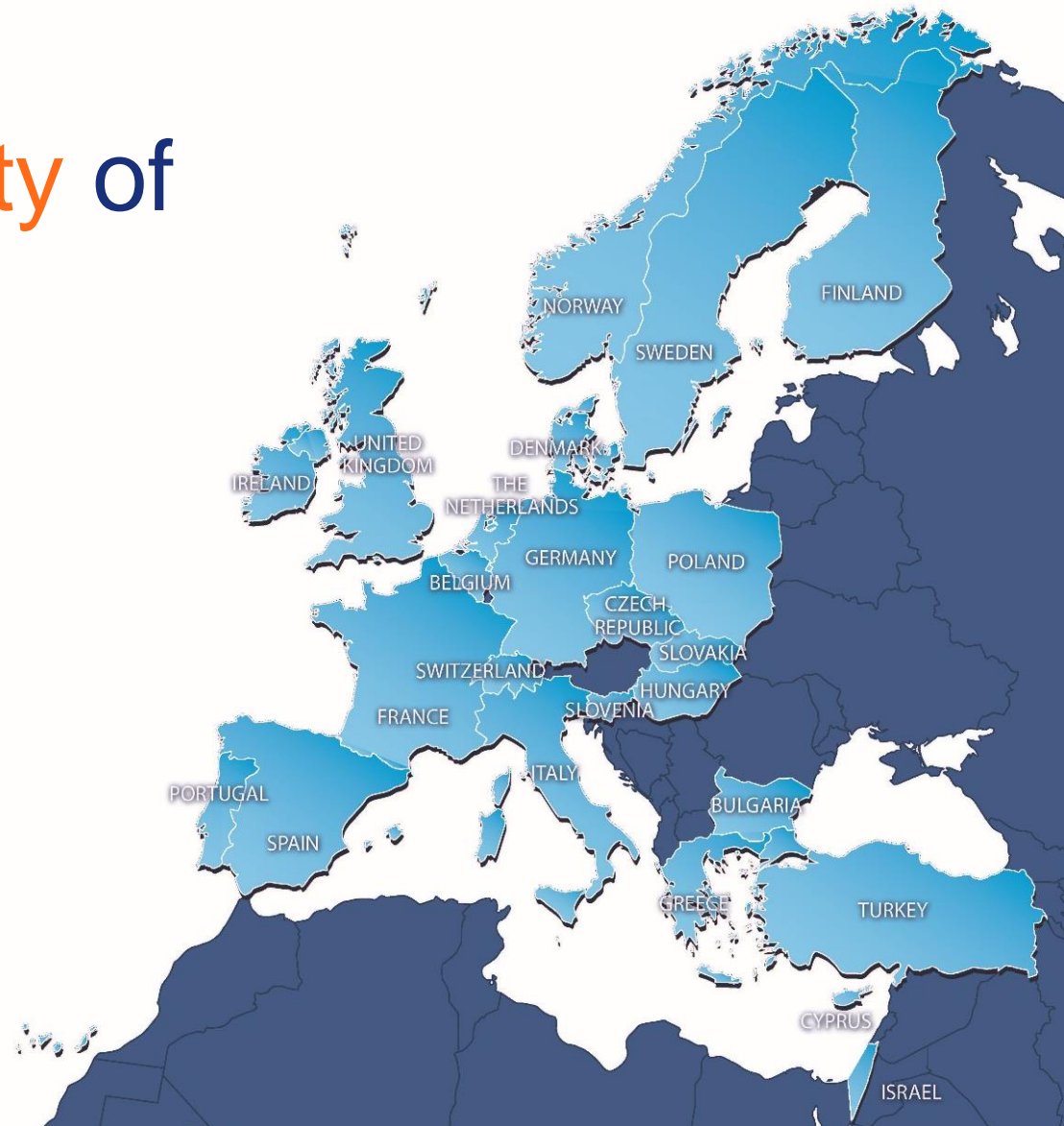




Long-term sustainability of PRACE as an ESFRI Landmark

Serge Bogaerts
PRACE Managing Director

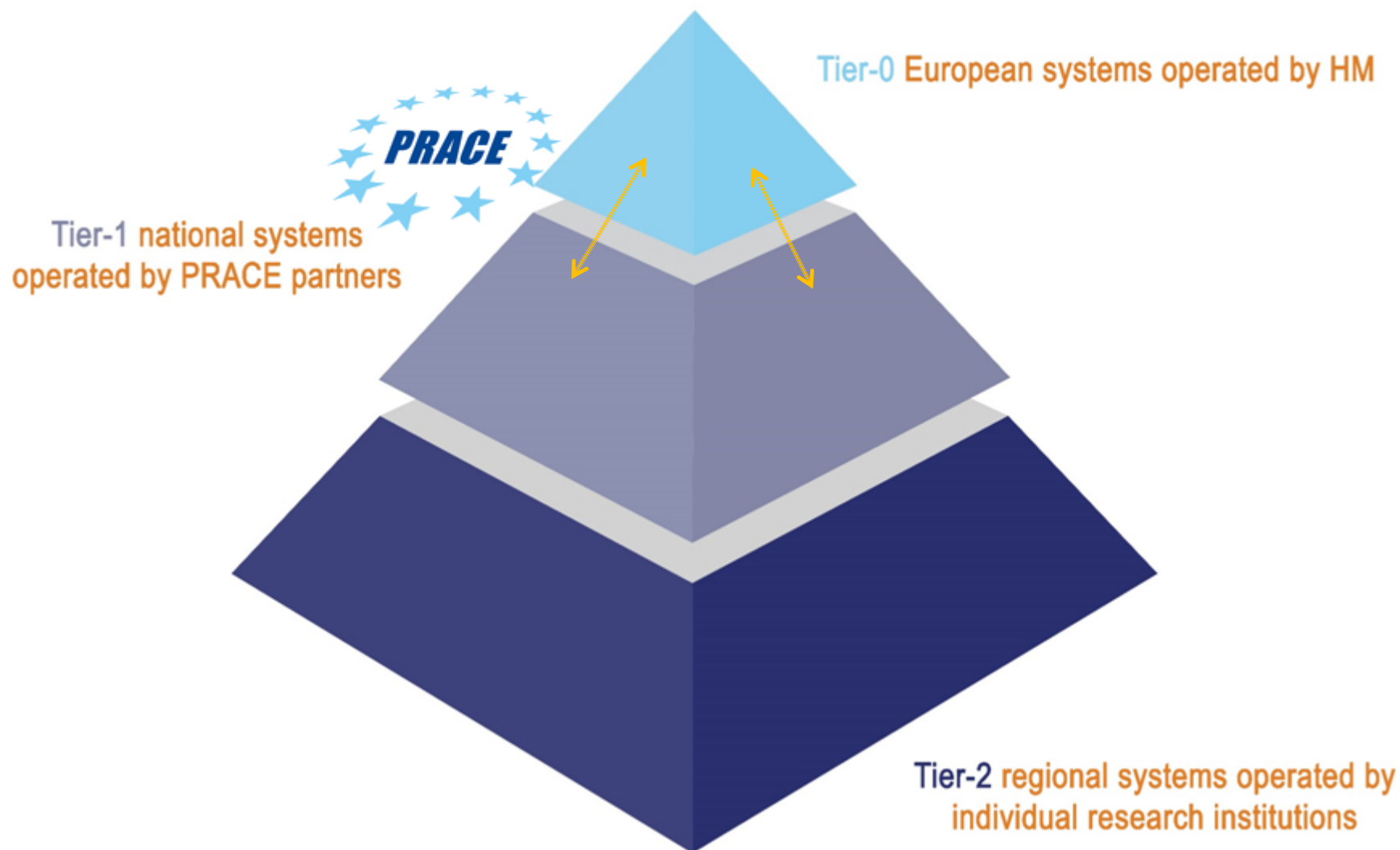


Partnership for Advanced Computing in Europe

- ❑ Open access to best-of-breed HPC-systems to EU Scientists
- ❑ Variety of architectures to support the different scientific communities
- ❑ High standards in computational science and engineering
- ❑ Peer review on European scale to foster scientific excellence
- ❑ Robust and persistent funding scheme for HPC supported by the national governments and the EC
- ❑ Support the development of IPR in Europe by working with industry and public services
- ❑ Collaborate with European HPC industrial users and suppliers



