

# Open Science and Data Management Plan

Module 3.1 - Horizon Europe and EOSC

15/05/2023, Area Science Park

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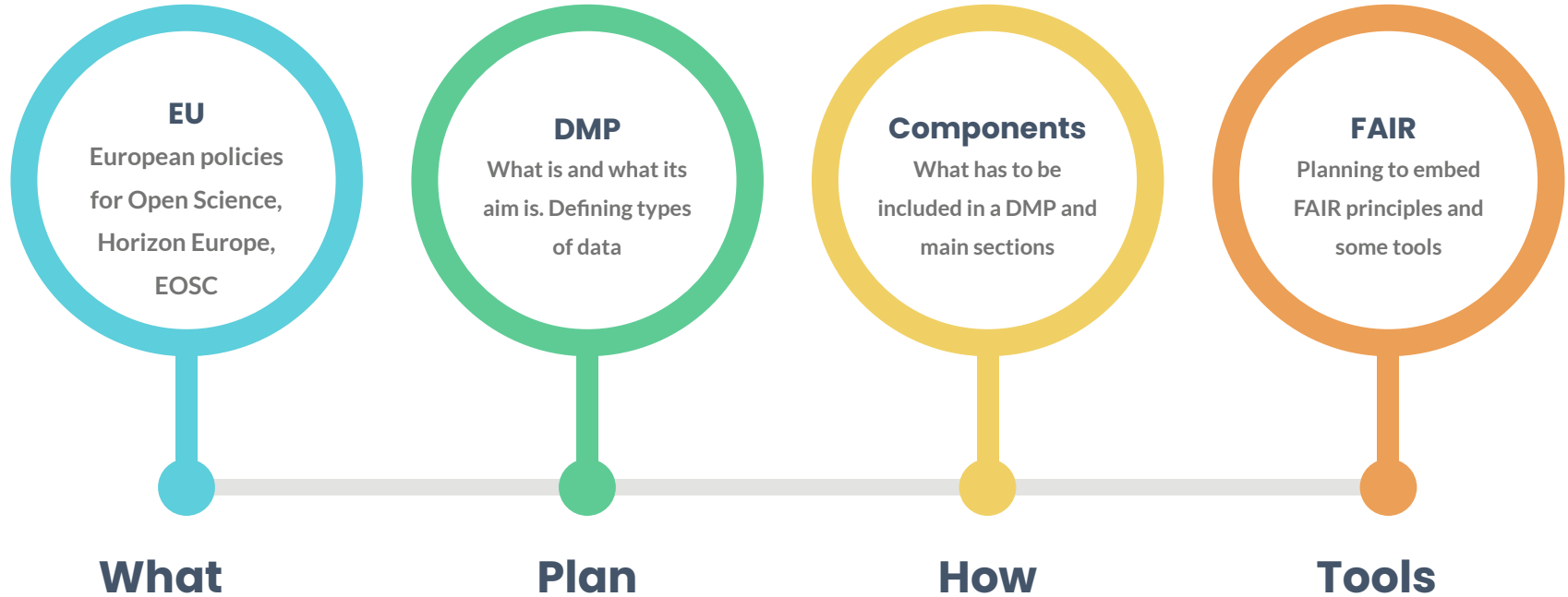
# Gina Pavone

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- Research focus: Open Science and Open Access; Research Data Management
- OpenAIRE National Open Access Desk (NOAD) for Italy
- Coordinator of the editorial board of open-science.it
- My background: data journalism



# Today's agenda

15/05/2023 AREA SCIENCE PARK



# Interaction

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# EU pushes for non-profit models in scientific publishing



Research Europe

@ResearchEurope

...

EU ready to back immediate #OpenAccess without author fees and to support non-profit models, in a move that could rock commercial scholarly publishing:



researchprofessionalnews.com

EU ready to back immediate open access without author fees - Research Pro...  
Provisionally agreed position also expresses support for non-profit publishing models

# An industry like no other

In 2010, Elsevier's scientific publishing arm reported profits of £724m on just over £2bn in revenue. It was a **36% margin** — higher than Apple, Google, or Amazon posted that year.



Scientific journals are  
subscription-based

Research institution  
pays for:

