



PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE

PRACE's shift to a user-centric association

What does this means?

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Managing Director



PRACE Legacy

- ▶ Result of collaboration initiatives from 2004, **for nearly 20 years**
- ▶ PRACE, the Partnership for Advanced Computing in Europe, is a not-for-profit organisation incorporated in Belgium (AISBL) in 2010
- ▶ Over past decade, members, each representing one of the currently 25 member countries, coordinated their efforts to provide an HPC infrastructure to **enable high-impact scientific research and innovation** across all disciplines and industrial applications, thereby enhancing European scientific, technological and economic competitiveness for the benefit of society



PRACE Legacy (cont'd)

- ▶ Chiefly distributed resources on the Tier-0 world-class supercomputers of HM, on the basis of a globally recognized and **transparent peer-review process** based on scientific excellence
 - ▶ Distributed more than **32.5 billion core hours** to **947 scientific projects**
- ▶ Mainly through its EU-funded PRACE-IP projects
 - ▶ Promoted excellence in computational science and engineering by developing knowhow and expertise, e.g. via training, where **25.000 persons were trained**
 - ▶ Application support, technology watch, etc, across Europe
- ▶ Collaborating with European HPC industry and the promotion of innovation by supporting industrial HPC users in particular SMEs
- ▶ PRACE paved the way to co-ordinated HPC eco-system in Europe



Evolution of the European HPC Landscape

- ▶ Establishment of EuroHPC Joint Undertaking (JU) in 2018
 - ▶ JU to develop a World Class Supercomputing Ecosystem in Europe
 - ▶ PRACE ensured access to EuroHPC resources transparent for the users
 - ▶ PRACE as just another actor or service provider
- ▶ End of provision of national resources
 - ▶ PRACE 2 Programme ended 31 March 2023 (after several extensions)
→ No national resources to be distributed by PRACE at this point in time
- ▶ Funding programmes run by EuroHPC
 - ▶ Actions (training, users support, ...) split across several calls (≠ PRACE-xIP projects)
 - ▶ Some actions through service procurement
 - ▶ Not all services by PRACE and its partners covered so far



From Infrastructure to Association of Users and HPC Centres

- ▶ PRACE 3 transforms PRACE into a user association
 - ▶ Acknowledging the gap in the new landscape to support users (Academia & Industry)
 - ▶ Independent and beyond political frontiers
 - ▶ Acknowledging the Infrastructure and Political leadership is with EuroHPC which PRACE wants to support as a successful and performing infrastructure
- ▶ PRACE 3 Pillars & Principles
 - ▶ PRACE adopts a user-centric approach

Collects feedback and expectations from users to allow HPC Centres to adapt their HPC-HPDA-AI-QC facilities to the needs of their users
 - ▶ PRACE empowers User Communities

Integrates the active involvement of user communities, scientific and industrial, within a transparent governance model enabling them to define and drive PRACE activities
 - ▶ PRACE provides support for best utilization of Europe HPC Infrastructure

Support users (training, application support, co-development ...) towards an efficient use of the infrastructure
 - ▶ PRACE fosters International Collaboration

Continues to develop collaboration beyond Europe



General PRACE 3 Content structure

- ▶ Content of PRACE 3
 - ▶ Long term perspective, ambitious outlook (open possible options)
 - ▶ Feedback from current and future members following our bottom-up principle
 - ▶ Evaluate feasibility and fix priorities and refine the definition of services
 - ▶ Preparation of corresponding budget and fee for 2024 and plan beyond
 - ▶ Assess PRACE 3 will have critical mass to start with
- ▶ Service-oriented approach
 - ▶ Serve public interest with a (respectful) business management style
- ▶ Two categories of services
 - ▶ Core Services funded by membership fees
 - ▶ Complementary Services funded by projects or contracts



