EOSC as part of the EC strategy for Open Science

Spain & Portugal EOSC Tripartite Event

Faro, 10 October 2022

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Science in transition

Image by Nick Youngson CC BY-SA 3.0 Alpha Stock Images

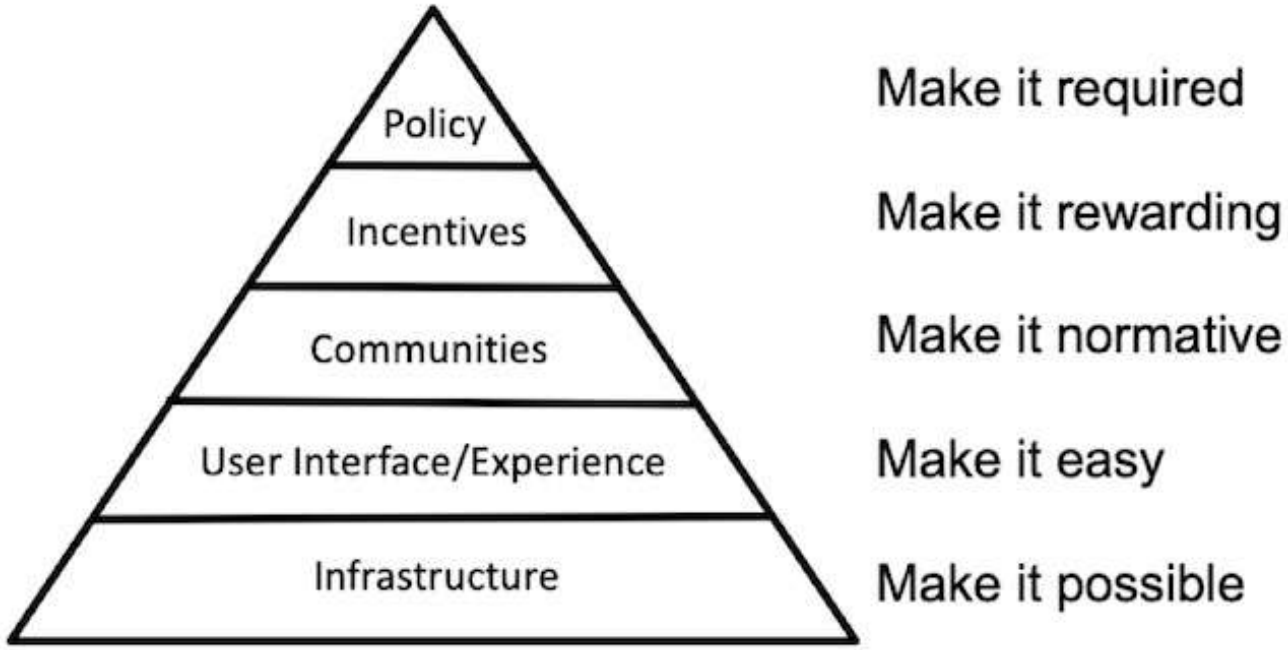
The **Open Science** paradigm affects the whole research cycle and all its stakeholders

It implies sharing knowledge and tools:

- "as early as possible" in the research process;
- "as openly as possible";
- "as FAIR as possible";

not only within a discipline but also between disciplines and society at large.

Open Science policies @ EC



European Open Science Agenda 2016

- Rewards and Incentives
- Research Indicators and Next-Generation Metric
- OA and the Future of Scholarly Communication
- European Open Science Cloud
- FAIR Data
- Research Integrity
- Skills and Education
- Citizen Science/Public Engagement

- The Commission acts as **policy maker** (propose legislation and encourage MS), a **funder** (we set requirements to our projects) and a **capacity builder** (we fund 'enabling' projects).

European Commission

What is EOSC?

