



European Strategy Forum
on Research Infrastructures

ESFRI WORKSHOP ON RIs AND EOSC

30 January 2019

Royal Geographical Society, London

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From VISION.....



to ACTION

- EOSC will provide **1.7m EU researchers an environment** with free, open services for data storage, management, analysis and re-use across disciplines.
- EOSC will joint existing and emerging **horizontal and thematic data infrastructures**
- EOSC will **add value** (scale, data-driven science, interdisciplinarity, faster innovation) and leverage past infrastructure investment.

Single online platform where all European researchers will be able to:

- **Find, access and re-use data** produced by other scientists
- **Deposit, analyse and share data** they have been paid to produce
- Until 2020, the EOSC will build on **existing investments**
- The Commission provides top-up money to set up and organise the federation and to start creating common European resources.

Source: RTD



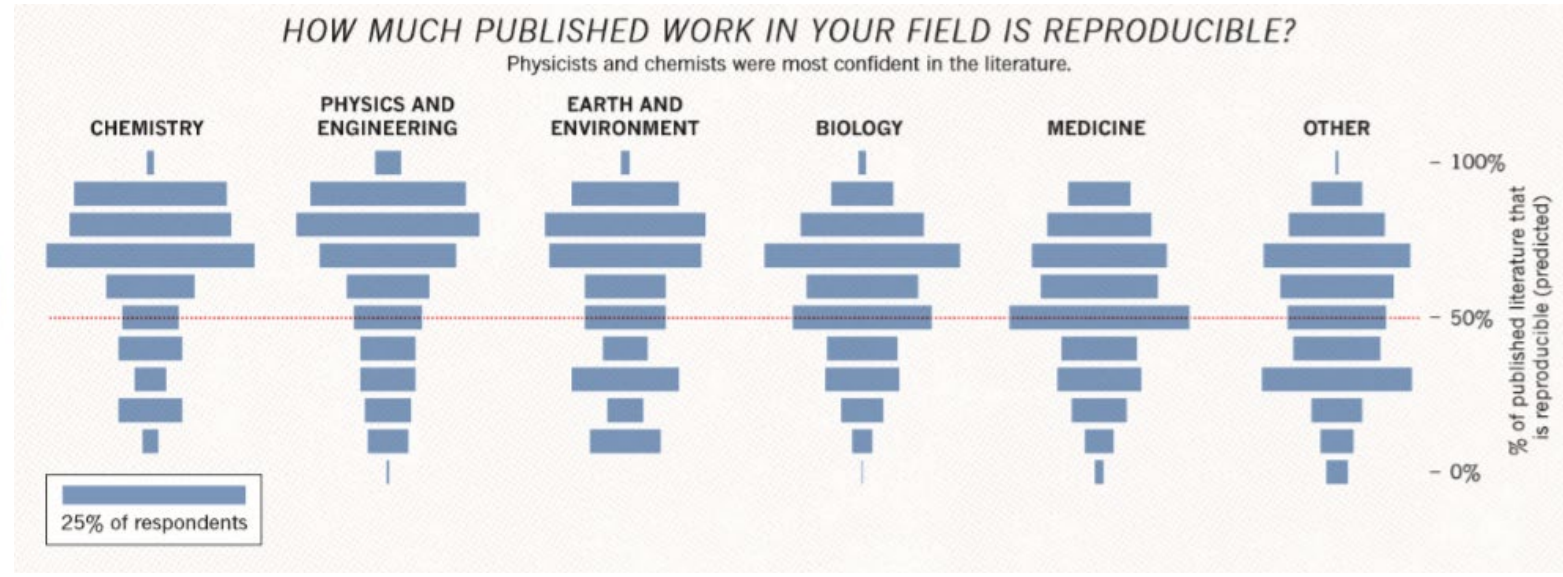
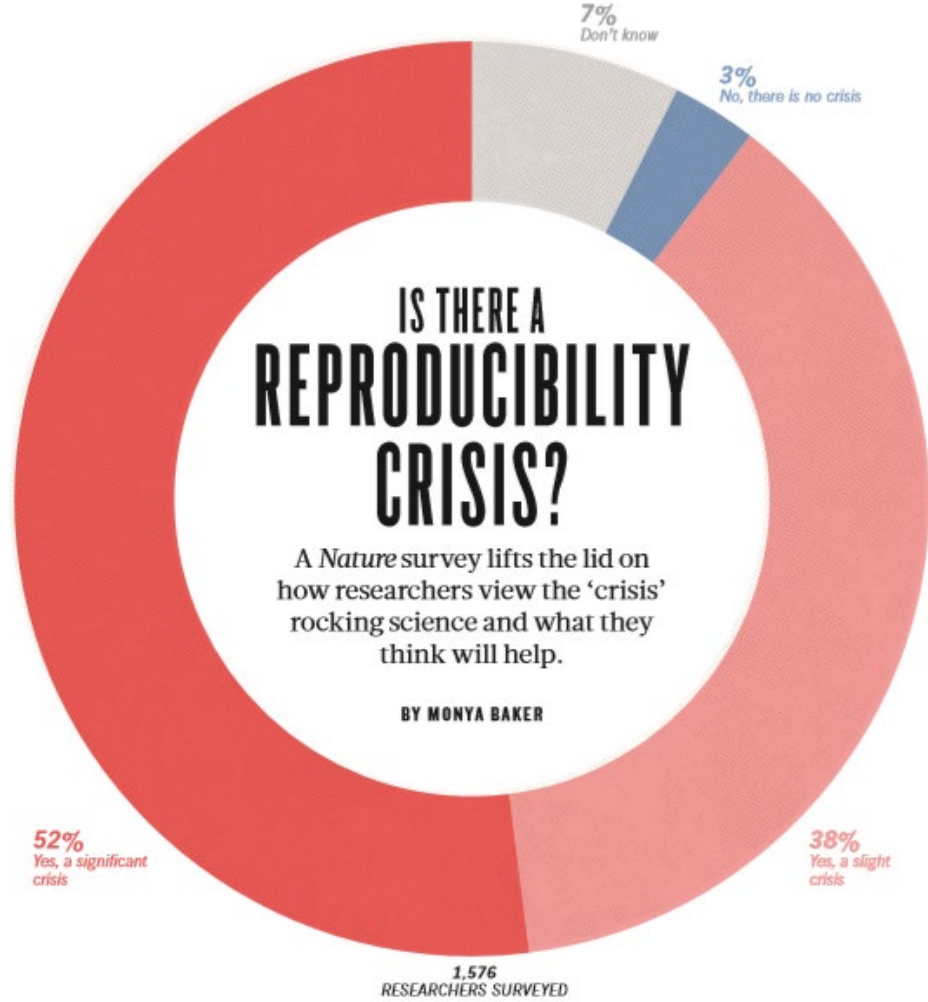
Stakeholders forum

