EuroHPC JOINT UNDERTAKING

DECISION OF THE GOVERNING BOARD OF THE

EuroHPC JOINT UNDERTAKING No 06/2021

On the Access Policy to the Union's share on the access time to the pre-exascale and petascale supercomputers

THE GOVERNING BOARD OF THE EuroHPC JOINT UNDERTAKING,

Having regard to Council Regulation (EU) 2018/1488 of 28 September 2018 establishing the European High Performance Computing Joint Undertaking (hereinafter "Regulation")[1] and in particular to Articles 12, 13 and 14 of thereof,

Having regard to the Statutes the European High Performance Computing Joint Undertaking annexed to the Regulation (thereinafter "Statutes") and in particular to Article 7(3) (p), (r) of thereof,

WHEREAS

(1) The Governing Board shall define the access rights to the Union's share of access time to the pre-exascale supercomputers and petascale supercomputers and to the Union's share of access time to the national supercomputers.

(2) The share of the Union's access time to each pre-exascale supercomputer shall be directly proportional to the financial contribution of the Union to the total cost of ownership of the supercomputer and shall not exceed 50 % of the total access time of the supercomputer.

(3) The share of the Union's access time to each petascale supercomputer shall be directly proportional to the financial contribution of the Union to the acquisition costs of the supercomputer.

(4) The Statutes of the EuroHPC JU confer on the Governing Board the powers to

   a. define the general and specific access conditions to use the Union's share of access time of the petascale and pre-exascale supercomputers and of the access time provided by the national supercomputers in accordance with Article 13 of the Regulation

[1] OJ L 252, 08.10.2018, p. 1-34

b. establish the level of the fee of the commercial services referred to in Article 14 of the Regulation, and decide on the allocation of the access time for those services.

(5) The access time allocated to commercial services shall not exceed 20 % of the Union's total access time of each petascale supercomputer and each pre-exascale supercomputer.

HAS ADOPTED THIS DECISION:

Article 1

The Access Policy annexed to this decision is adopted.

Article 2

This Decision shall enter into force on the date of its adoption and will remain valid until 31/12/2021.

Done at Luxembourg, on 05 March 2021.

For the Governing Board

[signed]

Herbert Zeisel

The Chair

Annex: Access Policy to the Union’s share on the access time to the pre-exascale and petascale supercomputers

Access Policy

of the EuroHPC Joint Undertaking Supercomputers

v1.0

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Table of Revisions

Version	Date	Comments
1.0	5/03/2021	Final public version adopted by the EuroHPC JU Governing Board

PREFACE

SCOPE OF THE DOCUMENT

The EuroHPC Joint Undertaking (JU) enables the coordination of efforts and the sharing of resources at European level with the objective of deploying a world-class High Performance (HPC) infrastructure and a competitive innovation ecosystem in supercomputing technologies, applications and skills in Europe.

The EuroHPC JU is acquiring pre-exascale and petascale supercomputers (the EuroHPC supercomputers) which will be located at and operated by supercomputing centres (Hosting Entities) in the Union. The Joint Undertaking will manage the Union's access time (from 35% up to 50% of their total capacity) of these supercomputers. Access time will be allocated to European scientific, industrial and public sector users, matching their demanding application requirements, according to the principles stated in the EuroHPC JU Council Regulation.

The supercomputing infrastructure deployed by EuroHPC, comprises a significant investment of the JU members (European Commission and Participating States). Defining proper rules and procedures for providing access to these systems is therefore an important process. It is essential that the computation time is offered in such way that it maximises the positive impact of these systems on R&I, as well as commercial, activities in Europe. A well-defined access policy will ensure optimal allocation of resources and maximise the return of investment of the involved supercomputing systems.

This document provides a high-level framework of an Access Policy for the allocation of the Union's share of the supercomputers co-funded by the Joint Undertaking. Further details of implementation will need to be considered, elaborated, and finalised during the preparation of the first calls for access. Moreover, this document focuses on the access policy for the allocation of access time for Open Research and Innovation activities. It also provides a high-level outline of the commercial access services that the JU plans to develop.

The document has been prepared by the EuroHPC JU with the support of PRACE[2], the EuroHPC JU INFRAG[3] and the EuroHPC JU Governing Board. It considers best practices and established approaches from similar infrastructures around the globe. The document also, capitalises the long-year experience of PRACE in the provision of access time to Tier-0 supercomputer systems in Europe, applying however necessary changes to support the specific strategic goals set out by the Joint Undertaking.

[2] Partnership for Advanced Computing in Europe (https://prace-ri.eu/)

[3] Infrastructure Advisory Group (https://eurohpc-ju.europa.eu/infrastructure-advisory-group-infrag)

1 INTRODUCTION

1.1 REGULATORY FRAMEWORK

This Access Policy is developed in the scope of the Council Regulation (EC) 2018/1488 of the establishment of the EuroHPC JU and concerns the access time allocated to supercomputers procured in the context of this regulation. The Regulation sets the framework for the different aspects that affect the access policy to the EuroHPC infrastructure. A summary of the Regulation articles which are applicable to this policy are available in the annex at the end of this document.

1.2 PRINCIPLES OF THE ACCESS POLICY

The aim of the EuroHPC Access Policy is to provide a transparent and equitable framework that gives all users a fair chance to the Union's access time and takes into consideration their needs and the available resources. The guiding principles of this framework are defined in the EuroHPC JU Regulation and its Annexes. The following list is a breakdown of recital 31 of the EuroHPC JU Regulation preamble, which outlines these key principles of the procedures described in this policy document:

- The use of the pre-exascale and petascale supercomputers should be 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 should primarily be 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 should be 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.
- 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 should define and monitor the access rights to the Union's share of access time for each supercomputer.

