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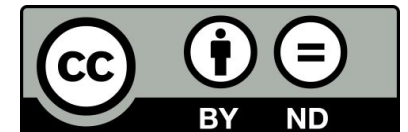


EOSC-Future WP3 Webinar: The EOSC Interoperability Framework

EOSC Future, Work Package 3 participants

EOSC Interoperability Framework Consultation Webinar, 25 March 2022

The EOSC Future project is co-funded by the
European Union Horizon Programme call
INFRAEOSC-03-2020, Grant Agreement 101017536





Agenda

14:00-14:05 **Intro & welcome**

Licia Florio (GEANT and EOSC Future WP3 Architecture and Interoperability Lead)

14:05-14:20 **EOSC IF and EOSC Architecture**

Mark van de Sanden (SURF)

14:20-14:50 **Illustrative use cases: examples of enabling interoperability**

Diego Scardaci (EGI) and Paolo Manghi (OpenAIRE)

14:50-15:00 **Governing the EIF**

Michelle Williams (GEANT)

15:00-15:05 **How to provide feedback**

Sarah Jones (GEANT and EOSC Future WP10)

15:05-15:30 **Q&A**



Join us on Slido

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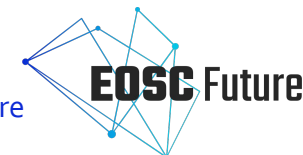
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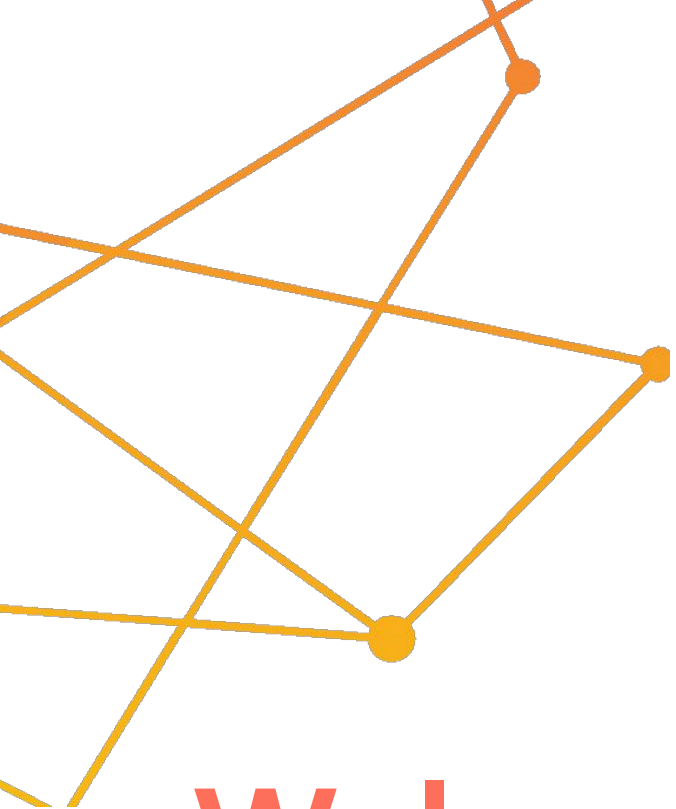


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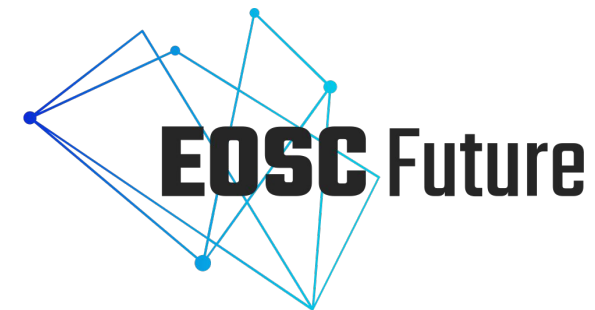




Welcome

Licia Florio

GEANT Association



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Aim of this webinar

Go to **slido.com**

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- Why do we need an EOSC Interoperability Framework ?
- What is the EOSC Interoperability Framework?
- What is this consultation about?
- What type of feedback is expected for the consultation?



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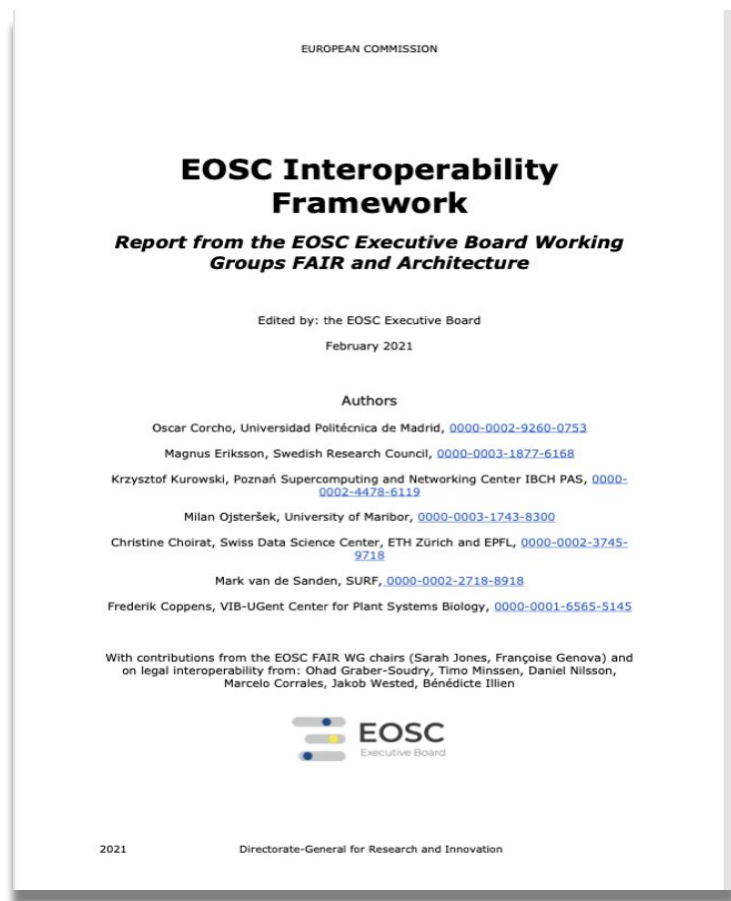


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A bit of history

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Feb 2021 the EOSC Executive Board Working Groups FAIR and Architecture publishes the [EOSC Interoperability Framework Report](#)

The SRIA also has sections on interoperability.

"The EOSC IF is meant to be a generic framework that can be used by all the entities participating in the development and deployment of EOSC, providing a common understanding of the requirements, challenges and recommendations that they should take into account, as well as a general set of principles on how these recommendations may be addressed".



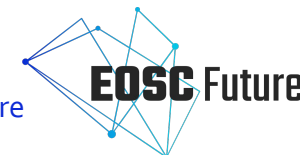
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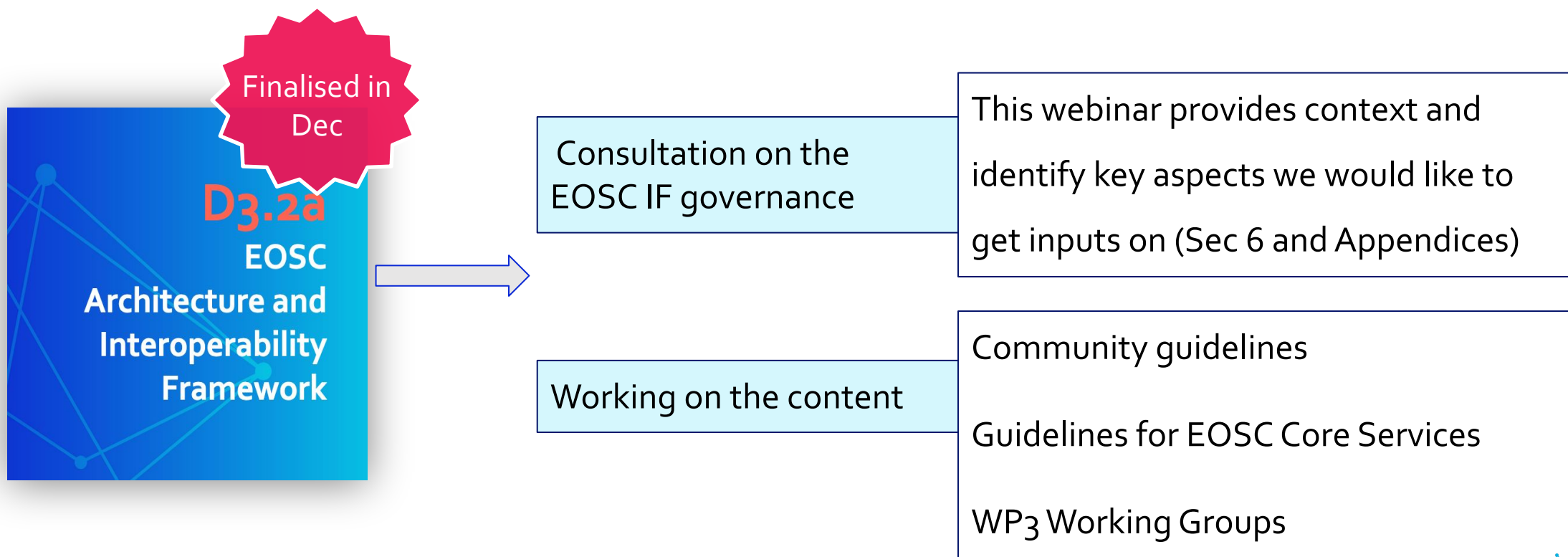


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EOSC Future work on the EOSC IF

The Architecture and Interoperability WP (WP3) works to define a governance model to manage and populate the EOSC Interoperability Framework.



[PDF Version](#)



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EOSC Interoperability Framework

Why

- EOSC is a federated infrastructure of data and services.
- Interoperability is essential to deliver services to users.
- Adoption of standards is not sufficient...we need to define additional aspects to enable sharing of resources

What

- Set of **guidelines*** that promote standard and community best practices within the EOSC
- And a governance to manage EOSC promoted guidelines
- A registry to list the guidelines and who supports them