Core Services – Started in 2024

► PRACE as a representative of User Communities

- ▶ New edition of the *Scientific and Innovation Case for HPC in Europe*
- ▶ Maintain close relationships with other stakeholders in Europe
 - ▶ *Make the voice of users heard when necessary*
→ *User Forum Position Paper*
 - ▶ Collect information and prepare methodology for HPC+ impact assessment
 - ▶ Remain present and collaborate beyond Europe

► Information to and contact with the communities

- ▶ PRACE Ada Lovelace Award for HPC and PRACE Excellence Award
- ▶ Maintain PRACE website and preserve legacy
- ▶ Be present at events
- ▶ Organise PRACE Intersection Seminar

► Networking between the members

- ▶ Opportunity watch and inclusive relevant consortium identification



Complementary Services – Started in 2024

- ▶ Peer Review services
 - ▶ Platform for EuroHPC
- ▶ EU funded projects
 - ▶ CASTIEL 2 (linked to nCC and CoE)
 - ▶ Inno4Scale
 - ▶ (HPCTRAIN)
- ▶ Identified 2 services to develop
 - ▶ Platform for collaborative generation of synthetic data for foundation models
 - ▶ Transnational access to resources and access to prototypes

Scientific and Innovation Case

HPC Eur

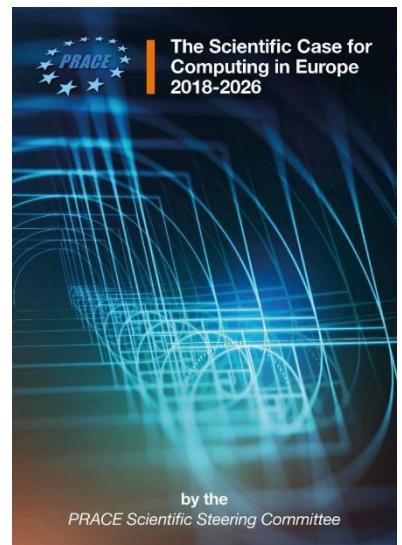
European High Performance Computing Initiative

- ▶ PRACE (and precursors, e.g. HET) has a long tradition in creating the European Scientific Case
- ▶ Scientific Case is instrumental for ensuring future funding for HPC
- ▶ PRACE decided to be more inclusive and integrate more and better industry → Scientific and Innovation Case
- ▶ A kick off workshop was organised on 20 October 2023, Paris
- ▶ Based on the discussion a draft TOC with specific topic was established
- ▶ Important aspects:
 - ▶ AI& machine learning, LLM
 - ▶ Data
 - ▶ Links to RI, EOSC

