

EuroCC National Competence Center Sweden: ENCCS

<https://enccs.se>

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EuroHPC JU systems access policies and procedures, 2021-01-22



EuroHPC
Joint Undertaking



Swedish
Research
Council

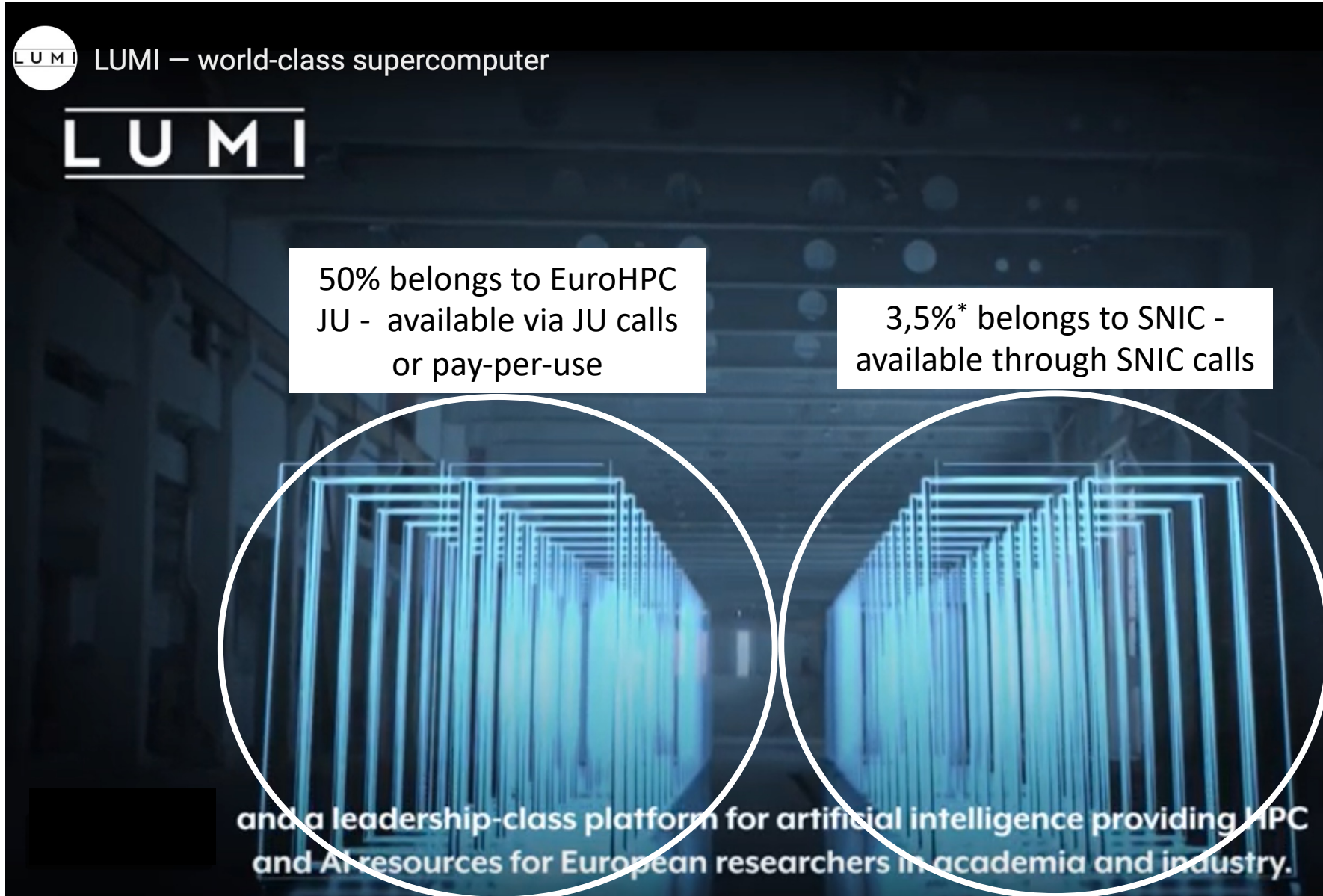
VINNOVA
Sweden's Innovation Agency

EuroHPC JU systems available for you

However, LUMI is not the only EuroHPC JU system.

There are more systems available for you.....

*3,5% is about 20 Pflops that is larger than Dardel



LUMI — world-class supercomputer

LUMI

50% belongs to EuroHPC JU - available via JU calls or pay-per-use

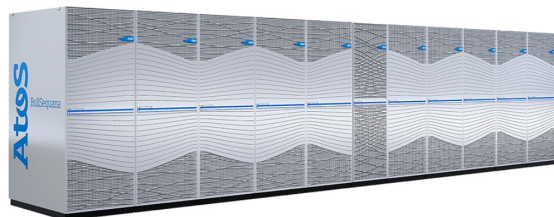
3,5%* belongs to SNIC - available through SNIC calls

and a leadership-class platform for artificial intelligence providing HPC and AI resources for European researchers in academia and industry.

The advertisement features a dark background with a glowing blue perspective of server racks. Two white circles are overlaid on the image, each containing a text box. The left circle contains the text '50% belongs to EuroHPC JU - available via JU calls or pay-per-use'. The right circle contains the text '3,5%* belongs to SNIC - available through SNIC calls'. At the bottom, there is a line of text: 'and a leadership-class platform for artificial intelligence providing HPC and AI resources for European researchers in academia and industry.'