2 PROCESS FOR THE ALLOCATION OF THE UNION'S ACCESS TIME TO EUROHPC SUPERCOMPUTERS

2.1 OVERVIEW OF THE PROCESS

According to the conditions set out in the Regulation and based on established best-practices, the allocation of Joint Undertaking's share of time in the EuroHPC supercomputers will be carried through continuous calls for applications. The general process for the allocation comprises the following steps:

1. Definition of the scope of the call
2. Opening/closure of the call
3. Application submission & Eligibility check
4. Evaluation of applications
5. Selection of applications for allocation
6. Award and allocation of access time for projects
7. Monitoring

Figure 1 illustrates the main steps for implementing the allocation process, depicting the main outcome of each individual step. The workflow presented in this paragraph is the generic outline for calls. Details like the duration of the call, level of resources available are presented in Section 3.

For the implementation of this process, the Executive Director is the overall and final responsible, supported by the EuroHPC JU staff to which he/she can delegate tasks as needed acting on his/her behalf. The Executive Director can also delegate specific tasks to external actors having established an agreement with the JU for the execution of such tasks. These agreements will include specific mechanisms to allow the monitoring and intervention of the Executive Director or representative in the tasks.

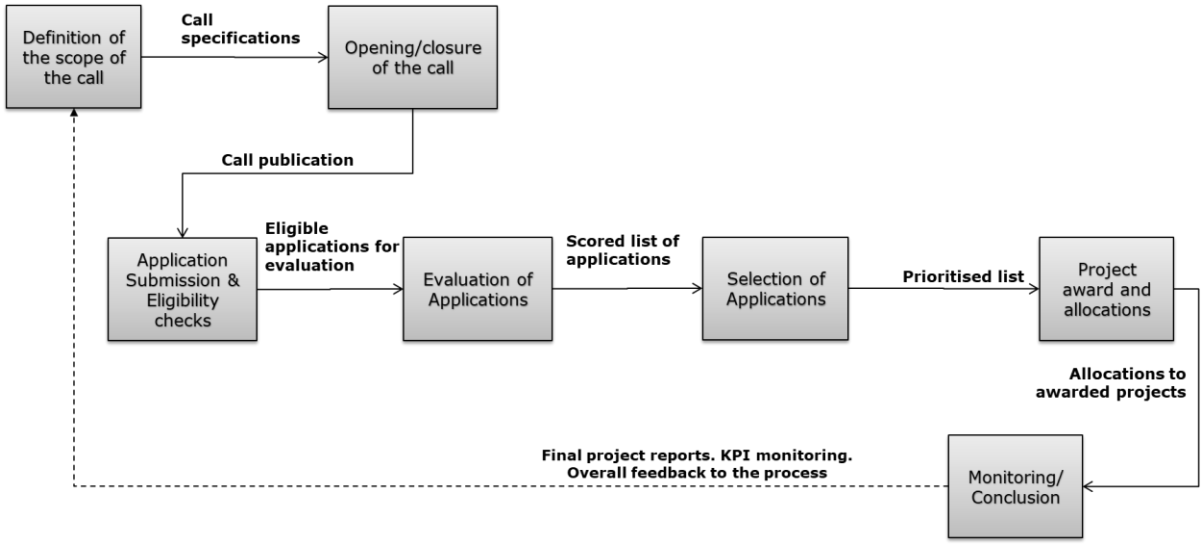

Figure 1 - EuroHPC JU system allocation process workflow

2.2 DEFINITION OF THE SCOPE OF THE CALL

The Executive Director will be tasked to prepare each call, providing at least the following information:

- scope of the call (indicating, if applicable, target specific applications, communities or topics to be addressed, industrial research, etc.)

- the available computing access time and other resources in the different supercomputers, and other information regarding e.g., the architecture, memory, and other relevant technical aspects
- the access modes (see Section 3 Access modes)
- cut-off dates of the continuous calls for the submission of applications (and, if applicable, opening and closure date for non-continuous calls)
- rules for participation, including specific eligibility criteria for applications.
- evaluation criteria for applications, and their relative weight if applicable. In principle, scientific excellence will be the primary evaluation criterion for access to the EuroHPC resources. Other applicable criteria will be clearly outlined in the calls, such as innovation, impact, quality of implementation, etc.
- selection and allocation criteria. Without prejudice of the quality of the selected proposals, and based on the provisions of the EuroHPC JU regulation, the selection and allocation will be based on any additional specific criteria defined by the Governing Board (e.g., by user organisation type, priority application domains, etc.) or any other technical criteria deemed necessary for the allocation of access time (e.g., technical considerations for the optimisation of supercomputing resources). This will include a procedure to contest the (non)allocation of resources to applications.
- estimated dates for the selection and award of applications.
- reference documents to the Call, such as the Terms of Reference, the Technical Guidelines for Applicants, the templates for Project Scope and Plan, and any other document deemed necessary for providing full information on the Call.

In case that the call addresses several target domains or types of users (e.g., industry, public sector), the call may specify a different set of evaluation criteria and a maximum amount of resources allocated to each target group/domain.

The following principles will be considered when defining the Calls:

- **Participants**:
    - Users residing, established or located in a Member State or in a country associated to Horizon 2020.
    - Dedicated international cooperation activities may be carried out, with specific conditions defined by the Governing Board.
- **Exceptional access to Strategic European Initiatives and to Emergency and Crisis Management situations**:
    - The Governing Board may 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. The Governing Board may establish specific rules on how to handle such situations.

2.3 OPENING/CLOSURE OF THE CALL

The Governing Board can decide on the Calls for proposals prepared by the Executive Director. Following a positive decision, the Executive Director will publish and disseminate as widely as possible the information of the Call.

