



# EOSC as part of the European Union's open science policy

Bulgarian EOSC tripartite event  
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# Open science: a paradigm shift in scientific research

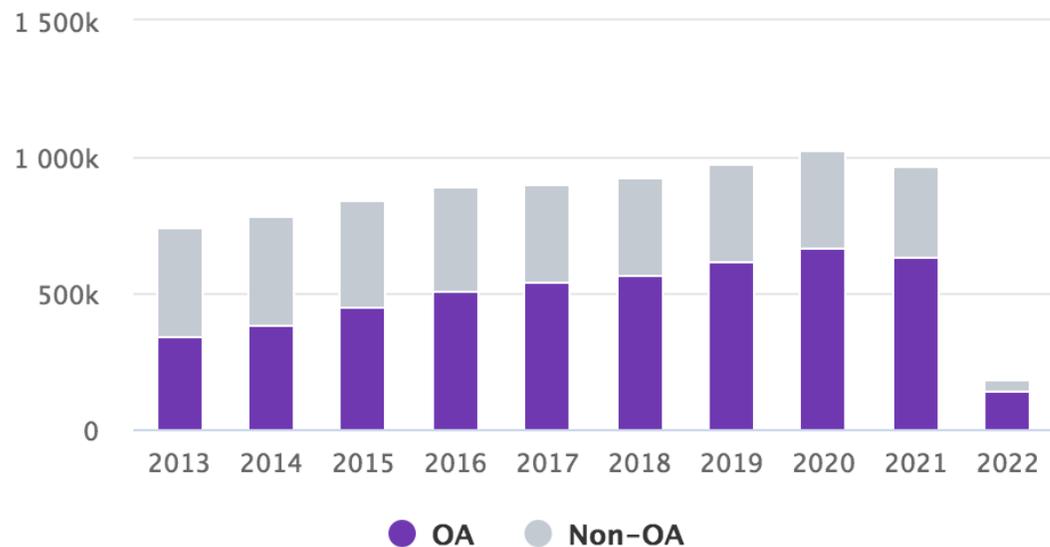
- The **open science** paradigm affects the whole research cycle and all its stakeholders.
- It involves using digital technologies to **unblock information flows** in scientific system.
- It implies sharing knowledge and tools **within** and **between disciplines**, and **society** at large
  - as **early** as possible in the research process
  - as **openly** as possible
  - as “**FAIRly**” as possible