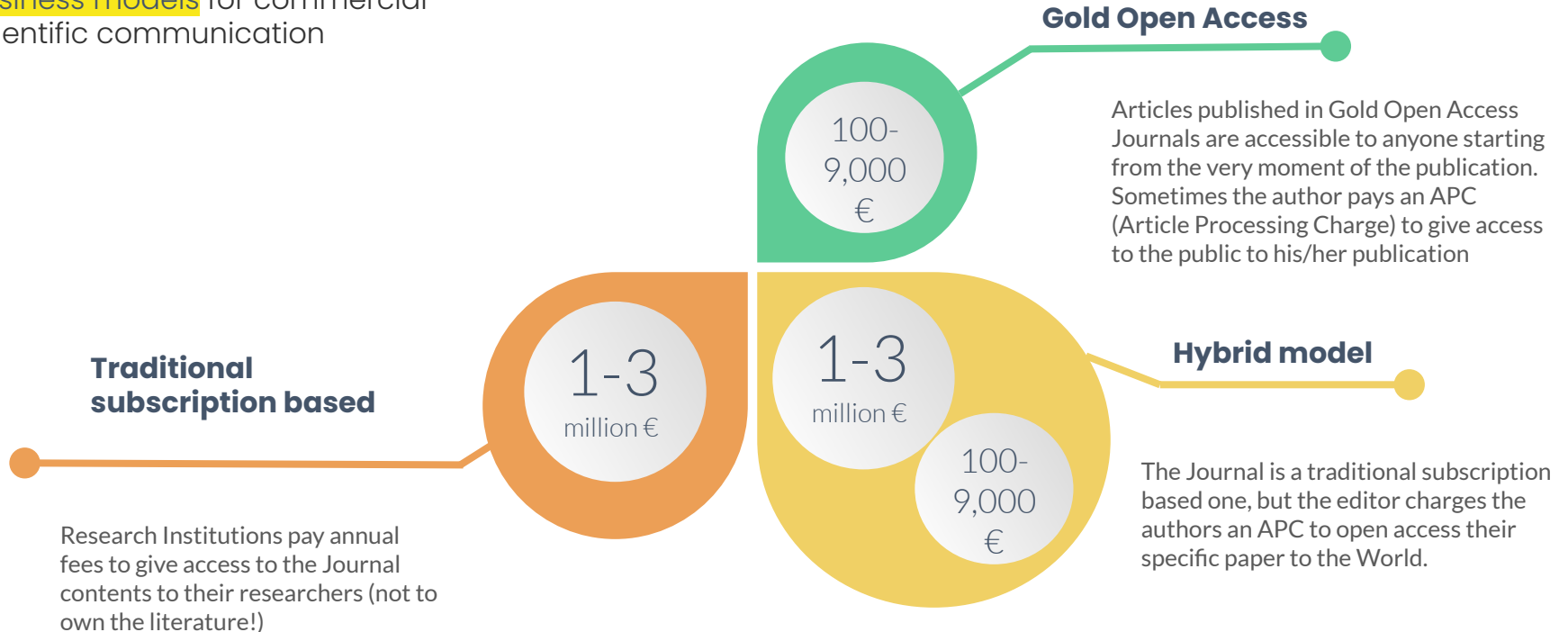
- the work of authors
- the work of reviewers
- access to the results of that  
same work (we do not own  
anything!)



Foto di [Mathieu Stern](#) su [Unsplash](#)

# How Much Does It Cost?

**Business models** for commercial scientific communication





# Business models in scientific publishing

Who pays for what in the scholarly communication system

## Paying to read

In the traditional system of commercial scholarly publishing, you pay to read.

Usually the costs of subscriptions are covered by Research Performing Organizations

## Paying to publish

In some OA journals APCs are usually charged to the corresponding author. In diamond OA, publication costs are borne by the institutions.



## Paying for both

This is referred to as double dipping. At the same time the journal gets money for the subscription and for access to the single paper.

Business models	Who pays to read	Who pays to publish	Examples
<b>Subscription</b>	RPOs	No one	Nature Research nature Science, etc.
<b>Gold OA</b>	No one	Author	Plos, MDPI, Frontiers, IEEE access etc.
<b>Diamond OA</b>	NO one	RPOs/RFOs/ Research community	ORE, Open Edition, SciPost, Open library of Humanities, Milano university press etc.
<b>Hybrid</b>	RPO	Author	Open Choice by Elsevier, Wiley, IEEE, Springer Nature, etc.

# OA and business models

Who can access what in the scholarly communication system

Who can access?	Business models	Who pays to read	Who pays to publish	Examples
Only subscriber RPO affiliated personnel.	Subscription	RPOs	No one	Nature Research nature Science, etc.
Everyone	Gold OA	 No one	Author	Plos, MDPI, Frontiers, IEEE access etc.
Everyone	Diamond OA	NO one	RPOs/RFOs/ Research community	ORE, Open Edition, SciPost, Open library of Humanities, Milano university press etc.
Everyone can access the article under Open Choice. Only subscriber RPO affiliated personnel can access articles not under Open Choice	Hybrid	 RPO	Author	Open Choice by Elsevier, Wiley, IEEE, Springer Nature, etc.



The APC-based model now probably represents a turnover of 2 billion USD annually, which, for comparison, is three times the budget of UNESCO

Zhang, L., Wei, Y., Huang, Y. et al. Should open access lead to closed research? The trends towards paying to perform research. *Scientometrics* 127, 7653–7679 (2022).  
<https://doi.org/10.1007/s11192-022-04407-5>



Despite gradually decreasing subscription revenues, the commercial publishers have managed to embrace the Gold OA model without compromising their total revenues and enormous profit margins. Evidently, Gold OA publishing has become a new, highly profitable business model in and of itself, in addition to the subscription model which has remained partially intact.

<https://allea.org/wp-content/uploads/2022/12/ALLEA-Statement-Big-Deals-and-the-New-Copyright-Rules.pdf>



# Diamond Open Access



## Who pays to publish

not-for-profit, non-commercial organizations, associations or networks



## What

scientific material and contents that is made available online in digital format.



