eosc | FAIRCORE4EOSC
Core Components Supporting a FAIR EOSC

FAIRCORE4EOSC

Developing EOSC-Core components to enable a FAIR EOSC ecosystem

07 | 11 | 2022 by Tommi Suominen, CSC – IT Center for Science

Funded by
the European Union

Context

Enhancing FAIRness in the EOSC ecosystem

The European Open Science Cloud (EOSC) is an ecosystem of research data and related services that will enable and enhance seamless access to and reliable re-use of FAIR research objects (including data, publications, software, etc.).

The Strategic Research and Innovation Agenda (SRIA) for EOSC was created in 2021, as a roadmap for future development. Priorities highlighted in the SRIA are the establishment of the Web of FAIR data and a Minimum Viable EOSC (MVE) by 2027, that is the core components and functions to enable EOSC to operate (the EOSC-Core).

2021

Minimum Viable eosc

Web of FAIR Data

Findable **A**ccessible **I**nteroperable **R**eusable

2027

Challenges addressed

Developing the EOSC-Core

The EOSC-Core development has been initiated in the Horizon 2020 calls, but some of the challenges that require to be addressed are:

- ***Identifiers:*** Introducing new resource types; machine-actionable persistent identifiers (PIDs); establishing a PID meta-resolver; standardising PID graphs; PID compliance framework to ensure compliance to the EOSC PID policy and to ensure quality of service for PIDs;
- ***Metadata and Ontologies:*** Provide or embrace/stimulate existing registries of metadata schemas, ontologies and crosswalks, develop services that build on metadata registries and can facilitate the creation and sharing of crosswalks;
- ***Interoperability:*** Enable discovery of data sources available in different formats, making search tools available; Provide tools for quality validation of metadata records and of digital objects; Implement EOSC PID Policy;
- ***Research Software*****:** metadata description standards for research software, automated deposit of new releases into a scholarly repository and Software Heritage.

FAIRCORE4EOSC in a nutshell

Call title: Deploying EOSC-Core components for FAIR Research and Innovation Action

Budget: 10 million EUR

Duration: June 2022 – May 2025

Consortium: 22 partners, coordinated by CSC – IT Center for Science

Website: faircore4eosc.eu

Key results: In response to the gaps identified in the SRIA, the project will develop nine new EOSC-Core components aimed to improve the discoverability and interoperability of an increased amount of research outputs.

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Amsterdam, Netherlands – Kick-off meeting, June 2022

The 9 FAIRCORE4EOSC components

EOSC Research Discovery Graph (RDGraph) to deliver advanced discovery tools across EOSC resources and communities.

EOSC PID Graph (PIDGraph) to improve the way of interlinking research entities across domains and data sources on the basis of PIDs.

EOSC Metadata Schema and Crosswalk Registry (MSCR) to support publishing, discovery and access of metadata schemas and provide functions to operationalise metadata conversions by combining crosswalks.

EOSC Data Type Registry (DTR) to provide user friendly APIs for metadata imports and access to different data types and metadata mappings.

EOSC PID Meta Resolver (PIDMR) to offer users a single PID resolving API in which any kind of PID can be resolved through a single, scalable PID resolving infrastructure.