HPC Pyramid

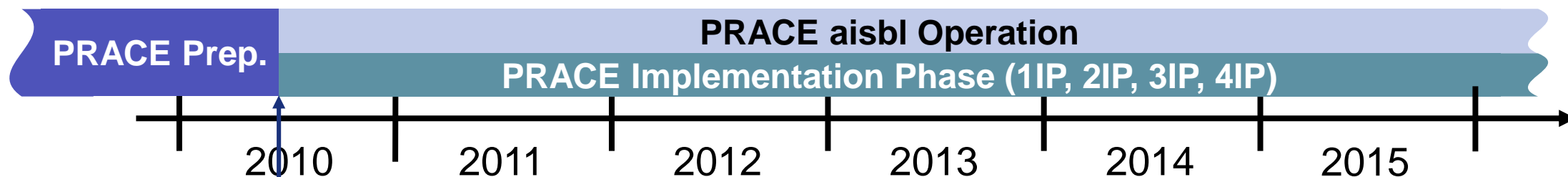
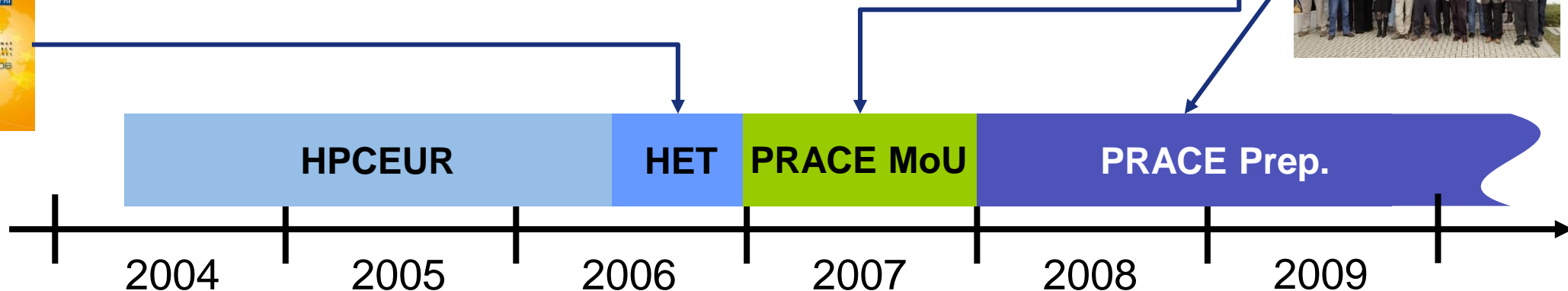


PRACE Achievements to-date

- ✓ **524** scientific projects enabled
- ✓ **14 000 000 000** (thousand million) core hours awarded since 2010
- ✓ Of which **63%** led by another PI nationality than the HM
- ✓ R&D access to industrial users with **>50** companies supported
- ✓ **>10 000** people trained by 6 PRACE Advanced Training Centers and others events
- ✓ **>60** Petaflops of peak performance on 7 world-class systems
- ✓ **24** PRACE members, including 5 Hosting Members (France, Germany, Italy, Spain and Switzerland)



PRACE history timeline





PRACE 2

Ratified on
3 March 2017



- From 2017 to 2020 with overlap with PRACE 1





PRACE 2 challenge

- ▶ PRACE 1 was a free ride
 - ▶ Compute resources provided for free by HM (400 Mio €)
 - ▶ At this time the only way to start with PRACE
- ▶ PRACE 2 to be supported/funded by all PRACE partners
 - ▶ Who wants to compute has to contribute
- ▶ VAT (exchange of services) issue
 - ▶ Impact national legal forms and associated constraints
 - ▶ Difficult to get reliable and sound advice
 - ▶ ERIC framework not appropriate as such



PRACE 2 focus

The **PRACE 2 Programme** is focused on establishing a **robust and sustainable** pan-European HPC infrastructure meeting present and future scientific, technological and economic challenges



PRACE (2) memberships

- **Hosting Members** (HMs): provide access to own Tier-0 systems as **in-kind participation** to the PRACE infrastructure
- **General Partners** (GPs): **fund** high-level support teams (**HLST**) providing tailored user support on those Tier-0 systems
- All 24 PRACE members contribute to high-value services including DECI, Implementation Projects, peer-review and communication



PRACE Members

Hosting Members

- France
- Germany
- Italy
- Spain
- Switzerland

General Partners (PRACE 2)

- Belgium
- Bulgaria
- Cyprus
- Czech Republic
- Denmark
- Finland
- Greece
- Hungary
- Ireland
- Israel
- Netherlands
- Norway
- Poland
- Portugal
- Slovakia
- Slovenia
- Sweden
- Turkey
- United Kingdom

