



The European Cloud Initiative and its relevance for EO





















Space solutions for Resilience in the Mediterranean
27-28 June 2017

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European Commission

eInfrastructures Landscape: the foundation of the European Open Science Cloud

 <p>OpenAIRE: Science set free</p> <p>www.openaire.eu</p>	 <p>OpenDreamKit: Open Digital Research Environment Toolkit for the Advancement of Mathematics</p> <p>www.opendreamkit.org</p>	 <p>OpenMintEd - Open Mining Infrastructure for Text and Data</p> <p>www.openminted.eu</p>	 <p>PhenoMeNal: Phenome and Metabolome Analysis</p> <p>www.phenomenal-h2020.eu</p>	 <p>AARC: Authentication and Authorisation for Research and Collaboration</p> <p>www.aarc-project.eu</p>	 <p>BlueBRIDGE: Building Research environments fostering Innovation, Decision making, Governance and Education to support blue growth</p> <p>www.bluebridge-vres.eu</p>	 <p>EarthServer2: Big Earth Data at your fingertips</p> <p>www.earthserver.eu</p>	 <p>EDISON: Building the data science profession</p> <p>www.edison-project.eu</p>
 <p>PRACE: Partnership for Advanced Computing in Europe</p> <p>www.prace-ri.eu</p>	 <p>RDA: Research Data Alliance</p> <p>www.rd-alliance.org</p>	 <p>READ: Recognition and Enrichment of Archival Documents</p> <p>read.transkribus.eu</p>	 <p>SESAME Net: Supercomputing Expertise for Small And Medium Enterprises</p> <p>www.sesametwork.eu</p>	 <p>EGI-Engage: Engaging the Research Community towards an Open Science Commons</p> <p>www.leuven.ac.be</p>	 <p>e-IRG: Paving the way towards a general purpose European e-Infrastructure</p> <p>www.e-irg.eu</p>	 <p>EUDAT: European Data Infrastructure</p> <p>www.eudat.eu</p>	 <p>EVER-EST: A Virtual Research Environment for the Earth Sciences</p> <p>www.everest-eu.eu</p>
 <p>THOR: Technical and Human Infrastructure for Open Research</p>	 <p>VI-SEEM Virtual Research Environment (VRE) for regional Interdisciplinary communities in Southeast Europe and the Eastern Mediterranean</p>	 <p>VRE4EIC: A Europe-wide Interoperable Virtual Research Environment to Empower Multidisciplinary Research Communities and Accelerate Innovation and Collaboration</p>	 <p>West-Life: World-wide E-Infrastructure for structural biology</p>	 <p>GÉANT Project (G4-1): Accelerating research, driving innovation and enriching education</p>	 <p>INDIGO - DataCloud</p> <p>INDIGO-DataCloud: Integrating Distributed data Infrastructures for Global Exploitation</p>	 <p>LEARN: Leaders Activating Research Networks</p>	 <p>MuG: Multi-scale complex Genomics</p>

Some of our policy challenges

- *Maximize RTD investment potential for science*
 - scientific processes, quality and effectiveness
 - interconnecting computing & data infrastructures
 - sharing data and data-driven science
- *Increase innovation and contribute to prosperity*
 - data usage across scientific disciplines and between the public and the private sector
 - increasing exploitation of public data (research & big data)

The European Cloud Initiative

- *EUROPEAN OPEN SCIENCE CLOUD*
Bringing together current and future data infrastructures
- *EUROPEAN DATA INFRASTRUCTURE*
Unlocking the value of big data; digital by default
- *WIDENING ACCESS, BUILDING TRUST*

WHO IS IT FOR?



1.7 million
researchers



70 million
professionals in science
and technology



Opening up in the future
to public services,
industry and SMEs

Bringing benefits to citizens

Some EOSC principles

- *Open Research Data and Open Science*
- *Affecting the whole research science cycle and stakeholders*
- *Addressing fragmentation issues (for data and services)*
- *Enabling multi-disciplinarity and innovation*
- *Widening to other constituencies (users & providers)*
- *Creating new policy issues: copyright, data protection, TDM, open access policies (and rights)*



EC role in creating the EOSC

- *Encouraging interdisciplinary science and innovation*
- *From policy maker to capacity building*
 - **OA policy**
 - **Funding RIA and CSA through H2020 (RI , eInfras, big data and cloud technology, etc.)**
 - **Funding services such as HPC (EDI – exascale computing services) for the EOSC or the Open Data portal**
 - **Joining existing initiatives (Copernicus, etc.)**

First steps to establishing the EOSC (2017-2020)

