



**SURF**

# Unlocking the Potential of Open Science: EOSC in Practice

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24 October 2025, National Open Science Festival

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# Our promise:

SURF

- *Access the **EOSC EU Node***
- *Discover and work with the EOSC EU Node **services***
- *Experience the **EOSC Federation** in practice*
- *Explore and contribute ideas to how the (SURF) EOSC (Pilot) Node looks today—and how it could evolve.*





- Introduction
- History behind the **EOSC EU node and EOSC Federation**
- Hands-on with EOSC EU node
- What is the EOSC Node | SURF The Netherlands
- Discussion, evaluation and next steps



## Origins and Initiative

- The **European Open Science Cloud (EOSC)** was pursued by the **European Commission (EC)** since 2015 to advance *Open Science*, improve access to research infrastructures, and enable data-driven innovation across Europe.
- The political foundation was laid in **2016** with the [European Cloud Initiative \(COM\(2016\) 178\)](#), part of the *Digitising European Industry* strategy.
- EOSC was envisioned as a **federated environment** linking existing research infrastructures, data repositories, and computing resources across EU member states.

Source: <https://eosc.gov.pl/en/about-eosc/>



## **EOSC has been implemented in two phases:**

- **(2018-2020)** In the initial phase of implementation, the European Commission invested approximately €250 million in EOSC-related projects selected through calls for proposals launched under Horizon 2020.
- **(2021-2030)** In the current phase , the EOSC implementation is taking place in the context of the co-programmed EOSC Partnership.

Source: <https://eosc.gov.pl/en/about-eosc/>



## (2018-2020) Early Phase and First Projects

- The **first preparatory project, EOSCpilot**, started in **2017** under Horizon 2020. It tested the EOSC concept, explored governance models, FAIR data principles, and interoperability frameworks.
- In **January 2018**, two major implementation projects began:
  - **EOSC-hub** – focused on integrating services and building the EOSC Portal.
  - **OpenAIRE-Advance** – aimed at connecting research outputs, publications, and data under Open Science principles.

Source: <https://eosc.gov.pl/en/about-eosc/>



## **(2021-2030) Current Phase (500 MEuro)**

- EOSC Future (41 MEuro)
  - EOSC AAI (SRAM)
  - EOSC Providers Portal (EOL 2024)
  - EOSC Catalogue & Marketplace (EOL 2024)
  - Public Cloud access (400K SURF Research Cloud O&S Azure & Oracle resources)
  - EOSC funded projects: FAIRCore4EOSC, etc.
- Horizon Europe program (2024 - )
  - EOSC EU Node (Launch oktober 2024)
  - Horizon grants: EOSC-Entrust, EOSC Beyond, EVERSE, GRAVITY, United, etc.

Source: <https://eosc.gov.pl/en/about-eosc/>



## **EOSC EU Node**

### **LOT 1: Core Federation Services**

- Web Portal Front Office, the Resource Catalogues and Registry Services, the Application Workflow Management engine, the Federated Identity Management and Single-Sign-On solution, the Monitoring and Accounting function, and the overall Service Management System and service integration

### **LOT 2: Exchange Infrastructure Services**

- Managed Container service, Managed Compute (Virtual Machine) service and Managed Bulk DataTransfer service

### **LOT 3: Exchange Application Services**

- Managed File Synchronisation and Sharing service, Interactive Notebooks service, and Managed Large File Transfer service for end-users

Source: <https://eosc.gov.pl/en/about-eosc/>



## Tripartite Collaboration

**Governed and developed** by the **EC, European member states and associated countries** and the **community** (research performing institutes, service providers, funders).

