Title	Share, steward and reuse research data - European Open Science Cloud
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Citation	29th NORDUnet Conference, 20 - 22 September 2016, Helsinki, Finland. NORDUnet A/S (2016)
Date	2016
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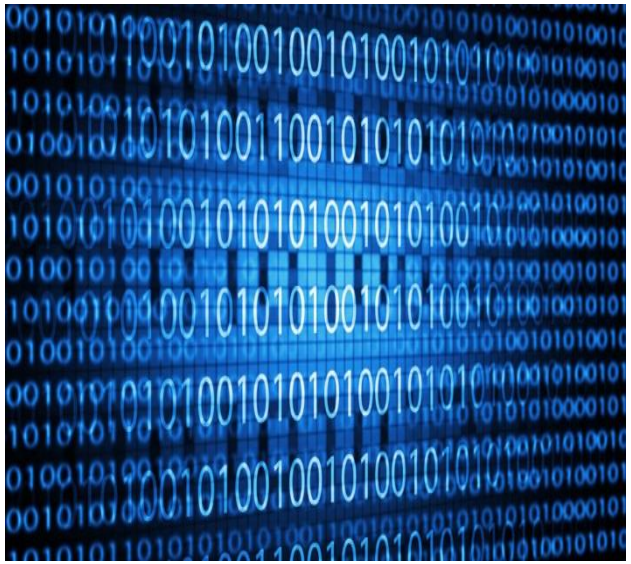

Share, steward and reuse research data
- European Open Science Cloud

NORDUnet 2016

Prof. Caj Södergård

Content

- Why EOSC ?
- What is EOSC ?
- What does the High Level Expert Group propose ?
- What next ?

Towards Data-driven Research

- Big data needs cloud, bandwidth and powerful computers -> e-infrastructures have to adapt

- One paper is published every 30 seconds (2014).
  - 70 000 papers have been published on a single protein, the tumour suppressor p53

- A considerable share (10 - 90 %) of scientific papers are never cited, nor even read.
  - Pre-clinical oncology – 89% not reproducible (Nature 2012)

- A growing pressure to share scientific data

Data volume doubles every 12 months (Software Alliance 2015)


Global scientific community commits to sharing data on Zika

Leading global health bodies including academic journals, NGOs, research funders and institutes, have committed to sharing data and results relevant to the current Zika crisis and future public health emergencies as rapidly and openly as possible.

Organisations including the Bill & Melinda Gates Foundation, Médecins Sans Frontières, the US National Institute of Health and the Wellcome Trust, along with leading academic journals including Nature, Science and the New England Journal of Medicine, have signed a joint declaration and hope that other bodies will come on board in the coming weeks.

The statement is intended to ensure that any information that might have value in combatting the Zika outbreak is made available to the international community, free of charge, as soon as is

Published: 10 February 2016

Science 2.0 and Open Science

science 2.0
JOIN THE REVOLUTION

Science 2.0

”How can I use participative Internet technologies in my research ?”

- Prepare project applications collaboratively
- Blog about my research
- Discuss it on social networks (e.g. Twitter)
- Exchange data online

Must NOT be open, but makes the transition to Open Science easier

Adapted from Guido Scherp, 2016
Photo:, Flickr

Science 2.0 and Open Science

"Knowledge is open if anyone is free to access, use, modify, and share it …" [Open Definition]

Science 2.0

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Must NOT be open, but makes the transition to Open Science easier

Open Science

"How can I make my research as public and transparent as possible ?"

- Publish in Open Access
- Publish data (including raw data)
- Publish scripts, source code
- Licence for reuse (e.g. CC-0)
- Have transparent processes (reviews etc)
- Tell publicly about the research and future ideas

