



High-Performance Computing in Europe: Looking ahead

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2014-2015 Calls of the HPC cPPP

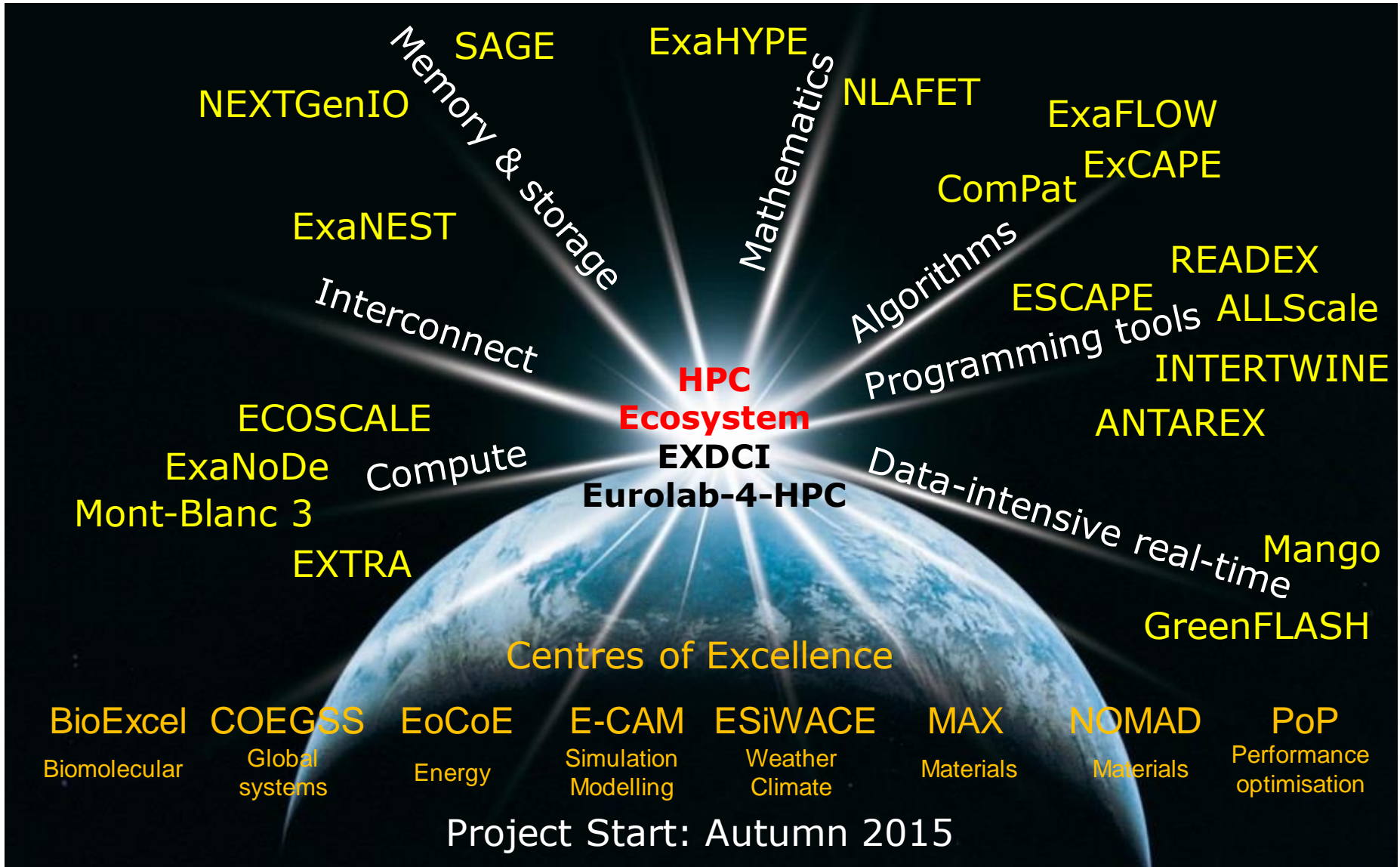


- €140m funding committed
- Projects start: Autumn 2015
- Complete HPC R&D project portfolio covering all elements of HPC stack
- Multi-partner consortia involved in all projects
- Specific actions to further develop the European HPC ecosystem
- Centres of Excellence for key HPC applications