EUROPEAN OPEN SCIENCE CLOUD

A process

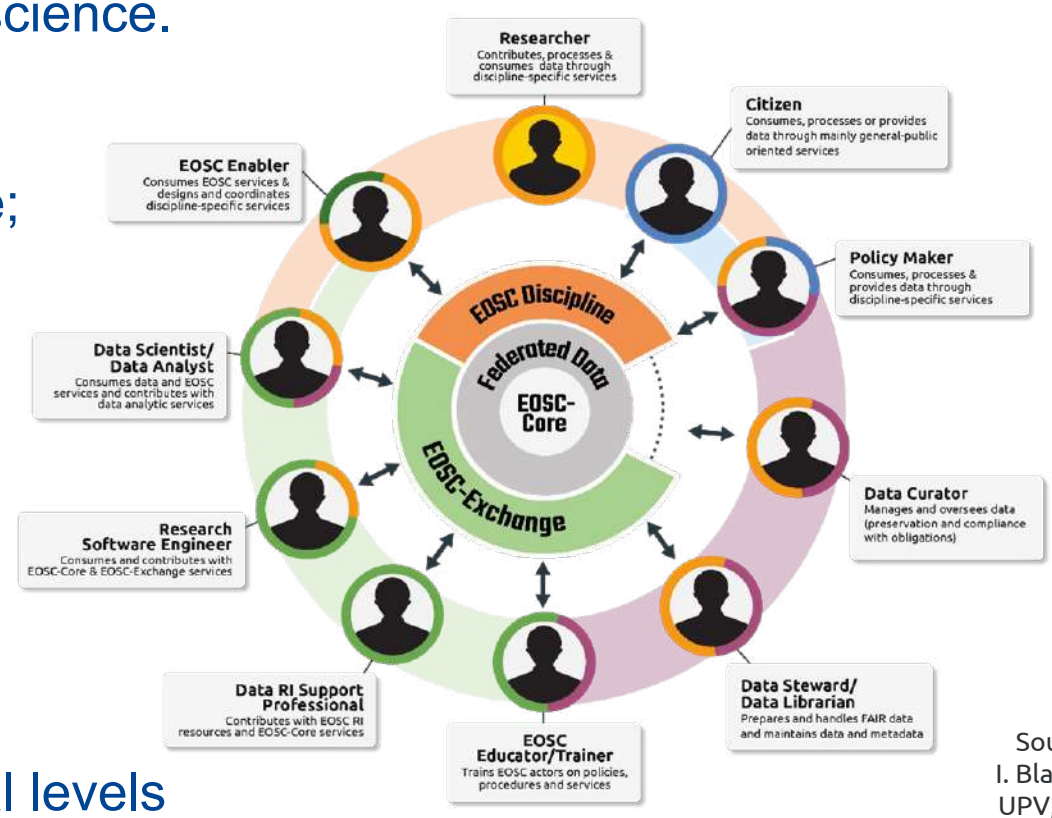
- To accelerate Open Science, FAIR data management and use of digital methods and services
- To stimulate co-operation in science and research, new insights and innovations, higher research productivity and improved reproducibility in science.

An open, trusted, federated infrastructure

- To access existing Research Infrastructures in Europe;
- To enable over 1,9 million European researchers to store, share, process, analyse, and reuse research digital objects (e.g., data, publications and software)

An evolving ecosystem

- Bringing together the European Commission, the governments and the many R&I stakeholders involved in the European Research Area
- Co-created across European, national and institutional levels



Source:
I. Blanquer
UPV, 2020

ICT-Specific *Developing Software* | Library & Information Science *Understanding Data* | Discipline Specific *Conducting Research* | General Public

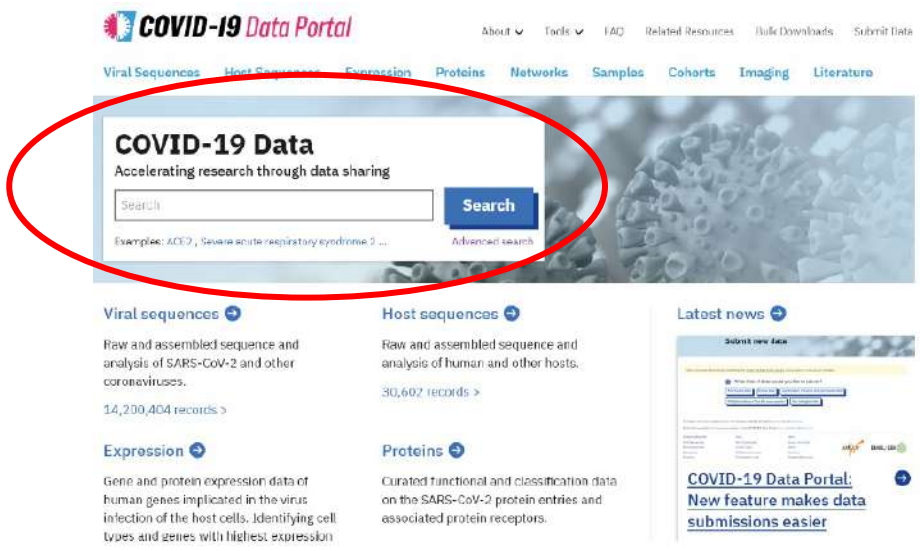
Highlighted EOSC use case – the COVID-19 Data Portal