### Tripartite parties

#### European Commission



Representing the European Union

#### EOSC Association



Representing the European  
research community

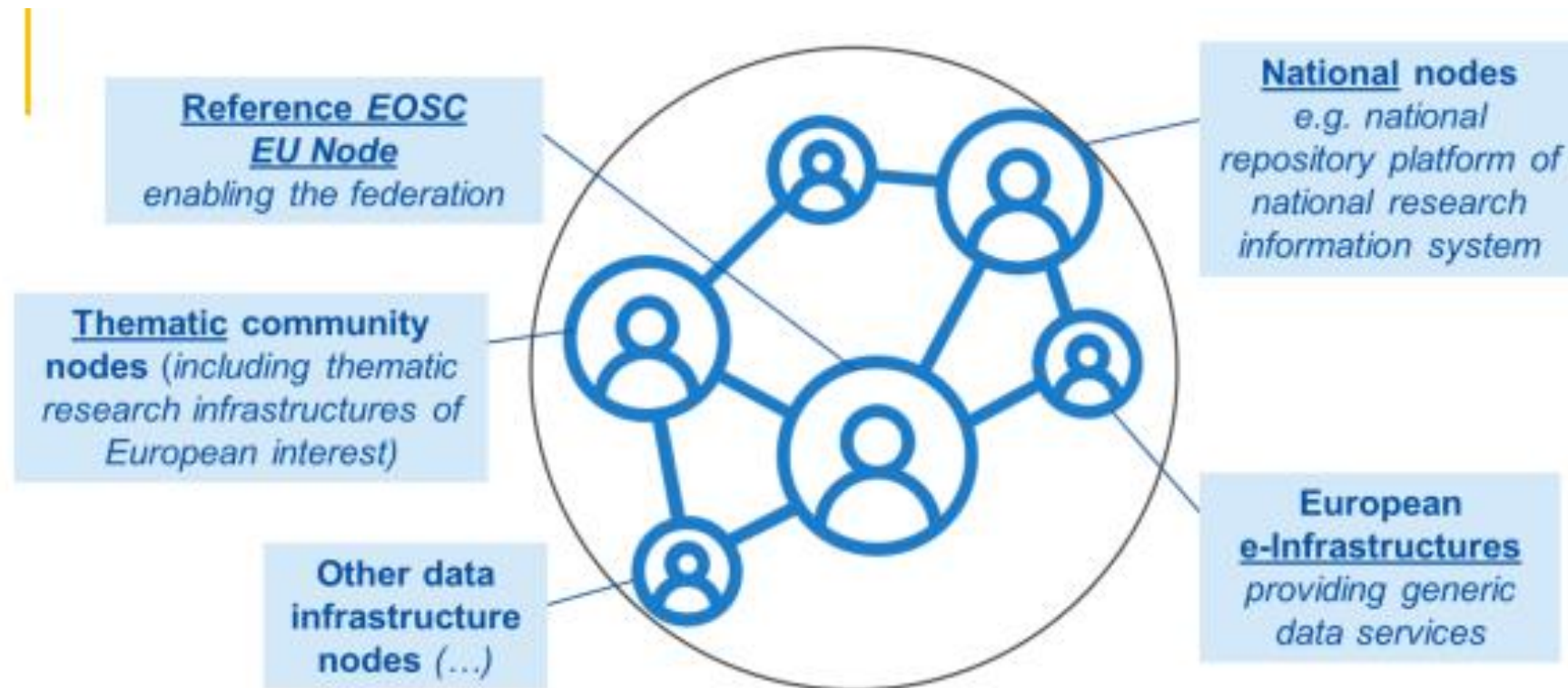
#### EOSC Steering Board



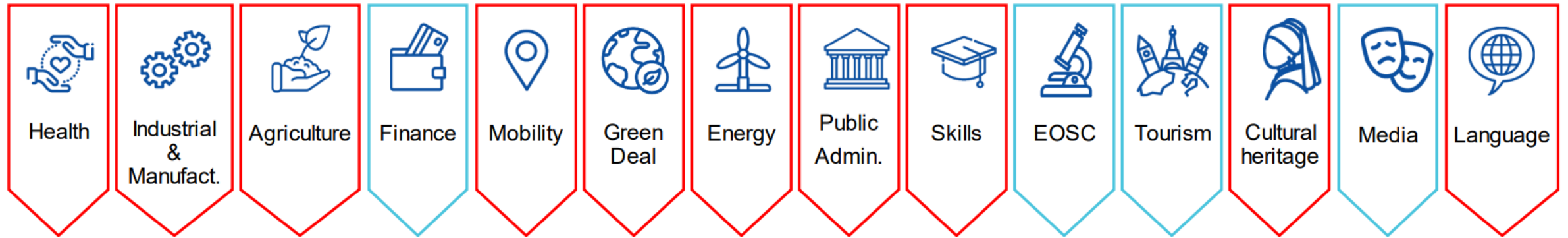
Representing EU Member States  
and Associated Countries

# EOSC is a federation (system of systems)

- An open, trusted, federation of infrastructures
- It provides access to existing Research Infrastructures in Europe
- It will enable circa 2 million European researchers to store, share, process, analyze, and reuse research digital objects



# EOSC: the first Common European Data Space



# Organisations involved in the Netherlands

SURF

## Make Open Science the norm



## Best practices & support



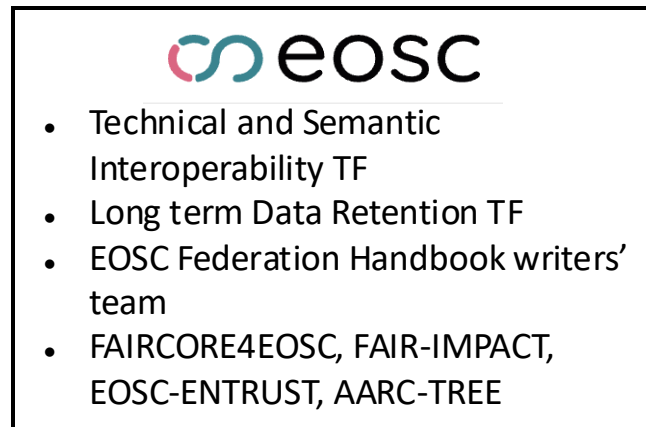
## Domain specific Research Infrastructures



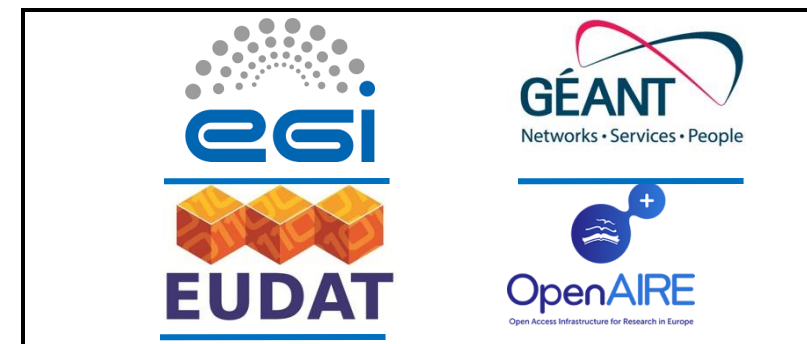
## Research performing, supporting and funding organisations