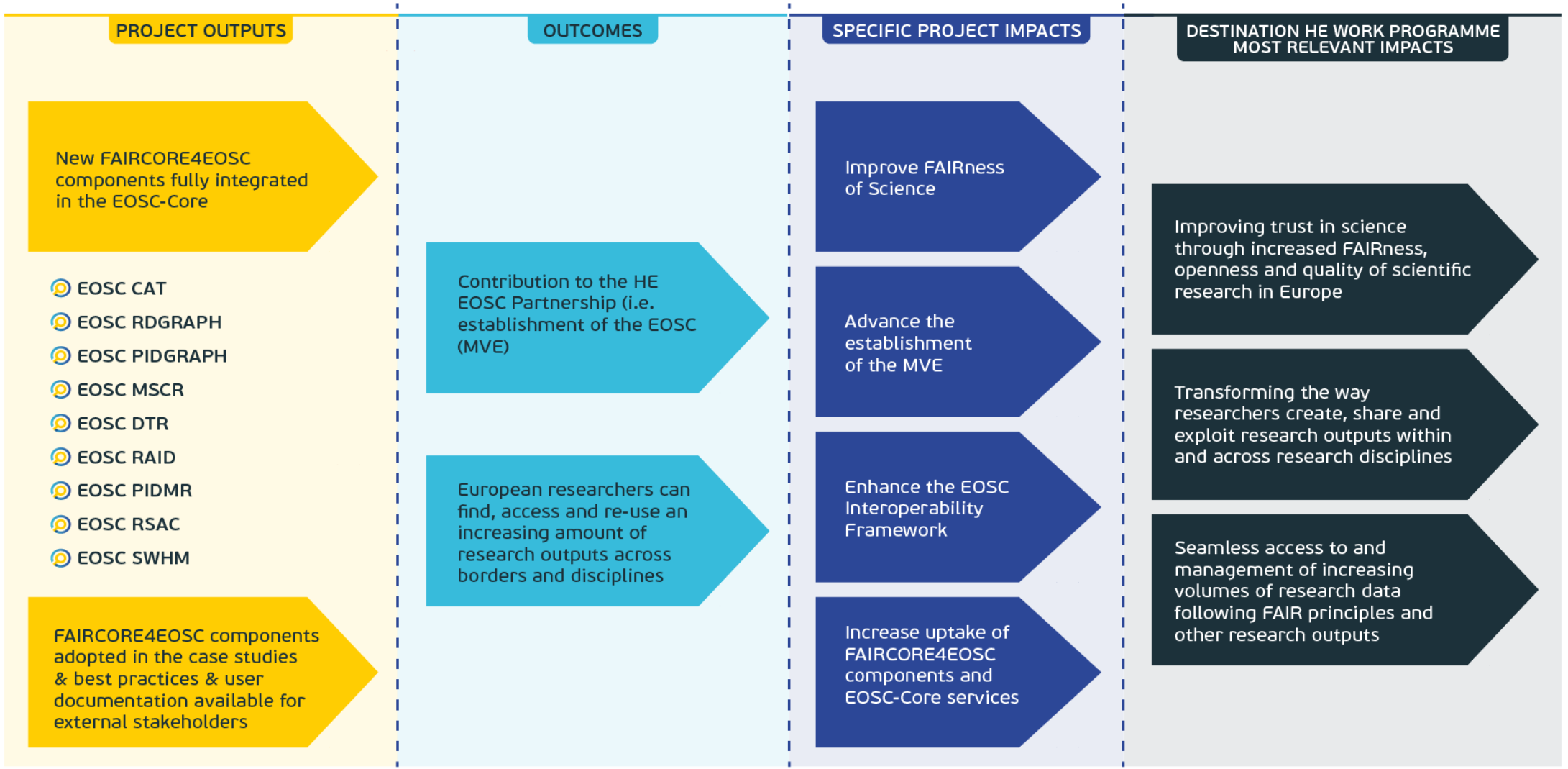
EOSC Compliance Assessment Toolkit (CAT) to support the EOSC PID policy compliance and implementation.

EOSC Research Activity Identifier Service (RAiD) to mint PIDs for research projects, allowing to manage and track project related activities.

EOSC Research Software APIs and Connectors (RSAC) to ensure the long-term preservation of research software in different disciplines.

EOSC Software Heritage Mirror (SWHM) to equip EOSC with a mirror of the Software Heritage universal source code archive.

Impact


PROJECT OUTPUTS
OUTCOMES
SPECIFIC PROJECT IMPACTS
DESTINATION HE WORK PROGRAMME MOST RELEVANT IMPACTS
New FAIRCORE4EOSC components fully integrated in the EOSC-Core
EOSC CAT
EOSC RDGRAPH
EOSC PIDGRAPH
EOSC MSCR
EOSC DTR
EOSC RAID
EOSC PIDMR
EOSC RSAC
EOSC SWHM
FAIRCORE4EOSC components adopted in the case studies & best practices & user documentation available for external stakeholders
Contribution to the HE EOSC Partnership (i.e. establishment of the EOSC (MVE)
European researchers can find, access and re-use an increasing amount of research outputs across borders and disciplines
Improve FAIRness of Science
Advance the establishment of the MVE
Enhance the EOSC Interoperability Framework
Increase uptake of FAIRCORE4EOSC components and EOSC-Core services
Improving trust in science through increased FAIRness, openness and quality of scientific research in Europe
Transforming the way researchers create, share and exploit research outputs within and across research disciplines
Seamless access to and management of increasing volumes of research data following FAIR principles and other research outputs