- The EOSC will be European and open to the world, reaching out over time to relevant global research partners.
- The EOSC Stakeholder Forum will have an important role in widen the initiative to **federated network of infrastructures** and nodes from global research partners.

Involves all relevant stakeholders, to:

- get them engaged through the implementation roadmap with clear timelines, concrete actions and budget, including the resources available through Horizon 2020 and within its proposal froh Horizon Europe
- explore an appropriate governance structure, based on existing initiatives and their sustainability (EB and SB established)
- define an architecture that ensures information security and personal data protection, data intergrity and data quality.

REPRODUCIBILITY CRISIS?



Baker M., 2016. Is there a reproducibility crisis? *Nature* 533 (452-454)

Objectives of the WS

The main objective of the workshop is the liaison among ESFRI, ESFRI RIs and EOSC stakeholders, in order to ensure the optimal integration of ESFRI RIs in the EOSC ecosystem

1) Sharing existing good practices and experiences and collaborating on

- open science policy, including domain/cross-domain ones
- data and services sharing and re-use, including the adoption of FAIR principles and the appropriate criteria for reproducibility of data and research results (+R)
- Understanding strategies for federating into EOSC the good practices and services developed by the ESFRI RIs

2) Understand, plan for, and serve current and future ESFRI RIs requirements

- Understanding and discussing the architecture, access, interfaces and governance and participation rules
- Planning trainings for developing skills