Fostering Interoperability with the EOSC IF

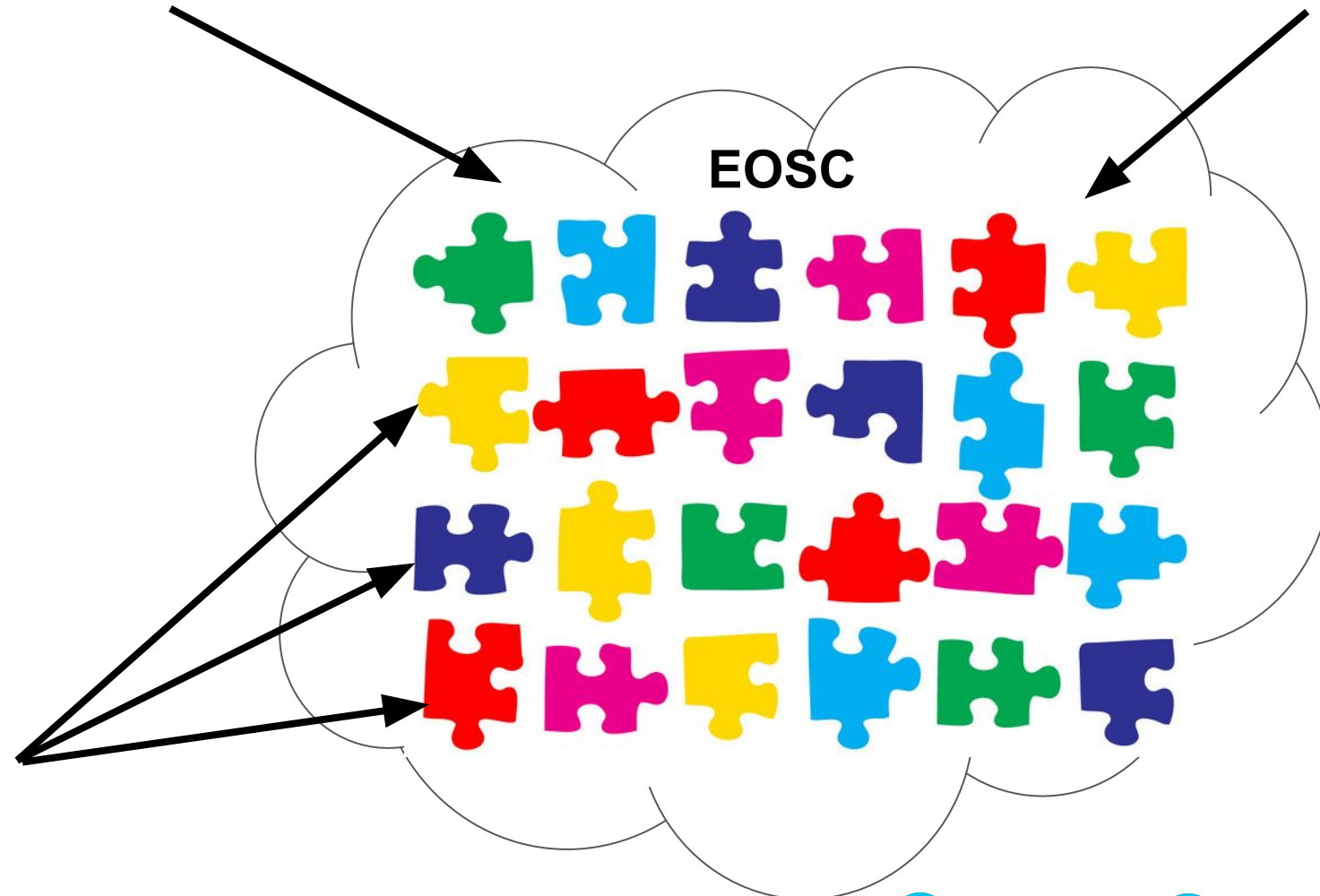
EOSC Resources
(services, datasets, sw, etc.)

EOSC Stakeholders
(providers, communities, researchers, etc.)

A multitude of
different interfaces

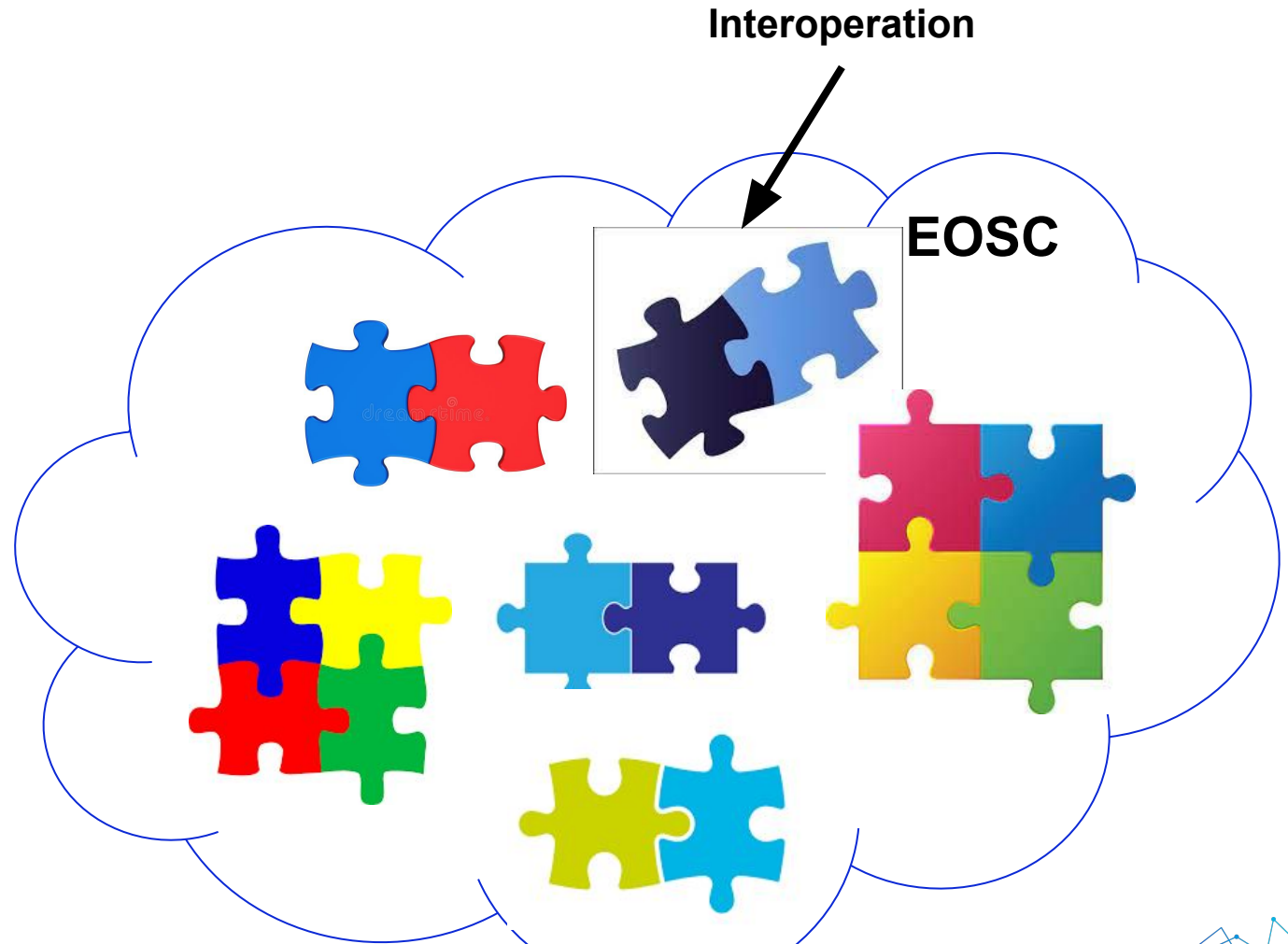
No description of
supported
interfaces for
EOSC Resource

**Interfaces of the
EOSC Resources**



Fostering Interoperability with the EOSC IF

- Promote the adoption of **common standards and interfaces in EOSC**
 - Limited number of selected standards/interfaces
 - Facilitate the interoperation
 - Not reinventing the wheel → adopting already existing standards and community best practices
- Information about **supported interfaces** available in the **EOSC Resource Catalogue**

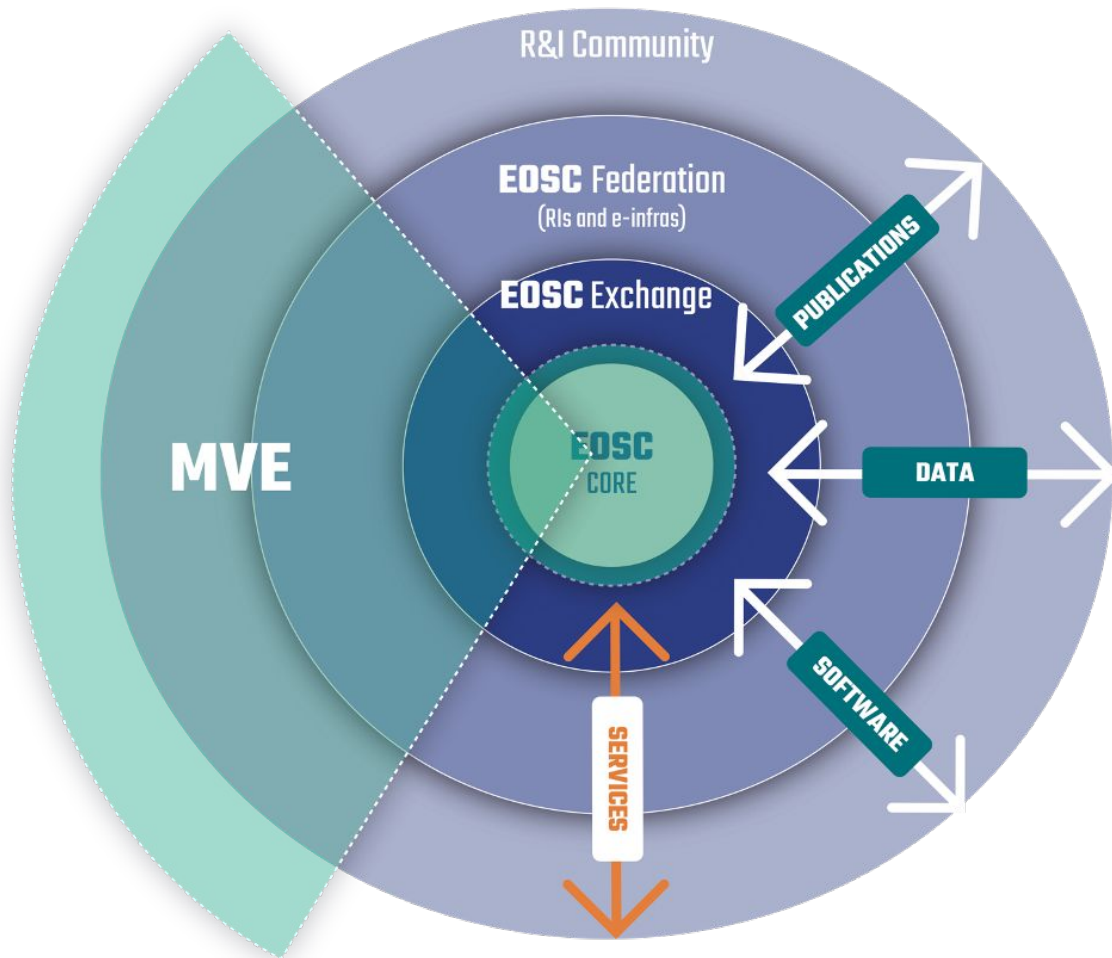




Architecture Overview

Mark van de Sanden
SURF

Minimal Viable EOSC



MVE includes:

