



# e-Infrastructures and H2020

GARR Workshop  
Rome 19 April 2016

Carlos Morais Pires  
DG CONNECT, European Commission

# fresh news...



## EUROPEAN COMMISSION

### Press Release Database

European Commission > Press releases database > Press Release details

A A t t e

Latest updates

Related links

Contact

Search

Login

Subscribe



Other available languages: [FR](#) [DE](#) [DA](#) [ES](#) [NL](#) [IT](#) [SV](#) [PT](#) [FI](#) [EL](#) [CS](#) [ET](#) [HU](#) [LT](#) [LV](#) [MT](#) [PL](#) [SK](#) [SL](#) [BG](#) [RO](#) [HR](#)

[Back to the search results](#) [Expand](#) [Share](#)



European Commission - Press release

## European Cloud Initiative to give Europe a global lead in the data-driven economy

Brussels, 19 April 2016

The Commission today presented its blueprint for cloud-based services and world-class data infrastructure to ensure science, business and public services reap benefits of big data revolution.

## fresh news...

Carlos **Moedas**, Commissioner for Research, Science and Innovation, said: *"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. We listened to the scientific community's plea for an infrastructure for Open Science and with this comprehensive plan we can get down to work. The benefits of open data for Europe's science, economy and society will be enormous."*

Günther H. **Oettinger**, Commissioner for the Digital Economy and Society, said: *"The 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. With this initiative, our ambition is to be in the global top-three in high performance computing by 2020. We will also be looking into the potential of quantum technologies which hold the promise to solve computational problems beyond current supercomputers."*

The European Cloud Initiative will make it easier for researchers and innovators to access and re-use data, and will reduce the cost of data storage and high-performance analysis. Making research data openly available can help boost Europe's competitiveness by benefitting start-ups, SMEs and data-driven innovation, including in the fields of medicine and public health. It can even spur new industries, as demonstrated by the Human Genome Project.

The Commission will progressively put in place the European Cloud Initiative through a series of actions, including:

- As of 2016: creating a **European Open Science Cloud** for European researchers and their global scientific collaborators by integrating and consolidating e-infrastructure platforms, federating existing scientific clouds and research infrastructures, and supporting the development of cloud-based services.
- 2017: **opening up by default all scientific data** produced by future projects under the €77 billion [Horizon 2020 research and innovation programme](#), to ensure that the scientific community can re-use the enormous amount of data they generate.
- 2018: launching a flagship-type initiative to accelerate the nascent development of **quantum technology**, which is the basis for the next generation of supercomputers.
- By 2020: developing and deploying a large scale **European high performance computing, data storage and network infrastructure**, including by acquiring two prototype next-generation supercomputers of which one would rank among the top three in the world, establishing a European big data centre, and upgrading the backbone network for research and innovation ([GEANT](#)).

## fresh news...

In addition to the European research community, the European Open Science Cloud and the European Data Infrastructure will be accessible and bring benefits for a host of other users:

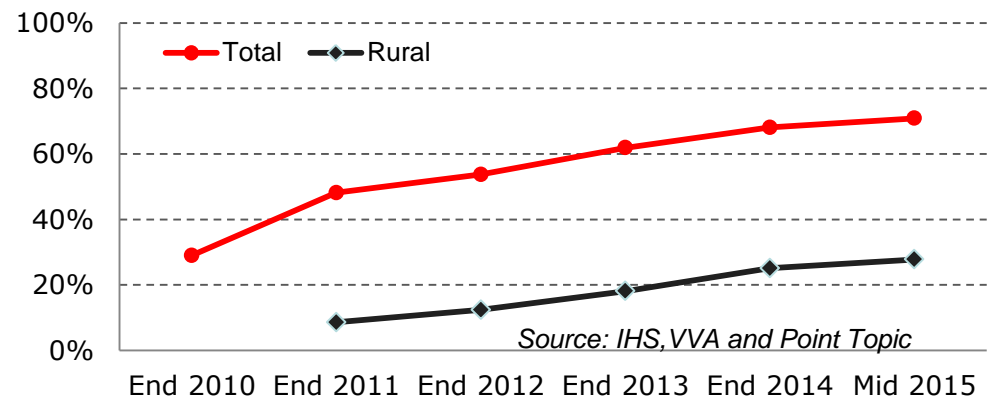
- **Businesses** will have cost-effective and easy access to top level data and computing infrastructure, as well as a wealth of scientific data enabling data-driven innovation. This will particularly benefit **SMEs**, which typically lack access to such resources.
- **Industry** will benefit from the creation of a large-scale cloud eco-system, supporting the development of new European technologies such as low-power chips for high performance computing.
- **Public services** will benefit from reliable access to powerful computing resources and the creation of a platform to open their data and services, which can lead to cheaper, better and faster interconnected public services. Researchers will also benefit from online access to the wealth of data created by public services.

