



The European Cloud Initiative

Does cloud make 'Digital Modernisation' affordable?
Brussels , 5 December 2016

Dirk van Rooy, Ph.D.

European Commission, DG CONNECT E2, Cloud and Software



European Cloud Initiative – setting the scene

Part of a package of measures to provide European science, industry and public authorities with:

- **a world-class data infrastructure to store, process and manage data;**
- **high-speed connectivity to transport data; and**
- **ever more powerful High Performance Computers for Big Data processing.**

The Cloud Initiative will make it easier for researchers, businesses and public services to exploit Big Data by making it easier to move, share and process data in the digital single market, among institutions and research disciplines, in a global setting.





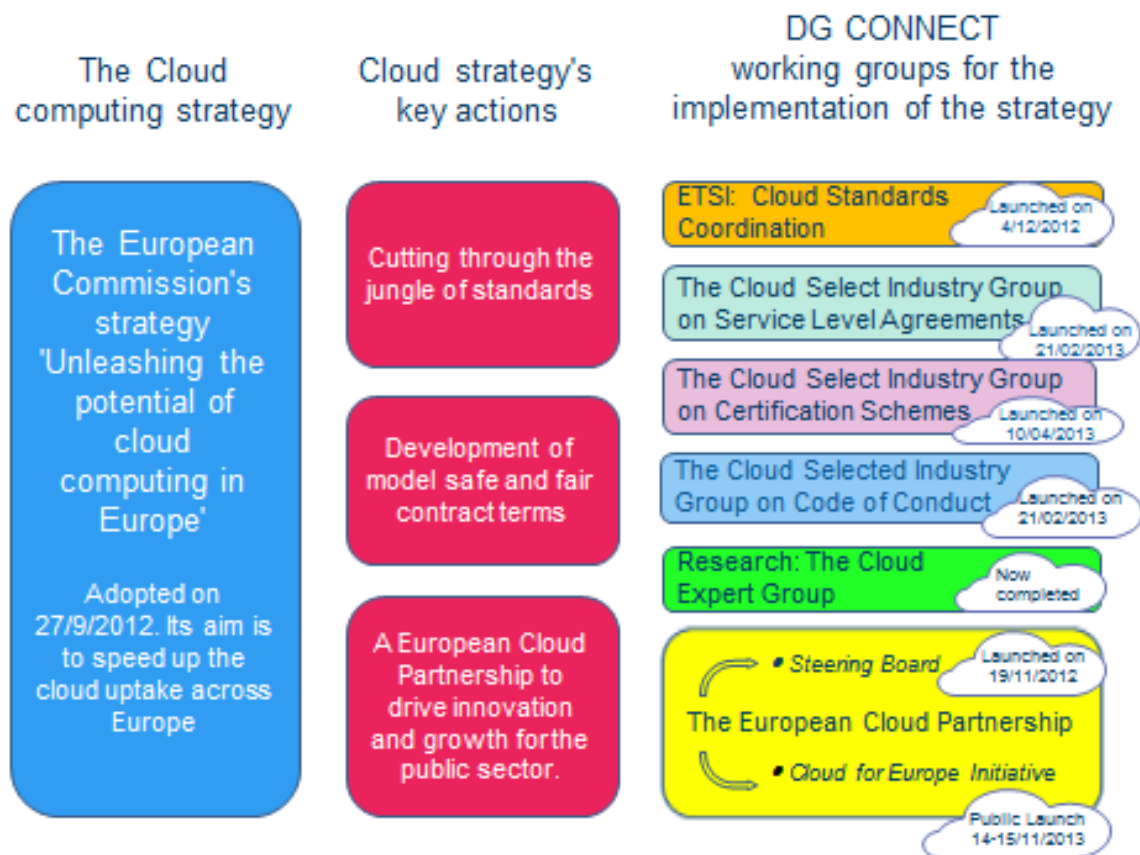
European Cloud Initiative – Policy Context range of related policies

- European Cloud Computing Strategy [COM(2012) 529]
- Data-driven Economy [COM(2014) 442]
- Digital Single Market package [COM(2015) 192]
- Digitising European Industry package [COM(2016) 180]
- **European Cloud Initiative** [COM(2016) 178]
- ICT Standardisation [COM(2016) 176]
- eGovernment Action Plan [COM(2016) 179]
- Future: *data economy package*.