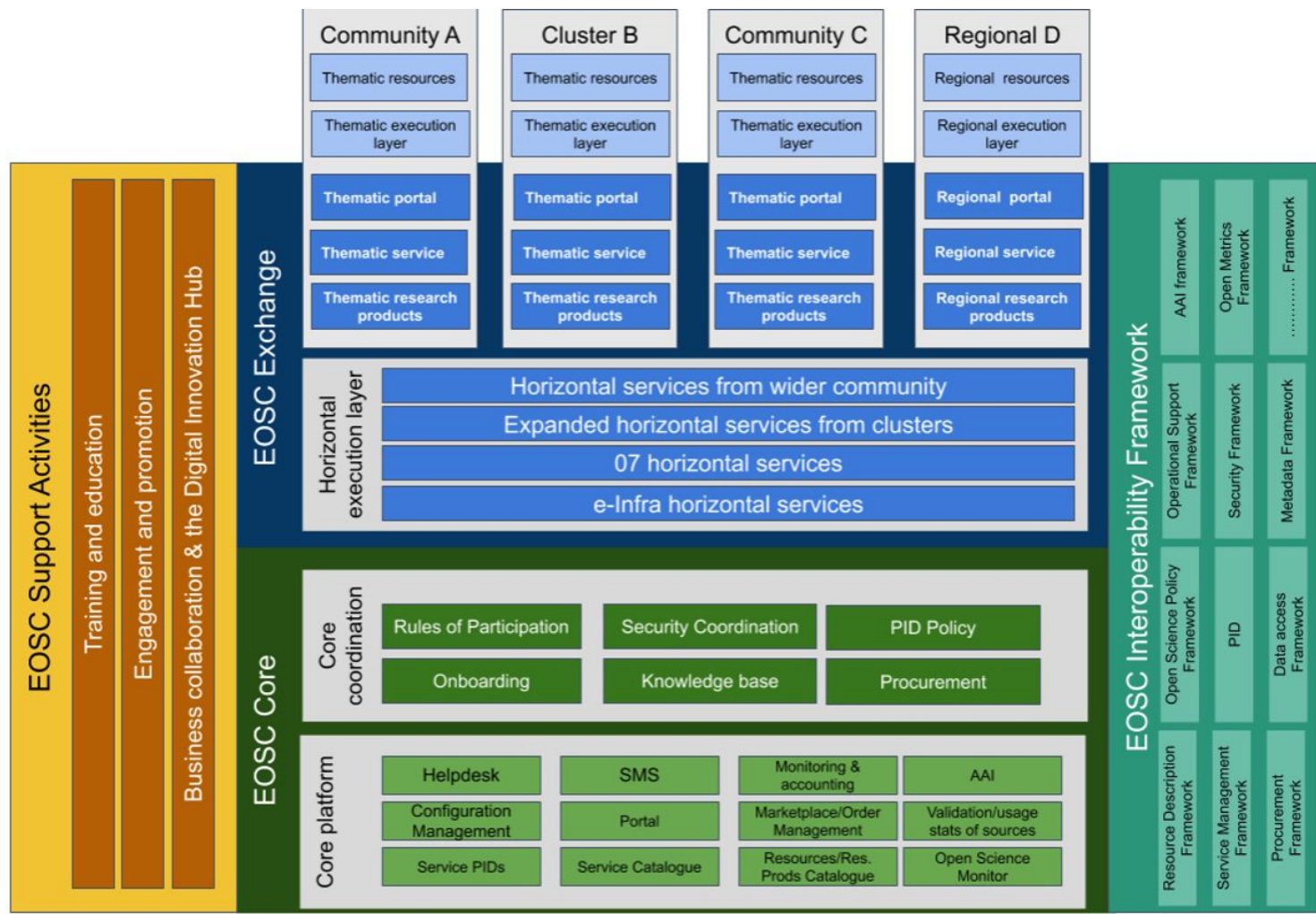
- EOSC Core and subsets of EOSC Exchange, Federation
- EOSC resources (services, research products) required to “market” the EOSC
- Subset of the R&I community (showcases, e.g., COVID-19)



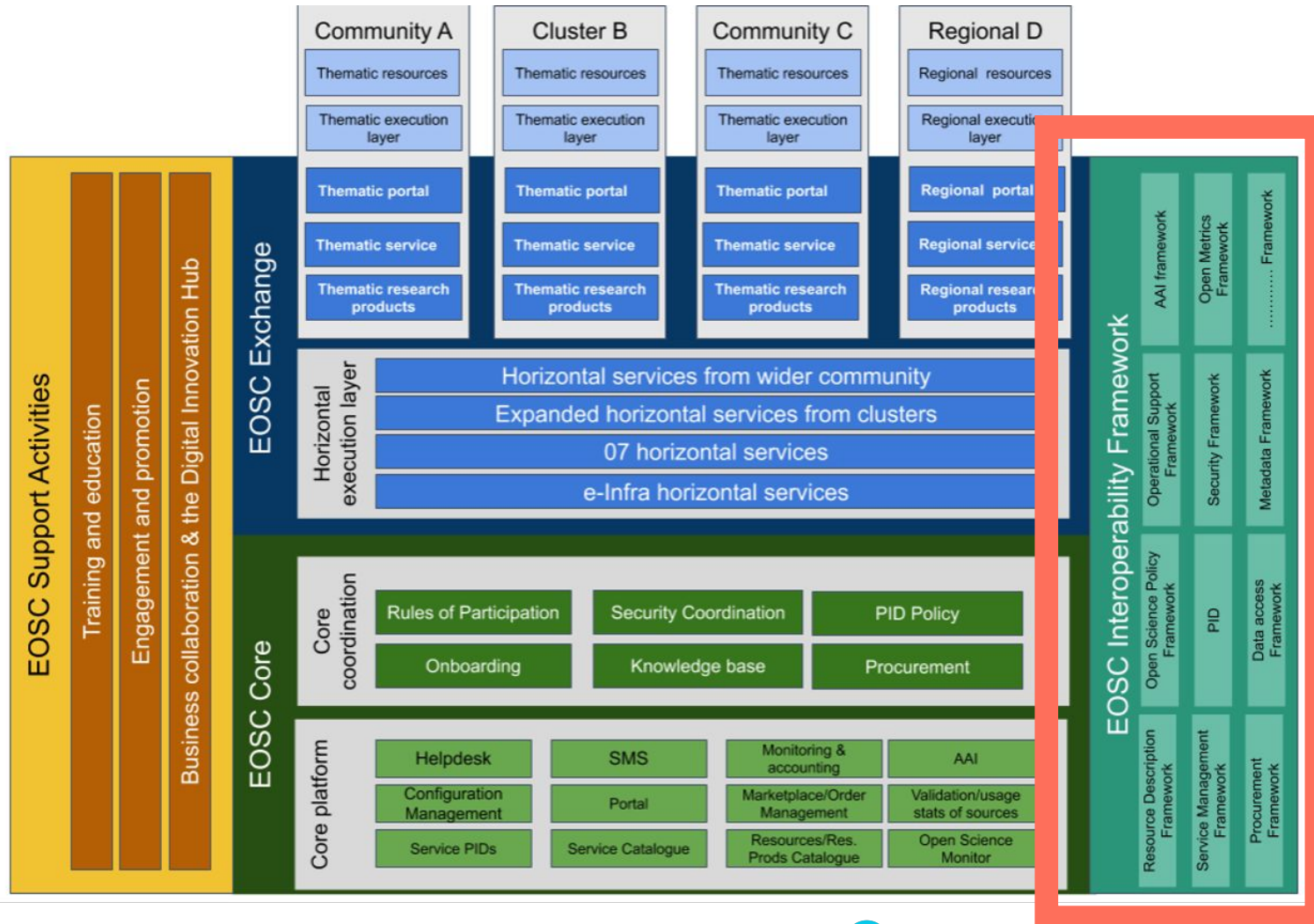
Guiding principles

- The EOSC Future core platform **federates** existing and new infrastructures into a **system of systems**
- EOSC Future delivers the '**glue-layer**' that allows for the composition of resources across infrastructures by:
 - Providing **APIs** and metadata
 - Providing **Interoperability Frameworks**
 - Providing **portal capabilities**
- Setup the **EOSC-Core**
- Populating the **EOSC-Exchange** with **Services** and **Research Products**
- Technical roadmap is driven by **user requirements** and implemented as an, over time increasing in complexity, set of user capabilities