Current EuroHPC JU systems

Two more (pre)exa-scale systems – 50% of each
Leonardo, Italy



Supplied by Atos, based on the BullSequana XH2000,
Sustained perf: 249.4 petaflops
Peak perf: 322.6 petaflops
Intel Ice-Lake (Booster), Intel Sapphire Rapids (data-centric), NVIDIA Ampere architecture-based

(Pre)exa-scale
yet to be



Five JU petascale systems – around 35% of each

Discoverer, Bulgaria

Vega, Slovenia



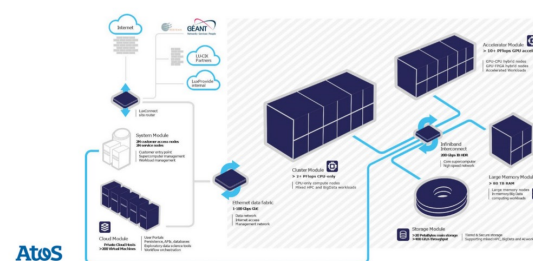
Additionally, expected two new exa-scale systems to come between 2023 - 2026

Supplied by Atos, based on the BullSequana XH2000, 4,44 petaflops, AMD EPYC 7H12 64core

Supplied by Atos, based on the BullSequana XH2000, 4,44 petaflops, AMD EPYC 7H12 64core, 240 Nvidia A100 cards

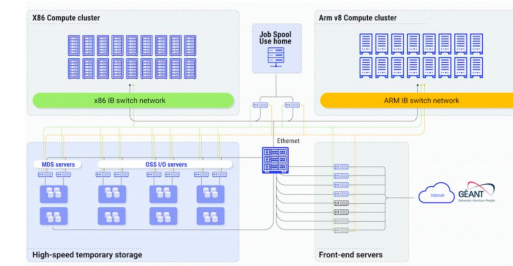
Supplied by HPE, based on an HPE Apollo 2000Gen10 Plus and HPE Apollo 6500, 9,13 petaflops

MeluXina, Luxemburg



Supplied by Atos, based on the BullSequana XH2000, committed 10 petaflops HPL, 2+ petaflops HPL, AMD EPYC, NVIDIA A100

Deucalion, Portugal



Heterogeneous 10 petaflops state-of-the-art system based on the x86 and the ARMv8 architectures.

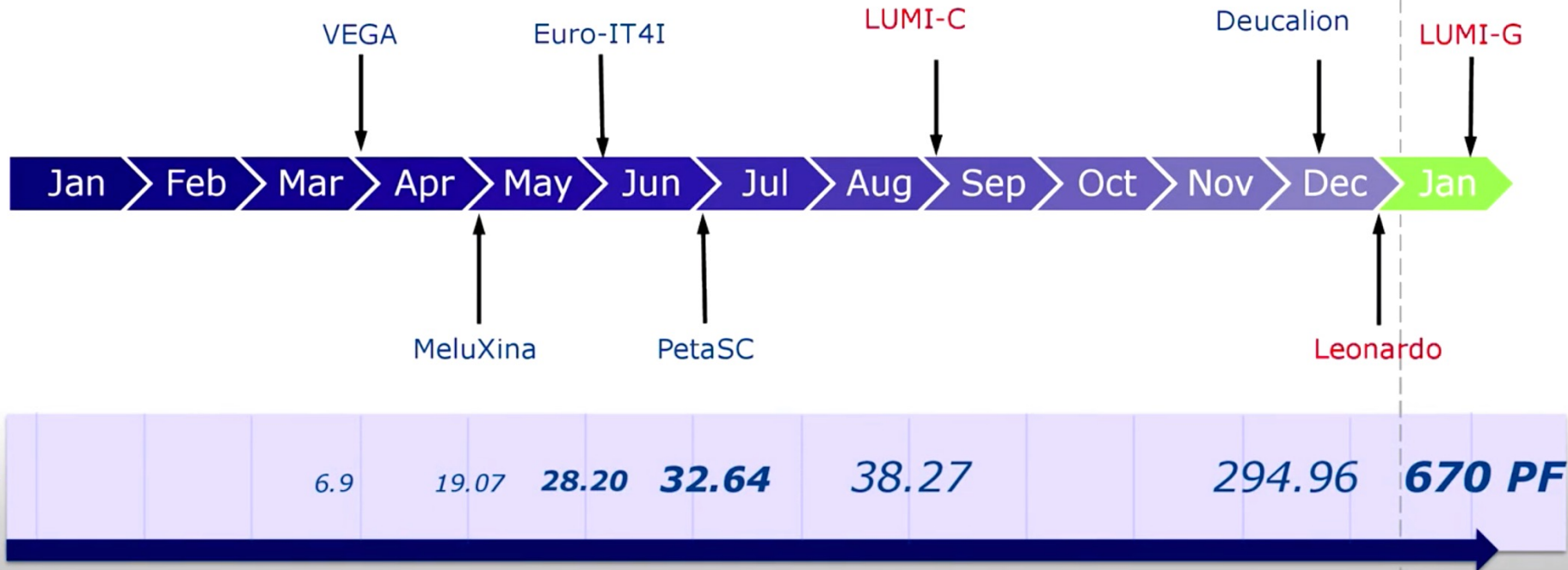
EuroHPC Resources - Availability timeline

2021



EuroHPC
Joint Undertaking

2022



Evangelos Floros

Programme Officer Infrastructure, EuroHPC JU

Today: Policies for access to EuroHPC JU systems

PRINCIPLES OF THE ACCESS POLICY

- EuroHPC JU is the **owner** or **co-owner** of the supercomputers it acquires (pre-exascale and petascale systems)
- The operation of those supercomputers is entrusted to **Hosting entities** (supercomputing centres) located in the **Union**
- The **Union's share** of access time on the EuroHPC supercomputers is **directly proportional to the financial contribution** of the Union
- The **Governing board** of the EuroHPC is responsible for the defining the access rights to the **Union's share of access time** to the EuroHPC supercomputers.

