FAIRCORE4EOSC

Developing EOSC-Core components to enable a FAIR EOSC ecosystem

Presentation title: FAIRCORE4EOSC - Extending the EOSC Platform to support FAIR

20 | 09 | 2023 Tommi Suominen, FAIRCORE4EOSC Coordinator at CSC – IT Center for Science

Funded by the European Union

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FAIRCORE4EOSC in a nutshell

- today at month 16/36

Full name: Developing EOSC-Core components to enable a FAIR EOSC ecosystem

Research and Innovation Action

Budget: 10 million EUR

Duration: June 2022 – May 2025

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

Coordinator Tommi Suominen (CSC**), Project Manager** Anu Märkälä (CSC) and **Technical Coordinator** Mark van de Sanden (SURF)

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.

Amsterdam, Netherlands – Kick-off meeting, June 2022

Implementation Challenges (SRIA) addressed

FAIRCORE4EOSC develops 9 new EOSC CORE components to address gaps identified in the SRIA. Our concrete service development work furthers the realisation of the priorities highlighted in the SRIA, that are the Minimum Viable EOSC (MVE) and web of FAIR data.

- *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.

Kajaani, Finland– Technical project meeting, April 2023

The 9 FAIRCORE4EOSC components supporting FAIR

RDGraph (F, A)

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 (F, A)

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 (I, R)

EOSC Metadata
Schema and
Crosswalk Registry

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

The 9 FAIRCORE4EOSC components supporting FAIR

DTR (I, R)
EOSC Data Type Registry

Provide user friendly and machine actionable Interfaces for the registration and usage of Data Types and Kernel Information Profiles.
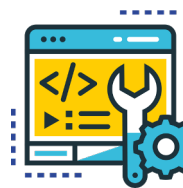
OO5 Provide the technical components of a FAIR Ecosystem.

PIDMR (F, A)
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 (F, I)
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.

0011 Implement the EOSC persistent identifier (PID) policy and architecture by 2025.

The 9 FAIRCORE4EOSC components supporting FAIR

RAiD (F, A)
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.

OO5 Provide the technical components of a FAIR Ecosystem.

RSAC (F)
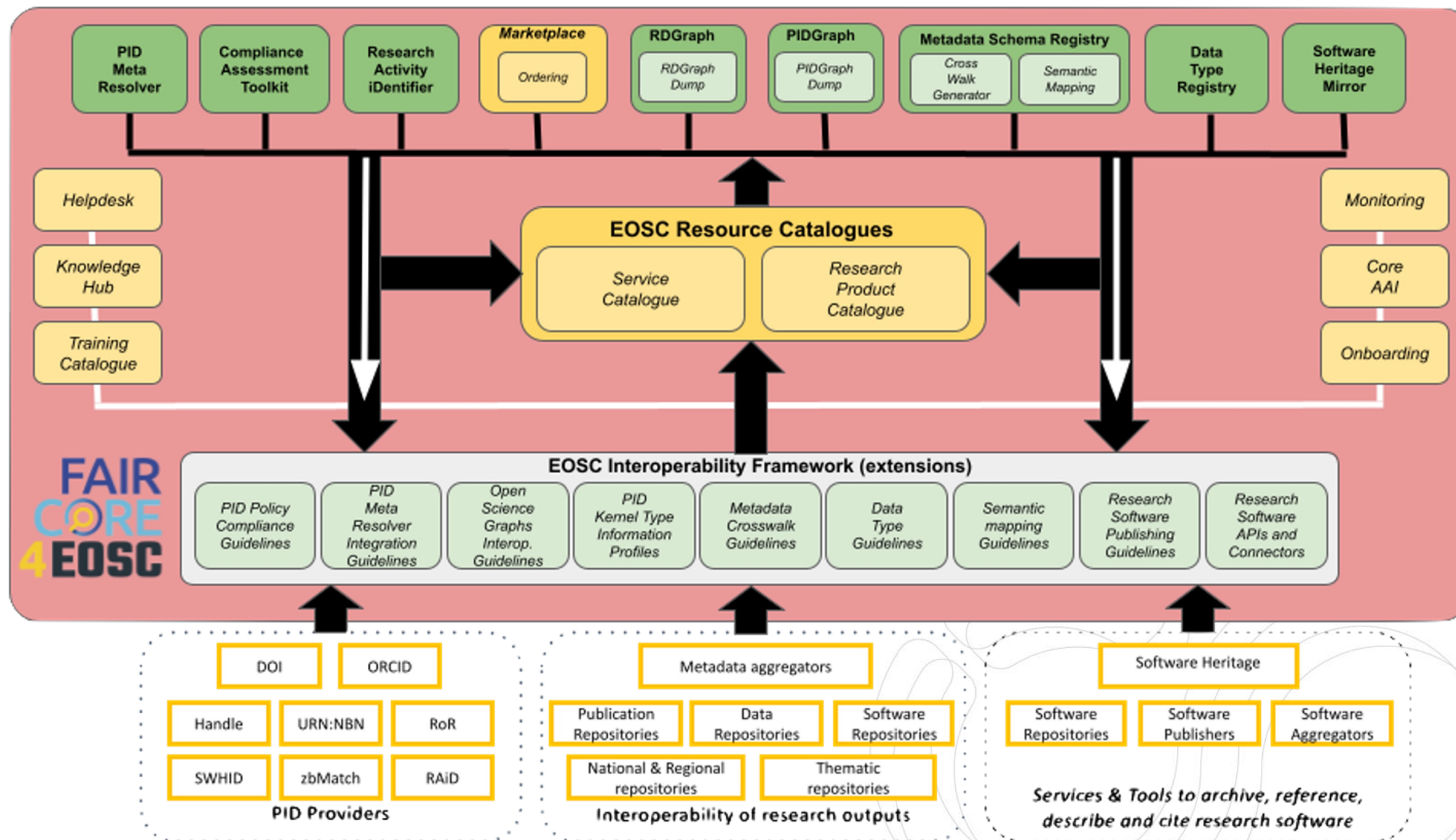**EOSC Research Software APIs and Connectors**

