

*Luděk Matyska, Masaryk University & CESNET*

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# EOSC-Life

Creating EOSC for the life sciences



**EOSC-*Life***

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## Interconnecting Health & Food Research Infrastructures through EOSC-Life

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**Modern biological and biomedical research** involves complex projects and a variety of different technologies.

Some of the most **important discoveries** are made at the **interface between different life science disciplines**.

A **digital model of biological systems** on earth is now possible by breakthroughs in the technologies that study life at all its different scales



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# EOSC-Life: an open collaborative space for digital biology in Europe

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- Establish EOSC-Life by publishing FAIR life science data resources in EOSC
- Create an ecosystem of innovative life-science tools in EOSC
- Enable ground-breaking data driven research in Europe by connecting life scientists to interoperable European clouds via open calls for participation



# EOSC-Life Consortium

- 13 ESFRI Health and Food Research Infrastructures
- 46 Partners and 17 linked 3rd parties
- Sourcing e-Infrastructure services from EOSC (Cloud, AAI,...)
- 4 year Project, 24M€



• biobanks



• curated databases



• marine model organisms



• systems biology



• Plant phenotyping centres



• translational research



• mouse disease models



• screening & medicinal chemistry



• microorganisms



• clinical trials



• structural biology



• biological/medical imaging



• Highly Pathogenic Agents



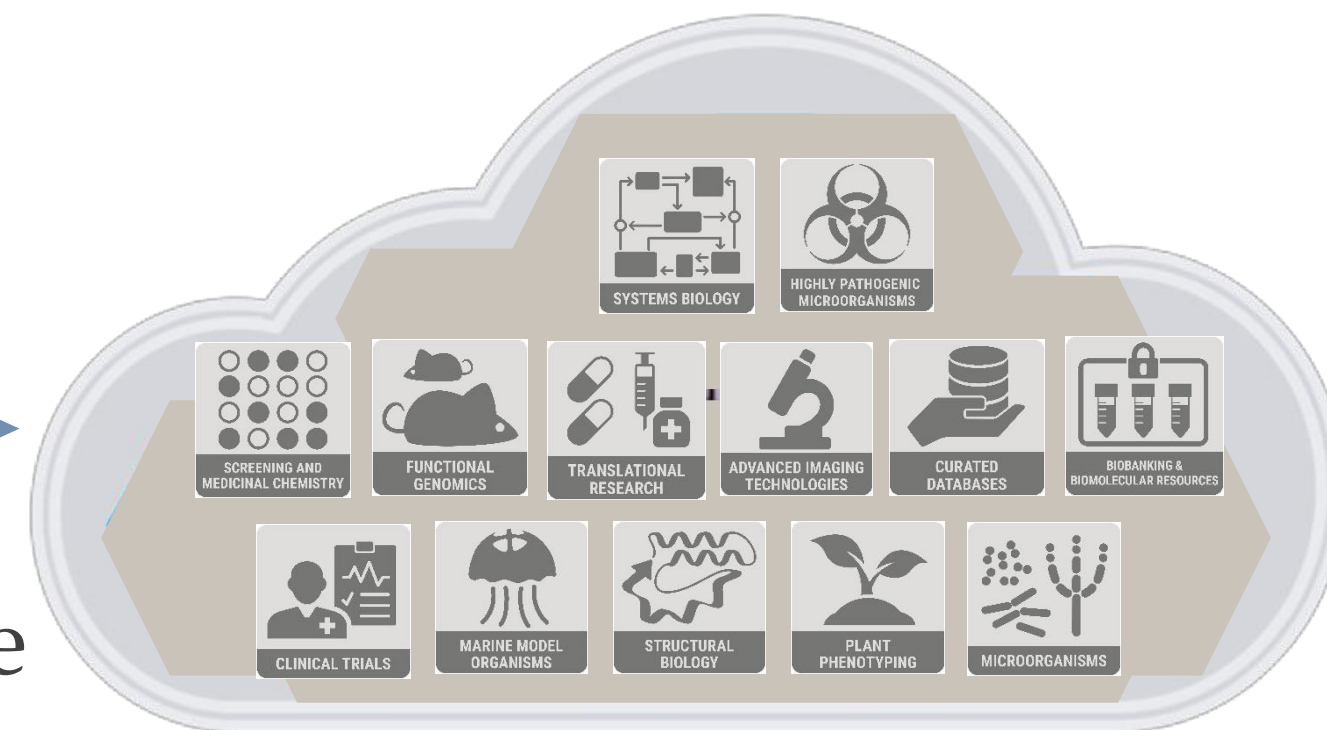
# Establish EOSC-Life by publishing data and tools for cloud use