EOSC Architecture



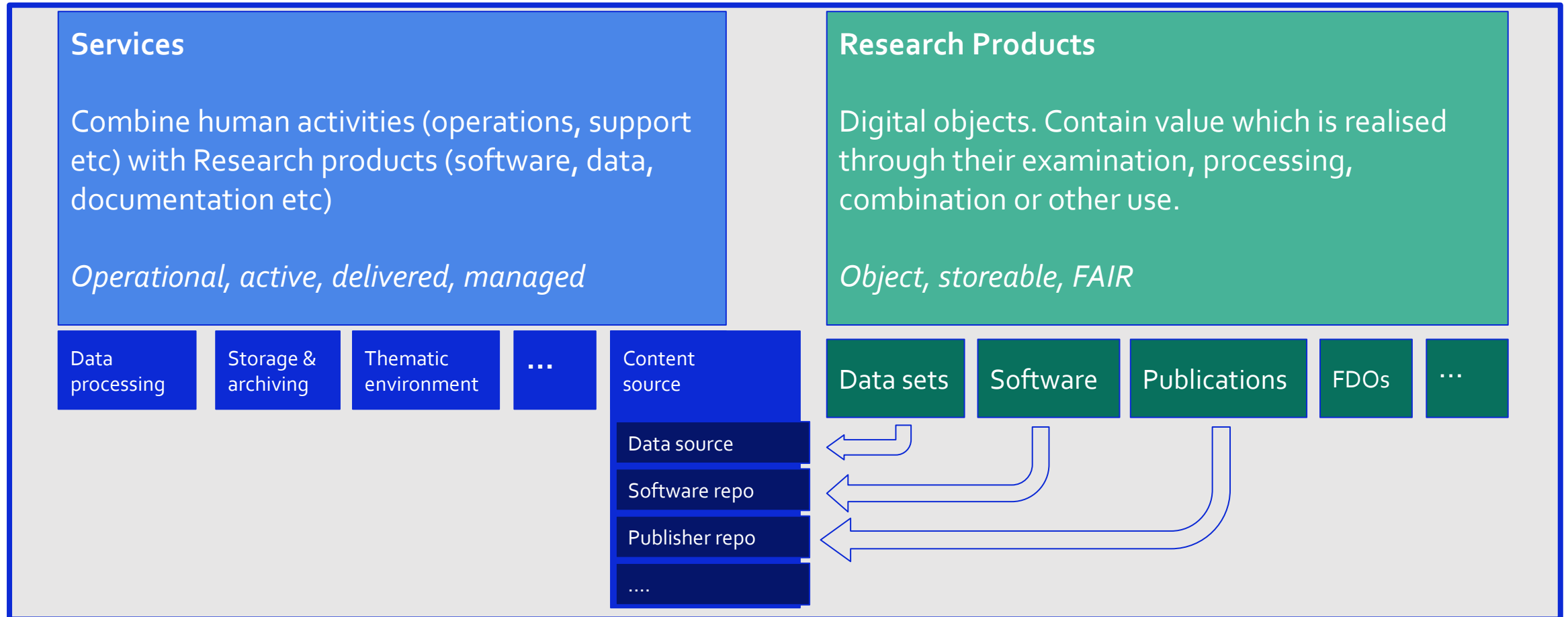
EOSC Architecture - EIF



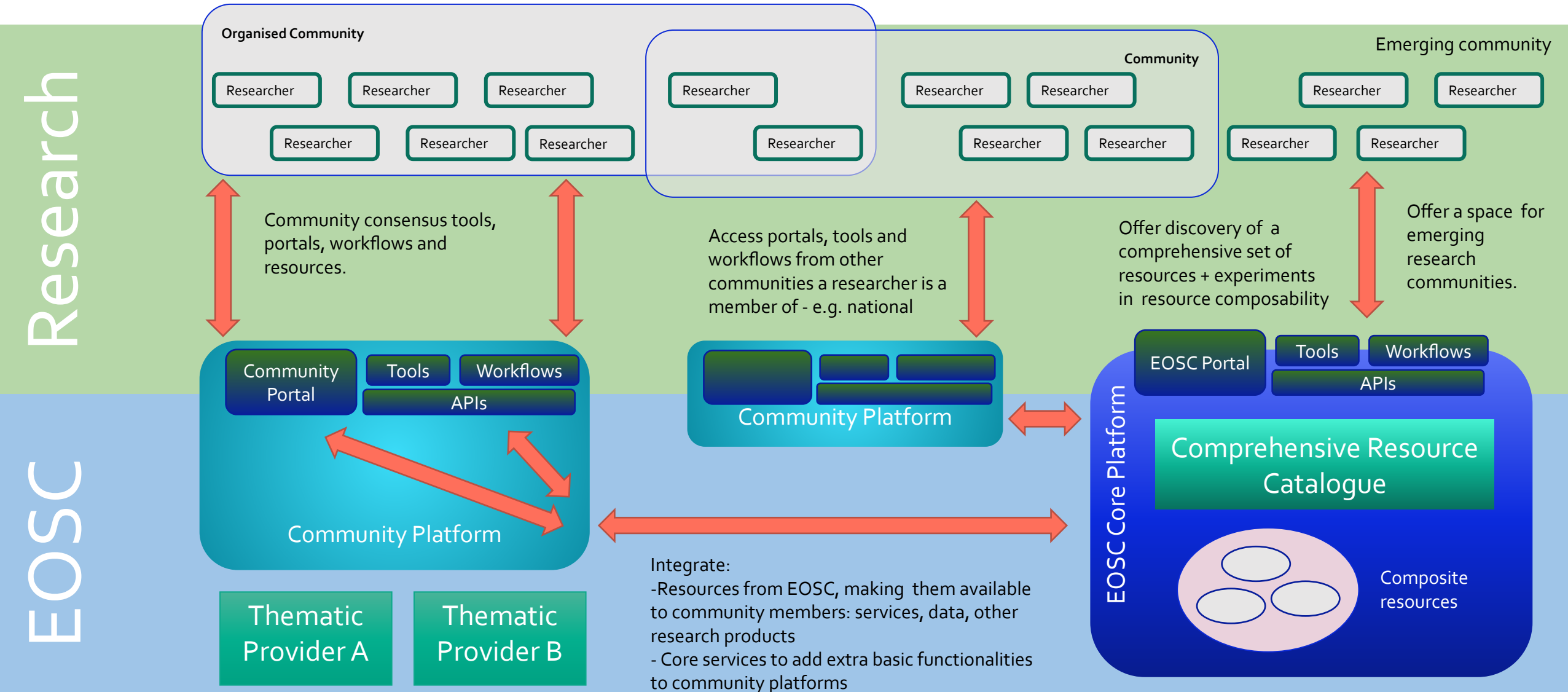
- Resource Description Framework (services and research products)
- (Persistent) Identifiers
- AAI
- Metadata and Ontologies
- Accounting
- Monitoring
- Order management
- Helpdesk



EOSC Resources



Community view: different modes of collaboration

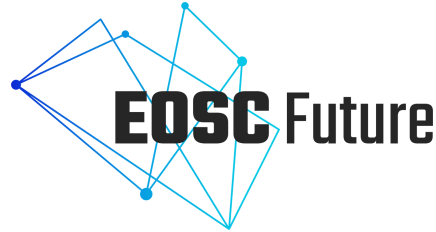




EOSC Interoperability Framework

Current status and next steps in EOSC Future

The EOSC Interoperability Framework (IF)



EOSC Interoperability Guidelines

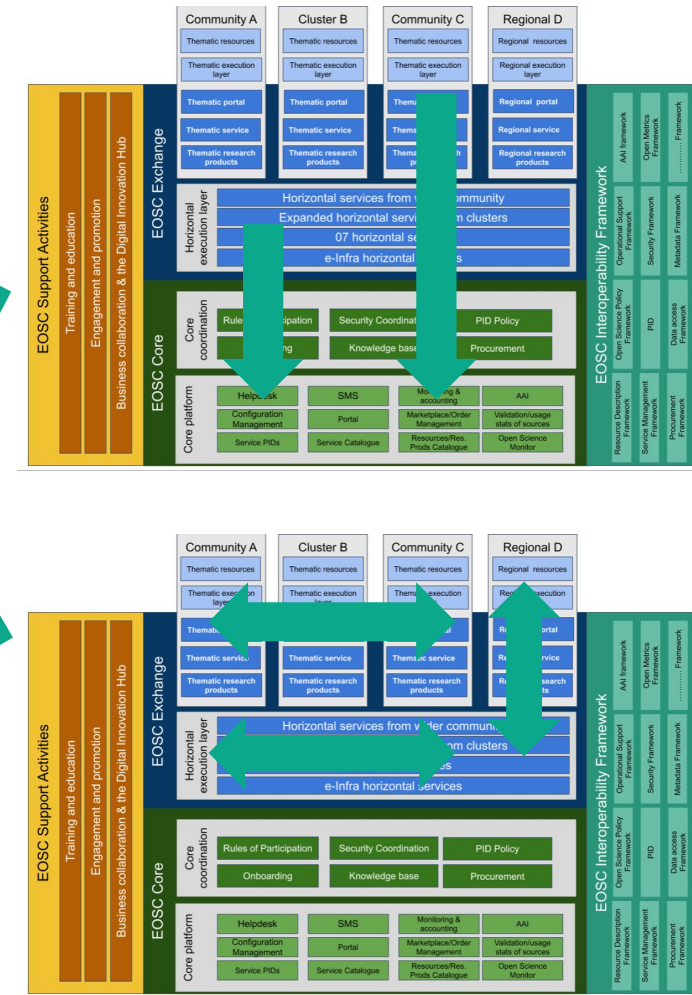
Standards, APIs, policy frameworks to compose EOSC resources

INFRAEOSC-07 projects
Cluster projects
Regional projects

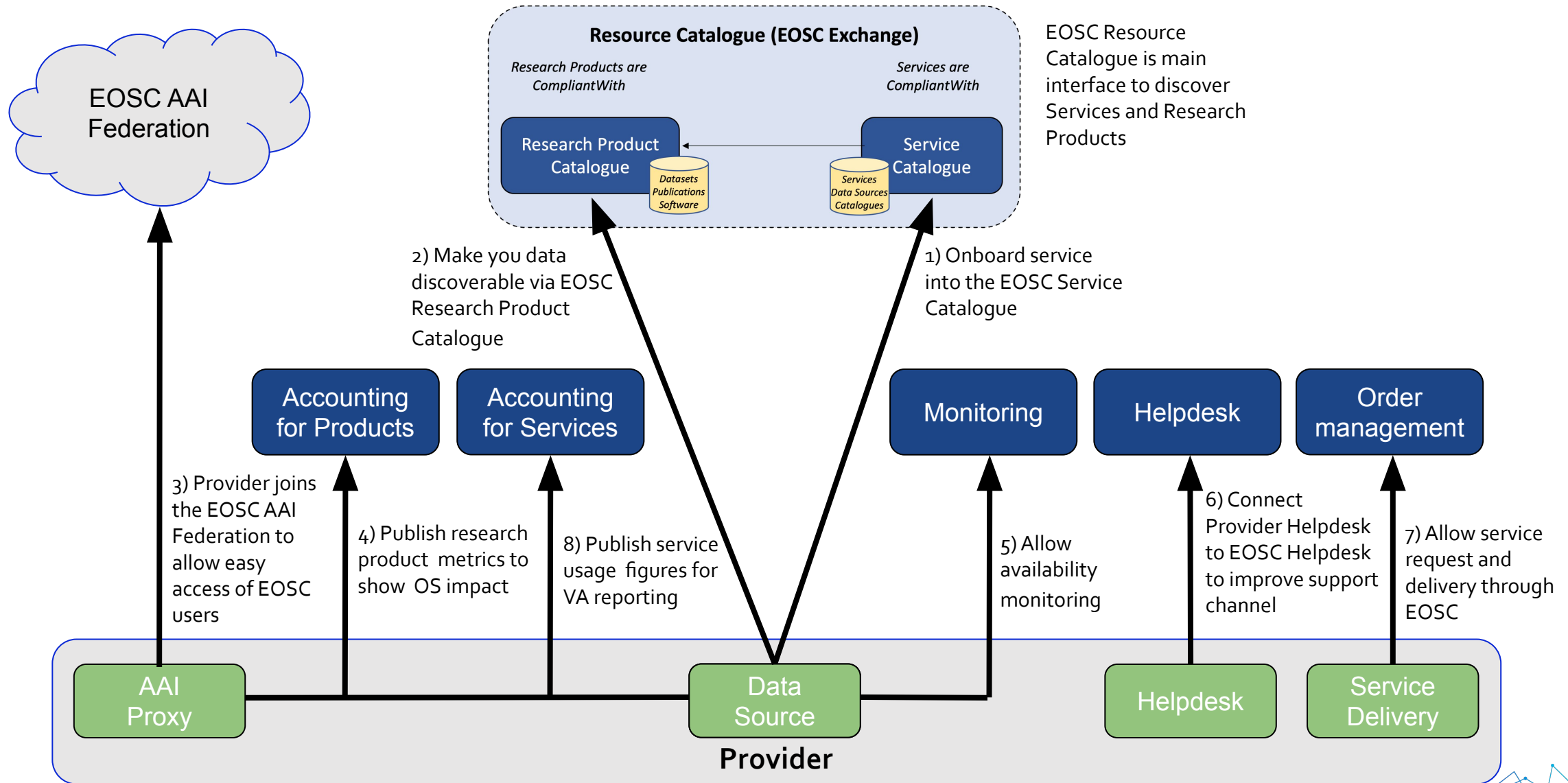
EOSC Interoperability Framework

Governance and services for proposing, accepting, registering and promoting EOSC Interoperability Guidelines.

From scattered interoperability guidelines to an overall framework



Different levels of integration with EOSC Core Platform



Decorative orange lines and dots forming a network structure on the left side of the slide.

Illustrative use case: examples of enabling interoperability

Diego Scardaci
EGI

Paolo Manghi
OpenAIRE



Data Transfer and Analysis Workflow enabled by the EOSC Interoperability Framework



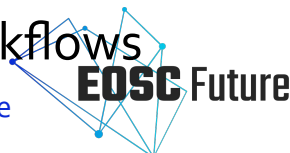
Setting the scene

This use case shows :

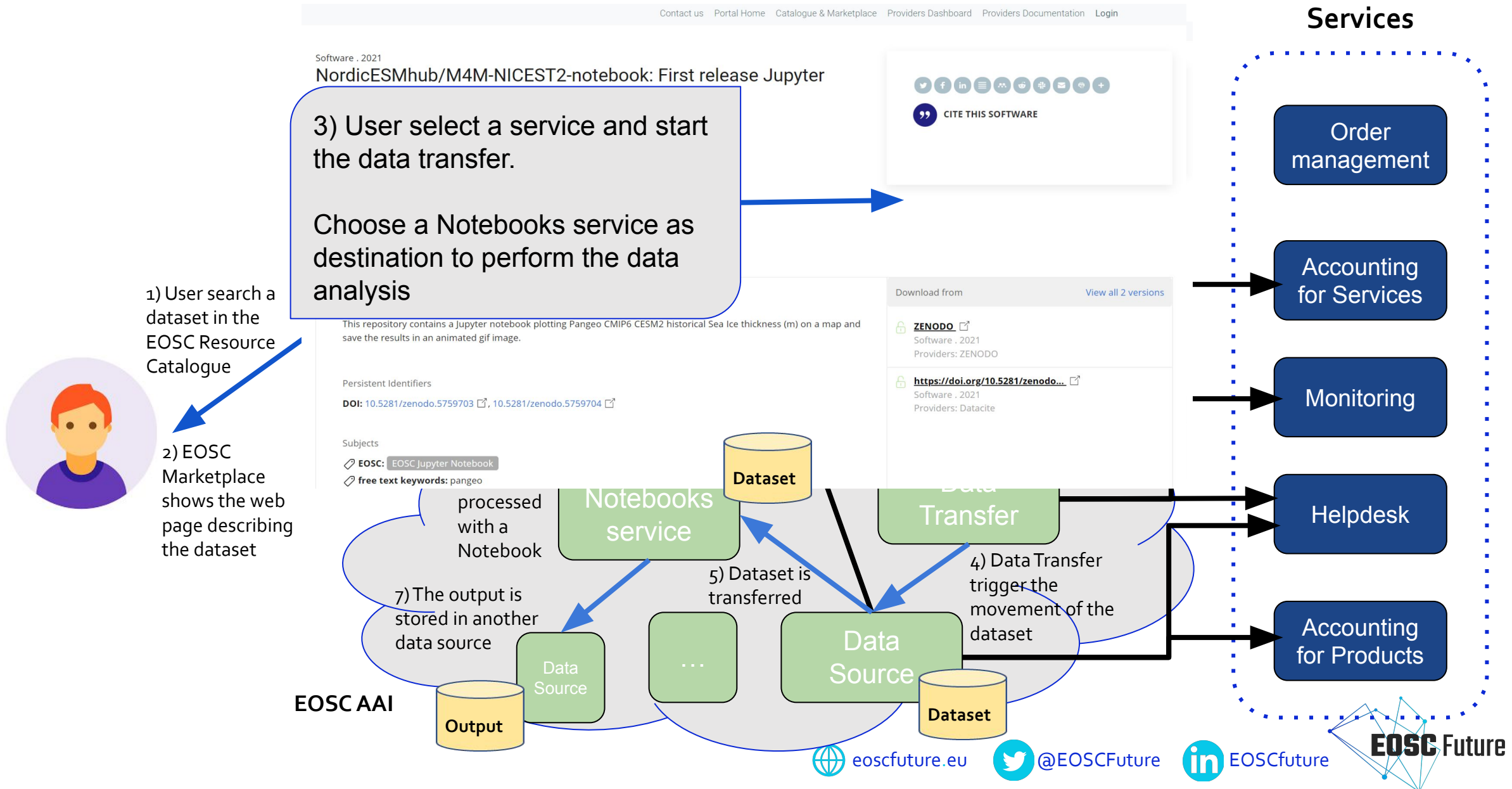
- How the **EOSC Interoperability Framework** (EOSC IF) allows the identification of services and research products that can work together.
- In our example:
 - A Data Transfer service interoperable with a Data Source
 - A service able to process Notebooks
- How integration with the EOSC-Core services (AAI, Helpdesk, Monitoring, etc.), which is enabled by the EOSC IF, can improve the user experience