20 April 2020, launch of the European COVID-19 Platform

"*The platform is an important part in the building of the EOSC*".

President U. von der Leyen

Global search!



Federated European Genome-phenome Archive

European COVID-19 Data Platform: https://www.covid19dataportal.org/

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Implementing EOSC

- **EOSC as part of the European Research Area** to enable sharing of knowledge, data and tools
- **EOSC European Partnership** to pool resources: Horizon Europe grants & procurements plus in-kind additional activities by the EOSC Association members
- **EOSC tripartite collaboration**: Implementation steered by the European Commission, the Member States and Associated Countries, and the EOSC Association representing the voice of the community

Courtesy of the EOSC Association.

- **A community-driven process**
- Gradual implementation based on **mutual alignment at European, national and institutional levels**

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EOSC as part of the European Research Area

ERA Priority Area: "*Deepening a truly functioning internal market for knowledge*"

ERA Policy Agenda priority action: "***Enable the open sharing of knowledge and the re-use of research outputs, including through the development of the European Open Science Cloud***"

Synergies with other ERA priority actions:

- Data legislative framework for research
- Research Infrastructures
- Green/digital transition
- Reform of Research Assessment
- International cooperation
- etc.

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EOSC in the European Data Strategy

(February 2020)

The EU will create a single market for data by:

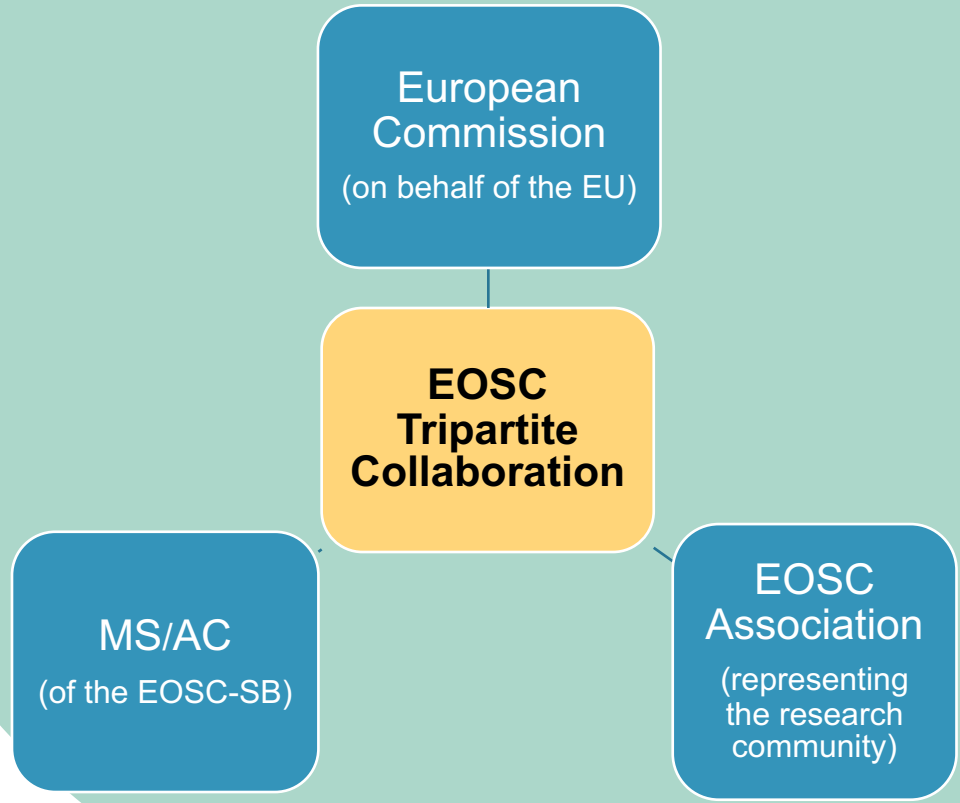
- Setting clear and fair rules on access and re-use of data;
- Investing in next generation standards, tools and infrastructures to store and process data;
- Joining forces in European cloud capacity;
- **Pooling European data in key sectors, with EU-wide common and interoperable data spaces;**
- Giving users rights, tools and skills to stay in full control of their data.