For continuous calls, the Call will clearly identify the cut-off dates and if appropriate the closure date. The Executive Director will provide annual report of their outcome with a proposal for continuation, closure or amendment of the scope and conditions of the calls.

2.4 APPLICATION SUBMISSION & ELIGIBILITY CHECK

The Executive Director will establish the operational processes and mechanisms to allow the submission of applications, the communication with the applicants, and perform the eligibility checks of the applications. These tasks can be delegated.

Applications will be requested to include, among other points, information on the applicants and a detailed description of the planned activities, the execution plan, the required resources, including computing time, storage requirements, visualization, etc., which will be evaluated by independent experts. For calls that specifically require it, applications must also demonstrate technical readiness and provide performance benchmarks appropriate for the resources requested.

Applications will be checked against the eligibility criteria of the Call (including administrative aspects, rules for participation, scope, etc.). Only the applications deemed eligible by the Executive Director will proceed to the next steps. Non-eligible applications will be informed of the reasons for the non-eligibility.

2.5 EVALUATION OF APPLICATIONS

The Executive Director will be responsible for the evaluation process. If this task is delegated to an external organisation to the JU, the Executive Director will ensure an appropriate monitoring and intervention mechanism.

One of the essential components of the EuroHPC evaluation process is the evaluation based on peer-review of applications by independent and experienced experts in a comparative process[4]. Experts will base their individual or collective evaluation on the application information submitted. If necessary, several domain panels will be established and to facilitate the evaluation of the applications and to take due account of the specificities of the Call and the different relevant fields and actors (e.g. science, industry, and public sector).

In preparation of the Calls, the Executive Director will rely on an established and verified database of independent experts to select evaluators and rapporteurs for the evaluation of the applications. Such database of experts should be continuously updated to ensure a good basis for EuroHPC JU Calls. Final selected experts must be registered in the European Commission's Experts database.

Expert selection will be done based on the competencies and the field of expertise of each expert and will depend on the scope of the call and this relates to academic or private sector (industry). Involvement of experts will be based on Horizon 2020 rules of experts' participation (including terms of reimbursement).

The processes and actors involved in the evaluation of the applications are determined by the specific access mode. Access modes and their specific evaluation process are described in Section 3.

The following common principles shall be applied:

1. The Call will establish the range of scores to be used by the experts in the different evaluation criteria during the evaluation process will define. The Call will also establish the minimum threshold (per criteria and overall) to be attained for an application to proceed to the following selection and allocation steps.

[4] Some Access Modes will not need the peer-review process because of the simplicity, see section 3 for detailed description.

2. The evaluation process shall always include the technical assessment made by the hosting entities, which will evaluate whether and under which conditions the applications can run on the target system requested by the applicants.
3. During the evaluation process, scientific and technical peer-reviewers may raise questions and request additional input. In such cases applicants may be contacted for questions and clarifications. Applicants must reply within a specific deadline. Communication between the reviewers and applicants will be anonymised and remain confidential.

The outcome of this step will be a ranked scored list of applications with supporting comments (from peer-review experts and from the technical assessment of the hosting entities), and a non-ranked list of applications that fail to pass the evaluation criteria. In case that the Call specifies different types of domains or user groups with specific allocated resources, there will be a ranked scored list of applications per domain/user group.

2.6 SELECTION OF APPLICATIONS FOR ALLOCATION

The Executive Director or his/her appointed representative from the EuroHPC JU will chair the Resource Allocation Panel (RAP)[5] for any given Call, which will be responsible for elaborating a list of selected applications with associated computing resources.

1. The Resource Allocation Panel will establish a final list of applications, based on the ranked list(s) from the previous step and the proper consideration of the allocation guidelines set by the Governing Board for the Call.
2. The Resource Allocation Panel will proceed with the allocation of access time of the final list of applications on the supercomputers providing resources in the given call aiming **at guaranteeing accessibility of the resources, while at the same time, obtaining the maximum capabilities of the system**. Non-exhaustive examples of considerations for the allocation are the following:
   - Technical feasibility, and compatibility with the performance, architecture and technical characteristics of the available supercomputers
   - Access to the full system capabilities of the target supercomputer or allocation in time-shared manner
   - Possible reductions in the final allocation with respect to the requested resources
   - Limited oversubscription (i.e., the total time allocated is larger than the available aggregated time offered by the systems for a specific call) to optimise the use of the target supercomputer.

The outcome of this step is a list of granted applications on a given supercomputer with a specific resource allocation. **The Executive Director will submit this list to the Governing Board for formal approval, except for the Benchmark, Development and Fast Track access modes[6] in which the lists will be sent to the Governing Board for information**.

2.7 AWARD AND ALLOCATION OF ACCESS TIME TO PROJECTS

The Executive Director is responsible for implementing the allocation of computing time on behalf of the Governing Board. The Executive Director will inform applicants on the outcome of the evaluation,

[5] See section 2.9.4 for the composition of the Resource Allocation Panel

[6] See section 3 for Access modes.

and for those selected applications, will establish the appropriate contractual arrangements, and will instruct the participating hosting entities about the implementation of the projects, according to the modalities and conditions published in the Call and the recommendations of the Resource Allocation Panel.
The hosting entities will undertake the necessary steps for the awarded teams to get access to the system and will provide adequate support to enable the teams to efficiently exploit the offered resources. Issues of data protection, quality of service provisioning, service availability etc. will be provisioned according to the relevant clauses in the Hosting Agreements established between the JU and the hosting entities.
The EuroHPC JU awarding decisions are considered final. However, rejected applicants are eligible to request information regarding the evaluation decision. Furthermore, applicants will have the right to appeal to the decision according to conditions published in the Call.

