ESCAPE OSSR Final Workshop Task 3.1

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for the OSSR Team

ESCAPE - The European Science Cluster of Astronomy & Particle Physics ESFRI Research Infrastructures has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement n° 824064.

ESCAPE EOSC cell

ESCAPE OSSR
Catalogue & Repository of resources

Datasets
Software & services
Tutorials
Training
Publications

TSP's
RI-Specific Science Platforms

ESCAPE VO Virtual Observatory

Astronomy Data centres
VO Registry

VO Registry
Analysis Tools
VO Services

ESCAPE ESAP Science Platforms

Workflows, notebooks, deployment platforms, packaging

ESCAPE CS Citizen Science

ESCAPE DIOS Data Lake

FAIR data management
Content discovery and delivery

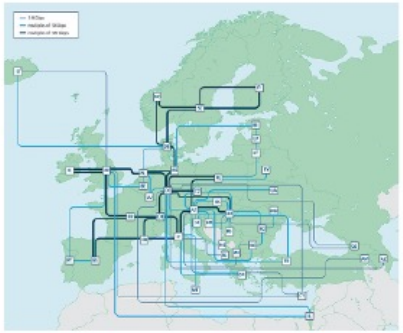
HPC
PRACE
EuroHPC Joint Undertaking

HTC
Grid clusters, etc

Private/public clouds

Commercial clouds

GÉANT



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OSSR Aims and Objectives

ESCAPE OSSR
Catalogue & Repository of resources

Datasets
Software & services
Tutorials
Training
Publications

- Objectives:
  - Facilitate and support continuous **development, deployment, exposure and preservation** of partners' software/tools/services
  - Foster **interoperability, software re-use and cross-fertilisation** between ESFRIs (e.g. simulation)
  - Offer an **open innovation environment for open standards** (e.g. workflows, data-formats), **common regulations** and **shared (novel) software** for multi-messenger & multi-probe data
  - Establish the link of the **community to the EOSC** and vice-versa.
  - **Training** of experiences code custodians to create and maintain high-quality, open software and **raise their visibility**
- All objectives follow:
  - Paradigm of **enabling open science** – with **software as "first class citizen"**
  - a **community-based and inclusive** approach
  - the **FAIR principles** for open science resources – software and derivatives
  - **Federation** of available resources

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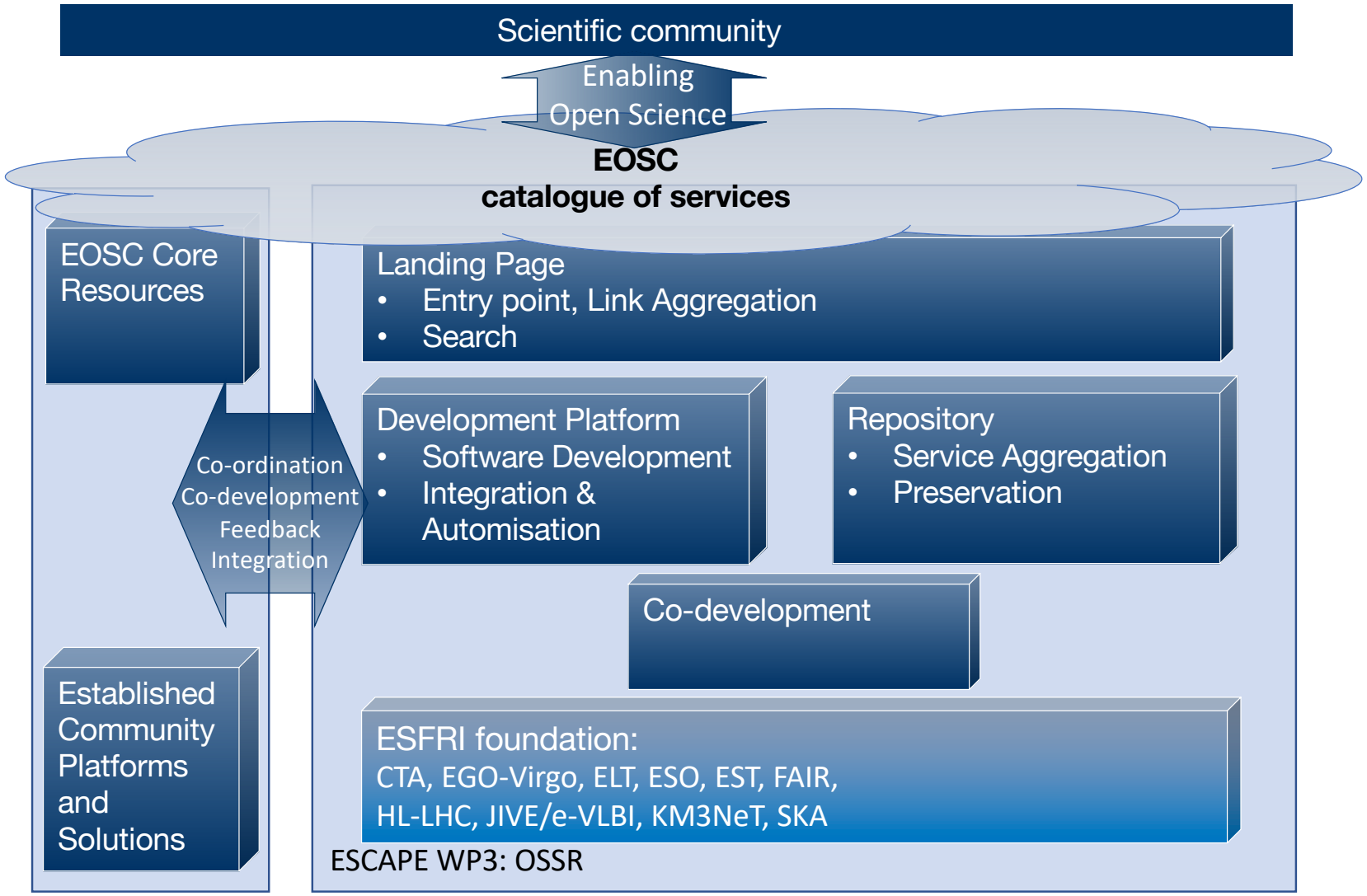
OSSR Overview