Under application

- Luxembourg

Former members

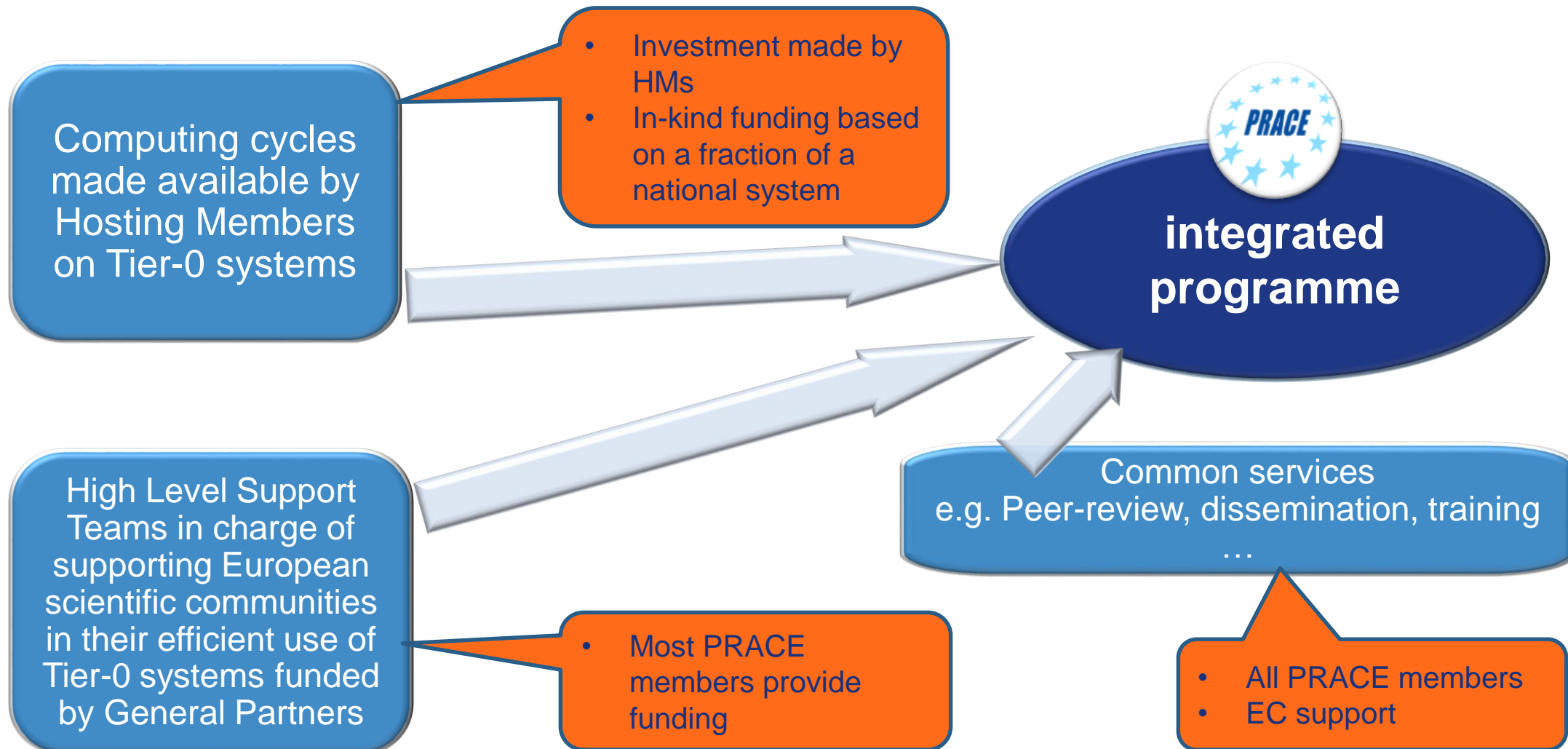
- Austria

Observers

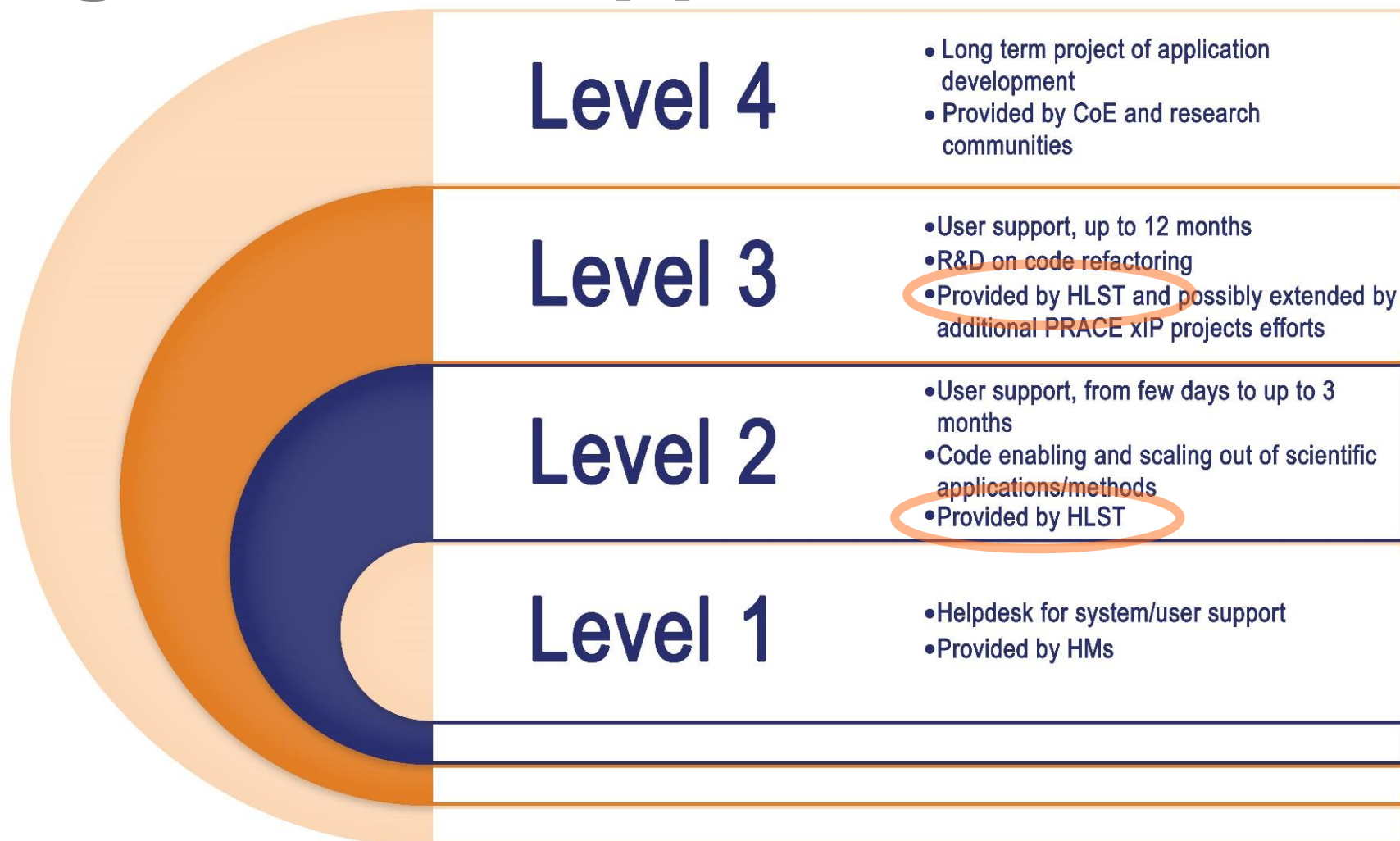
- Croatia
- Romania



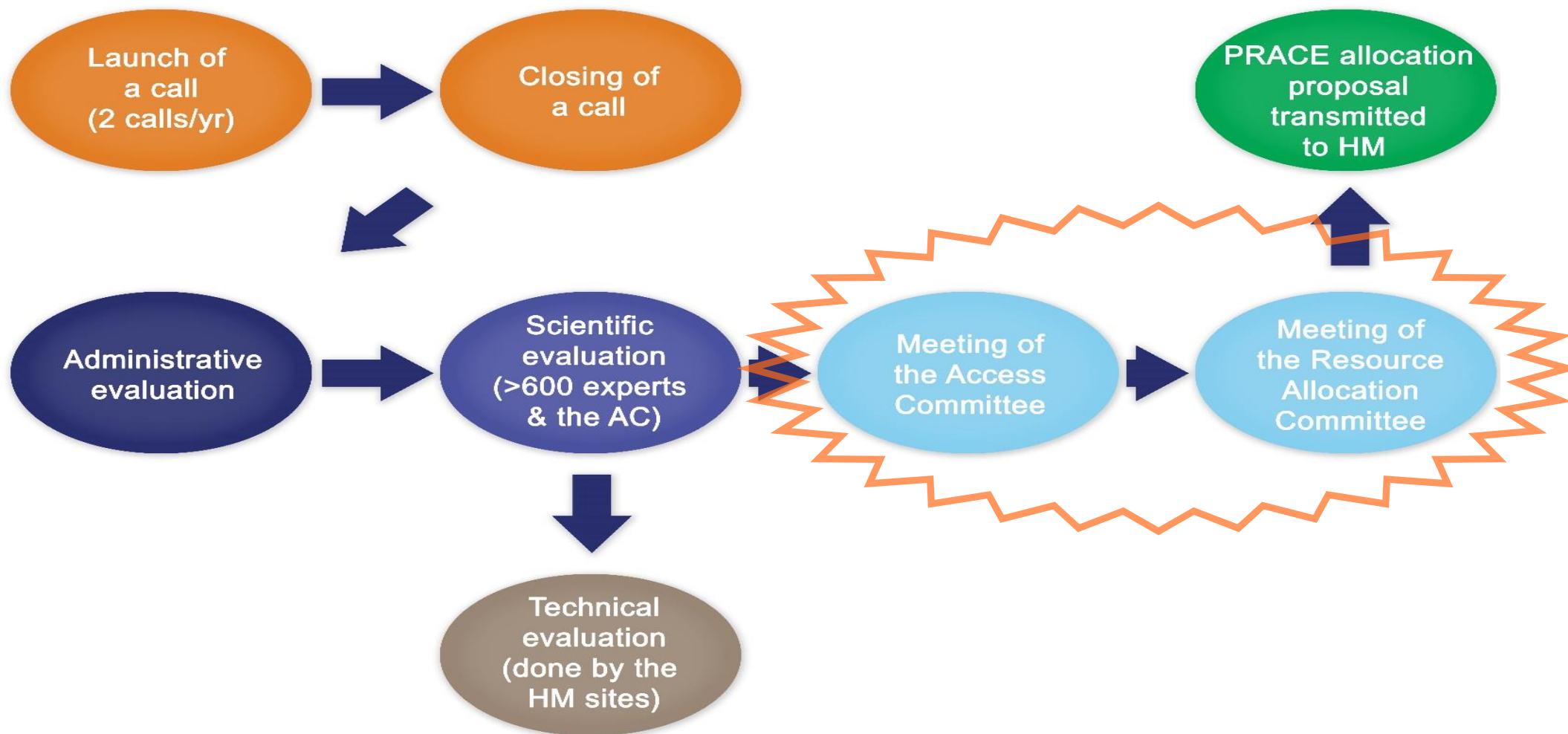
PRACE 2 key elements