2.8 MONITORING AND CONCLUSION OF THE CALL

The allocation of the Union's access time will be monitored and reported periodically (for each GB meeting and an annual consolidation) by the Executive Director to the Governing Board, including the participation per user category, Participating State, field of application/community, etc. (for a complete set of reported KPIs see §4.4). The annual monitoring report will also be made available to the other bodies of the EuroHPC JU (INFRAG and RIAG) and to the Scientific and Industrial Advisory Committee. A simplified version of the report will be also published on the EuroHPC JU web site for public access.

The Executive Director may also include in the monitoring report recommendations for improvement based on other input such as the assessment of the evaluation results of the Calls, the implementation of the projects (as reported in the final reports), the experience of the hosting supercomputing centres, and any other analysis or report relevant to the access policy.

Based on the results of this monitoring report, the Governing Board may define if necessary further guidelines for the allocation of access time in the following Calls or for additional activities supported by the EuroHPC JU, for example:

- re-adapt access times per category of activity or user, with the aim to optimise the use capabilities of the EuroHPC supercomputers,
- additional support measures for providing fair access opportunities to users from all Member States and countries associated to Horizon 2020 that would aim to raise their level of skills and expertise in High Performance Computing systems. This would include for example:
    - Support to non-expert HPC users with adequate supervision and preparation on the usage of resources.
    - Fostering the access to HPC to new users and communities.
    - Training and support activities to overcome the inexperience of new users.
    - Supporting preparatory development work in systems with lower performance.

The Governing Board will foster the communication between the Participating States and the EuroHPC JU, and the adequate alignment of European and national calls for system access, to achieve the highest synergies and optimal utilization of HPC resources at all levels. This will permit users to identify the adequate resources for every project, and the public authorities can provide the most convenient access method to every resource.

2.9 ACTORS OF THE ACCESS POLICY

The following are the actors involved in the access policy process:

2.9.1 Governing Board

Responsible for the definition of the access policy according to the provisions in the JU regulation and as described therein, approving the terms and conditions of calls, and the final allocation of resources to applications.

2.9.2 The Executive Director

Responsible for the implementation of the access policy, supported by the EuroHPC JU staff and any other actor organisation that has established an agreement with the JU for the execution of specific tasks.

2.9.3 Access Resource Committee

The Access Resource Committee (ARC) shall consist of a group of highly qualified experts in HPC, aiming at covering a maximum of application domains and user types. In the frame of the ARC, these experts will act on a personal basis, and independently of their employer organisation or Participating State.

The Governing Board, at the proposal of the Executive Director, shall establish the criteria for eligible candidates (including Conflict of Interest rules) and shall appoint its members.

Candidate members shall have their home institute at a Participating State of the EuroHPC JU and shall be internationally recognised as experts in the relevant fields of the tasks of the EuroHPC resource committee, including several scientific domains, industrial interests and public sector related topics. The term is for 2 years, renewable one time. The ARC will appoint a chair among its members.

The ARC is supported by the EuroHPC JU office to carry out their tasks. The tasks are:

- Support the Executive Director on the preparation of the planning and scope of the EuroHPC calls, as described in §2.1.
- Support the Executive Director in the allocation of experts to applications, in the prioritisation of applications, and in the allocation of access time to supercomputers as described in §2.5 and §2.6.

2.9.4 Resource Allocation Panel

The Resource Allocation Panel (RAP) is responsible for implementing the selection and allocation step that produces the list of selected applications with associated computing resources as described in §2.6 of this document. The RAP is consisted of:

- The Executive Director or his/her delegate from the EuroHPC JU, who will chair the RAP.
- The Chair of the ARC.
- Representatives of EuroHPC Hosting Entities involved in a given Call (assisted if necessary, by technical experts).
- For the Calls involving domain/user group panels, the chairs of these domain panels.

2.9.5 Infrastructure Advisory Group

The Infrastructure Advisory Group (INFRAG) provides advice to the Governing Board on the access policy and support to the Executive Director in the implementation. INFRAG will have the following tasks:

- Participates in the periodic assessment of the EuroHPC Access Policy and advises on adjustments and improvements to the process.

- Proposes experts and criteria for the composition of the Scientific and Industrial Advisory Committee to the Governing Board.

2.9.6 Scientific and Industrial Advisory Committee

The Scientific and Industrial Advisory Committee (SIAC) is composed of internationally recognized European leading scientists and industry representatives who are responsible to:

- Advise the Governing Board and INFRAG from a scientific and industrial point of view on strategic topics, scientific and industrial domains, user requirements, access schemes, methods, procedures and other issues relevant to the access policy and allocation of the Union's share of access time of the EuroHPC supercomputers.
- Propose experts and criteria for the composition of the ARC to the Executive Director for the approval of the Governing Board.
- Supports the Executive Director in the outcomes of the Call, including:
    - Periodically analyse, evaluate and report to the Governing Board on the quality of the projects and the impact of the awarding process.
    - Establishes a regular dialogue with European HPC users/communities and other players, from research, industry and academia, to help understand the impact of EuroHPC Calls and the potential improvements that need to be applied.
    - Coordination of the different projects awarded access time by the EuroHPC (e.g., workshops, events).
- Advise the ARC and the Executive Director in regular meetings with their chairs to address challenges and improve processes for the benefit of the academic and industry researchers.

Members of the SIAC can be proposed by Participating States, by INFRAG and by the Executive Director. Candidate members will be submitted by the Executive Director to the Governing Board for discussion and eventual appointment. The term of each member will be 2 years with the possibility of renewal.