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Work Organisation – 5 Tasks and Focus Groups

- Tasks
  - 3.1: Management Activities, Policy and Support Action (MAPS) –
    Providing assistance and support for work package related activities
  - 3.2: ESFRI Software and Services Collection (ESSC) –
    Systematically list available software and requirements to facilitate integration into the repository
  - 3.3: Common Approaches: Software and Services (CASS) –
    Fostering common developments and facilitate sharing of software
  - 3.4: Foundation of Competence for Software and Service Innovation (COSSI) –
    Establish competence group for mainstreaming new approaches to data analysis (e.g. deep learning)
  - 3.5: Repository Implementation and Deployment (RIAD) –
    Setting up a demonstrator for a common software repository
- Focus groups
  - Focus group 1: Collecting Software requirements (related to Task 3.2)
  - Focus group 2: Technical implementation of the repository (related to Task 3.5)
  - Focus group 3: Innovative workflows (related to Task 3.4)
  - Focus group 5: Common approaches to CORSIKA (related to Task 3.3)
  - Focus group 6: Common Data Formats (related to Task 3.3)

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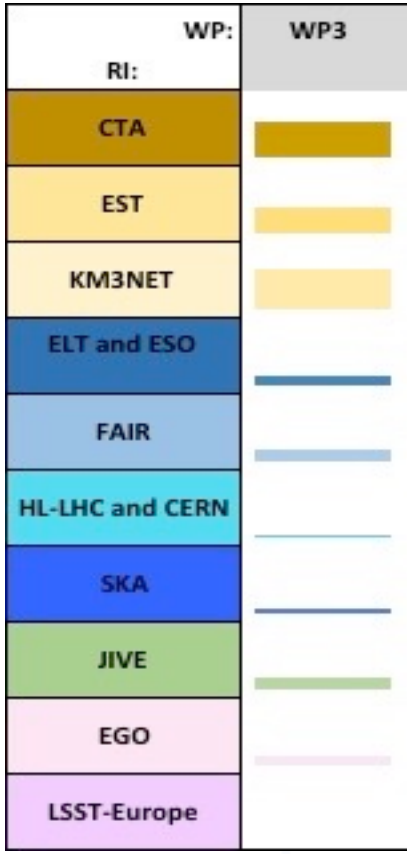
OSSR Overview and Organisation