PRINCIPLES OF THE ACCESS POLICY

- The use of the pre-exascale and petascale supercomputers is primarily for public research and innovation purposes, for any user from academia, industry or the public sector.
- User allocation of access time to the supercomputers is primarily based on open calls for expression of interest launched by the Joint Undertaking and evaluated by independent experts.
- Upon decision by the Governing Board, it is possible to grant a small percentage of access time without a call for expression of interest in some exceptional cases such as strategic European initiatives or in emergency and crisis management situations.

PRINCIPLES OF THE ACCESS POLICY

- The Joint Undertaking should be allowed to carry out some limited economic activities for commercial purposes.
- Access should be granted to users established in the Union or a country associated to Horizon 2020.
- The access rights should be equitable to any user and allocated in a transparent manner.
- The Governing Board defines and monitors the access rights to the Union's share of access time for each supercomputer.

Two types of access to resources for industrial users

a) Research and Innovation (R&I) access

- All access modes are open to users from industry for open R&I, which involves publication of the outcome of the use of the resources).
- For the largest part, the evaluation process covering innovation criteria, can be applied to both academic led and industry led applications.
- Particular attention will be put on the proper alignment of the available distribution of computing and storage resources with access to expert support services and collaboration with academia.
- This is a key enabler of access by the industry to the EuroHPC resources in particular through the Development and Benchmark access modes.

b) Commercial Access

- This specific access requires a different approach based on the definition of the **pay-per-use** services offered and on industrial practices, in which open calls and peer-review processes are not applicable.

Commercial access

- According to the regulation, the JU will reserve up to 20% of available computing resources for commercial purposes. Essentially, the JU will offer access against payment to anyone wishing to use resources of the JU supercomputers.
- Such access does not fall under any peer-review process or access mode as described in the previous sections.
 - The commercial usage of supercomputers will be offered exclusively for civilian applications.
 - Commercial access is provided to users from eligible countries. These exclude countries or persons under an EU embargo or with other relevant restriction to access to EU resources.
- JU acceptable usage policy (AUP) will adhere to the regulation provisions of commercial access according to which