The case shown in the slides is oriented towards **single researchers navigating in the EOSC Portal**

- The researcher searches for a dataset in the EOSC Marketplace
- The EOSC IF capabilities supporting this case can be also exploited via APIs
 - Fit better to large communities willing to integrate the EOSC IF capabilities in their workflows



The Use Case

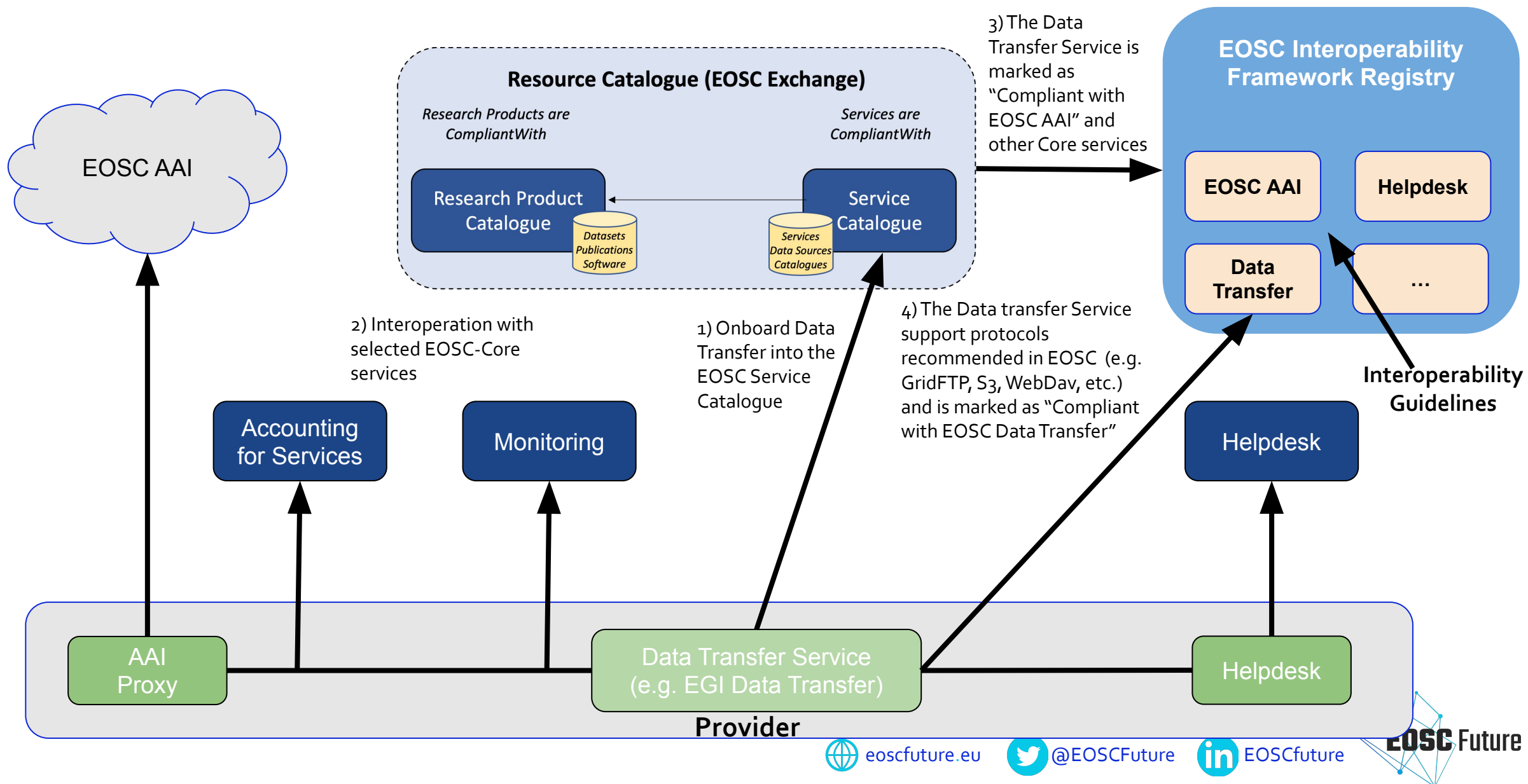




How to make this use case possible

- **Enrolled services and research products in EOSC**
 - Making a data source and all its datasets available in EOSC
 - Making a data transfer service available in EOSC
 - Making a Notebook service available in EOSC
- **Integration with EOSC-Core Services**
 - Enabling common AAI, Integrated Helpdesks, Monitoring, Accounting, Order Management
- **Making EOSC Resources interoperable**
 - Register Interoperability Guidelines in the EOSC IF Registry
 - Rules to check if 2 different EOSC Resources are compatible

Making a Data Transfer service available in EOSC



Navigate to a Data Transfer service in the EOSC Portal



EGI Data Transfer

All resour... ▾



My EOSC Marketplace

🏠 > Resources > Processing & Analysis > Data Management > Transfer > EGI Data Transfer



EGI Data Transfer

Transfer large sets of data from one place to another

Organisation: **EGI Foundation**

Provided by: **UK Research and Innovation - Science and Technology Facilities Council**

☆☆☆☆☆ (0.0 / 5) 0 reviews ☐ Add to comparison ☐ Add to favourites

Access the resource

🔌 ORDER REQUIRED

→ [Webpage](#) → [Helpdesk](#) → [Helpdesk e-mail](#) → [Training information](#)

[Ask a question about this resource?](#)

ABOUT

DETAILS

REVIEWS (0)

Data Transfer allows you to move any type of data files asynchronously from one place to another. The service includes dedicated interfaces to display statistics of on-going transfers and manage network resources. Data Transfer is ideal to move large amounts of files or very large files. The Data Transfer service has mechanisms to ensure automatic retry in case of failure. Main characteristics: Ideal for very large files. Able to handle large amounts of files. Transfer process with automatic retry. Easily move your research data

SCIENTIFIC CATEGORISATION



Generic

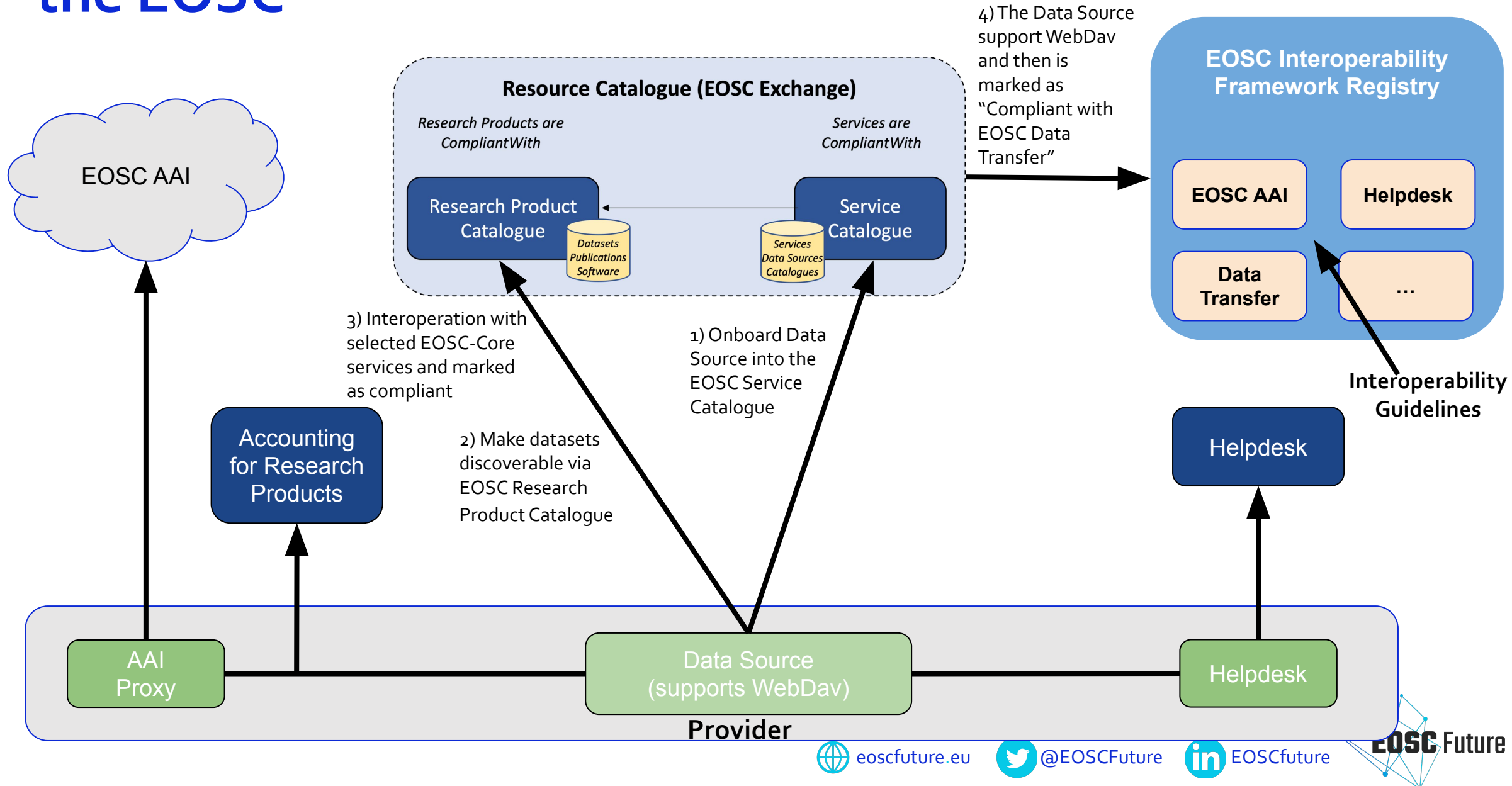
• Generic

- Generic

Compliant with EOSC AAI

Supported Protocols: GridFTP, S3, WebDav, etc

Making a Data Source and its datasets discoverable in the EOSC



Navigate to a Dataset in the EOSC Portal

[Contact us](#) [Portal Home](#) [Catalogue & Marketplace](#) [Providers Dashboard](#) [Providers Documentation](#) [Login](#)

