



European Open Science Cloud: from vision to reality

e-IRG Workshop
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Why not tapping into the potential of research data?

- **Low awareness of the value of data sharing.**
- **Need to translate recent changes in privacy, data protection and copyright rules to the research data domain.**
- **Lack of data interoperability** (e.g. via common standards).
- **Fragmentation and lack of coordination** over different scientific communities and countries.
- **Not enough hardware capacity** for scientific computing, storage, connectivity.

The vision of the European Commission



"Europe's final transition must be one from fragmented data sets to an integrated European Open Science Cloud. By 2020, we want all European researchers to be able to deposit, access and analyse European scientific data through a European Open Science Cloud.."

Speech by Commissioner Carlos Moedas in Amsterdam, NL:
"Open science: share and succeed", 4 April 2016



The vision of the European Commission



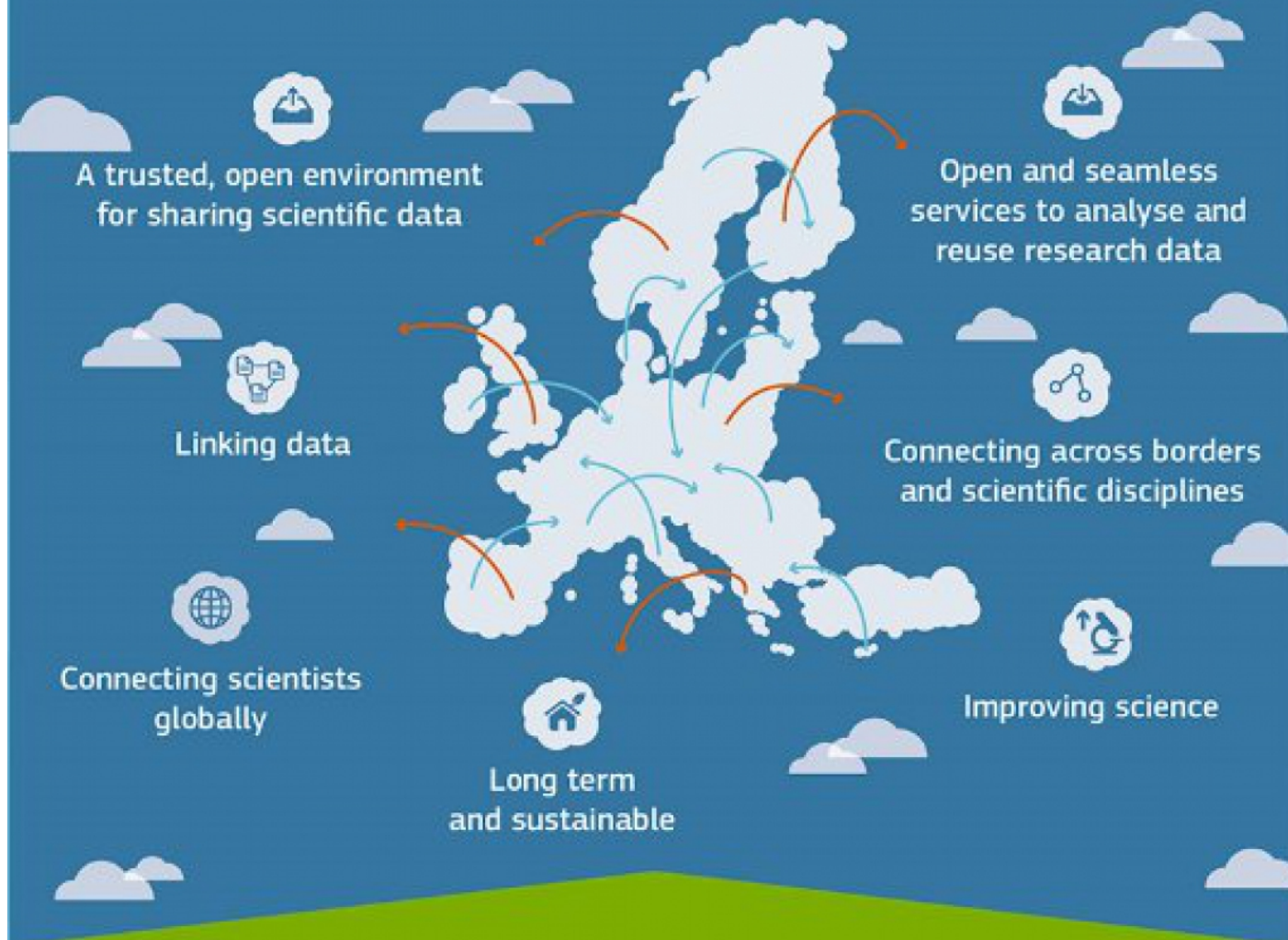
**EUROPEAN
CLOUD INITIATIVE**
UNLOCKING THE POWER OF
BIG DATA FOR OPEN SCIENCE

To provide to European science, industry and public authorities with:


