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Département Services et Infrastructures Numériques (A7)

EUROPEAN OPEN SCIENCE CLOUD : OPPORTUNITIES FOR ML DEVELOPMENT

Volker Beckmann, Coordinator of EOSC-France
Ministry for Higher Education and Research (MESR)
General Directorate for Research and Innovation (DGRI)
Service for Research and Innovation Strategy (SSRI)
Department for Digital Services and Infrastructures (A7)

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Participating in the Digital Transition: a necessity

- Fast increasing need for being able to treat (FAIR*) data, provide services and e-infrastructures for all scientific domains and across domains.
- We entered the "Digital Decade".
- Progress is only possible if data (and **services**) are FAIR-by-desing
- Sharing and concentration of resources is key (Human resources, e-infrastructures, financing, ...)

European Commission

Home > Strategy > Priorities 2019-2024 > A Europe fit for the digital age

A Europe fit for the digital age

*FAIR : Findable, Accessible, Interoperable, Reusable

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Digital Transition : how to proceed?

- Policies : development on national and international level
- Examples for policies at EU level : Data Act, Data Governance Act, Digital Services Act, …
- Example for policies at national level : Piano Nazionale Scienza Aperta (IT), Plan National pour la Science Ouverte (FR), US memorandum "Ensuring Free, Immediate, and Equitable Access to Federally Funded Research"
- European Data Spaces (Health, Industrial & Manufacturing, Agriculture, Finance, Mobility, Green Deal, Energy, Public Administration, Skills)
- EOSC as a European transverse data space

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Digital Transition: how to proceed ?

- Mutualisation : identify key e-infrastructures and actors, concentrate investments
- Provide solutions for the long tail of science: [Research Data Gouv](#) (RDG)

EOSC:
- Develop solutions through projects financed by the European Commission, e.g. AI4EOSC
- Increase the EOSC service offer (EOSC-Future, procurement, EOSC-Association)
- Ensure sustainability on EU, national and institutional level

Transition Numérique en France — préparation feuille de route 2023

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EOSC : European Open Science Cloud

What is the EOSC ?

- ***Web of FAIR* research data and services***
- Access to FAIR research data, services and e-infrastructures for all European researchers.
- Reuse and link existing FAIR data, services and e-infrastructures
- Think of the EOSC as an **interface**
- *Free at point of use*
- EOSC will respond to **your needs** for services and FAIR data

"**Il faut également articuler nos actions nationales avec le niveau européen et international.** C'est la raison pour laquelle nous participons à l'EOSC (European open science cloud) porté par la Commission européenne […] pour impliquer l'ensemble des communautés scientifiques dans le mouvement de transformation des données pour qu'elles soient Faciles à trouver, Accessibles, Interopérables et Réutilisables (FAIR)."

Frédérique Vidal

*FAIR : Findable, Accessible, Interoperable, Reusable

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EOSC Vision : requirements

1. Trusted repositories

2. FAIRisation of data, *Data Management Plans* (DMPs)

3. Uptake and consolidation of services

4. Workflows across different e-infrastructures (HPC, HTC, …)

Main interests in EOSC topics expressed per CNRS institute, see « CNRS Institutes and the EOSC – status and vision »

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Using EOSC services

Have a look at the EOSC marketplace :
https://marketplace.eosc-portal.eu/

You don't find what you look for?
Describe your use case and receive advice and help from the EOSC experts:
https://marketplace.eosc-portal.eu/projects

Providing EOSC services

https://providers.eosc-portal.eu/becomeAProvider

Think of EOSC as an **interface**

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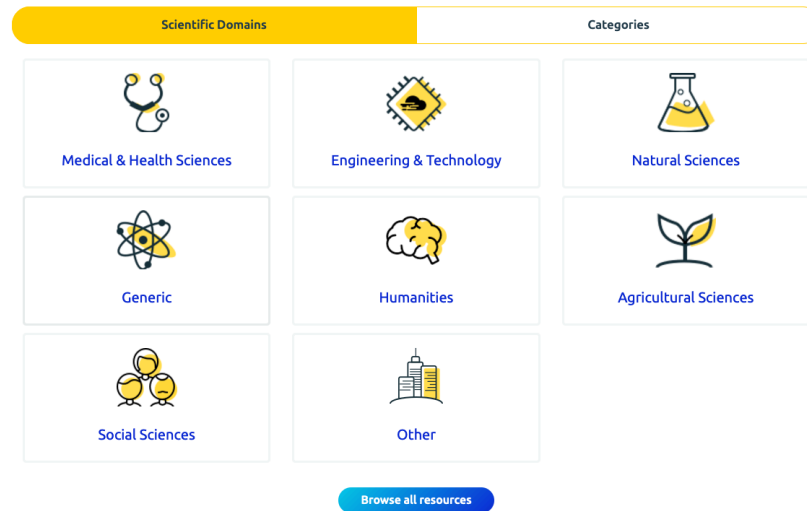
EOSC is a community