2.9.7 Applicants / End Users

Applicants submitting proposal for access time are comprised of HPC user groups coming from academia, public sector and Industry. These also include large groups from Strategic EU initiatives and EC funded projects, such as the Centres of Excellence. They are led by a Principal Investigator (PI) who submits the proposal on behalf of the group. Successful applicants sign an Acceptable Use Policy with the JU in which defines their limits and obligations when accessing the systems as End Users.

2.9.8 Hosting Entities

Hosting Entities (HEs) are responsible for the provision of HPC resources to End Users being allocated access time in the scope of the present Access Policy. The Hosting Agreement between the JU and the HE defines the HE obligations in terms of service provisioning, security, user support etc.

3 ACCESS MODES

3.1 OVERVIEW

The EuroHPC JU Access Modes are the different modalities in which the EuroHPC JU resources will be offered to applicants/End Users. The Governing Board may also grant a small percentage of the Union's access time of the EuroHPC supercomputers without a call, in exceptional cases such as strategic European initiatives or in emergency and crisis management situations. This allocation is not considered per se an Access Mode and will be described in a separate section of this chapter.

Access Modes are based on those of PRACE and that have been adapted to meet specific requirements introduced by EuroHPC. The EuroHPC JU Access Modes are categorised according to several parameters such as the volume of resources that will be offered, the complexity of the evaluation process that is applied, the type and maturity of applications that is targeting, and the periodicity of cut-off dates. Typical values for these parameters are provided in this document but actual values must be defined before the publication of each call taking into considerations the type and percentage of resources available in the EuroHPC supercomputers, and the different percentage of such resources allocated by Governing Board to each access mode.

A call for a given access mode will typically offer access to several systems. This provides both economy of scale in processing the calls and room for maximizing the volume of allocation (while respecting the ranking of applications). Six Access Modes (see Table 1) are taken into consideration for EuroHPC:

- Extreme Scale Access
- Regular Access
- Benchmark Access
- Development Access
- Fast Track Access for Academia
- Fast Track Access for Industry Access

Regarding Industry, two types of access to resources can be identified 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). The need of industry applicants can be efficiently met by prioritizing a share of the offered resources to applications led by industry[7] in a given call. 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. The specific conditions for Commercial Access are described in 3.9.

[7] Applications whose Principal Investigator comes from industry, having clear industrial exploitation plan.

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

Table 1 - EuroHPC Access Modes

3.2 EXTREME SCALE ACCESS

3.2.1 Description

This access mode will call for applications with high-impact, high-gain innovative research, open to all fields of science and industry justifying the need for and the capacity to use extremely large allocations in terms of compute time, data storage and support resources.

It is recommended that in this access mode, the corresponding resources are allocated through a continuous call for applications with two (2) cut-off dates per year. The allocations are granted for a period of one (1) year with the option for projects to apply for an extension of their allocation. This extension will depend on an assessment of their ongoing awarded project. In exceptional cases, initial allocations of up to two (2) years are possible in order to support long-term, high-demanding applications. For such cases, the applicants should demonstrate background work with high levels of excellence, maturity and broad application impact.

Applicants (Principal Investigators or Co-Investigators) can only have one Regular Access allocation awarded per call.

Availability of large-scale systems opens the possibility to support outstanding research and innovation projects requiring access to very large-scale computing and storage resources. The largest share of the available resources, from 50% to 70%, mostly from the EuroHPC pre-exascale systems, is distributed through the Extreme Scale mode.

3.2.2 Requirements

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. Applicants will submit a full application supporting the relevance of the application to the call:

- Demonstrate that the application requires the use of extremely large allocations to reach the objective of their application.
- Demonstrate that the method, software and tools are technically adapted to the target supercomputer thereby demonstrating the feasibility of the project. To this end, applicants will rely on technical data collected via a Benchmark Access.
- Provide a project plan, with adequate time schedule of the expected resource consumption during the lifetime of the project.

3.2.3 Evaluation process

On top of the technical assessment, the application will be evaluated with a set of evaluation criteria that cover:

- Scientific excellence. The proposed research must demonstrate scientific excellence and a potential for high European and international impact.
- For the evaluation of applications in calls targeting industry with specific allocation of resources for these users, the scientific excellence criteria can be replaced as follows: Industrial relevance: The proposed research must demonstrate industrial relevance for the Participating States of EuroHPC JU and a potential for high impact in European competitiveness and innovation.
- Novelty and Innovation. Applications should be novel, or build on existing novel work, include transformative aspects and describe their expected scientific, economic and social impact as relevant.
- Methodology. The methodology (methods, algorithms and tools) used should be appropriate to achieve the goals of the project.
- Quality of the Data Management Plan.
- Feasibility. The application must demonstrate its technical feasibility.
- Dissemination. The plan for dissemination and publication of the project results must be described.

The evaluation process is structured as follows:

- Call is open for 2 months at least.
- The evaluation process runs over 3 months and includes:
    - Administrative check
    - Assignment of rapporteurs to each application by the Access Resource Committee (ARC)
        - The ARC can assign a lead and a second rapporteur to the application.
        - Rapporteurs are members of the ARC.

- Technical assessment of each application by the experts of the Hosting Entities offering resources to the specific call.
- Scientific peer-review of each application:
  - By at least three (3) external peer-reviewers proposed by the rapporteurs.
  - The rapporteurs are in charge of drafting the evaluation report for the given application consolidating, when applicable, Individual Expert Reports (IERs).
- Collection of the applicant's reply to questions from the technical assessment and scientific peer-review
- Scores and ranking are consolidated by the Access Resource Committee (ARC)

3.2.4 Access outcome reporting requirements and misuse mitigation

Principal Investigators commit to:

- acknowledge the use of the resources in their related publications,
- contribute to dissemination events,
- produce a full report within six (6) months of the completion of a resource allocation,
- update the list of publications typically semi-yearly for another two years.