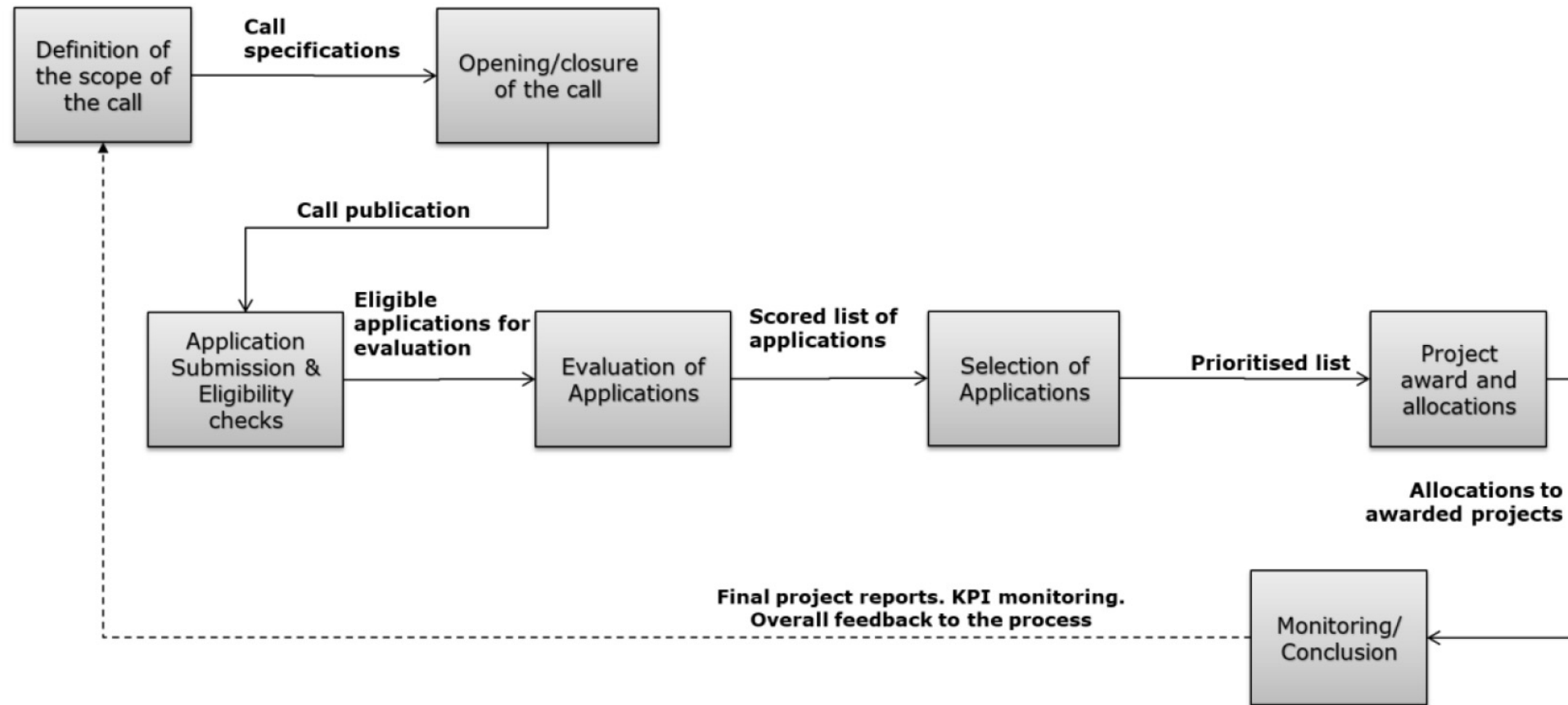
Pricing

- The commercial services shall be offered on pay-per-use basis.
- Pricing should be comparable to market prices and should not disrupt the market (market failure).
- Pricing will be based on the actual systems' Total Cost of Ownership (TOC) thus taking into account acquisition, installation costs, vendor support, administrative and operational costs.
- Since the JU systems have different TCO, calculation of prices needs to be carried separately for each JU supercomputer.
- The fees generated by the commercial use of the Union's access time shall constitute revenue to the JU budget and shall be used to cover operational costs of the JU.

Validity period of Access policies

- Access Policy v1.0 has been adopted by the EuroHPC Governing Board on 5th of March 2021
- Policy and relevant process designed in close collaboration with PRACE and the support of Infrastructure Advisory Group (INFRAG)
- Current version is valid until 12/2021 and will be reviewed and revised if necessary

Application evaluation process



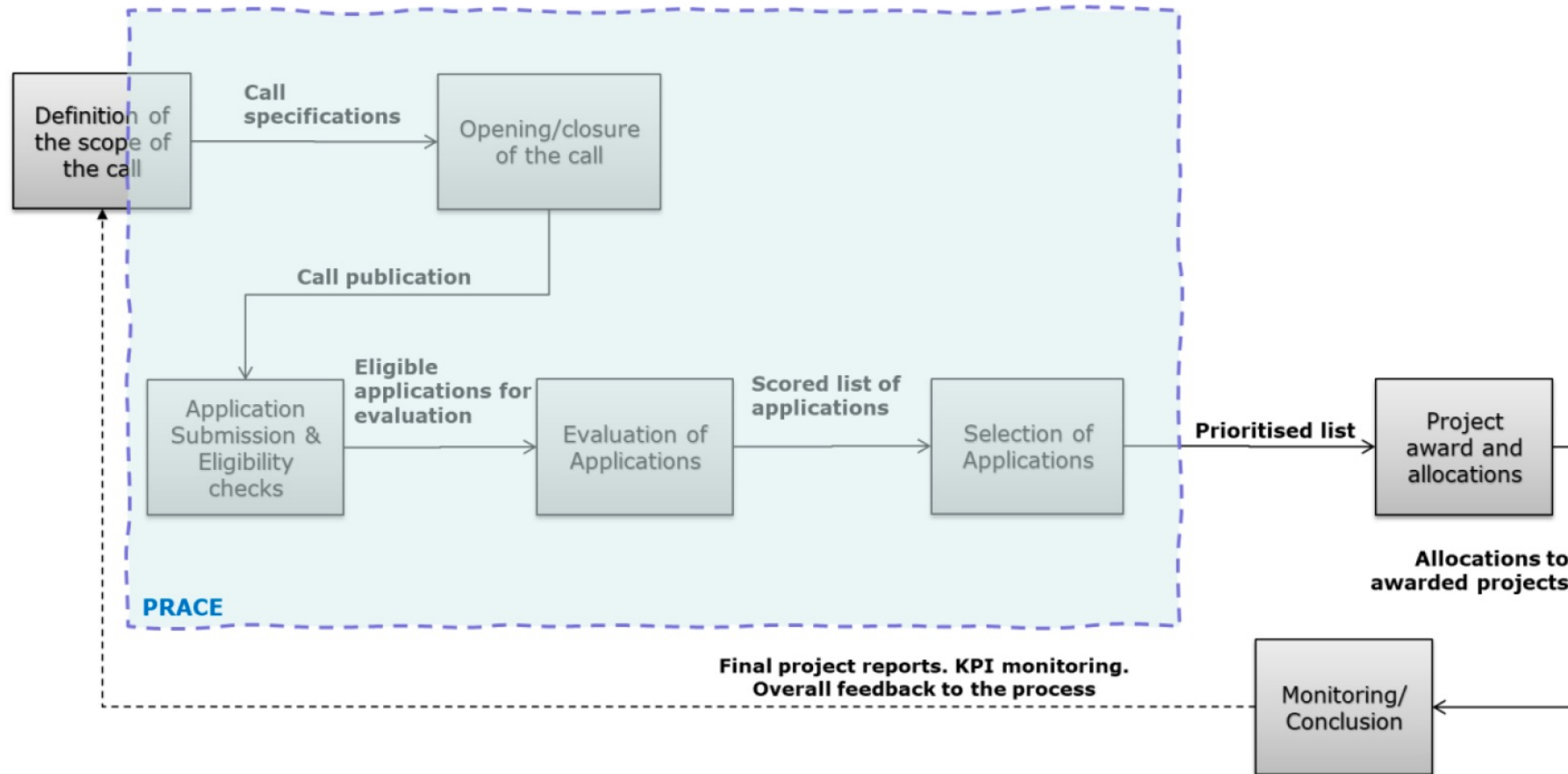


PRACE & EuroHPC JU



- PRACE – Partnership for Advanced Computing in Europe (exists since 2008) is responsible and is handling the implementation of EuroHPC JU access policies, launching and managing of the access calls.
- The application portal and the peer review tool is the same for both PRACE calls and EuroHPC JU calls
- The PRACE calls and The EuroHPC JU calls for access will be synchronised as much as possible.

