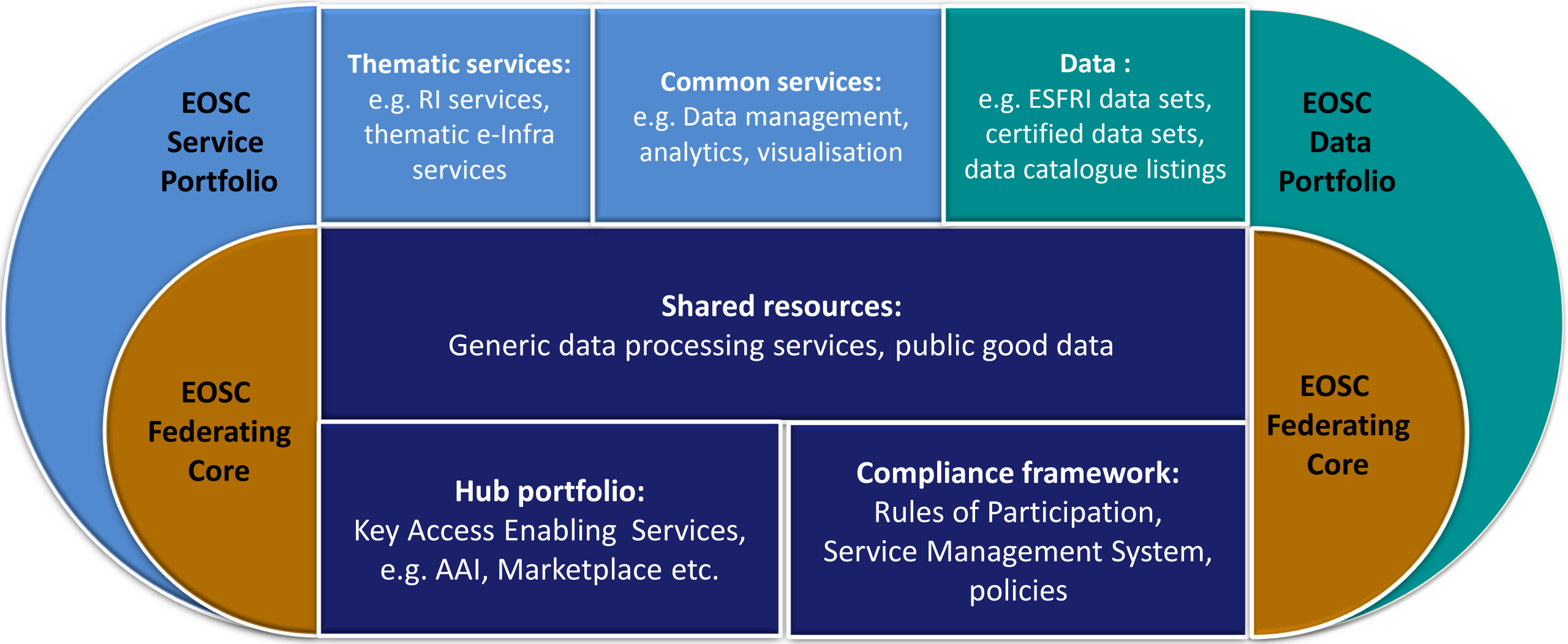
The ‘federating core’ and the wider EOSC

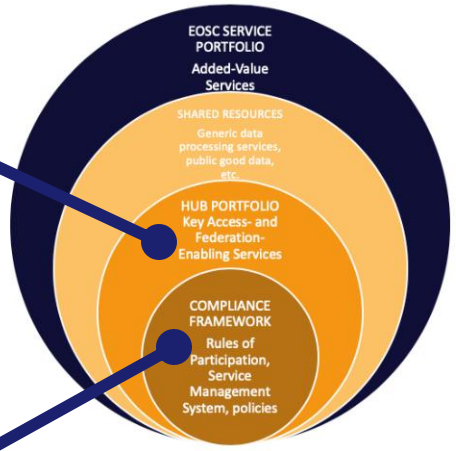


Remove Fragmentation

Remove fragmentation of service provisioning and access to digital services in Europe and beyond, through the technical integration and adoption of standards for interoperability of compute, storage, data and software platforms