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

EOSC tripartite collaboration

Accelerate implementation of

- the deployment of a viable EOSC platform for use by the research communities;
- the deployment of a single joint capacity to monitor the uptake of open science and respective contributions to the EOSC;
- alignment of policies, investments, and practices at European, national/regional, and institutional levels to foster synergies and leverage effects of the conducted actions



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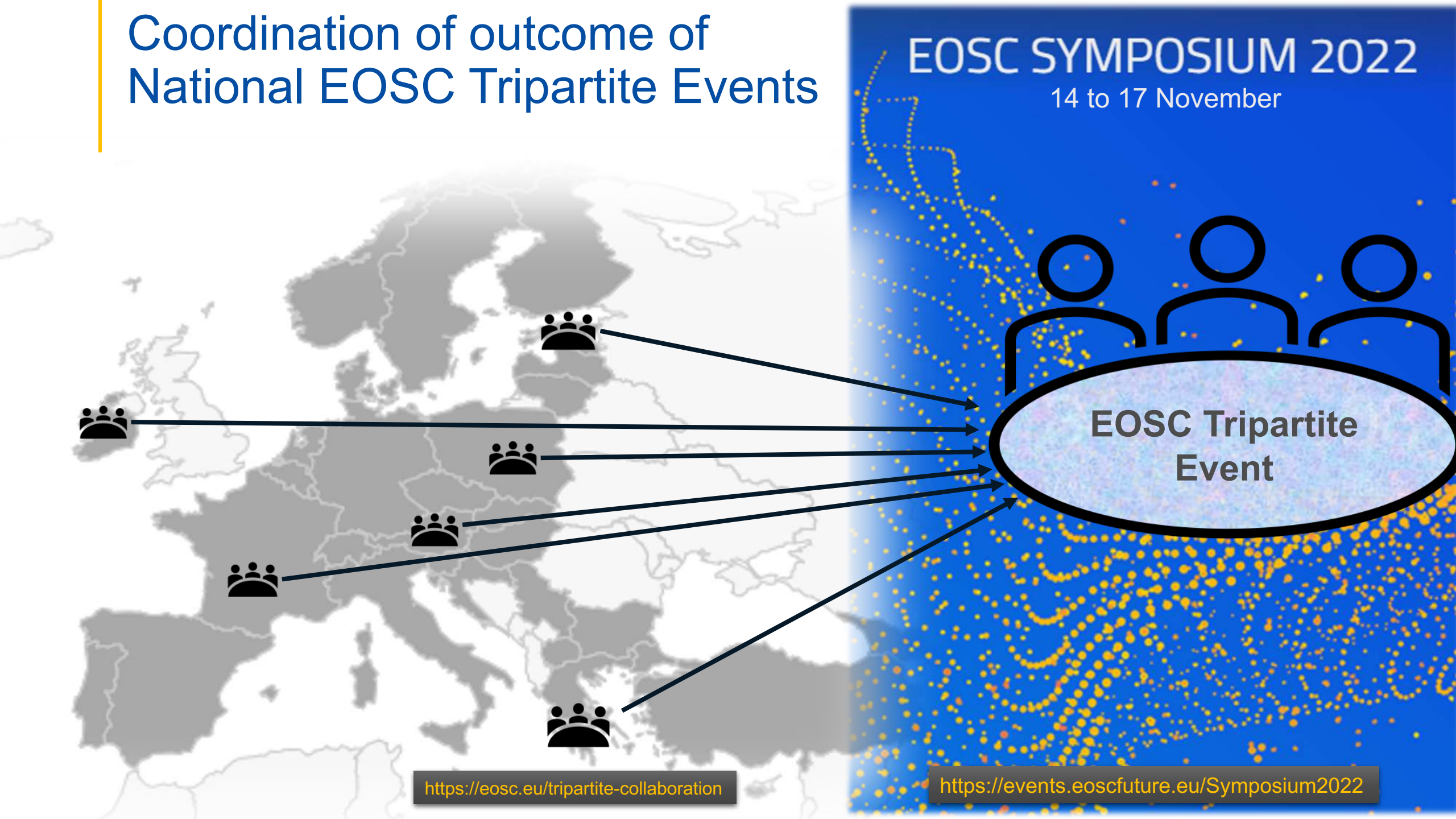
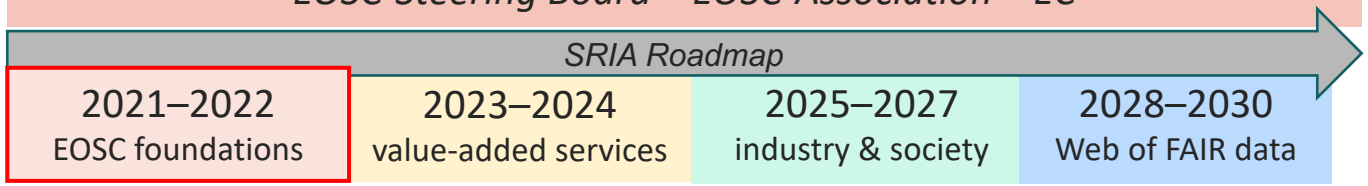
Coordination of outcome of National EOSC Tripartite Events