- Health and Food RI are **distributed with** many hundred partner facilities across Europe
- Health and Food RI have large community of tools developers across Europe



RI data (distributed over facilities)

Publish FAIR life  
science data in  
EOSC



Ecosystem of  
innovative tools  
in EOSC



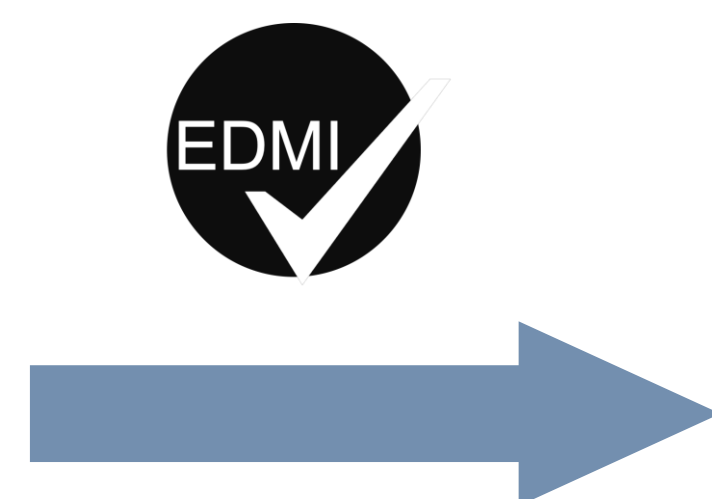


# Creating EOSC for the life sciences

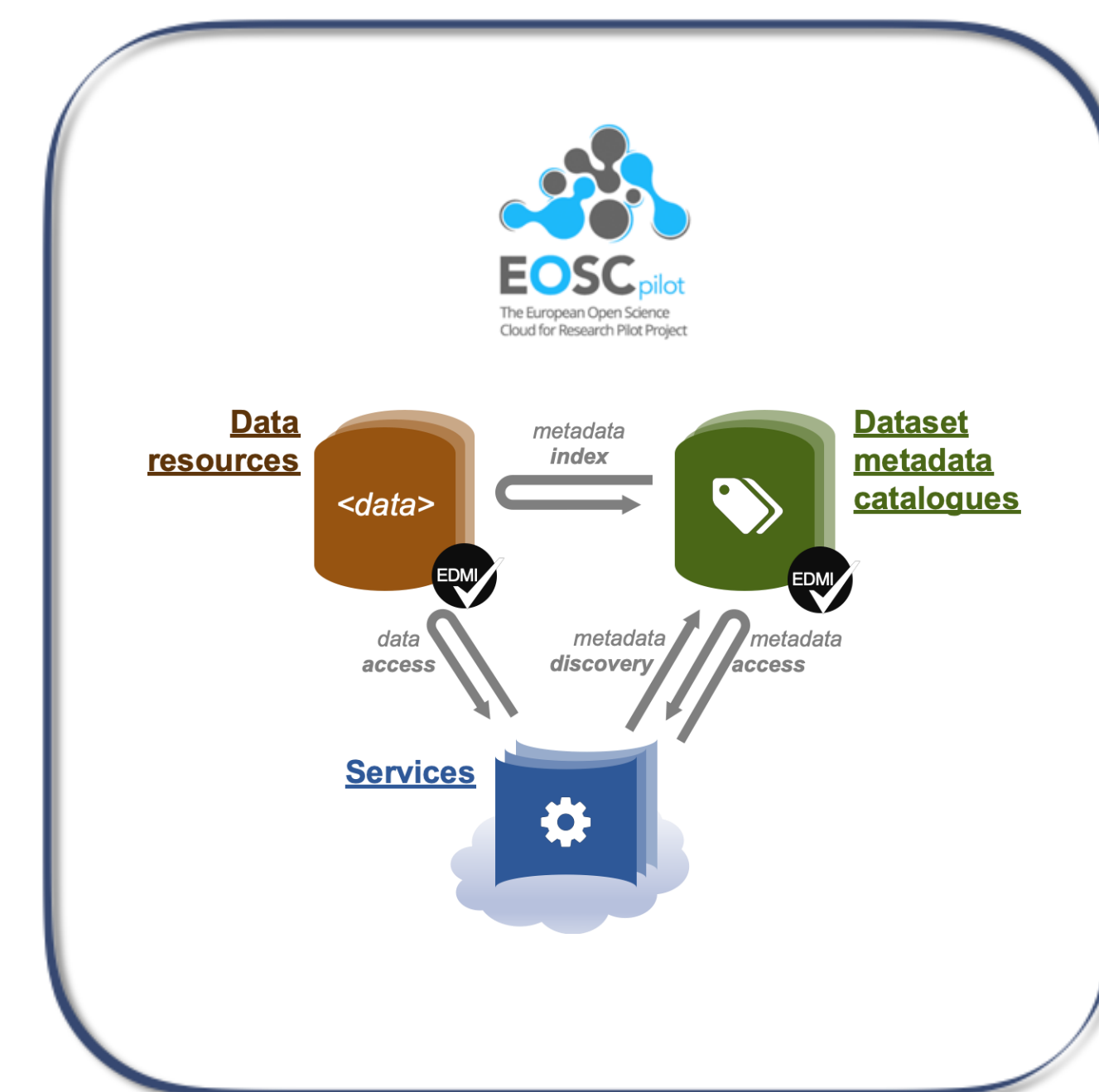
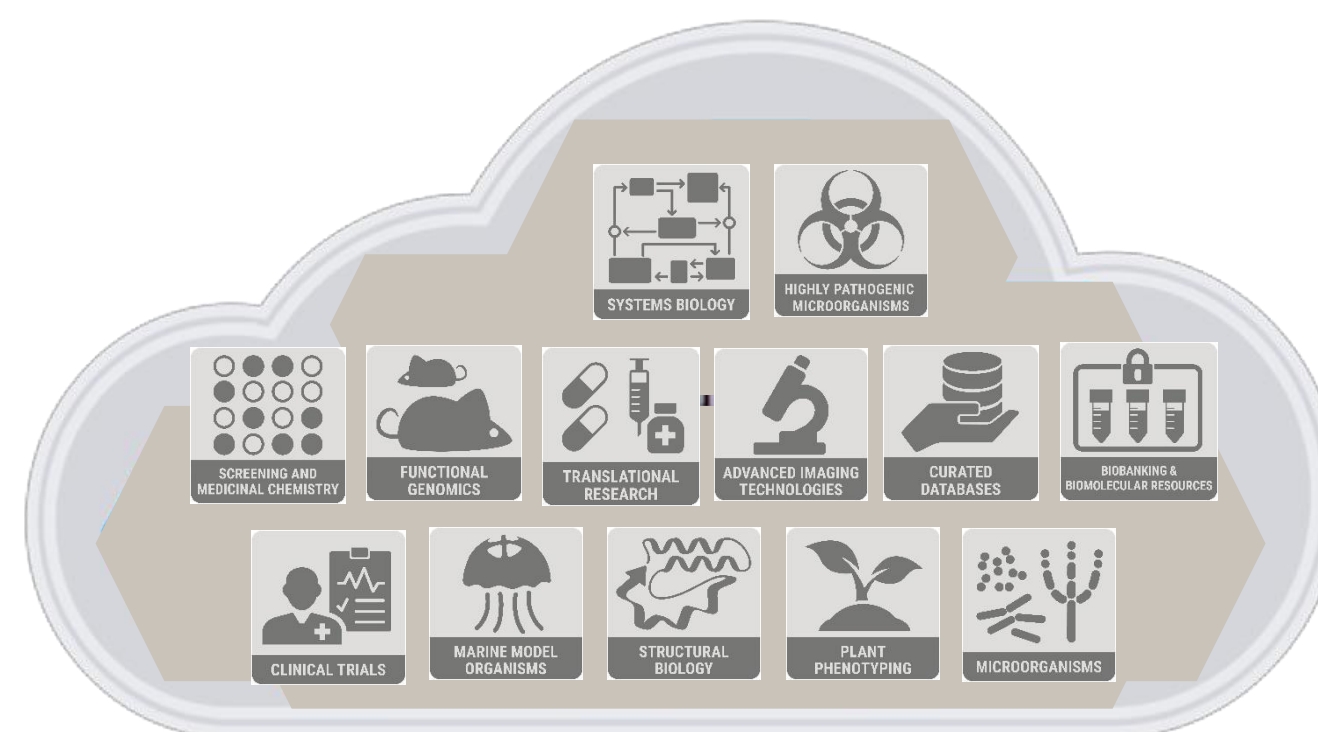
- EOSCpilot: EDM standard for harvesting distributed, FAIR, data and tools
- EOSC-Life: Populate the life-science registries that will feed the EOSC catalogues