The new European HPC research landscape



European Commission





Future HPC Calls 2016-2017

HPC-related calls Horizon 2020



- **WP2016-2017**
 - **Support to the Pan-European HPC infrastructure (eInfrastructure)**
 - *Implementation of PRACE (PRACE-4IP) – 15 m€*
 - *Procurement of innovative solutions in HPC (PPI) – 26 m€*
 - *HPC e-infrastructure for the Human Brain Project – 25 m€*
 - **Support to exascale technologies development (FET)**
 - *Co-design of HPC systems and applications – 41 m€*
 - *Transition to exascale computing – 40 m€*
 - *Exascale Ecosystem Development – 4 m€*



- **Co-design of HPC systems and applications**: bigger projects with 10-20m indicative funding per project [2016]
- **Transition to exascale computing** : smaller focused projects with 2-4m indicative funding per project [2017]
 - High productivity programming environments for exascale
 - Exascale system software and management
 - Exascale I/O and storage in the presence of multiple tiers of data storage:
 - Supercomputing for Extreme Data and emerging HPC use modes
 - Mathematics and algorithms for extreme scale HPC systems and applications working with extreme data
- Exascale **Ecosystem Development** : Coordination and Support Actions with 1-2m indicative funding per project [2017]



WP2014-15 ~155 M€
(~140 in the cPPP)

WP2016-17 ~151 M€
(85 in the cPPP)

**HIGH PERFORMANCE
COMPUTING**

**Pan-European HPC
Infrastructure**
HPC Capability
HPC Services
Support to innovation

Exascale technologies
Architectures, programming.
environments, tools...
Exascale Prototypes

Training
Education
Skills

PRACE-4IP
(15 m€)

PRACE (15 m€)
PPI for HPC (26 m€)

Core technologies (93,4 m€)
Ecosystem development (4 m€)

Flagship
Applications
(HBP)

Applications

Societal challenges
Scientific strategic applications
Emerging domains (Big Data)
New methods and algorithms

Co-design (41 m€)
Transition to exascale (40 m€)
Ecosystem development (4 m€)

HBP - HPC (25 m€)

**ADVANCED
COMPUTING**

Centres of Excellence
(40 m€)

Clouds for
Science

SMEs
Services, Competence
Centres

Network of SME
competence centres
(2 m€)

