



High Performance Computing

European timeline overview

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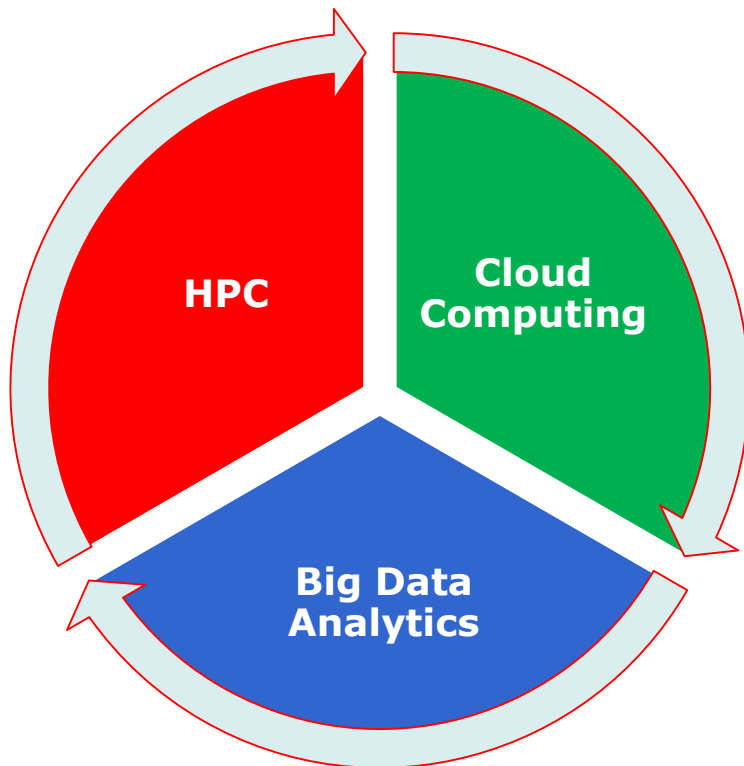
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- **Acquisition** (in 2020-2021) of 2 operational **pre-exascale** and (in 2022-2023) two full **exascale** machines (of which one based on European technology)
- **Interconnection and federation** of national and European HPC resources and creation of an HPC and Big Data service infrastructure facility
- **Demonstrating and testing** technology performance towards exascale through scientific & industrial compute-intensive applications

Aim: Build a world-class European High Performance Computing (HPC), Big Data (BDA) and Cloud Ecosystem

Enabled by the Convergence of 3 big technologies



- Major investments so far both at MS and EU level [FP7, H2020]
- Numerous research players (academia and industry)
- HPC and Big Data PPPs, PRACE, GEANT, etc.

HPC/EDI: EU investments



FET & LEIT Calls: technology development, integration, pilot test-beds and applications

- Technology development (low-power processor, SW, applications)
- Integrating and co-designing extreme scale systems