# Open access to scientific publications

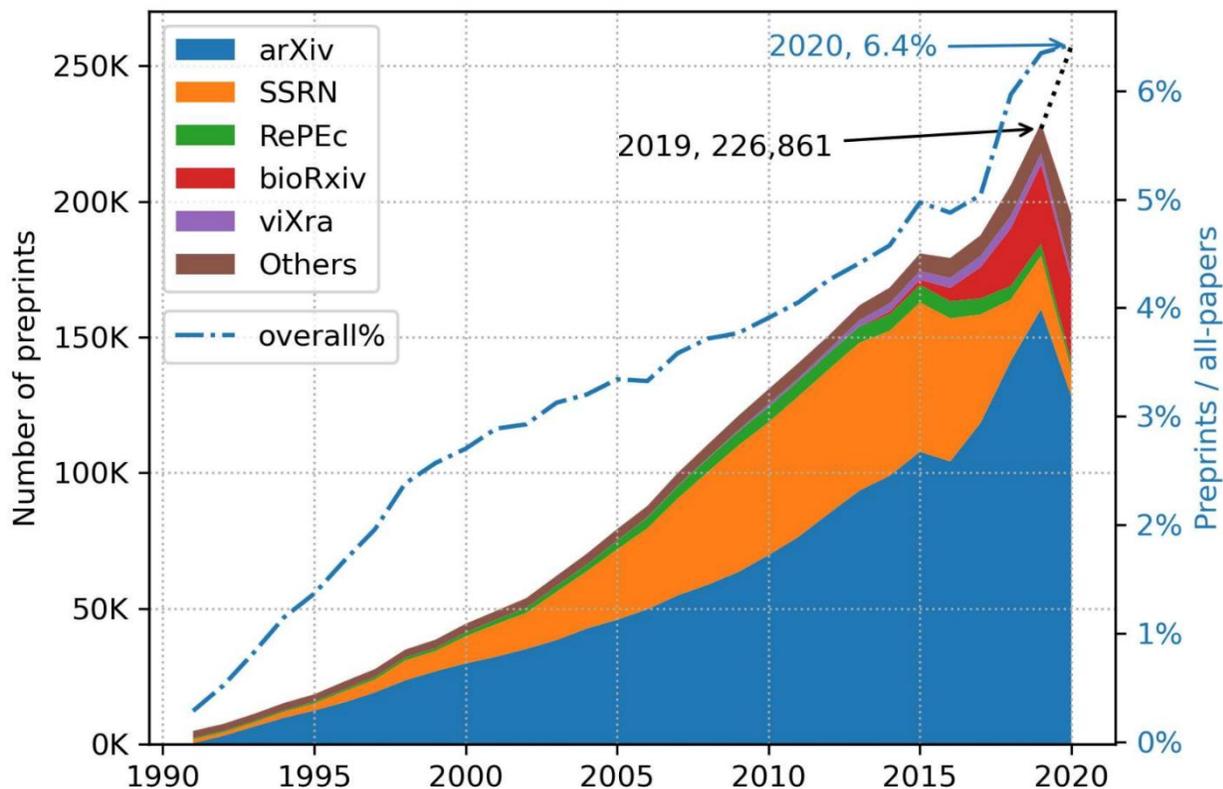
OA/non-OA peer-reviewed publications of Europe

## Publications

over time



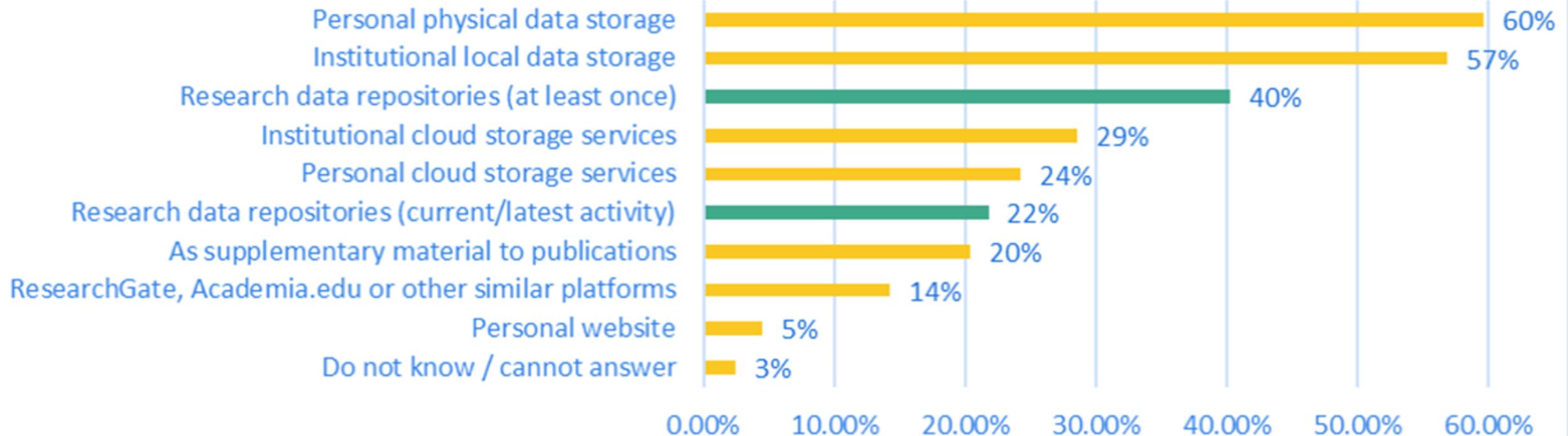
osobservatory.openaire.eu



arXiv:2102.09066

# Research data depositing

- **60%** stored data in **personal** physical data storage or institutional **local** data storage.
- **40%** of researchers occasionally stored data in **research data repositories**.



