Connecting the dots …

the role of EOSC Future in the Strategic Research and Innovation Agenda

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Introduction Open Science and EOSC

Open Science

- is the most **efficient and effective** way of **carrying out research** to increase knowledge circulation, collaborative work, sharing outputs

EOSC

- A **trusted space** for researchers to store their data and to access data from researchers from all other disciplines.
  We will create a pool of interlinked information, a '**web of research data**'.
  [Ursula von der Leyen]
- A well-functioning and high-performing European R&I ecosystem
  - fostering the flow of research data and scientific knowledge
  - developing & deploying a **trusted environment** providing … seamless access to research data, research infrastructures, e-infrastructures and related services

SRIA Strategic Research and Innovation Agenda

- New ways of doing science
  - Digitisation, Internet
  - Open Science
  - Next generation infrastructures – European (ESFRI, ERICs), National, Thematic
- Objectives
  - Open Science
  - EOSC
- Principles
  - Structure of EOSC:
    - Platform (Core, Exchange, Portal)
    - Interoperability Framework
    - FAIR

SRIA Implementation

Key Features

1. Identifiers
2. Metadata & Ontologies
3. FAIR Metrics & Certification
4. Authentication & Authorisation Infra
5. User Environments
6. Resource Provider Environments
7. EOSC Interoperability Framework

Boundary Conditions

1. Rules of Participation

EOSC Future

3 Tenets

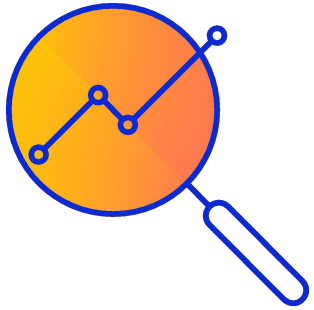
- Technology: EOSC Core & Exchange; Interoperability Framework
- Content: Integration of Data & Resources
- Users:Direct involvement; co-design & co-creation

EOSC-Core – the set of enabling services needed to operate the EOSC

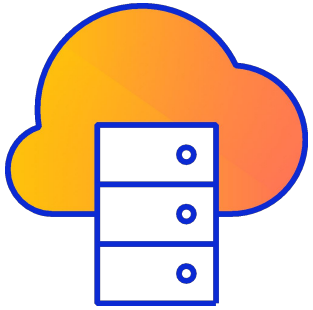
EOSC-Exchange – registering resources and services from research infrastructures, other EOSC projects and Science Clusters

Interoperability Framework – guidelines for providers that want to integrate services or data into EOSC