Access policy implementation by PRACE





PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE

Translation EuroHPC JU – PRACE aisbl

EuroHPC JU	PRACE <u>aisbl</u>
Executive Director	Managing Director
Access Resource Committee (ARC)	Access Committee (AC)
Resource Allocation Panel (RAP)	Resource Allocation Session (RAS)
Scientific and Industrial Advisory Committee (SIAC)	Scientific Steering Committee (SSC) and Industrial Advisory Committee (IAC)



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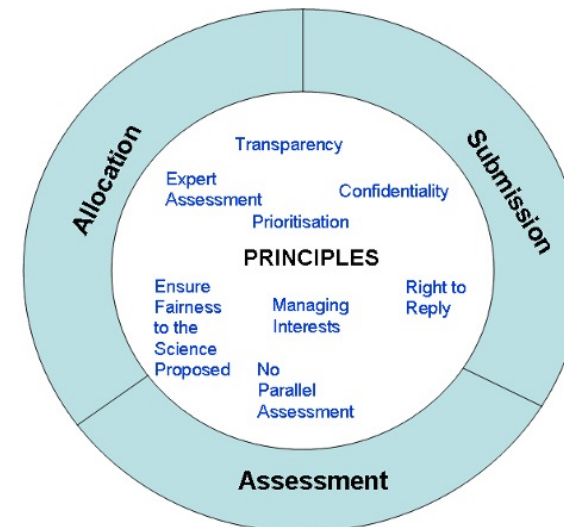
Peer Review Principles

- ▶ Transparency
- ▶ Expert Assessment
- ▶ Confidentiality
- ▶ Prioritisation
- ▶ Right to Reply
- ▶ Managing Interests
- ▶ No Parallel Assessment
- ▶ Ensure Fairness to the Science Proposed

2006:



2008:



General Peer Review Management

2011:





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EuroHPC access modes

- ▶ Extreme Scale
 - ▶ Comparable to the present Tier-0 PRACE call
- ▶ Regular
 - ▶ Less resources compared to Extreme Scale, but faster review process
- ▶ Benchmark
 - ▶ Comparable to the present Preparatory Access Call Type A or B
- ▶ Development
 - ▶ Comparable to the present Preparatory Access Call Type C or D

Access Mode	Extreme Scale	Regular	Benchmark	Development	Academic Fast Track	Industry Fast Track
Duration	1y renewable	1y renewable	2 to 3 months	1y renewable	< 6 months	1y renewable
Periodicity	Continuous calls, bi-yearly cut-offs	Continuous call, cut-offs every four months (3 cut-offs per year).	Continuous call, monthly cut-offs	Continuous call, monthly cut-offs	Continuous call, cut-offs ev. 2w/1m	Continuous call, cut-offs ev. 2w/1m
Share of resources	~70% Mostly pre-exascale	20 to 30% Mostly multi-petascale	Few % All systems	Few % All systems	~5% All systems	~5% All systems
Data storage needs	Large storage for medium to long term	Large storage for medium to long term	Limited	Data processing environment and platform		
Accessible to industry	Yes – Open R&D With specific evaluation criteria	Yes – Open R&D With specific track	Yes – Open R&D	Yes – Open R&D	No – use industry Fast Track instead	Exclusively Open R&D
External sc. Peer-review	Yes	Yes	No	No	No / Pre-identified	No / Pre-identified
Tech. assessment	Yes	Yes	Yes	Yes	Yes	Yes
Data Management Plan required	Yes	Yes	No	No	Yes	Yes
Application type	Full application	Full application	Technical application	Technical application	Light request + support documents	Full application
Prerequisite	Benchmark	Benchmark	None	None	Previous allocation or Benchmark	Benchmark
Submission period	> 2 months	> 2 months	N/A	N/A	N/A	N/A
Duration of evaluation process	3 months	2 months	≥1 week <2 weeks	≥1 week <2 weeks	≥2 weeks <1 month	≥2 weeks <1 month

Exceptional Allocations



- *Strategic European Initiatives*
 - The Governing Board will identify the **strategic European Initiatives** that will be granted support
 - Applications taking advantage of the access mode will be subject to **technical review** and will have similar obligations with applications from the published calls
- *Emergency and crisis management*
 - The Governing Board will identify the need for **urgent access** for **emergency** and **crisis management** that cannot be appropriately handled by any of the other access modes.
 - Allocation of resources for urgent situations typically triggered for example by **natural, industrial** or **biological events or hazards**.