Misuse of resources includes:

- significant under-usage of the allocation without justification,
- unethical behaviour, or
- any other breach of the Acceptable Use Policy.

Such misuse will be recorded and considered in future calls and proposals submitted from the same PI and user group.

3.3 REGULAR ACCESS

3.3.1 Description

This access mode, open to all fields of science, will call for applications with a case to enable progress of science in the domains covered. These applications are expected to be able to justify the need for large allocations in terms of compute time, data storage and support resources because they are significantly contributing to the progress in their domain.

This access mode will typically distribute the corresponding resources through a continuously open call for applications associated with three (3) cut-off dates per year.

The allocations are granted for one (1) year with the option for projects to apply for an extension of their allocation. This extension will depend on an assessment of their ongoing awarded project. Applicants (Principal Investigators or Co-Investigators) can only have one Regular Access awarded at any given time.

The Regular access mode is meant to serve research domains or communities that require large-scale resources or that require more frequent access to substantial computing and storage resources. This access mode distributes between 20% to 30% of the available resources, mostly from the EuroHPC petascale systems.

Maximum allocations accepted for this access will be aligned with the minimum allocations of the Extreme Scale access. The applicability of the minimum size for applications is part of the evaluation process under the responsibility of the threshold prioritization panel (see below).

3.3.2 Requirements

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. Applicants will submit a full application supporting the relevance of the application to the call:

- Demonstrate that their application requires the use of large allocations - both in terms of compute and medium and/or long-term data storage - to reach the objective of their application.
- Demonstrate that the method, software and tools are technically adapted to the target supercomputer thereby demonstrating the feasibility of the project. To this end, applicants will rely on technical data collected via a Benchmark Access.
- Provide a project plan, with adequate time schedule of the expected resource consumption during the lifetime of the project.
- Commit to publish the results of their project.

3.3.3 Evaluation process

The evaluation criteria will be the same as those listed for Extreme Scale (see §3.2.3).

The evaluation process is structured as follows:

- Call is open continuously, with minimum 2 months between the availability of the (updated) call documentation and the corresponding cut-off date.
- The evaluation process runs over 2 months and includes:
  - Administrative check
  - Technical assessment of each application by the experts of the Hosting Entities
  - 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.

3.3.4 Access outcome reporting requirements and misuse mitigation

Principal Investigators commit to:

- acknowledge the use of the resources in their related publications.
- contribute to dissemination events.
- produce a full report within 6 months of the completion of an allocation.
- contribute to public reports prepared by the JU.

Misuse of resources includes:

- significant under-usage of the allocation without justification
- unethical behaviour or

- any other breach of the Acceptable Use Policy

Such misuse will be recorded and considered in future calls and proposals submitted from the same PI and user group.

3.4 BENCHMARK ACCESS

3.4.1 Description

The Benchmark access mode is meant for users to collect performance data on a target system in order to document the technical feasibility of their applications to be submitted to other access modes. The corresponding parameters are adapted to fit the given need, limiting and preventing misuse of the resources; these resources represent a limited share of the total resources available.

Benchmark access is provided through continuously open calls with monthly cut-offs. Access periods may be granted for 2 or 3 months.

Typically, this access mode will distribute a very small fraction (some %) of the available resources. Applications granted for benchmark access may use the complete allocated system, if needed, for scalability tests.

3.4.2 Requirements

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. The resources that can be requested via this mode are limited. Applicants will submit a light access request that will support the relevance of the application to the call.

3.4.3 Evaluation process

The evaluation process runs as follows:

- 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.

3.4.4 Access outcome reporting requirements and misuse mitigation

Successful applicants are required to issue a short report on the outcome of their access including outcome of the porting and the tests, issues encountered, and solutions implemented; if applicable, the applicant may simply refer to an application being submitted to other calls for which the application text reports on the data collected under the benchmark access.

Given the small amount of available resources and the short timeframe associated to this access mode, misuse mitigation measures are not needed.

3.5 DEVELOPMENT ACCESS

3.5.1 Description

The Development access mode is meant for projects focusing on code and algorithm development and developing a science portal or other infrastructure software components. The corresponding parameters are adapted to fit the given need, limiting misuse of the resources; these resources represent a limited share of the total available.

Development access is provided through continuously open calls with monthly cut-offs. Access periods may be granted for up to 1 year and, renewable up to 2 times (it is recommended a maximum of 3 year for a given project). Some specific arrangements can be implemented if needed to efficiently support part of the eco-system that would benefit from such access as for instance Centres of Excellence or Competence Centres.

It is anticipated that this access mode will distribute a very small fraction (some %) of the available resources. Applications granted for development access may use the complete allocated system if needed for scalability tests and benchmarking.

3.5.2 Requirements

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. The resources that can be requested via this mode are limited. Applicants will submit a light access request that will support the relevance of the application to the call.

3.5.3 Evaluation process

The evaluation process runs as follows:

- 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 scientific and/or industrial relevance and feasibility of the project 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.

3.5.4 Access outcome reporting requirements and misuse mitigation

Successful applicants are required to issue a report on the outcome of their project:

- Achievement of the project compared to the original project objective.
- Description of the technical solutions used, and implementation options followed.
- Description of the issues encountered with the infrastructure.
- Perspectives after this access.

The alignment of the project with the scope of the development access will be evaluated based on the report provided. Misuse of the access mode (for instance using the resources for other purposes than those documented in the request) may lead to ban the applicant from applying during a certain period.