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 (F, A)
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.

OO7 Co-develop a first generation of a robust pan-European network of infrastructures for software source code

Case Studies

Social Sciences and Humanities

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

Climate Change

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

Mathematics

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

European Integration of National-level Services

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

EOSC Service Providers

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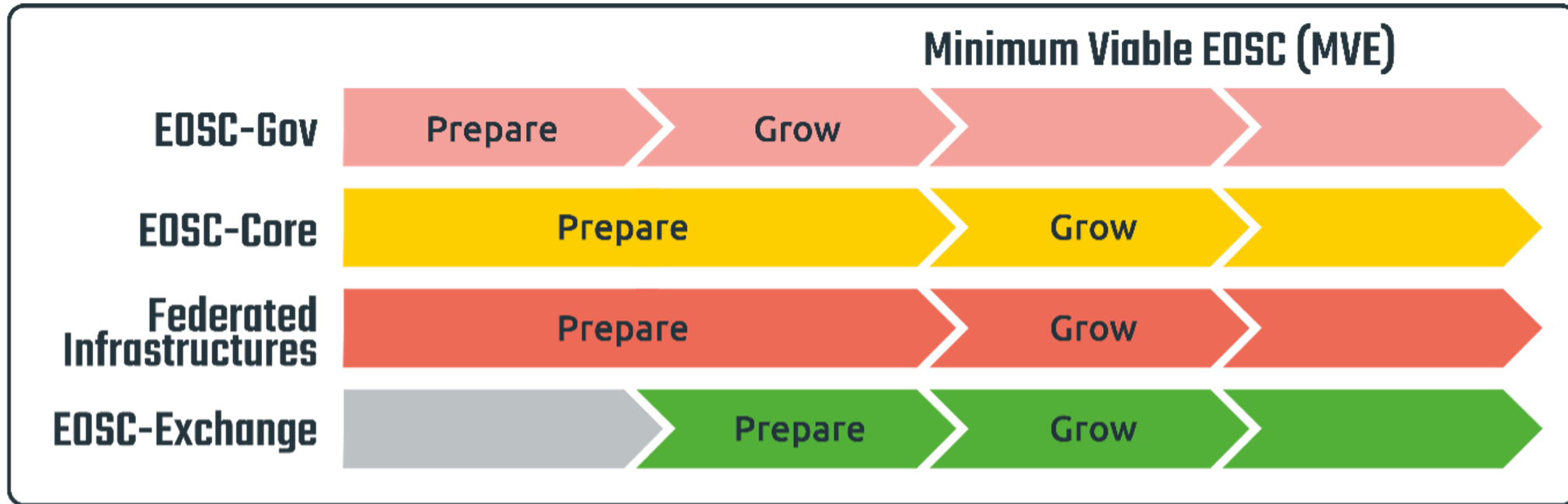
Adopted components: CAT, DTR, MSCR, PIDGraph, RAiD, RDGraph