# Awareness of the FAIR principles

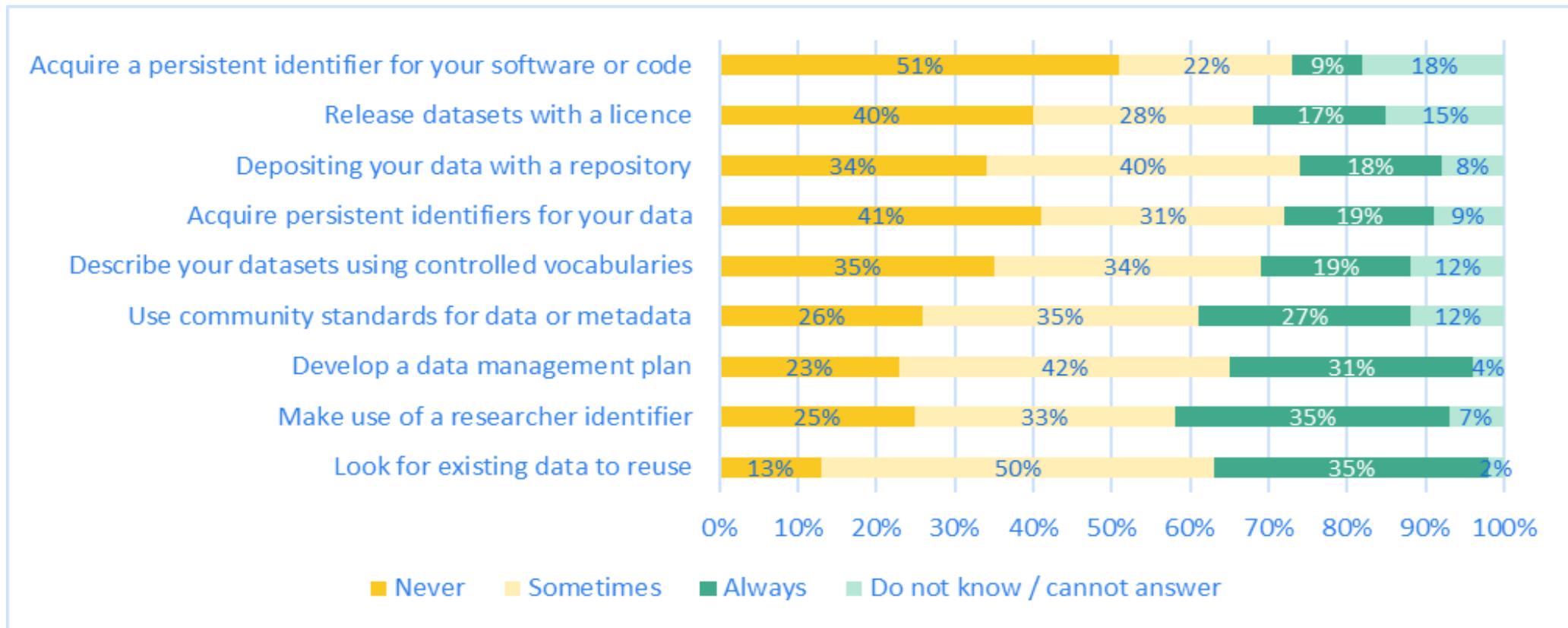
- More than **1/3** of the respondents have **never heard** of the FAIR principles.