3.6 FAST TRACK ACCESS FOR ACADEMIA

This access mode supports needs that are exceptional and cannot be anticipated. One such need is academic users that have a track record of successful application to other access modes willing to get fast access to complement their current research results. That would be typically the case of gathering elements to answer reviewers in the process of publishing a paper.

This access mode should be supported by a continuous call with monthly cut-offs and grant access for less than 6 months. The volume and type of resources that could be claimed via such an access should be similar to the one of a regular access.

Applications submitted for Fast Track access for Academia should provide evidence of previous successfully completed (non-fast track) allocation.

A small part (up to 5%) of the available resources would be reserved for this access.

The evaluation process supporting this access would rely on

- Administrative check
- Technical assessment (requiring Benchmark access if needed) with the support of Hosting Entity experts of targeted systems.
- Assessment of the relevance of the request by an ad-hoc panel led by the Access Resource Committee Chair
- After the processing of all applications received by a given cut-off date, the Executive Director will receive a ranked list of applications to be considered for allocation by the Resources Allocation Panel.

Misuse of this fast track would be mitigated by limiting the number of requests by Principal Investigator to once every three years.

3.7 FAST TRACK ACCESS FOR INDUSTRY

This access mode is similar to the Fast Track access for Academia but tailored for Industry. It supports needs coming from industrial users that are exceptional and cannot be anticipated. Such case of example is the need from a commercial entity to run a proof of concept in a very short time and is identified to be decisive in enabling the entity to take a decision. As with the rest of the access modes, the Fast Track access for Industry targets Open Research & Development.

This access mode should be supported by a continuous call with monthly cut-offs and grant access 1 year. The volume and type of resources that could be claimed via such an access should be similar to the one of a regular access.

Applications submitted for Fast Track access for Industry, should provide evidence of previous successfully completed (non-fast track) allocation.

A small part (up to 5%) of the available resources would be reserved for this access.

The evaluation process supporting this access would rely on

- Administrative check
- Technical assessment (requiring Benchmark access if needed) with the support of Hosting Entity experts of targeted systems.
- Assessment of the relevance of the request by a panel led by the Access Resources Committee Chair

- After the processing of all applications received by a given cut-off date, the Executive Director will receive a ranked list of applications to be considered for allocation by the Resources Allocation Panel.

Misuse of this fast track would be mitigated by limiting the number of requests by the specific commercial entity to once every three years.

3.8 EXCEPTIONAL ALLOCATION OF RESOURCES

The Governing Board may grant a small percentage of the Union's access time of the EuroHPC supercomputers without a call, in exceptional cases, such as strategic European initiatives or in emergency and crisis management situations.

3.8.1 Strategic European Initiatives

The Governing Board will identify the strategic European Initiatives that will be granted support. Every two years a general review of the activities of these selected initiatives should be foreseen with e.g., the support of the Scientific and Industrial Advisory committee in order to verify fairness and justification for allocating resources to such initiatives. Applications taking advantage of the access mode will be subject to technical review and will have similar obligations for reporting, data management and proper project management planning, as with the rest of the applications accepted in the context of the other calls.

With the very significant increase of resources to be distributed, it is considered that allocating part of the total available resources (up to 10%) permanently to strategic EU projects/initiatives would constitute an effective usage of the infrastructure. The Governing Board will decide on the amount of resources to be granted and will task the Executive Director to implement the allocation of resources to the identified strategic European Initiatives.

3.8.2 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 (for example the Fast-Track Access). Allocation of resources will be dedicated to computing to support public or private decision making in urgent situations typically triggered for example by natural, industrial or biological events or hazards.

The Governing Board will task the Executive Director to implement the allocation of resources in response to these situations. The Executive Director will determine the level of resources to be allocated and will establish an ad-hoc urgent procedure to guarantee the proper execution of the necessary applications quickly after the occurrence of the urgent situation.

3.9 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 purpose of commercial access is to give the opportunity to any organization be it industrial entity or research/academic entity to gain access to HPC resources without the necessity of following the peer-review based access procedures of the JU and the restrictions (temporal and/or functional) imposed by them. Therefore, any entity can buy access to the JU supercomputing resources provided that the usage falls within the JU acceptable

usage policy (AUP). This AUP will adhere to the regulation provisions of commercial access according to which:

- 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.

Users that fall within the above categories should be eligible for commercial access provided that resources are available and the allocation limit of 20% has not been exhausted in the given time period. Users will be required to sign an AUP agreement, certifying compliance with the above conditions.

3.9.1 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.

Commercial allocation will be charged separately for computation, storage and network resources, and support services. The table below summarises the indicative types of resources which will have different pricing levels.

Category	Type	Cost unit
Computation	CPU Nodes	Node-hours
Computation	GPU Nodes	Node-hours
Computation	FPGA Nodes	Node-hours
Computation	High-memory nodes	Node-hours
Storage	Fast access tier	Gigabyte (GB)
Storage	Regular access tier	Gigabyte (GB)
Storage	Archive tier	Gigabyte (GB)
Network	Outbound and Inbound data transfer	Gigabyte (GB)
Support	Application porting and optimisation	Person Months (PM)
Support	Training	Hours

Service pricing will also take into consideration requirements from users to access commercial software, and the relevant cost for licenses as well as the operational cost of installing and maintaining the software during the duration of usage.