## No subscr. and no APCs

contents are free of charge for readers and authors



## Research and innovation

[Home](#) > [Strategy on research and innovation](#) > [Strategy 2020-2024](#) > [Our digital future](#) > [Open Science](#)

### Open Science

An approach to the scientific process that focuses on spreading knowledge as soon as it is available using digital and collaborative technology. Expert groups, publications, news and events.

#### PAGE CONTENTS

#### [The EU's open science policy](#)

#### [8 ambitions of the EU's open science policy](#)

#### [Future of open science under Horizon Europe](#)

#### [Tracking open research trends - Open Science](#)

### The EU's open science policy

Open science is a policy priority for the European Commission and the standard method of working under its research and innovation funding programmes as it improves the quality, efficiency and responsiveness of research.

When researchers share knowledge and data as early as possible in the research process with all relevant actors it helps diffuse the latest knowledge.

And when partners from across academia, industry, public authorities and citizen groups are invited to participate in the research and innovation process, creativity and trust in science increases.

# Open Science in Europe

... as a means for improving the quality of research for **transparency** and **reproducibility**, and their use by the industry and society as a growth mechanism.

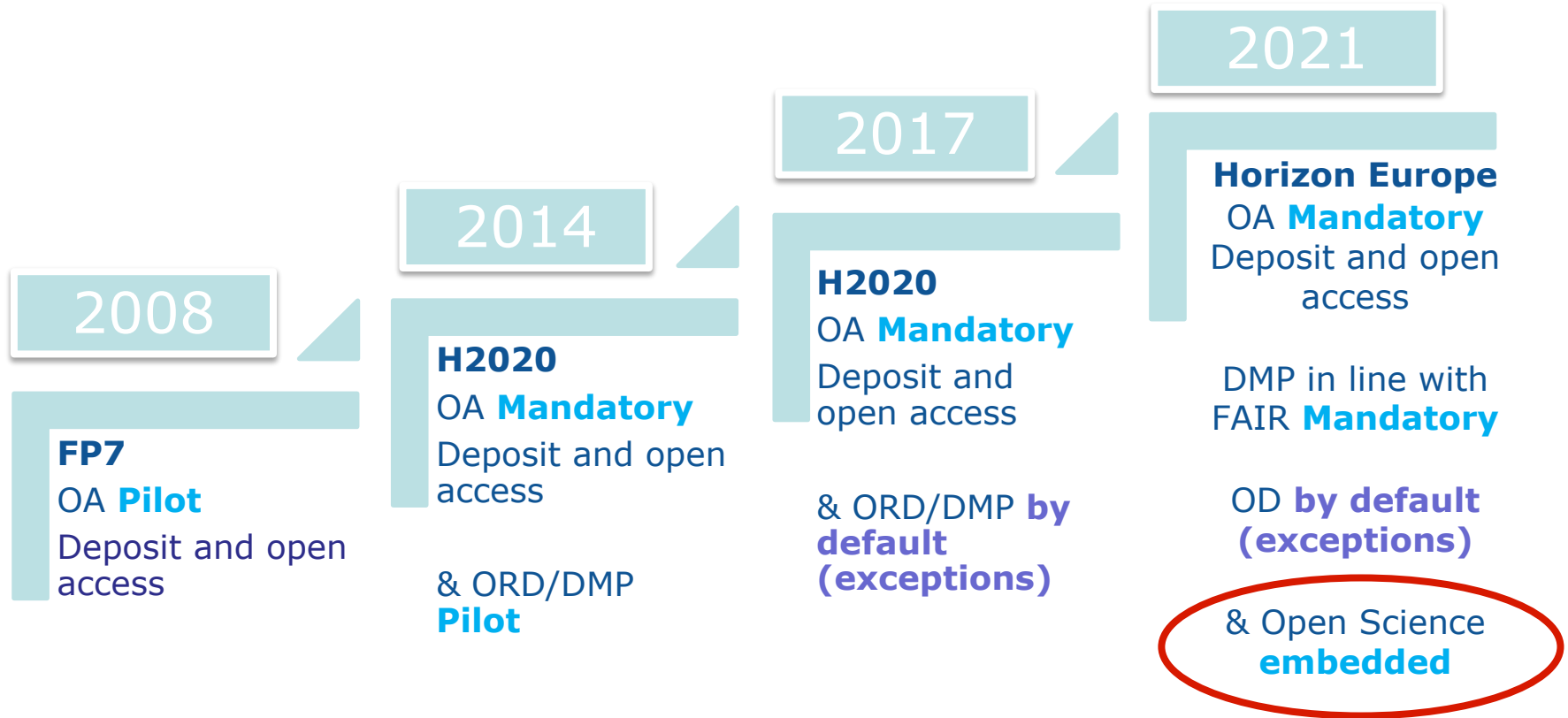


**T**he **European Research Area (ERA)** is a unified research area open to the world, in which researchers, scientific knowledge and technology circulate freely.

Through ERA, the Union and its Member States will strengthen their scientific and technological bases, their competitiveness and their capacity to collectively address grand challenges.