THE SCIENTIFIC CASE

FOR A

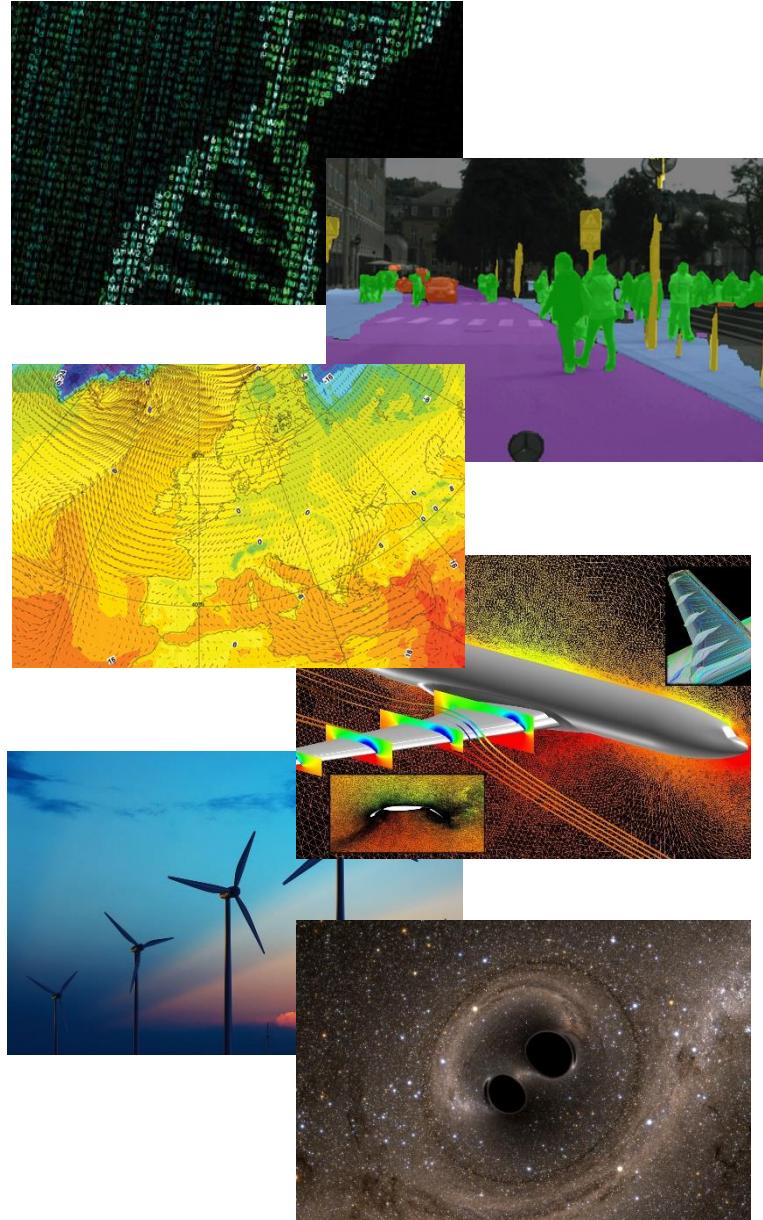
EUROPEAN SUPER COMPUTING INFRASTRUCTURE



Scientific and Innovation Case

► Topics

- ▶ *Fundamental Sciences*
- ▶ *Life Sciences*
- ▶ *Climate, Weather and Earth Science*
- ▶ *Energy – Net-zero Strategy*
- ▶ *Materials*
- ▶ *Engineering & Industrial applications*
- ▶ *Social Sciences and Humanities*
- ▶ *HPC challenges*
 - ▶ *Services for RI*
 - ▶ *Complexity & Data*
 - ▶ *AI - next generation computing*
 - ▶ *Beyond exascale*