- ✓ A world-class data infrastructure
- ✓ High speed connectivity
- ✓ More powerful High Performance Computational

EUROPEAN OPEN SCIENCE CLOUD

BRINGING TOGETHER CURRENT AND FUTURE DATA INFRASTRUCTURES



Commitments on EOSC in April 2016 (COM/2016/178)

Actions	Timeline	
The Commission will work with global policy and research partners to foster cooperation and to create a level playing field in scientific data sharing and data-driven science.	As of 2016	OECD, RDA, G7
The Commission will use the Horizon 2020 Work Programmes to provide funding to integrate and consolidate e-infrastructure platforms, to federate existing research infrastructures and scientific clouds and to support the development of cloud-based services for Open Science .	As of 2016	WP2018-20
The Commission will make open research data the default option, while ensuring opt-outs, for all new projects of the Horizon 2020 programme.	As of 2017	 01.01.2017
The Commission will review the 2012 Commission Recommendation on access to and preservation of scientific information ⁴¹ to encourage scientific data sharing and the creation of incentive schemes, rewards systems and education and training programmes for researchers and businesses to share data, in close relation with the DSM 'Free flow of data' initiative.	As of 2017	DSM data package April 2018
The Commission will work with Member States to connect the priority European research infrastructures ⁴² to the European Open Science Cloud.	As of 2017	WP2018-20
Together with stakeholders and relevant global initiatives, the Commission will work towards an Action Plan for scientific data interoperability , including 'meta-data', specifications and certification.	By end 2017	FAIR Action Plan

Not a cloud made in Brussels



EOSC Summit: 12 June 2017



- **110** key participants, **all** scientific fields, **23** countries, **1800** via web-stream
- **5** sessions
 - Data culture & data stewardship
 - FAIR Data principles
 - Research data infrastructures and services
 - Funding & governance
 - HPC, big data and super connectivity
- **4** Input papers

EOSC Declaration, 26 October 2017

- 33 high level statements meant to capture our common understanding on the required & underpin the EOSC implementation
 - ✓ Data culture & FAIR data,
 - ✓ Research data services & architecture,
 - ✓ Governance and funding
- Signed by more than 70 scientific stakeholders (so called 'Coalition of the Doers').
- An Action List is attached.

Current situation: 6 lines of action of the EOSC model *

a. Architecture	Architecture of the federated infrastructures as the solution to the current fragmentation in research data infrastructures which are insufficiently interoperable.
b. Data	FAIR data management and tools. A common data language to ensure data stewardship across borders/disciplines based on FAIR principles.
c. Services	Available services from a user perspective. A rich environment offering a wide range of services covering the needs of the users.
d. Access & Interface	Mechanisms/interfaces for accessing EOSC. A simple way for dealing with open data obligations or accessing research data across different disciplines.
e. Rules	Rules of participation for different EOSC actors. An opportunity to comply with existing legal and technical frameworks and increase legal certainty & trust.
f. Governance	Governance of the EOSC, aiming at ensuring EU leadership in data-driven science but requiring new governance frameworks.

