OSCARS project

Open Science Clusters' Action for Research and Society

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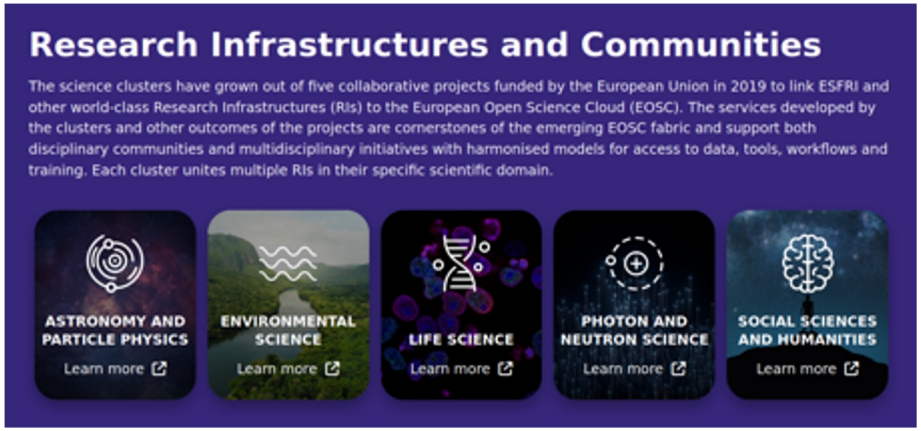
OSCARS

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 Cluster approach**
- to ensure the **uptake of EOSC by research communities**



https://science-clusters.eu/

Partners

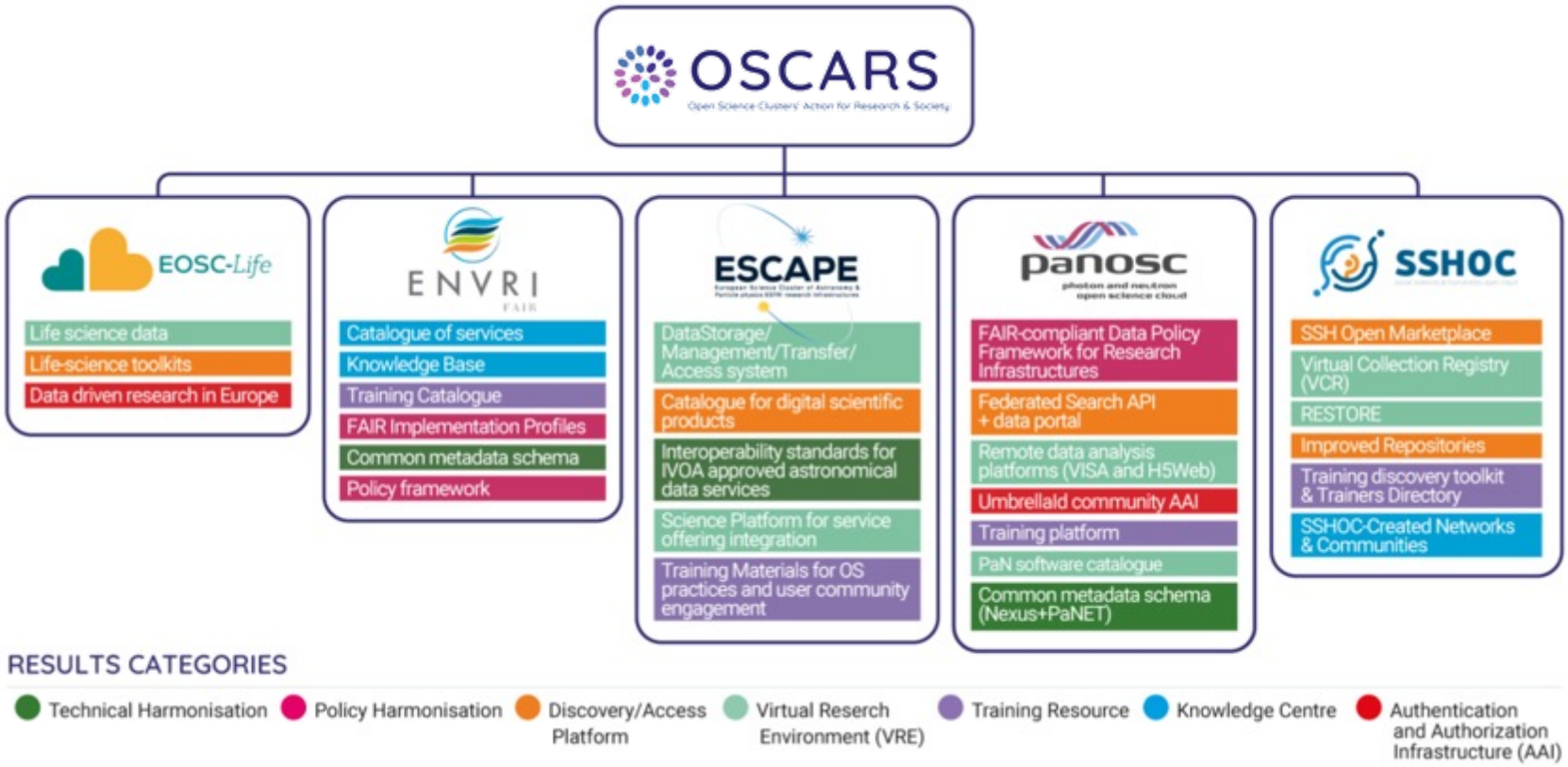
- Coordinator: **CNRS - LAPP**
- **15** partners, **2-3** representing each Science Cluster community