Integration & Interoperability Guidelines

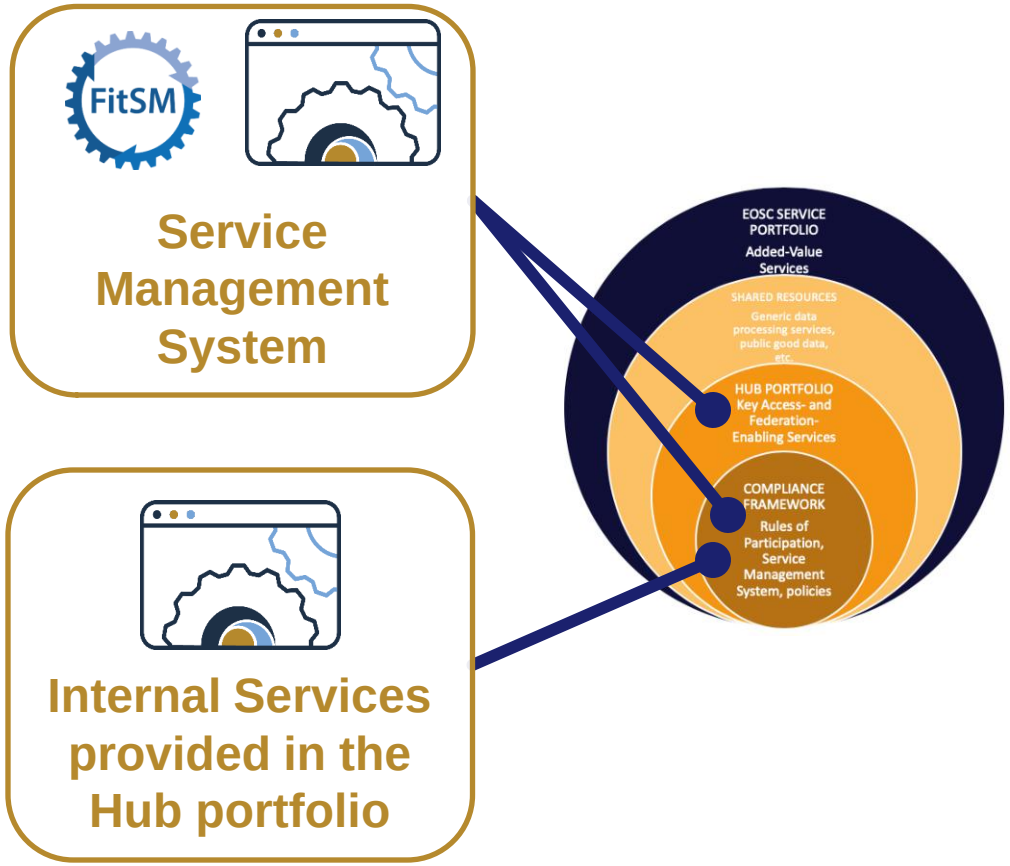
Rules of Participation



- Technical guidelines to minimise the technical design and development effort needed to integrated services
- Harmonized coherent policies and recommendations for new services
- Enable service composition