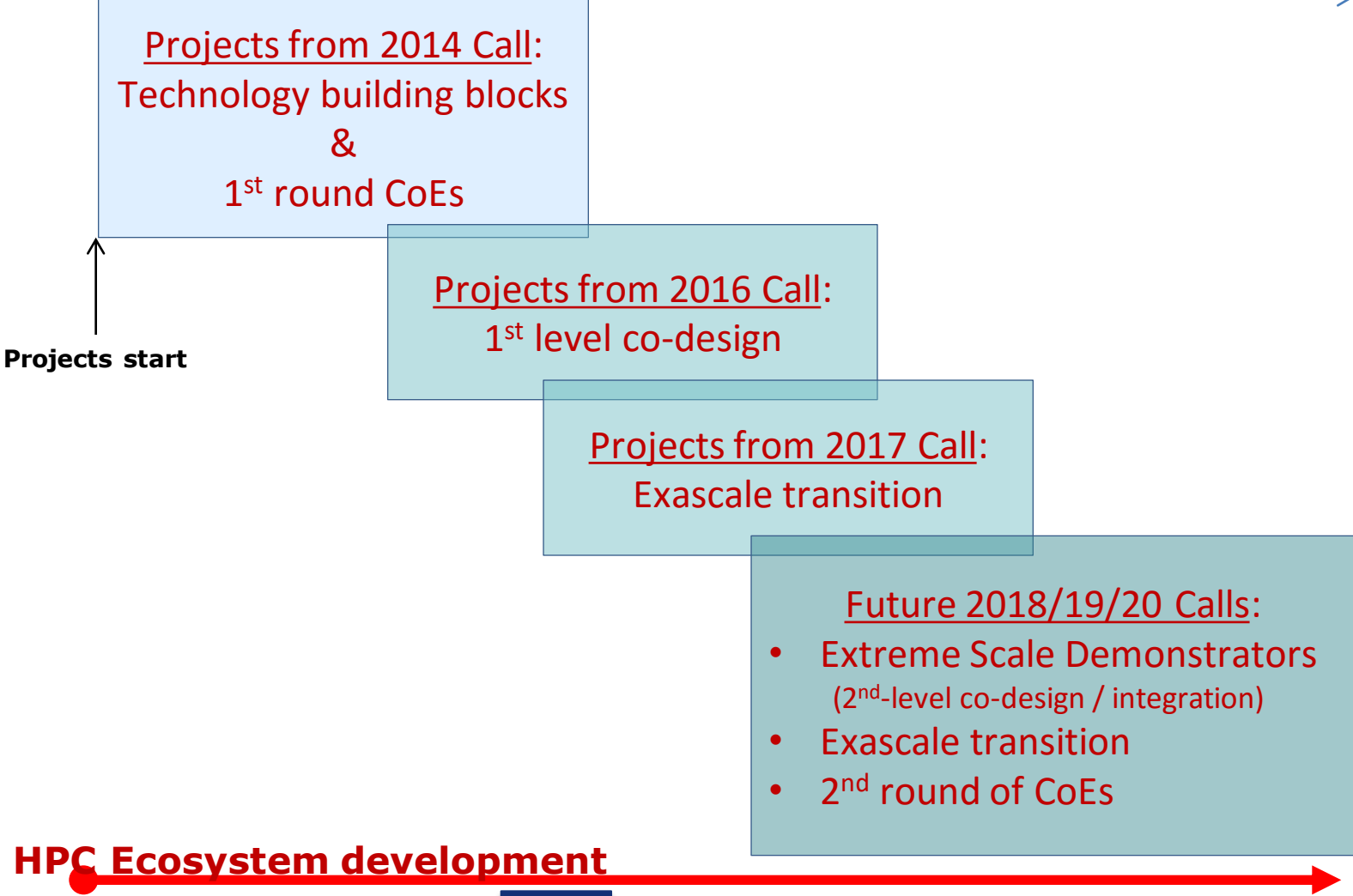
CLOUDS

HPC PPP timeline in H2020 (indicative)

Exascale Technologies & Applications



2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023



Projects start



"Notre ambition c'est que d'ici 2020, l'Europe se classe dans le top 3 mondial du calcul à haute performance."

"Our ambition is that until 2020, Europe is in the world top 3 of high performance computing."

27 October 2015

European Commission President
Jean-Claude Juncker



- **Ambition:** maximise the growth potential of our European Digital Economy and give Europe a lead in the data-driven economy.
- The initiative comprises:
 - the **European Open Science Cloud**, a trusted, open environment for the scientific community for storing, sharing and re-using scientific data and results;
 - an underpinning **European Data Infrastructure** combining world-class supercomputing capability, high-speed connectivity, leading-edge data storage and interfaces for cloud-based service delivery.
 - widening the use of the European Cloud infrastructures not only for scientists but also for other users from industry (including SMEs) and the public sector.
- HPC is at the heart of this ambitious initiative that would place the EU among the world's top supercomputing powers.



European
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Thank you for your attention!

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

ec.europa.eu/horizon2020-hpc

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