- Colleagues from all domains and all EU countries
- interdisciplinary
- find and share solutions
- Form powerful consortia (for example for Horizon Europe, ANR, …)

Réunion EOSCpilot, May 2018

Réunion EOSC Association, May 2022

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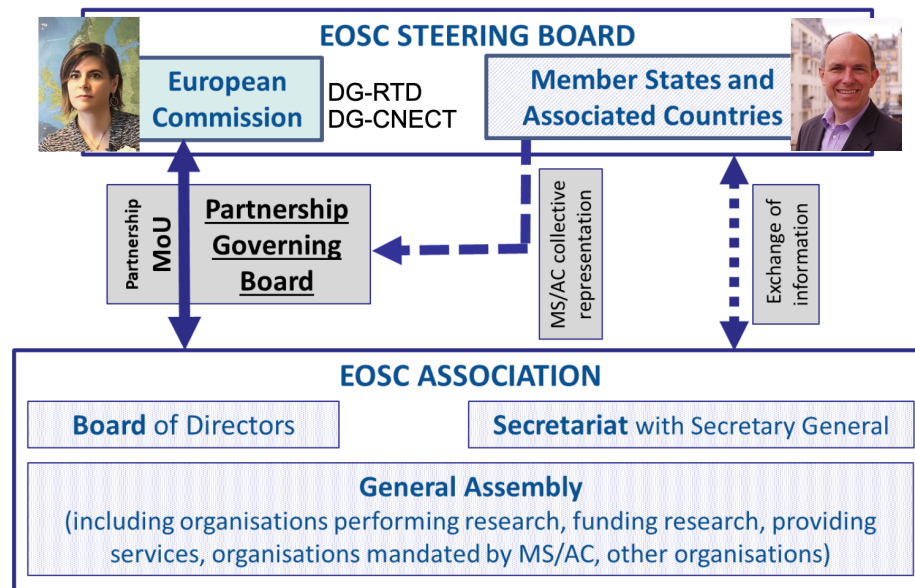
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EOSC is a partnership

- One of 12 co-programmed partnerships under *Horizon Europe*
- 3 partners: European Commission, Member States, EOSC Association

Commitment by partners :

- European Commission : ~490 M€ in [Horizon Europe](#) (2021-2027) for EOSC
- [EOSC Association](#) : provide services (in-kind contribution) at a level ≥ of the EU financing.
- Member states : support the EOSC through policy development*, through financing of infrastructures and organisations important for the EOSC, and help in the coordination of EOSC at European level.

* for example : [Plan national pour la science ouverte 2021 - 2024 : vers une généralisation de la science ouverte en France](#)

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EOSC France

EOSC in France

- EOSC : pillar of the digital transition in France

- Coordinated by the Collège EOSC-France (since 02/2022) : representatives of French organisations* which are members of the EOSC-Association + ministry (DGRI)

- Collège EOSC-France gives advice and proposes actions to the Comité Pilotage Services et Infrastructures Numérique (CoPil-SIN)

- Strong link between user community and deciders
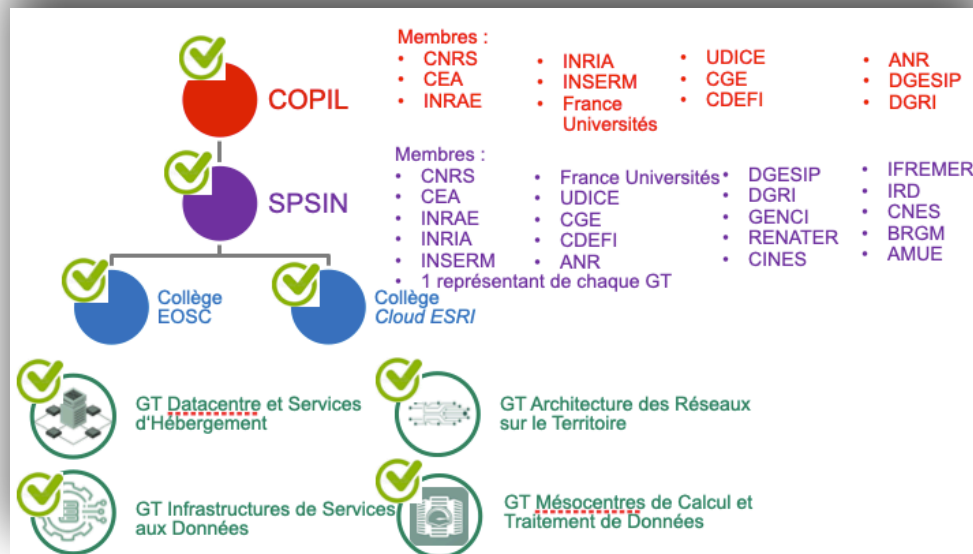
Comitolsogie Services et Infrastructures Numériques (CoSIN)