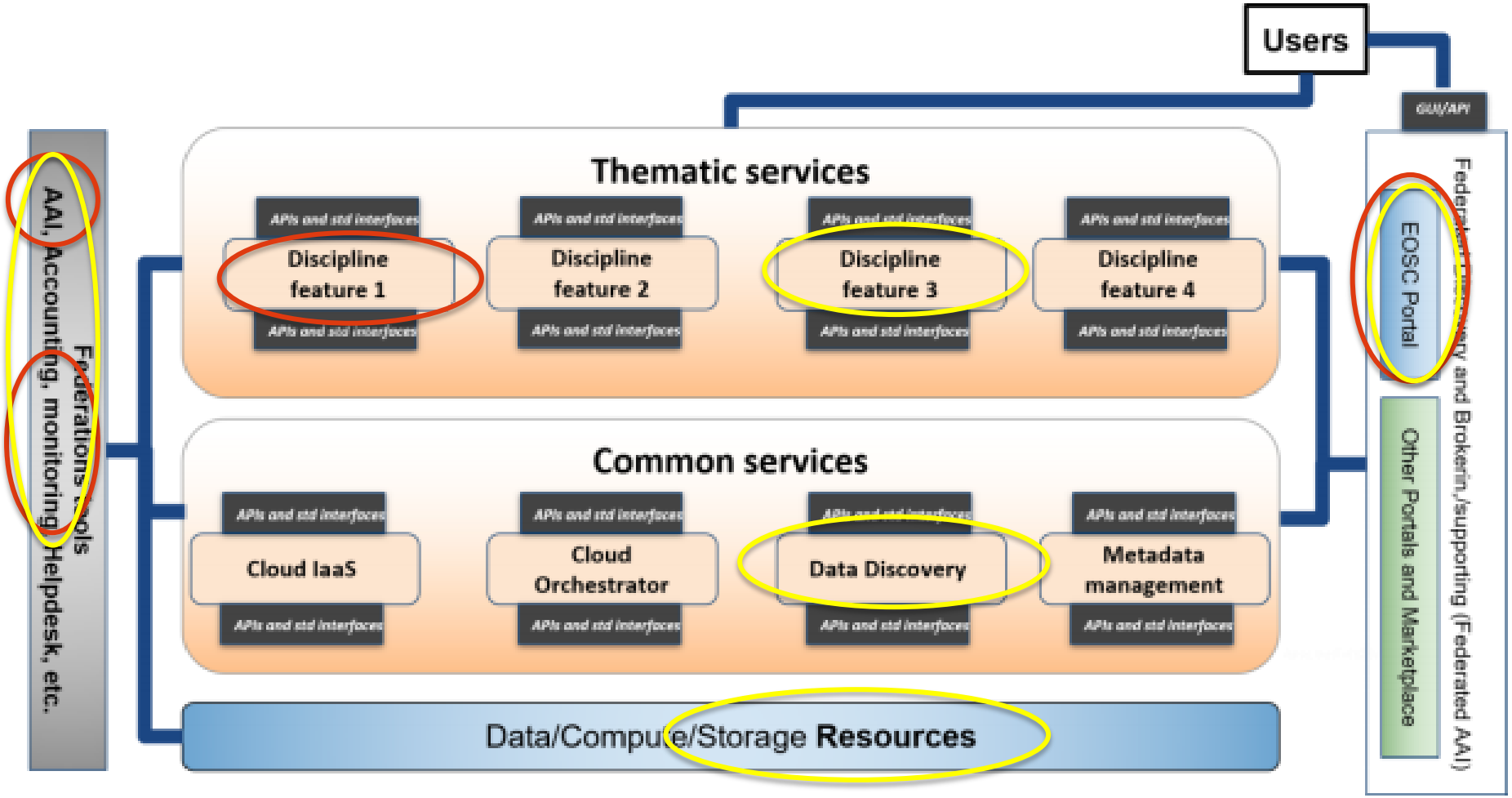
Consolidate

Consolidate e-Infrastructures by expanding capacity and capabilities and improving service quality