EOSC implementation: a two-stage approach

EOSC phase 1: preparatory	EOSC phase 2: continuous EOSC roll-out
2018 – 2020	2021 – 2030
H2020 calls/grants approach	**Partnership approach in Horizon Europe**
EOSC roadmap 2018-2020 by the European Commission	EOSC Strategic Research and Innovation Agenda (**EOSC SRIA**) 2021-2027 by the EOSC community
Initial EOSC Governance (Member States and the Commission to steer and oversee initial EOSC development)	**New EOSC Governance** (Increasingly stakeholder-driven, high-level steering role maintained for the European Commission and the Member States)
EOSC Governance Board | EOSC Executive Board	Tripartite EOSC Governance *EOSC-Steering Board – EOSC-Association – EC*



EC as an R&I funder (for EOSC)

- **€80+ Bn in Horizon 2020** leading to **over 30.000 projects**
  - Investments in EOSC via Horizon 2020 grants amounted to €350 million
  - 25 EOSC-related projects still running

- **€95+ Bn in Horizon Europe (HE)**
  - HE fully streamlines OS practices: immediate OA, FAIR RDM, also at evaluation stage.
  - 2021 “EOSC” Calls (70M €) : 12 projects + 1 procurement
  - 2022 “EOSC” Calls (~ 60M €): #projects tbc

EOSC Partnership. Activities and commitments of the Commission:

✓Take into account the input and advice from the Partners other than the Union when identifying & defining call topics for R&I activities to be included in the Work Programmes