Works without Science 2.0 – but Science 2.0 gives support

Adapted from Guido Scherp, 2016
Photo:, Flickr

EUROPEAN CLOUD INITIATIVE

UNLOCKING THE POWER OF BIG DATA FOR OPEN SCIENCE

OPPORTUNITIES

Spurring new solutions in complex areas like #eHealth, transport, environment

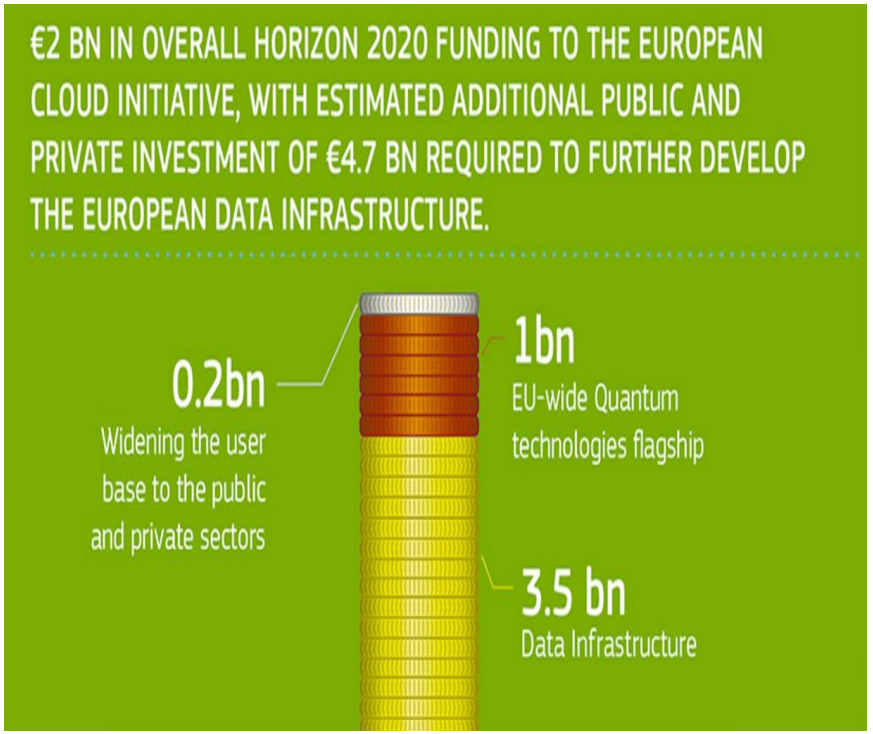
Better science for complex problems

Better public services such as #smartcities

Commercial opportunities for innovative companies

Better value for taxpayers – opening up data produced by projects funded by the Horizon 2020 research and innovation programme: Findable, Accessible, Interoperable, Reusable

EU and industry will invest 6,7 B€



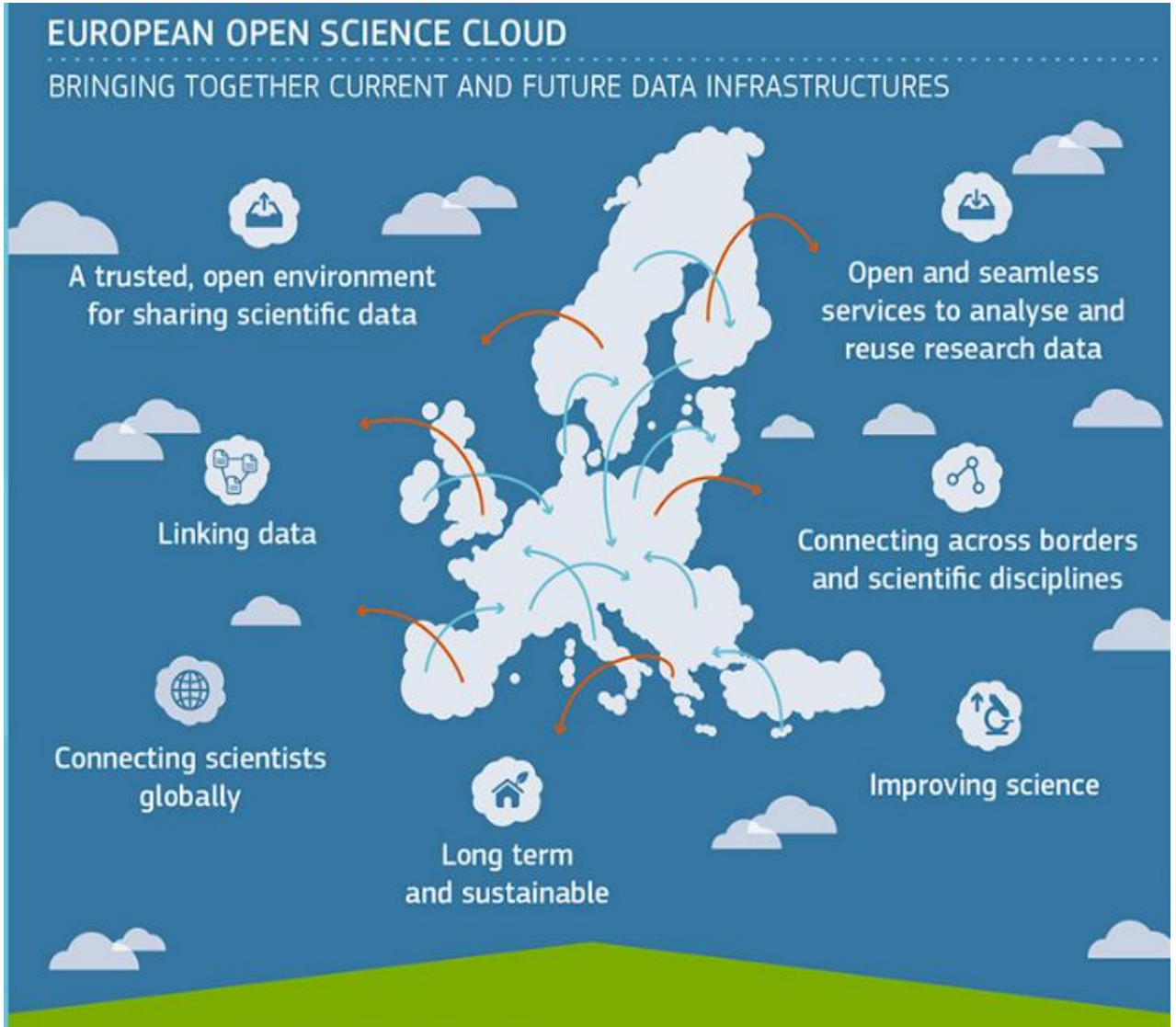
- 2016: creating a **European Open Science Cloud (EOSC)**
  - **First calls**
    - INFRADEV-04-2016 call
    - EINFRA-12-2017 call
- 2017: **opening up by default all scientific data** produced in the €77 billion Horizon 2020
- 2018: launching the **quantum technology** flagship
- 2020: developing and deploying a large scale **European high performance computing, data storage and network (EDI)**