Research Data . Dataset . Other dataset type . 2020

Submarine Permafrost Map (SuPerMAP), modeled with CryoGrid 2, Circum-Arctic, supplement to: Overduin, Pier Paul; Schneider von Deimling, Thomas; Miesner, Frederieke; Grigoriev, Mikhail N; Ruppel, Carolyn D; Vasiliev, Alexander A; Lantuit, Hugues; Juhls, Bennet; Westermann, Sebastian (2019): Submarine Permafrost Map in the Arctic Modeled Using 1-D Transient Heat Flux (SuPerMAP). Journal of Geophysical Research: Oceans, 124(6), 3490-3507

[ID Overduin, Pier Paul](#); [ID Schneider von Deimling, Thomas](#); [ID Miesner, Frederieke](#); [ID Grigoriev, Mikhail N](#); [ID Ruppel, Carolyn D](#); [ID Vasiliev, Alexander](#); [ID Lantuit, Hugues](#); [ID Juhls, Bennet](#); [ID Westermann, Sebastian](#); [ID Laboor, Sebastian](#);

[OPEN ACCESS](#) [ENGLISH](#)

Published: 01 Jan 2020

Publisher: PANGAEA - Data Publisher for Earth & Environmental Science



[CITE THIS RESEARCH DATA](#)



EGI DATA TRANSFER
GLOBUS DATA TRANSFER

SUMMARY

RELATED RESEARCH

3

Abstract

This data set contains a first-order estimate of distribution, thickness and ice-content of submarine permafrost on the Arctic shelf based on a numerical heat transfer model. Our model uses dynamic upper boundary conditions that synthesize Earth System Model air temperature, ice mass distribution and thickness, and global sea level reconstruction and applies globally distributed geothermal heat flux as a lower boundary condition. Sea level reconstruction accounts

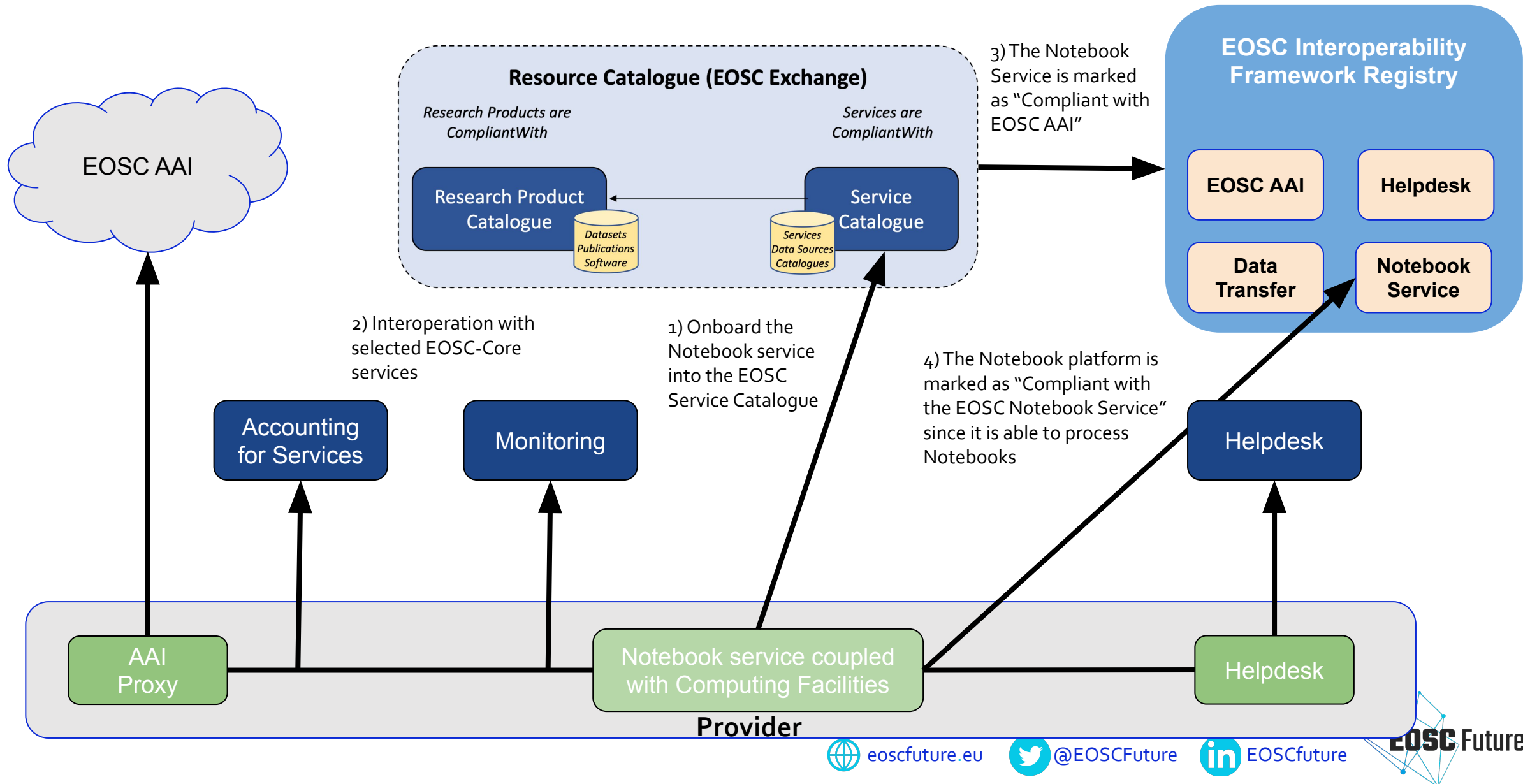
Communities

Communities with gateway

[European Marine Science](#) [↗](#)




Making a Notebook service available in EOSC




Navigate to a Notebooks service in the EOSC Portal

[Contact us](#) [Portal Home](#) [Catalogue & Marketplace](#) [Providers Dashboard](#) [Providers Documentation](#) [Login](#)


 **EUROPEAN OPEN SCIENCE CLOUD**

EGI Notebook

All resour... 

My EOSC Marketplace

[Home](#) > [Resources](#) > [Sharing & Discovery](#) > [Applications](#) > [Collaboration](#) > EGI Notebook



EGI Notebook

Create interactive documents with live code, visualisations and text

Organisation: **EGI Foundation**


Provided by: **CESNET**

☆☆☆☆☆ (0.0 /5) 0 reviews ☐ Add to comparison ☐ Add to favourites

[Webpage](#) [Helpdesk](#) [Helpdesk e-mail](#) [Manual](#) [Ask a question about this resource?](#)

[Training information](#)

[Access the resource](#)

 ORDER REQUIRED

[ABOUT](#) [DETAILS](#) [REVIEWS \(0\)](#)

Notebooks is a browser-based tool for interactive analysis of data using EGI storage and compute services. Notebooks are based on JupyterHub technology. This service can combine text, mathematics, computations and their rich media output using Jupyter technology, and can scale to multiple servers and users with the Cloud Compute service. Notebooks for Researchers: After a lightweight approval, users login, write and play notebooks using storage and compute capacity. Notebooks for Communities EGI offers consultancy and technology to set up a community-specific JupyterHub on top of a community VO. Comes together with EGI-enabled compute and storage resources and with community-specific storage. For individual users: Reproducible research with notebooks (notebooks can be re-played by the same user, shared and re-played by different users), easy to hook into other big-data environments (e.g. Spark, Hadoop) or services (e.g. Cloud Compute) provided by or hosted by EGI. For groups: establish a JupyterHub for your community on top of EGI and community-specific compute and storage resources. "For individual users:

SCIENTIFIC CATEGORISATION



Generic

- Generic
- Generic

Getting support through the EOSC Helpdesk

Single point of contact

EOSC First line of support for ticket triage

Benefits for EOSC Users



Create a ticket

EOSC Helpdesk

Interoperation

Provider

Helpdesk

Data Transfer Service
(e.g. EGI Data Transfer)

Interoperation

Provider

Helpdesk

Data Source

Interoperation

Provider

Helpdesk

Notebook service coupled
with Computing Facilities

Only relevant tickets reach the providers

Providers manage tickets with their tools

Benefits for EOSC Providers



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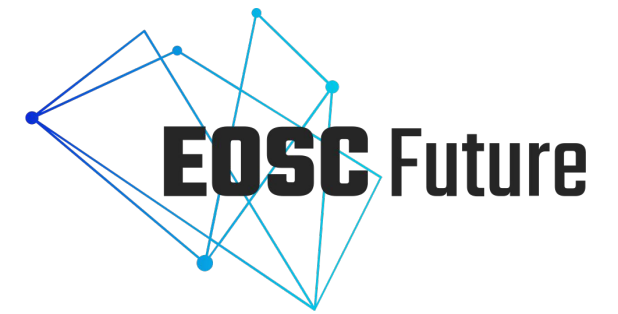
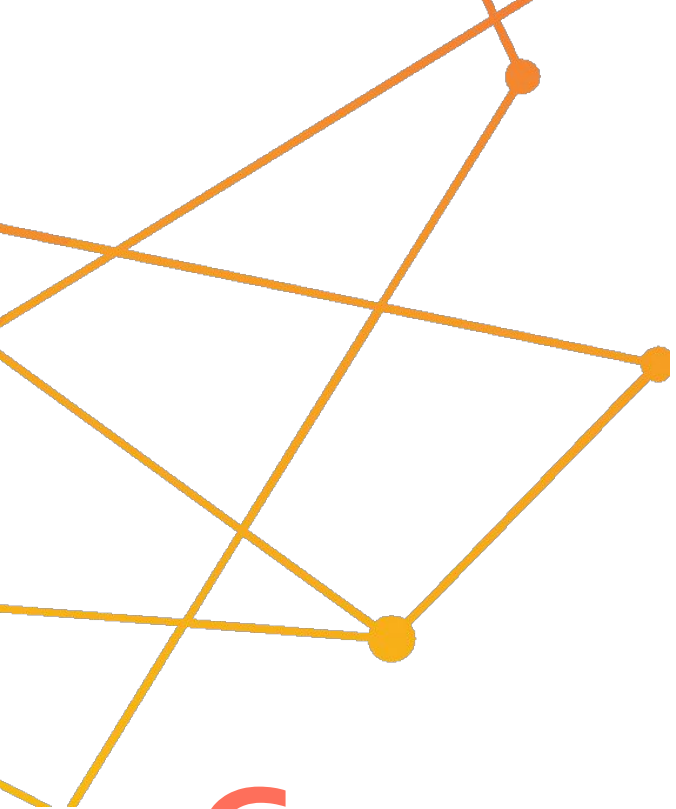


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Governing the ELF

Michelle Williams

GEANT Association



The EOSC IF must be built, promoted and maintained with structure, fairness and transparency.

It does not seek to replace existing community guidelines with its own versions

It will not reinvent existing 'ISO-style' certification models

EOSC channels will be used to announce newly adopted/deprecated guidelines to the research community at large

It will support the identification of gaps in interoperability solutions, and will assist with technical interoperability in the future

It intends to confirm the readiness of each proposed interoperability artifact



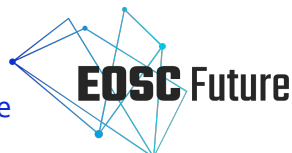
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EOSC Interoperability Registry

Initial scope:

- Output of EOSC Hub, EOSC Enhance, AARC and OpenAIRE projects
- the 'Main Standards and Interfaces as a Starting Point for EOSC Future' (Appendix D of the supporting document)

Objectives:

- become a library of accepted artefacts, and
- a supporting tool for the governance
- to help track each Guideline through the proposal and consultation process.
- become a de facto EOSC Knowledge Base.