✓Contribute through the Work Programmes

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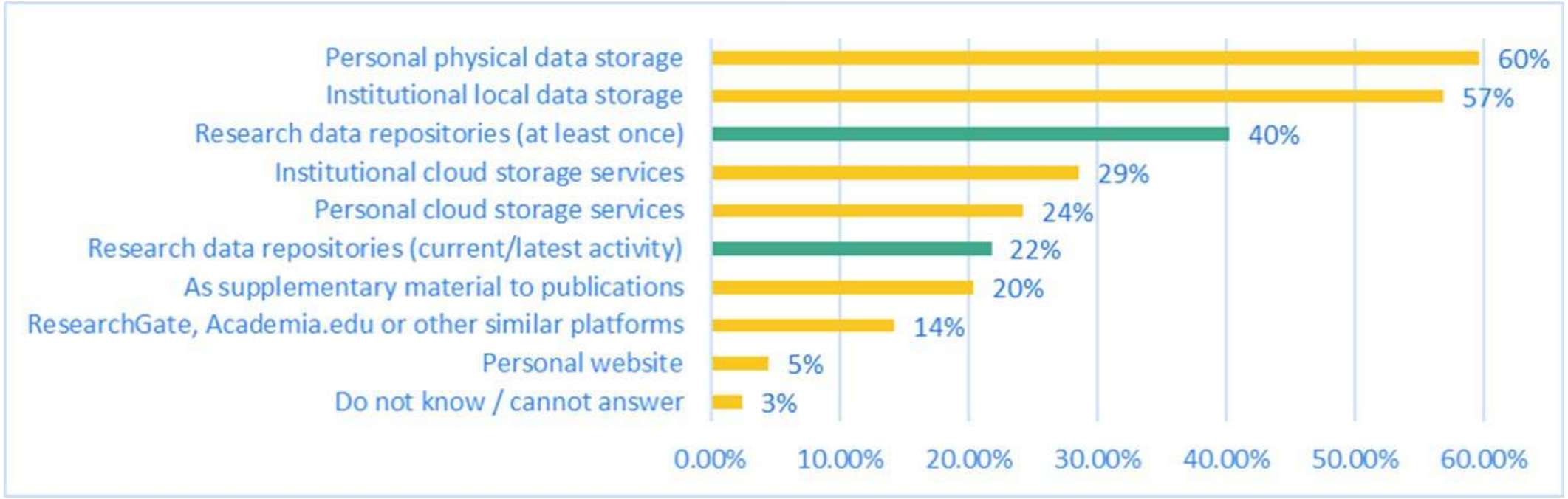
European Research Data Landscape study 2022

- Objectives:
  - To collect data on data **production** and **consumption** by scientific disciplines and relevant sub-disciplines
  - To collect and analyse information on **data deposition practices**, data typology and volume
  - To collect data on the level of maturity with respect to **FAIR data** implementation
  - To assess responsiveness and readiness of research data repositories in terms of implementation of FAIR principles
- Scope:
  - All fields of science; geographically covering EU **Member States**, H2020 **Associated Countries**, and **UK**
  - Survey of **researchers**: 15066 responses
  - Survey of **research data repositories**: 316 responses
  - Desk research; case studies; FAIRness assessment

Research data depositing

- Research data repositories are not the most common destination for storing usable research data. Researchers usually (**~60%**) stored data in **personal** physical data storage or institutional **local** data storage.
- **40%** of researchers occasionally stored data in **research data repositories**.
  22% respondents did that during the current/latest research activity.



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=10,914.

