

## **EOSC: a European Data Infrastructure**

Karel Luyben President EOSC Association

VI Pomerian Open Science Conference Gdansk, 2 December 2022





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Undergraduate tuition and fees: 2,060 EUR, International tuition 10,384 EUR (2018 – 19)

Total enrollment: 24,703 (2018)





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https://www.nature.com > scientific reports > articles

### Optimization of fish gelatin drying processes and ... - Nature

by C da Silva Araújo · 2021 — This study aims to optimize **drying** methods such as convection hot air alone and combined with infrared radiation to obtain **gelatin** from acoupa ...

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	Optimization of fish gelatin drying processes and characterization of its properties				
SPRINGER NATURE	Author: Cleidiane da Silva Araújo et al				
	Publication: Scientific Reports				
	Publisher: Springer Nature				
	Date: Oct 19, 2021				
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#### **Supplementary Information**

**Supplementary Tables.** 





### Wordfile: 41598\_2021\_99085\_MOESM1\_ESM.docx

Independent variables		Experimental results			Predicted results			
Assays	Time	Temperature (°C)	Gel strength	Moisture	Water activity	Gel strength	Moisture	Water activity
	( <b>h</b> )		<b>(g)</b>	(%)		<b>(g)</b>	(%)	
1	-1 (12)	-1 (35)	247.0	10.45	0.376	247.2	10.73	0.380
2	1 (16)	-1 (35)	203.0	10.33	0.370	2026	10.44	0.377
3	-1 (12)	1 (55)	461.6	6.74	0.168	479.7	7.18	0.189
4	1 (16)	1 (55)	299.7	6.55	0.165	317.3	6.79	0.189
5	0 (14)	-1.41(30.8)	219.2	10.85	0.375	223.0	10.67	0.373
6	0 (14)	1.41(59.1)	490.0	5.94	0.130	468.4	5.58	0.104
7	-1.41(11.2)	0 (45)	360.2	10.09	0.343	350.9	9.69	0.331
8	1.41(16.8)	0 (45)	213.0	9.34	0.345	204.5	9.21	0.329
9	0 (14)	0 (45)	350.6	8.96	0.276	345.8	9.17	0.287
10	0 (14)	0 (45)	346.5	9.39	0.289	345.8	9.17	0.287
11	0 (14)	0 (45)	340.3	9.15	0.297	345.8	9.17	0.287



Wouldn't it be great if we all could find a relevant dataset for our work as easy through the 'Web of FAIR data' as we can find many things through an adequate search engine?



# "A web of scientific insight"

- Web of FAIR Data and related Services
- Federation of relevant existing and future data sources
- Virtual space where science producers and consumers come together
- An open-ended range of content and services
- Based on the FAIR principles
- Meeting all European data requirements
- In interaction with other regions of the world



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# **Guiding principles for EOSC**

# The overarching principle for developing EOSC is that research has to be at the centre of the EOSC initiative.

### Multi-stakeholderism

EOSC will succeed if and only if it follows a multi-stakeholder approach;

Openness

EOSC will ensure research artefacts be 'as open as possible, as restricted as necessary';

### FAIR principles

EOSC research artefacts need to be findable, accessible, interoperable and reusable;

Federation of infrastructures

EOSC will federate existing and upcoming data- and e-infrastructures;

Machine-actionable

EOSC will ensure that machines can find, access and interoperate on data helping people in servicing the needs of European scientists.

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### **Twinning the data- to the e-infrastructures**

EOSC is a data-infrastructure and could be seen as a twin sister (or brother) of the **European e-infrastructure organisations.** The last offering the store, compute and connect services used by EOSC to offer the servicing of data and creating interoperability. The combination forms the EOSC-ecosystem (yin / yang).



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### **Position of EOSC according to the European Commission**

Taken from EC slides



"EOSC is the basis for a science, research and innovation data space that will bring together data resulting for research and deployment programmes and will be connected and articulated with the sectoral data spaces" (European Data Strategy, COM(2020) 66 final)



# EOSC on a global stage

- Service providers from third countries can participate in EOSC but have to adhere to the EOSC Rules of Participation and applicable legislation
- EOSC will work with other regional initiatives towards common goals for Open Science, driving global convergence on standards in support of the implementation of an open science commons







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# **Grand Challenges for developing EOSC**

### Technical

- Create in the long run truly broad multidisciplinary interoperability
- For the short term this means: optimal Authentication and Authorisation Infrastructure (AAI); stepwise growing interoperability

### Social

- Getting the noses in the same direction
- Combining local and regional initiatives towards a true Open Science Commons with global convergence on standards in support of the implementation

### coeosc EOSC Partnership

**Tripartite Collaboration** 



### coeosc Tripartite Events





# **EOSC** Association

An Overview

September 2022 by EOSC-A



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### The Purpose of EOSC-A Incorporation, 29 July 2020

- (1) to provide a single voice for the advocay and representation of the boarder EOSC stakeholder community,
- (2)to promote the alignment of European Union research policy and priorities with activities coordinated by the Association;
- (3) to enable seamless access to data through interoperable services that address the entire research data life cycle.