- Wiki as general entry point for information Organisation
- **Tasks** formulate the main objectives of the work package
- **Focus groups** facilitate day-to-day work with ~ bi-weekly meetings (~ 150 to date)
- Central communication tools and bi-yearly written updates from partners
- Partners commonly responsible for reaching the aims and objectives

Budget Distribution



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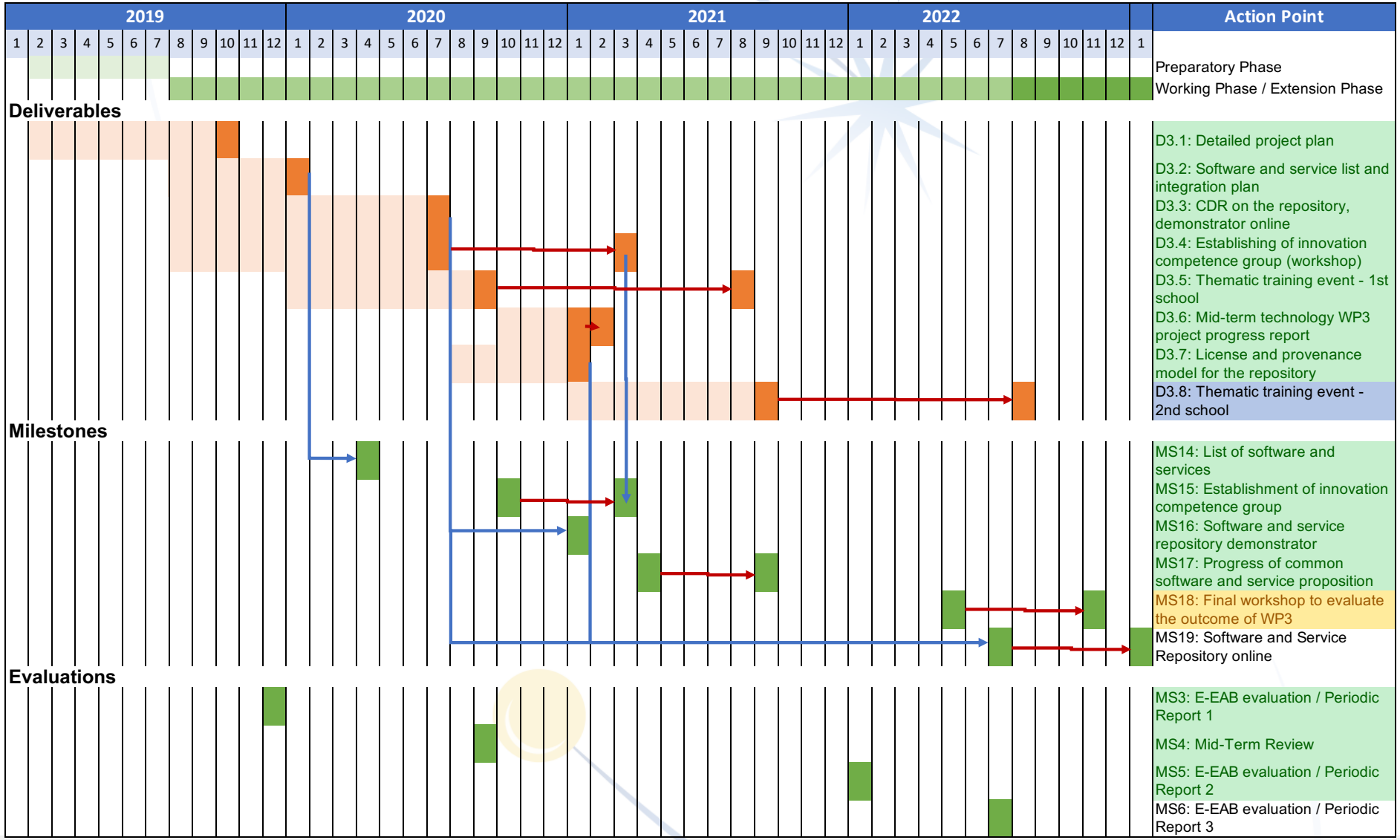
Partner Contribution

