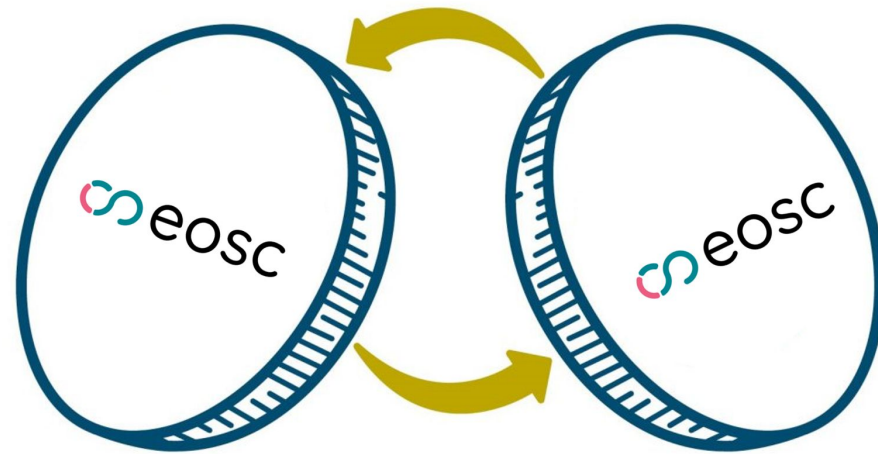


IS-ENES collaboration with some EOSC projects and EUDAT partners

Hannes Thiemann & Stephan Kindermann (DKRZ)

In a nutshell

- What is EOSC
- Two sides of a coin
- Way forward



What is the EOSC:

A pan-european marketplace where

- scientists access
- science service providers offer and access services.



EOSC

What the European Open Science Cloud is

The ambition of the European Open Science Cloud (EOSC) is to develop “Web of FAIR Data and services’ for science in Europe. EOSC will be a multi-disciplinary environment where researchers can publish, find and re-use data, tools and services, enabling them to better conduct their work.

EOSC builds on existing infrastructure and services supported by the EC, Member States and research communities. It brings these together in a federated ‘system of systems’ approach, adding value by aggregating content and enabling services to be used together.

This environment will operate under well-defined conditions to ensure trust and safeguard the public interest. Expectations of service providers and users will be made explicit to ensure appropriate behaviour.

EOSC will improve the situation for researchers in many ways, namely:

- Seamless access to content and services via common AAI,
- Access to data from various sources which is FAIR and ideally open,
- Access to services for storage, computation, analysis, preservation and more,
- Adoption of standards so data and services can be combined,
- Helpdesk, training and support to improve use of EOSC.

EOSC is recognised by the Council of the European Union as [the pilot action to deepen the new European Research Area](#) (ERA). It is also recognised as the science, research and innovation data space which will be fully articulated with the other sectoral data spaces defined in the [European strategy for data](#).

EOSC

What

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EOSC will
them to b

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EOSC builds on existing infrastructure and services supported by the EC, Member States and research communities. It brings these services to be used