The 9 FAIRCORE4EOSC components

RDGraph

EOSC Research Discovery Graph

EOSC Research Discovery Graph (RDGraph) is a flexible and federated EOSC search service across EOSC repositories that extends EOSC Research Catalogue.

PIDGraph

EOSC PID Graph

Services for providing access to the PID Graph, which is made up of links and records gathered from persistent identifier (PID) authority data sources.

MSCR

EOSC Metadata Schema and Crosswalk Registry

Support publishing, discovery and access of metadata schemas and provide functions to operationalise metadata conversions by combining crosswalks.

The 9 FAIRCORE4EOSC components

DTR

EOSC Data Type Registry

Provide user friendly and machine actionable Interfaces for the registration and usage of Data Types and Kernel Information Profiles.

PIDMR

EOSC PID Meta Resolver

Provides users with a common interface to resolve different types of PIDs regardless of their originating system. The PIDMR either resolves to a given URI or provides Kernel Information Profiles if available.

CAT

EOSC Compliance Assessment Toolkit

The Compliance Assessment Toolkit will support the EOSC PID policy with services to encode, record, and query compliance with the policy.

The 9 FAIRCORE4EOSC components

RAiD

EOSC Research Activity Identifier Service

The EOSC RAiD will mint PIDs for research projects, which will allow authorised EOSC users and services to manage information about project-related participants, services, and outcomes.

RSAC

EOSC Research Software APIs and Connectors

Ensure the long-term preservation of research software in different disciplines. APIs and connectors will be developed to interconnect research outputs infrastructures with the Software Heritage universal source code archive, using the CodeMeta standard, and the Software Heritage intrinsic identifiers (SWHID).

SWHM

EOSC Software Heritage Mirror

Equip EOSC with a mirror of the Software Heritage universal source code archive. In order to prevent information loss, a mirror of Software Heritage will be established by GRNET to serve the EOSC community and will be updated regularly to follow the growth of the universal source code archive.

Case studies

How do the components benefit communities?

Components are co-developed and tested within domain-specific communities:

- Climate Change (DKRZ)
- European Integration of National-level Services (CSC)
- Mathematics (FIZ)
- Service Providers and Research Data Management Communities (EUDAT)
- Social Sciences and Humanities (CLARIN)

Case Studies

CLARIN

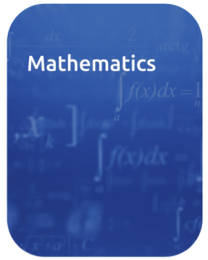
This case-study will focus on improving the discoverability of CLARIN data through the integration of the Digital Object Gateway (DOG), a crucial component for the interoperability of the CLARIN infrastructure, Language Resource Switchboard and Virtual Collection Registry tools.

Adopted components DTR, MSCR, PIDGraph, PIDMR, RDGraph

DKRZ
DEUTSCHES KLIMARECHENZENTRUM

ENES supports climate modellers in their work, in particular in the area of data management. In this case study we demonstrate how the developed EOSC-Core components can improve the discoverability and re-use of research results from the ENES community.

Adopted components DTR, MSCR, PIDGraph, RAiD, RDGraph



FIZ Karlsruhe
Leibniz Institute for Information Infrastructure

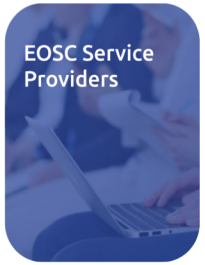
zbMATH Open & swMATH projects aggregate significant scientific advances in mathematics and related disciplines supporting researchers in finding relevant publications and data. The case study will increase the discoverability of the zbMATH Open and swMATH data and services in the mathematical and EOSC community.