## EOSC Related activities



## e-infrastructures



EOSC NL WG

EOSC-A Members/observers

# EOSC's build-up phase to begin with March kick-off

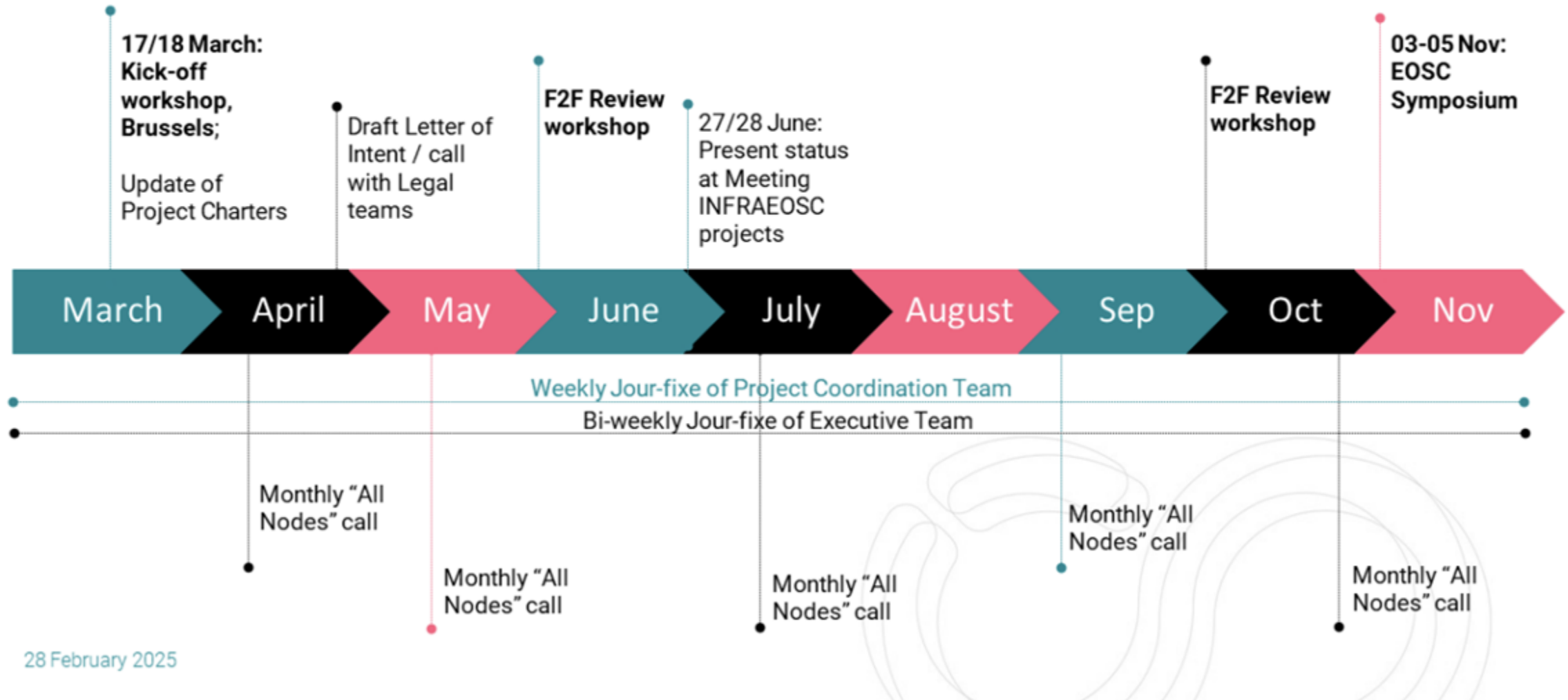
26 February 2025

👁 1908 views • ⌚ 3 minutes





# eosc Indicative Timeline for build-up phase of the EOSC Federation



## EOSC EU Node

A European platform and information gateway to explore, engage, and enrich your research collaborations.

### Who is it for

#### Researchers

If you are a researcher or citizen scientist in Europe interested in collaborative, data-driven Open Science, the EOSC EU Node offers easy access to diverse data, publications, software, and services from across Europe's research networks.

#### Contributors

If you are a scientific resource provider in Europe, the EOSC EU Node invites you to contribute your research objects - such as data, software, services, and tools - to support the mission of promoting Open Science.

