Consolidating the role of Science Clusters in Open Research

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CNRS-IN2P3-LAPP

ESFRI 87th meeting - 7 March 2024

OSCARS

Science Clusters fostering the uptake of Open Science in Europe

In response to the EU call on EOSC

HORIZON-INFRA-2023-EOSC-01-01

- Building on the <u>Science Cluster approach</u>
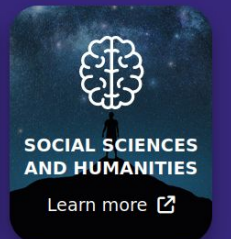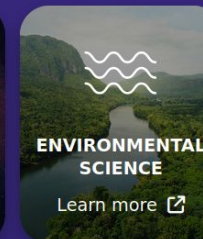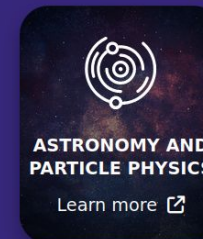- To ensure the **uptake of EOSC by research communities**

Partners

- Coordinator: **CNRS** LAPP
- **15** partners, **2-3** representing each <u>Science Cluster community</u>

Budget and timeline

- Starting date: **1 January 2024**
- Duration: **4 years**
- EC funding: **25 M€** (100%)
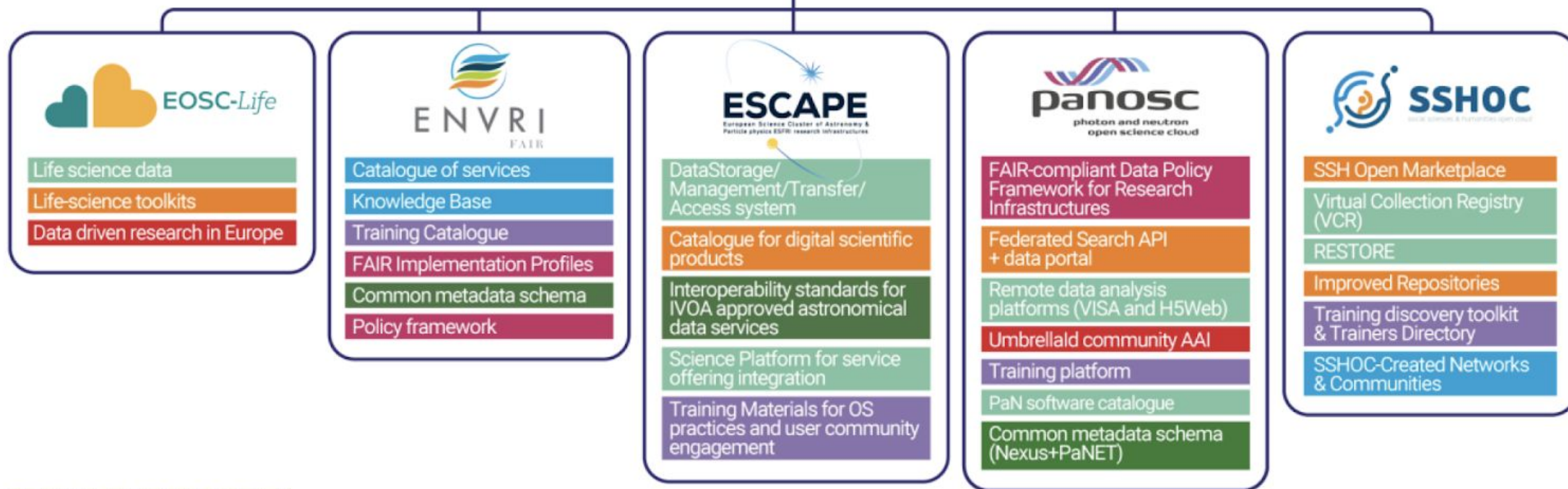
Research Infrastructures and Communities

The science clusters have grown out of five collaborative projects funded by the European Union in 2019 to link ESFRI and other world-class Research Infrastructures (RIs) to the European Open Science Cloud (EOSC). The services developed by the clusters and other outcomes of the projects are cornerstones of the emerging EOSC fabric and support both disciplinary communities and multidisciplinary initiatives with harmonised models for access to data, tools, workflows and training. Each cluster unites multiple RIs in their specific scientific domain.