Adopted components MSCR, PIDGraph, PIDMR, RDGraph, RSAC

CSC

The case study will showcase how the developed components can enrich the content of the national research information systems displaying international connections to research objects and improve their interoperability.

Adopted components DTR, MSCR, PIDGraph, RAiD, RDGraph, RSAC, SWHM

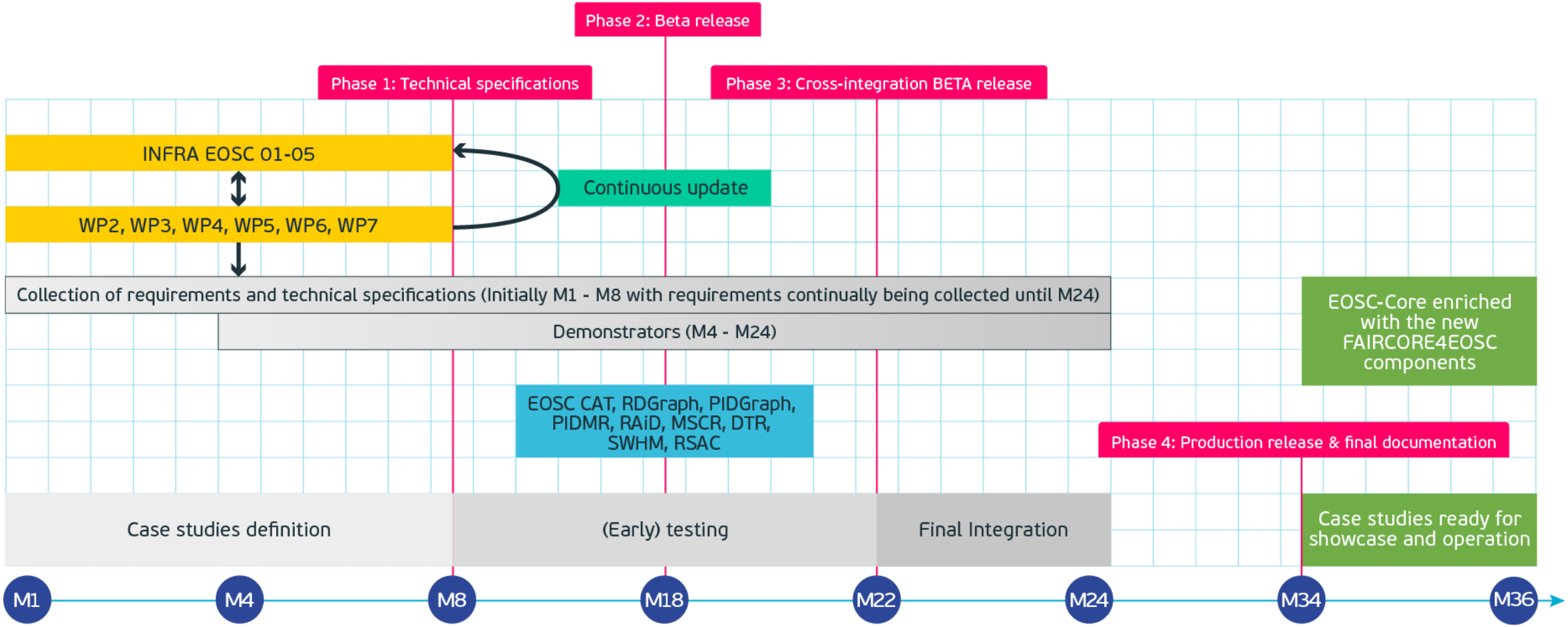


Collaborative EUDAT Data Infrastructure
Data shared and preserved across borders and disciplines

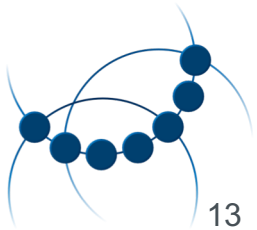
The case study aims to meet domain-specific requirements of research communities for common data services that improve discovery, access and reusability of research data. Leveraging the EUDAT services, the case study will act as a rule model for other service providers to increase the adoption of the developed components.