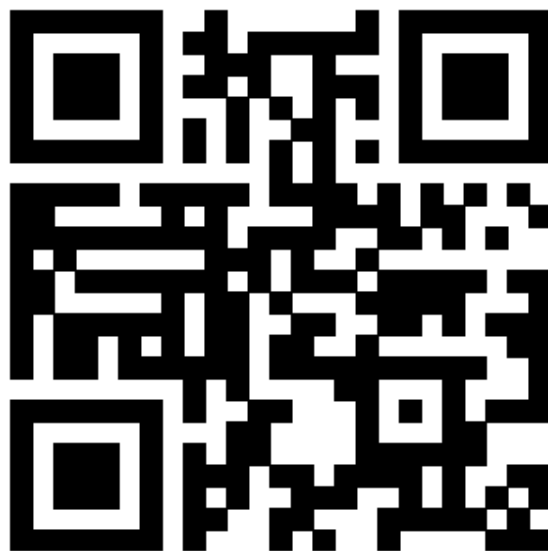
# EOSC EU Node



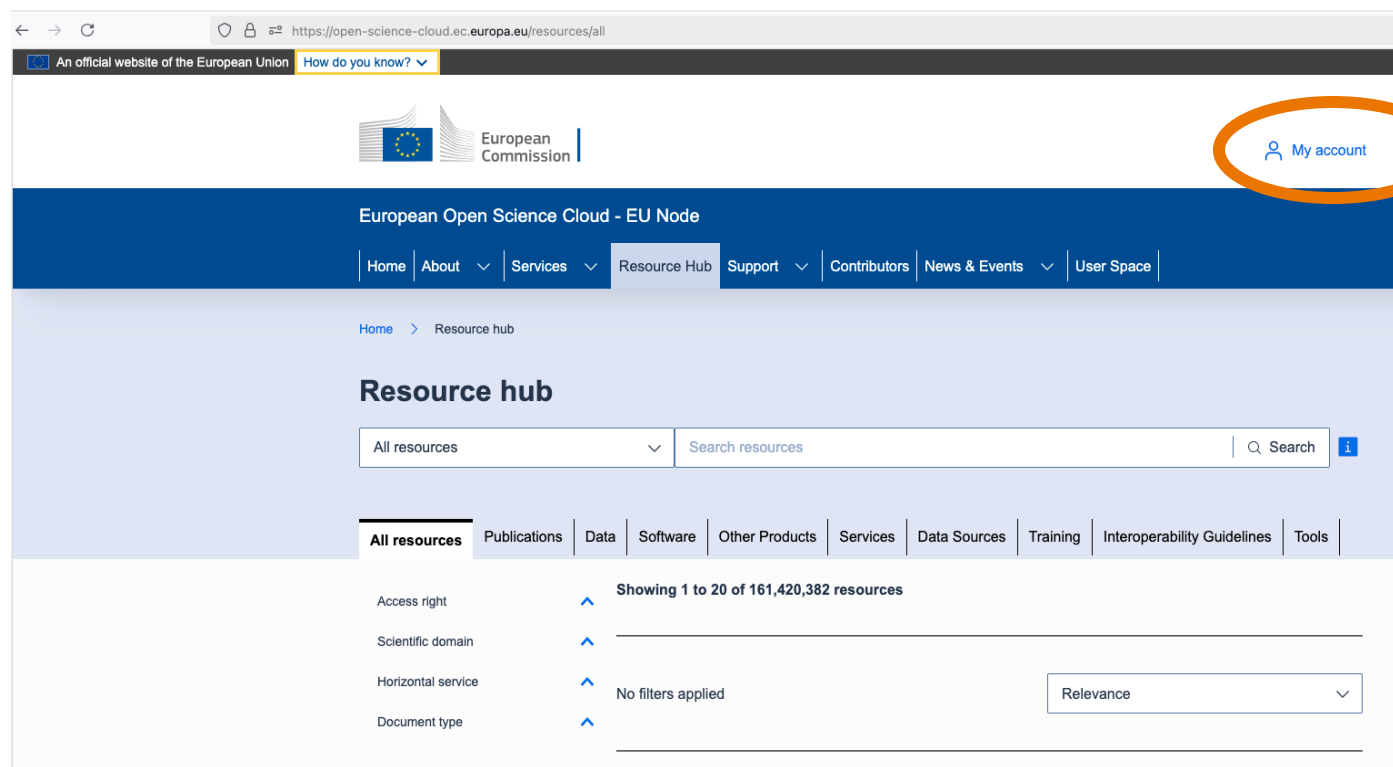
Workshop hand-out Open Science Festival 2025

DOI 10.5281/zenodo.17453475

<https://open-science-cloud.ec.europa.eu/>



edu.nl/6uwnn



# Log in to EOSC EU Node

SURF

Use your institutional account (or eduID)

Please report log in issues at  
<https://open-science-cloud.ec.europa.eu/support/helpdesk>

[Terms of Use](#) [Contact us](#) [Privacy Policy](#)

## European Open Science Cloud EU Node

Access your account and take advantage of the free resources,  
perform research and collaborate.

### Log in

Find your home institution

Search for your home institution and use your existing credentials to login

SURF  
surf.nl


eduID (NL)

OR

If you have EU Login credentials, you may click on the link below

 EU Login


If you do not have an EU Login, you can click [HERE](#) and create one

 European Commission

**EOSC EU Node**

Resource Hub

Kees den Heijer  
user

Logout 

Overview

Notifications

Tools Hub

SERVICES

File Sync & Share

Interactive Notebooks

Large File Transfer

Cloud Container Platform

Virtual Machines

Bulk Data Transfer

Other Services

GENERAL

Groups


Orders

Credits

Favourites

## Hello Kees den Heijer

This is the overview of your EOSC EU Node account.

 Welcome to the EOSC EU Node!

### Services

#### File Sync and Share

You have access to this service

[View Service >](#)

#### Interactive Notebooks

You have access to this service

[View Service >](#)

#### Large File Transfer

You have access to this service

[View Service >](#)

#### Virtual Machines

You have access to this service

[View Service >](#)

#### Cloud Container Platform

You have access to this service

[View Service >](#)

#### Bulk Data Transfer

You do not have access to this service.  
Please read our [User Access Policy](#) for more information

[View Service >](#)

Credits renewed 2026-01-12

#### European Open Science Cloud - EU Node

*This site is managed by the Directorate-General  
for Communications Networks, Content and  
Technology*

#### Contact us

Contact our Helpdesk  
FAQs

#### About us

The European Open Science Cloud aims to  
establish a federation of infrastructures  
facilitating effortless access to interoperable

# Explore your account



Use your institutional account (or eduID)

Resource Hub

Kees den Heijer  
user

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Overview

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Groups

Orders

Credits

Favourites

Settings

QUICKLINKS

1. Go to Settings and find your Access Level

2. In Settings, change your "scientific domains" (optional)

3. Go to Credits and check your remaining credits

4. Under Credits, you find services. Do you have access to these services?

Access Group	Who It's For	Credits
Explorer (AP-0)	Not logged in	Not applicable
Observer (AP-A)	Authenticated, no data services	0 credits
Collaborator (AP-A1)	Institutional employee or staff	500 credits
Investigator (AP-B)	Academic researcher (faculty)	1500 credits (individual user) 3000 (group)