Budget and timeline

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

Science Clusters fostering the uptake of Open Science in Europe

Clusters' results



Rationale for ESCAPE

The H2020 cluster concept introduced by the European Commission, in 2018 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** that means implement the **FAIRness** of scientific data
- Connecting ESFRI and other world-class RIs to **EOSC – European Open Science Cloud**
- **ESCAPE** is one of the five Science-Cluster projects that resulted from the H2020 topic call INFRAEOSC-04-2018
  Other Science Clusters: **ENVRI-FAIR** (Environment and Earth Sciences), **EOSC-LIFE** (Biomedical Science), **PANOSC** (Neutron and light sources facilities) and **SSHOC** (Social Science and Humanities).

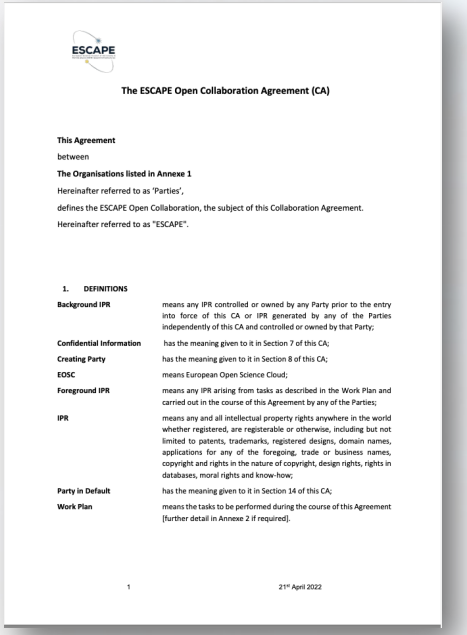
Recognising synergies between High Energy Physics, Nuclear Physics, Astronomy, Cosmology, …:

- Common Data Centres
- Common Funding agencies
- Overlapping community
- Good experience with the precursor cluster ASTERICS
  between Astroparticle physics and Astronomy (without HEP)

ESCAPE sustainability

From 1st Feb 2023 ESCAPE is an Open Collaboration

- ESCAPE has a Collaboration Agreement signed by Directors of all the partner RIs
  - The agreement came into effect at the end of ESCAPE project → ESCAPE Open Collaboration
  - Recognises many synergies: communities, technical, coordination, political, funding …
  - Common facilities (data centres, networks, etc.)
  - OPEN: RI's will join because they see a value in collaborating
  - Synergies in tools used and requirements (e.g. large data) but recognise differences (metadata)
  - Common science goals and challenges: (EU, DM, etc → JENAS)
  - Imagine common future needs: AI technologies, Quantum etc., and how we apply them
  - Political force towards EOSC, EC, etc. ⇒ representing a single/integrated community



ESCAPE

The ESCAPE Open Collaboration Agreement (CA)

This Agreement

between

The Organisations listed in Annexe 1

Hereinafter referred to as 'Parties',

defines the ESCAPE Open Collaboration, the subject of this Collaboration Agreement.

Hereinafter referred to as "ESCAPE".