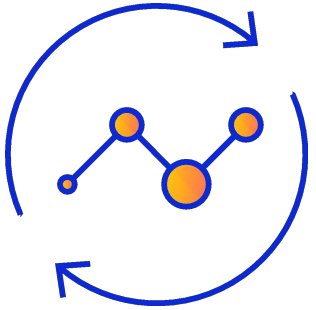
EOSC Future



Data discovery

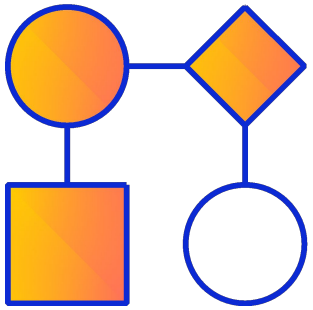


Data storage

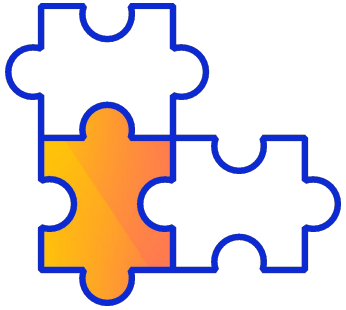


Data recomposition

Computing services

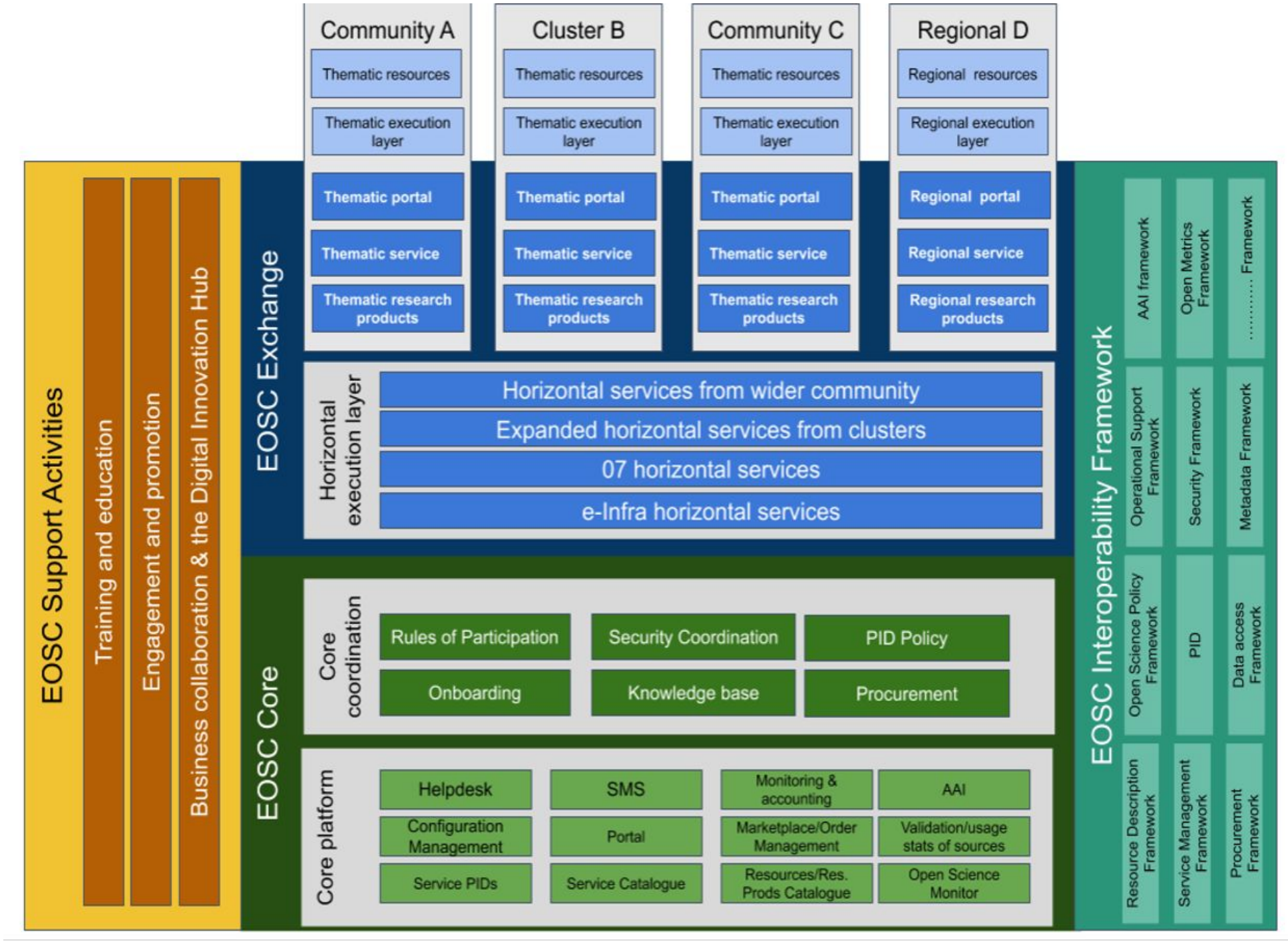


Complex workflows



Integratable services

EOSC High Level Architecture



SRIA Implementation

SRIA Future & other projects

1. Identifiers Cataloguing, Research Graphs
2. Metadata & Ontologies Science Projects; Science Clusters
3. FAIR Metrics & Certification FUJI FAIRsFAIR; Core Trust Seal
4. Authentication & Authorisation Infra EOSC AAI
5. User Environments EOSC-Portal; thematic & national
6. Resource Provider Environments Onboarding; SSHOC MoU; "o7's"
7. EOSC Interoperability Framework EOSC-Future WGs & Association TFs