3) Share ESFRI position on EOSC

Current situation

- The EOSC was launched on 23.11.2018 and is expected to, gradually and mutually, **align and federate advanced data services.**
- The **Implementation Roadmap** for the EOSC sets out the basis for the **governance framework** (EC+H2020, Stakeholders, EB, GB, and experts).
Staged approach to setting governance:
 - 1) 1st phase > 2020 - **development of the EOSC primarily by MS and EC**
 - 2) 2nd phase < 2020 the preparation and further **development of the EOSC, largely stakeholder-driven with MS/EC keeping a high level oversight role**
- The EOSC Implementation Roadmap is based on a federated model (RIs)

Policy rationel

Concil Conclusion - 2015

- ESFRI was invited to **explore mechanisms for better coordination of Member States investment** strategies in e-infrastructures, covering also HPC, distributed computing, scientific data and networks

Concil Conclusion – 2018

- Already established practices by research communities, ESFRI RIs, e-Infrastructures, as well as other RIs should be taken account.
- EOSC model should be based on a **pan-European federation of data infrastructures** in order to be flexible and adaptable to changing needs of the stakeholders.
- The key factors for the success of EOSC are a **sound governance and sustainable business model** as well as training an adequate number of data professionals.
- **That effective coordination should be established with ESFRI.**

ESFRI RIs

- ESFRI RIs have been pioneering **advanced data management and e-Infrastructure tools**.
- Most of **the ESFRI landmarks and projects** include substantial and growing support to data stewardship and data preservation – while often **triggered by EU grants**, mostly funded by MS (c. 85%)
- Responding to specific mandates, ESFRI is developing **a strategy that is based on the e-needs and advanced solutions** implemented by the RIs.
- **Long-Term Sustainability - The RI ecosystem yields a high return on investment** under conditions that finances and human resources are assured through the full lifecycle.
- The RIs are **generators of FAIR and reproducible data** which are accessible through their own portals in future perhaps through the EOSC.
- Landmarks (**ELIXIR, ECRIN ERIC, INSTRUCT ERIC and BBMRI ERIC etc**) are participating actively in EOSC Pilot and other H2020 support projects.

1) ESFRI is a STRATEGY HUB OF FUNDERS

The Forum ESFRI has been created by the European Council to develop and **support a coherent and strategy-led approach to policy-making on RIs in Europe**. It represents 28 MS and 12 AC. It acts upon mandates by the Council as **STRATEGY HUB OF FUNDERS** of RIs of pan-European interest and elaborates a Roadmap of the RIs to be funded as new initiatives (ESFRI Projects) or as consolidated strategic undertakings (ESFRI Landmarks). It has received in 2015 the mandate to “*explore mechanisms of better coordination of Member States’ investment strategies in e-Infrastructures, covering also HPC, distributed computing, scientific data and networks*”.

2) ESFRI (and other internationally open) RIs are unique in assuring a robust quality control on scientific data to be opened

for EOSC. ESFRI Landmarks and Projects are RIs producing scientific data that are operated by highly competitive and broad research communities covering most areas of research. **ESFRI RIs are evaluated, selected, monitored and reviewed** with much emphasis on their e-Infrastructure as an element for excellent science and excellent data services to the broadest community. ESFRI RIs are amongst the research institutions that **already perform quality check on the open access data and have data management plans** agreed by the users.

3) EOSC should adopt a **SUBSIDIARITY** and **PARTICIPATORY** principle, where robust data management practices exist; it should **NOT DELEGITIMATE**, should not **CREATE FUNDING PROBLEMS** to well **DMP-performing RIs**

EOSC should recognize and fully benefit from **well performing data management plans (DMPs)** and practices as developed by RIs and avoid any direct or indirect negative impact on those RIs that are already performing at high level, rather it should help the full compliance of the existing DMPs with FAIR and Reproducibility of Data principles. **EOSC should favour the participation of the RIs to the elaboration of “Commons”** to serve as key elements of the EOSC. The acronym should actually become, or be generally understood as, **European Open Science Commons**.

4) EOSC should **FILL THE GAPS** of unstructured areas

EOSC should concentrate in raising to **the most advanced level** the science domains that have **unsatisfied e-needs**. EOSC should **transparently display which and where services already exist**, and **help to develop metadata standards** for overall progressive alignment of different domains and their increasing integration.