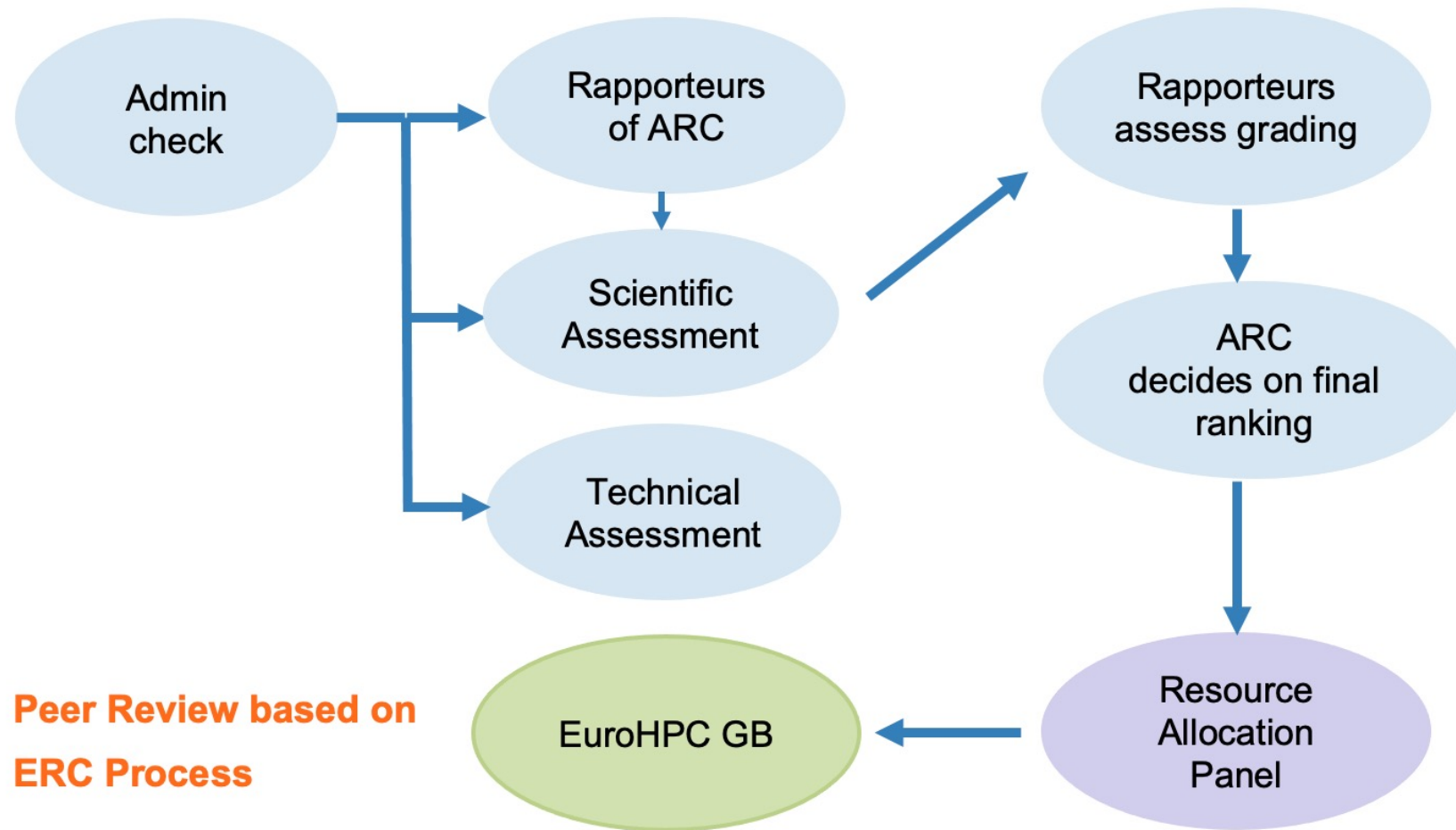


EuroHPC access modes - Extreme Scale

Specification:

- ▶ 2 cut off per year
- ▶ Target: huge demanding projects
- ▶ Allocation: Award one year, extension possible
- ▶ Who can apply?
 - ▶ Researchers from academia, research institutes, public authorities and industry established or located in a Member State or in a country associated to Horizon 2020, are eligible to apply.

EuroHPC access modes - Extreme Scale





Peer Review Process

► Administrative check

Proposals not complying with EuroHPC eligibility criteria will be rejected (e.g. CV or publication list missing, wrong template, too long, etc.)

► Technical Assessment

Proposals will be reviewed by technical experts of EuroHPC Hosting entities to assess suitability

Applicants may be contacted by technical experts in case of questions or concerns raised during review

Technical data need to be provided for the targeted system

Peer Review Process

► Scientific Assessment for scientific evaluation

Each proposal is assigned to **three** scientific peer reviewers to assess

- scientific merit
 - soundness of numerical methods, algorithms, and computational tools
 - appropriateness of project timeline and resources
 - feasibility of research plan
 - qualifications, expertise, and track record of PI and team
- Projects from industry and public sector will be assessed based on relevant appropriate criteria



Peer Review Process – Access Resource Committee

- ▶ Each proposal is assigned to two members of the EuroHPC ARC as Lead Rapporteur (R1) and Rapporteur (R2), who:
 - ▶ suggest scientific peer reviewers and solicit reviews
 - ▶ assess returned reviews
 - ▶ discuss discrepancies in the grading of the proposals
 - ▶ agree on common grade
- ▶ **Scientific excellence** is the **single decisive criterion** for scientific applications
- ▶ *Different criteria apply for industrial and public sector applications*
- ▶ Proposals are ranked according to the grade of the R1 and R2 consensus
- ▶ Proposals below a certain threshold are rejected unless any member of the ARC wishes to discuss them further



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Peer Review Process - Access Resource Committee

Every proposal is discussed in the presence of the full ARC as follows:

- ▶ R1 presents the proposals objectives, strengths and weaknesses, reports grade
- ▶ Technical members discuss the feasibility of the project
- ▶ R2 makes further remarks and may propose an alternate grade
- ▶ All ARC members discuss the proposals and ask questions to R1 and R2
- ▶ R1 proposes a score followed by a score by the ARC Chair
 - ▶ in case of agreement this become the tentative score of the proposal
 - ▶ in case of disagreement there is a vote
- ▶ Proposals are re-discussed when similarities are found with other proposals and grades may be revised
- ▶ Final ARC session: discussion and provision of the final ranking of all proposals



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Peer Review Process - Resource Allocation Panel

The **Resource Allocation Panel (RAP)** is the final step of the review process:

The panel decides on allocations based on

- ▶ recommendation of the ARC
- ▶ constraints on EuroHPC resources
- ▶ administrative constraints and agreements with EuroHPC JU

The EuroHPC GB confirms the final allocations



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New!