3.9.2 Quality of service and support

JU commercial services need to provide, apart from access to computing resources, a range of additional support services, all adhering to a specific Service Level. For example:

- High quality of service in terms of uptime and availability.
- Access to support desk, on (at-least) an 8x5 (09:00-17:00 CET) basis.
- Access to training and support material
- Support for application porting and optimisation

The Hosting Entities are expected to play a significant role in the provisioning of support services. The SLA requirements from commercial access need to be reflected in the Hosting Agreements, which should be negotiated and amended accordingly. EuroHPC Competence Centres (CC) will also have a key role in local market outreach and client support. Local commercial users should be able to turn to the respective CC in order to seek information on access conditions and pricing. CCs should also provide training and application development support whenever possible.

The JU web site should be extended to provide commercial access section in which interested users should be able to find the necessary information and further be guided for the next steps in getting access. Such information includes pricing, available systems technical information and online support services. The JU should also develop the necessary monitoring and accounting services offering to existing users clear overview of the resources consumed and the fees to be paid.

3.9.3 Access conditions

Access will be provided for a specific period of time (e.g., 1 year) and/or pre-agreed amount of resources (e.g., 1,000 node hours, 500 GB on fast-tier storage). If resources are exhausted while the contract is still in force the user may request extension of the existing contract under the same conditions provided resources are available. If the contract time expires without the user exhausting all agreed resources, the contract may be extended for additional time provided that resources are available in the upcoming foreseen period (i.e., the user will have lower priority in acquiring resources comparing to users with active contracts).

4 ACCESS POLICY IMPLEMENTATION

4.1 ACCESS POLICY IMPLEMENTATION IN 2021

For 2021, the EuroHPC JU will delegate to PRACE part of the implementation of the Access Policy. EuroHPC JU will rely on PRACE established structure, which includes the necessary committees, expert databases and IT tools, to implement the evaluation and application process. PRACE will implement, under the guidance of the Executive Director, the following steps of the procedure described in Section 2:

- Definition of the Call (partially – The PRACE SSC[8] will aid the EuroHPC Director in the definition of the scope)
- Opening and closure of the call
- Application process & eligibility checks
- Evaluation of Applications
- Selection of applications

The EuroHPC Executive Director will be able to monitor and intervene in all these implementation steps. For what concerns the different actors involved in the procedure, the PRACE Access Resource Committee will assume the role of the Access Resource Committee foreseen in §2.9.3. The Executive Director will also join this PRACE Access Resource Committee.

The final allocation of resources is not delegated to PRACE and will be done by the Resource Allocation Panel in the terms described in this document in §2.7.

The EuroHPC Governing Board will decide how to proceed to the implementation of the access policy beyond 2021.

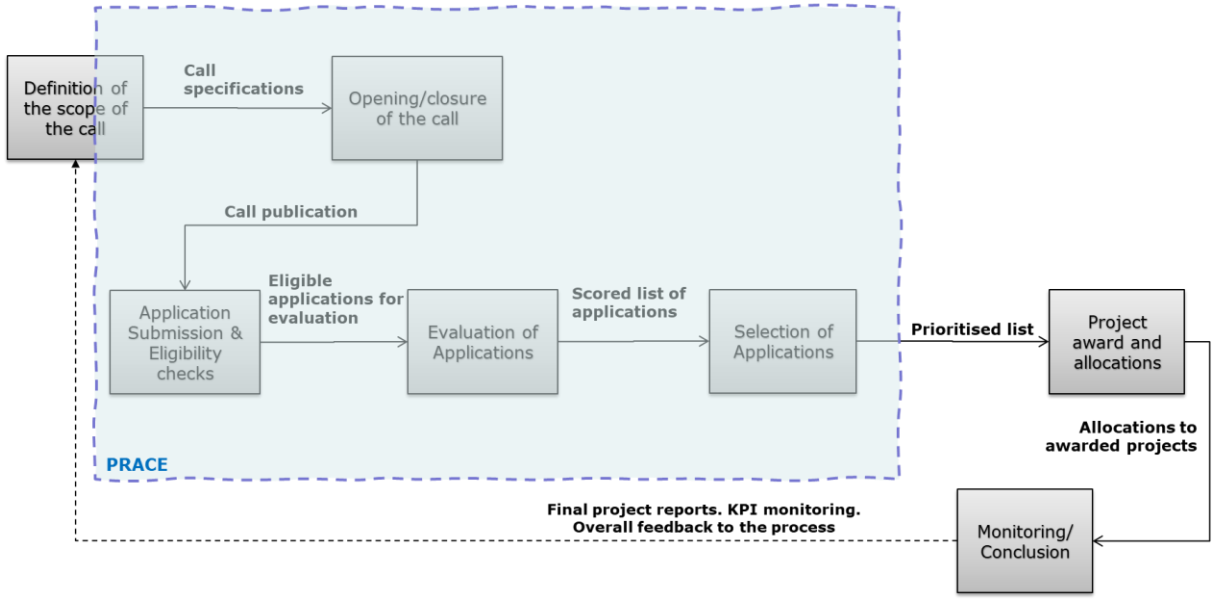

Figure 2 - Processes supported by PRACE in 2021

[8] The PRACE Scientific Steering Committee (SSC) is composed of European leading researchers that are responsible for advice and guidance on all matters of a scientific and technical nature which may influence the scientific work carried out by the use of the HPC resources.

PRACE will properly advertise the EuroHPC JU calls through its established communication and dissemination channels, and will also support the JU in the activities to promote HPC technologies adoption in Europe.

4.2 IMPLEMENTATION CONSIDERATIONS

The following guidelines relate to the implementation of the Access Policy procedure. In particular:

1. For the Extreme Scale and Regular Access calls, the applicant is expected to have the required specialist knowledge to use high-performance computers effectively. This must be demonstrated in the application. Non-expert HPC users should only be eligible with adequate supervision and preparation on the usage of resources. This requirement is relaxed for Benchmark and Development calls.
2. The software and software tools required for the task need to be available. