Science Clusters' long-term commitment to open science

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cnrs NUCLÉAIRE & PARTICULES

LAPP

ESCAPE
European Science Cluster of Astronomy & Particle physics ESFRI research infrastructures

OSCARS
Open Science Clusters' Action for Research & Society

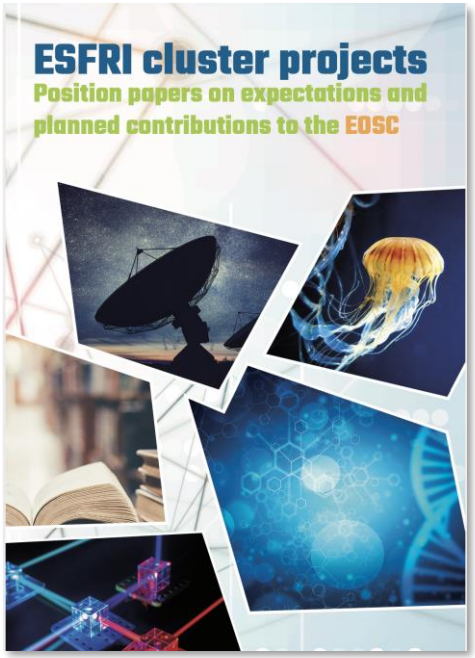
ESFRI Science Clusters

The H2020 Science Cluster concept was aimed at supporting:

- "**Open-science data-intensive research**" in order to "**rise productivity of researchers and to lead to new insights and innovation**"
- Commit in **Open Science** implementing the **FAIRness** of scientific data
- Connecting ESFRI and other world-class RIs to **EOSC – European Open Science Cloud**
- **ENVRI-FAIR** (Environment and Earth Sciences), **EOSC-LIFE** (Biomedical Science), **ESCAPE** (Astrophysics and Particle/Nuclear Physics), **PANOSC** (Neutron and light sources facilities) and **SSHOC** (Social Science and Humanities).

eosc

Broader synergies among clusters



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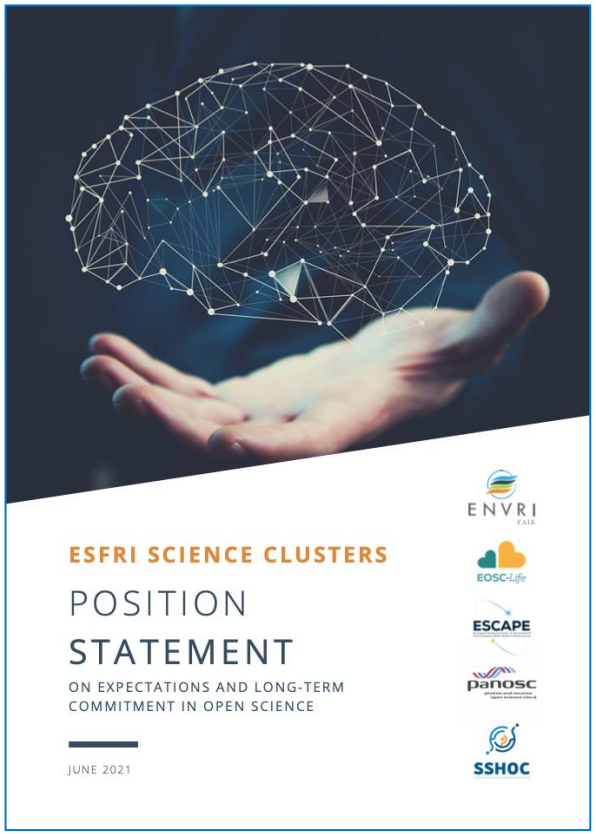

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https://indico.in2p3.fr/event/24327/

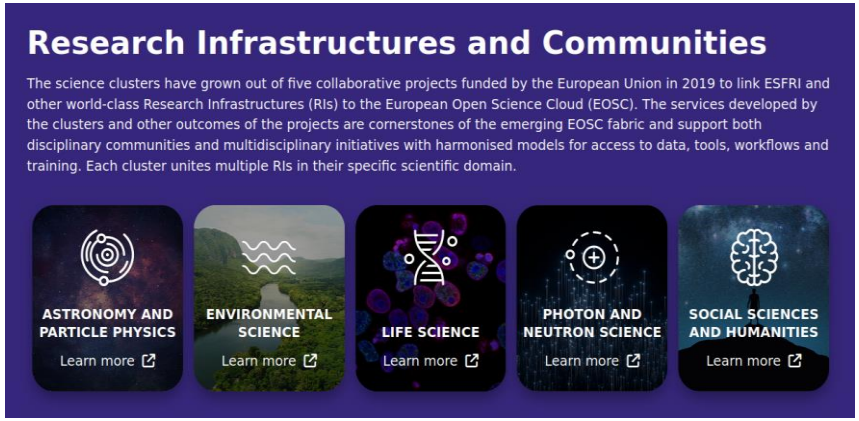
EOSC FUTURE

EGI GÉANT EUDAT Collaborative Data Infrastructure OpenAIRE RDA RESEARCH DATA ALLIANCE

SCIENCE-CLUSTERS.eu Research Infrastructures for Open Science

ESFRI Science Clusters

https://science-clusters.eu/



- **The Science Clusters are engines for Interdisciplinarity.**
- **The Science Clusters occupy a unique position between EOSC, ESFRI RIs and scientific communities.**
- **The Science Clusters uniquely capable to address the challenges of open research data being at the same time data producers and consumers.**
- **The Science Clusters are a key part in developing mid-level multidisciplinary tools and platforms.**
- **The Science Clusters' track record of integrating infrastructures can be a significant asset for the EOSC.** *(The majority of the EOSC Association members are EU member States Universities and Research Institutes: science and the support of research communities as the EOSC major aim!)*

- **The 5 Science Cluster H2020 grants are ended. However, all of the 5 have put in place long-term structures – through MoU or Collaboration Agreement.**
- **They have a common position and agree: to have effective mechanisms to enable cross cluster/cross-domain collaborations; to participate in the ESOC implementation (by Nodes)**

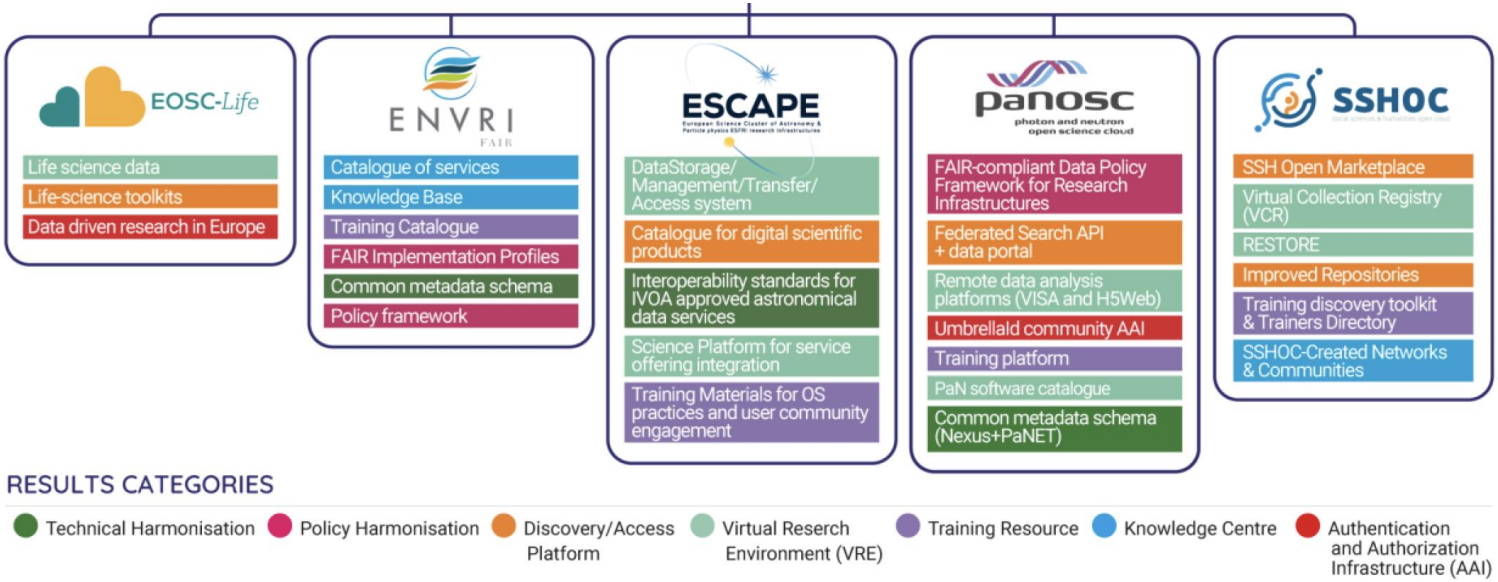
SCIENCE-CLUSTERS.eu
Research Infrastructures for Open Science

OSCARS

Open Science Clusters' Action for Research & Society

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

- Building on the **Science Clusters' approach and results**



Budget and timeline

- Starting date: **2024-01-01**
- Duration: **4 years**
- EC funding: **25 M€** (100%)

Cascading grant calls

- Opens: ~ **March 2024 / Nov. 2024**
- Project start: **Sept-Dec. 2024 / Aug-Oct. 2025**
- Budget: **100 - 250 k€** / project
- Duration: **1 - 2 years**

OSCARS' Objectives

(A) consolidating achievements from the five H2020 INFRA-EOSC-2018-01-04 projects into **lasting interdisciplinary services and working practices** towards:

(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:

EXPECTED RESULTS

- **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.