The public and private investment needed to implement the European Cloud Initiative is estimated at **€6.7 billion**. The Commission estimates that, overall, **€2 billion** in Horizon 2020 funding will be allocated to the European Cloud initiative. The estimation of the required additional public and private investment is **€4.7 billion** in the period of 5 years.

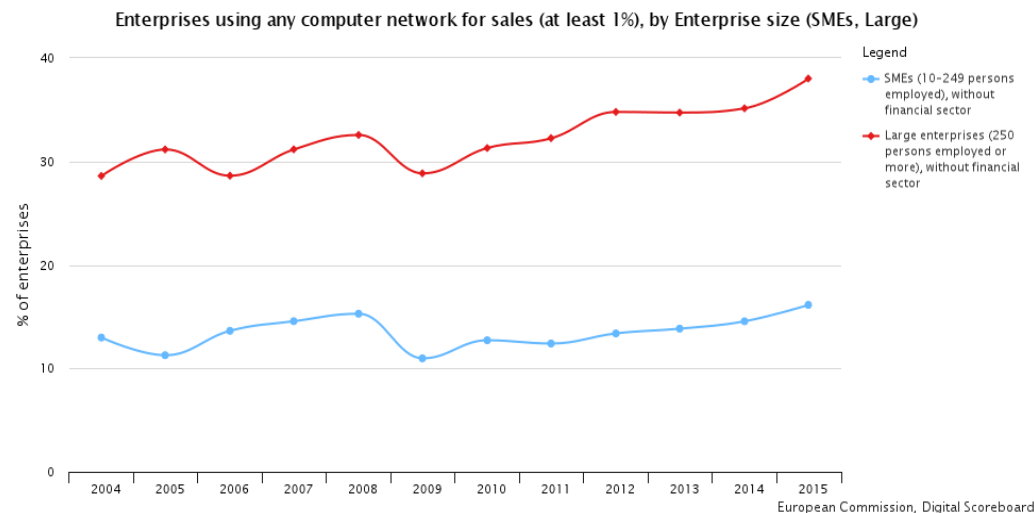
# Digital Single Market: Digital Economy and Society Index

Broadband: coverage of Next Generation Access technologies continued to increase in the EU and reached 71%. NGA deployments still focus mainly in urban areas, while only 28% of rural homes are covered.