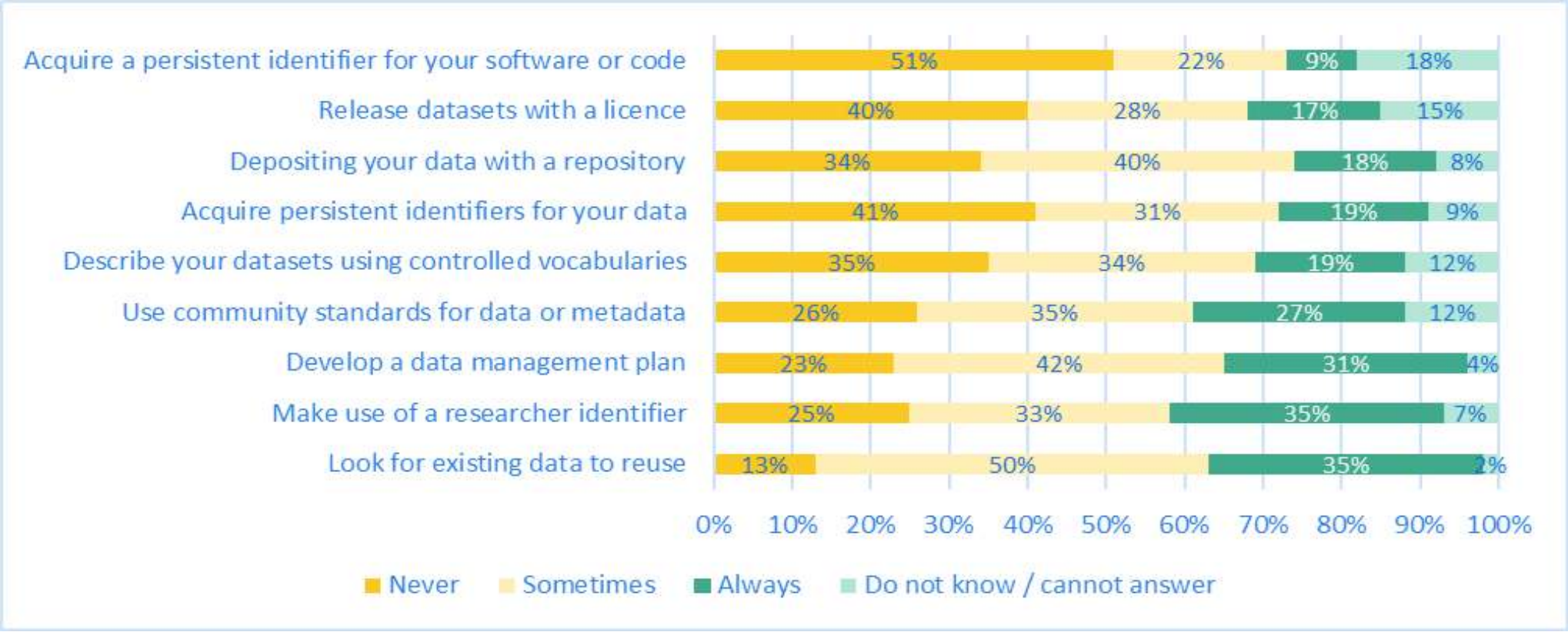
Awareness of FAIR

- About **2/3s** have **some level of familiarity** with the FAIR principles.
- More than **1/3** have **never heard** of them.

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

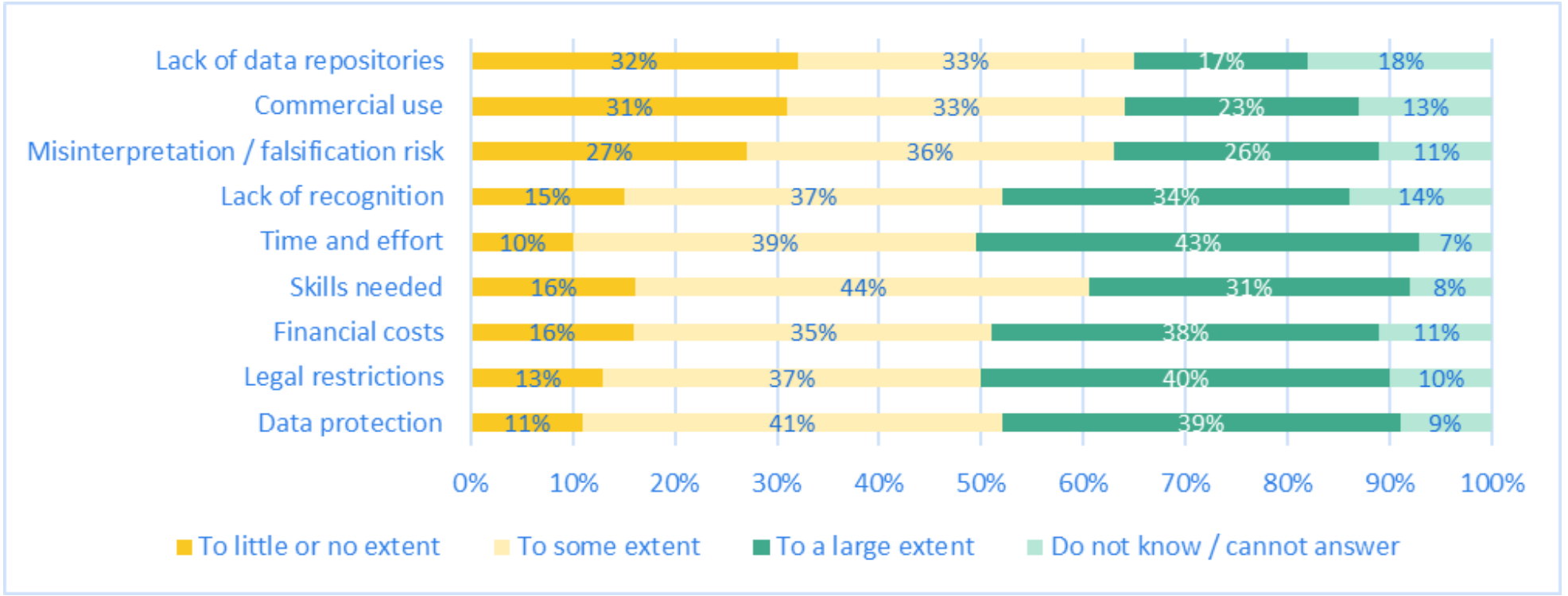
- More than 2/3s develop DMPs but other FAIR-aligned practices are less common.
- Allocating PIDs to data is the least common practice.



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 and 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).

Thank you

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EOSC European Partnership

Directionality
- Industry R&I strategy
- **Member States/Pan-European**

Additionality
- Industry investments
- **Member States**

Impact
- Economic
- **Social**

- Towards a **Web of FAIR data and services** for science (across borders and scientific disciplines)
- Common strategic vision to develop **a European data space for science, research and innovation** articulated with other public/private data spaces.

- **Multiple levels**: Pan-European / national / institutional. **Multiple stakeholders**: EU, MS/AC, Funding agencies, RPOs, universities, libraries, research infrastructures, e-Infrastructures.
- **Multiple commitments**: EU / national investments, Open Science policy alignment & commitments, FAIR uptake, trusted repositories, EOSC-registered services

- **Research efficiency, trust in science, data sovereignty, societal relevance of science, innovation in the digital age**

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Examples of use cases

*Main targeted indicator category**	*Description*	*Link*	*Country*
Infrastructure	The Estonian research infrastructures roadmap object „Natural history archives and information network“ (NATARC) develops services related to hosting and computing of scientific repositories and data archives of natural science.	https://natarc.ut.ee/index.php?lang=en	Estonia
Publications	Monitoring model for open science and research - Principles and practices	https://doi.org/10.23847/tsv.238	Finland
Engagement	The Research Council of Norway (RCN) is establishing a national network for citizen science together with relevant institutions from research and the public sector the enhance mutual learning and sharing of experiences across institutions and societal sectors, RCN activities related to citizen science includes participation in the EU funded project PRO Ethics that will develop a framework for ethically sound user involvement:	https://pro-ethics.eu	Norway
Infrastructure	The Norwegian Language Bank: A national infrastructure for language technology and big datasets which provides available online resources and open-source license.	https://www.nb.no/sprakbanken/en/resource-catalogue/	Norway
Assessment	NOR-CAM: A toolbox for recognition and rewards in academic careers	https://www.uhr.no/en/front-page-carousel/nor-cam-a-toolbox-for-recognition-and-rewards-in-academic-careers.5780.aspx	Norway
Infrastructure	fourMs LAb: national infrastructure for studies of human body movement and physiology in an immersive multimedia environment.	https://www.uio.no/ritmo/english/research/labs/fourms/	Norway
Data	Sunet Drive is a storage and file sharing service. The service is located on Swedish servers and makes it possible for researchers to work and collaborate with large amounts of data.	https://wiki.sunet.se/pages/viewpage.action?pageId=100926004	Sweden
Data	National collaboration on research data - ScilLifeLab Data Center	https://www.scilifelab.se/data	Sweden
Data	The Swedish university network (Sunet)’s range of products and services now includes a digital tool for data management plans and is one alternative that HEIs can use as support for producing and maintaining data management plans.	https://www.sunet.se/services/molnbaserade-tjanster/sunet-datahanteringsplan	Sweden
Data	The Swedish Research Council and the Association of Swedish Higher Education Institutions, SUHF, have developed a template for data management plans based on the ‘basic requirements’ set by Science Europe.	https://www.vr.se/english/applying-for-funding/requirements-terms-and-conditions/producing-a-data-management-plan/data-management-plan-template.html	Sweden

**Indicator categories prepared for the EOSC-SB survey 2022*