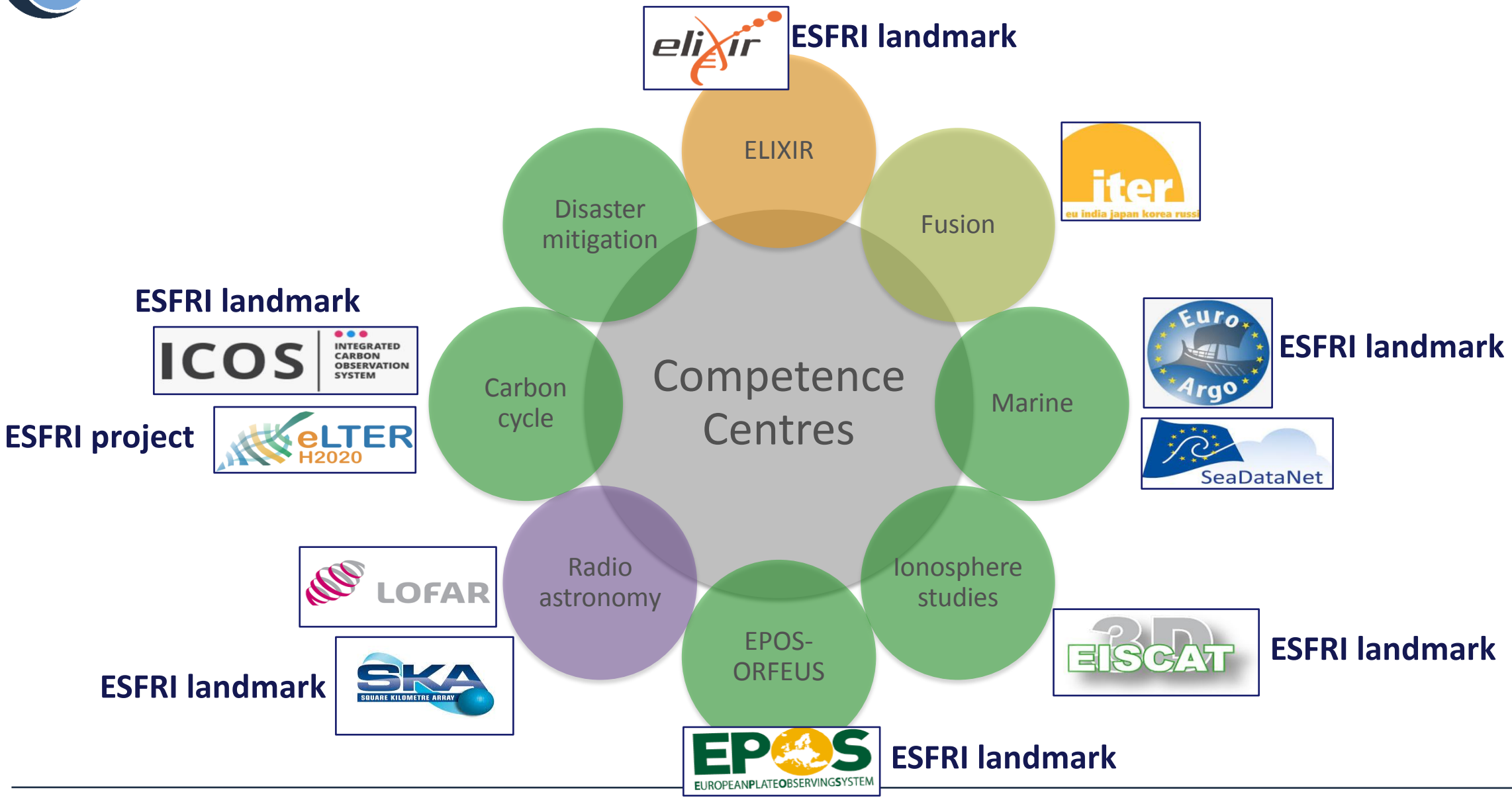


- Ensure robust service delivery
  - Validation of providers
  - Incident Management
  - SLA negotiation
  - Customer Relationship Management
  - Capacity Management
- Tools to integrated services
  - Federated AAI
  - Order Management
  - Monitoring and Accounting
  - Helpdesk etc.

Early adopters of the EOSC-hub services



Competence Centres



The ‘CC approach’

- Who
  - Research community experts
  - Service providers (common services)
  - Technology providers
- What
  - System planning & design
  - Requirement collection
  - Setup proof-of-concepts
  - Dissemination and training
  - Service co-creation & bringing new services into the EOSC catalogue

Community requirements Database & Jira