Institutes/SME	ESFRI/RI	PM	Task 3.1	Task 3.2	Task 3.3	Task 3.4	Task 3.5
CNRS-LAPP	CTA	39	6	6		6	21
CTAO	CTA	6		6			
IFAE	CTA	20			20		
MPG-MPIK	CTA	36			36		
UCM	CTA	18			12	6	
EGO	EGO-Virgo	30				30	
HITS	ELT	12				12	
AIP	EST	36				36	
NWO-I-CWI	EST	26				26	
UNITOV	EST	14				14	
GSI	FAIR	36		18	18		
CERN	HL-LHC, CERN	6		6			
JIVE	JIVE	36		36			
CNRS-CPPM	KM3NeT	24			24		
FAU	KM3NeT	54	30	9	6		9
INFN	KM3NeT	36			24	12	
NWO-I-Nikhef	KM3NeT	12		12			
SKAO	SKA	12					
OROBIX	SME	15				15	
TOTAL		**468**	**36**	**93**	**140**	**157**	**30**

OSSR: Deliverables & Milestones



accepted

submitted

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Working Phase – T3.1

- Task 3.1 - Management Activities, Policy and Support Action – K. Graf (FAU):
  - Implemented IT services and helpdesk for the WP;
  - Coordinating **links within ESCAPE (all WPs)** and towards **other EOSC projects** (e.g. EOSC-Enhance, SSHOC, FREYA, EOSC-hub, CS3MESH4EOSC)
  - Active participation in EOSC Architecture Working Group (and especially SIRS Task Force) → input to SRIA document, special focus on software environment and researcher involvement
  - Preparatory work for ESCAPE Test Science Projects
  - To further the repository implementations, **links** to OpenAIRE, Software Heritage and Zenodo have been established.
  - **Organisation** of first OSSR workshop, questionnaires, meetings, training events
- One lesson learned: hard to **explain incentive of EOSC to community**

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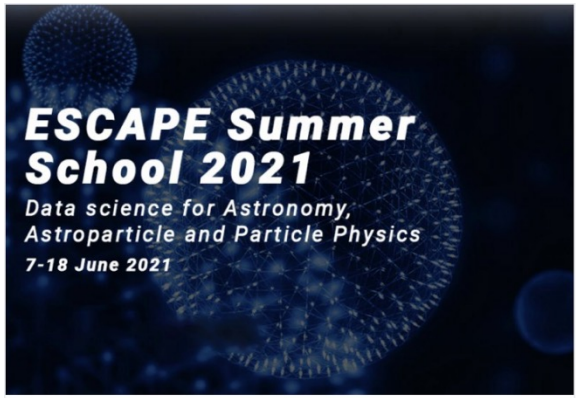
T3.1 - Outreach and Training – D3.5 and D3.8

- Software as first class EOSC citizen
- Enable software custodians
- All lectures/materials online:
  https://escape2020.github.io/school2021/
  https://escape2020.github.io/school2022/

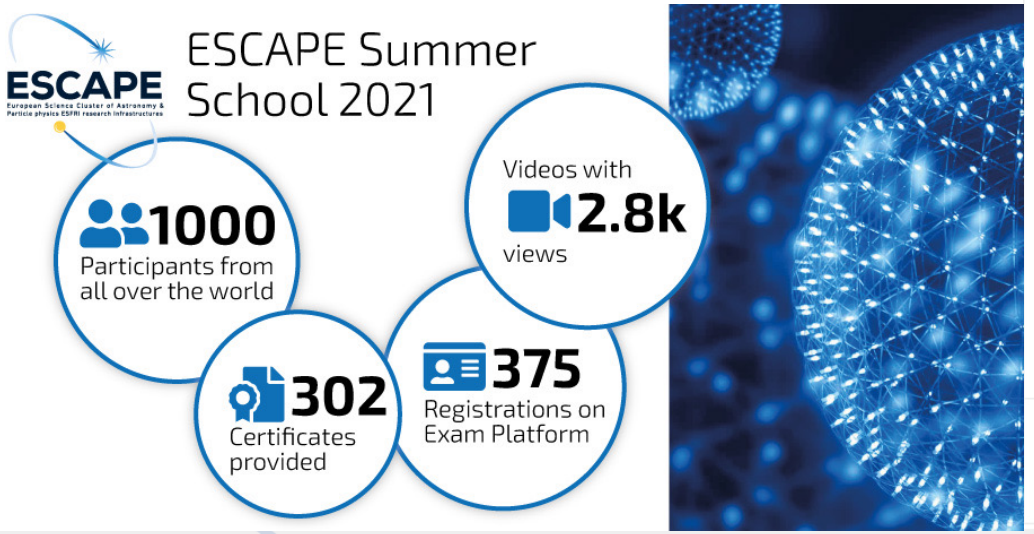


07 June 2021 to18 June 2021

ESCAPE Summer School 2021

Virtual
In the framework of ESCAPE, the ESCAPE Summer School 2021 edition is taking place from 7 til 18 June 2021, as a virtual event. due to the world's[...]