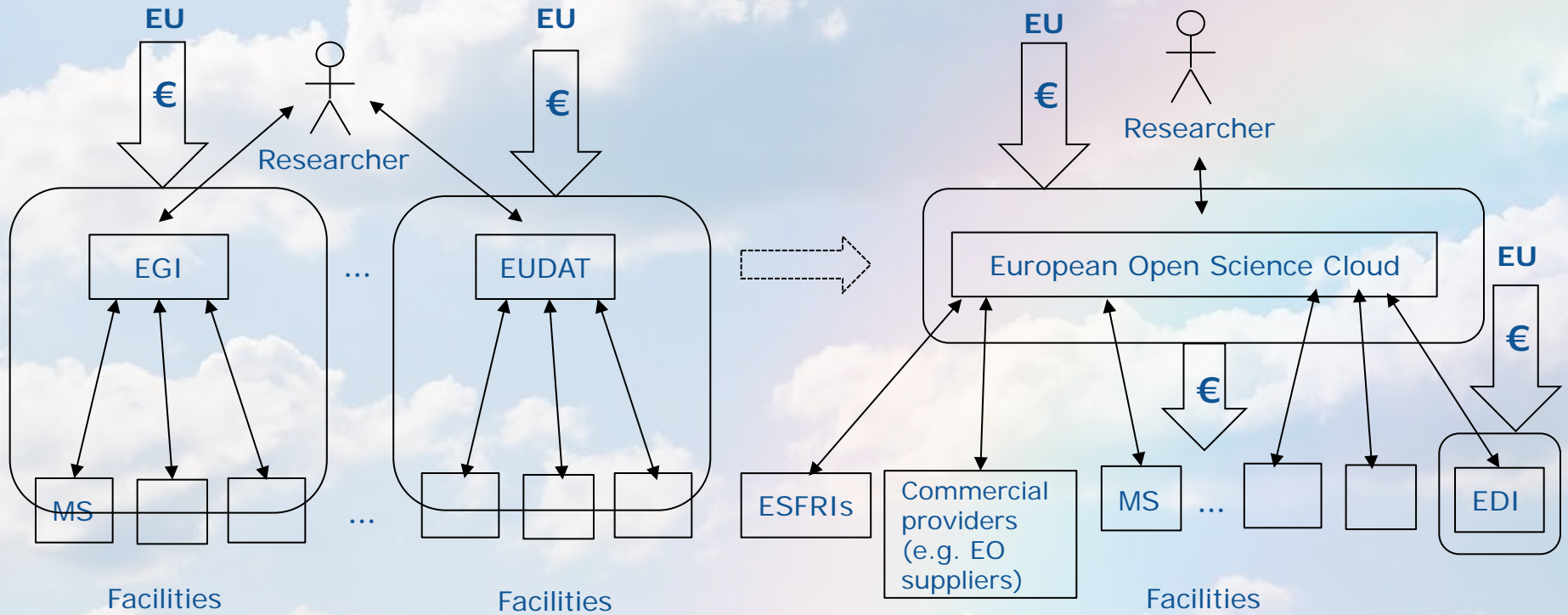
- *Phase 1*

- OA to scientific publications
- EOSC pilot project funded in H2020
- First federation of existing e-Infrastructures & services
- Governance and action plan
- Developing cloud computing services

- *Phase 2*

- Second wave of federation of existing e-Infrastructures & services
- Piloting procurement for the EOSC on EO services stemming from Copernicus
- Connection of ESFRI to the EOSC
- Connection of other RI and communities

Shaping the EOSC (from an eInfra perspective)