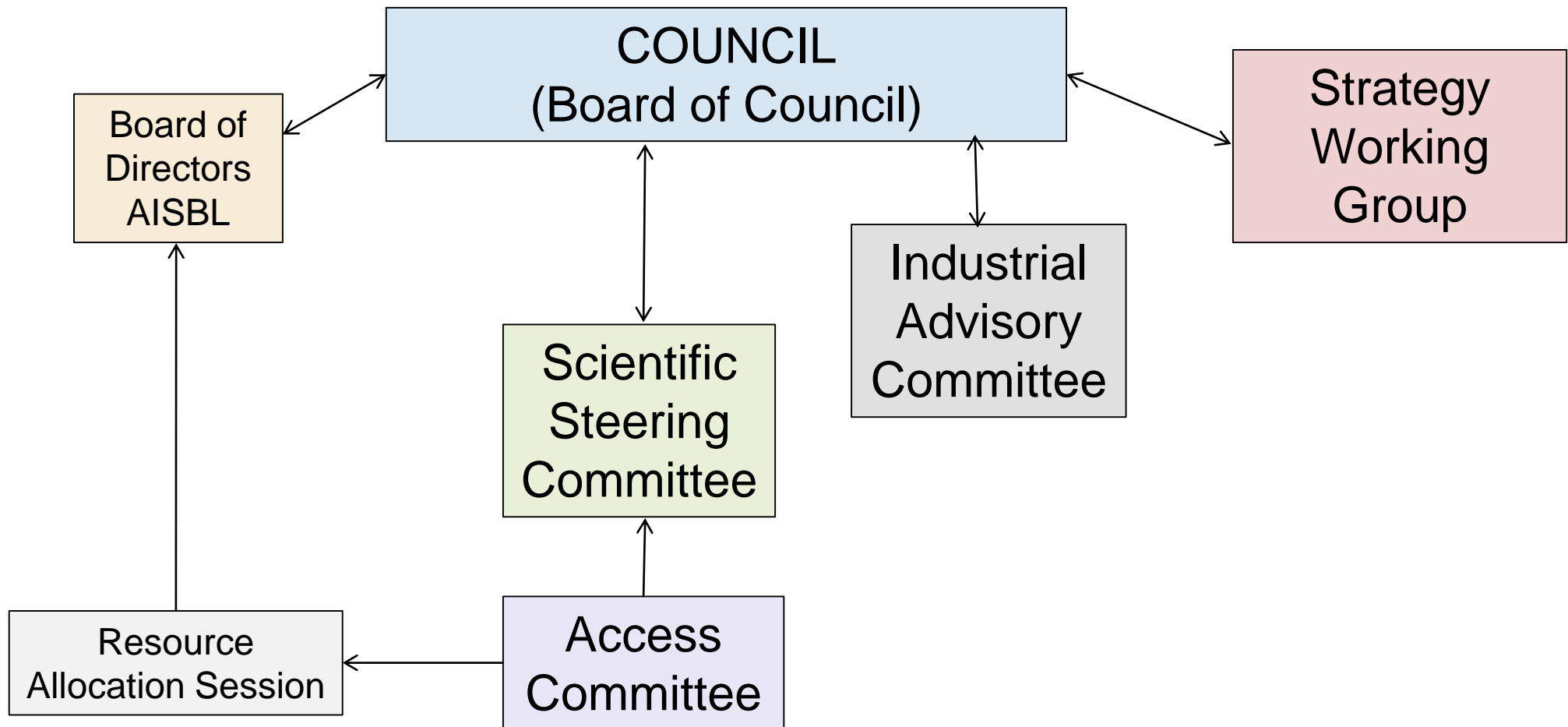
High-Level Support Teams



PRACE Peer Review Process



PRACE Governance





PRACE Current Services

Towards End-Users

Access

Tier-0 systems (open R&D)

- Project Access
1-3 years
- Preparatory Access
Type A, B, C, D

Tier-1 systems (open R&D)

- DECI Programme

Support

Application Enabling & Support

- Preparatory access Type C
- Preparatory access Type D
 - Tier-1 for Tier-0
- SHAPE
- HLST support

Training

- Training Portal
- PATC, PTC
- Seasonal Schools & on demand
- International HPC Summer School
- MOOC
- Code Vault
- Best Practice Guides
- White Papers

Communication, Dissemination, Outreach

- Website
- PR
- Scientific Communication
- Summer of HPC

Events

- PRACEdays
- SC, ISC, ICT, ...