1. DEFINITIONS

Background IPR	means any IPR controlled or owned by any Party prior to the entry into force of this CA or IPR generated by any of the Parties independently of this CA and controlled or owned by that Party;
Confidential Information	has the meaning given to it in Section 7 of this CA;
Creating Party	has the meaning given to it in Section 8 of this CA;
EOSC	means European Open Science Cloud;
Foreground IPR	means any IPR arising from tasks as described in the Work Plan and carried out in the course of this Agreement by any of the Parties;
IPR	means any and all intellectual property rights anywhere in the world whether registered, are registerable or otherwise, including but not limited to patents, trademarks, registered designs, domain names, applications for any of the foregoing, trade or business names, copyright and rights in the nature of copyright, design rights, rights in databases, moral rights and know-how;
Party in Default	has the meaning given to it in Section 14 of this CA;
Work Plan	means the tasks to be performed during the course of this Agreement [further detail in Annexe 2 if required].

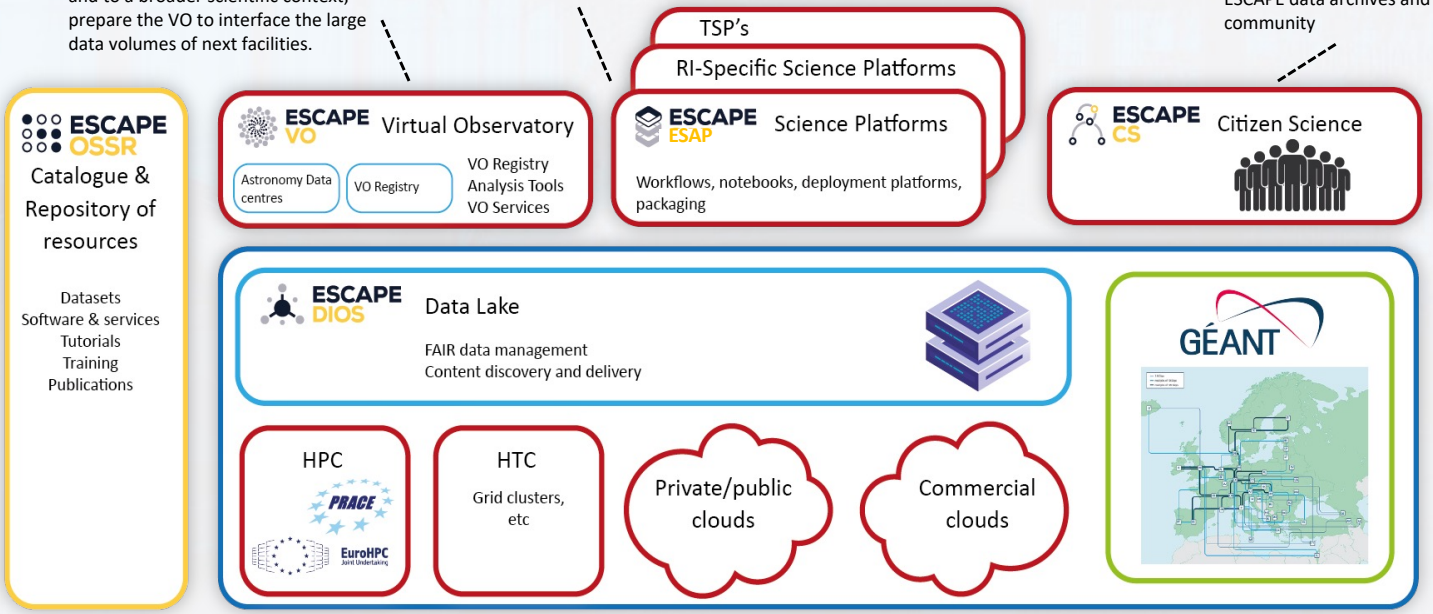
1 21st April 2022

ESCAPE work programme aimed at building a domain-based implemetation of EOSC

Virtual Observatory:
Extend the VO *FAIR* standards, methods and to a broader scientific context; prepare the VO to interface the large data volumes of next facilities.

Science Platforms:
Flexible science platforms to enable the open data analysis tailored by and for each facility as well as a global one for transversal workflows.

Citizen Science:
Open gateway for citizen science on ESCAPE data archives and ESFRI community



Software Repository:
Repository of "scientific software" as a major component of the "data" to be curated in EOSC.

Data Lake:
Build a scalable, federated, data infrastructure as the basis of open science for the ESFRI projects within ESCAPE.

