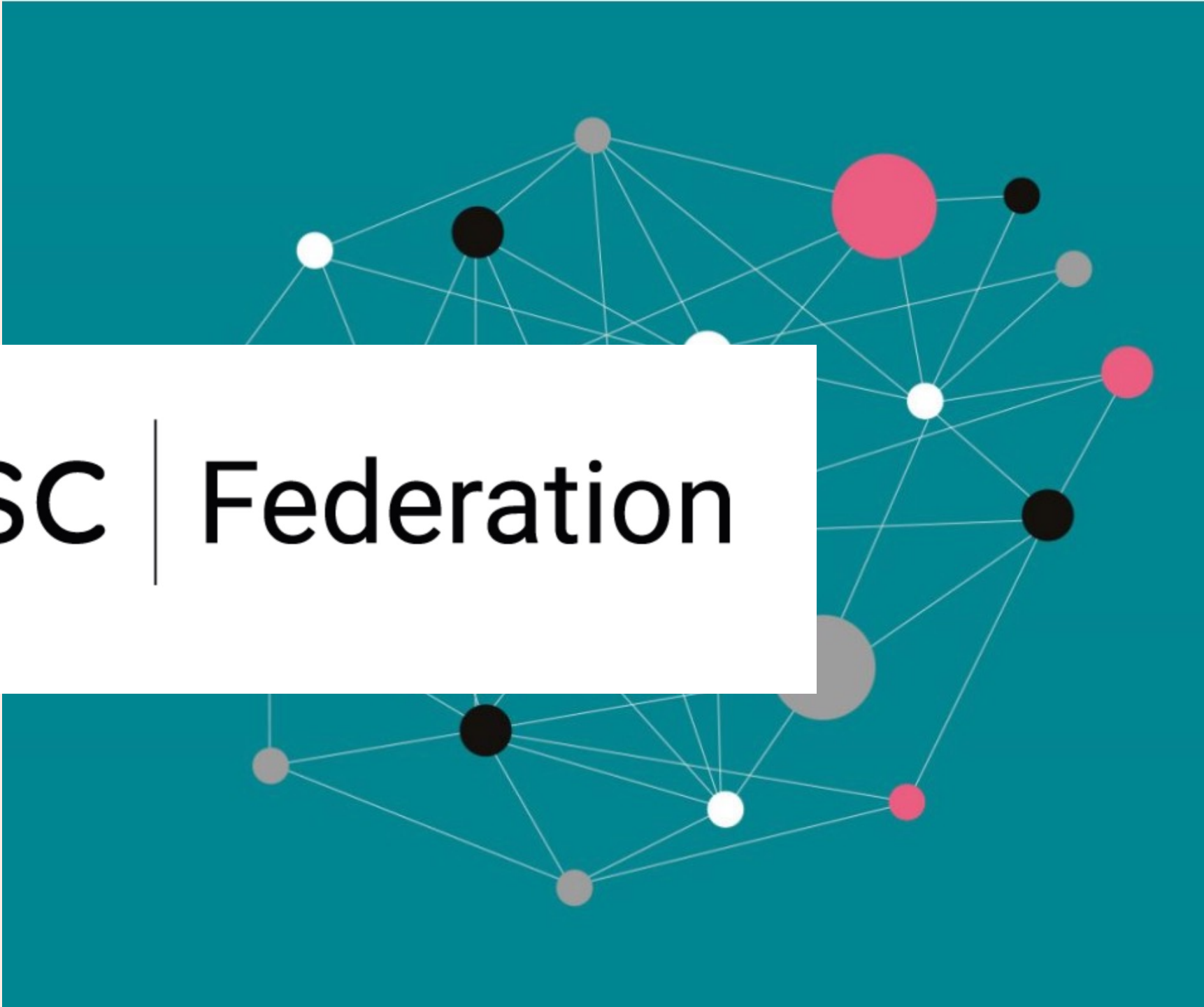




Connecting Finnish Research Data to Europe: EOSC Federation, EOSC Finland Node, and the LUMI AI Factory

Josefine Nordling, CSC – IT Center for Science
NORDUnet Conference, Luleå, Sweden
September 10, 2026