# EOSC EU Node Resource Hub

<https://open-science-cloud.ec.europa.eu/resources/all>

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EOSC EU Node

Resource Hub

Kees den Heijer user

Logout

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View Service >

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View Service >

Cloud Container Platform

You have access to this service

View Service >

Bulk Data Transfer

You do not have access to this service. Please read our [User Access Policy](#) for more information

Credits renewed 2026-01-12

## Resource hub

All resources

Search resources

Search

i

All resources

Publications

Data

Software

Other Products

Services

Data Sources

Training

Interoperability Guidelines

Tools

Showing 1 to 20 of 141,630,772 resources

Access right

Scientific domain

Horizontal service

Document type

No filters applied

Relevance

# EOSC EU Node Resource Hub

<https://open-science-cloud.ec.europa.eu/resources/all>

SURF

## Resource hub

All resources

Search resources

Search

i

All resources

Publications

Guidelines

Tools

DATA

DATASET

OPEN ACCESS

☆

Year: 2021 | Views: 0 | Downloads: 0 | Citations: 0

**Distribution centers 1980-2020 Geodata**

Geodataset including ca. 10 thousand logistic buildings in the East-Southeast corridor of the Netherlands, as well as the business estates they are in, measured between 1980-2020. Interactive zoomable map with timeline slider available on: [http://mertennefs.eu/landscapes-of-trade/...](http://mertennefs.eu/landscapes-of-trade/)

**Author** Nefs, Merten

**Publisher** 4TU.ResearchData | science.engineering.design | 4TU.ResearchData

**Identifier** [10.4121/14791686.v1 \(DOI\)](#) | [10.4121/14791686.v3 \(DOI\)](#) | [10.4121/14791686 \(DOI\)](#) | [10.4121/14791686.v2 \(DOI\)](#)

**Keywords** corridor • the Netherlands • FOS: Social and economic geography • Built Environment and Design • GeoData • distribution center, • Urban and Regional Planning • Time: 1980-2020

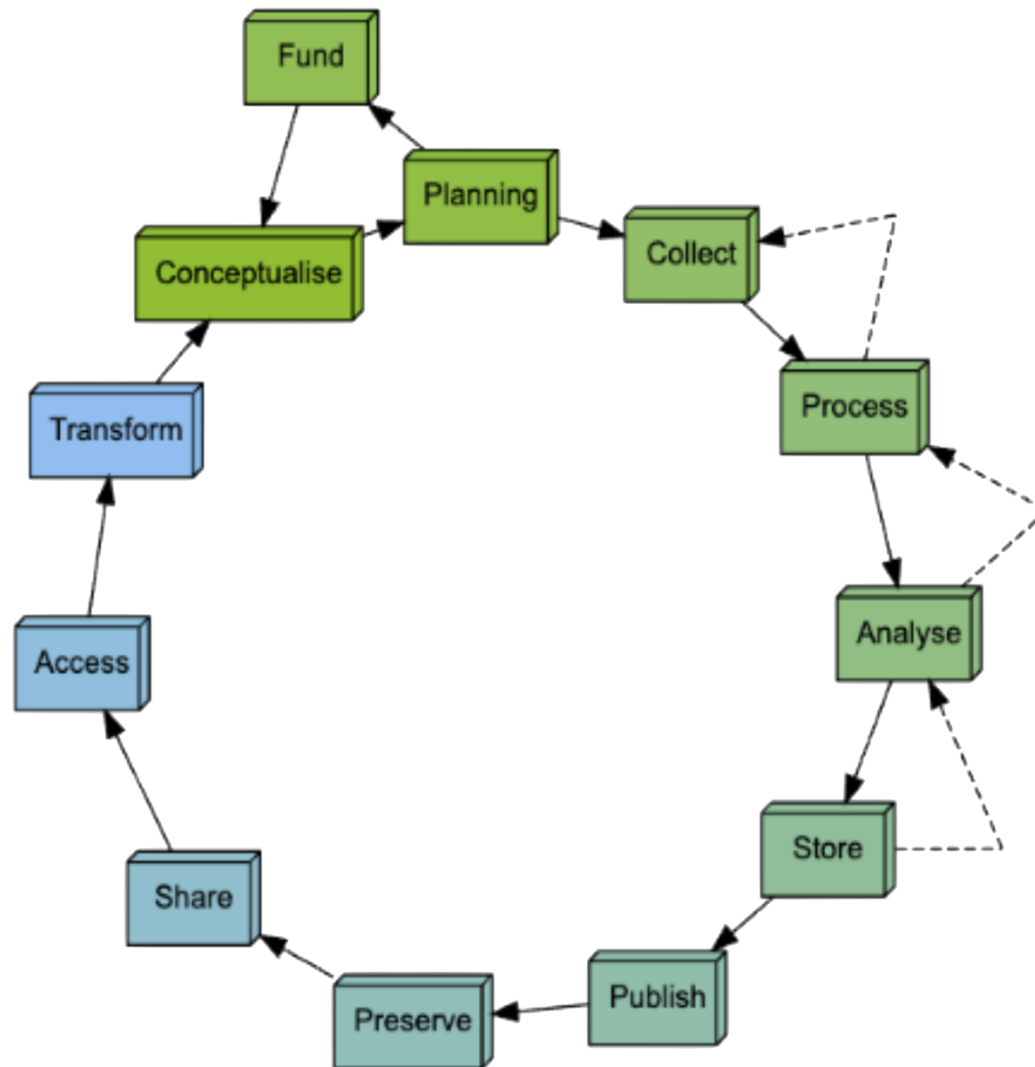
Cite

## Search for data in the EOSC EU node

- Title: Distribution centers 1980-2020 Geodata
- Author: Merten Nefs
- DOI: 10.4121/14791686

