Next generation services for operational and sustainable EOSC Core Infrastructure

The EOSC-Core and EOSC-Exchange provide the technological backbone of the federated EOSC ecosystem, supported by the EOSC Interoperability Framework and guidelines, allowing users to discover, share, and exploit resources on the EOSC platform. Data-driven user experience is a fundamental aspect for further development of the EOSC Core, allowing user feedback for the continuous improvement of the EOSC platform’s functionality in an open manner.

Proposals are expected to cover one or several of the following activities:

- Improve the EOSC Core execution framework by enhanced composability and interoperability of cross-domain data, services, tools and other research objects and resources: by using ontologies (or a collection of controlled vocabularies), EOSC Core should make it easier for various scientific users communities to understand and exchange data and services across disciplines by facilitating better data interoperability. EOSC Core should develop towards applying Digital Rights Vocabulary to clearly express IPR inflation over digital objects.

- Design and develop components of a comprehensive EOSC Integration Service suite as part of the next-generation EOSC Core that supports seamless integration and composability of applications, tools and services. The EOSC Integration Service should, at the minimum, include a library of predefined adapters, connectors and APIs according to the types of scientific and research data, applications, tools and services on which integrations can be performed. An event/messaging hub, based on the publish-subscribe principle, can be provided at the core of the Integration Service suite for asynchronous data/metadata exchange. A user-friendly visual mapper interface can enable the mapping of connections between applications by dragging source connectors onto target adapters.
• Provide open Application Programming Interface (API) registry, management, development and testing workflow, platform and tools for EOSC Core service users. A data-driven API monitoring tool should oversee security, compliance, and performance. It should send alerts towards the EOSC Core monitoring function as well as support built-in integrations with messaging services. An end-to-end API testing solution for testers and developers should facilitate an approach where test cases are in natural languages that helps the conveyance between scientific users and research tool/service providers.

• Support custom-made front-end portal development environment for various scientific communities, utilizing the EOSC Core portal back-end functions via integration services. A potentially low-code development environment for community portal services should offer seamless integration with the EOSC Core functions and other service integration functionalities with the EOSC Exchange applications and services out-of-the-box. Personalization and AI-driven recommendation software should support the ultimate user experience.

• Facilitate an independent EOSC service incubator and technology development environment that can serve as an open experimentation “testbed” for the EOSC stakeholders proposing the next-generation of tools and services for EOSC Core and Exchange in production.

• Ensure financial sustainability assurance and readiness assessment processes, tools, workflows and services applied for the next-generation of EOSC Core and horizontal services to ensure seamless end-user experience and frictionless DevOps cycles.

The activities need to demonstrate alignment with those of the EOSC Partnership and the EOSC MVE platform[[Managed Services for the European Open Science Cloud platform - CNECT/LUX/2022/CD/0023]] operators. Proposals should involve and be driven by one or more representatives of the relevant actors of the field, in particular those directly involved in the EOSC Partnership.

The proposals for the next generation of EOSC Core infrastructure services are expected to leverage the functionalities of the Smart Middleware Platform (SMP) developed through the Digital Europe Programme (DEP) for common data spaces.

In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.

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