ASTRONOMY AND PARTICLE PHYSICS Learn more
ENVIRONMENTAL SCIENCE Learn more
LIFE SCIENCE Learn more
PHOTON AND NEUTRON SCIENCE Learn more
SOCIAL SCIENCES AND HUMANITIES Learn more

https://science-clusters.eu/

SCIENCE-CLUSTERS.eu
Research Infrastructures for Open Science

Science Clusters projects' Key Exploitable Results

OSCARS — Open Science Clusters' Action for Research & Society

EOSC-Life
- Life science data
- Life-science toolkits
- Data driven research in Europe

ENVRI FAIR
- Catalogue of services
- Knowledge Base
- Training Catalogue
- FAIR Implementation Profiles
- Common metadata schema
- Policy framework

ESCAPE
- DataStorage/Management/Transfer/Access system
- Catalogue for digital scientific products
- Interoperability standards for IVOA approved astronomical data services
- Science Platform for service offering integration
- Training Materials for OS practices and user community engagement

panosc — photon and neutron open science cloud
- FAIR-compliant Data Policy Framework for Research Infrastructures
- Federated Search API + data portal
- Remote data analysis platforms (VISA and H5Web)
- UmbrellaId community AAI
- Training platform
- PaN software catalogue
- Common metadata schema (Nexus+PaNET)

SSHOC
- SSH Open Marketplace
- Virtual Collection Registry (VCR)
- RESTORE
- Improved Repositories
- Training discovery toolkit & Trainers Directory
- SSHOC-Created Networks & Communities

RESULTS CATEGORIES
- Technical Harmonisation
- Policy Harmonisation
- Discovery/Access Platform
- Virtual Research Environment (VRE)
- Training Resource
- Knowledge Centre
- Authentication and Authorization Infrastructure (AAI)
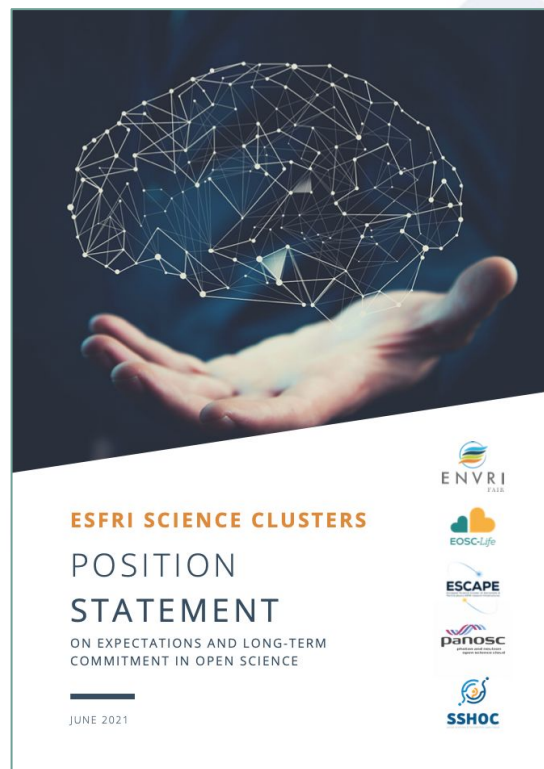
The Science Cluster concept was aimed at supporting "**Open-science data-intensive research**" in order to "**raise productivity of researchers and to lead to new insights and innovation**" and has enabled broader synergies and **shared visions**
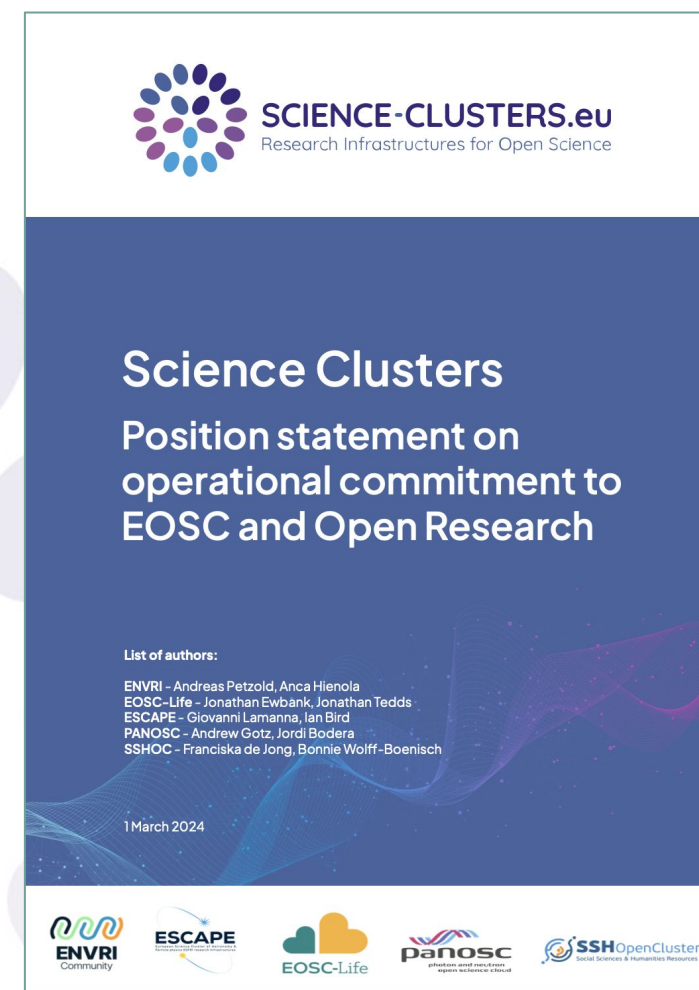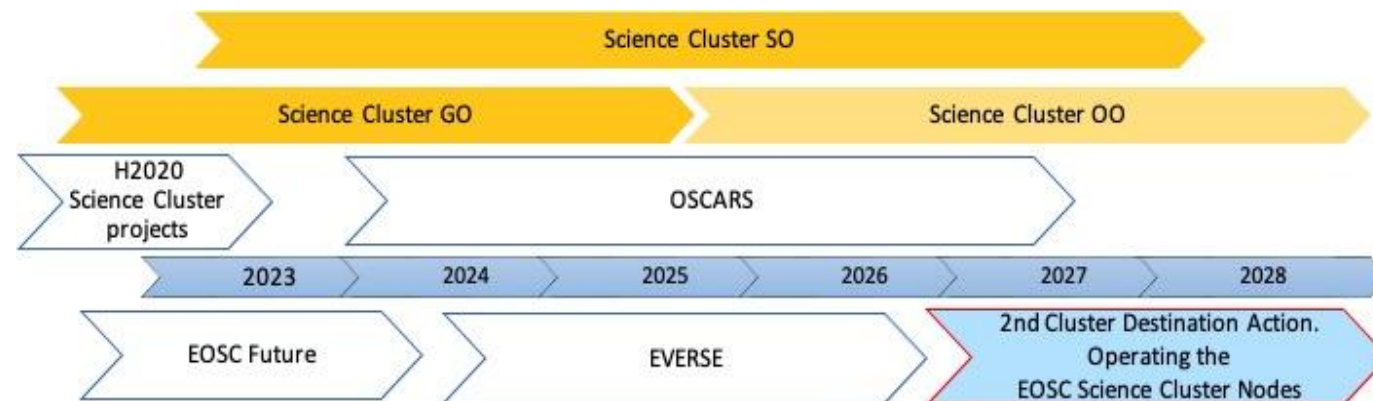
ESFRI cluster projects
Position papers on expectations and planned contributions to the EOSC