The new ESCAPE Collaboration work programme

Entities

ESCAPE CC
Operating the community-based "Competence Center" for EOSC-alignment, train and support, extended outreach, financial model for services and networking with other SCL-CCs

ESCAPE EVSI
R&I for an "European Virtual Institute for Research Software" for advanced technologies

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

VRE services

ESCAPE DIOS | Data Infrastructure for Open Science
Access physical & e-infrastructures
Processing & Analysis
Security & Operations

ESCAPE OSSR | Open-source Scientific Software and Service Repository
Aggregator & Integrators
Sharing and Discover
Training & Support

EOSC

ESCAPE ESAP | ESFRI Science Analysis Platform
Processing & Analysis
Sharing and Discovery
Training & Support

ESCAPE CS | Citizen Science
Sharing and Discovery

ESCAPE VO | Virtual Observatory
Processing & Analysis
Sharing and Discovery
Training & Support

Programmes

ESCAPE COSO
Challenging "Open Science Objectives" by RI commitments in Open Science Projects (OSP) as well as Cross-Cluster Open Science Projects (COSP)

ESCAPE TECH
Bring the FAIRness within technology, R&D and innovation projects as well as explore new "close-to-sensors" low-latency open-data science

ESCAPE CARS
Career development and rewarding for researcher committing in Open Science. Planning, tracking, and assessing scientific knowledge production

ESCAPE SDSS
Building synergies on "Sector Data Spaces" for Society: Green deal, Health, Manufacturing, Education and Skills

OSCARS' Objectives

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

- More cohesion;
- Leveraging **cross-domain approach** and **cooperation with e-infrastructures**;
- **Cross-fertilization** for shared solutions of key services for researchers in all domains;
- Cooperating and supporting the **EOSC partnership**.

(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.

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

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

OSCARS project – OPEN CALLS

16 / 25 M€

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

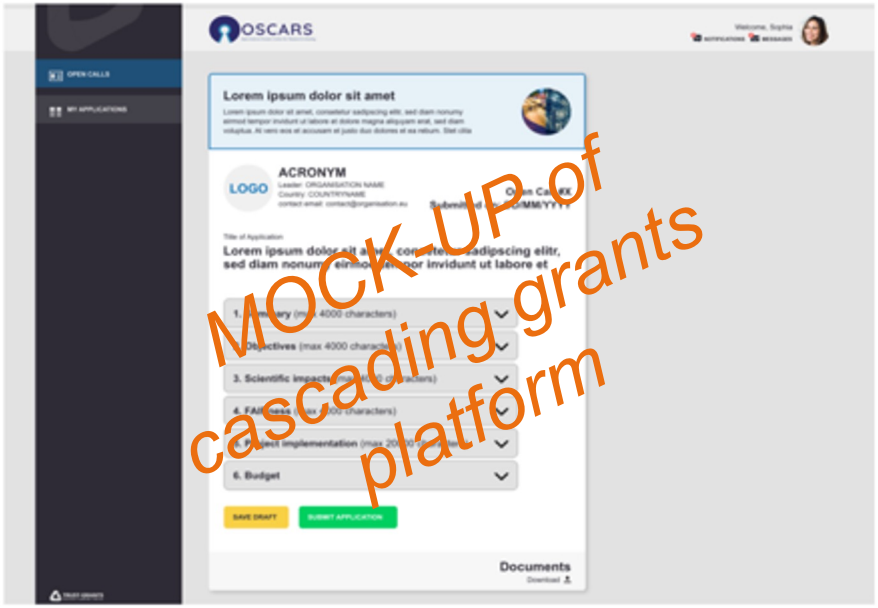
OSCARS project

OPEN CALLS – Proposal guidelines

- 10 pages max
- Language: English

Proposals' structure

- Proposal Title and Acronym
- Open Science/Data FAIRNESS challenge(s)
- Domain
- Consortium composition
- Duration and financial support
- Summary
- Project description
- Scientific impacts
- Digital resources
- Project Implementation, Budget Breakdown and Final Deliverables



Deliverables for public dissemination:

- A final project summary in PDF format of maximum 5000 characters, including spaces.
- A presentation
- A "scientific journal or journal-type" article summarising the main project results and methodology used to achieve them.

EVERSE

European Virtual Institute for Research Software Excellence

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)**

Science Clusters fostering the uptake of Open Science in Europe

Conclusions

- **OSCARS** (**EVERSE** and others) to support the ESCAPE work plan within **Horizon Europe**

- The 5 Science Clusters pursuing together a common programme:

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

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

  Operational Objectives:
  - 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 and new Open Science Objectives **(with a new cluster destination action…)**

- **OSCARS cascading grant calls (& the consolidation actions around data management and VRE) are relevant opportunities for the ET Preparatory Phase.**