5) EOSC should enable high level INTERDISCIPLINARITY

EOSC should concentrate to develop a **robust environment** to promote INTERDISCIPLINARITY by favouring the exploitation of the most advanced and documented data sets by advanced metadata and data analysis support services.

6) EOSC should make high level INTEROPERABILITY possible and workable

The great goal of **INTEROPERABILITY** is the most EOSC specific task of all. RIs can contribute to make Data Management Plans (DMPs) more homogeneous in each domain and to address near-neighbour domains, but the general picture of **cross-domain interoperability needs the EOSC** action at European/international level. This is a long term goal to which the existing sectorial best practises can contribute, but should not be perturbed as far as they are the operational best existing model and system.

ESFRI position

- Find a close and effective interaction between **EOSC Board and ESFRI Forum** at all levels of implementation. A **Joint Strategy Board** comprised on equal footing by representatives of the Boards both of ESFRI (EB, and ESFRI RIs) and of EOSC (EB, GB, and the stakeholders) could play an important role in ensuring convergence of strategies and implementation action within the respective realms of ESFRI and EOSC

COMPET Conclusions (29 May 2018)

- *UNDERLINES that the key factors for the success of EOSC are **a sound governance and sustainable business model** as well as training an adequate number of data professionals. SUPPORTS the two-stage approach for the EOSC governance that **enables all Member States and the Commission to steer and oversee the initial development of the EOSC in the first phase**. In the second phase the EOSC governance should become mainly stakeholder-driven, while **maintaining a higher-level steering role for all Member States and the Commission**. RECOMMENDS that effective **coordination is established with ESFRI**;*

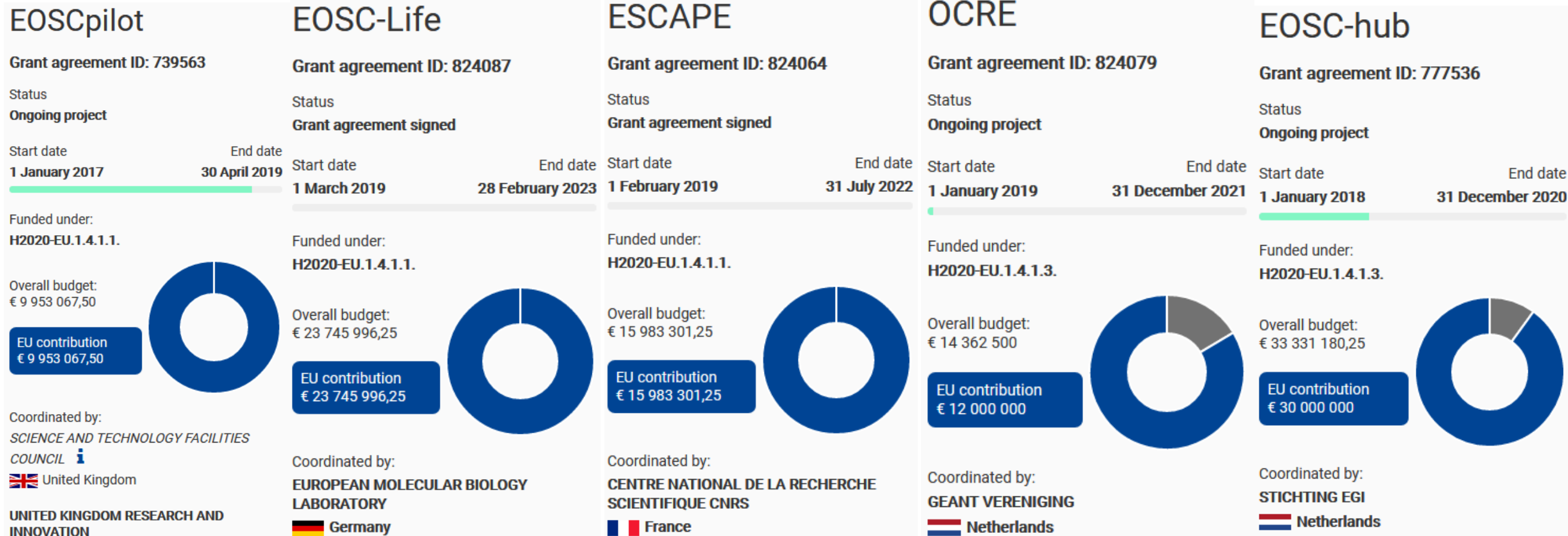


European Strategy Forum
on Research Infrastructures

Thank you !