# EOSC EU node

## Access to data, storage, compute and analysis tools



Step 1. Search for data  
in the EOSC EU node

Step 2. Login the EOSC EU node

Step 3. Check your free credits

**Step 4.** Create File Sync & Share Space


**Step 5.** Create a VRE (Interactive  
Notebooks)

**Step 6.** Upload your data in the EOSC  
EU node


**Step 7.** Create a Jupyter Notebook in  
the EOSC EU node

**Step 8.** Start analysing your data


## Step 4. Create File Sync & Share Space

 European Commission

EOSC EU Node

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Kees den Heijer  
user

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### File Sync & Share

Enable automatic file syncing and secure sharing across locations and teams.

[About the service](#)

500

Credits

Actual total credits remaining in this period. Refreshes every 90 days.

Small Personal File Sync & Share Space  
(50 GB)

10 credits / month

Get access

Viewing resources for:

Kees den Heijer (Default Personal Project)

ID: pp-0199e11f-2a1c-4a35-9dec-fdb166291d26

⌚ Select period

×

Small: 10 credits/month

Remaining credits: 500

Set new time period \*

Maximum period is 3 months

Value: 1

Credits cost: 10

Cancel

Submit

European Open Science Cloud - EU Node

*This site is managed by the Directorate-General for Communications Networks, Content and Technology*

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FAQs

Security Team

About us

The European Open Science Cloud aims to establish a federation of infrastructures facilitating effortless access to interoperable research assets and enhanced services crossing geographical boundaries and diverse

# Create your personal Virtual Research Environment

SURF

## Step 5. Create a VRE

Available EOSC EU Node servers (3) [i](#)

Small		Medium		Large	
vCPUs:	2	vCPUs:	4	vCPUs:	8
GPU:	-	GPU:	-	GPU:	1
RAM (GB):	4	RAM (GB):	8	RAM (GB):	16
<a href="#">More info</a>		<a href="#">More info</a>		<a href="#">More info</a>	
0.04 credits / hour		0.5 credits / hour		50 credits / hour	
<a href="#">Get access</a>		<a href="#">Get access</a>		<a href="#">Get access</a>	

Notebook

Octave R RStudio [x]

Octave R

Markdown File Julia File Python File R File Show Contextual Help

## Step 6. Upload your data in the EOSC EU node

## Step 7. Create a Jupyter Notebook

European Commission EOSC EU Node Interactive Notebooks

File Edit View Run Kernel Git Tabs Settings Help

Untitled.ipynb

Code

There we go!

[ ]:

## Step 8. Start analysing your data



# Explore dataset

SURF

The screenshot shows a Jupyter Notebook interface with a file explorer on the left and a code editor on the right. The file explorer shows a directory with files 'Shares', 'logistic\_buildings.gpkg', and 'Untitled.ipynb'. The code editor contains the following code:

```
There we go!  
[1]: import geopandas as gpd  
[2]: gdf = gpd.read_file("logistic_buildings.gpkg", layer="business_estates")  
[3]: gdf
```

The output of the code is a table with 1301 rows and 4 columns. The columns are KERN\_NAAM, STARTJAAR, Title, and geometry. The table shows a list of business estates with their names, start years, titles, and geometries.

	KERN_NAAM	STARTJAAR	Title	geometry
0	Nijmegen	1995	Bijsterhuizen (incl Wijchen)	MULTIPOLYGON (((180502.651 426129.138, 180502....
1	ZALTBOMMEL	1998	De Waluwe	MULTIPOLYGON (((145447.125 422912.844, 145440....
2	Est	2016	Est	MULTIPOLYGON (((150335.067 429469.036, 150335....
3	Beneden-Leeuwen	1960	Veesteeg Zuid-west	MULTIPOLYGON (((164965.647 432018.874, 164968....
4	Wageningen	1970	Nudepark 2	MULTIPOLYGON (((172562.89 440877.153, 172558.6...
...	...	...	...	...
1296	Den Bommel	1976	Bosland	MULTIPOLYGON (((78518.643 414674.167, 78518.75...
1297	Oude-Tonge	1997	Tonisseweg li	MULTIPOLYGON (((74598.049 412408.592, 74607.76...
1298	Numansdorp	2012	Proeftuin Cromstrijen	MULTIPOLYGON (((89884.233 418643.712, 89885.54...
1299	Oude-Tonge	2005	Bedrijvenpark Oostflakkee	MULTIPOLYGON (((73440.853 412967.259, 73441.64...
1300	Numansdorp	2006	Cromstrijense Poort	MULTIPOLYGON (((90053.194 417805.612, 90040.12...