*Both the **EOSC** and the **EDI** will build on existing EU-funded e-infrastructures*

Source: EU Press release 19.4.2016

WHAT is European Open Science CLOUD ?

European Open Science Cloud



Carlos **Moedas**, Commissioner for Research, Science and Innovation, 19.4.2016

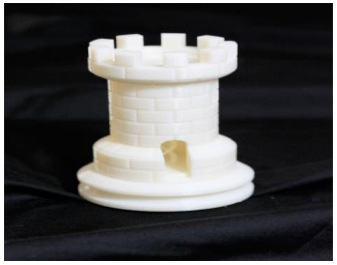
"*Our goal is to create a European Open Science Cloud to make science more efficient and productive and let millions of researchers share and analyse research data in a trusted environment across technologies, disciplines and borders…*"

Cloud

- European

- Open

- Science



- Cloud

What does the High Level Expert Group propose ?

High Level Expert Group on EOSC

- The Commission will publish the HLEG report in September 2016
  - Contains initial guidelines for how to go forward towards a European Open Science Cloud


A Cloud on the 2020 Horizon

- HLEG Members
  - Barend Mons (Chair)
  - Paul Ayris
  - Jean-Yves Berthou
  - Rachel Bruce (Rapporteur)
  - Stefanie Lindstaedt
  - Anna Monreale
  - Yasuhiro Murayama (Observer, Japan)
  - Caj Södergård
  - Klaus Tochtermann
  - Ross Wilkinson (Observer, Australia)

Draft report: Key EOSC requirements

- New modes of scholarly communication
- Modern reward and recognition practises
- Core data scientists need to be trained and their carieers supported
- Cross-disciplinary collaboration

Report: Key EOSC requirements

- Fostering transition from Science to Innovation
- A complex eco-system of infrastructures
- Machine understanding
- Findable, Accessible, Interoperable, Reusable (FAIR)

EOSC: Policy Recommendations

- Take actions with Member States
- Build on existing capacity and expertise
- Support Global Research Data Commons, with open protocols

EOSC: Governance Recommendations

- Aim at light, internationally effective governance
- Guidance only where guidance is due
- Define Rules of Engagement for participation in EOSC

EOSC: Implementation Recommendations

- Develop, Endorse and Implement Rules of Engagement
- Develop a plan plan for governance of EOSC
- Fund an effort to locate and develop Data Expertise in Europe
- Install innovative funding scheme for preparatory phase
- Make adequate Data Stewardship mandatory for all research proposals
  - 5 % of budget has been discussed
- Install executive teams for preparation and international coherence

How forward – steps discussed

1. A **Memorandum of Understanding** (MoU) between the major players in the Member States and the international coordination level

