



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

PRACEdays16
HPC for Innovation: when Science meets Industry
Prague 10 May 2016

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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



- 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 world-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



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
- 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



European
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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