https://zenodo.org/record/3675081 - .X2R2PJNLhTY

ESFRI SCIENCE CLUSTERS

POSITION STATEMENT

ON EXPECTATIONS AND LONG-TERM COMMITMENT IN OPEN SCIENCE

JUNE 2021

ENVRI
EOSC-Life
ESCAPE
panosc
SSHOC

https://zenodo.org/record/4889503

https://indico.in2p3.fr/event/24327/

SCIENCE-CLUSTERS.eu
Research Infrastructures for Open Science

Science Clusters
Position statement on operational commitment to EOSC and Open Research

List of authors:

ENVRI – Andreas Petzold, Anca Hienola
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ESCAPE – Giovanni Lamanna, Ian Bird
PANOSC – Andrew Gotz, Jordi Bodera
SSHOC – Franciska de Jong, Bonnie Wolff-Boenisch

1 March 2024

ENVRI Community
ESCAPE
EOSC-Life
panosc photon and neutron open science cloud
SSH OpenCluster Social Sciences & Humanities Resources

https://doi.org/10.5281/zenodo.10732049

- **EOSC is seen as a federation of distributed systems of multiple interconnected <u>Nodes</u>.**

- **The EOSC Federation is expected to have significant <u>scientific impact</u>.**

- **Defining and developing the implementation model of such a federation is a significant challenge.**

- **The Science Clusters' ambition is to have the EOSC Federation as a system of "<u>Web of FAIR Data and Services for Science</u>" and effective thanks to a "community-governed" open science commons co-developed and operated by scientists to produce open research.**

- **The Science Clusters' visions and workplans are oriented to serve <u>Open Research in Europe and</u> are instrumental for strengthening the EOSC ambitions.**

The Science Clusters' workplan addresses General, Specific and Operational Objectives (GO, SO & OO).