*Source: European Research data landscape study 2022 commissioned by the European Commission  
Elaboration by the study performers based on unweighted researchers' survey data. Total N=11,849*

# FAIR aligned practices

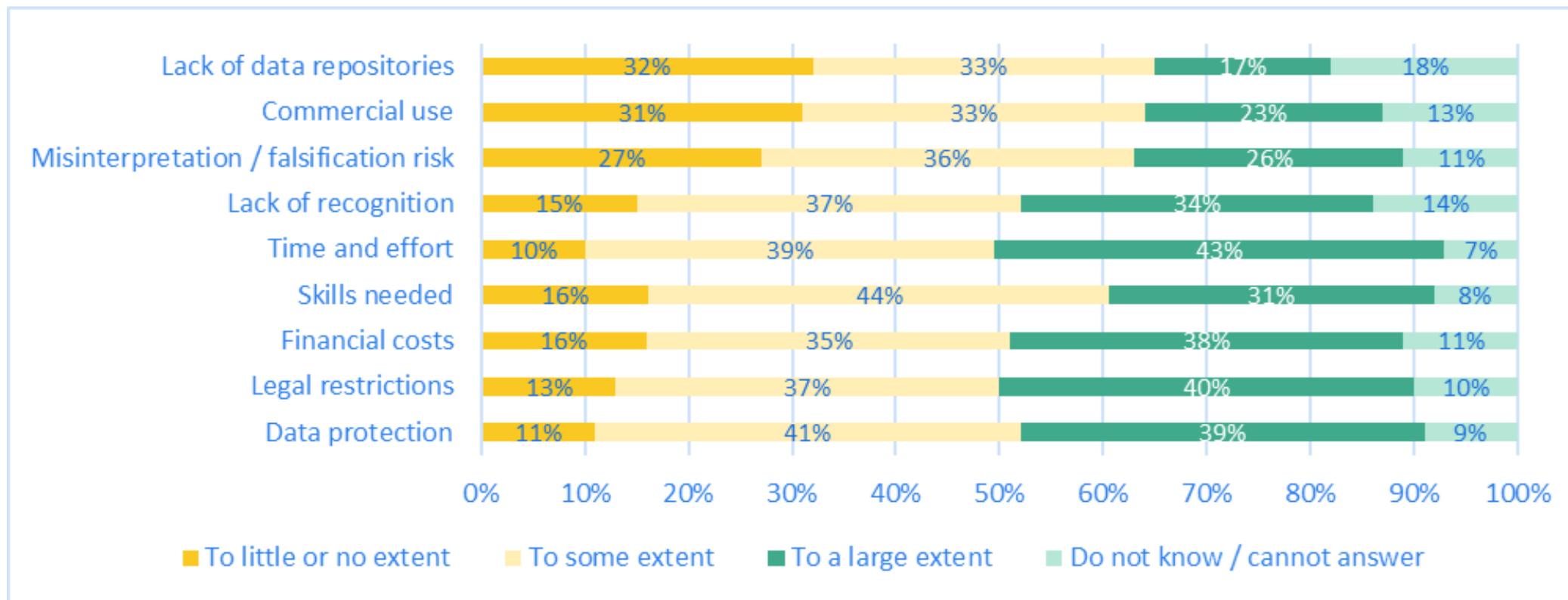
- Around **3/4s** develop **DMPs** but other FAIR-aligned practices are less common.
- Allocating PIDs to data or software/code are the least common practices.



Source: European Research data landscape study 2022 commissioned by the European Commission  
Elaboration by the study performers based on unweighted researchers' survey data. N=10,868-10,889, depending on option

# Barriers

- **Time, effort & financial costs** required for RDM and data sharing are seen as a challenge
- **Data protection and legal restrictions** are also seen as big obstacles
- **Lack of recognition** also seen as a major barrier



Source: European Research data landscape study 2022 commissioned by the European Commission  
Elaboration by the study performers based on unweighted researchers' survey data. N=9,898 (selected at least one option).