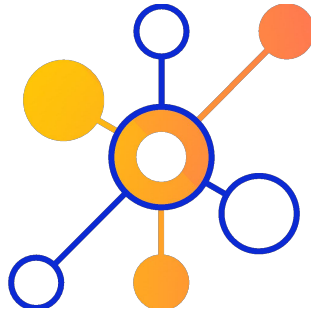
SRIA Boundary Conditions

SRIA Future & other projects

1. Rules of Participation EOSC-IF, RoP, WGs/TFs
2. Landscape Monitoring EOSC Observatory
3. Business Models (sustainability) EC Procurement, Association
4. Skills and Training Knowledge Hub, Catalogue
5. Rewards and Recognition Funders, Universities, DOI's
6. Communication Engagement, User Group
7. Widening & globalisation EOSC-RDA calls, DIH

EOSC Future is structured around six thematic pillars:

Policy and strategy



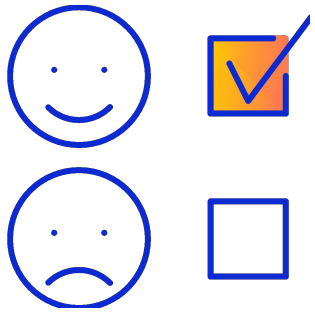
Technology and interoperability

Excellent science

Build on foundations of previous EOSC projects

Align with shifting stakeholder needs.

Provide inputs on key issues (SRIA)