## The (not new) EU commitment to Open Science

# EC policies: Open Science is the new normal!





In Horizon Europe the project **proposal** is evaluated under the Open Science Perspective

**What**

Results must be managed in line with FAIR principles and as open as possible as closed as necessary

**How**

Methodology must show Open Science practices are embedded

**Who**

Single Researchers and Consortium are evaluated for their capacity to support Open Science practices

# Open Science practices

What?	How?	Mandatory in all calls/recommended
<b>Early and open sharing of research</b>	Preregistration, registered reports, preprints, etc.	Recommended
<b>Research output management</b>	Data management plan (DMP)	<b>Mandatory</b>
<b>Measures to ensure reproducibility of research outputs</b>	Information on outputs/tools/instruments and access to data/results for validation of publications	<b>Mandatory</b>
<b>Open access to research outputs through deposition in trusted repositories</b>	<ul style="list-style-type: none"> <li>• Open access to publications</li> <li>• Open access to data</li> <li>• Open access to software, models, algorithms, workflows etc.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Mandatory</b> for peer-reviewed publications</li> <li>• <b>Mandatory</b> for research data <b>but</b> with exceptions ('as open as possible...')</li> <li>• Recommended for other research outputs</li> </ul>
<b>Participation in open peer-review</b>	Publishing in open peer-reviewed journals or platforms	Recommended
<b>Involving all relevant knowledge actors</b>	Involvement of citizens, civil society and end-users in co-creation of content (e.g. crowd-sourcing, etc.)	Recommended

- Open science practices listed in the template for proposals (section excellence>methodology)
- Non-exhaustive list
- Mandatory in all calls: Model Grant Agreement or call requirement; all the rest recommended



# Open Access to scientific publications in HE - 1

Beneficiaries must **ensure** OA to peer-reviewed scientific publications relating to their results. In particular, they must ensure:

- at the latest upon publication, **deposition** of the AAM or VoR in a **trusted repository** + **immediate open access via the repository** under **CC BY** or equivalent (CC BY-NC/CC BY-ND are allowed for long-text formats)
- **information** via the repository about any research output/tools/instruments needed to **validate the conclusions of the scientific publication**

**Metadata must be open** under CC 0 or equivalent, **in line with the FAIR principles** and provide information about the licensing terms and persistent identifiers, amongst others.

# Trusted repositories

Definition contained in the HE Model Grant Agreement



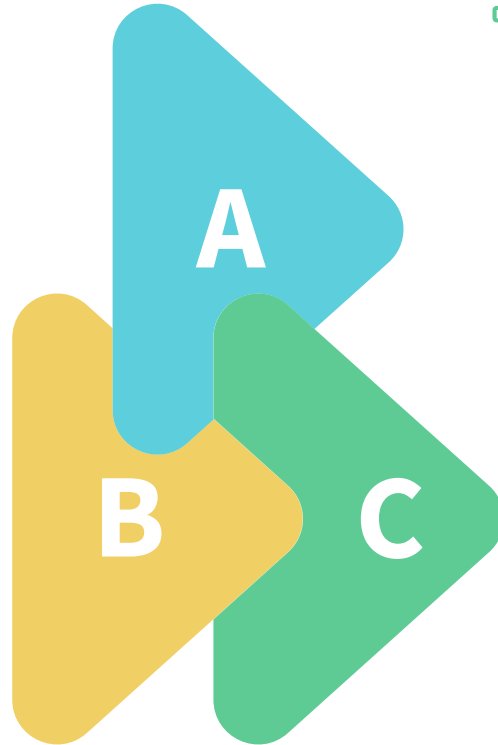
## Certified repositories

E.g. CoreTrustSeal,  
nestor Seal DIN31644,  
ISO16363 etc.



## Disciplinary or domain specific repos

Commonly used, endorsed by the  
research communities and  
internationally recognized



## General purpose or institutional repositories

That present the essential characteristics of trusted repositories:

- Display services, mechanisms and/or provisions that are intended to secure the integrity and authenticity of their contents; display policy
- Provide broad, equitable and ideally open access to content free at the point of use, as appropriate, and respect applicable legal and ethical limitations. They assign PIDs. Have metadata enabling discovery
- Facilitate mid- and long-term preservation of the deposited material.



## Open Access to scientific publications in HE - 2

- Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the OA requirements
- Publication in venue of choosing but publication fees are reimbursable only if publishing venue is full open access (publication fees in hybrids not reimbursed)