READ MORE



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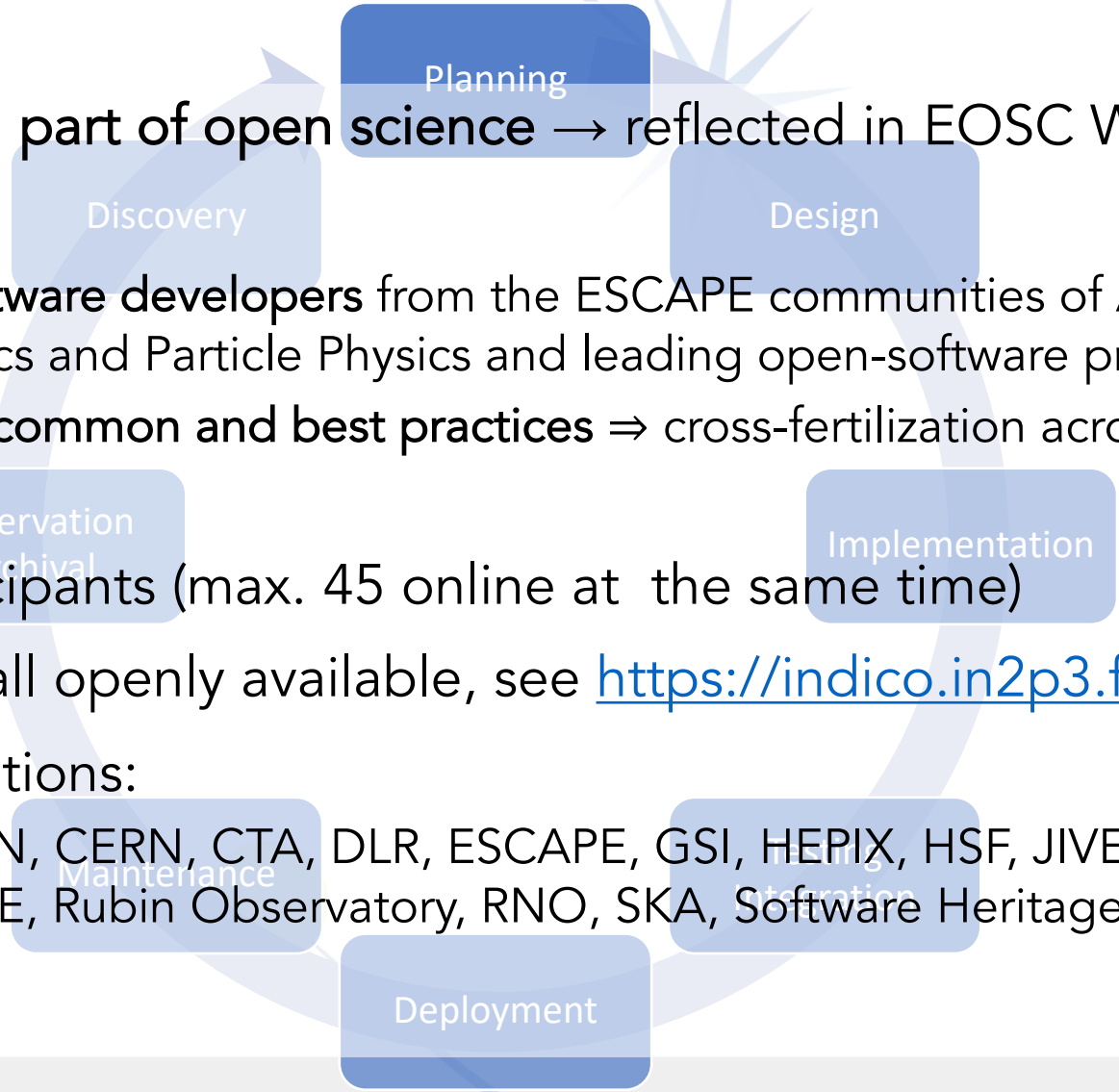
Highlight: WOSSL - Software Lifecycles