*Membres Collège EOSC-France: CEA, CINES, CNRS, France Universités, GENCI, IFREMER, ILL, INRAE, INRIA, INSERM, Observatoire Paris, RENATER, Soleil, Université de Bordeaux, Université de Montpellier, Université Paris Cité, Université Paris-Saclay, Université Strasbourg, CGE, Couperin, ANR, IRD, Sorbonne Université, Udice, Université de Univ. Lorraine, Nantes Université, Université Grenoble Alpes, Université Paris 1 Panthéon-Sorbonne, MESR/DGRI

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Horizon Europe EOSC Work Program 2021

HORIZON-INFRA-2021-EOSC-	Acronym	Title	Coordinator	EU budget
01-01	Skills4EOSC	Skills for the European Open Science Commons: Creating a Training Ecosystem for Open and FAIR Science	GARR (IT)	6.5 M€
01-02	EOSC Focus	EOSC Focus	EOSC Association	4.6 M€
01-03	FAIRCORE4EOSC	Core Components Supporting a FAIR EOSC	CSC (FI)	10.0 M€
01-04	**AI4EOSC**	**Artificial Intelligence for the European Open Science Cloud**	**CSIC (ES)**	**5.0 M€**
01-04	EuroScienceGateway	Leveraging the European compute infrastructures for data-intensive research guided by FAIR principles	Univ. Freiburg (DE)	3.5 M€
01-04	FAIR-EASE	FAIR EArth Sciences & Environment services	CNRS (FR)	4.7 M€
01-04	RAISE	Research Analysis Identifier SystEm	Univ. Thessaloniki (EL)	4.8 M€
01-05	FAIR-IMPACT	Expanding FAIR Solutions across EOSC	KNAW (NL)	8.0 M€
01-06	EOSC4Cancer	A European-wide foundation to accelerate Data-driven Cancer Research	BSC-CNS (ES)	7.8 M€
				54.9 M€

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AI4EOSC

- 5 M€, 3 years (2022-2025), 10 partners (CSIC, KIT, INFN, LIP, …), https://ai4eosc.eu/
- Based on DEEP-Hybrid-Data-Cloud H2020
- Better analytics tools, products, and services leveraging artificial intelligence, machine learning, and deep learning (AI/ML/DL), with focus on advanced features like federated learning, split learning or distributed training
- The main outcomes of the project will be a measurable increase of the number of advanced, high-level, customisable services available through the EOSC portal, serving as a catalyst for researchers, facilitating the collaboration, easing access to high-end pan-European resources and reducing the time to results; paired with concrete contributions to the EOSC exploitation perspective, creating a new channel to support the build-up of the EOSC Artificial Intelligence and Machine Learning community in practice.

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European Open Science Cloud and ML

Web of FAIR* research data and services

- EOSC is part of the digital transition in Europe and in France
- EOSC is a vision, a portal, a community, and a European partnership
- Financing of development through the Horizon Europe Work Programme (HORIZON-INFRA-EOSC)
- Initiatives like the IN2P3-Irfu ML working group should reflect how they could contribute to and benefit from the digital transition and EOSC.
- Qu'est-ce que l'European Open Science Cloud / What is the EOSC (2 pages)

- https://eosc-portal.eu

Plus d'informations? Inscrivez-vous sous

https://groupes.renater.fr/sympa/info/eosc_france_info

volker.beckmann@recherche.gouv.fr

Contact me (and/or the bureau d'Horizon Europe au MESR) if you want to discuss ideas for specific projects

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Annex

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Calendar EOSC 2022

Date	Event
10-12/10	JCAD 2022 (MSH sur le campus de Dijon)
18-19/10	Science Europe Open Science Conference
19-21/10	International Conference on Research Infrastructures (ICRI, Brno, Czech Republic)
25-27/10	EOSC-Pillar Final Conference (BnF, Paris)
25-26/10	ESCAPE Final Conference (Bruxelles)
14-17/11	EOSC-Symposium (Prague et en ligne)
28-29/11	EOSC Association general assembly (en ligne, midi à midi)
30/11	Journée Science Ouverte CNRS
28/12	date prévue pour l'ouverture des appels HORIZON-INFRA-2023-EOSC-01 (date limite: 28/03/2023)