# OA to publications in Horizon Europe



# Why always deposit in a repository

Even if the chosen venue for publication is fully OA



01

To guarantee integrity of the content and long term preservation



02

Facilitate the fulfilment of Open Access mandates and/or institutional policy



03

Increase visibility and improve findability of research products

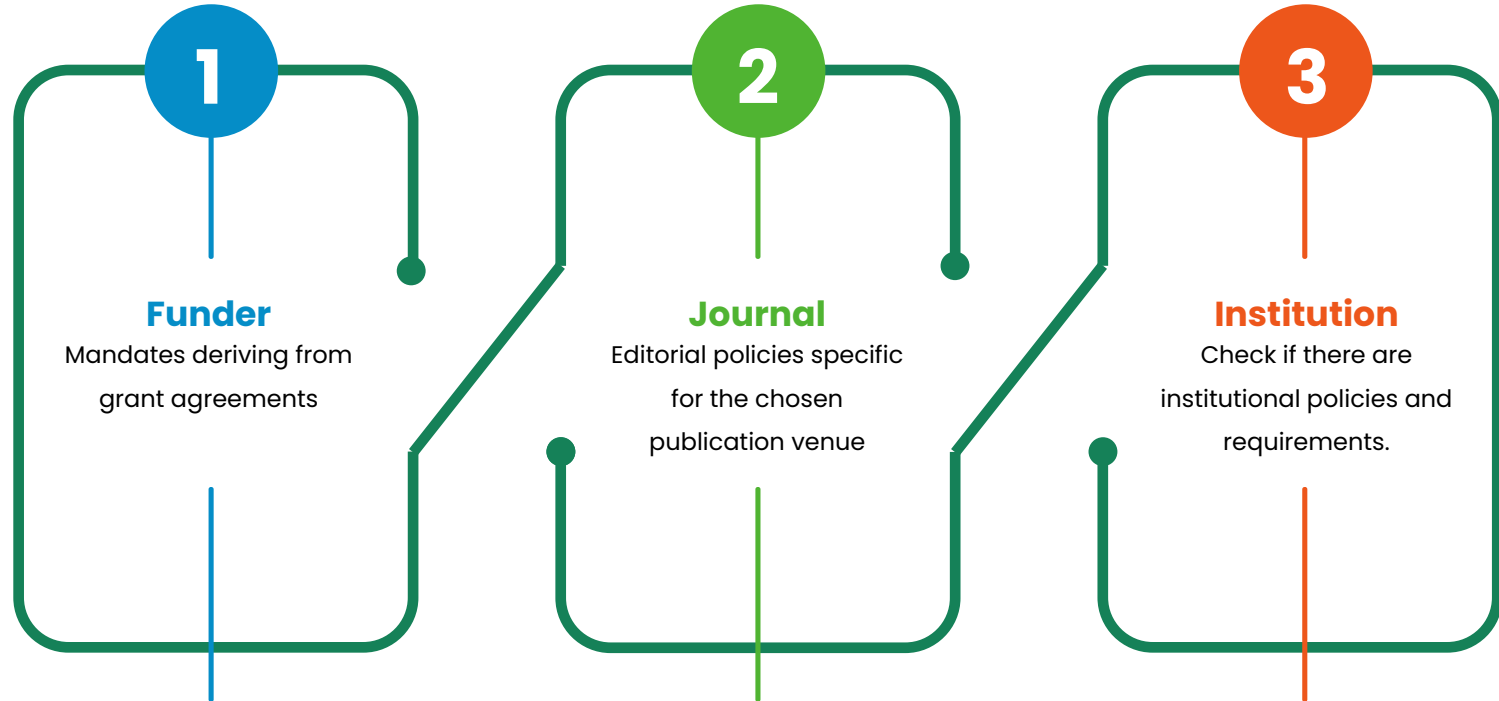


# Research Data Management in HE

- Data must be in line with FAIR principles
- Establish a data management plan ('DMP') (and regularly update it)
- Deposit the data in a trusted repository (if required in the call conditions, this repository must be federated in the EOSC)
- Ensure open access to the deposited data (CC BY, CC0 or equivalents), following the principle 'as open as possible as closed as necessary'.
- Metadata always available (in CC0 or equivalent)

# Policies and requirements

At least three levels to consider



# Os in the Horizon Europe project proposal



# Os in excellence and quality of implementation sections

Horizon Europe moves beyond  
open access to open science

“In Horizon Europe, open science practices are considered in the evaluation of proposals, under ‘excellence’ in particular under methodology and under the ‘quality and efficiency of implementation’ award criterion. Proposers should address open science practices in the relevant section on open science under methodology.

See Horizon Europe programme guide:  
[https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide\\_horizon\\_en.pdf](https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf)

# Mandatory and recommended OS practices

In HE both mandatory and recommended OS practices will be evaluated in the project proposal phase.



“Proposers will have to provide concrete information on how they plan to comply with the **mandatory** open science practices. Failure to sufficiently address this, will result in a **lower evaluation score**.”

**Recommended** open science practices are incentivised through their evaluation at the proposal stage.

# ‘Excellence’, part B (Project proposal – Technical description)

What to describe in the  
**methodology** section

“proposers should describe how open science practices (mandatory and recommended, as appropriate) are **implemented** as an integral part of the methodology and show how their implementation is **adapted to the nature of their work**, therefore increasing the chances of the project delivering on its objectives.

If open science practices are not applicable to the proposal, justifications should be provided so that, if evaluators agree, open science will not be taken into consideration in the evaluation.

See Horizon Europe programme guide:

[https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide\\_horizon\\_en.pdf](https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf)

# What to include in the methodology section

- Open Science Practices
- Research data Management and management of other research outputs
- FAIR aspects of RDM
- Curation and storage/preservation costs; person/team responsible for data management and quality assurance.



# ‘Capacity of participants and consortium as a whole’ , part B

Os in the description of the consortium

“Proposers should describe how the consortium brings together the necessary **disciplinary and interdisciplinary knowledge**.