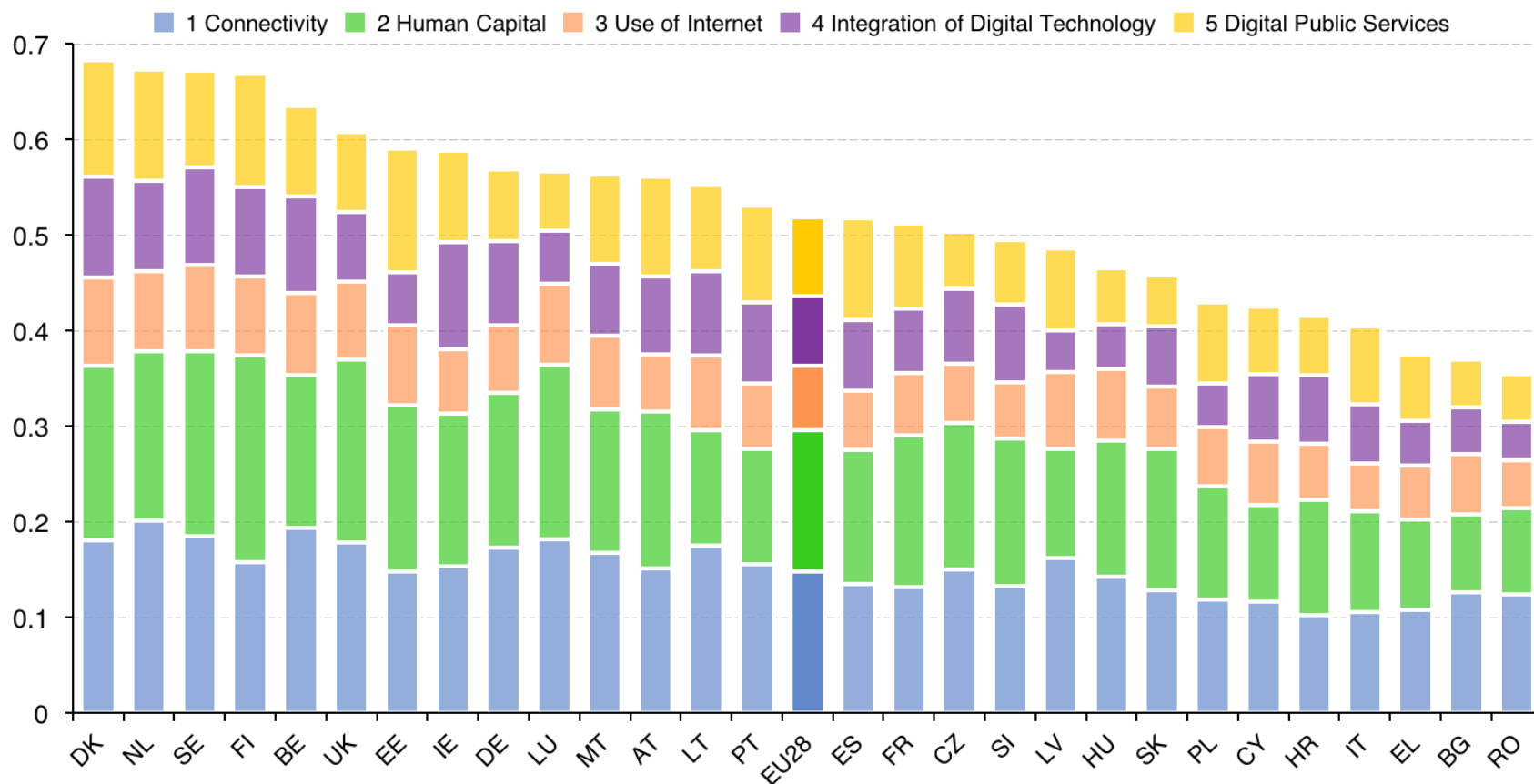
Next Generation Access (NGA) broadband coverage in the EU,



eCommerce: the progress in online sales by European companies is slow. Large companies are more active with 38% of them selling online. The gap between SMEs and large companies is increasing.



## DESI 2016 - Ranking of EU countries

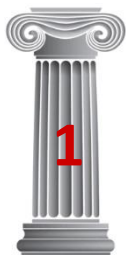


Country scores range between a minimum of 0 and a maximum of 1

2015

2016 – 1<sup>st</sup> semester

2016 – 2<sup>nd</sup> semester



**Copyright I**  
Incl. Portability

**e-Commerce package**  
Incl. Geoblocking

**Copyright II**  
Incl. SatCab



**UHF/700Mhz**

**Content package**  
Incl. AVMSD, Platforms

**Cybersecurity PPP**

**Roaming  
wholesale**

**Telecom  
review**



**DSM technologies & public  
services modernisation  
package** (Industry, Cloud, eGov,  
Standards)

**Free Flow Data**

**e-Privacy**

**EU Catalogue**



# DSM – Digitising European Industry

## Why we need this

For a smooth transition to smart economy

To lead in the next generation of products & services

To boost innovation capacity across industry

To increase EU GDP  
(by €110 bn/year)