Operation & Coordination of the common PRACE Operational Services

- Service Catalogue
- PRACE MD-VPN network
- Security

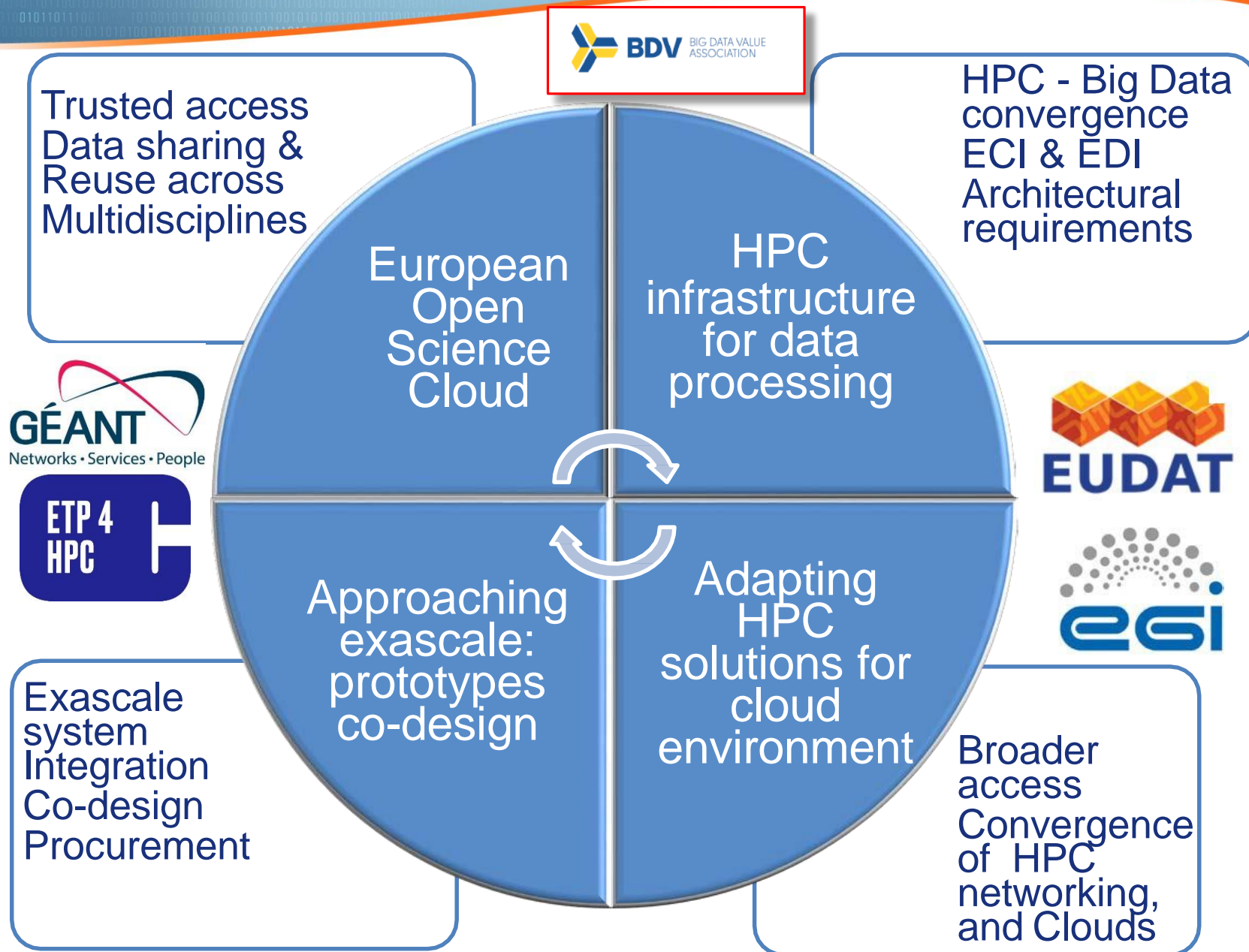
HPC Commissioning & Prototyping

- Technology Watch, PCP activity
- Infrastructure WS
- Best Practices
- UEABS

Towards PRACE Partners

Looking ahead

e-Infrastructures in the Digital Single Market landscape



Some targets of EDI com (2016) 178 final

« The European Data Infrastructure is the combination of **world-class supercomputing** (HPC) capability, **high-speed connectivity**, **leading-edge data storage** and **interfaces for cloud-based service** delivery. High-performance ICT infrastructures are needed to manage the current and expected scale of future data flows. European **science, industry and public services** need world-class infrastructures and cloud-based services to compete and thrive in the digital economy. The EDI will provide the **right support for the European Open Science Cloud** (EOSC) »

Finally, scientific data producers and users must be able to **re-use data** and to **use advanced analytics techniques**, ...

« EDI will work in **combination** with the national and regional, scientific and public data centres »

« The European Data Infrastructure will contribute to the digitisation of industry, to **develop European platforms for new, strategic applications** (e.g. medical research, aerospace, energy) and to foster industrial innovation. It will **widen the user base of HPC**, providing easier access via the Cloud both to researchers in key scientific disciplines and to the long tail of science »



PRACE Perspectives in EDI

- ▶ Build up on PRACE success so far
- ▶ Extend services
 - Towards a data-centric approach
 - Enhance integration of the Tiers
 - Enhance services towards industry and extend to public sector
- ▶ Further federate efforts
 - European Commission & Member States
 - Develop appropriate governance



THANK YOU FOR YOUR ATTENTION

www.prace-ri.eu