Projects

Topics addresses the “connection of the Research Infrastructures (RIs) identified in the ESFRI Roadmap to the EOSC and the adoption of FAIR principles for their data”.



Projects supporting EOSC

e-IRGSP6

Grant agreement ID: 823761

Status
Ongoing project

Start date
1 January 2019

End date
30 June 2021

Funded under:
H2020-EU.1.4.3.1. , H2020-EU.1.4.1.3. ,
H2020-EU.1.4.3.2.

Overall budget:
€ 599 981,25



EU contribution
€ 599 981,25

Coordinated by:
GOTTFRIED WILHELM LEIBNIZ
UNIVERSITAET HANNOVER

Germany

PaNOSC

Grant agreement ID: 823852

Status
Ongoing project

Start date
1 December 2018

End date
30 November 2021

Funded under:
H2020-EU.1.4.1.1.

Overall budget:
€ 11 953 516,99



EU contribution
€ 11 953 516,99

Coordinated by:
EUROPEAN SYNCHROTRON RADIATION
FACILITY

France

FREYA

Grant agreement ID: 777523

Status
Ongoing project

Start date
1 December 2017

End date
30 November 2021

Funded under:
H2020-EU.1.4.1.3.

Overall budget:
€ 5 246 117,50



EU contribution
€ 4 998 650

Coordinated by:
SCIENCE AND TECHNOLOGY FACILITIES
COUNCIL

United Kingdom

VirtualBrainCloud

Grant agreement ID: 826421

Status
Ongoing project

Start date
1 December 2018

End date
30 November 2021

Funded under:
H2020-EU.3.1.5.3.

Overall budget:
€ 15 016 343,10



EU contribution
€ 15 016 343,09

Coordinated by:
CHARITE - UNIVERSITAETSMEDIZIN BERLIN

Germany

XDC

Grant agreement ID: 777367

Status
Ongoing project

Start date
1 November 2017

End date
31 January 2020

Funded under:
H2020-EU.1.4.1.3.

Overall budget:
€ 3 396 875



EU contribution
€ 3 077 000

Coordinated by:
ISTITUTO NAZIONALE DI FISICA NUCLEARE

Italy

Project supporting EOSC

INFRASUPP-01-2018-2019 - e-IRGSP6

- e-IRGSP6 will provide the core services to the e-IRG. The project will support e-IRG in its activities producing high-level policy recommendations towards the implementation of EOSC, EDI and the e-Infrastructure Commons overall.

INFRAEOSC-04-2018 – PaNOSC

- PaNOSC will build on top of the existing local meta-data catalogues and data repositories to provide federated services for making data easily Findable, Accessible, Interoperable, and Re-usable (FAIR).

EINFRA-21-2017 – FREYA

- The goal of the FREYA consortium is to iteratively extend a robust environment for Persistent Identifiers (PIDs) into a core component of European and global research e-infrastructures.