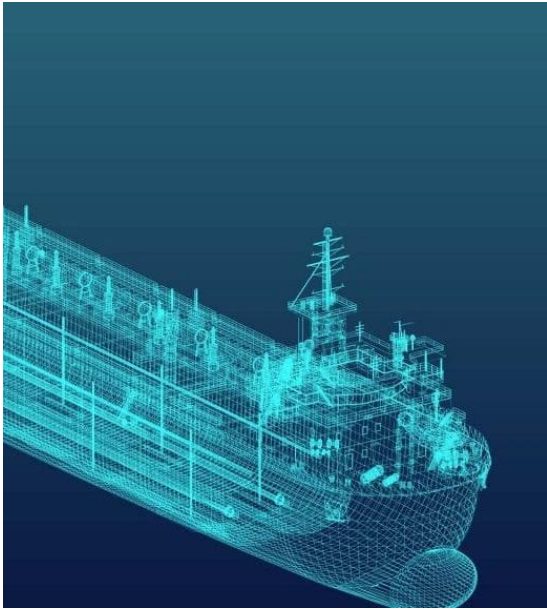
1301 rows x 4 columns

[ ]:

 **eosc Node** | **SURF**  
The Netherlands

# SURF Research Cloud history.

**SURF**



## **2018 – 2019**

Start design and PoC of SRC with small team of about 5-6 people



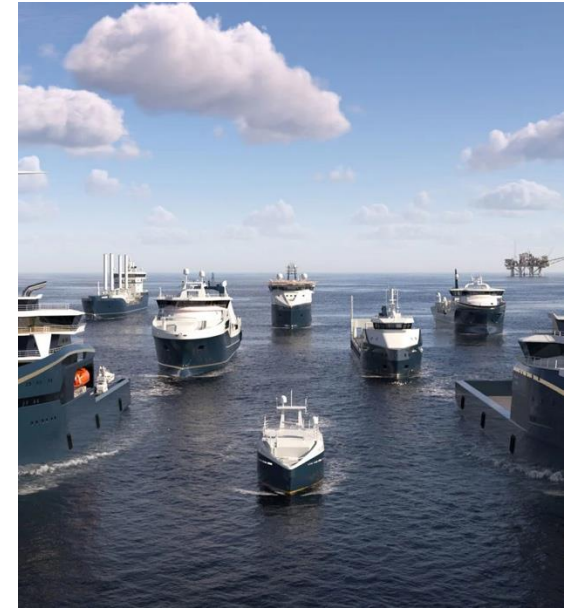
## **2020 – 2021**

Building a MVP. Replacing the frontend of OpenNebula and OpenStack with about 10 people



## **2022 -2023**

SURF Research Cloud in production as a paid services with about 11 people



## **2024 – 2025**

Public Clouds and other services and resources. EOSC integration with about 13-15 people

cloud

Q Search

[All resources](#) | [Publications](#) | [Data](#) | [Software](#) | [Other Products](#) | **[Services](#)** | [Tools](#) | [Training](#) | [Data Sources](#) | [Interoperability Guidelines](#)

Node



Node: SURF (X)

☒ SURF (1)

Showing 1 to 1 of 1 resources

Relevance



Scientific domain



SERVICE



Language: English

**SURF Research Cloud**

SURF Research Cloud is a portal where you easily build a virtual research environment. You can use preconfigured workspaces and datasets or add them yourself. Institutions, research communities and suppliers can contribute to Research Cloud's functionality and catalogue by integrating their computing an...

**Scientific Domain** [Generic](#)**Keywords** [cloud](#) • [compute](#) • [research](#) • [surf](#)

[Home](#) > [Services](#) > SURF Research Cloud

SERVICE

# SURF Research Cloud

Language: English

[Access](#)

[Remove from Favorites](#) ★

**Description**

[Metadata](#)

[Nodes](#)

SURF Research Cloud is a portal where you easily build a virtual research environment. You can use preconfigured workspaces and datasets or add them yourself. Institutions, research communities and suppliers can contribute to Research Cloud's functionality and catalogue by integrating their computing and data services.

## Welcome to your EOSC Node | SURF-The Netherlands dashboard

### Quick actions

#### Create new workspace

Start here to create everything you need for a workspace.



CREATE NEW

#### Create new storage

Start here to create everything you need for storage.



CREATE NEW

#### Favourite wallet chart

Pin your favourite wallet chart for quick access.



WALLETS

[Workspaces](#) [Storage](#) [IP addresses \(advanced\)](#) [Networks \(advanced\)](#)



### Workspaces



eosc pilot catalog



State: running



ACCESS





Create your workspace

[Restart workspace creation](#) ↺




Select cloud provider and flavours

Please select the cloud provider and flavours you prefer.

Do you need help?

[View documentation](#) and read how to add a cloud provider in steps


1. Choose the cloud provider that best fits your needs | [Estimated pricing](#)

 EOSC EU Node

Available operating systems ✓

Available sizes ✓

SELECTED ✓

 SURF HPC Cloud

Available operating systems ✓

Available sizes ✓

CHOOSE

2. Choose the flavour(s) of the cloud provider

Choose operating system:



Ubuntu 22.04

SELECTED ✓



[Catalog items](#)   [Catalog item collections](#)   [Datasets](#)

## EOSC pilot development





**Secure Interviews Temp...**  



Record, transcribe and process se...

**SURF base collection**  

Frequently used catalog items ma...

Utrecht University  

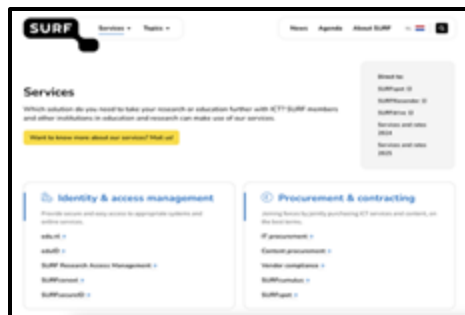
Development and analysis works...

Utrecht University GPU  

Workspaces maintained by UU for...

