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European Commission
DG Research & Innovation

Open day event: towards the European Open Science Cloud

EMBL, Heidelberg, 20 January 2016

Commissioner view

"There is a revolution happening in the way science works. Every part of the scientific method is nowadays becoming an open, collaborative and participative process"

Speech at "A new start for Europe" Conference, 22 of July, 2015, Brussels

Priorities of Commissioner Moedas

- Open Innovation
- Open Science
- Open to the world

European Open Science Cloud

European Open Science Cloud: history...

DSM strategy (6 May 2015) includes a commitment to launch in 2016 a European cloud initiative, including a 'research open science cloud'.

Commissioner Moedas announced the 'European Open Science Cloud' initiative at the **Competitiveness Council** (29 May), which was well received by Member States.

On the same date, the Council supported the initiative in its 'Big Data' Conclusions and at the Policy Debate on Open Science.

The initiative is now one of the Commissioner **priority actions for 2016 under 'Open Science'.**

Extensive stakeholder consultation tell us so!

- Public consultation and validation workshops on Open Science (July-December 2014)
- Final report (February 2015)
- HELG EOSC stakeholder workshop (November 2015)
- DSM Consultation (closed January 2016)
- Research funders' workshop (March 2016)

- + PC meetings, EAG meetings, e-IRG meetings, concertation meetings, info days, conferences, events, ...

Competitiveness Council Conclusions, 29 May 2015

Strong support for the development of a European Open Science Cloud, e.g.

- 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.

Report of the European Parliament 'Towards and Digital Single Market Act' (voted yesterday...)

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;**

European Cloud Initiative

Part of DSM strategy - DG RTD and CNECT (and CABs) working jointly on a COM: 'European Cloud Initiative'.

Strong political support: Juncker, Ansip, Merkel, LUX Presidency, NL Presidency, EP ITRE/IMCO Report on DSM Act.

3 Parts

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

European Open Science Cloud

A trusted, open environment for storing, sharing and re-using scientific data and results and supporting Open Science practices

- **A virtual environment** for all European researchers to store, manage, analysis and re-use data.
- **Strongly stated needs**: cost-effective, user-driven, privacy and IPR-conscious.
- **Bringing together** existing and emerging data infrastructures.
- **Added value**: scale, data-driven science, inter-disciplinarity, data to knowledge to innovation.

European Open Science Cloud: What?

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

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

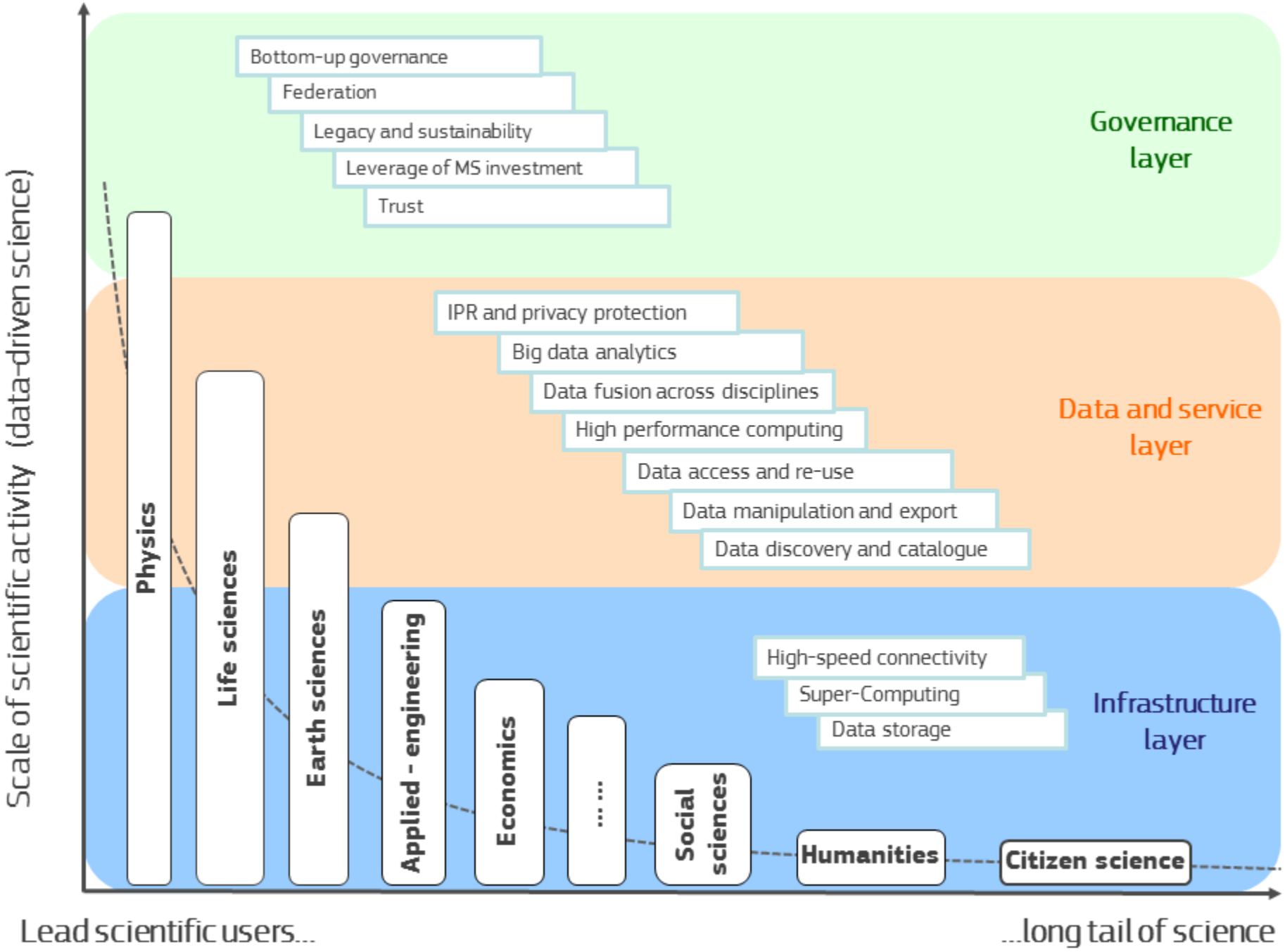
It will **add value** (scale, data-driven science, inter-disciplinarity, data to knowledge to innovation) and leverage current and past infrastructure investment (10b per year by MS, two decades EU investment).