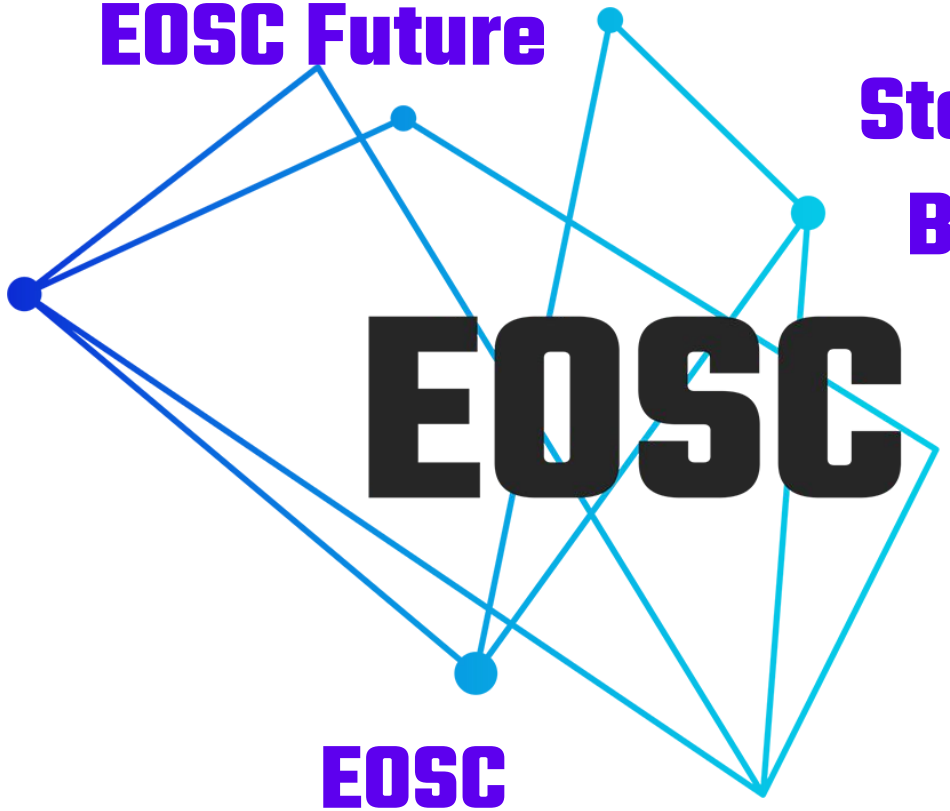


Co-development and procurement

Skills and training

User engagement

EOSC Observatory



Observatory Layers

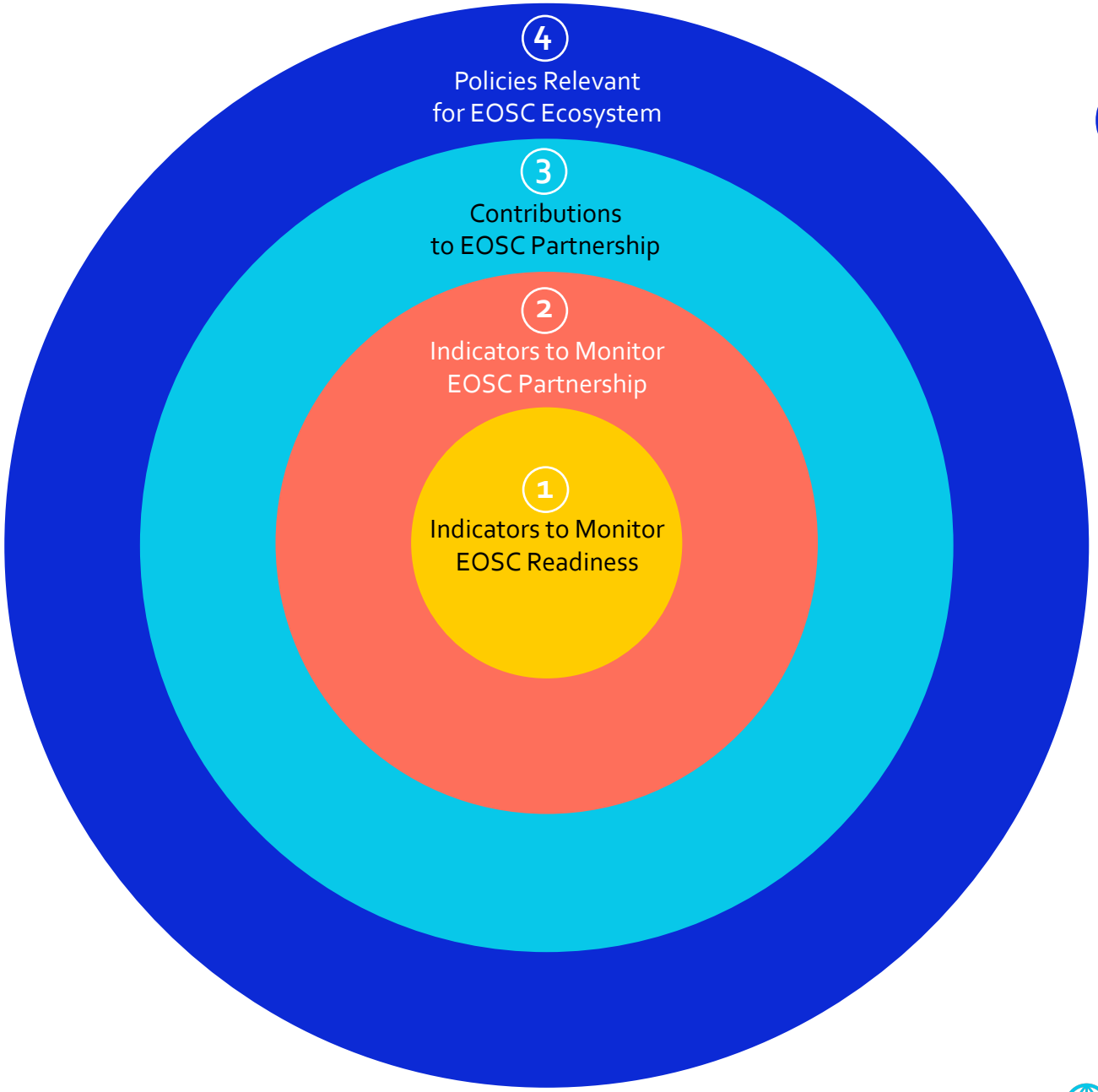


Figure:
Four Layers of Data to be Collected by EOSC Observatory to Support EOSC Monitoring

Data:
The aim is to collect data automatically from trusted data sources and where not available manually from assigned representatives via targeted surveys.
Quantitative data will be provided with qualitative descriptions

Collaboration Agreement with “07-projects”