# Open science: a political priority of the EU

- 2018 EC Recommendation on [Access to and Preservation of Scientific Information](#)
- 2020 EC Communication on the [New European Research Area \(ERA\)](#)
- 2021 Council Recommendation on a [Pact for Research & Innovation in Europe](#)
- 2021 Council Conclusions on the [Future Governance of the ERA](#) (& [Policy Agenda 2022-2024](#))
- 2022 Council Conclusions on [Research Assessment and Implementation of Open Science](#)
- 2022 Council Conclusions on [Research Infrastructures](#)

# Open science & EOSC in the ERA Policy Agenda '22-'24

ERA priority area:

*“Deepening a truly functioning internal market for knowledge”*

ERA Policy Agenda Action 1:

*“Enable the **open sharing of knowledge and the re-use of research outputs**, including through the development of the **European Open Science Cloud**”*

Three outcomes by end of 2024:

1. Deploy open science **principles** & identify **best practices**
2. Deploy **EOSC core** components/services; infrastructure federation & interoperability
3. Establish a **monitoring** capacity for contributions/practices related to EOSC

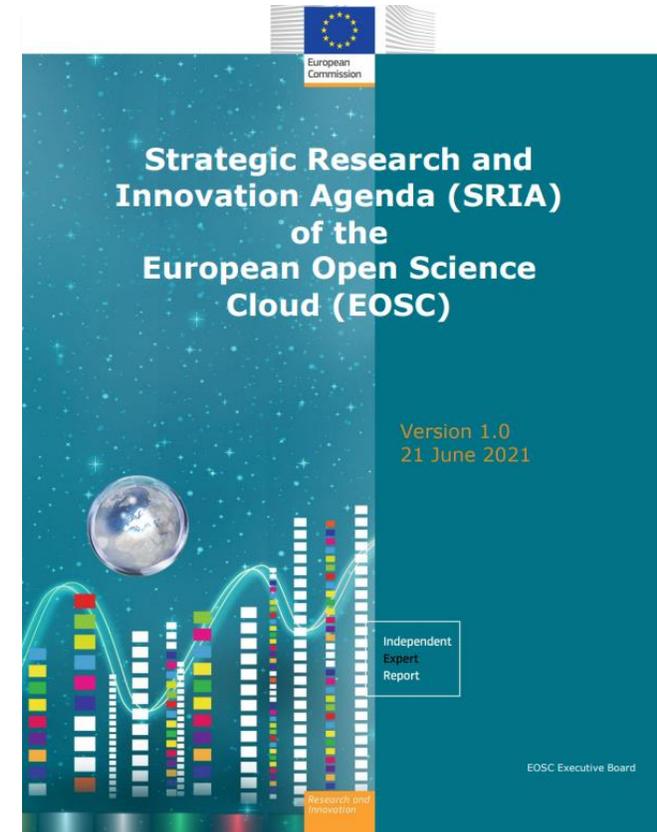
# EOSC European Partnership

 Ref. Ares(2021)5649191 - 15/09/2021

## EN Annex 5

### Memorandum of Understanding for the Co-programmed European Partnership for the European Open Science Cloud (EOSC)

The European Open Science Cloud Association, representing the partners other than the Union (its constituent entities<sup>1</sup>), the registered offices of which are in Rue du Trône 62, 1050 Bruxelles, hereafter referred to as the “Partners other than the Union”, and the European Union, represented by the European Commission, (jointly hereinafter referred to as “the Partners”),

