High Performance Computing (HPC): a key element of the European Cloud Initiative

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Context of the
European Cloud Initiative

- Scientific data from public research is **not always open**

- **lack of interoperability**, against efficient data sharing / multidisciplinary, multi-actor approach

- **fragmentation**: data & computing infrastructures; scientific/economic/national domains; access policies/governance models.. creates silos of knowledge

- demand in Europe for **a world-class HPC infrastructure & ecosystem...** dependence on capacities and technological know-how

- **dependable environment** to re-use of data and use of advanced analytics techniques by scientific data producers and users

- **French-German conference on Digital** (Paris, 27 October 2015), President Juncker speech:

  - the importance of HPC and data infrastructures for economic growth and innovation, and for society, science and knowledge sharing.

  - deployment of a world-class infrastructure and environment for open science in Europe and the ambition that in 2020 Europe will be ranked among the world top three in HPC

- Announcement on the preparation of an **IPCEI** (Important Project of Common European Interest) by Luxembourg, France, Italy and Spain on HPC and Big Data enabled applications

Elements of the
European Cloud Initiative

- ## European Open Science Cloud
  - a trusted, free at the point of use, open environment with seamless services for storing, managing, sharing, analysing and re-using scientific data and results, across borders and scientific disciplines

- ## European Data Infrastructure
  - an underpinning infrastructure supplying integrated world-class HPC, high-speed connectivity and leading-edge data and software services for scientists, industry (including SMEs) and public sector
  - + *unlock the potential of quantum technologies*

- ## Widening access and building trust
  - public data is fully discoverable, accessible and exploitable by scientists, policy makers and businesses
  - opening the European Data Infrastructure to users from industry and the public sector

European Data Infrastructure

- underpin the European Open Science Cloud and other users

- support the EU to rank among the world's top HPC powers with EU technology

- close the chain from R&D to the delivery and operation of the future exascale systems

Building on PRACE, GÉANT, cPPP on HPC, ECSEL JU, IPCEI... the Commission and Member States will:

- foster an HPC ecosystem capable of developing new European technology such as low power HPC

- integrate technologies into system prototypes, co-designing solutions and procuring word-class HPC systems; world-class HPC connected to national computing, data and software infrastructure

- provide seamless, high-speed, reliable and secure connectivity to make HPC accessible across the EU

Actions and Governance

European Data Infrastructure

Action on the Commission and Member States to implement the European Data Infrastructure (HPC+data+network)

- acquisition of two co-designed, prototype exascale supercomputers and two operational systems which will rank in the top three of the world

- establishment of a European Big Data centre support

- upgrade of GEANT and integration of European public services networks

Governance:

- management and the development of the infrastructure and services, decision making on funding, long-term sustainability and security

- including users (EOSC, public sector), implementers (e.g. PRACE, GEANT) and funders, building on existing governance structures

Thank you for your attention!

Single point access to all information about the EC HPC strategy, work programmes and HPC related news:

ec.europa.eu/horizon2020-hpc