**HPC – Cloud – BDA
Ecosystem development**

Two pre-exascale

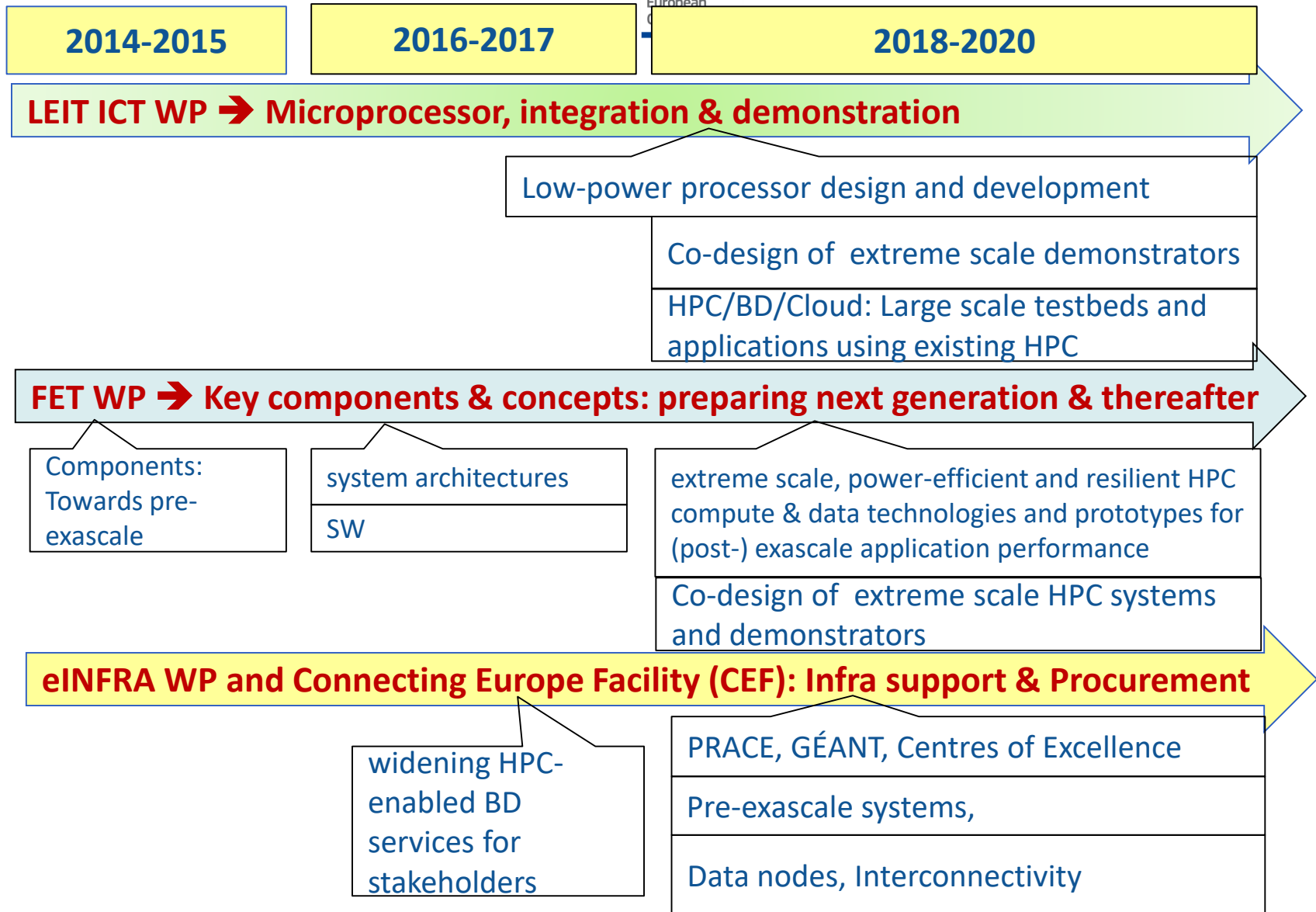
Two exascale

Infrastructure/CEF calls

- Centres of Excellence, Ecosystem development
- Procurement and services for EDI/HPC infrastructures (exascale, big data nodes, interconnection) and use widening



