The European Open Science Cloud

Brussels, 29 June 2016
Workshop on governance and funding for the EOSC
The industrial revolution of our time is digital. We need the right scale for technologies such as cloud computing, data-driven science and the internet of things to reach their full potential. The EU has this scale.

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European Cloud Initiative will unlock the value of big data by providing world-class supercomputing capability, high-speed connectivity and leading-edge data and software services for science, industry and the public sector.

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The European Open Science Cloud will make science more open, efficient and productive.

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Digital Single Market
The Commissioner's view

...we must create infrastructure. 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*
Communication 2016/178 : European Cloud Initiative

Part of DSM strategy, strong political support.

- 'Game-changing policy', a 'vision'.
- Commissioners Moedas and Oettinger worked jointly on the 'European Cloud Initiative'.
Communication European Cloud Initiative: pillars

1. European Open Science Cloud.

2. European Data Infrastructure.

3. Widening the user base (e-gov & industry) and building trust (certification and standards).
European Open Science Cloud

- The cloud will **federate** existing and emerging horizontal and thematic data infrastructures, effectively **bridging today's fragmentation and ad-hoc solutions**.

- It will provide 1.7m EU researchers an environment with **free, open services for data storage, management, analysis and re-use** across disciplines.

- It will **add value** (scale, data-driven science, inter-disciplinarity, data to knowledge to innovation) and leverage current and past infrastructure investment (10b per year by MS, two decades EU investment).

→ **Governance** is a key issue.
European Open Science Cloud
Bringing together current and future data infrastructures

- A trusted, open environment for sharing scientific data
- Open and seamless services to analyse and reuse research data
- Linking data
- Connecting across borders and scientific disciplines
- Connecting scientists globally
- Improving science
- Long term and sustainable
Not a cloud 'made in Brussels'
Key challenges

- Still a lack of widespread **awareness** of the value of data and of **incentives** for data sharing.
- Lack of common standards to ensure **inter-operability** of data.
- **Not enough hardware capacity** for scientific computing, storage, connectivity.
- **Fragmentation and lack of coordination** over different scientific communities and countries.
- Need to translate recent **changes in privacy, data protection and copyright rules** to the research data domain.
Key requirements

- **Cloud-based services for Open Science**, enabling researchers to openly share and analyse research data across technologies, disciplines and countries.

- **Governance platform for policy development** on infrastructure and services, mechanisms for global data stewardship, decision making on funding and long-term sustainability.
1. To ensure appropriate governance in the EU and beyond:

Organise → Develop a roadmap for governance and financing mechanisms for the EOSC.

Embed → Widen the user-base to public services and industry in all EU-28 Member States (e.g. ESIF)

Foster cooperation → Create a global level playing field in scientific data sharing and data-driven science.

* In bold text verbatim from the Communication (EOSC)
Key commitments in the Communication (EOSC)

2. To stimulate demand and develop the user-base

Lead by example → Make Open research data the default option in H2020, preserving opt-outs.

Steer → Encourage scientific data sharing in MS through incentive schemes, rewards systems and education/training programmes for researchers and businesses.
3. To enable and support interoperability

Remove obstacles → Work towards an Action Plan for scientific data interoperability, including 'meta-data' and specifications.

Support through Horizon 2020 → Consolidate and federate e-infrastructures, research infrastructures and scientific clouds, support development of cloud-based services for Open Science.

Leverage → Connect priority European and national research infrastructures to the EOSC.
### 1. Governance

- Develop roadmap for governance and financing
- Create a global level playing field for research data sharing
- Widen user-base to public services, Industry and EU-13

### 2. Content (open data)

- Make Open research data default in H2020
- Foster scientific data sharing in MS

### 3. (Open data) Infrastructure

- Action Plan for scientific data Interoperability (e.g. FAIR)
- Connect key EU RI (e.g. ESFRIs)
- Consolidate / federate data-infrastructures

| Hardware Infrastructure (CNECT) | High-Performance Computing | Big-data storage | High-speed connectivity |
Strong support for the development of a European Open Science Cloud.

CALLS for action to remove obstacles to wide access to publicly funded research publications and underlying data.

WELCOMES the further development of a European Open Science Cloud that will enable sharing and re-use of research data across disciplines and borders, taking into account relevant legal, security and privacy aspects.
TAKES NOTE OF the Commission Communication of 19 April 2016 on a "European Cloud Initiative - Building a competitive data and knowledge economy in Europe"

ACKNOWLEDGES that Europe may benefit from a **European Open Science Cloud** that enables, amongst others, safe and long-term storage, efficient analysis, and user-friendly (re)use of research data across borders and disciplines;

CALLS on the Commission, in cooperation with Member States and stakeholders, to **explore appropriate governance and funding frameworks**, taking sufficient consideration of existing initiatives and their sustainability and of a European-wide level playing field.
124. Is concerned that cloud infrastructures for researchers and universities are fragmented; calls on the Commission, in cooperation with all relevant stakeholders, to set up an action plan to lead to the establishment of the European Open Science Cloud by the end of 2016, which should seamlessly integrate existing networks, data and high-performance computing systems and e-infrastructure services across scientific fields, within a framework of shared policies, standards and investments;
Fellow policy makers,

Ask not what the open science cloud can do for you,

Ask what you can do for the open science cloud.
Future research programmes will have to make converge existing infrastructures and data outputs towards the EOSC. H2020 and FP9 (new and modern, tailored funding schemes) are key to this convergence. 

Light governance and Open Access resources are crucial for public services, which include cloud-based public services such as education, smart cities, IoT etc. PPPs (?) are important for both public and private sectors.

Private sector seen as:
- **Funder** (financial and in kind)
- **User** of data / cloud based services
- **Supplier** of data / cloud based services

Public funding: €2 bn EU + contribution to 4,7 bn. Private funding (contrib to €4,7 bn).