EXPECTED OUTCOMES

- **Operational Competence Centres**
- Uptake of **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-fertilization** work built by the Science Clusters;
- **Economy of scale** of (cross-cluster) services;

EVERSE

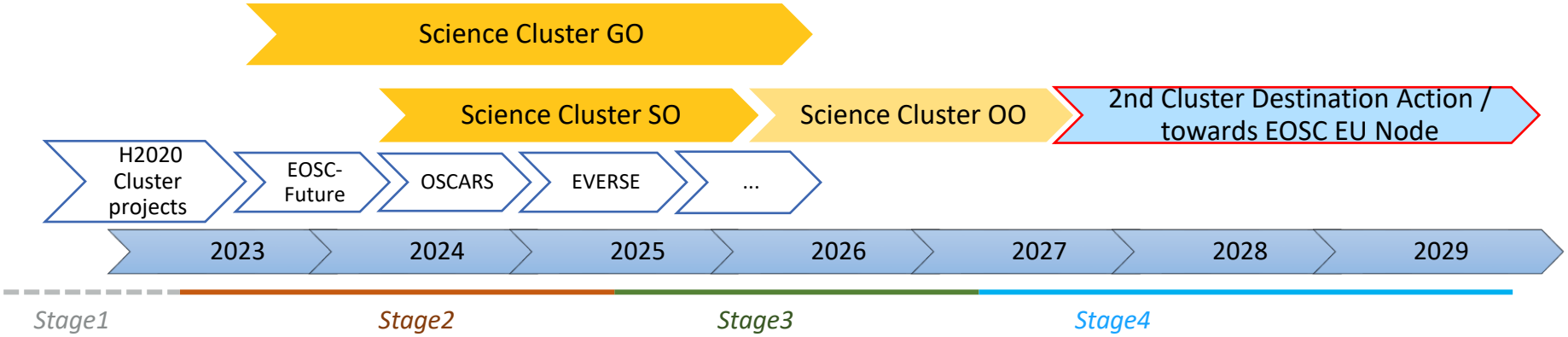
European Virtual Institute for Research Software Excellence

Further actions are led by the Science Clusters, such as 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)**

Science Clusters' work plan



General Objectives (**GO**):

- consolidation of thematic data infrastructures (cluster VREs, platforms and a "few core services") as parts of a federation.

Specific Objectives (**SO**):

- relevant scientific results from clusters;
- increased number of RIs;
- enhance researchers uptake of OS and widening dimension.

Operational Objectives (**OO**):

- sustainable operation of the deployed cluster as a "platform infrastructure" (e.g. CCC and VRI);
- continuous promotion and hosting of inter-domain FAIR Science Projects.
- domain-based (new RIs') challenges as well as new Open Science Objectives.

Cluster diversity and EOSC implementation

Research Infrastructures (RIs) managing thematic data repositories (as in social science).

- **National nodes should co-ordinate to evolve expertise based on the science domain and participate in an EU thematic federation.**

RIs managing thematic data repositories and workflows (based on widely distributed data sources, e.g. for earth and environment science).

- **A transversal thematic EU Node would be useful to promote data federation and strengthen the community around the same goals.**

Domain where data production and management are already federated in a community-based data hub as an RI in itself and series of national Nodes (as in life science).

- **They are aimed at becoming or being included in an EU thematic EOSC Node.**

Large physics infrastructures operating as multi-domain research facilities would benefit from the basic services of e-infrastructures and the EU EOSC Node.

- **They are data producers; promoting a EU League of such research facilities for data-research would reinforce common practices and goals.**

Big-Science RIs have all the scientific and technological expertise and are responsible for the production and exploitation of data.

- **A Community-based EU Node would operate for the sustainability of ESFRIs, for economies of scale and to maintain the RIs commitment to the EOSC.**

EOSC implementation

About the EOSC EU NODE:

A) EU Node for EOSC core services' operation

- Instrumental for multi-disciplinary and long-tail of science and to foster standardization in data stewardship.
- Limited scientific scope if aimed at proposing services as one fits all solution.
- Ownership can be moved to national entities/Nodes contracted to operate major services.

B) EU Node for EOSC high-level services' evolution, for Open Science and Excellence Research

- Afuture EU entity to manage cascading grant calls that would be suitable in the long run to promote cross-domain cooperation, the uptake of open science by researchers, the fostering of science priorities for society in the EU framework.
- Strengthening and supporting ESFRIs would require an EU EOSC Node for: economy of scale in data management; training; development of science strategy in the EU; science diplomacy and the impact of science on society; linking EOSCs to other sectoral data spaces.
- Management of highly composable virtual research environments per scientific domain for full hosting of open scientific projects and federation of scientists in open research.
- Centrally supporting the federation of thematic data with the involvement of national institutes.
- The EU EOSC Node should include the concept of 'cluster of clusters' and would manage their coordination.
- Each scientific cluster would operate a European thematic node, owned by the EC and managed by the association of ESFRI cluster members (and their consortia of national institutes).

Conclusion

- Important progress in the cooperation of the five science clusters
- We are achieving our goals and milestones according to our work programme
- The sustainable long-term goal of each science cluster is seen as part of the overall EU plan for the implementation of the EOSC, including the EOSC-EU Node. The five Science Clusters are working also along this perspective.