# EOSC node SURF | The Netherlands?

**SURF**



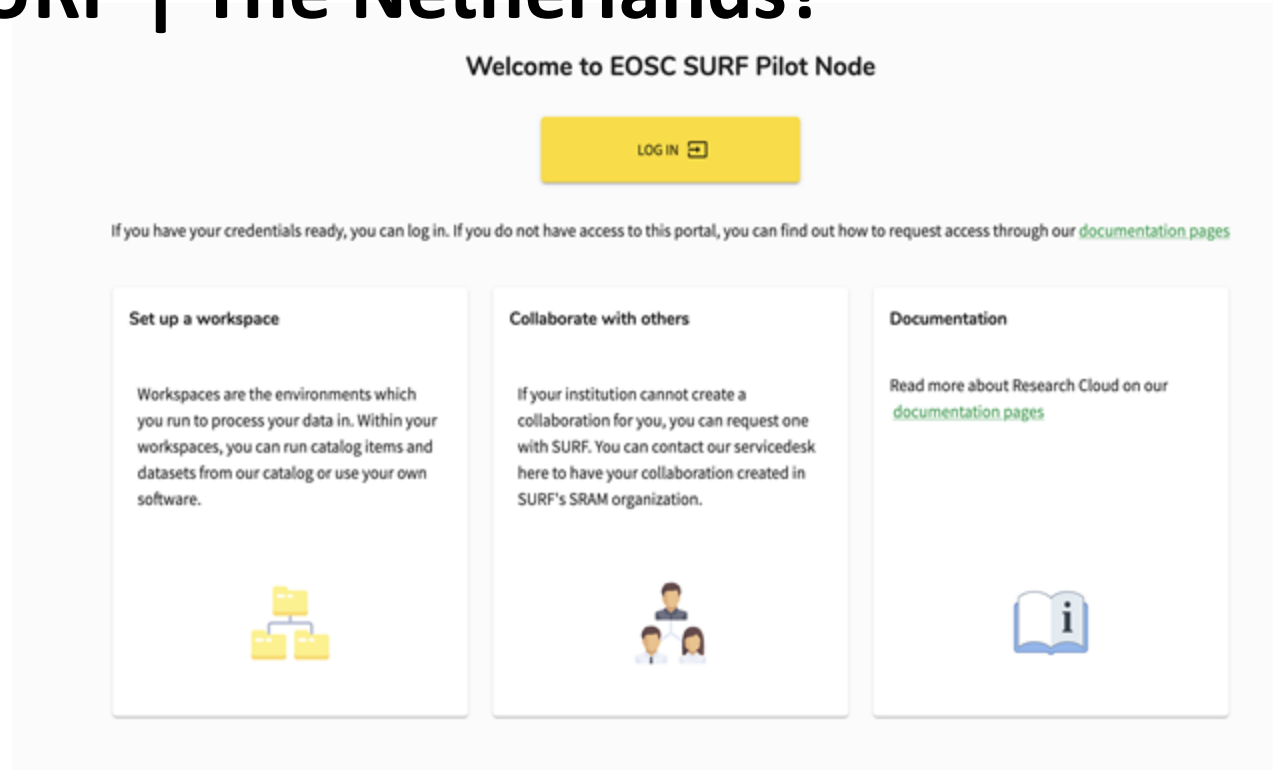
<https://www.surf.nl/en/services>  
(SURF Service Catalogue)



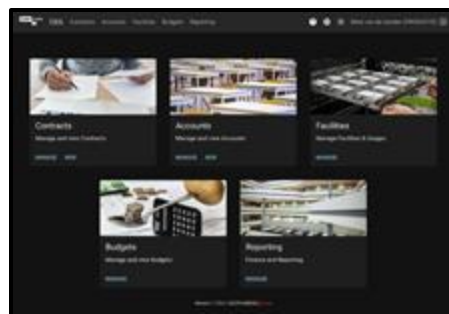
<https://netherlands.openaire.eu/>  
(Research Data Discovery)



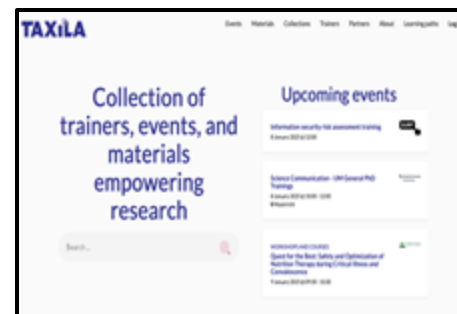
<https://researchdrive.surfsara.nl>  
(File Sync & Share Service)



<https://eosc.nl>



<https://cba.surfsara.nl/>  
(Budgeting and Usage Accounting)



<https://www.taxila.nl/>  
(Training Materials Repository)



<https://servicedesk.surf.nl>  
(Helpdesk)



<https://sram.surf.nl/>  
(Access Management)



<https://servicedesk.surf.nl/wiki/display/WIKI/Service+status>  
(Service Monitoring)

# Progress

## European level:

- Building federation: 1<sup>st</sup> wave of pilot nodes (2025) -> launch during the EOSC Symposium (Nov); 2<sup>nd</sup> wave coming up (2026)
- EOSC has received a prominent place in the Multiannual Financial Framework ((MFF) - **Framework Programme10 (FP10)**), and European Strategy on Research and Technology Infrastructures

## National Level:

- SURF is one of the 1<sup>st</sup> wave pilot nodes -> contributing to the build-up phase and building knowledge
- OSNL-BO recognized the importance of those developments -> EOSC node and federation WG
- WG (a sub-set of national) stakeholders prepared a strategic vision for the Dutch contribution to EOSC to be discussed on December 8
- If nationally embraced, we will start implementing the EOSC Dutch node



Art. 10:

*'Develop a web of FAIR and machine-actionable research data, including through expending and consolidating the EOSC as Europe's research data space'*

# Discussion and questions

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