## Landscape of European Industry

### EU companies are leaders in



Manufacturing



Electronics  
for automotive &  
aerospace



Electronics for  
security & energy



Robotics



Telecom equipment



Business &  
professional  
software



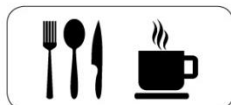
Laser and sensor  
technologies

### World-class Research & Technology institutions

### Traditional sectors & SMEs



Construction



Food & beverage



Textile



Publishing &  
printing



Craftmanship

*They all can  
benefit  
from  
Digital  
opportunities*



# DIGITAL SINGLE MARKET

## Technologies & public services modernisation package

### ① Digitising European Industry

Coordinating EU National and Regional Initiatives  
as Industrie 4.0 (DE), Smart Industry (NL), L'Industrie du Futur (FR)

Mainstreaming Digital  
Innovation across all  
industrial sectors: setting a  
pan-EU network of Digital  
Innovation Hubs

Strengthening leadership in digital  
technologies

- Public Private Partnerships
- Industrial Platforms
- Large scale pilots and test beds

Preparing Europeans for the  
Digital Age: Skills & Jobs

Regulatory framework:

- Free flow of data & data ownership
- Safety & liability of autonomous systems & IoT

Internet  
of  
Things

### ② ICT Priority Standards

- Cloud Computing
- 5G
- Internet of Things
- Data
- Cybersecurity

### ③ EU Cloud Initiative

- Open Science Cloud
- European Data Infrastructure
- Widening Access & building trust

HPC

QUANTUM

### ④ eGovernment Action Plan

- Digital Single Gateway
  - eJustice Portal
- “Once-only” principle
- Cross-border eHealth
- eProcurement

To better focus, mobilising €50 bill. of public and private investments  
(Horizon 2020, EU Investment Plan, EU Structural Funds, national and regional funds, investments by industry)

# DSM - European Cloud Initiative

The **exponential growth of data** will drive societal challenges, scientific advances and productivity gains across the economy

## European Cloud Initiative:

1. **European Open Science Cloud** for the management, analysis and re-use of research data;
2. **European Data Infrastructure** combining:
  - processing data (**HPC infrastructure**)
  - storing data (**Data infrastructure**)
  - moving data (**Network infrastructure**)
3. **Widening access and building trust**



**User driven and service oriented – the cloud paradigm**

# clouds for "non-techies"...

## 2. The NIST Definition of Cloud Computing

Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model is composed of five essential characteristics, three service models, and four deployment models.

### Essential Characteristics:

- On-demand self-service.* A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service provider.
- Broad network access.* Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, tablets, laptops, and workstations).
- Resource pooling.* The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or datacenter). Examples of resources include storage, processing, memory, and network bandwidth.
- Rapid elasticity.* Capabilities can be elastically provisioned and released, in some cases automatically, to scale rapidly outward and inward commensurate with demand. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be appropriated in any quantity at any time.
- Measured service.* Cloud systems automatically control and optimize resource use by leveraging a metering capability<sup>1</sup> at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported, providing transparency for both the provider and consumer of the utilized service.