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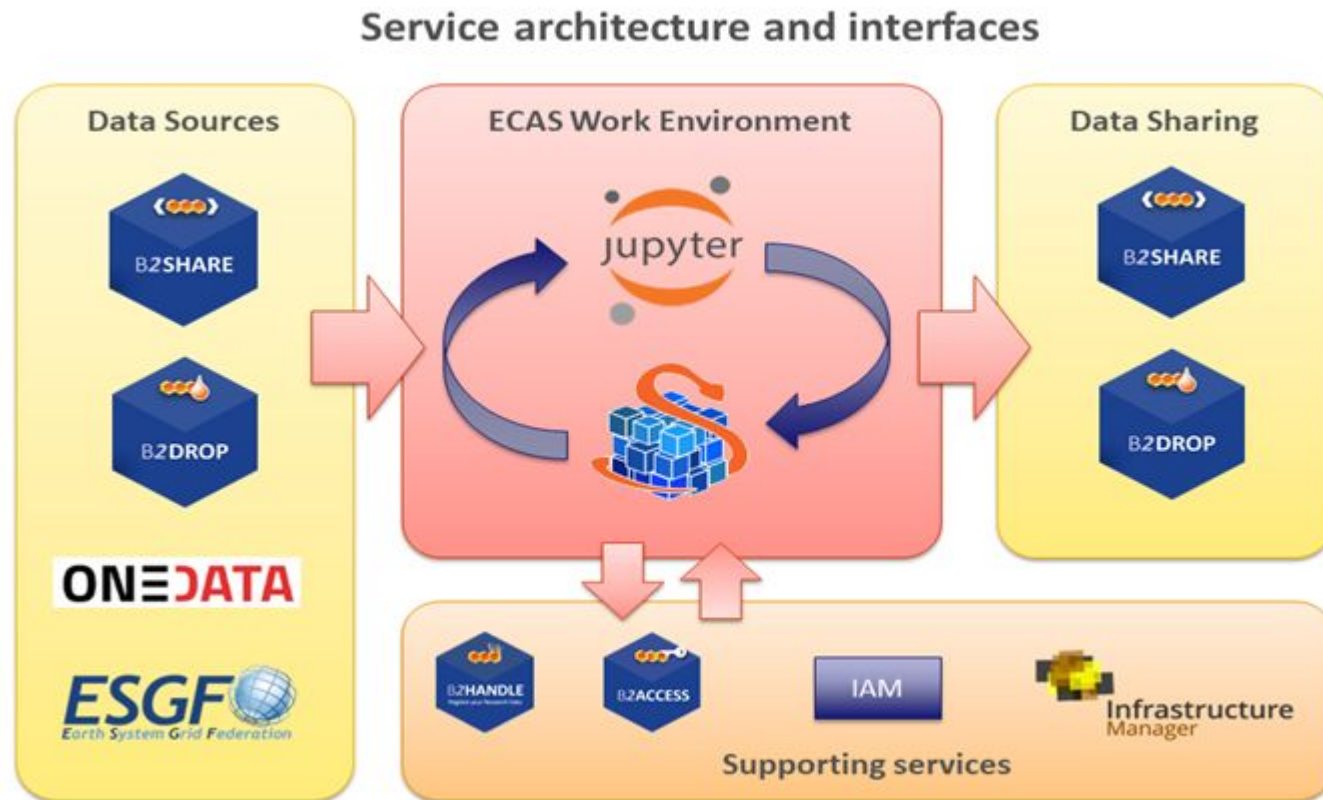
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First - a bit of history

ECAS (CMCC & DKRZ) - as part of EOSC-hub



CANCEL AND QUIT [Next](#)

EOSC Marketplace has been integrated with a new joint catalogue exposing both services and research products. Please note that the search capabilities of the Marketplace, including those available from the services' entry pages, are focusing on the services only, while all EOSC Resources are findable via the new search interface.

ENES Climate Analytics Service

[Access instructions](#)

[Configuration](#)

[Pin to a project](#)

To use this resource you need to request access at the provider's website. Press [Go to the order website](#) button to visit it. You may also add the resource to a **Project** in order to:

- Gain EOSC experts support
- Easily access the selected resource
- Organise your resources and orders into logical blocks

To find out more about Projects in EOSC Marketplace, please refer to our [FAQ](#)

[Go to the order website](#)



[Next](#)