Proposers should show how this includes **expertise** and/or track record in open science practices, relevant to what is planned for the project.

See Horizon Europe programme guide:

[https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide\\_horizon\\_en.pdf](https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf)

# Part A of the proposal

Os in the application form of the proposal

“Proposers are asked to list up to five relevant publications, widely used datasets or other achievements of consortium members that they consider significant for the action proposed.

Publication should be OA (if they are not, deposit them retroactively) and data should be FAIR and ‘as open as possible, as closed as necessary’.

The significance of publications will not be evaluated on the basis of the Journal Impact Factor of the venue they are published in, but on the basis of a qualitative assessment provided by the proposers for each publication.

See Horizon Europe programme guide:

[https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide\\_horizon\\_en.pdf](https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf)



# How to address OS in a proposal

Some aspects to highlight in a project proposal



## Horizon Europe

Both mandatory and recommended Open Science practices



## Early opening and sharing

You may mention preprints or preregistration/registration reports, and which platforms you plan to use



## RDM

Outline in a maximum of one page how data will be managed. Mention a EOSC federated repository



## Reproducibility

No ambiguity on methodology. Detail on process and tools (software, materials, protocols, flows, ...). In case of negative results? Check on existing results and data

## Open Access

You may elaborate on the (subscription-based or open access) publishing venues, the trusted repository/repositories. OA to data and other outputs in a RDM section of the proposal

## Open Peer Review

Highlight the venues that would qualify as providing open peer review (if you intend to use them)

## Public engagement

Citizen Science? Co-design, co-creation, co-assessment activities?

## Part A: Application form

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements of consortium members relevant to the call content

- Publications expected to be open access
- Datasets expected to be FAIR and open\*

\* "As open as possible, as closed as necessary"

## Part B: Project proposal - Technical description

### 1 Excellence

#### 1.1 Objectives and ambition

#### 1.2 Methodology

#### Open Science [max. 1 page]

How will the project implement mandatory and recommended open science practices in a manner appropriate to the nature of the proposed work?

##### Mandatory OS practices

Open access# to scientific publications

Open\* access to research data

Information/documentation about research outputs needed for research validation and data reuse

Management of research data in line with FAIR principles

##### Recommended OS practices

Early and open sharing of research

Preregistration, open peer-review

Citizen science, society engagement

Research output management (beyond data)

Reproducible outputs

#### Research Data Management (RDM) and management of other research outputs (exc. publications) [max. 1 page]

How will the data/ research outputs be managed in line with the FAIR principles?

Types of data & research outputs

Findability, Accessibility, Interoperability, Reusability of data & research outputs

Costs and responsibilities of data curation, storage and preservation

### 2 Impact

#### 2.1 Project's pathways towards impact

#### 2.2 Measures to maximize impact. Dissemination, exploitation & communication

##### Tips

Refer to relevant Open Science practices described in the Methodology section (i.e. open access to research outputs and early and open sharing of research)

Make sure proposed practices are compatible with your dissemination and exploitation plan (e.g. protection of intellectual property) and consortium agreements

#### !!! #Open Access to publications

- 1) Publish in ORE - Open Research Europe
- 2) Publish in an Open Access journal (see DOAJ)
- 3) Publish in a subscription based journal + maintain the rights to deposit and give immediate access

## How do I address open science in my proposal?



HORIZON EUROPE

Open science (OS) takes a central place in Horizon Europe and open science practices are considered in the evaluation of Horizon Europe proposals. If not applicable to the proposal, justifications should be provided so that, if evaluators agree, open science will not be taken into consideration in the evaluation.

### 3 Quality and efficiency of the implementation

#### 3.1 Work plan and resources

##### Tips

Give visibility to RDM with distinct tasks or work packages

Include the full Data Management Plan (DMP) as a deliverable

Include other relevant RDM activities and budget them

#### 3.2 Capacity of participants & consortium as a whole

##### Tips

Describe consortium partners' capacities in open science



For more info, check the research tip:  
Horizon Europe: How do I address open science in my proposal?