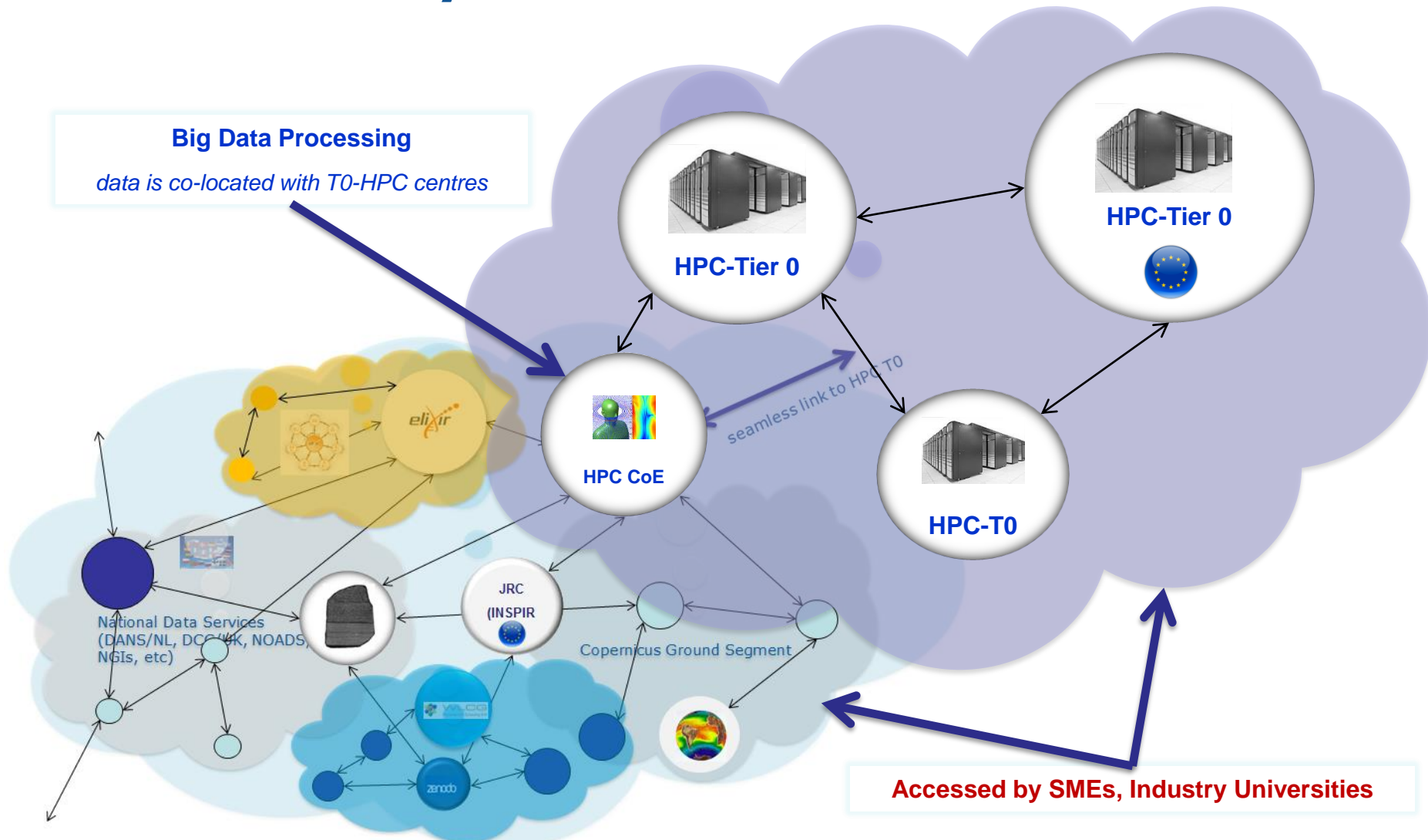
# European Data Infrastructure

will combine:

- processing data (**HPC infrastructure**)
- storing data (**Data infrastructure**)
- moving data (**Network infrastructure**)