FC4E Implementation timeline
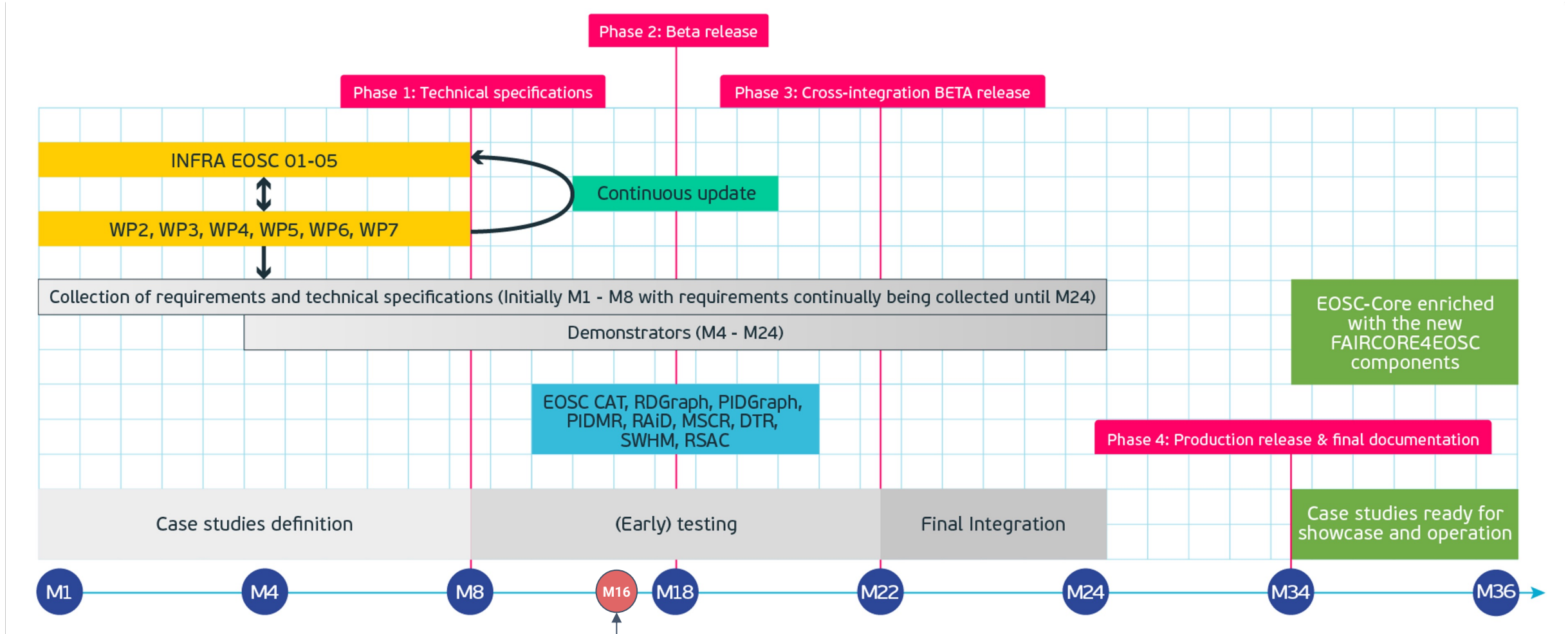
FC4E and EOSC timeline

Source: SRIA v.1.1 p 83

Challenges deploying new EOSC Core services

- FAIRCORE4EOSC Is addressing topics from call [HORIZON-INFRA-2021-EOSC-01-03 - Deploying EOSC-Core components for FAIR](#)
  - Project is planned to develop new EOSC Core components by design
- EOSC Platform is currently developed and operated by EOSC Future, EOSC Future is planned to finish in March 2024
- The EC is procuring the EOSC Platform as managed services (i.e. EOSC Procurement - Lot1). Ownership of the EOSC Platform is planned to change in Q1 2024.
- Challenges
  - No clear governance on the EOSC Core portfolio,
    - currently operated by EOSC Future, will transition to EC
  - No clear definition on what defines and/or justifies a service as a EOSC Core component
  - No inclusion criteria and/or requirements for EOSC Core components
  - With the handover of the EOSC Platform from EOSC Future to the winners of EOSC Procurement - Lot1, technical changes can be introduced.

Sustainability and interoperability are key

A key concern for FAIRCORE4EOSC is the sustainability of some of the outputs of the project, especially services that will require a constant input of resources to be kept running. We are developing components for the EOSC core. What is the partnership / EC plan for maintaining this new iteration of core components that it called for?

The more successful we are in our KPIs related to adoption of the developed new components, the more critical we make these services to their users. We have already now adopters who weigh starting to invest in using our solutions, against the risk of discontinuity. **We need clear and communicable service sustainability pathways.**

In some cases, when EOSC level services have strategic national relevance, for example as a key interoperability enabler, willingness from national funders may be found. But its not a commonplace narrative. National priorities may also differ between countries and will unlikely result in sustainable Open European services.

SRIA v1.1 p.73:" Sustainable funding for core infrastructure is required to support the principles of FAIR and openness."

We are FAIRCORE4EOSC
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