Scientific and Innovation Case

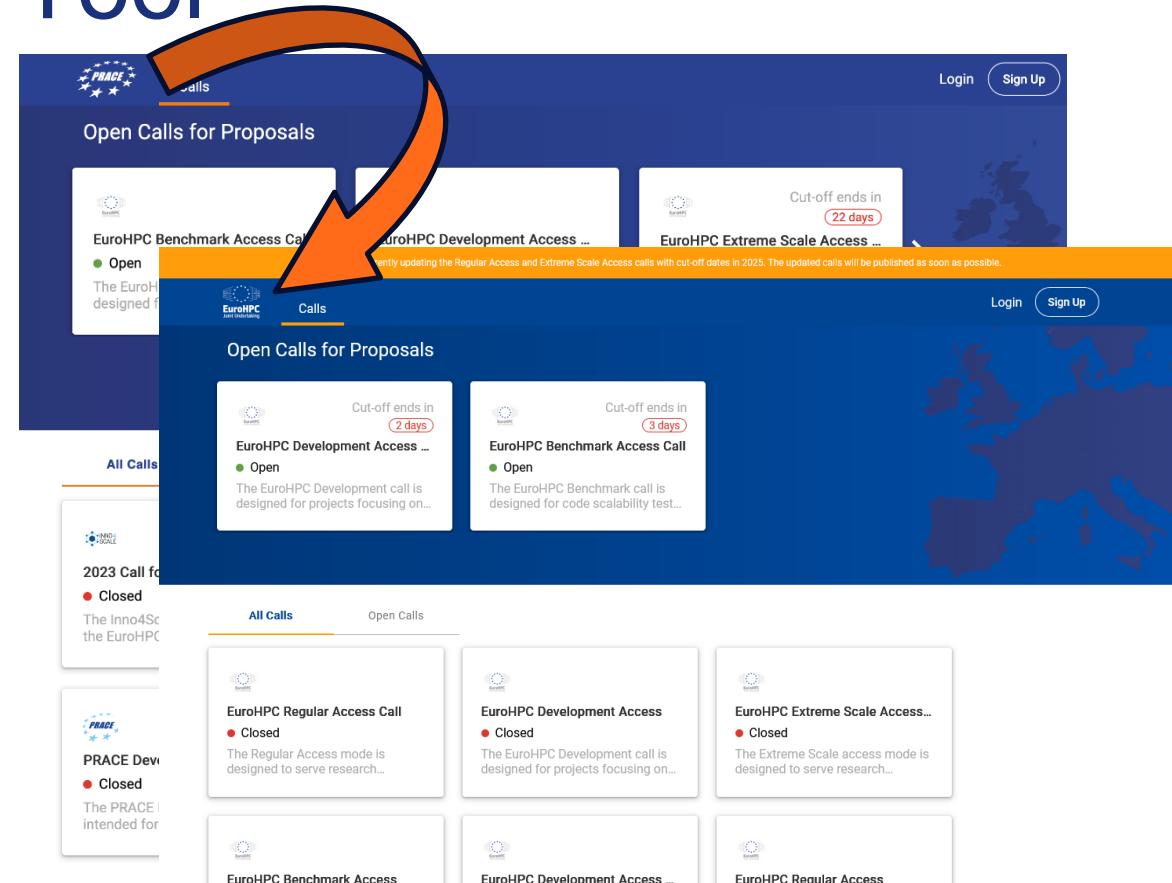
- ▶ Editor in Chief: Prof. Hartmut Wittig, University Mainz
- ▶ Panel Chairs

Domain	Panel Chair	Affiliation
Climate, Weather and Earth Sciences	Boris J.P. Kaus	Johannes-Gutenberg-University Mainz
Energy – Net-zero Strategy	Frank Jenko	Max Planck Institute for Plasma Physics
Engineering and Industrial Applications	Simone Hochgreb	University of Cambridge
Fundamental Sciences	Luciano Rezzolla	Goethe University Frankfurt am Main
Life Sciences	Erik Lindahl	Stockholm University
Materials	Matej Praprotnik	National Institute of Chemistry, Ljubljana
Social Sciences and Humanities	Simon Scheidegger	University of Lausanne

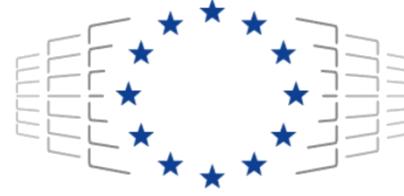
- ▶ Timeline and other information
 - ▶ See <https://prace-ri.eu/prace-research-infrastructure/scientific-and-innovation-case/>

PRACE Peer Review Tool

- ▶ PRACE operates the peer review tool for EuroHPC and other projects / initiatives
- ▶ A contract with EuroHPC JU was signed to support the operation and further development of the tool on 8 February 2024
 - ▶ Now their own instance operated by PRACE
 - ▶ <https://access.eurohpc-ju.europa.eu/>



PRACE and EuroHPC



- ▶ Regular meetings with PRACE Council Board and EuroHPC leadership (approx. 1 meeting per month)
 - ▶ Keep organisations informed
 - ▶ Update on ongoing activities
 - ▶ Discuss different positions
- ▶ Position Paper on User Forum
 - ▶ PRACE Council discussed the best way to set up an independent user forum
 - ▶ A sound position Paper on the establishment of an independent user forum for the European HPC ecosystem was approved by the Council
- ▶ Click on picture to [get the paper](#)