### meosc The EOSC Association Today

General Assembly #4, 24-25 May 2022



### meosc The Board of Directors

#### Nine Independent Individuals

![](_page_18_Picture_2.jpeg)

### meosc EOSC-A Brain-Pool: 13 Task Forces

#### **Over 400 volunteers**

### Implementation of EOSC

- Rules of Participation compliance monitoring
- PID policy and implementation
- Researcher engagement and adoption

#### Technical challenges on EOSC

- Technical interoperability of data and services
- Infrastructure for quality research software
- AAI Architecture

#### Metadata and data quality

- Semantic interoperability
- FAIR metrics and data quality

#### Research careers and curricula

- Data stewardship curricula and career paths
- Research careers, recognition and credit
- Upskilling countries to engage in EOSC

#### Sustaining EOSC

- Financial sustainability
- Long-term data preservation

![](_page_19_Picture_20.jpeg)

# Seose Content of the MoU (2021 – 2030)

### The MoU is established between the Partners

- The EU represented by the Commission
- The EOSC Association ("Partners other than the Union"), including its constituent entities (members)
- The MoU is a contractual arrangement, not legally binding
- Scope & objectives
  - To contribute to the objectives defined in the SRIA incl. the KPIs to measure progress
  - Expected financial and in-kind commitments by the partners (490 MEUR + 500 MEUR)
- Governance: Partnership Board
  - Composition: Representatives appointed by the Partners other than the Union, Commission officials and Representatives of the Steering Board

#### Commitments of the EC

- To duly take into account the input and advice from EOSC-A when defining call topics relative to the scope and objectives of the SRIA
- Commitments of EOSC-A
  - In-kind contributions
  - Monitoring and Reporting

### meosc SRIA and MAR

#### Strategic Research and Innovation Agenda

![](_page_21_Figure_2.jpeg)

Open Science practices and skills are rewarded and taught, becoming the 'new normal'

Standards, tools and services allow researchers to find, access, reuse and combine results

Sustainable and federated infrastructures enable open sharing of scientific results Multi-annual roadmap sets priority activities and outcomes grouped by three implementation levels – European, National, Institutional

#### Three phases of MAR

- 2021-2022: development towards a functional federation of infrastructure
- 2023-2024: expansion to production that generates added value
- 2025-2027: expansion to develop impact from Open Science

### meosc Delivering EOSC – the Process

The critical role of the INFRAEOSC Projects

![](_page_22_Figure_2.jpeg)

### ာeosc Horizon Europe Work Programme

From Sep 2022 DRAFT "HE Research Infrastructure Work Programme 2023-2024"

	INFRA-2023-EOSC-01	Type of Action	New Budget in MEUR	Old Budget in MEUR
	Build on the science cluster approach to ensure the uptake of EOSC by research infrastructures and research communities	RIA	25.00	24.00
	Development of community-based approaches for ensuring and improving the quality of scientific software and code	RIA	8.00	8.00
	Planning, tracking, and assessing scientific knowledge production	RIA	8.00	10.00
	Next generation services for operational and sustainable EOSC Core Infrastructure	RIA	10.00	10.00
	EOSC Architecture and Interoperability Framework	CSA	3.00	4.00
	Trusted environments for sensitive data management in EOSC	RIA	15.00	8.00
	Total Budget		69.00	64.00
11   202	= MAR 2023-2024 related		fre	"Old Budget" om March 202

### တeosc Horizon Europe Work Programme

From Sep 2022 DRAFT "HE Research Infrastructure Work Programme 2023-2024"

	INFRA-2024-EOSC-01		Type of Action	New Budget in MEUR	Old Budget in MEUR	
	FAIR and open data sharing in support c climate change	of the step is before	the	16.00	8.00	
	Supporting the EOSC Partr "Aft coordination and sustainab	er the match is e next match"		4.00	3.00	
	Enabling a network of EOSC and enhancing the framewo services for data and other r	rk on MAR 2025 starts	s now!	5.00	5.00	
	Long-term access and preser EOSC, including data quality a	pment for	RIA	8.00	8.00	
	Innovative and customizable services for EOSC Exchange			28.00	7.00	
-	Total Budget			61.00	31.00	
15   11   202	= MAR 2023-2024 r	related		fro	"Old Budget" om March 202	22

### coeosc Work Plan 2023 / EOSC Association

### Steering Coordination to Leverage the Ecosystem

Strategic approach for Communication and Engagement

![](_page_25_Figure_3.jpeg)

![](_page_26_Picture_0.jpeg)

## **Keep on dreaming**

### If in 2040 50% of the relevant research data (data, publications and software) would be as FAIR as possible, my dream would come true! (world-wide ⓒ)

In other words: When I will be able to find with coëfficient of water as function of tempositions of gelatine I am intervention of this material in the development and lots of energy in the application.

### copeose Priorities 2023-2024 starting to deliver in 2025

## **Technical**

- EOSC-Core creation and onboarding procedures
- Interoperability and data search
- Data quality

## Involvement

- Member State engagement
- Funding / resourcing models
- Skills and the recognition and rewards

# Let's co-create EOSC

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#### **EOSC Association AISBL**

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# THANKS

![](_page_29_Picture_4.jpeg)