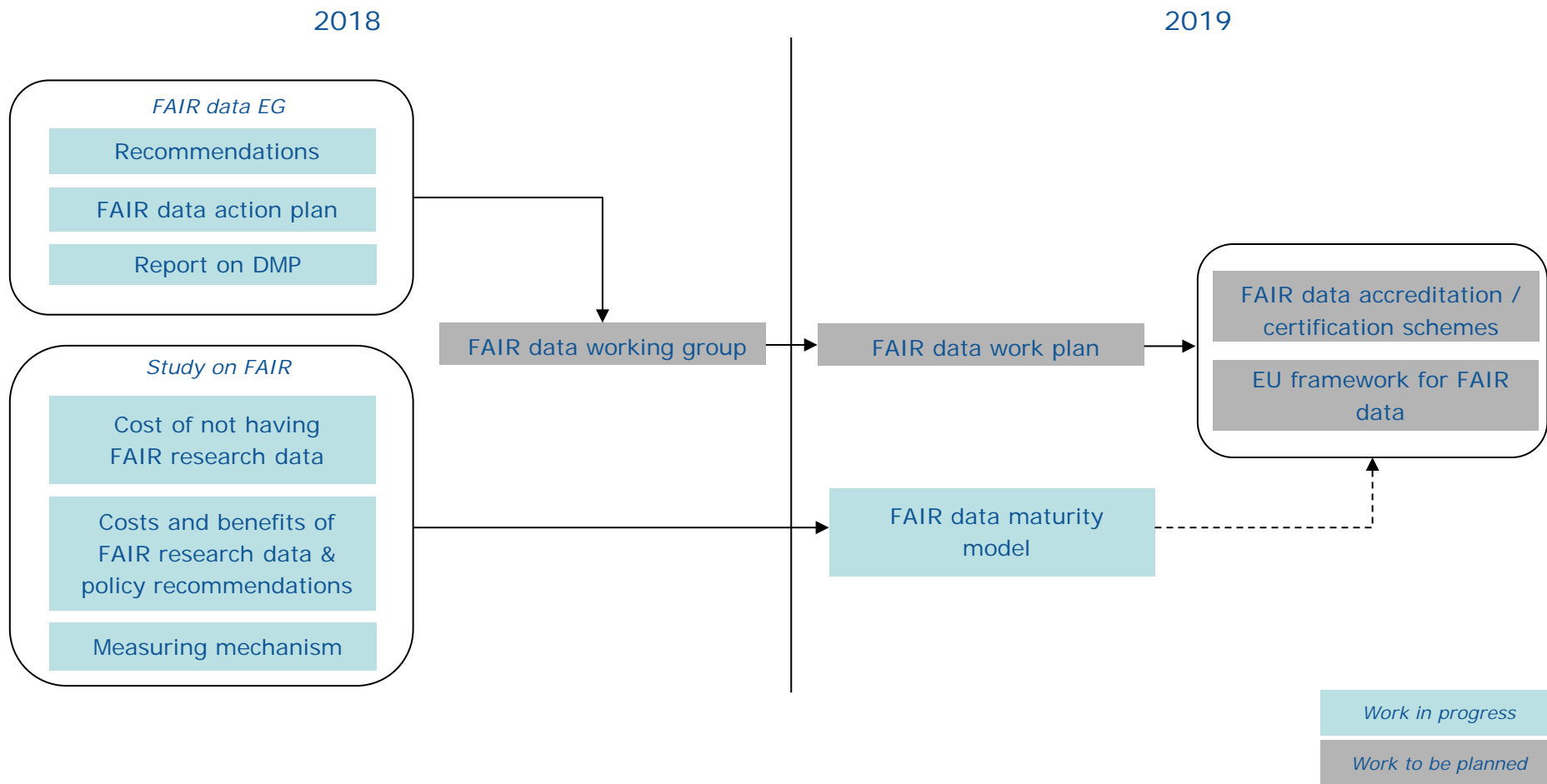
* Implementation Roadmap for the European Open Science Cloud (SWD(2018)83)



Federation of research/data infrastructures

- **A pan-European federation** of research/data infrastructures, **committed** to providing services as part of the EOSC and **by a compliance framework** including notably the Rules of Participation, will provide access to a wide range of publicly funded services supplied at national, regional and institutional levels, and to complementary commercial services.
- The process of federation will be implemented:
 - **Gradually;**
 - **On a voluntary basis;**
 - According to a **well-defined extent of involvement** per data infrastructure, in terms of the data sets and services contributed to the EOSC; data infrastructures will continue to follow their own rules outside of their specific commitments to the EOSC;
 - **Based on simple guidelines** consistent with existing good practices.

Time plan





EOSC services for European researchers

A researcher will find **five types of services** in the EOSC:

- **Identification and authentication;**
- A **protected & personalised work environment/space** (e.g. logbook, settings, compliance record and pending issues);
- **Access to relevant information** (e.g. status of EOSC, list of infrastructures, policy-related information, compliance framework) **and specific guidelines** (e.g. how to make data FAIR, certify a repository or service, procure joint services);
- Services to **find, access, store, re-use** and **analyse** (e.g. analytics, data merge/fusion, mining) the data generated by others, catalogued appropriately;
- **Services to make their own data FAIR**, to store them and ensure long-term preservation.