**User-driven and Service Oriented approach  
matching the Cloud Paradigm**

# a seamlessly connected data infrastructure

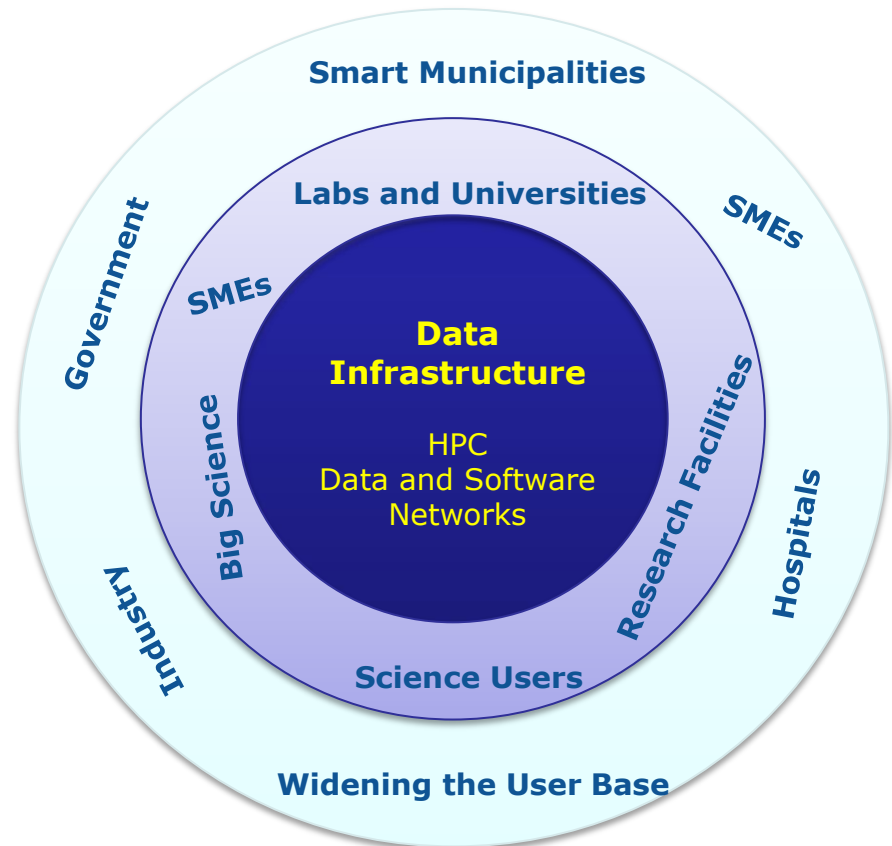


# Widening Access and Building Trust

Data Infrastructure service delivery **empowered to serve all European users:**

**scientists** but also for other users from **industry** (including SMEs) and the **public sector**.

Data infrastructure will allow **unlocking the value of Big Data** and digital by default.





## **support to growth and jobs priority**

**H2020 as a catalyst of the European plan for growth and jobs:** Horizon 2020 encourages synergies with other European Union Funds, with appropriate provisions not to cover the same cost items.

The e-infrastructures call for 2016-2017 will promote when feasible the combined and/or the cumulative use of other funding sources as instrument to support initiatives of European interest to foster growth and jobs.

*Article 17a of the Horizon 2020 Regulation and Article 31 of the rules of participation*

**Junker Growth and Jobs priority: "digital game-changer" on European high-performance data networks**

# H2020 e-INFRA calls



Topic	Budget (M€)
<b>Theme 1 - Integration and consolidation of e-infrastructure platforms supporting European policies and research and education communities</b>	<b>(55)</b>
EINFRA-1.1-2016 - Support to the next implementation phase of Pan-European High Performance Computing infrastructure and services (PRACE)	15
EINFRA-1.2-2017 - Data and Distributed Computing e-infrastructures for Open Science	40
<b>Theme 2 - Prototyping innovative e-infrastructure platforms and services for research and education communities, industry and the citizens at large</b>	<b>(67)</b>
EINFRA-2.1-2017 – Platform-driven e-infrastructure innovation	46
EINFRA-2.2-2016 – User-driven e-infrastructure innovation	21
<b>Theme 3 - Support to policies and international cooperation</b>	<b>(10)</b>
INFRASUPP-02-2017 Policy & Cooperation measures for research Infrastructures	2,5+1*
INFRASUPP-03-2016 Support to policies and international cooperation	7,5
<b>Other actions including different type of instruments:</b>	
(a) FPA - GÉANT Partnership Projects	<b>(64)</b>
(b) FPA - Computing and storage e-infrastructure for the Human Brain Project FET Flagship (FPA)	<b>(25)</b>
<b>Total</b>	<b>221</b>





## call for coordinated European action

### Important Project of Common European Interest (IPCEI) on HPC and Big Data enabled applications

Objective to support the development of new usages of HPC by the industry and to guarantee access to world-class HPC facilities for public and private research.

*Blog post - by Günther H. Oettinger - 8 January 2016*

<http://bit.ly/1ZLRPJ5>

No one can go alone in a connected economy.  
**It has to be an European Ambition!**



**Carlos Morais Pires**  
**carlos.morais-pires (at) ec.europa.eu**

**Thank You!**