Adopted components CAT, DTR, MSCR, PIDGraph, RAiD, RDGraph

Technical implementation



We are FAIRCORE4EOSC !



The HE INFRAEOSC Projects

AI4 | EOSC

EOSC | FAIR-EASE

EOSC | Focus

EOSC | cancer

EOSC | RAISE

EOSC | FAIR-IMPACT

EOSC | FAIRCORE4EOSC

EOSC | EuroScienceGateway

FAIRCORE4EOSC

Core Components Supporting a FAIR EOSC

faircore4eosc.eu
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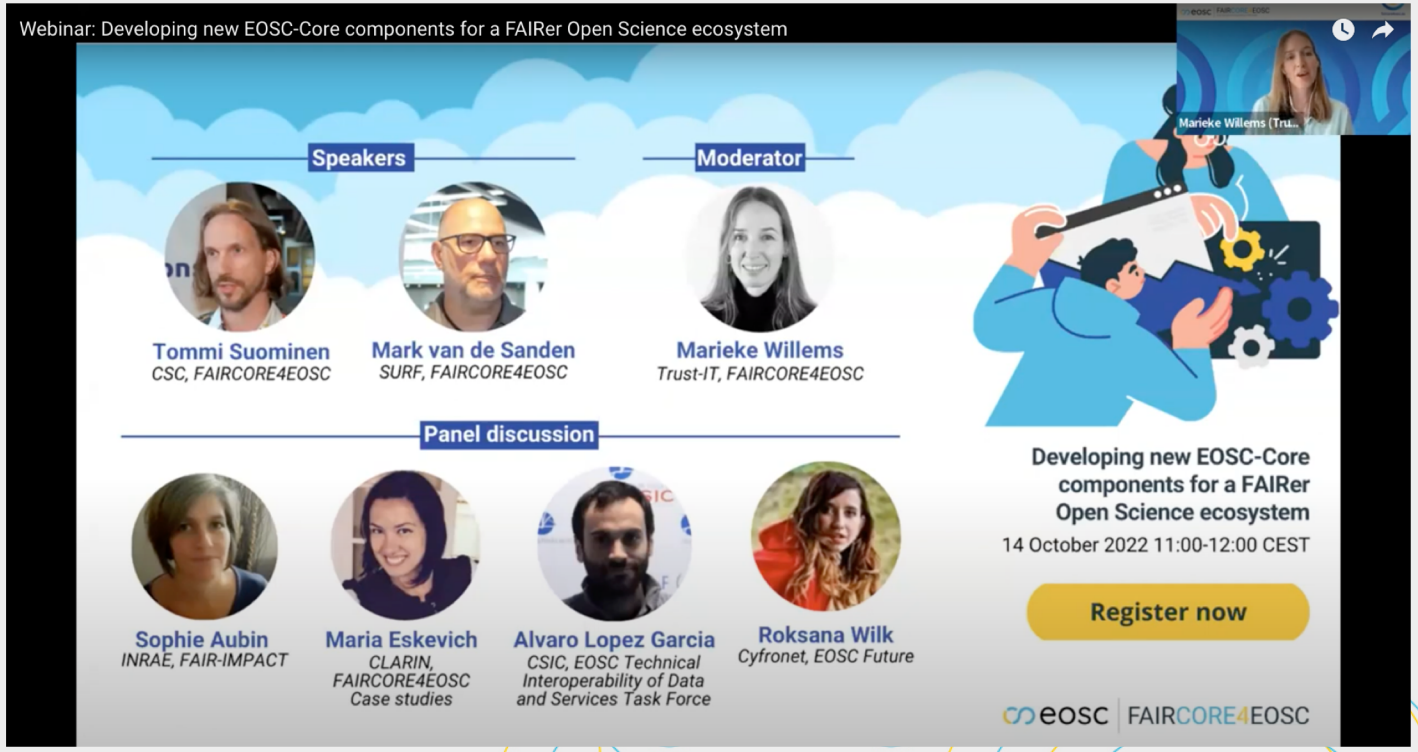
Youtube: FAIRCORE4EOSC

Watch the webinar here
or scan the QR code below



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