- **software as integral part of open science** → reflected in EOSC WGs
- aim of WOSSL:
  - **Bring together software developers** from the ESCAPE communities of Astrophysics, Astroparticle Physics and Particle Physics and leading open-software projects
  - Discuss and share **common and best practices** ⇒ cross-fertilization across the domains
- 73 registered participants (max. 45 online at the same time)
- 36 contributions – all openly available, see https://indico.in2p3.fr/event/21698/
- 18+ projects/institutions:
  - ANTARES, ASTRON, CERN, CTA, DLR, ESCAPE, GSI, HEPIX, HSF, JIVE, KM3NeT, Meerkat, OpenAIRE, Rubin Observatory, RNO, SKA, Software Heritage, Zenodo

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Cross-check with Deliverable D3.1 ✅

3.1 Task 3.1: Management Activities, Policy and Support Actions

The **transversal activities** on management, policy and support are handled centrally for the work package in this task.

…

It will be responsible for the following activities:

- Prepare and explore **co-operation with companies** on the innovative use of machine learning tools to cluster-relevant scientific data; ✅
- **Establish a helpdesk** (technical and administrative) with the main aim of supporting the partners … ✅
- **Organise training activities** to provide a consistent level of knowledge amongst the partners and foster the community foundation principle:
  - two five-day **open schools** for software development, programming and its deployment in the EOSC… ✅
  - two open science community events:
    - one **workshop on innovative methods** (together with Task 3.4); ✅
    - one **final workshop** presenting the successful implementation of the objectives; ✅ + starting workshop
  - webinars and online tutorials on the use of the software and services.✅

Together with WP1, **external co-operations** will be fostered, as well as networking, and the dissemination of the work packages' results. This task will also ensure the efficient coordination with the respective EOSC bodies, e.g. the *Architecture Working Group* (EAWG). ✅

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White Paper

- OSSR Vision, achievements and future goals presented in the [OSSR White Paper]

1. Introduction

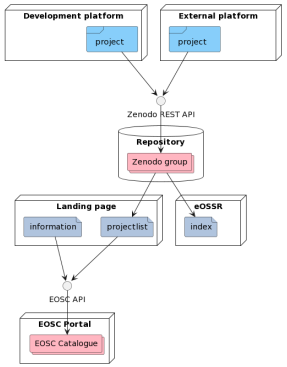
Activities in ESCAPE Work Package 3 - OSSR - are broadly divided into three major areas:

1. Support a community-based approach for continuous development, deployment, exposure and preservation of domain-specific open-source scientific software and services in the global context of the EOSC catalogue of services - the OSSR itself;
2. Enable open science interoperability and software re-use for the data analysis of the ESCAPE ESFRI projects based on *FAIR* principles;
3. Create an open innovation environment for establishing open standards, common regulations and shared software libraries for multi-messenger/multi-probe data;
4. Educating stewards for FAIR software by knowledge transfer, collection of best practices and software schools.

This document is structured as follows. Section 2 briefly summarizes the overall vision for the OSSR. The current status of, and major achievements in, the OSSR implementation is described in Sec. 3. Finally, Sec. 4 considers possible future directions, including both specific technical work and a consideration of follow-up activities with wider potential impacts.

2. The OSSR Vision

The OSSR vision is to establish a trustable, sustainable repository for software and services and to foster collaboration on the co-creation of high-quality, open-source software for open science. Contributing to the OSSR enhances software quality through guidelines and recommendations for software contributions, enables the development of interoperable use of the software through extended metadata and increases findability of software through OSSR integration in the EOSC and other research environments. It thus makes software a first class citizen of open science and the EOSC.



3. Achievements to Date

Architecture
The OSSR is based on collecting software in the form of a code repository or container image in a Zenodo community[1], which is connected to a specialized landing page and searchable via a python client library.

The landing page[2] is the entry point of users to the OSSR products, as well as to other services within the ESCAPE EOSC cell. It also contains links to documentation and training materials.
The development platform[3] provides a common place to gather the common developments, ideas,

[1] https://zenodo.org/communities/escape2020/
[2] http://purl.org/escape/ossr
[3] https://gitlab.in2p3.fr/escape2020/wp3

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