Governance is a key issue

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.


Scale of scientific activity (data-driven science)
Bottom-up governance
Federation
Legacy and sustainability
Leverage of MS investment
Trust
Governance layer
IPR and privacy protection
Big data analytics
Data fusion across disciplines
High performance computing
Data access and re-use
Data manipulation and export
Data discovery and catalogue
Data and service layer
High-speed connectivity
Super-Computing
Data storage
Infrastructure layer
Physics
Life sciences
Earth sciences
Applied - engineering
Economics
... ...
Social sciences
Humanities
Citizen science
Lead scientific users...
...long tail of science

Where do main challenges lie?

- 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 a particular technical enabler.
- **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.

European Open Science Cloud: next steps.

RIA calls for a "European Open Science Cloud" (€10 M) and "Data and Distributed Computing e-infrastructures for Open Science" (€40 M).

High Level Expert Group activities – workshops, report, advice.

2016 will be busy:

- **Action plan on 'standards' for research data;**
- **Roadmap on EOSC governance;**
- **Harnessing H2020 and FP9 rules;**
- **Council , Dutch presidency and RWP;**
- **EP ITRE/IMCO;**
- **Continuous, extensive stakeholder engagement.**

INFRADEV-04-2016
Why a cloud topic under the RI part of the WP?

- To ensure the broadest possible approach at the design stage – both for governance and for services;
- to ensure that the needs of all scientific communities are taken into account;
- to engage the scientific communities in this initiative and its governance;
- to build on the existing solutions deployed by advanced science communities.

INFRADEV-04-2016
European Open Science Cloud for Research

Pilot action to demonstrate how wide availability of scientific data and data-analysis services for European researchers can be ensured through a cloud infrastructure.

✓Total budget 10 M€ -- EU contrib. per proposal (RIA) between 5 and 10 M€

✓Interrelated to EINFRA-12-2017

✓Proposals will:

- **Address the federation, networking and coordination of existing research infrastructures and scientific clouds to increase findability, accessibility and interoperability of data, and facilitate re-use of data.**
- **Design a stakeholder driven governance framework.**
- **Build on existing e-infrastructures and thematic data infrastructures.**

Nov '15	Stakeholder workshop (e-infrastructures and scientific data infrastructures).
Feb '16	High Level Expert Group final report on governance, funding and services of the cloud initiative.
March '16	European Cloud Initiative, including EOSC.
March '16	INFRADEV-04-2016 call on data federation, governance and services of the future cloud initiative (€10 M).
April '16	Conference under Dutch Presidency on Open Science and the European Open Science Cloud (announcement).
Sept '16	Open Science Policy Platform report on cloud initiative implementation, including WP 2018-19.
Winter '16	Engagement with the European Parliament and with the Council concerning implementation of the initiative.
Dec '16	EINFRA-12-2017 implementation of data preservation, access and interoperability of scientific data (€40 M).
Sept '17	Initial results from INFRADEV-04-2016.
March '18	Initial results from EINFRA-12-2017.