Adapted by Elena Giglia

# The European Open Science Cloud

# What

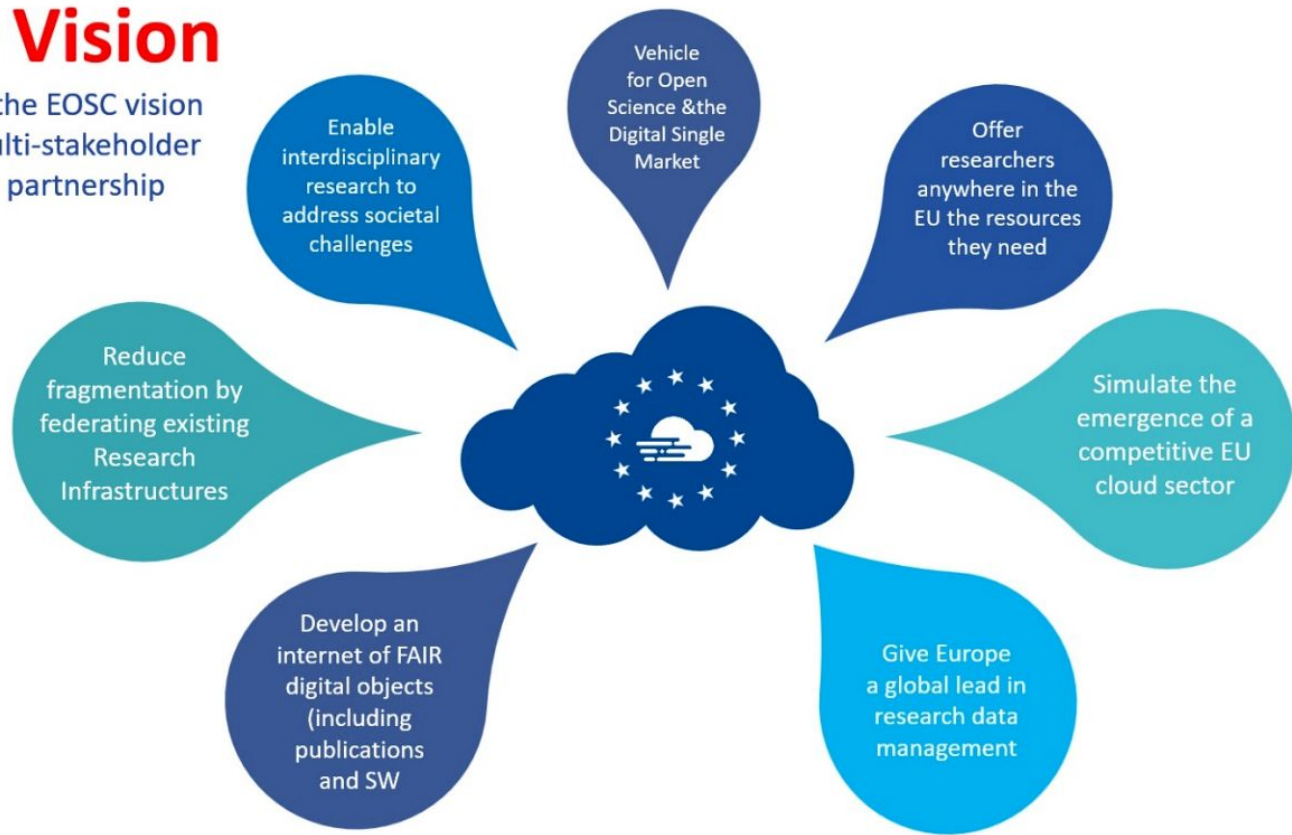
The EOSC is intended for  
European researchers,  
innovators, companies and  
citizens

A federated and open multi-disciplinary environment where they can publish, find and re-use data, tools and services for research, innovation and educational purposes.

- seamless access
- FAIR management
- reliable reuse of research data and all other digital objects produced along the research life cycle (e.g. methods, software and publications...)

# The Vision

Enabling the EOSC vision  
with a multi-stakeholder  
European partnership





# The main aim

To develop a 'Web of FAIR Data and services' for science in Europe upon which a wide range of value-added services can be built.