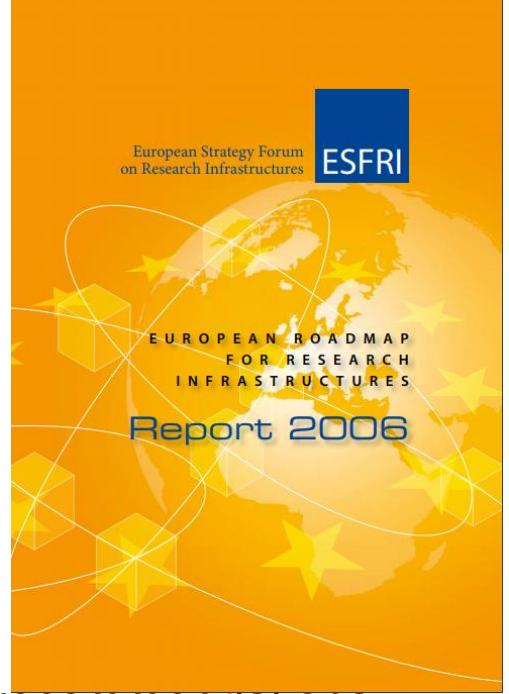


Industry Section – Services for Industry

- ▶ Industry Section of Council very active
- ▶ Discussion of services for industrial users
 - ▶ Dedicated workshops
 - ▶ Develop of a user-friendly portal
 - ▶ Skill development
 - ▶ Sharing use cases and success stories

ESFRI Monitoring Process

- ▶ PRACE (EU-HPC) is on the ESFRI list since 2006
- ▶ PRACE is landmark since 2016
- ▶ Evaluation 2024: Landmark monitoring process
 - ▶ Questionnaire was submitted in time 3 May 2024
 - ▶ Hearing on Monday 23 September 2024
 - ▶ Panel report received Sunday 17 November 2024 for factual checking
 - ▶ Consolidated monitoring report to be approved later this year
 - ▶ Some ESFRI, including PRACE, expected to be asked to answer recommendations
- ▶ Planning actions to remain an ESFRI
 - ▶ Re-open distribution of resources (community-based, early career, trans-national, ...)
 - ▶ Benchmark and prototyping access (strong Academia-Industry-Centre collaboration)
- ▶ PRACE as an **interface between computing & data (EOSC)**
 - ▶ To be elaborated



PRACE and the e-Infrastructure Assembly

- ▶ PRACE engaged with EGI, GEANT, OpenAIRE and EUDAT in the new e-Infrastructure Assembly
- ▶ MoU signed on 3 October 2024
- ▶ e-Infrastructure Assembly
 - ▶ Exchange and discuss between e-infrastructures
 - ▶ Discuss and inform EC DG RDT
 - ▶ Discuss and exchange with EOSC



PRACE Awards

► PRACE Ada Lovelace Award for HPC

Annually presented to a female scientist who makes an outstanding contribution to and impact on HPC in Europe and the world, and serves as a role model for women who are at the start of their scientific careers

2024 Awardee : Nastasia Mauger



► PRACE HPC Excellence Award

For outstanding scientific advances through the usage of high-performance computing, recognises an outstanding individual or team for ground-breaking research, through the usage of high-performance computing, that leads to significant advances in any research field

2025 Awardee: Luciano Rezzolla



Dissemination Activities 2024

► PRACE @ ISC24

- ▶ Small Booth with information on PRACE 3
- ▶ BoF session: HPC Ecosystem with more than 200 participants

► PRACE @ SC24

- ▶ Booth with information on PRACE3 and mini presentations for HPC EU topics
- ▶ BoF session: HPC Ecosystem, focus on training





PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE

PRACE Intersection Seminar

- ▶ At *Fondation Universitaire* in Brussels
- ▶ Presentation of the work on the update of the Scientific and Innovation Case
- ▶ Workshop on PRACE as a service for users
- ▶ Award ceremony





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FENIX 2024 Call for Proposal



- ▶ FENIX partners (CEA, JSC, ...) offering resources (cloud, storage ≠ EuroHPC resources)