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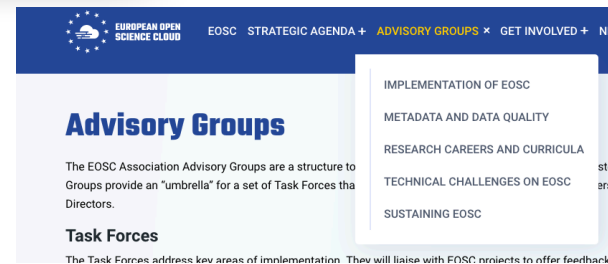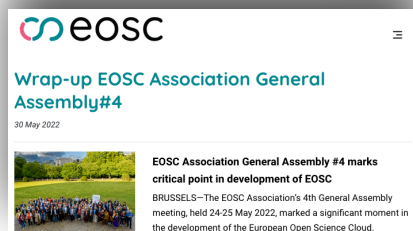
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Key documents concerning EOSC

- [Qu'est-ce que l'European Open Science Cloud](#) /   [What is the EOSC](#)

- [EOSC en 7 questions](#)

- [EOSC Executive Board final progress report](#)

- [Results of the EOSC Working Groups (2019 / 2020)](#)

- [EOSC Strategic Research and Innovation Agenda (SRIA)](#)

- [EOSC Association Statutes](#)

- [Scholarly Infrastructures for Research Software](#)

- [ESFRI Science Clusters Position Statement on Open Science](#)

- [Horizon Europe Work Program for Research Infrastructures / EOSC](#)

Journées
EOSC-France
4 / 5 Avril 2022

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EOSC: Important links

- EOSC Portal
- EOSC Association
- EOSC Association Advisory Groups
- Journées EOSC-France, 4+5 avril 2022
- MESRI Horizon Europe web page
- European Commission EOSC page
- EOSC-Pillar
- EOSC-Future

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Horizon Europe EOSC Work Program **2023**

Opening: 22/12/2022; Date limite: 28 mars 2023

Topic HORIZON-INFRA-2023-…	Titre	Type	Budget total [M€]	#projets
EOSC-01-01	Build on the science cluster approach to ensure the uptake of EOSC by research infrastructures and research communities	RIA	25	1
EOSC-01-02	Development of community-based approaches for ensuring and improving the quality of scientific software and code	RIA	8,5	1
EOSC-01-03	Planning, tracking, and assessing scientific knowledge production	RIA	8	1
EOSC-01-04	Next generation services for operational and sustainable EOSC Core Infrastructure	RIA	10	1
EOSC-01-05	EOSC Architecture and Interoperability Framework	CSA	3	1
EOSC-01-06	Trusted environments for sensitive data management in EOSC (expansion to resources provided by public authorities, including national agencies, in highly sensitive areas, like the health sector, governmental statistics or geo-spatial applications)	RIA	15	3
2023-EOSC-01			69,5	8

Préliminaire !

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Horizon Europe EOSC Work Program **2023**

Opening: 22/12/2022; Date limite: 28 mars 2023

Topic HORIZON-INFRA-2023-...	Description non exhaustive
EOSC-01-01 RIA 25 M€ 1 projet prévu *Préliminaire !*	Build on the science cluster approach (EOSC-Life, ENVRI-FAIR, ESCAPE, SSHOC, PaNOSC), to ensure the uptake of EOSC by research infrastructures and research communities Third party financing: **at least 18 M€**, with 100 - 250 k€ per third party grant (duration 12-18 months) Expected outcome: • Support all researcher communities across Europe to contribute to and benefit from a user-oriented EOSC; • Populate EOSC Exchange with FAIR data, horizontal services and thematic services of relevance to users in several scientific domains and beyond; • Develop and demonstrate through cascading grants concrete scientific benefits of open science and FAIR practices through cross-disciplinary use cases; • Increased alignment of operation of ESFRI and international RIs at the subdomain, domain and interdisciplinary levels in function of the progressive deployment of the EOSC Core, EOSC Exchange and EOSC sustainability models; • Provide feedback and requirements for the evolution of the EOSC ecosystem.

Horizon Europe EOSC Work Program **2024**

Opening: 06/12/2023; Date limite: 12 mars 2024

Topic HORIZON-INFRA-2024-…	Titre	Type	Budget total [M€]	#projets
EOSC-01-01	FAIR and open data sharing in support of the mission **adaptation to climate change**	RIA	16	2
EOSC-01-02	Supporting the **EOSC Partnership** in further consolidating the coordination and sustainability of the EOSC ecosystem	CSA	4	1
EOSC-01-03	Enabling a network of EOSC **federated and trustworthy repositories** and enhancing the framework of generic and discipline specific services for data and other research digital objects	CSA	5	1
EOSC-01-04	Long-term access and preservation infrastructure development for EOSC, including data quality aspects	RIA	8	1
EOSC-01-05	Innovative and customizable services for **EOSC Exchange**	RIA	28	4
2024-EOSC-01			61	9

Préliminaire !

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