EOSC access & interface

- A user should have the **choice between different entry points for accessing EOSC services**, for practical reasons and to ensure a smooth transition from legacy systems. These different entry points to the EOSC should be similar but not equivalent, all consisting of:
 - a **web-based user interface / front-end**, tailored to the specific needs and context of particular user communities, including individual data infrastructures. These entry points would need to comply with a set of minimum requirements.
 - a **common platform (building on the "EOSC Hub" project and further developed in the INFRAEOSC-06-2020 call)** or back-end, offerings access to all EOSC shared resources (cf. data pillar) and to the full range of EOSC services via machine-to-machine interfaces.
- By default, EOSC services should be accessible via the **EOSC portal**, which should act as a **universal entry point for all potential users** via a full-fledged user interface, irrespective of geographic location or scientific affiliation.



Rules of participation for EOSC actors

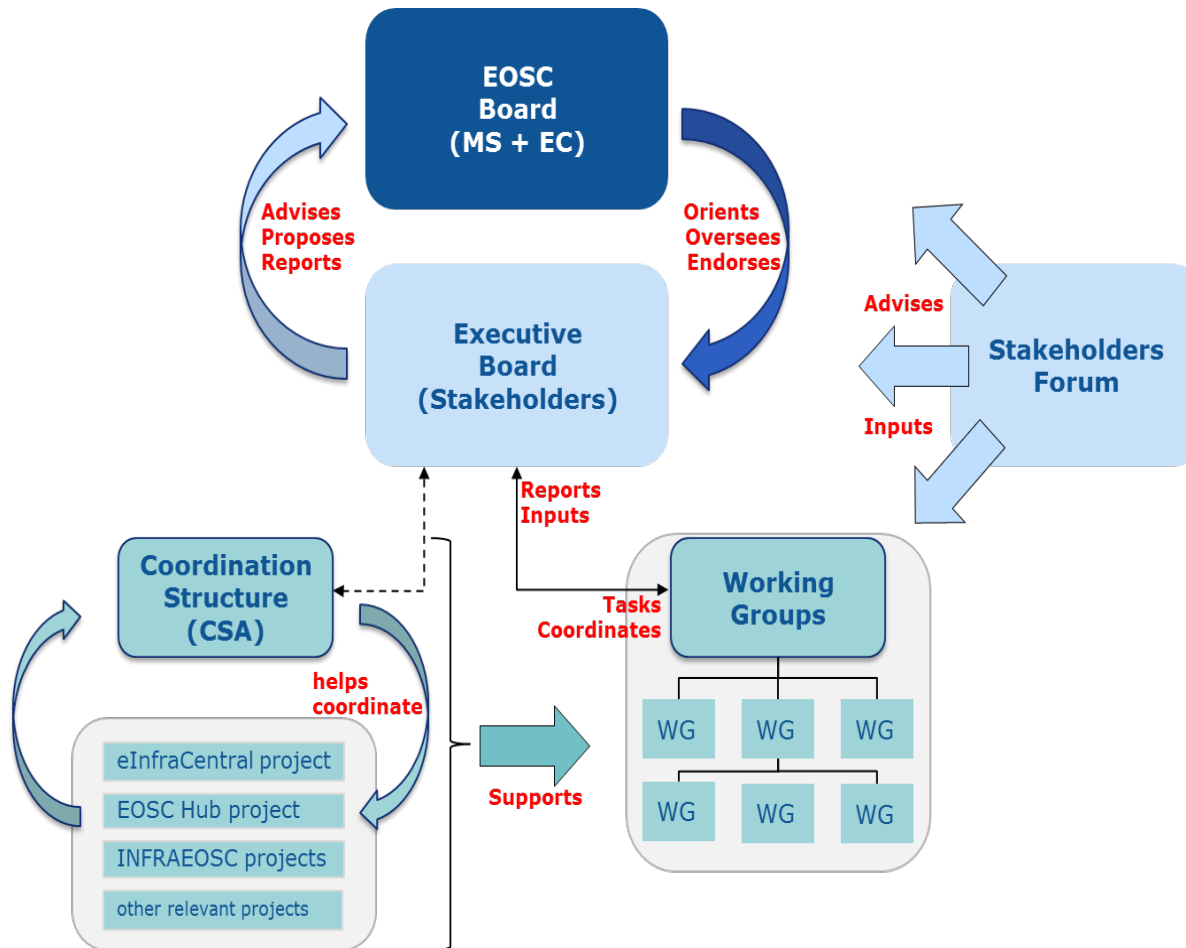
- The rules of participation define the rights, obligations and accountability of the various EOSC actors (notably data producers, service providers, data/service users).
- There will be room and need for differentiating the rules applicable to different EOSC actors depending on their maturity and role and taking into consideration:
 - The **specificities** of different scientific disciplines
 - The **diversity and level of readiness** of infrastructures and services at discipline, MS and EU level (RIs, eInfras) and the differences in their established rules and processes
 - The **variety of service providers** and users that will be involved in the EOSC (e.g. public vs private; horizontal vs specialised)
 - **changing needs and practices** regarding the implementation of the rules, in particular concerning compliance with existing legal frameworks (e.g. GDPR) and emerging ones (e.g. free flow of data)