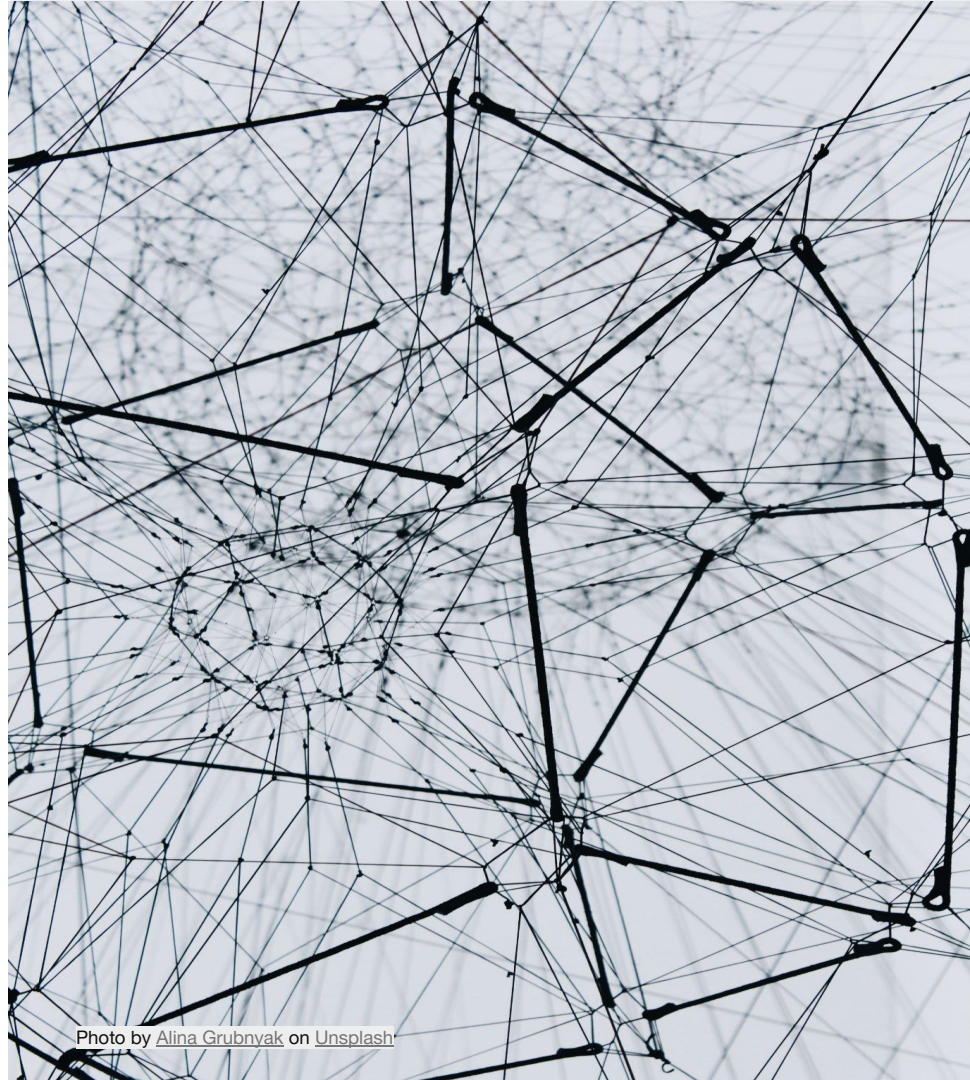


Photo by [Alina Grubnyak](#) on [Unsplash](#)



# The EU Council recognizes the EOSC as

The **pilot action** to deepen  
the new European  
Research Area (ERA)

The science, research and  
innovation **data space**  
which will be fully  
articulated with the other  
sectoral data spaces  
defined in the European  
strategy for data.

# Fully deployment of the EOSC

will lead to higher research **productivity**, new insights and **innovations**, as well as improved **reproducibility** and trust in science.



# Implementing the EOSC

Ongoing integration process since 2015

In the initial phase of implementation (2018-2020), the European Commission invested around €250 million to prototype components of the EOSC through calls for projects under Horizon 2020

A co-investment (with in kind and financial contributions) by the EU and non-EU partners of at least €1 billion is foreseen for the next 7 years.

The current phase of implementation (2021-2030) in accordance with the [Strategic Research and Innovation Agenda](#) (SRIA) which is co-developed with the entire EOSC community.

# EOSC governance partnership

Tripartite governance partnership:

- the EU represented by the European Commission,
- the participating countries represented in the [EOSC Steering Board](#)
- the research community represented by the [EOSC Association](#)

# The EOSC Association

- Setup in July 2020 as an AISBL (*association internationale sans but lucratif*) under Belgian law. [ICDI](#) was one of the four founding members.
- The aim is to provide a single voice for advocacy and representation for the broader EOSC stakeholder community.
- Around 150 members and 79 observers, essentially from public organisations having a research mandate in Europe. The aim is to extend the membership.
- Italy participates with 26 research organizations:  
[https://www.eosc.eu/general-assembly?field\\_country\\_value=Italy&field\\_status\\_value=All&field\\_type\\_of\\_organisation\\_value=All&page=0](https://www.eosc.eu/general-assembly?field_country_value=Italy&field_status_value=All&field_type_of_organisation_value=All&page=0)

# Advisory Groups and Task Forces

An opportunity to make the difference

<https://www.eosc.eu/advisory-groups>



EUROPEAN OPEN  
SCIENCE CLOUD

EOSC STRATEGIC AGENDA + ADVISORY GROUPS + GET INVOLVED + NEWS & EVENTS + ASSOCIATION + CONTACT

## Advisory Groups

The EOSC Association Advisory Groups are a structure to allow Association members and others to help steer the implementation of EOSC. The Advisory Groups provide an "umbrella" for a set of Task Forces that are highly related and have the same Liaison person from the EOSC Association Board of Directors.

### Task Forces

The Task Forces address key areas of implementation. They will liaise with EOSC projects to offer feedback on developments, as well as identify strategic gaps and areas for investment to input to SRIA.

An open call was held to define the membership of the Task Forces. This resulted in several hundred members of the community offering their expertise as volunteers to shape the future direction of EOSC.

- **Implementation of EOSC**
  - PID policy and Implementation ([charter](#))
  - Researcher engagement and adoption ([charter](#))
  - Rules of Participation (RoP) compliance monitoring ([charter](#))
- **Metadata and data quality**
  - FAIR metrics and data quality ([charter](#))
  - Semantic interoperability ([charter](#))
- **Research careers and curricula**
  - Data stewardship curricula and career paths ([charter](#))
  - Research careers, recognition and credit ([charter](#))
  - Upskilling countries to engage in EOSC ([charter](#))
- **Technical challenges on EOSC**
  - AAI Architecture ([charter](#))
  - Infrastructure for quality research software ([charter](#))
  - Technical interoperability of data and services ([charter](#))
- **Sustaining EOSC**
  - Defining funding models for EOSC ([charter](#))
  - Long-term data preservation ([charter](#))



# Links

- <https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud>
- [www.eoscsecretariat.eu](http://www.eoscsecretariat.eu)
- <https://www.eosc-portal.eu/>
- [www.eosc.eu](http://www.eosc.eu)

# Interaction

**Go to:**

<https://www.menti.com>

Voting code: 6844 5122





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