- ▶ PRACE is organising the peer review process, like ICEI projects



Core Services

► PRACE as a representative of the user communities

- ▶ Publish HPC-HPDA-AI-QC Scientific & Industrial Cases
 - ▶ *The users perspective – Formerly PRACE Scientific Case*
- ▶ Recommendations on access mechanisms
 - ▶ *Readability and efficiency of review process*
- ▶ Recommendations on support services or programmes
 - ▶ *Training, applications support, ...*
- ▶ Recommendations on architecture / technology availability

Structured collection
of user communities
feedback

- ▶ Analysis of HPC-HPDA-AI-QC impact
 - ▶ *Achieved scientific excellence and innovation incl. sound methodology dev^{ment}*
- ▶ Maintain close relationship with all European HPC stakeholders
 - ▶ *EuroHPC, Centres of Excellence, Competence Centres, ...*
 - ▶ *European research infrastructures , ...*
 - ▶ *Other European initiatives*
- ▶ Maintain close relationship with actors beyond Europe (International collaboration)

Core Services (cont'd)

► Communication and dissemination activities

- ▶ Recognise and promote Excellence & Achievement in HPC
 - ▶ *Maintain and develop awards (Ada Lovelace and HPC Excellence)*
- ▶ Collect and structure information on HPC-HPDA-AI-QC in Europe
 - ▶ *Serve as single point of information/library, for example*
 - ▶ Fact sheets on new systems
 - ▶ News from the communities, systems, calls also international
 - ▶ Job ads
 - ▶ Views from industry associations
 - ▶ Community life (appointments, obituary...)
- ▶ Networking platform
 - ▶ *Organise access to information depending on audience (e.g. members or not)*
- ▶ Publish information on different channels
 - ▶ *Newsletter, website & social media*
- ▶ Annual HPC conference for Science and Industry (formerly PRACEdays)
 - ▶ *Develop the PRACE Intersection Seminars (PRACE IS)*
- ▶ Journal with scientific and technical information
 - ▶ *Targeting HPC-HPDA-AI-QC and including industry*

Core Services (cont'd)

- ▶ Networking and cooperation with HPC Centres in Europe
 - ▶ Identify and promote cooperation & collaboration opportunities
 - ▶ *Collect and review call for proposals*
 - ▶ Organise workshops on selected topics of interest to users
 - ▶ Maintain up-to-date contact database
 - ▶ *Including CRM supporting activities of the Association*
 - ▶ Meeting room in Brussels for members



Complementary Services

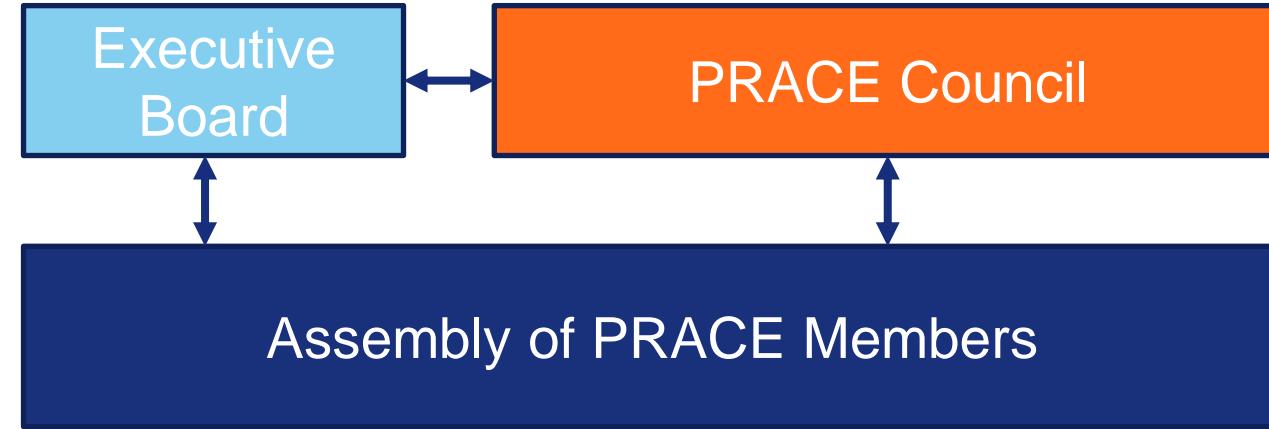
- ▶ Peer Review based services
 - ▶ Run Peer Review service (knowhow and platform) for **third parties**
- ▶ Training
 - ▶ Implement missing element of roadmap on training (or pilot prospective elements)
 - ▶ Define and **maintain high-quality** training standards
 - ▶ Deliver training as fit for user needs
- ▶ Efficient use of leadership computers and readiness for innovative computing technologies
 - ▶ Forward-looking software solutions for efficient use of leading HPC systems
 - ▶ Benchmarking (e.g. on *proxy applications* defined by Industry)
- ▶ Defining & designing demonstrators and testing of new technologies
- ▶ Other activities identified by the PRACE Assembly