European Cloud Computing Strategy start at the end of 2012





Digital Single Market

**Better access
for consumers
and businesses**

**Innovative
services and
advanced
digital networks**

**Enhance the
growth potential
of the digital
economy**





Digital Single Market

Enhance the Digital Economy
Cloud computing & other data services

**Free flow
of data
initiative**

**European
cloud
initiative**

**Interoperability
and
standardisation**

**e-Government
action
plan**



Digitising European Industry

- **Under the Digital Single Market umbrella;**
- **Package:** European Cloud Initiative, ICT Standardisation, e-Government, IoT;
- **Many national/regional initiatives:** Industrie 4.0, Smart Industry, Industrie du Futur, Industry 4.0, Produktion der Zukunft, Fabbrica Intelligente, Produktion 2030, Estrategia Fabricacion Anvanzada,... (>30);
- **Coordination and exchange, co-investment, innovation hubs, partnerships, standards, ...**
- **Data platforms (manufacturing cloud, industrial dataspace), connected smart factory ...**
- **Skills.**



ICT Standardisation and Certification - Cloud

- **Standardisation work from the Cloud Strategy;**
- **ICT Standardisation Communication actions:**
 - interoperability and portability;
 - international standards on cloud service level agreements;
 - update of the mapping of cloud standards;
 - promote the use of existing relevant certifications and labelling for public procurement of cloud services.
- **Planned study on certification schemes for cloud.**





European Cloud Initiative - Overview

- **European Open Science Cloud (EOSC)**
 - Development of cloud-based services for Open Science and data-sharing;
 - Integration and consolidation of e-infrastructures;
 - Federation of existing research infrastructures and science clouds;
- **European Data Infrastructure (EDI)**
 - Development and deployment of large-scale European high-performance computing, data and network infrastructures;
 - Underpinning EOSC, big data, industry, public sector.
- **Widening access and user base**
 - Research and innovation, SMEs, Industry at large, Government





Cloud Computing

Need for: network and data centre infrastructure, **cloud**, service ecosystem.

► **Cloud is an enabler: the whole > sum of its parts.**

- **Technology:** virtualisation, elasticity, load-balancing, access control, federated ID, security, different ecosystems, etc
- **Organisational:** contracts, service level agreements, payments, security agreements, data protection, user-support, etc.
- **Building on:**
 - **European Cloud Strategy, EU/national/regional initiatives**
 - **Helix Nebula Science Cloud: major preparatory initiative for science**
 - **Cloud-for-Europe: major cloud initiative by the public sector**





European Open Science Cloud - actions

- **Open science data = default in H2020, with opt-out;**
- **Cloud-based services for open science;**
- **Data interoperability building on Research Data Alliance and Belmont Forum;**
- **Raise awareness and incentives for data sharing and management;**
- **Governance structure;**
- **Enlarge science user base, Europe and globally.**





European Data Infrastructure - actions

- Interconnection and federation of national and European HPC resources and creation of an HPC and Big Data service infrastructure facility;
- Acquisition (in 2020-2021) of 2 operational **pre-exascale** and (in 2022-2023) two full **exascale** machines (of which one based on European technology).

Contribute to digitisation of industry.

Demonstrate and test technology performance towards exascale through scientific & industrial compute-intensive applications.

Future technologies: quantum.

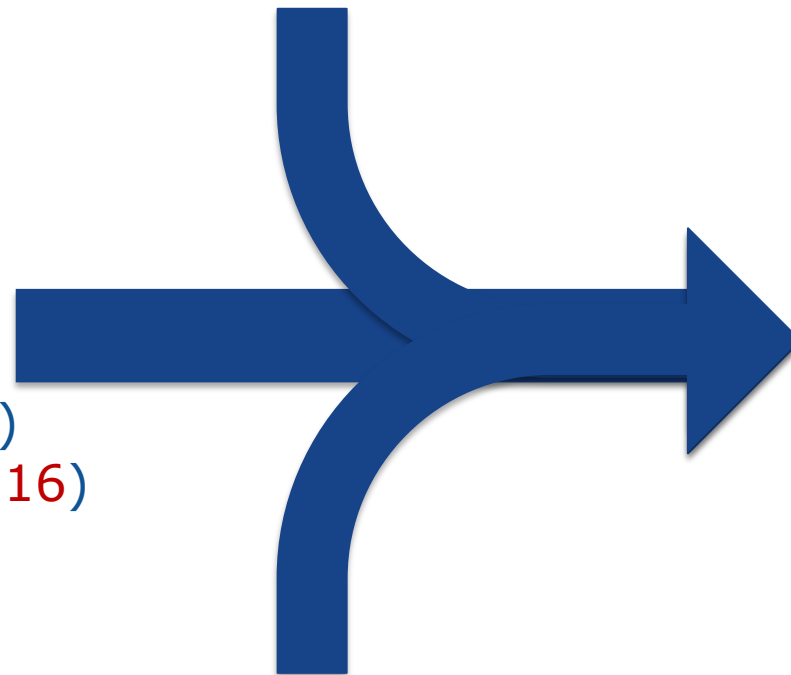




H2020 WP2018-2020 preparation Cloud research and testbeds

Internal EC consultation

Public
consultation
(Sept-Oct 2016)
Workshop (Nov 2016)



Adoption: Q3 2017?

Industry consultation (Feb 2016)

Several reports available at <https://ec.europa.eu/digital-single-market/en/news/consultation-cloud-computing-research-innovation-challenges-wp-2018-2020>