Data Spaces

gaia-x

Identity and Trust	Sovereign Data Exchange
Federated Catalog	Compliance

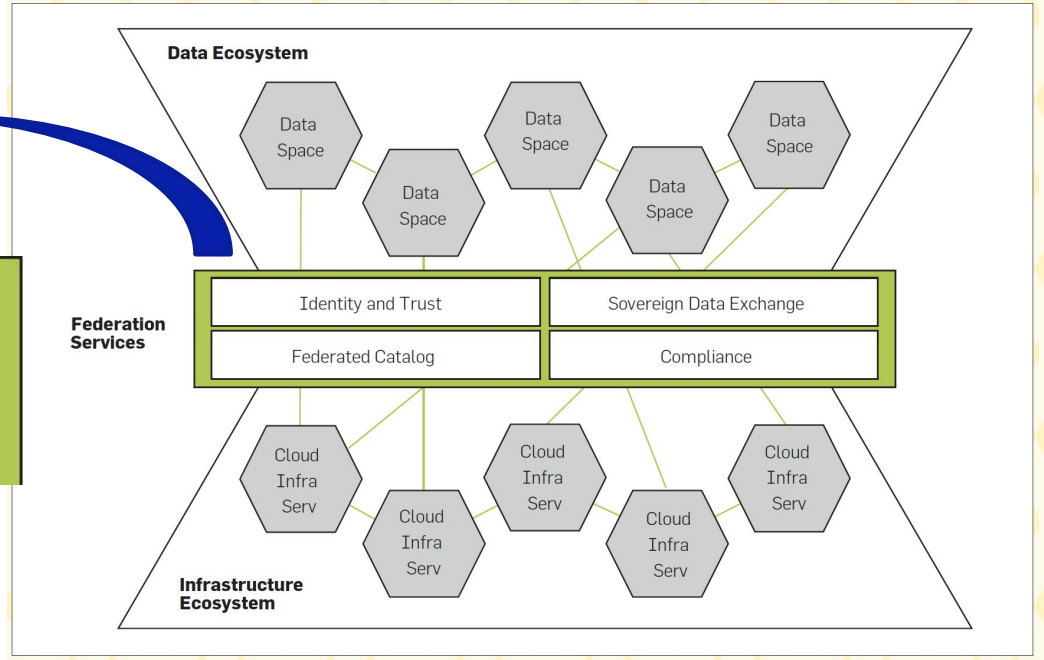


Figure 2. Gaia-X ecosystem and federation services.

	«Hyperscaler»	State-Controlled	Gaia-X
Economic Effect	"Winner takes all"	Digiriste	Cooperative
Platform Owner	1	1	Many
Platform Architecture Design	Central	Central	Federated
Platform Development	Closed/Hybrid	Closed	Open
Code Basis	Proprietary and Open	Proprietary and Open	Open
Data Sovereignty	Basic	Rudimentary	Core Value Proposition
Data Management and Data Exchange	Central	Central	Federated and Bilateral

Data infrastructure patterns.

Source: Boris Otto, DOI:10.1145/3512341

EOSCfuture

EOSC Future

FENIX HPC & AAI

- Collaboration to facilitate HPC to Science Projects and scientific users
- Resemblance on AAI