Goals for 2025

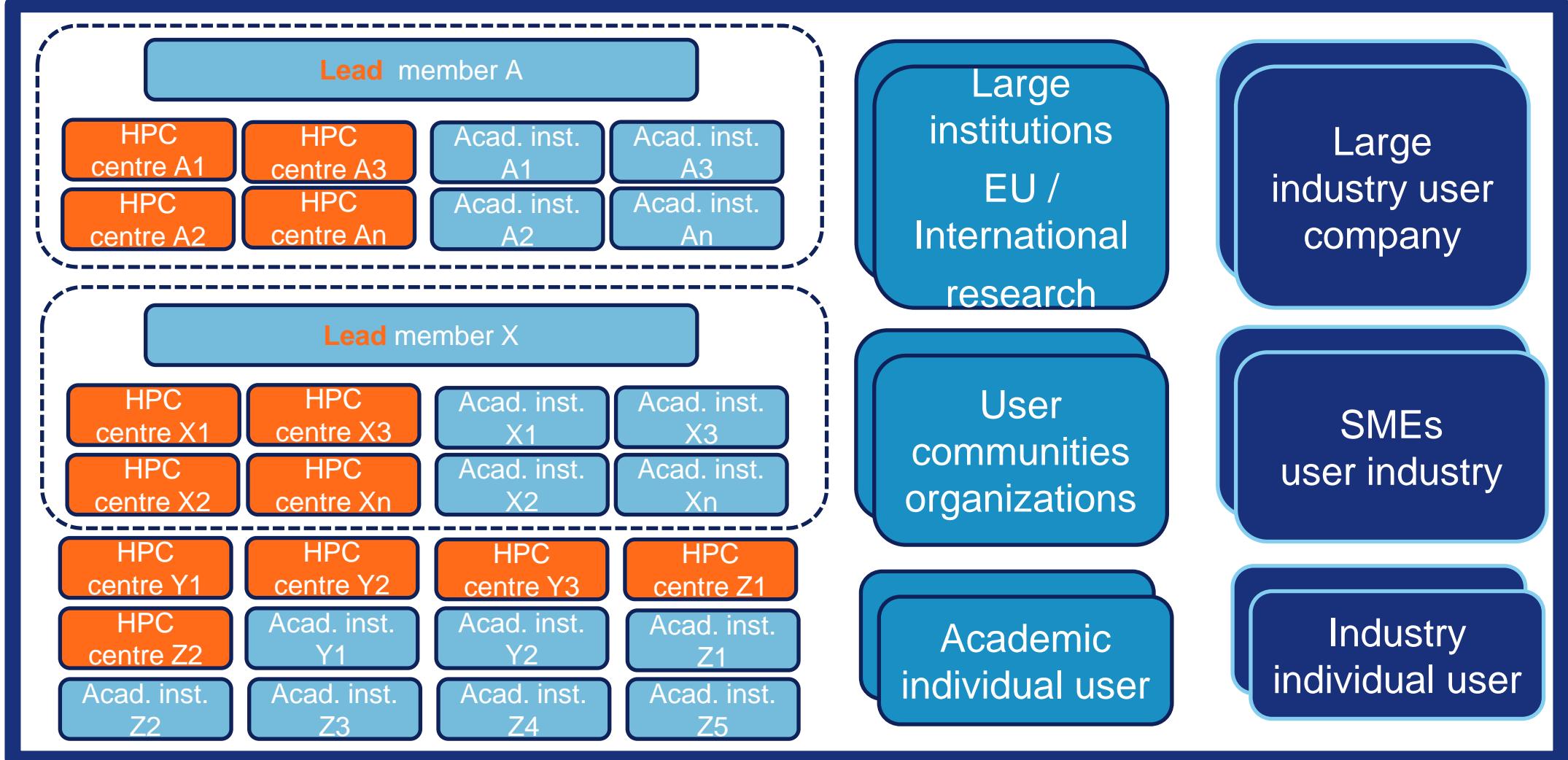
- ▶ Finalization of the Scientific and Innovation Case
- ▶ Development of industry services
- ▶ Development of access to resources and for testing new technologies, connected with remaining an ESFRI landmark
- ▶ Recruitment of members targeting financial stability of PRACE