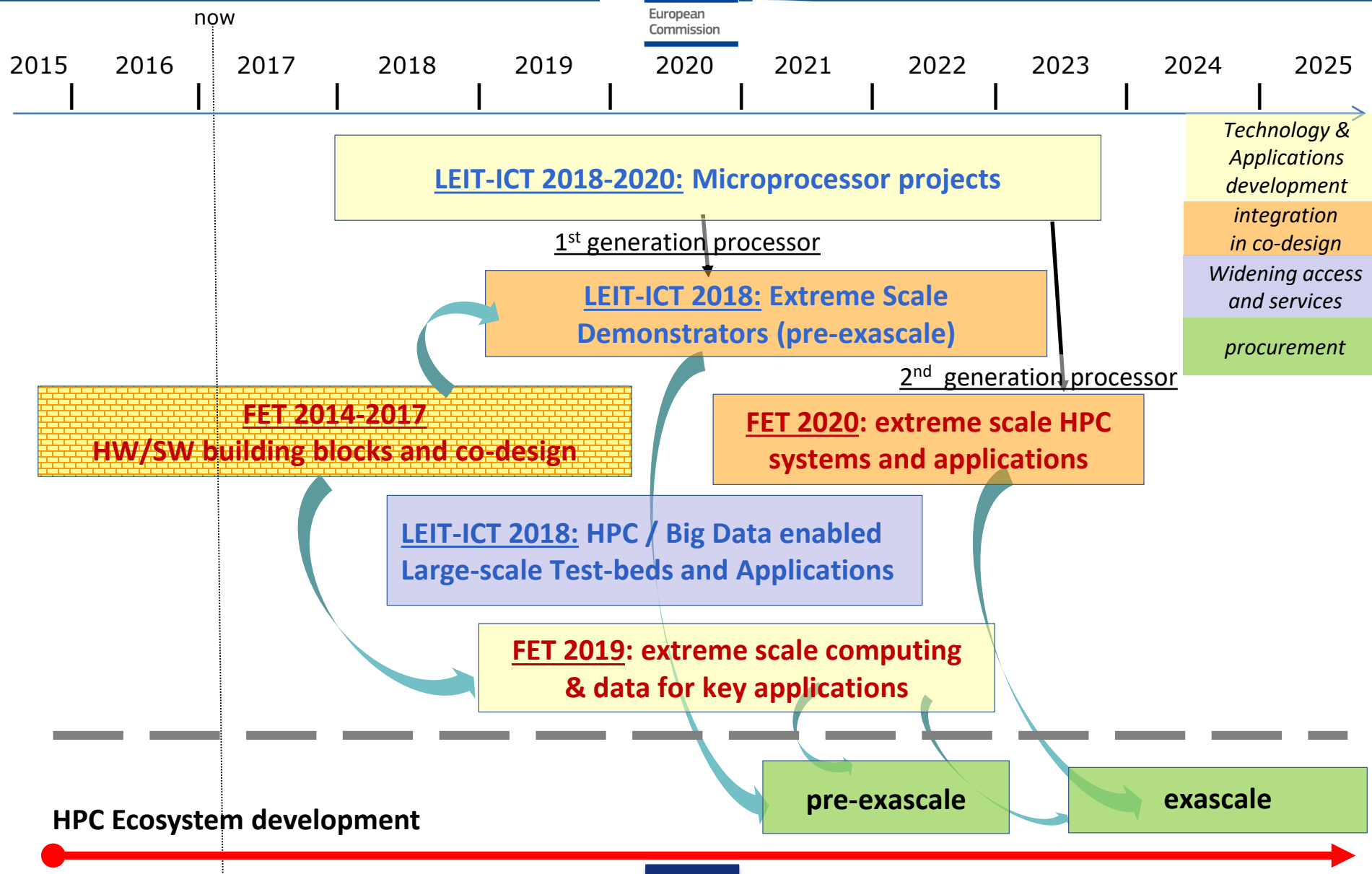
HPC/EDI in Horizon 2020 Work Programmes



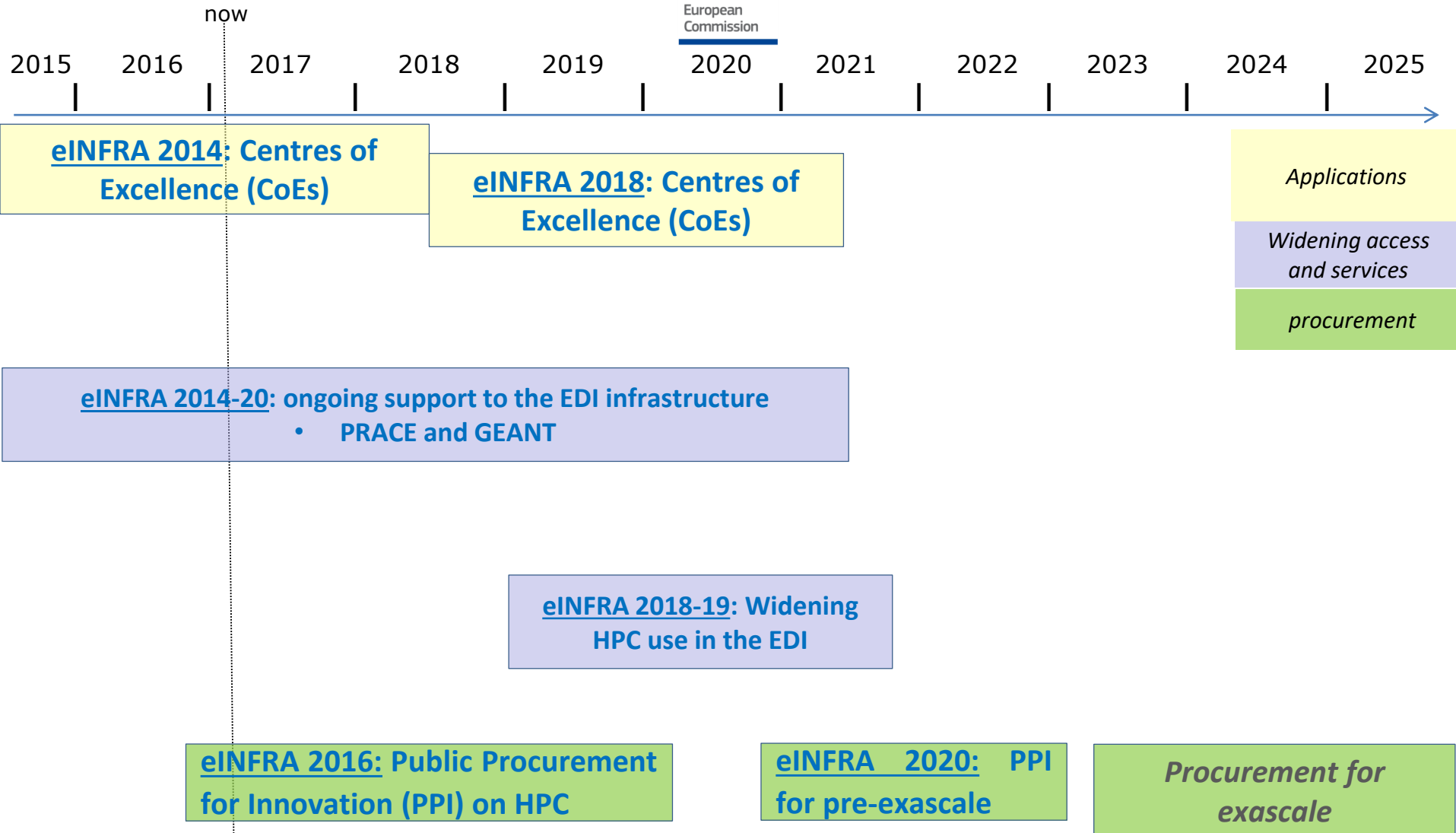
HPC timeline LEIT/FET (indicative)



subject to discussion with committees



HPC timeline eINFRA (indicative)





An articulated implementation to realise the political ambition

- *Clear roadmap and timeline*
- *Coordinated actions using all mechanisms of H2020*
- *Creating and covering the full HPC ecosystem*
 - Technology development
 - Co-design and integration
 - Applications and test-beds
 - HPC infrastructure development
 - Widening use of HPC
- *Further strong cooperation with MS*
- *Governance structure on HPC/EDI (Rome 23/03)*



European
Commission

THANK YOU!