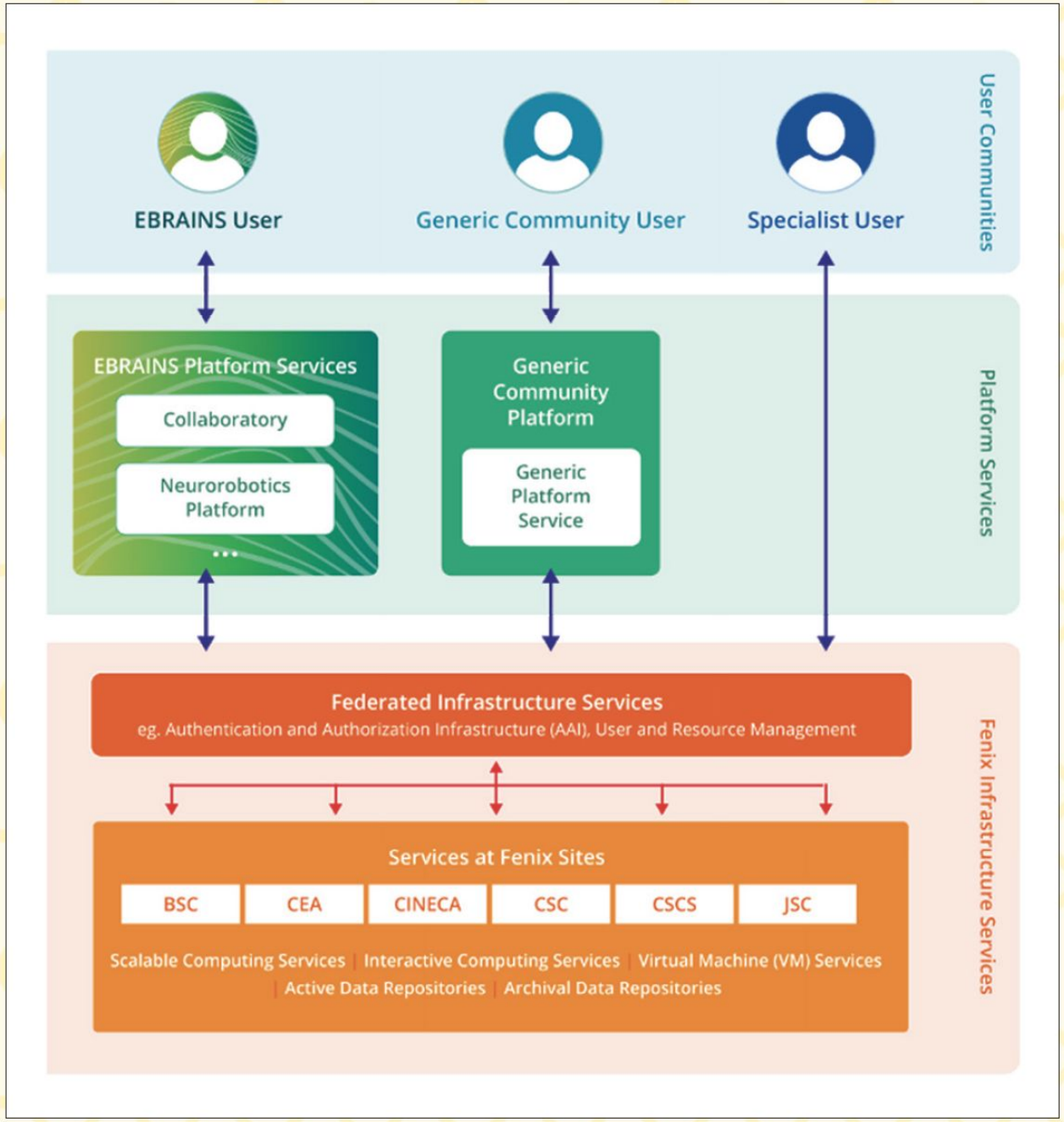
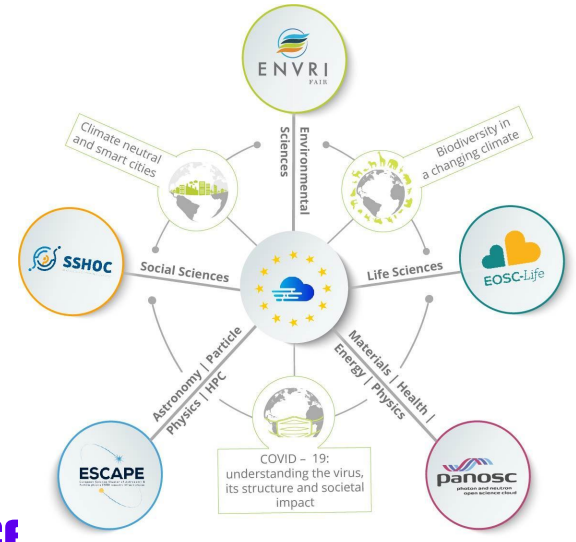


Figure 1. The Fenix consortium, and its federated and e-Infrastructure services portfolio. Source: Alam et al., DOI:10.1145/3511802