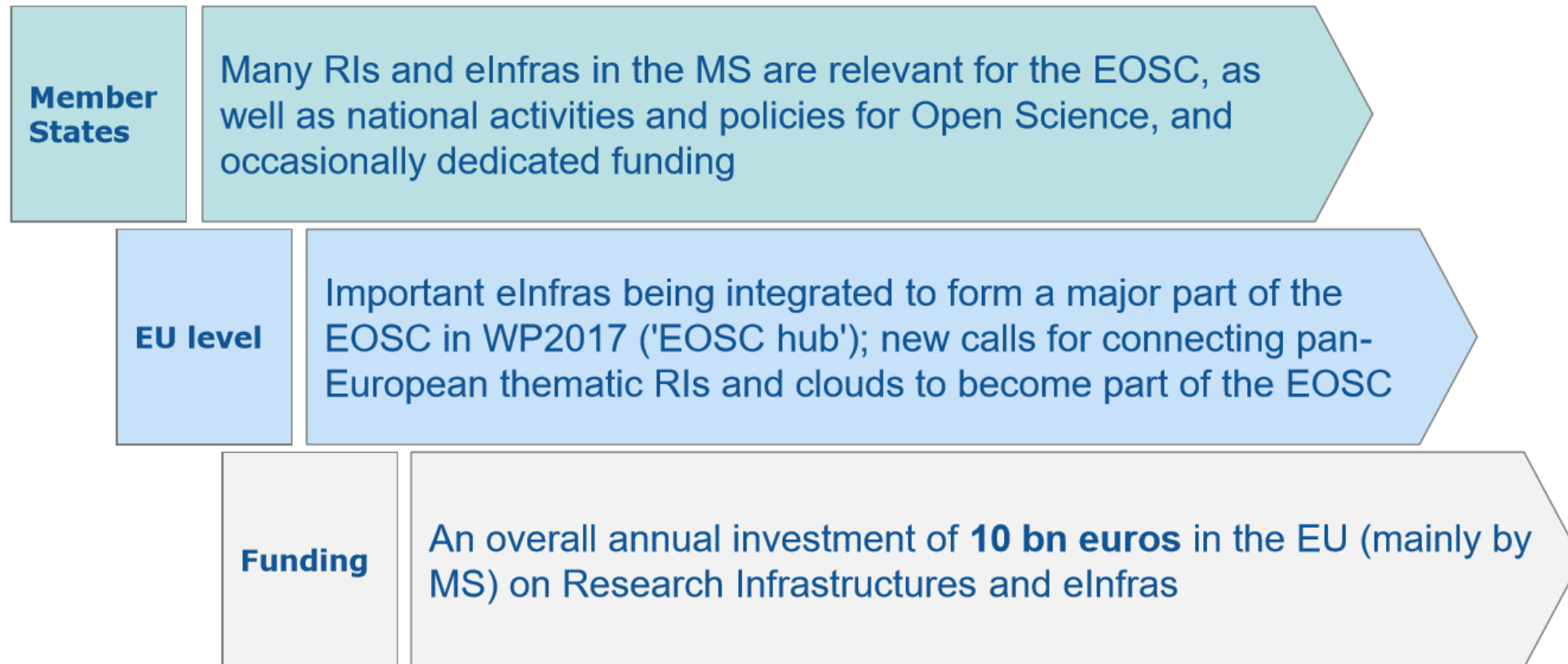
SC1-DTH-07-2018 - VirtualBrainCloud

- The VirtualBrainCloud will develop robust solutions for legal and ethical matters by interacting with EU projects such as European Open Science Cloud (EOSC), 'cloud4health', Alzheimer's Europe patient organizations and ELIXIR.

EINFRA-21-2017 - XDC

- The eXtreme DataCloud (XDC) project will develop scalable technologies for federating storage resources and managing data in highly distributed computing environments.

Many data infrastructures to federate and varying levels of activities and infrastructures among MS