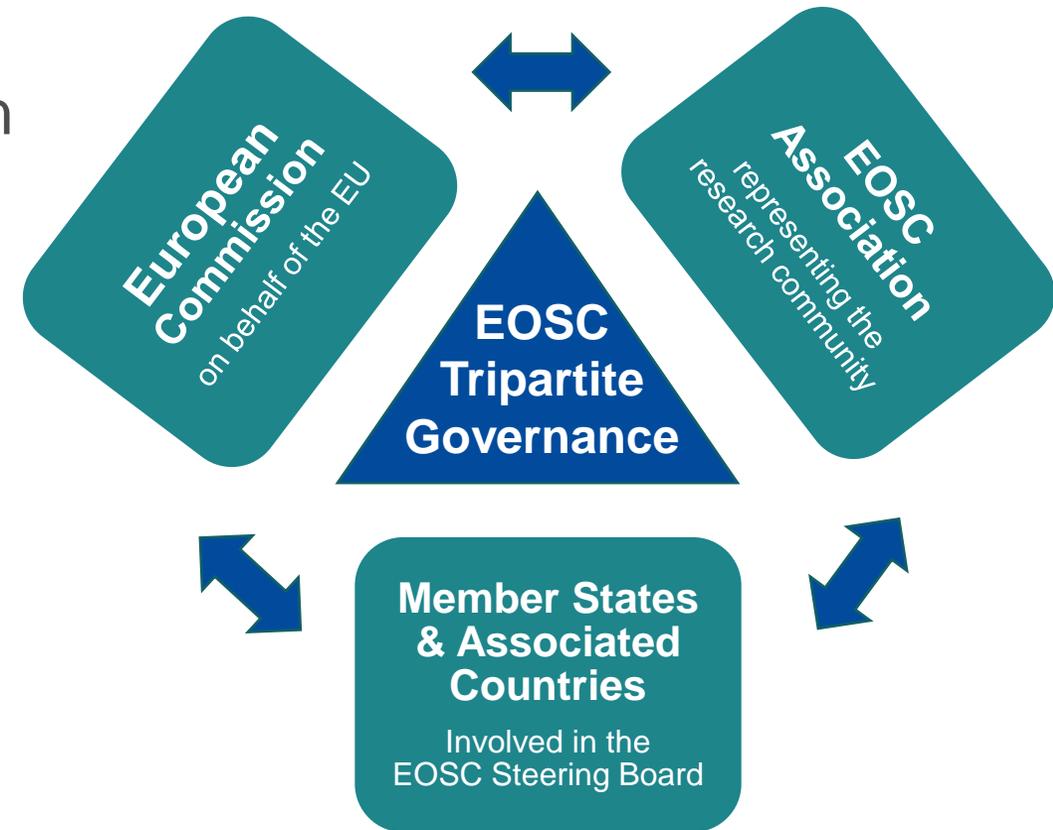


# EOSC Tripartite Governance

The EOSC Tripartite Governance ensures dialogue and strategic coordination towards achieving the EOSC ambition to enable Open Science in Europe and contribute to a web of FAIR data and services for science.

It involves:

- the European Union represented by the European Commission
- the participating countries represented in the EOSC Steering Board
- the research community represented by the EOSC Association



# 2022 EOSC tripartite event: priorities for future work

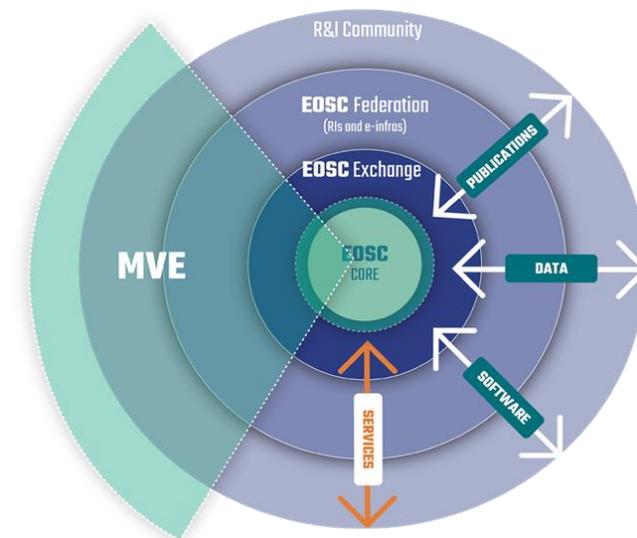
- Position EOSC in the next ERA Policy Agenda 2025-2027
- Demonstrate EOSC added value & increase uptake
  - *EOSC procurement; INFRAEOSC projects; catalogue of best practices; monitoring; tripartite events*
- Foster high FAIR data productivity, promote FAIR data literacy and sovereignty
  - *EOSC interoperable with sectorial EU data spaces; widening to public and private sectors; EOSC RoPs; ...*
- Align policies, investments, and practices from European to institutional levels
  - *Align priorities on the Multiannual Roadmap; post-2027 future, including funding models*
- Add value with EOSC to the research process itself
  - *Onboarding support; data steward curricula / sharing standards / quality frameworks; certified repositories; machine actionable licences*
- Coordinate efforts by the three EOSC parties for monitoring of EOSC and open science uptake
  - *EOSC Observatory*  **current survey to be filled by 1 April!**