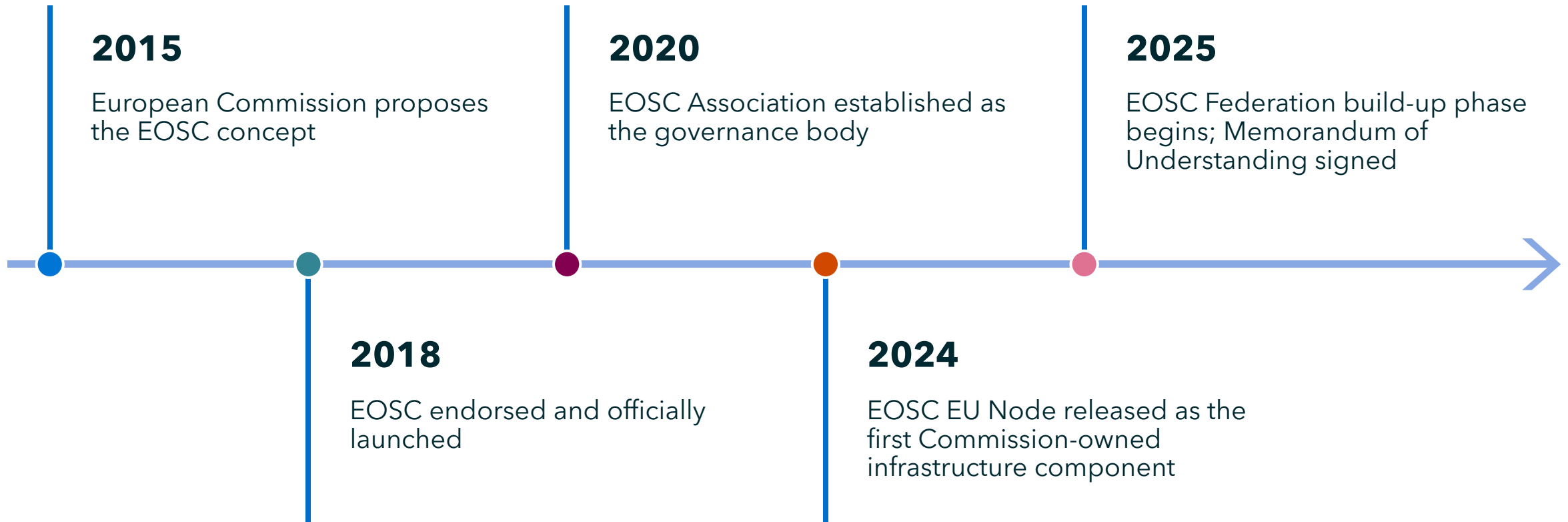
A network diagram on a teal background showing interconnected nodes of various sizes and colors (white, black, grey, pink, red) connected by thin white lines, representing a complex system or data network.

eosC | Federation

The evolution of EOSC



The **European Open Science Cloud (EOSC)** was proposed by the European Commission in **2015** to create a unified environment for sharing and reusing research data and services across Europe, enabling **FAIR, interoperable, and machine-actionable research data**.



EOSC today – The EOSC Federation

Building the EOSC Federation

A distributed research ecosystem connecting **national, thematic, and e-Infrastructure Nodes** into a sustainable European federation of research data and services.

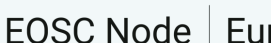
The vision for EOSC, recognised as the Common European Data Space for Research and Innovation, is to put in place a ‘system of systems’ to find and access data and services for research and innovation in Europe. This is to help researchers store, share, process, analyse and reuse FAIR research outputs within and across disciplines and borders.

- EOSC Federation of Nodes across Europe will drive this forward
- Phased approach, started in March 2025, going into production by the end of 2026.
- Nodes meet at least the following requirements:
 - Nodes act as the legal representative that can interact with EOSC’s governance structure of each of the resources they provide.
 - Nodes provide entry points for users to access the full EOSC Federation (through federated services)



EOSC Federation is growing

1st wave

 EOSC Node Finland	 EOSC Node BBMRI-ERIC Health & Food
 EOSC Node Germany	 EOSC Node CERN Physical Sciences & Engineering
 EOSC Node Italy	 EOSC Node Data Terra Environment
 EOSC Node Poland	 EOSC Node European DTO Environment
 EOSC Node Slovakia	 EOSC Node Life Sciences Connect Health & Food
 EOSC Node SURF The Netherlands	 EOSC Node PaNOSC Physical Sciences & Engineering
 EOSC Node EUDAT Data, Computing & Digital	 EOSC Node European Commission

2nd wave

 EOSC Node Croatia	 EOSC Node METROFOOD-RI Health & Food
 EOSC Node Czechia	 EOSC Node EBRAINS RI Data, Computing & Digital
 EOSC Node Latvia	 EOSC Node ENVRI Environment
 EOSC Node Slovenia	 EOSC Node EGI Data, Computing & Digital
 EOSC Node Sweden	 EOSC Node GÉANT Data, Computing & Digital
 EOSC Node Switzerland	 EOSC Node Scholarly Commons Data, Computing & Digital
 EOSC Node Türkiye	
 EOSC Node North Macedonia	

Types of Nodes:

14 national nodes
9 thematic nodes
4 e-Infrastructure nodes
1 EOSC EU node

INFRAEOSC projects provide an important additional resource for maturing the EOSC Federation:
developing federation capabilities, services, interoperability frameworks, AI solutions and trusted virtual research environments

EOSC Federation — Deduplicated Portfolio

Unique services, repositories and use cases across all first-wave + second-wave nodes