EuroHPC access modes - Regular Access

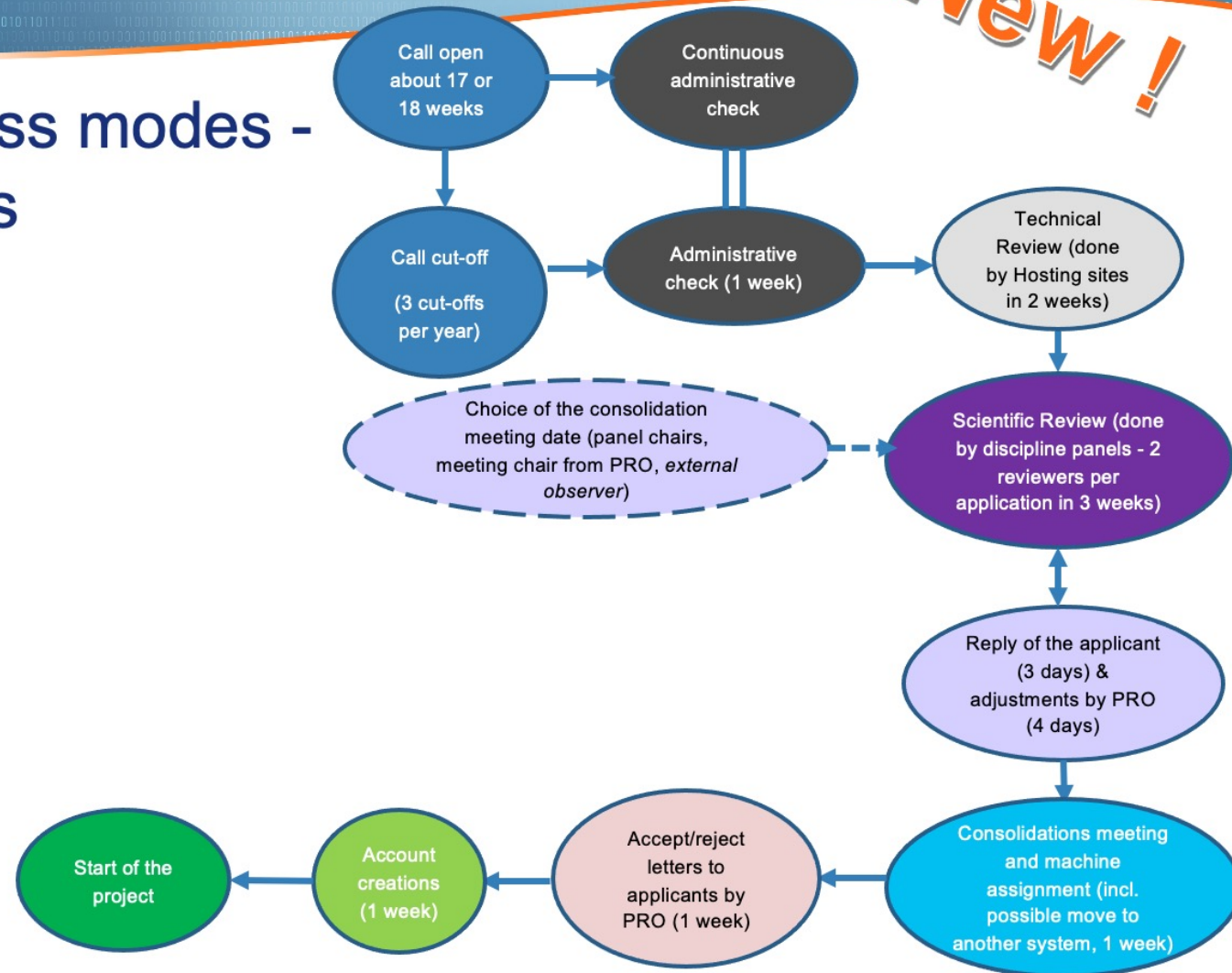
Specification:

- ▶ Continuously open with 3 cut offs
- ▶ Target: Large but less resources compared to extreme scale
 - ▶ Maximum allocations aligned with the minimum allocations of the Extreme Scale access
- ▶ Allocation: Award one year, extension possible
- ▶ Who can apply?
 - ▶ Researchers from academia, research institutes, public authorities and industry established or located in a Member State or in a country associated to Horizon 2020 are eligible to apply
- ▶ Faster review process - Scientific peer review performed by the domain panels
- ▶ Details still need to be discussed and decided, e.g. call text



New!

EuroHPC access modes - Regular Access





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New!