# EOSC: where do we plan to be by 2027?

## *Minimum Viable EOSC operations to serve researchers in Europe are deployed and operated*

- Known basic elements being prototyped include:
  - ✓ EOSC Rules of Participation
  - ✓ EOSC Authentication and Authorization Infrastructure
  - ✓ EOSC Policy on Persistent Identifiers and its compliance framework,
  - ✓ EOSC Interoperability Frameworks
  - ✓ EOSC Common search and access engine for FAIR research objects,
  - ✓ EOSC Monitoring and accounting modules
  - ✓ EOSC Security Coordination
- EC procurement for “Managed Services for the EOSC Platform”:  
to build and deploy an operational, secure, cloud-based EOSC infrastructure, including a federated EOSC Core platform and EOSC Exchange, offering high quality professional services and superior user experience, for a large number of users, with functionalities available 24/7

***EOSC is progressively connected to the wider public sector and the commercial sector through various data spaces***



# EOSC: where do we plan to be by 2027?

*Open science is increasingly becoming the ‘normal’ at European, national and institutional levels*

- Open science policies and investments are better **aligned** at European and national levels with demonstrated impact
- Open science **best practices, use cases** and activities are catalogued and disseminated;
- A common open science **monitoring** mechanism is deployed, operated and feeds into the ERA Monitoring Mechanism; baselines and trends on investments, policies, digital research outputs, open science skills and infrastructure capacities related to EOSC are available

*EOSC progressively enables a ‘web of FAIR data and services for science’*

- Policies are in place which require FAIR to be implemented including through **Data Management Plans**; DMPs are standardized across disciplines and can link to interconnected graph of science events
- **‘FAIRification’** toolkits and quality description frameworks are available for further uptake by the research community
- A network of EOSC-federated, trustworthy **FAIR-enabling repositories** is available

# Open Research Europe

- Open access publishing platform: scientific publications, research data, software & other research outputs
- Early and open sharing of research
- Participation in open peer-review
- A vision for a top-quality, trusted pan-European open access publishing service, collectively driven, owned & supported by European research funders and research institutions with no author-facing fees



<https://open-research-europe.ec.europa.eu/>

# Open Research Europe

- 2021: launch of ORE, for Horizon 2020 and Horizon Europe participants
  - Extension from 2024 to 2026 underway
- 2022 Council Conclusions on Open Science:  
“... *INVITES Members States and research funding organisations to consider joining the Open Research Europe initiative ...*”;
  - Discussion with interested national research funders across Europe, aiming at:
    - (i) further detailing the vision, with a roadmap for implementation
    - (ii) converging on a not-for-profit ‘business model’
    - (iii) soliciting participation and funding commitments
  - Supporting the transition to an open-source infrastructure to underpin innovative publishing workflows

# Need for reform of research assessment

- To reflect **evolving research processes**
  - ✓ Digital transition; Iterative and recursive; Collaborative and open
- To reflect **increasing demands on research**
  - ✓ Societal, environmental, economic challenges; Diversity of outputs
- To move away from **inappropriate uses** of journal- and publication-based metrics
  - ✓ Rewards quantity and publication venue rather than quality; does not reward sharing, collaboration and outputs other than publications
- To further support the **quality of research** and the **attractiveness of research environments**
  - ✓ Requires a system and cultural change, involving institutions, funders and researchers

# CoARA: Common vision & commitments CoARA

Assessment of research, researchers, and research organisations **recognises the diverse outputs, practices and activities** that maximise the quality of research and resulting impacts.