The registry will...

- be publicly available,
- link resources, services and research products to supported guidelines
 - help resources/service owners integrate with the resource catalogue
 - help users discover resources on the basis of the guidelines they support
- help identify gaps in interoperability.



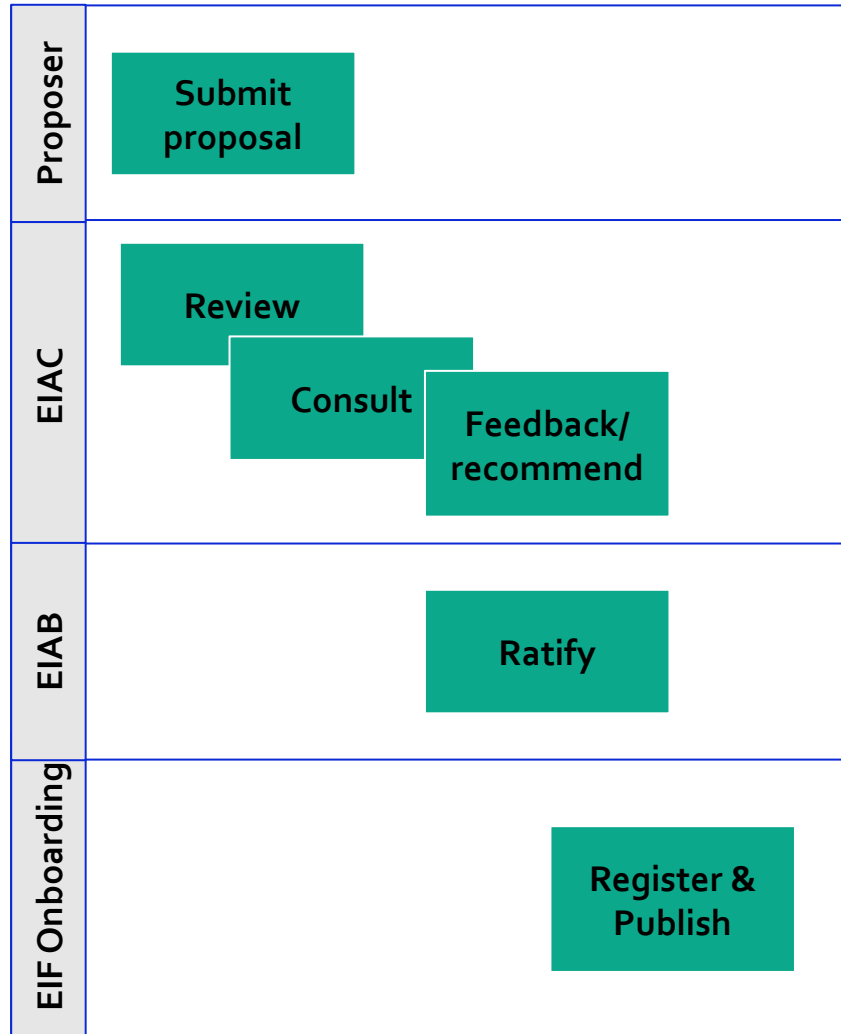
Governing bodies

"An overarching, independent group that will assess whether requests for inclusion into the EOSC IF are compliant with a minimum set of requirements"*

Body	Responsibility	Interim body for duration of EOSC Future project
EOSC Interoperability Advisory Board (EIAB)	Responsible for <ul style="list-style-type: none">• overseeing the EOSC IF;• endorsing guidelines, based on the recommendations of the EIAC.	EOSC Future Technical Coordination Board
EOSC Interoperability Area Chairs (EIAC)	Responsible for: <ul style="list-style-type: none">• performing the initial assessment of the proposed guidelines• making recommendations for inclusion to the EIAB.	EOSC Future WP3 task leads (calling in community experts to help with the review process as needed).

*Minimum requirements are initially set out in Appendix A of the supporting document

Proposal Process



- EOSC IF governance will support proposal, consultation and ratification
- a proposed process to is outlined in Appendix A.
- A guardian or owner can propose inclusion using a proposal form (Appendix B)
- it is proposed that Appendix D forms the basis of the EOSC IF.

A network diagram in the top left corner consisting of orange lines and dots connected to form a complex shape.

How to provide feedback

Sarah Jones

GEANT Association

EOSC Interoperability Framework consultation

Start

Complete

READ THE EOSC INTEROPERABILITY FRAMEWORK PROPOSAL

Introduction

In order to answer the questionnaire, we request that you first review the draft EOSC Interoperability Framework proposal. An introduction is provided below and some questions include quotes from the text as context.

The first version of the [draft EOSC Architecture and Interoperability Framework document](#) has solicited inputs by the members of the Technical Coordination Board (TCB) as well as WP3 members, anticipating a consultation with the larger EOSC community. Inputs from this consultation will be captured in the updated version(s) of the EOSC IF framework, which will be managed as a stand-alone document prior to the publication of the final version of deliverable D3.2b, which is due in M26.

The scope of this consultation is:

- To raise awareness of the proposed EOSC Interoperability Framework (EOSC IF) as a concept and its proposed direction
- To seek feedback on the proposed governance and its mechanisms, including: Further consultations will be undertaken to populate the EOSC Interoperability Framework.
 - The EOSC IF Registry
 - The EOSC IF Guideline Proposal Process (and supporting aspects)

Further consultations will be undertaken to populate the EOSC Interoperability Framework.

Your feedback is vital!

Consultation survey:
<https://eosc-portal.eu/eosc-interoperability-framework-consultation>



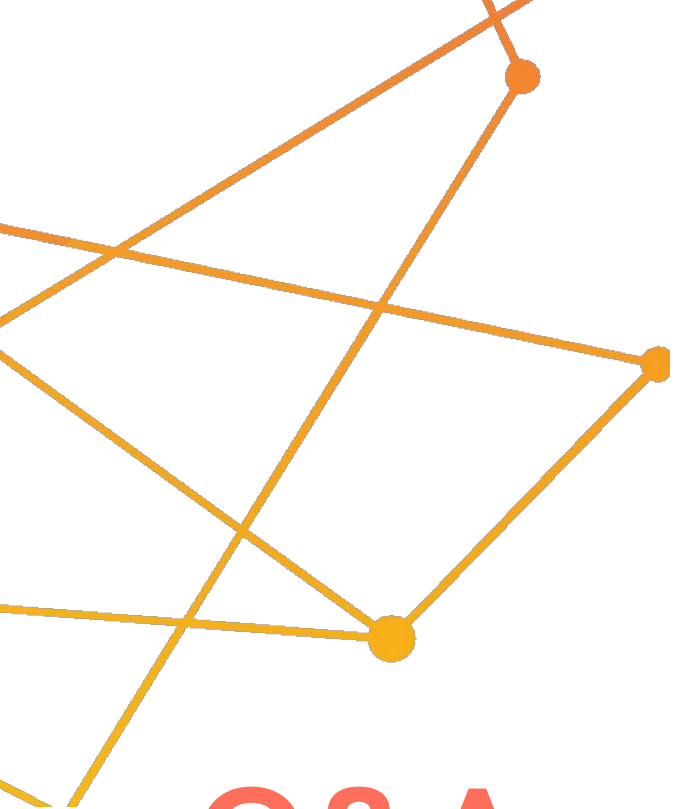
Next steps

Consultation:

- Opens today!
- Ends 15th April

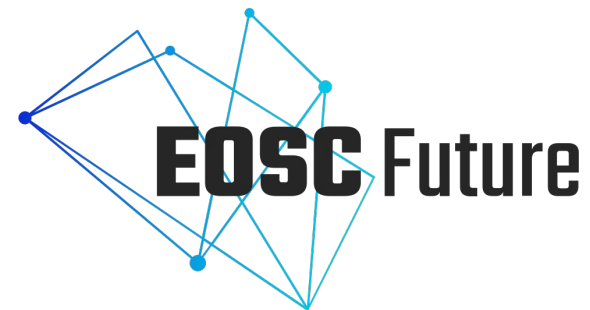
Implementation:

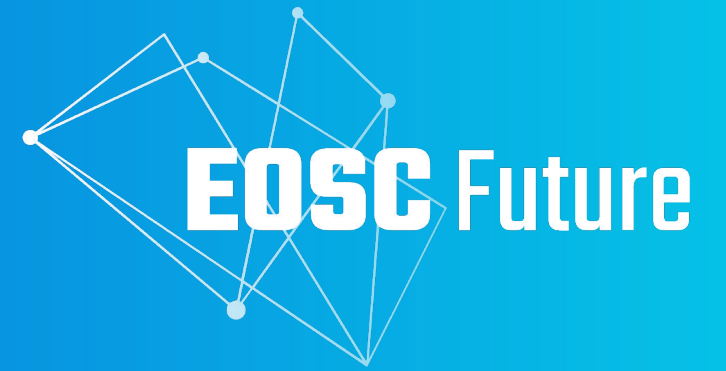
- iterate the governance model, proposal process, etc, to include feedback
- publish final versions
- agree data model for describing Interoperability Guidelines
- create the registry
- populate the registry (with 'starting point')
- aiming to be operational by autumn



Q&A

Slido:





Get in touch



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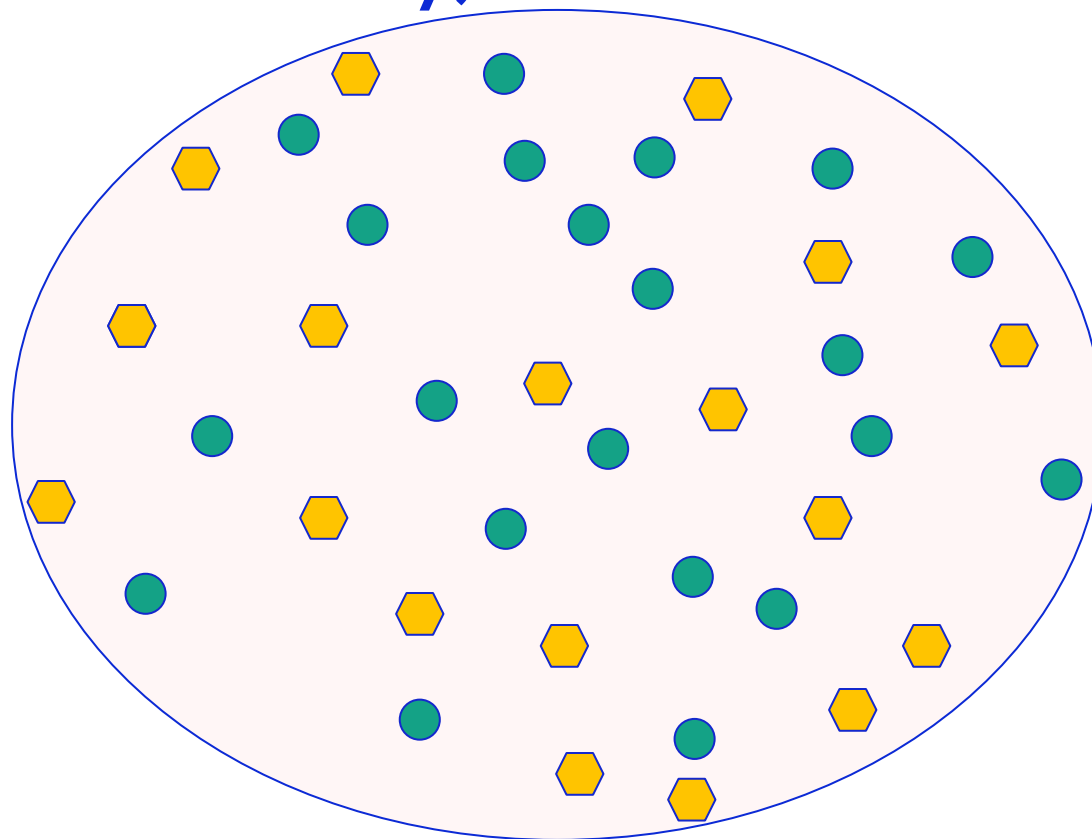
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The EOSC Future project is co-funded by the
European Union Horizon Programme call
INFRAEOSC-03-2020, Grant Agreement 101017536