~194

SERVICES



82

REPOSITORIES

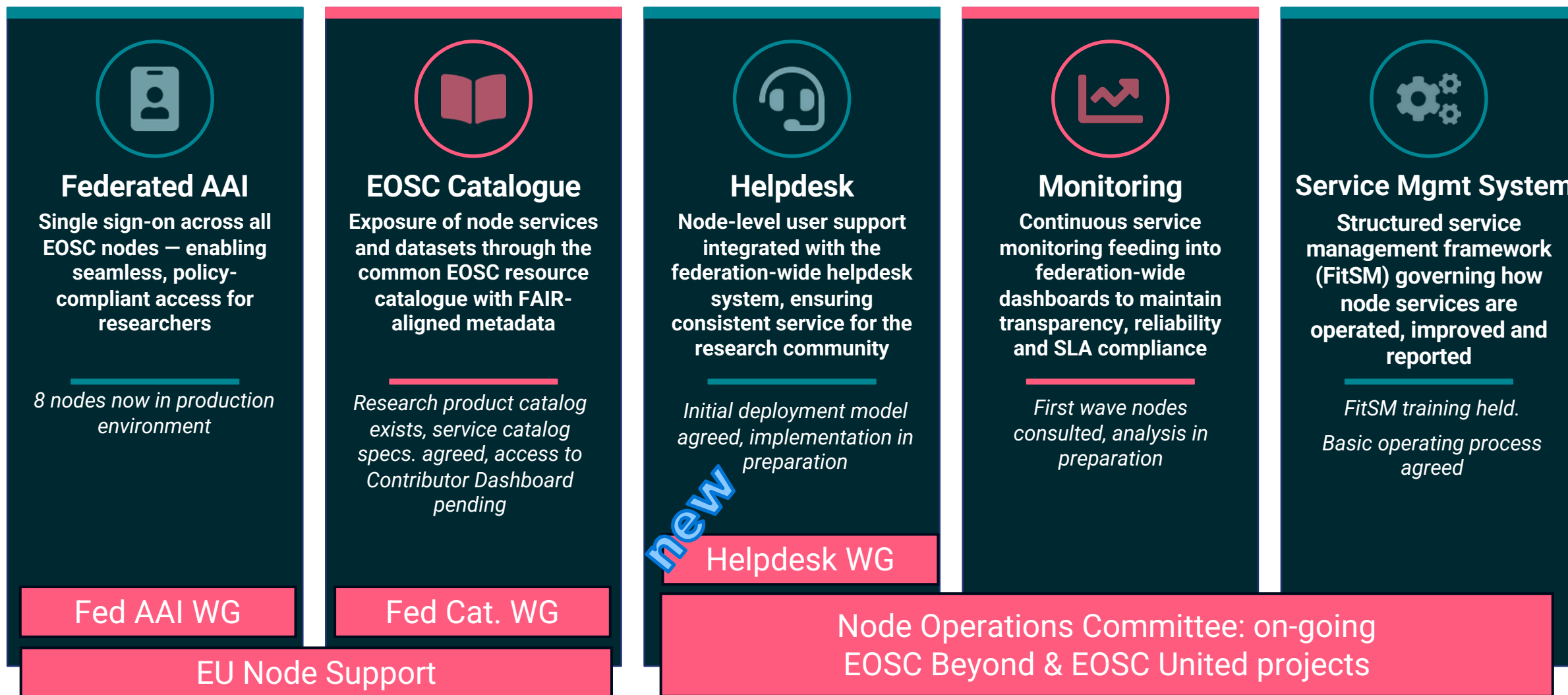


124

USE CASES

Repositories and use cases are fully additive (exact). Services deduplicated by counting each shared platform once (Galaxy, EFSS, REANA, Jupyter, Zenodo/InvenioRDM, D4Science, MyAccessID, Indico); ~194 is an estimate (band ~181–194).

Mandatory Federating Capabilities



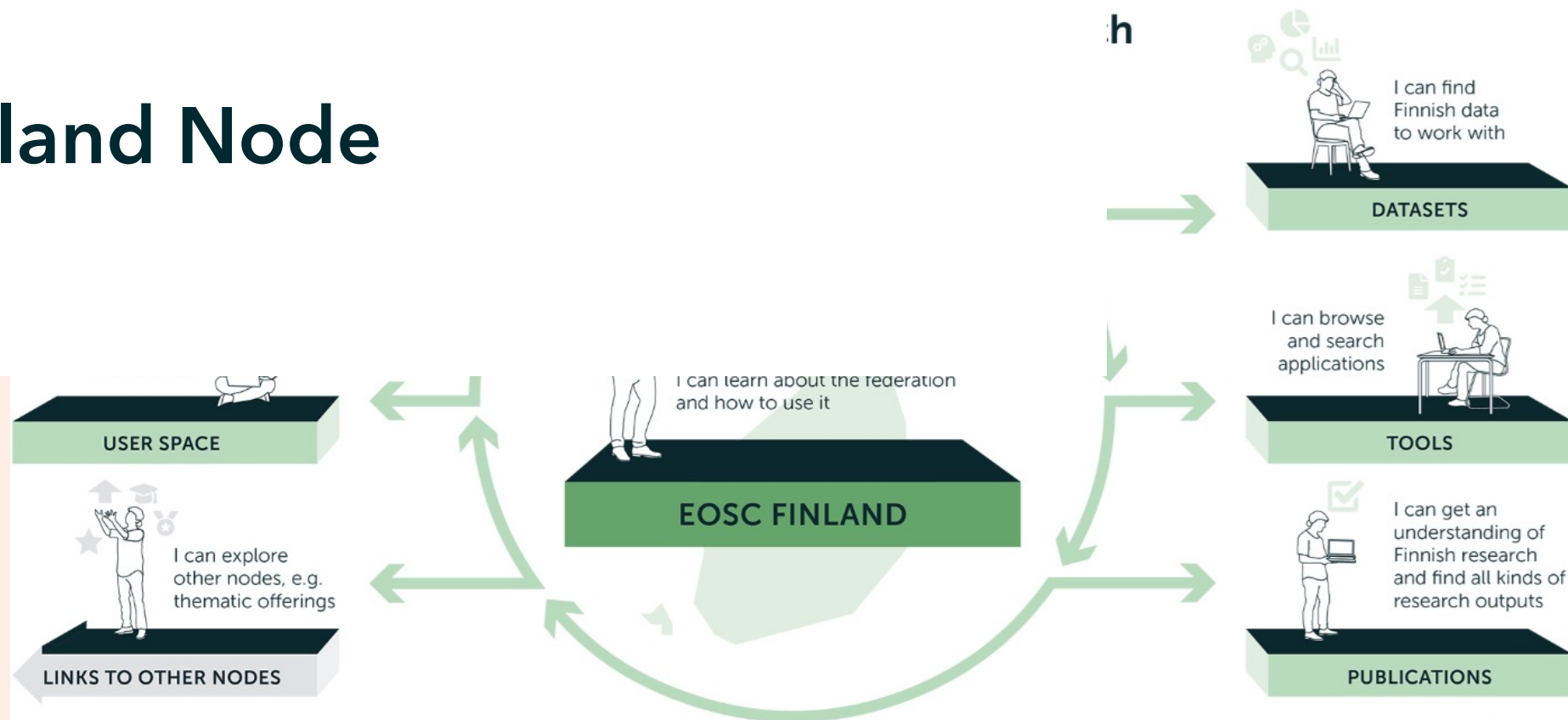
Progressively being adopted by all nodes as part of enrolment and transition to production