A) Consolidating achievements from the five H2020 Science Cluster projects into **lasting interdisciplinary services and working practices** towards:

- **More cohesion and for economy of scales approach**.
- Leveraging **cross-domain approach** and **cooperation with e-infrastructures**.
- **Cross-fertilisation** for shared solutions of key services for researchers in all domains.
- Cooperating and supporting the **EOSC partnership** (towards the implementation of the final architecture).

B) Leading and fostering the involvement of a broad range of research communities in EOSC via the development of new **Open Science projects** to drive the uptake of FAIR-data-intensive research throughout the ERA by:

- Contributing to a **data space for science, research and innovation**, integrated into the other data spaces described in the European Strategy for Data.
- Pursuing the creation of **pan-European research-enabling value-added services**.
- Fostering the **coordination** of national activities, European RIs and the scientific community at large, including the long tail of science.
- Fostering **interdisciplinarity** for achieving challenging new science pathways.

OSCARS

- **Open Science practice**: increased scientific impacts via the support of Open Science projects;

- **Community-based Competence Centres (CCC)**, contributing to the sustainability of the Science Cluster actions, fostering their impacts, supporting and aligning operations of ESFRI and other RIs and involving the long tail of science.

- **Composable Open Data and Analysis Services (CODAS)** onboarded into the EOSC Exchange platform, fostering the alignments of practices in scientific data analysis and enhancing researchers' participation in Open Science.

- An **established inter-cluster web-based "scientific social network"** in Europe. Training, mentoring, cross-disciplinary events and cross-cluster developments.

- **Operational Competence Centres**

- Uptake of **Virtual Research Environments** (VRE) web-based highly composable **platforms for Open Science data analysis**;

- **Stronger involvement of scientific communities in Open Science** and the shaping of EOSC;

- Enhancing and further structuring of the successful **cross-fertilisation** work built by the Science Clusters;

- **Economy of scale** and **sustainably of ESFRIs**;

- Enable a **largely participative research ecosystem**, promoting provenance tracking to research outputs and contributing to the evolution of research assessment methodologies.

CASCADING-GRANT CALLS FOR OPEN SCIENCE PROJECTS

GOAL:
Build on the science cluster approach to ensure the uptake of EOSC, i.e., consolidate FAIR services of the five Science Clusters and, more broadly, perform excellent science and pursue societal benefits by leveraging an Open Research approach.

TARGET USER COMMUNITIES:
Science Clusters and wider community (RIs, Universities, Institutes, either consortia, or individual researchers)

Submission process

- Opens: ~ **March 2024 / Nov. 2024**
- 10 pages max
- Submission within **60 days**
- Project start: **Sept-Dec. 2024 / Aug-Oct. 2025**

Limits

- Budget: **100 - 250 k€** / project
- Duration: **1 - 2 years**

Evaluation criteria for the independent expert panel

- Project description: clear objectives, towards **FAIR** and **open**
- Scientific impacts: **multiple RIs / cross-cluster**
- Digital resources: use of **EOSC** services / new **EOSC** service
- Implementation: **realistic** within budget

Further actions are led by the Science Clusters, e.g. EVERSE

In response to the EU call on EOSC HORIZON-INFRA-2023-EOSC-01-02

- Building on the **Science Cluster approach**

- The **catalogue of software** will continue to be populated with new collaborative cross-border software, workflows and methods and for the benefit of the community at large.

- Development of community-based approaches for ensuring and improving **quality of scientific software and code** highly relevant to all Science Clusters.

- **Establish the Virtual Research institute (VRI)**

Since the end of the H2020 grants, the five Science Clusters are working on putting long-term structures in place (through MoU or Collaboration Agreements).

They agree on having effective mechanisms in place to enable cross-cluster/cross-domain collaborations.

OSCARS and EVERSE demonstrate the progress we are accomplishing.

An updated common work plan and a long-term vision have been established:

- determination to establish thematic community-based 'EOSC Science Cluster Nodes', contingent upon resources;
- implication on the interconnection with the EOSC EU Node and National Nodes.