Multiple Connections



EOSC Future

Data Space

Procurement

OCRE Open Clouds for Research Environments

gaia-x

FENIX RI

EOSC

Digital Innovation Hubs

EGI-ACE

DICE

NEXUS

Reliance

C-SCALE

Technology & Interoperability

EOSC NORDIC

FAIRSFAIR

NI4OS

ExPaNDS

EOSC-Pillar

Widening

RDA

eoscfuture.eu

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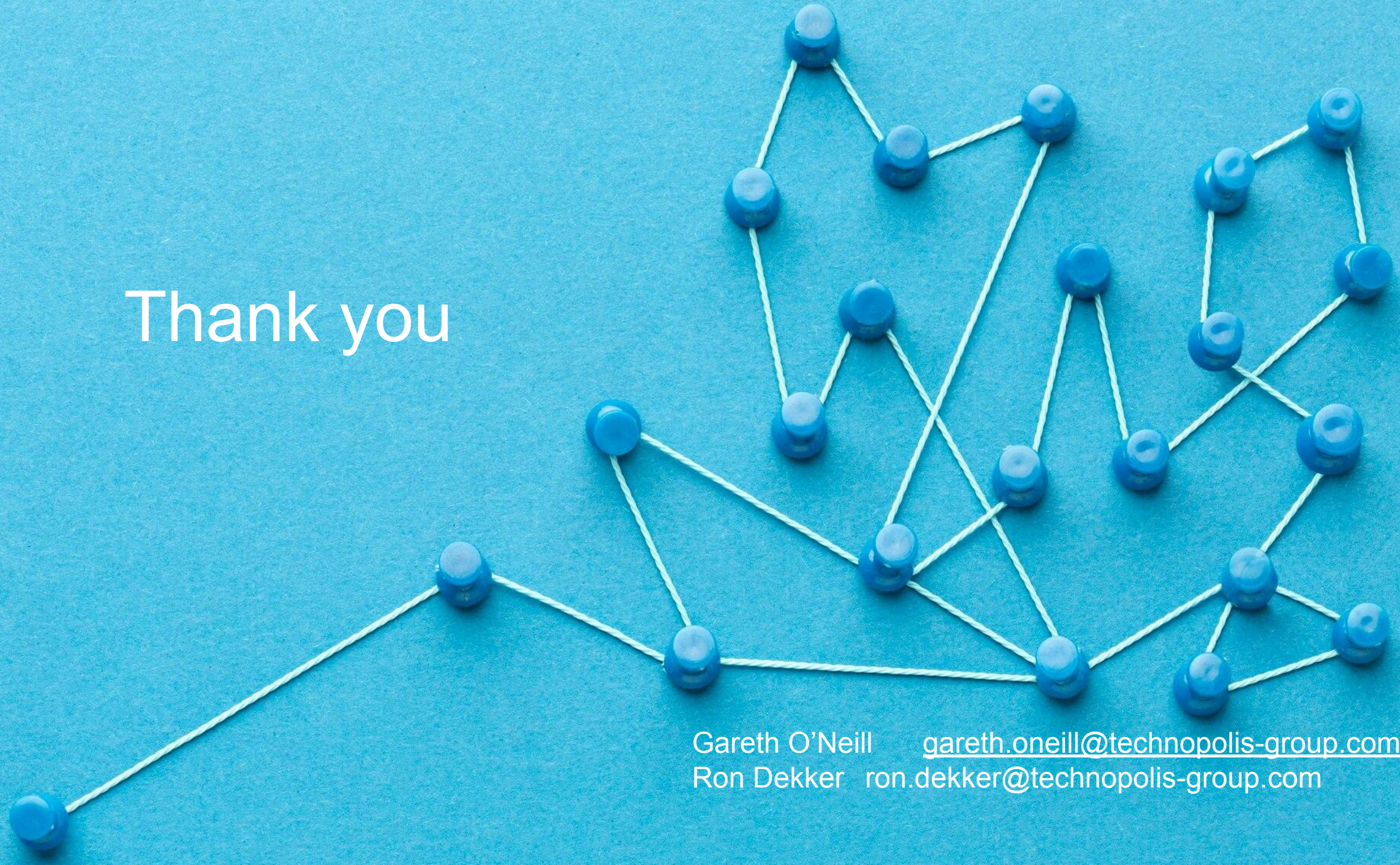
Conclusions

1. Multiple federations pop up – 'openness' is key
   a. Data Spaces
   b. HPC
   c. EOSC
2. Multiple stakeholders work together on realising EOSC
   a. Technology: Platform architecture, onboarding, interoperability, etc.
      In addition to technology, this is about
   b. Content: Metadata, High Quality Data & Services
   c. People: Building on Trust, Willingness to Collaborate

Thank you



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