RI data (distributed over facilities)  
Tagged with Bioschemas/EDMI (at source)



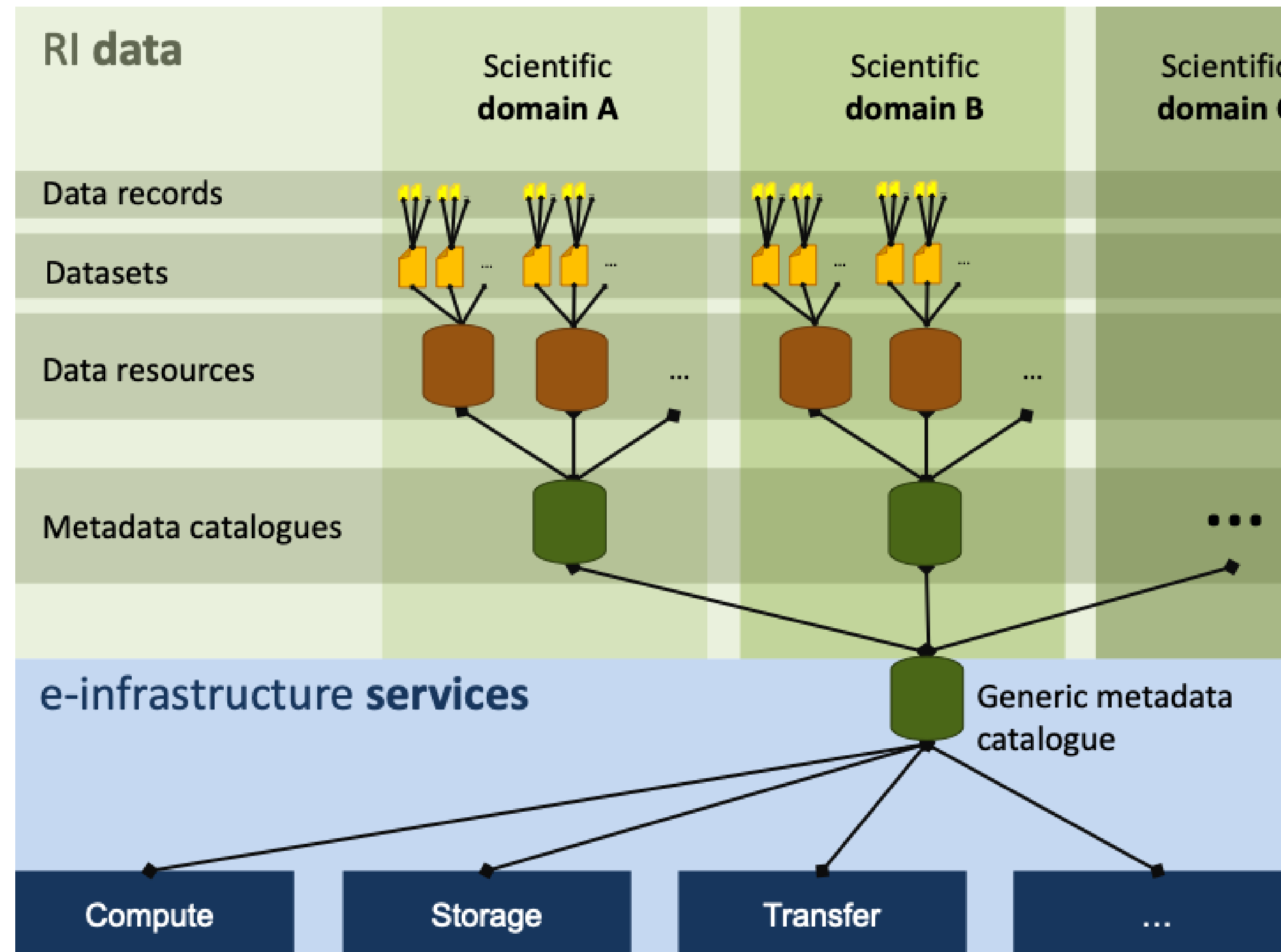
Publish FAIR life science data in EOSC



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 824087