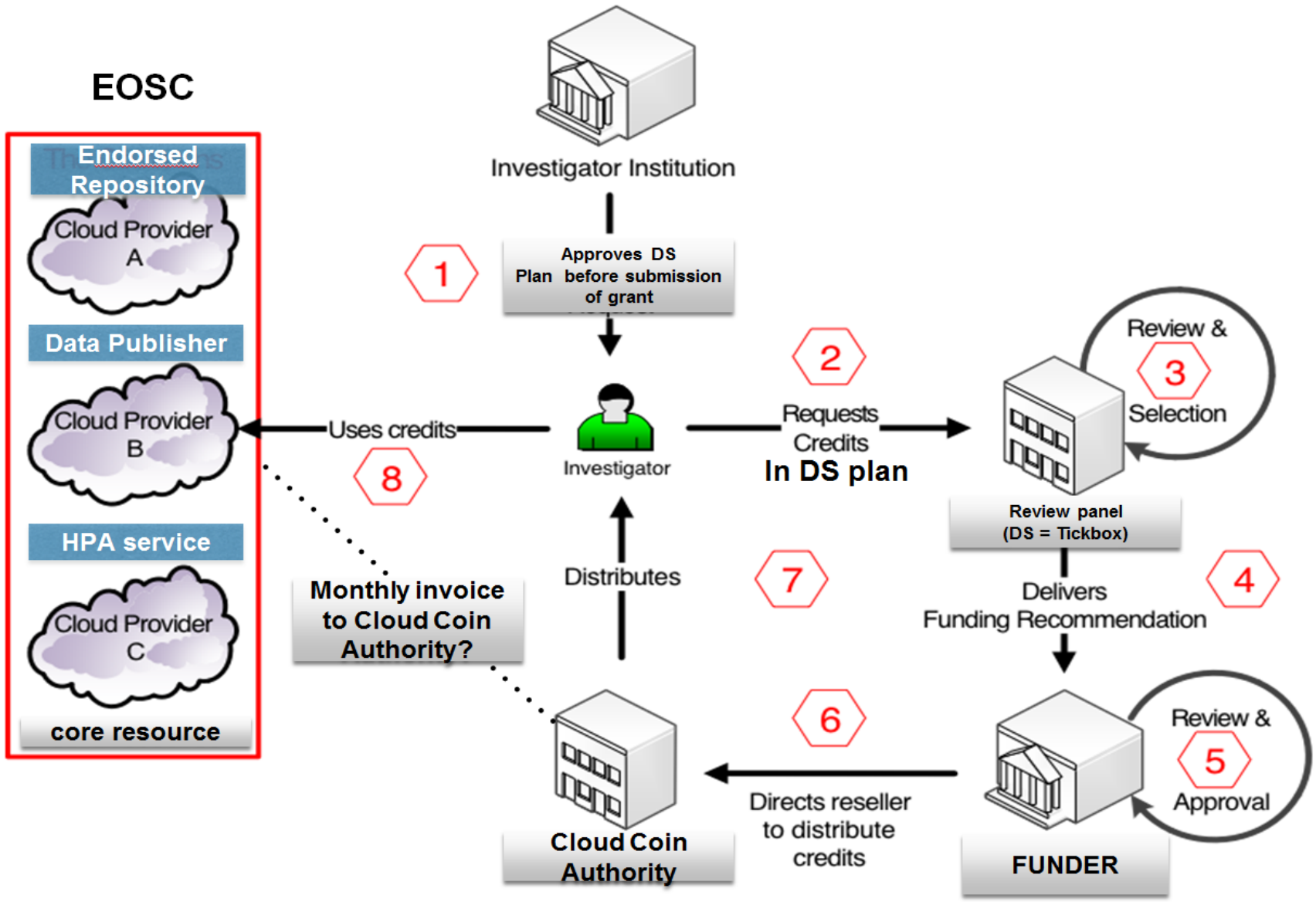
2. **Rules of Engagement** for public and private parties who want to play an active role in the implementation of the EOSC 'national nodes'

3. A further detailing of how the **'Cloud Coin'** (dedicated Data Stewardship funding to be spent with 'certified' or 'conformant' EOSC providers') could be implemented.

4. **Skill determination** for core data experts/data stewards and the building of a coordinated curriculum and training materials (possibly together with WG on Open Education)

5. **Support tools** to assist researchers in the development of appropriate Data Management Plans (possibly together with FAIR Data WG)

The Cloud Coin Model



Thank you for your attention