EOSC model / Governance: scope & guiding principles

- Functions: Strategy, implementation, monitoring, reporting
- Staged approach in setting governance:
 - **Phase 1 (<end 2020):** steering and overseeing the initial EOSC development, primarily led by MS and EC, with stakeholders consulted and advising
 - Separation between advisory role, decision-making and implementation
 - Stakeholders (mainly) advise, propose and implement, while funders (MS/EC) (mainly) set orientations and endorse proposals,
 - Low intervention cost, light mechanisms, high accountability
 - **Phase 2 (>2020):** (following a thorough evaluation) steering and overseeing initial EOSC operations and further development, largely stakeholder-driven, with MS/EC keeping a higher-level oversight role
- Any proposal for governance in 2nd phase would be included in FP9 proposal

Three layer structure as per Horizon 2020 WP 2018-2020



- *EOSC Board* of MS/AC and EC representatives to ensure effective supervision of EOSC implementation
- *Executive Board* of stakeholder representatives to help ensure proper EOSC implementation and accountability
- *Stakeholder Forum* to provide input from a wide range of actors

Further orientations for the set-up and composition of the Governance framework, to inform the consultation of MS without prejudging possible future decisions by the Council and the Commission



EOSC implementation milestones

- | | |
|---------|---|
| Q2 2018 | <input type="checkbox"/> Launch of a stakeholder consultation on rules by HLEG EOSC |
| Q3 2018 | <input type="checkbox"/> FAIR data Action Plan |
| Q4 2018 | <input type="checkbox"/> Initial EOSC Catalogue of services
<input type="checkbox"/> Prototype of EOSC Portal accessible
<input type="checkbox"/> EOSC Governance established (EOSC Board, Executive Board, Stakeholder Forum)
<input type="checkbox"/> First annual work plan adopted by the Governance structure |
| Q1 2019 | <input type="checkbox"/> Initial EOSC Rules of Participation |
| Q2 2019 | <input type="checkbox"/> European framework for FAIR research data agreed
<input type="checkbox"/> Initial EOSC catalogue of datasets accessible |

EOSC implementation milestones

Q4 2019

- ☐ Final EOSC Rules of Participation
- ☐ FAIR Persistent Unique Identifier policy defined
- ☐ FAIR Certification Scheme available
- ☐ Initial registry of data infrastructures federated of the EOSC
- ☐ Initial EOSC federating core in place
- ☐ Updated EOSC catalogue of services & EOSC portal

Q2 2020

- ☐ Preliminary connection of most data infrastructures and services to the EOSC

Q3 2020

- ☐ Recommendations on strategic and financing orientations and organisational settings post 2020



EOSC policy milestones

- | | |
|------------|--|
| June 2017 | <input type="checkbox"/> EOSC Summit forming the coalition of the willing |
| Oct 2017 | <input type="checkbox"/> EOSC Declaration published for endorsements and to seek commitments |
| March 2018 | <input type="checkbox"/> EOSC Roadmap presented for consultation to Council RWP |
| <hr/> | |
| May 2018 | <input type="checkbox"/> Council conclusions endorsing the EOSC Roadmap |
| Fall 2018 | <input type="checkbox"/> Establishment of the Governance structure; MS designate representatives to the EOSC board. Selection of members to the governance structure |
| Nov 2018 | <input type="checkbox"/> MS agreement on EOSC governance structure (Austrian Presidency event) |
| End 2020 | <input type="checkbox"/> MS+ EC agreement on the future strategic orientation and financing scheme for the EOSC |



2nd EOSC Summit: 11 June 2018, Brussels

- Organised by the European Commission, together with the **EOSC High Level Expert Group** & the **FAIR Data Expert Group**.
- To take stock on progress and achievements towards the EOSC, a year on since the first Summit.
- To reflect on the steps ahead to ensure an effective implementation of the EOSC.
- **To launch a stakeholder consultation** on the draft '**Rules of Participation of EOSC**' and on the draft '**FAIR Data Action Plan**', two key inputs for the future EOSC governance.
- Registrations open this week.

Thank you



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