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

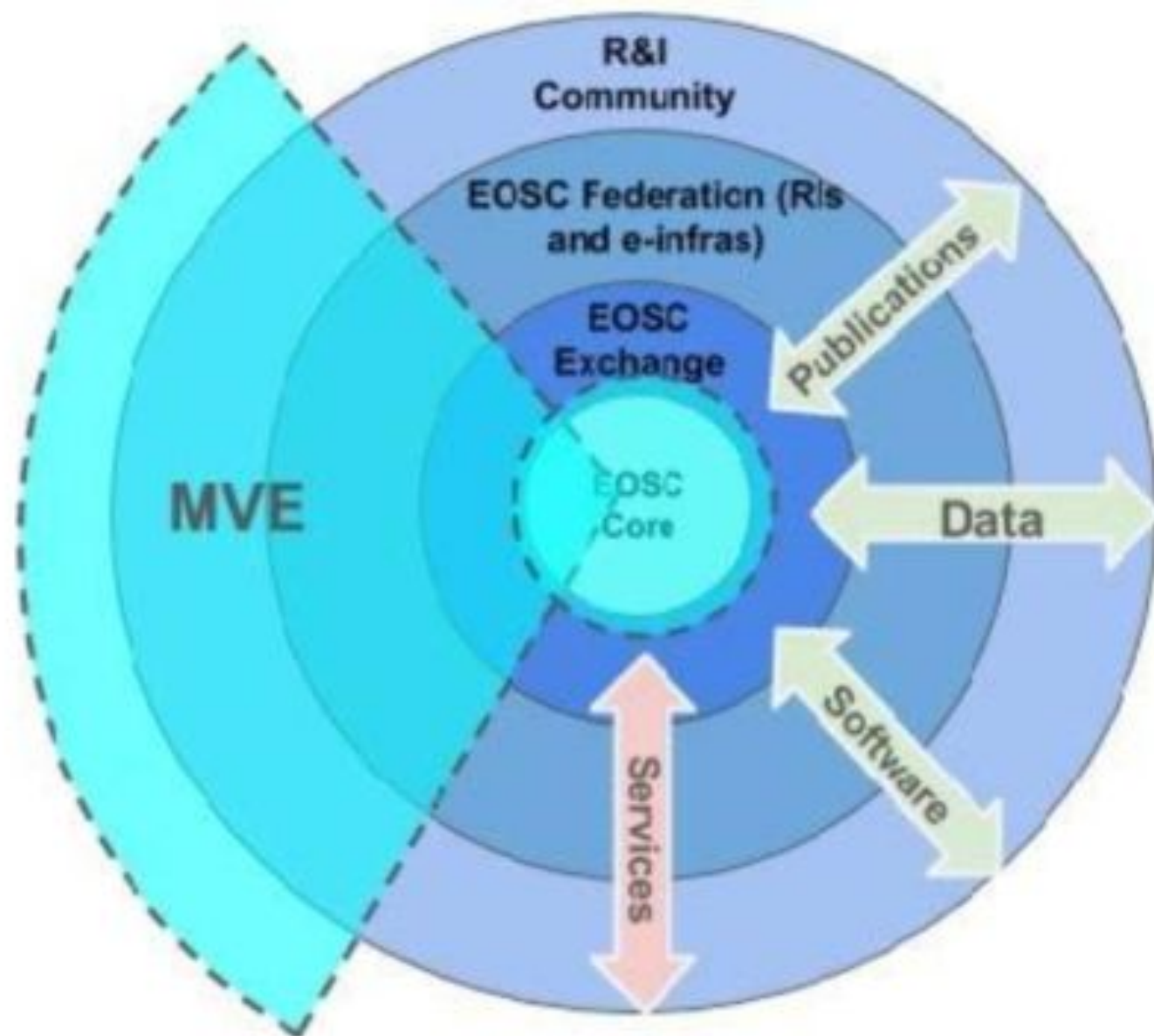
Findable Accessible Interoperable Reusable



2027

Components of the Minimal Viable EOSC (MVE)

- An Open Science Policy Framework (Open & FAIR)
- An EOSC Interoperability Framework
 - An Authentication and Authorization Interoperability Framework (AAI)
 - a Persistent Identifiers framework (PID)
 - A Metadata framework (within & between discipline interoperability)
 - A Data Access framework (“data as a service”)
 - A Service Management and Access Framework (“what, how, who”)
 - An Open Metrics framework (incl. “rewards & recognition”)
 - A Support framework (Helpdesc, Web site)



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.



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.

FairCore4EOSC Project

Components to be integrated



Research Activity Identifier Service



Projects and Initiatives (hierarchical structure) □ □
CMIP / CMIP experiments



Metadata Schema and Crosswalk Registry



Downstream data usage, cross disciplinary use cases □ mapping facets to data collections



Data Type Registry



Actionable PID collections □ automatic data conversion, data pre-processing



PIDGraph
EOSC PID Graph



Overall PID interlinking: PID, DOI, RAID, ..