Welcome to the EOSC Finland Pilot Node

Smooth Access, Shared Standards, Stronger Research

EOSC Finland Node



What EOSC Finland Node is, why it exists and who it benefits

National node within EOSC

- Provides easy access to Finnish research data and services

Federated core functionalities

- The node offers a common login, data and service catalogues, and user support for a seamless user experience.

Strengthens the FAIR principles

- Through FAIR-by-Design, the node facilitates the sharing and reuse of data in the research lifecycle.

Broadened benefit for research

- The node simplifies access to resources for Finnish and European researchers and connects research to innovation.

Goal: Increase the visibility, reuse, and impact of Finnish research

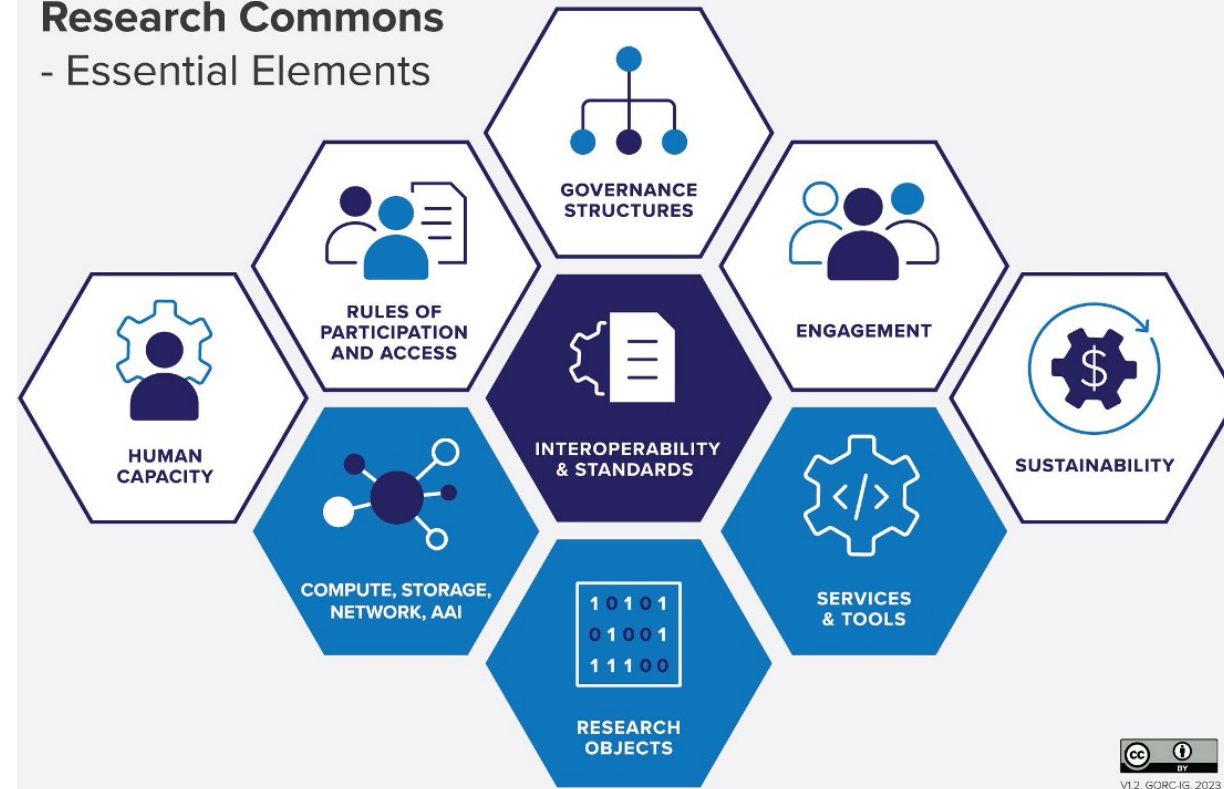
Smooth Access, Shared Standards, Stronger Research



Core objectives of the EOSC Finland Node

- Demonstrating the value of **national-level coordination within a federated European ecosystem**
- Based on the RDA Global Open Research Commons reference model and the national reference architectures, meaning that **governance, quality and user-centricity** and a **broad engagement** among research performing organisations is a high priority
- Promoting **FAIR data practices** and “born FAIR” approaches to increase research impact
- **Providing core federating capabilities** via the Node: single-sign-on AAI integration, federated service and data catalogues, helpdesk for users, monitoring, as requirements are produced and agreed upon within the federation

Global Open Research Commons - Essential Elements



Governance
User Experience
Core Capabilities



Scientific & technical use cases

The objective is to investigate a range of researcher-defined workflows by applying research data management services provided through the EOSC-FI Node, assessing their added value for research data, while also evaluating the technical feasibility of federated capabilities and resources.