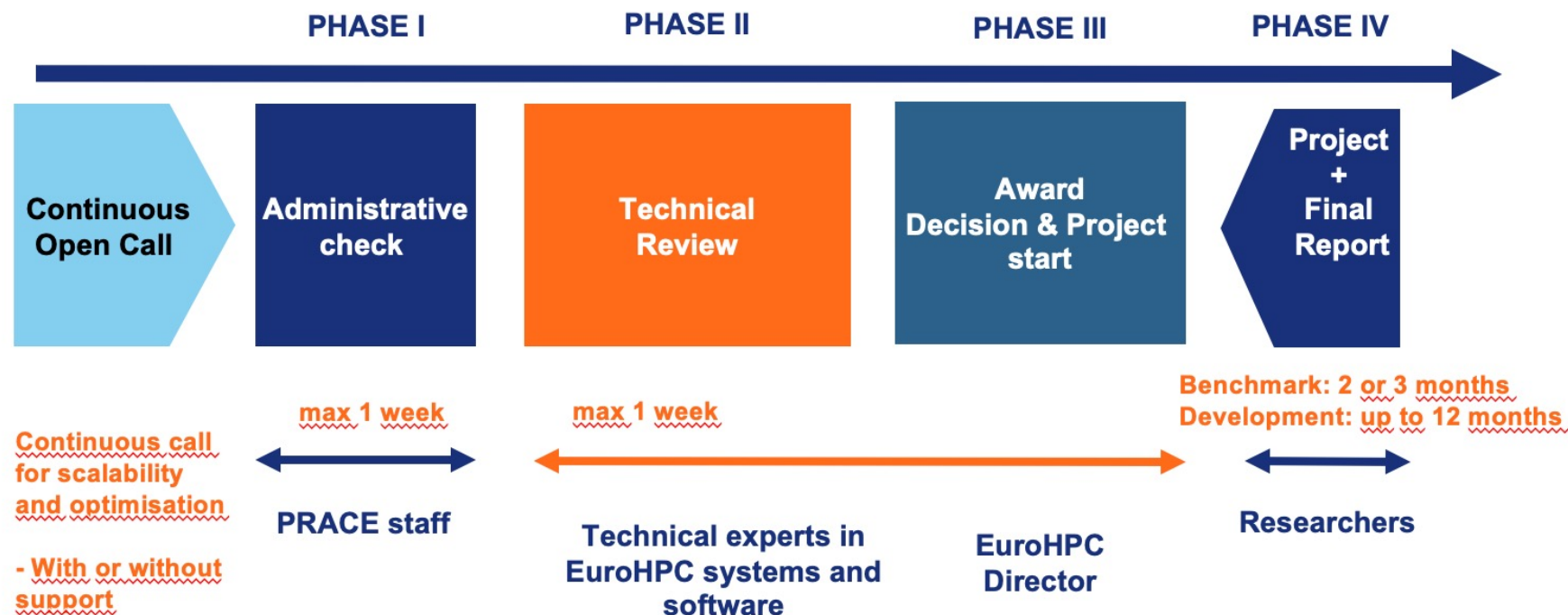
Regular Access – Peer Review

- ▶ Scientific peer-review performed by the domain panels
- ▶ The ARC appoints a domain panel chair, selected amongst its members having expertise in the specific domain
 - ▶ The domain panel chair will assign a lead and a second rapporteur for each application
 - ▶ The rapporteurs are selected within a pool of pre-identified domain experts
 - ▶ The rapporteurs are in charge of drafting the evaluation report for the given application consolidating, when applicable, Individual Expert Reports (IERs)
- ▶ A ranking per domain is produced by each domain panel
- ▶ The global consolidated ranking is done by a super panel led by the Executive Director gathering the domain panel chairs, the ARC chair and representatives of the Hosting Entities participating in the call



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EuroHPC access modes - Benchmark & Development





Benchmark & Development – Peer Review

- ▶ Call is open continuously
- ▶ At the end of the cut-off date the applications submitted are forwarded for evaluation. The evaluation process will allocate access to resources within maximum 2 weeks (target an average of 1 week) and includes:
 - ▶ Administrative check
 - ▶ Technical assessment of the relevance and feasibility of the request on the targeted system by experts of the targeted hosting entity
- ▶ Requests from academia, research institutes and commercial organization (industry) are handled the same way
- ▶ At the end of the process the Executive Director receives a ranked list of applications to be considered for allocation and decides on the final list of applications to be awarded



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EuroHPC calls – start and transition

- ▶ Access to new EuroHPC systems depends very much on the systems getting in user operation
- ▶ EuroHPC access policy was approved by EuroHPC GB on 5 March 2021
- ▶ Calls for the different access modes will be published soon
- ▶ PRACE offered to include EuroHPC resources in existing calls as interim solution
- ▶ Proposed timeline by PRACE:
 - ▶ Start Benchmarking and Development access as soon as possible under PRACE umbrella
 - ▶ New EuroHPC Regular Access call opens April 21 (tbc) closes mid June 21 (tbc)
 - ▶ New EuroHPC Extreme Scale call opens September 21 (tbc) closes end of October 21 (tbc) – sync with PRACE Tier-0 call



Peer Review Tool (1/2)

PRACE

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Calls

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PRACE

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Calls

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PRACE Access Calls

Open Calls for Proposals

PR

PRACE 22nd Call for
Proposals for Project
Access

Open

PR

Preparatory Access

Open

Browse through all Calls

Back to Call Applications

APPLICANT

PRACE 22nd Call for Proposals for Project Access

ID: 2021235469

1

2

3

4

5

Project Application

Technical Review

Scientific Review

Response to Reviews

Completed

General Information

The Project

Principal Investigator

Contact person

Team Members
Information

Partitions

Development

Dissemination strategy

Collaboration and
Funding

Suggested Reviewers

Excluded Reviewers

Acceptance of Terms of
Reference

General Information

Project duration (in years) *

1

Submission type

☒ First submission ☐ Continuation

ID of the original project for continuation (if applicable)

Progress report .pdf

Click to choose a file

Progress/Final report on the original project (if applicable)

☐ Resubmission

ID of the original project for resubmission (if applicable)

Industry involvement in proposal

None

Industry involvement in proposal (if applicable)

☐ Opt in for Industry (only if PI from Industry)

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Save

* mandatory field

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Thank you!



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