Without Interoperability (limited to my own community)



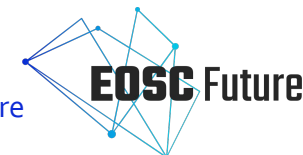
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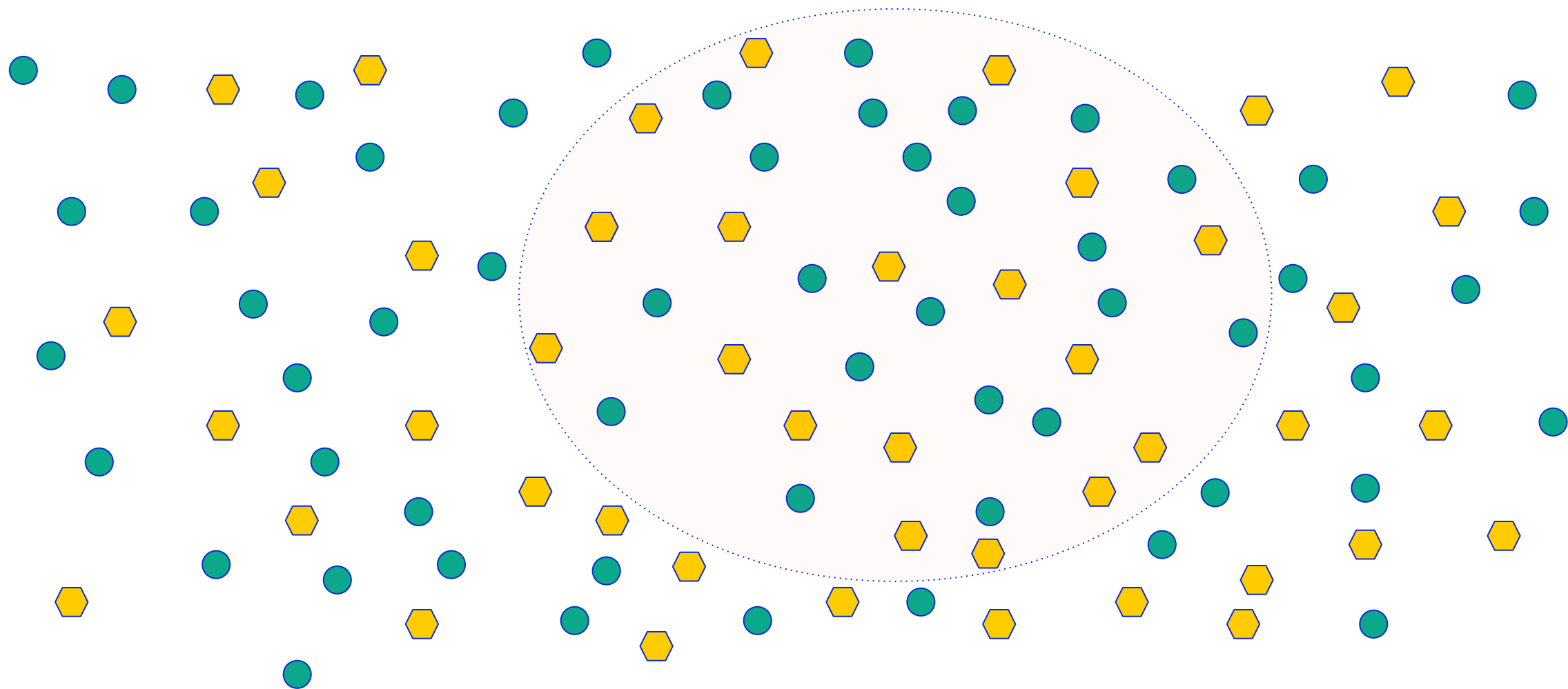


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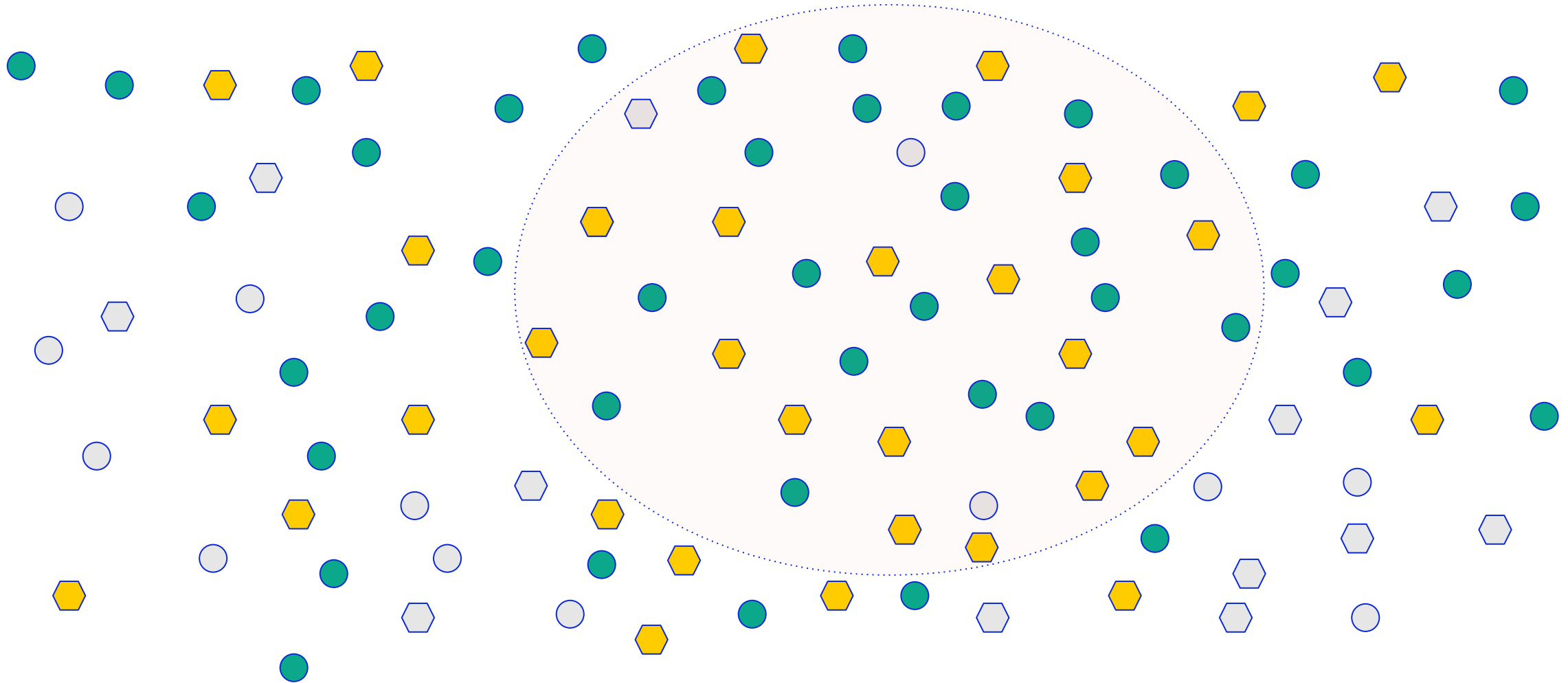


With Findability (Catalogue Interoperability)





With Accessibility (AAI, interoperable authorization) (fewer things – but you can be sure you can access)



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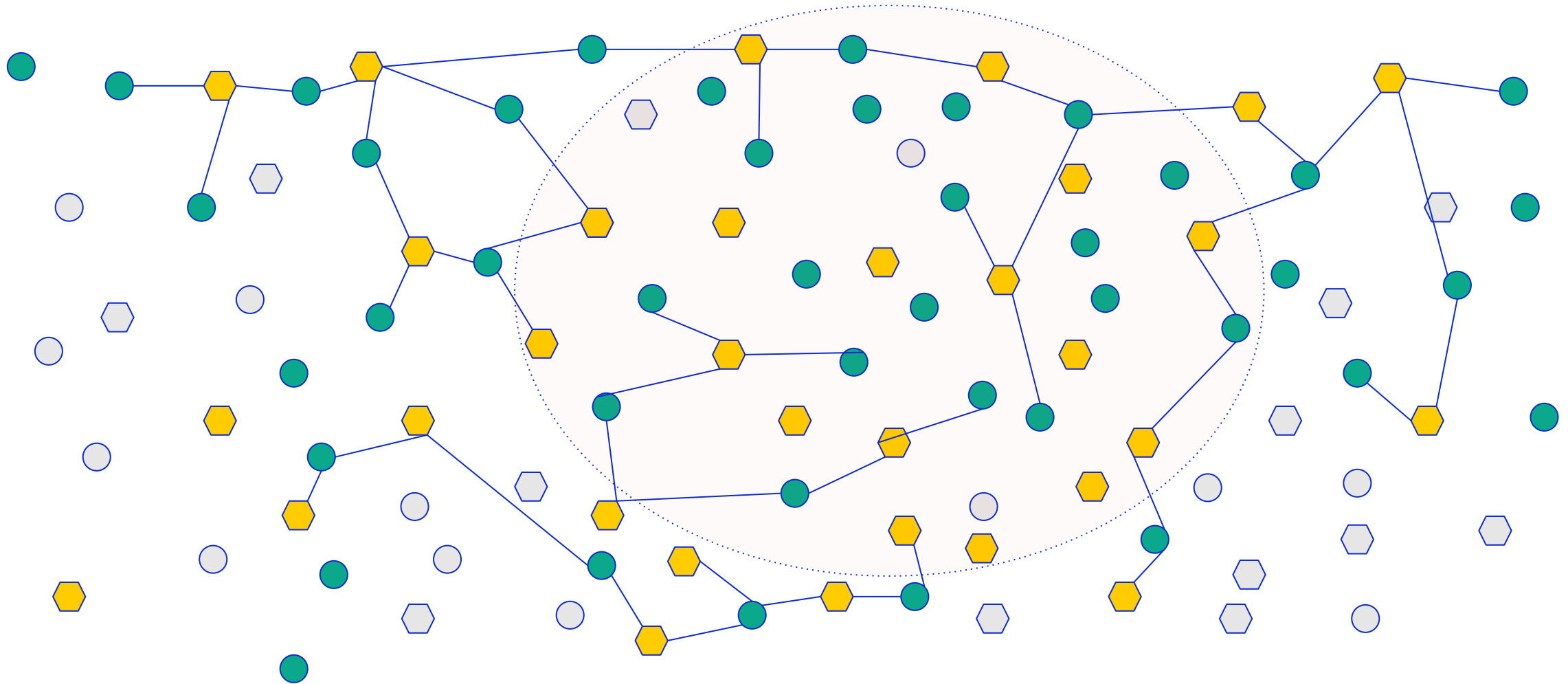


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With Technical Interoperability (Compliance with EOSC Interoperability Framework)



Connecting Interoperable Resources into Workflow