This requires basing assessments primarily on **qualitative judgement**, supported by **responsible use of quantitative indicators**.

## Signatories agree to:

- Base actions on common **Principles** (from scoping report)
- Implement **10 Commitments** for change, incl. **timeframe** for implementation
- Organise and operate a **Coalition**

# European Commission's support



- The Commission **signed the Agreement** on 8 November 2022
- The Commission remains committed to **support the CoARA notably by:**
  - ✓ Being an active **member of the Coalition**, mainly in its quality as a research funder, and participating in relevant working groups and activities
  - ✓ Providing policy **support in liaising the Coalition with Member States and Associated Countries** in the framework of the ERA Forum; this will facilitate the setting up of national/regional framework conditions conducive to reforms
  - ✓ Providing **financial support to the CoARA activities** through Horizon Europe
  - ✓ **Fostering global alignment and cooperation** with other regions worldwide & **synergies with other European initiatives**
  - ✓ Developing **synergies** with other European initiatives, e.g. EOSC



**Bulgarian organisations encouraged to sign & become members!**

# Horizon Europe strategy: reflecting the policy

- **Open Access to scientific publications**
  - Immediate OA via repository under CC-BY; metadata under CC0
  - Information about data and tools needed to validate conclusions
  - IPR retention to comply with OA requirements
  - Reimburse only if in full OA venue
- **Research Data Management**
  - RDM in line with FAIR, mandatory Data Management Plan
  - OA via repository under CC-BY or CC0; metadata under CC0; exceptions to OA possible ('as open as possible, as closed as necessary')
  - Information about software and other tools needed to reuse or validate data
- **Additional OS practices** (encouraged)
  - Providing OA to research outputs beyond publications and data
  - Research output management beyond publications and data
  - Early and open sharing of research, e.g. preregistration, registered reports, preprints
  - Measures to ensure reproducibility of research outputs
  - Involving citizens and end users in co-creating R&I agendas and content

# Horizon Europe strategy: reflecting the policy

- Evaluation of the quality of open science practices under the ‘excellence’ and ‘quality of implementation’ award criteria
- Embedding open science practices such as FAIR data sharing and management, and interconnection to EOSC in relevant call topics across the programme
- Flagging of relevant call topics: ‘EOSC and FAIR data’ and ‘societal engagement’
- Guidance on open science practices & reproducibility in the Horizon Europe Programme Guide
- Projects reporting on open science practices

# Embracing open science as the *modus operandi* of research

## Improving *the practice*

- **Providing full and immediate open access** to scientific publications, research data, models, algorithms, software, protocols, notebooks, workflows, and all other research outputs
- **Research output management** - publications, data, and other outputs - in line with FAIR principles
- **Early and open sharing** of research, e.g.
  - **Preregistration**, registered reports, pre-prints, data deposition in repositories
  - Measures to ensure verifiability and **reproducibility** of research outputs
  - **Open collaboration** within science and with other knowledge producers/users, incl. citizens, civil society and end users

## Developing *the enablers*

- **Incentives and rewards** to adopt open science practices, e.g. initiative for **Reforming Research Assessment**
- **Legislative and regulatory framework** for practicing open science
  - An **EU data, copyright and digital legislative framework** fit for research
  - **Horizon Europe provisions** on Open Access and Open Science practices
- **Open research infrastructures and skills** e.g.
  - **European Open Science Cloud (EOSC)** virtual research environment
  - **Open Research Europe (ORE)** open access publishing service
  - **Support for skills and education** for practicing open science & data-intensive research

# Thank you



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