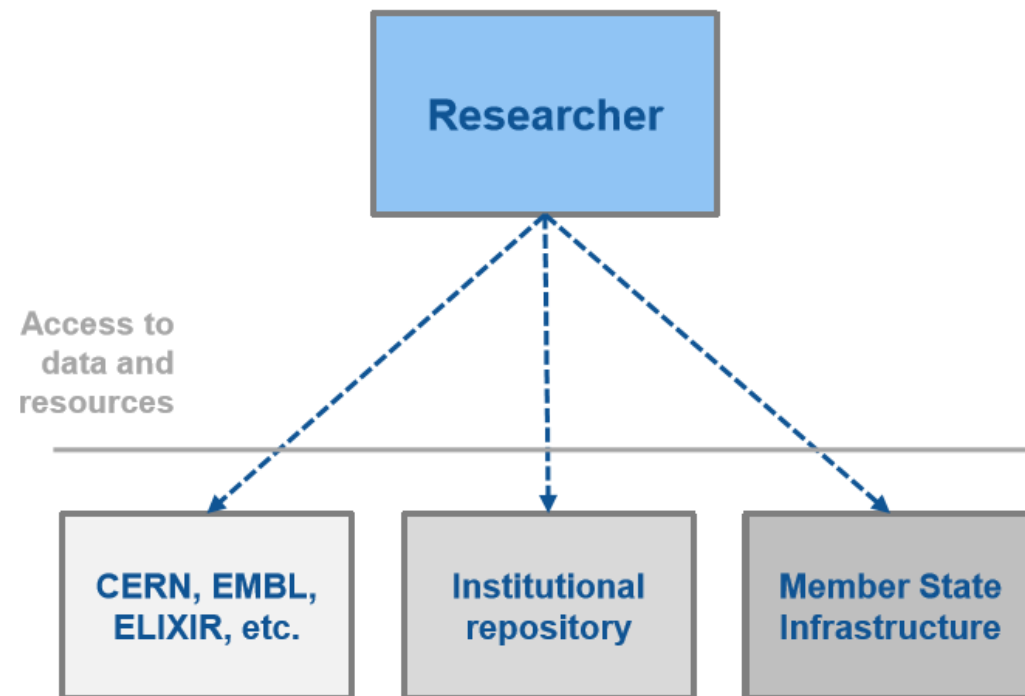


Source: RTD

Limited data access for an ordinary European researcher

Nature's survey on reproducibility in research – 70% of researchers failed to reproduce another scientist's experiments. (Baker M, 2016)

- **Fragmented access** (across scientific domains, countries and governance models; varying access policies)
- **Limited cross-disciplinary access to data sets** (i.e. interdisciplinary research)
- **Non-interoperable services and data**
- **Closed data**



Source: RTD

ESFRI WORKSHOP ON RIS and EOSC

ORGANISATION

- 09:15** **Session 1 – EOSC status update**
- 10:00** **Session 2 – EOSC and ESFRI RIs services: how do they tango?**
- 11:00** *Coffee Break*
- 11:30** **Session 2 – EOSC and ESFRI RIs services: how do they tango? (continued)**

ESFRI – EOSC challenges

- Adopt a subsidiarity and participatory principles
- Fill gaps of unstructured areas
- Enable high level interdisciplinarity
- Make high level interoperability possible and workable
- The EOSC aspires to become the European stakeholder-driven infrastructure for science and innovation
 1. a data repository
 2. technical elements of connectivity, hardware, repositories, data formats
 3. Application Programming Interfaces (APIs)
 4. offer access to a wide range of user-oriented services, data-management, associated HPC analytics environments, stewardship services and expertise

Expected delivers

1. A strategic implementation plan
2. An annual work plan
3. A yearly monitoring report on progress of implementation based on indicators
4. Rules for participants
5. An action plan for scientific data interoperability to operationalize the FAIR principles – FAIR DATA ACTION PLAN
6. Recommendations on the appropriate mechanisms and possible forms for the EOSC governance after 2020 including business models modes of financing

The response of Union institutions

- the Council agrees that Europe may benefit from a EOSC that federates existing research data infrastructures,
- Support the initiative and ask the Commission to act quickly and resolutely with an integral, coherent implementation plan
 - The European Parliament Resolution on the European Cloud Initiative (16 February 2017)
 - The Council conclusions on The transition towards an Open Science system (27 May 2016)
 - The opinion of the Committee of the Regions (CoR)
 - The opinion of the Economic and Social Committee (EESC)

BACKGROUND

- The [INFRAEOSC-04-2018 topic](#) addresses the “*connection of the Research Infrastructures (RIs) identified in the ESFRI Roadmap to the EOSC and the adoption of FAIR* principles for their data*”.

*Findable, Accessible, Interoperable and Reusable

- Several **cluster projects** have been awarded out of the related call and are expected to start in the first months of 2019. The vast majority of the **ESFRI RIs are part of one of the cluster projects**.
- The ESFRI RI projects are expected to produce or collect a significant amount of data that can be shared and re-used via open access policies.
- The EOSC was launched on 23.11.2018 and is a process expected to, gradually and mutually, **align and federate advanced data services**.
- ESFRI is engaged in the development of the EOSC, and the **ESFRI RIs are as well expected to contribute to, to align with, and to adopt/exploit the EOSC services** as those will be implemented and become available.
- The workshop aims to develop a common understanding of the role of ESFRI RIs in the construction of the EOSC (through federating and aligning their data services when already developed), to develop a strategy for adopting FAIR data principles and protocols, and to increase the interactions between the cluster projects and with other EOSC stakeholders.