13

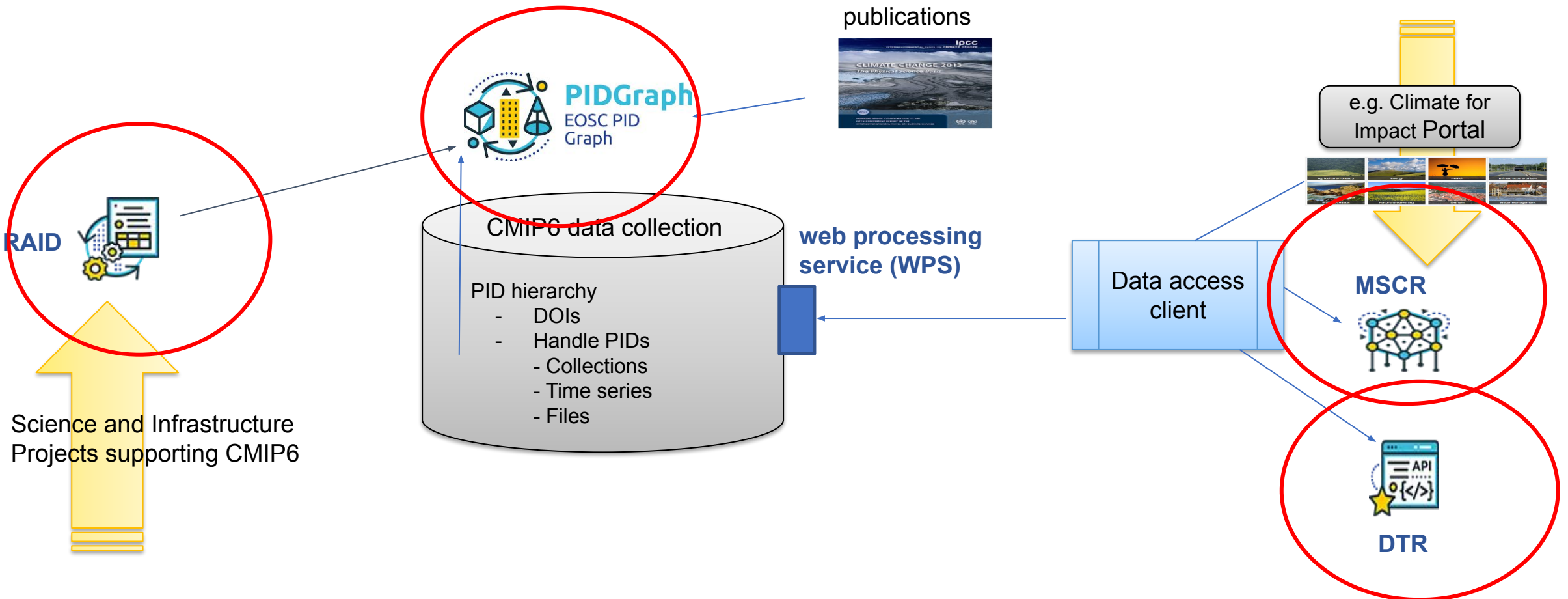


Funded by
the European Union

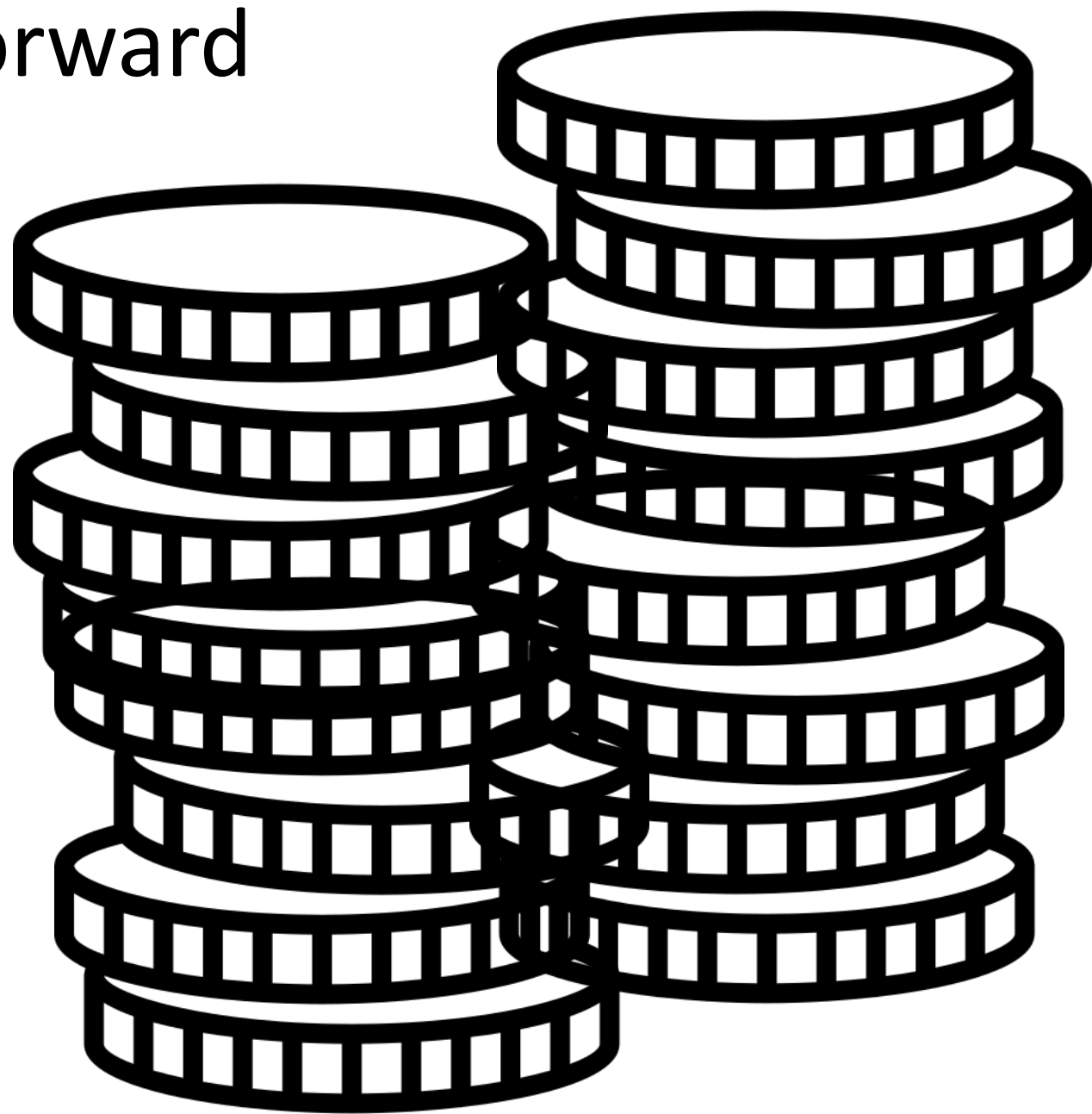
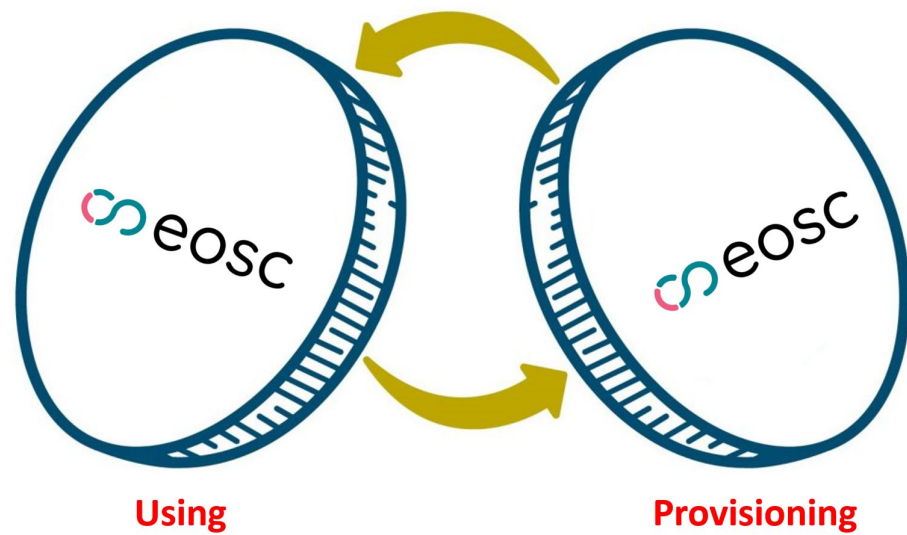
High level use cases overview:

End User: publication refers to PID which is interlinked in PIDGraph. Services e.g. in ENES portals can query the PIDGraph to provide context information to users (e.g. projects associated to data collections etc.)

Future ENES CDI services: Data access (WPS) clients to the ENES CDI can exploit data type information and terminology mapping information to trigger processing functionalities (e.g. data type conversions etc.)



Way forward



THE CONSORTIUM

Coordinated by CNRS-IPSL, the IS-ENES3 project
gathers 22 partners in 11 countries



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°824084



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