Two dimensions; EOSC Finland Node & Multi-node explorations

With GÉANT, EOSC Sweden (VR & SciLifeLab), EOSC Switzerland, and EOSC Ireland

The scientific use cases explores:

Federated data and compute workflows

Cross-border & HPC collaboration, multi-node service integration

RO-Crate, DaaS, and federated AAI

Metadata transformation tools, catalogue federation, data transfer

Multi-stakeholder workflows across data lifecycle

Key considerations on three levels

1. User-centricity

- Strong focus on **researchers as the primary beneficiaries**
- Emphasis on **user experience, discovery, and access pathways**

2. Overall national coordination

- Start by adopting an **appropriately high-level approach**, emphasizing the wider context and avoiding detailed elaboration.
- Identify early on the **designated community** the Node is serving
- The impacts are indirect, requiring substantial time and effort, and necessitating the allocation of **adequate resources**.
- View it as an **opportunity to engage stakeholders**; see it as a collaborative effort.
- **Different types of expertise** are required to address the various themes/topics, not only at the initial stage, but continuously throughout, and **extensive coordination** is needed.

3. Interoperability and federation

- Multi-node workflows and **cross-border integration** are central
- Requires:
 - Federated AAI
 - Interoperable catalogues
 - Data/service integration

National collaboration



National EOSC WG:

- Work with new version of onboarding guideline started
- 10 services onboarded to EOSC Finland Pilot Node
- Discussions on AAI federation starting
- Glossary collaboration with EOSC-SE

- National rollout and strengthening of FAIR-supporting capabilities as described in **national policies**, e.g. reference architectures
- **Stakeholder support:** European researchers, Finnish researchers, Finnish organisations willing to onboard resources in the EOSC Finland Node (e.g. Finnish universities, national data infrastructures, RI national nodes)
- **Horizontal capabilities** supporting data transfer and multi-node workflows as well as storage (EFFS)

An optimistic end state for Phase 1 - Showing a service

An example service, showing the integration of:

- FC-1 AAI
- FC-3 Helpdesk
- FC-4 Monitoring
- FC-8 Order Management

Large-Scale 3D Model Visualisation Service

Interactive high-performance 3D model visualisation system optimised for scientific and engineering research workflows, enabling collaborative analysis of large datasets.

EOSC Node:	Finnish EOSC Node
Provider:	CSC – IT Center for Science
Location:	EU trusted zone (Kajaani, Finland)
Right to Use:	Academic users (Finland & EU/EEA)
Cost Model:	Federation node exchange quota

Monitoring (Past 30 Days)

No scheduled service breaks for the next 30 days



99.97%
Uptime



4.8/5
Reliability



120ms
Resp. Time



12h
Wait Time

 Helpdesk

 Get Access

Welcome to the EOSC Finland Pilot Node



[Home](#) > EOSC Finland Pilot Node

EOSC Finland Pilot Node

Dataset-as-a-Service

EOSC Finland - Tools for service providers and data managers

EOSC Finland for researchers

More about the EOSC Federation and the Finnish Pilot Node

MyAccessID - a new way to access CSC services

Discover services

Browse services in the EOSC federation available for researchers with a Finnish affiliation or project.

[Service catalogue](#) →

Start using services

Read about the first steps to becoming a CSC user.

[How to start](#) →

User guides and tutorials

Browse CSC's user guides and tutorials.

[User guides](#) ↗

<https://research.csc.fi/eosc-the-finnish-candidate-node/>

<https://research.csc.fi/eosc-the-finnish-candidate-node/dataset-as-a-service/>

Research outputs

Discover Finnish research in Research.fi.

[Research.fi](#) ↗

Data

Find Finnish research datasets in the Fairdata Etsin service.

[Etsin](#) ↗

Tools

Browse our extensive applications catalogue.

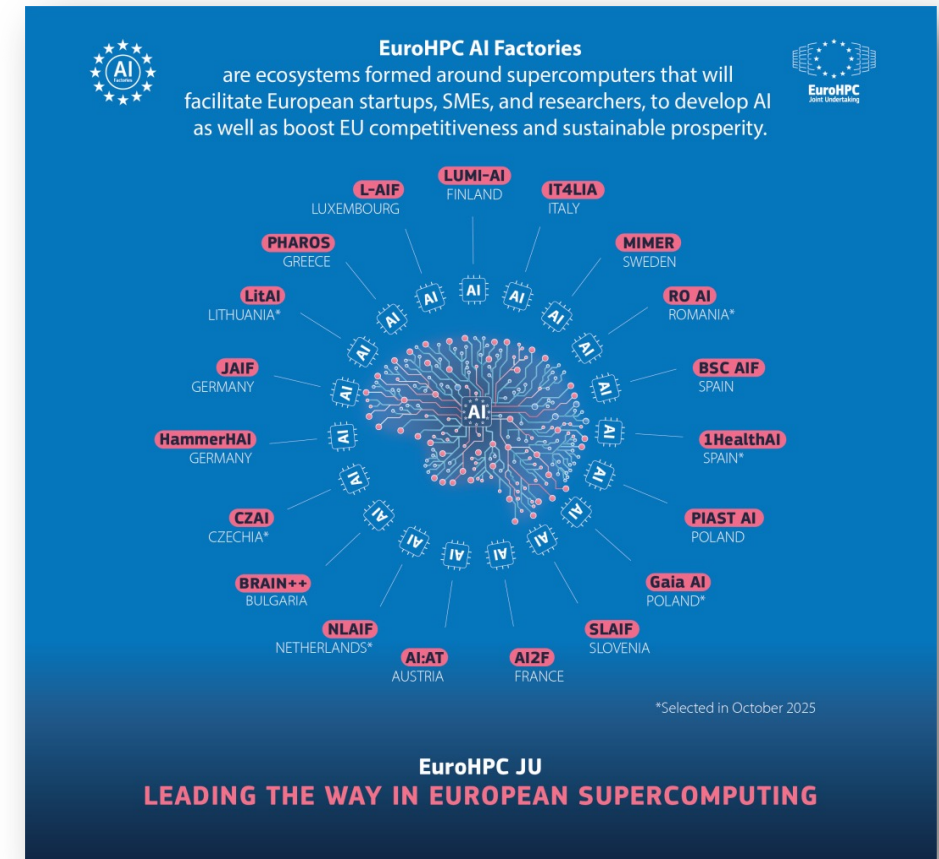
[Applications catalogue](#) ↗



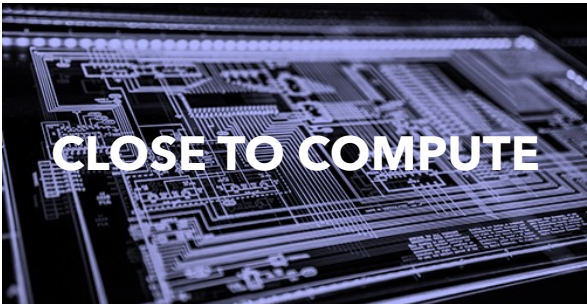
LUMI AI Factory & LAIF Dataset-as-a-Service

Situating the LUMI AI Factory - EU promoting AI innovation

- European Commission launched the AI Innovation Package in January 2024 to **support European startups, and SMEs in the development of trustworthy AI**. Several AI Factory proposals granted in 2024-2025
- Creates a **world-class computing environment** and access to **completely new data sources**, together with a service center and talent pool to support the development of new AI solutions → **AI Factory = compute + data + talent**
- Focus on certain AI ecosystems and communities **in alignment with national AI strategies**



LUMI AIF Dataset-as-a-Service



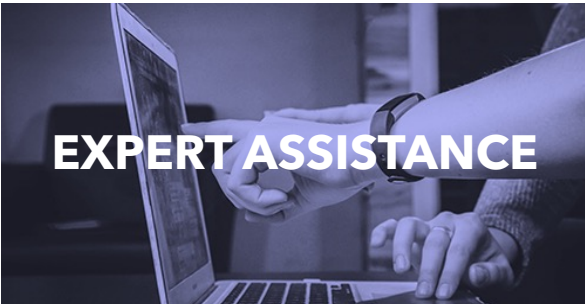
CLOSE TO COMPUTE

- Fast and easy access to data and metadata located close to HPC services, bringing them to the HPC services
- World class high-performance compute



CURATED DATA

- Curated, ethically managed, high-usage (use copies) datasets
- Trusted, high-visibility platform to share high-value datasets



EXPERT ASSISTANCE

- Tailored for both data providers as well as data users
- Data management support

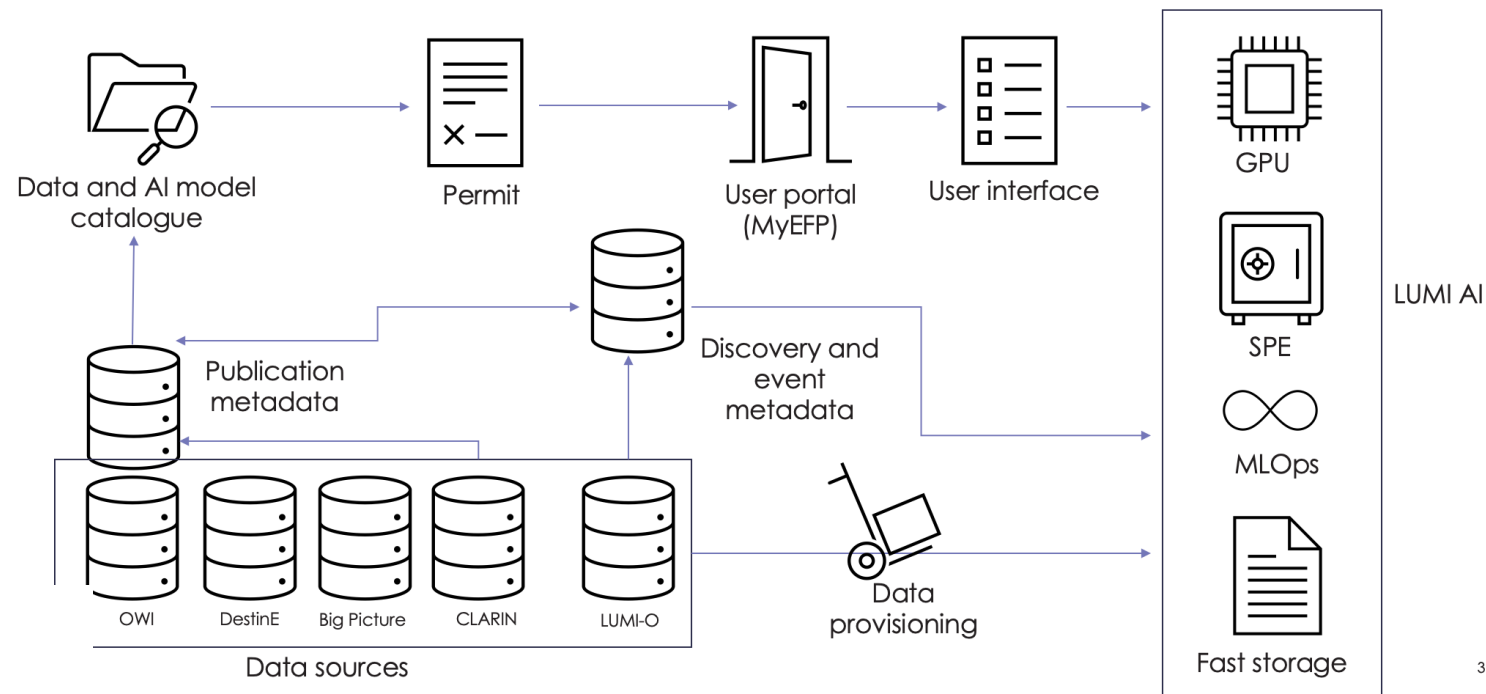
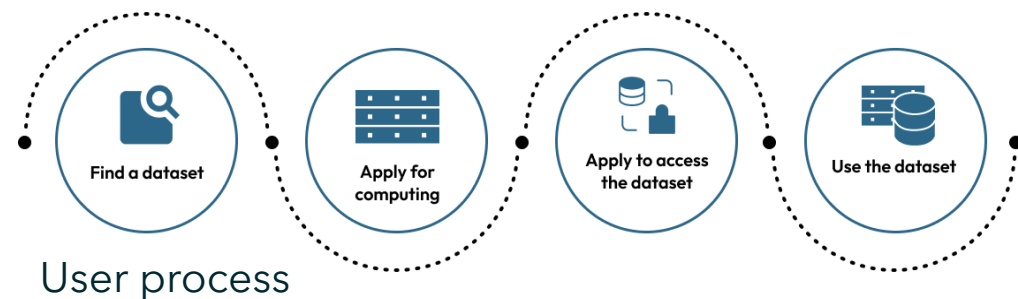
This service concept is developed **in collaboration with the Finnish EOSC Node**

LUMI AIF Dataset as a Service

Datasets-as-a-Service is LUMI AIFs main data offering

For data users it provides a curated selection of high-value datasets, easily accessible and close to computation

For data providers it offers a way of sharing data for innovation and impact in a controlled and secure way





LUMI AI Factory Data Labs

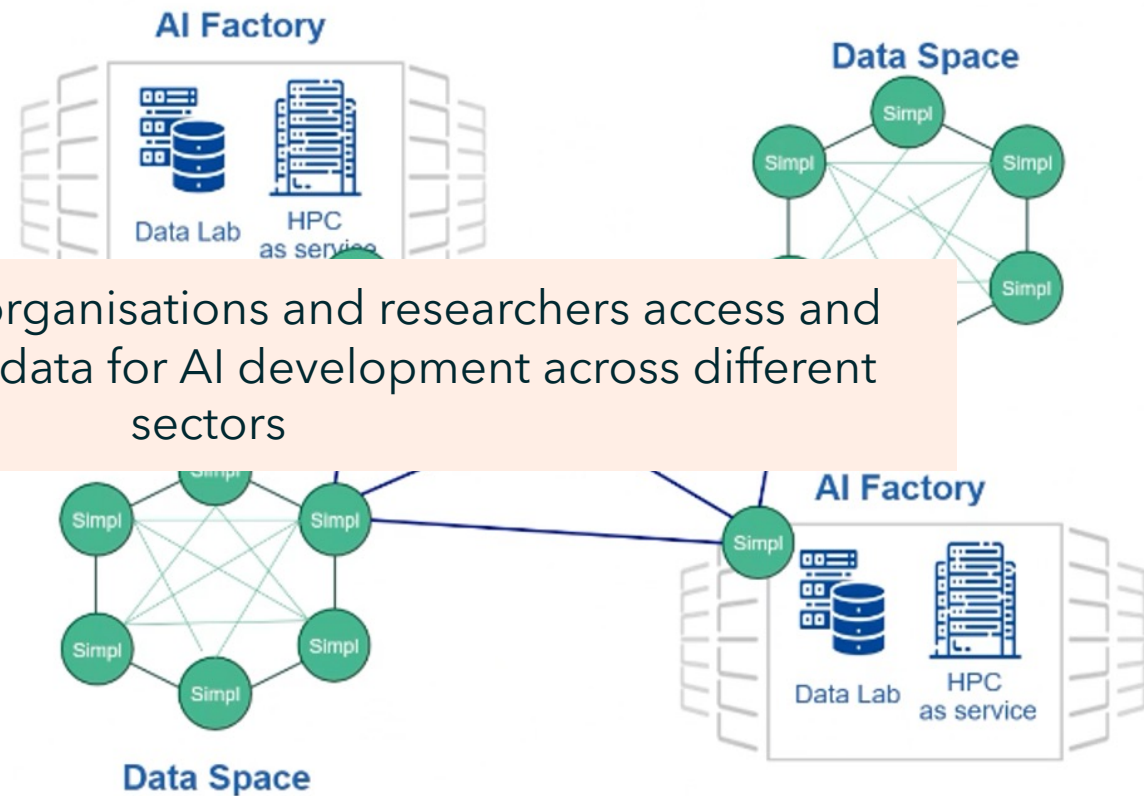
ctory

AI Factory Data Labs

Based on EU Data Union Strategy AIF Data Labs will provide following services:

1. Bridge between data spaces and AI ecosystems
2. Technical infrastructure
3. Data pooling
4. Pseudonymisation and anonymisation services
5. Synthetic data generation
6. Data curation, labelling, and vectorisation
7. Regulatory guidance and training
8. Data access facilitation

→ A Data Lab helps organisations and researchers access and prepare high-quality data for AI development across different sectors





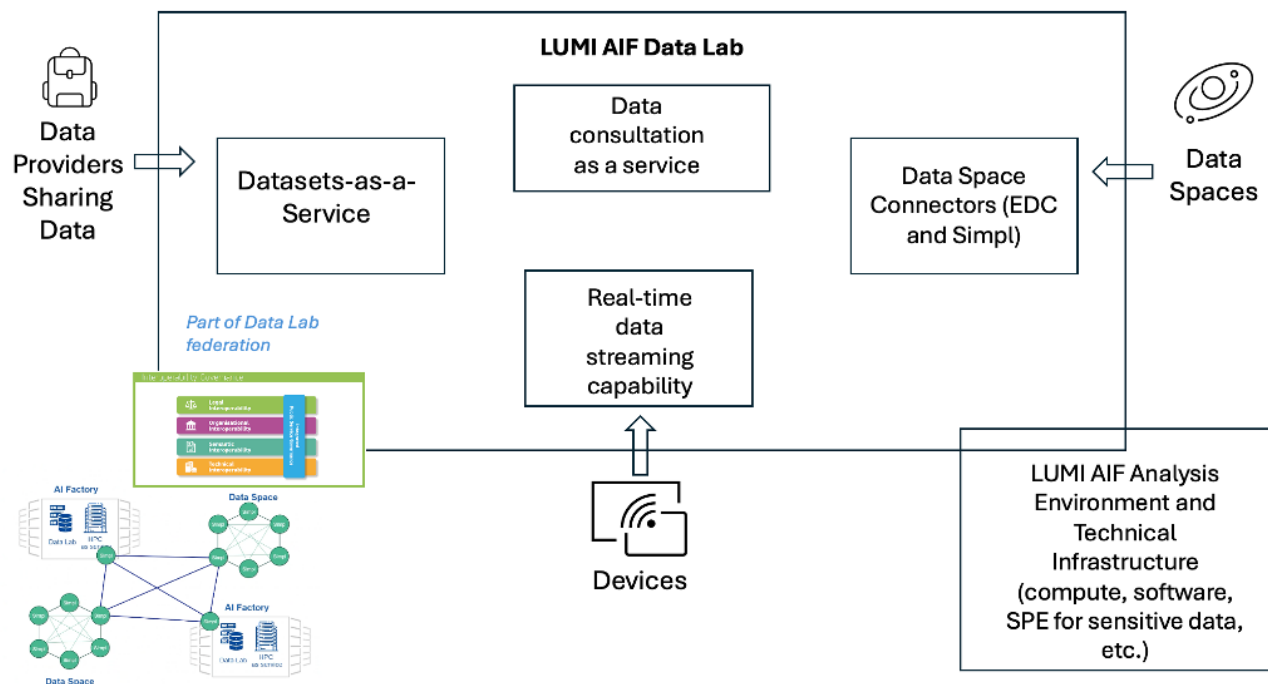
LUMI Data Lab is a **coordinated expert and service platform** that helps customers access, govern, share, manage, and prepare data for AI and data-driven innovation within the LUMI AIF.

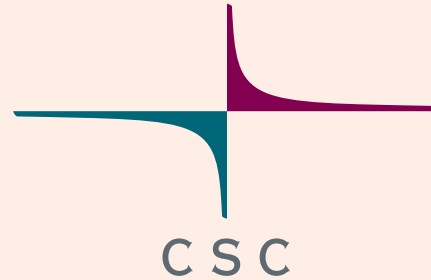


LUMI Data Lab integrates data and trustworthy AI services because **trustworthy AI ultimately depends on trustworthy data.**



The Data Lab operates as an **orchestration layer** that brings together service owners, coordinators, experts, and LUMI AIF partner organisations to deliver practical solutions tailored to specific data and AI use cases.





Thank you for your attention!



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