# Creating EOSC for the life sciences



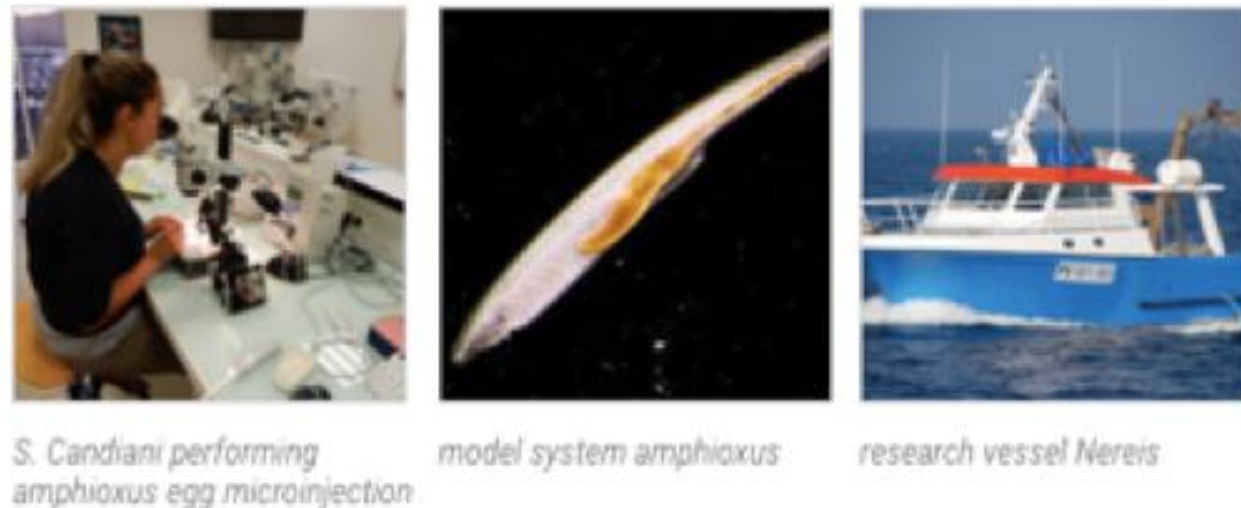
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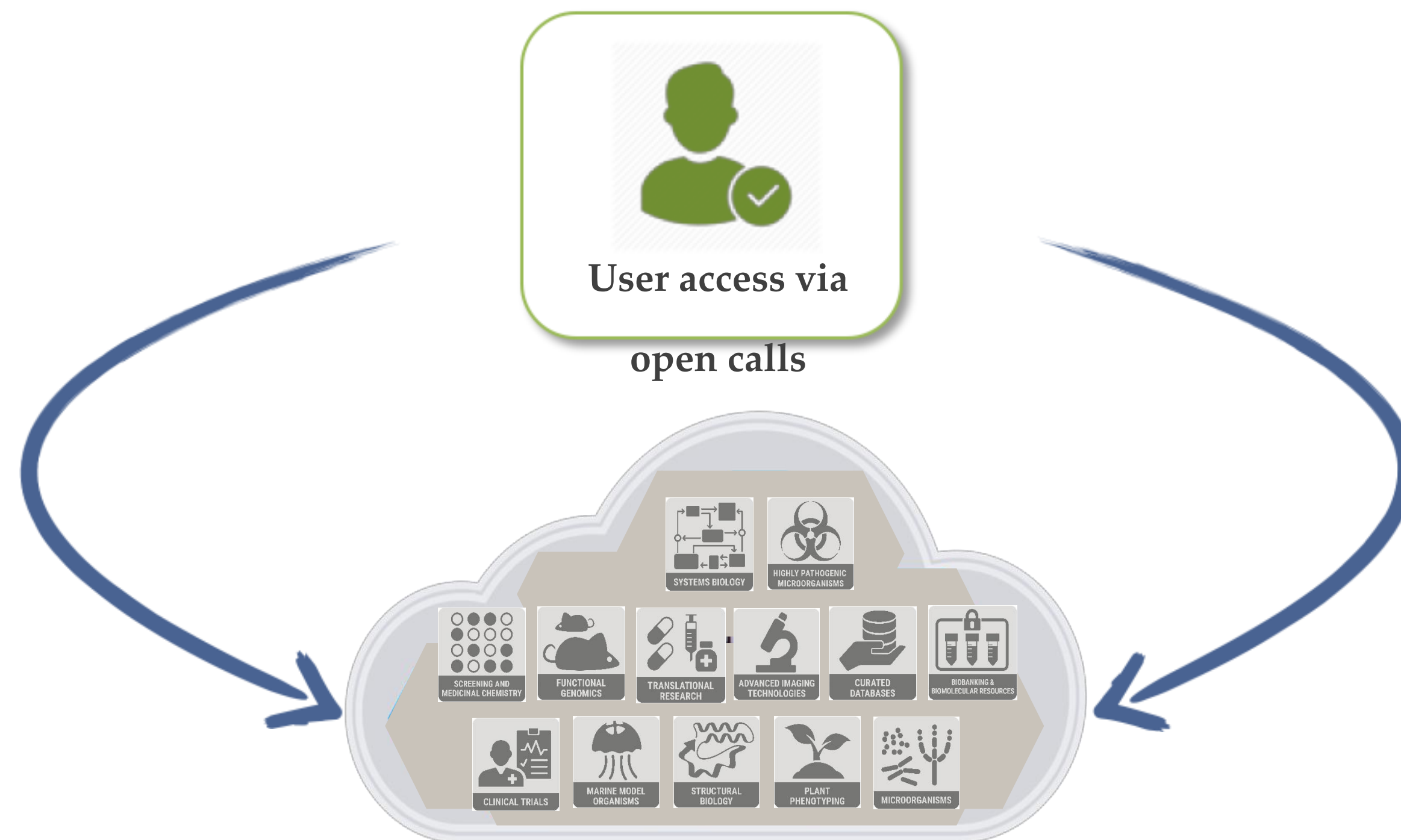
# Enable ground-breaking data driven research in Europe by connecting life scientists to EOSC



## Data Produce Cycle



RI Users access advanced facilities, samples and services



## Data Reuse Cycle



RI data experts drives data reuse via user access to:

- FAIR data
- FAIR tools
- Supporting service

### Supported by:

- Common Data Policies
- Common FAIR services
- Common User access
- Common Quality management and Innovation

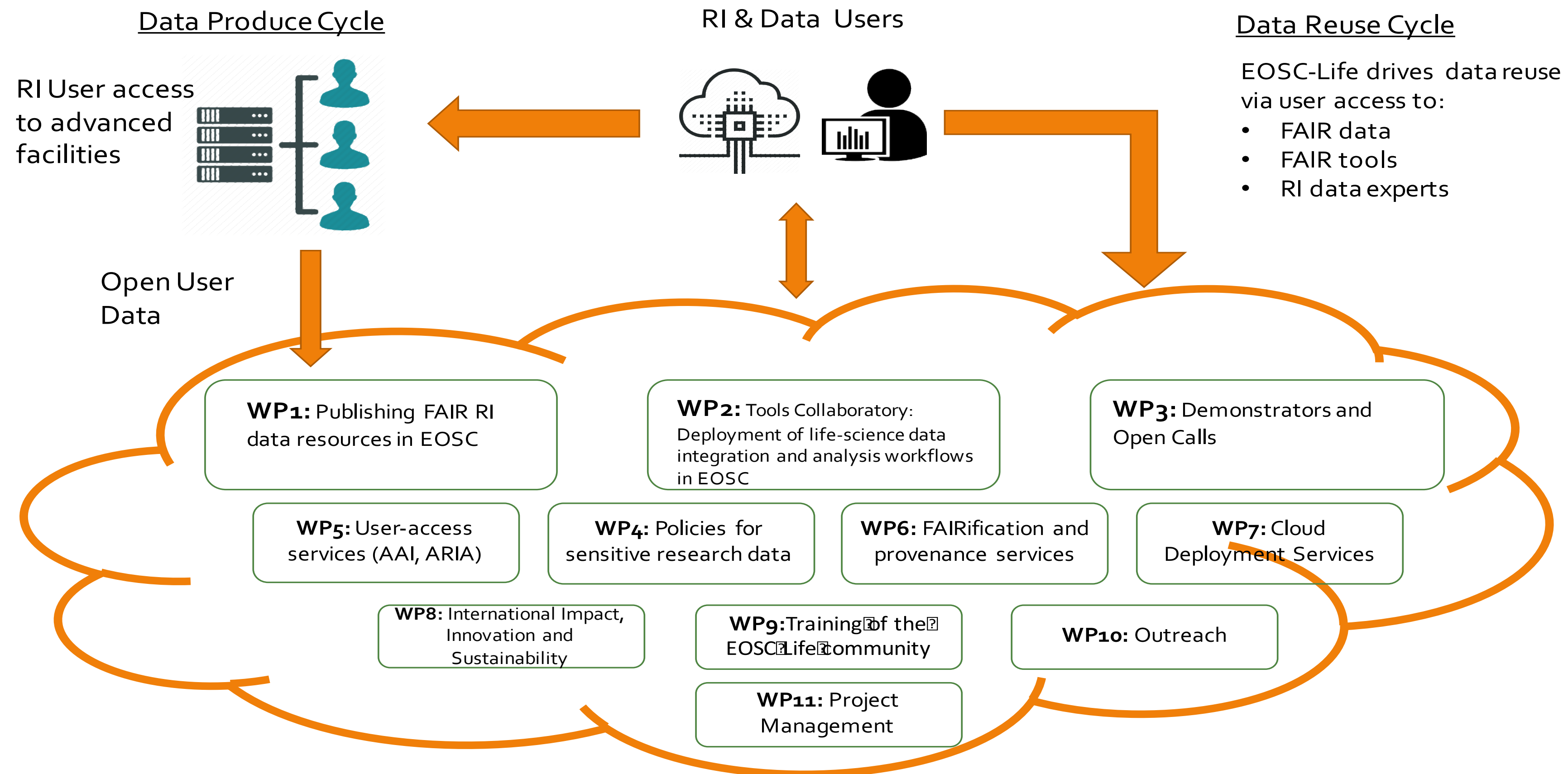


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# Enable ground-breaking data driven research in Europe by connecting life scientists to EOSC



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# Work Packages

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- ❖ WP<sub>1</sub>: Publishing FAIR RI data/resources in EOSC
- ❖ WP<sub>2</sub>: Tools Collaboratory
- ❖ WP<sub>3</sub>: Demonstrators and Open Calls
- ❖ WP<sub>4</sub>: Policies for sensitive research data
- ❖ Wp<sub>5</sub>: User access services
- ❖ WP<sub>6</sub>: FAIRification and Provenance services
- ❖ WP<sub>7</sub>: Cloud deployment services
- ❖ WP<sub>8</sub>: International Impact, Innovation and Sustainability
- ❖ WP<sub>9</sub>: Training
- ❖ WP<sub>10</sub>: Outreach
- ❖ WP<sub>11</sub>: Project Management



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# Interesting principles of work

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- ❖ Use cases: on top of several pre-selected there will be an open call to support scientists with interesting ideas to use the EOSC(-Life) environment
- ❖ Calls limited to partners within the consortium
- ❖ Life Science AAI provisioned through e-infrastructures
- ❖ Cloud services provisioned through implicitly and explicitly paid resources



# EOSC-Life: Cloud Architecture

## Cloud Activities

**WP1: Data  
Resources**

**WP2: Tools**

**WP3:  
Demonstrators**

**WP9: Training**

## Platforms

### Managed Platforms

Container Orchestration  
GA4GH Workflows  
Appliances

Galaxy  
Cloud Portal

Training  
Helpdesk

### Unmanaged Platforms

Services from WP1  
Workflows from WP2  
Demonstrators from WP3

## EOSC

**Pledged Cloud**  
EMBL-EBI  
ELIXIR DE (de.NBI)  
ELIXIR CZ (MU)

**PAYG Cloud**  
CSC  
Other RIs....

**EOSC**  
Others...

**Commercial Frameworks**  
GEANT Cloud Framework  
Helix Nebula Science Cloud  
OCRE





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# Czechia in EOSC-Life

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- ❖ Leading the WP<sub>5</sub>, heavily contributing to the LS AAI
- ❖ Participating in the WP<sub>7</sub>: cloud resources, clouds for sensitive data
- ❖ Participating in WP<sub>4</sub>: Policies for sensitive research data
- ❖ Participating in WP<sub>6</sub>: FAIRification and Provenance
- ❖ *Demonstrator in WP<sub>3</sub>*
- ❖ *Data provider in WP<sub>1</sub>*
  
- ❖ Opportunity to participate in Open calls (WP<sub>3</sub>)
  
- ❖ MU (ELIXIR, BBMRI, ECRIN) & UMG (EU-OPENSSCREEN, INFRAFRONTIER)



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# Thank you Questions?



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