Governance structure = Two-tier structure



- ▶ Assembly = supreme *deliberative* body of PRACE (an assembly of people for the purpose of unhurried consideration and discussion)
- ▶ Council = operative decision-making body steering the actual actions and programmes of PRACE
- ▶ Executive Board = day-to-day management

PRACE Assembly of Members



Council

HPC centres / HPC
management
organizations
representation

(≤10)

Industry Section
(≤10)

Industry
Large institutions

Industry users

+ 1 External

Scientific Section
(≤10)

Academic institutions

Scientific Community

EU Research
Organisations
Large institutions
Representatives

Council

► Representative

- ▶ Representative of the Assembly but not directly related to any given membership
- ▶ Representative of the communities PRACE supports, also in their diversity, with members that are recognised as authoritative by their peers

► Size

- ▶ Maximum 30 members, distributed equally amongst the HPC Centres, the Scientific, and the Industry Sections + 1 external member (outsider of the HPC community)

► Appointed by the Assembly

- ▶ Rules to ensure balanced representativity across the members categories and beyond (emerging communities) but also against other criteria (gender balance, geographic spread, type of actor / community, renown, ...)
- ▶ Max 2 consecutive terms; each term max 2 years and/or annual replacement of 1/3 of the Council each year



Where are we in the live of PRACE 3?

- ▶ The Third Phase of PRACE has started
 - ▶ Amended Statutes approved on 18 September 2023 (50th Council)
 - ▶ *New Statutes published to the Annex of the Belgian Official Gazette on 14 Feb 2024*
 - ▶ First Assembly Meeting in the new format on 30 Jan 2024 + 2nd on 13 Mar 2024
 - ▶ *Listing members intending to join (stay)*
 - ▶ *Approval of the content of PRACE 3 for 2024*
 - ▶ *Approval of 2024 Budget and membership fees*
 - ▶ *Approve Council composition*
- ▶ Memberships
 - ▶ 34 institutional (10 Lead, 7 Large, 3 Small, 14 Associated)
 - ▶ 12 individual
- ▶ The baby is born but cannot leave the incubator yet
 - ▶ Requires intensive care and always short of caretakers ;-)



PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE

YOU HAVE THE FULL SUPPORT
OF PRACE

At least morally
And looking forward to specific
collaboration



PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE

YOUR INPUT IS ALWAYS WELCOME!
(YOUR SUPPORT EVEN MORE SO
NO MATTER ITS FORM)

prace-ri.eu

**THANK YOU
FOR YOUR ATTENTION**