TODAY

TOMORROW

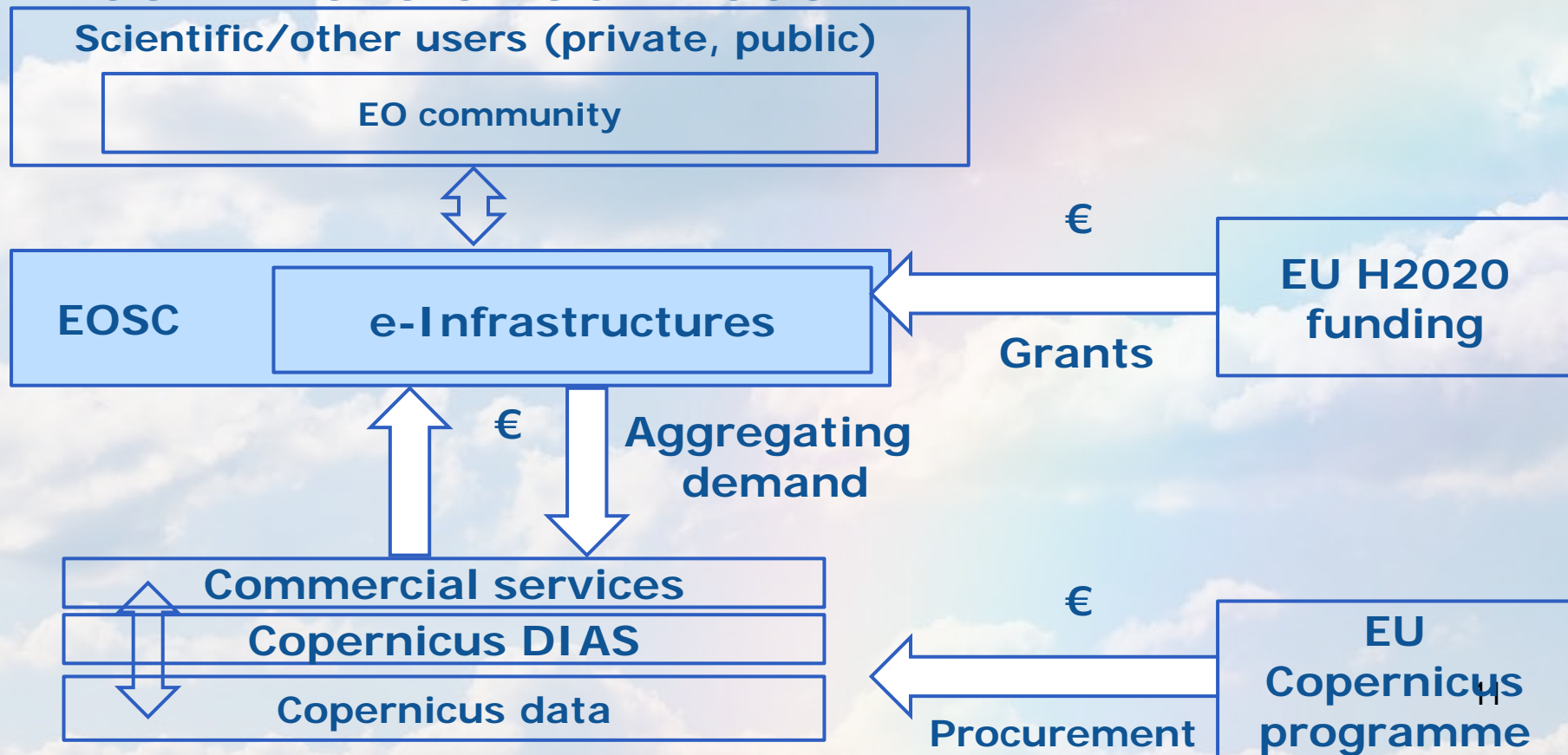
The case of Copernicus data

- *Stimulating the demand for commercial Copernicus services*
- *Virtual Research Environments: 2 examples of projects funded by the eInfra programme*
- *Access to data and Copernicus services in the long run*
- *HPC for Copernicus*

Stimulating the demand for innovative EO services

- *From raw data to DIAS platforms, and services*
- *Access to researchers and cross-disciplinarity*
- *Demand-side areas of potential interest (Robotics using space data, ground segment data for IoT, links with open data initiatives, smart mobility, smart cities, eGov, etc.)*
- *From pilot to data ecosystem*

E-Infras as aggregators of demand for scientific users – & Copernicus commercial services



E-Infrastructure projects deploying service-driven research environments for space data (1/2)

Project Earth-Server2

- H2020-EINFRA-2014-2, 36 months, 2.8 M Euro
- Agile Analytics on Big Earth Data Cubes of sensor, image, simulation, and statistics data becoming commodity
- EarthServer-2 adds to Copernicus/Sentinel data by creating a single 3D x/y/t datacube per product
- Supported by ESA, rasdaman will form an enabling building block for COPERNICUS/Sentinel
- <http://www.earthserver.eu/>

E-Infrastructure projects deploying service-driven research environments for space data (2/2)

Project EVER-EST

- H2020-EINFRA-2015-1, 36 months, 6,4 M Euro
- European Virtual Environment focussed on the requirements of the Earth Science community (sea, land, supersites and natural hazards)
- A study on the novel use of Research Objects in the Earth Sciences
- A suite of tools (data, results, workflows, collaboration, etc.)
- <http://ever-est.eu/>

Creating a European data ecosystem

- *EC initiatives – from Open data portal to the EOSC*
- *Big data everywhere*
- *EO data ecosystem*
- *...*
- *All converging through open platforms – creating new challenges and opportunities for Europe*

Expected impact

- *Paradigm change for the public e-infrastructure community*
- *Removing the burden for scientific institutes*
- *Cross-fertilization of data coming from heterogeneous sources into the EOSC*
- *Creation of market opportunities for EO data services*
- *Demand-side stimulus for the commercial DIAS (from open data to commercial value)*

More information? WP calls?

- *Web page:* <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/e-infrastructures>
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ec.europa.eu/digital-single-market



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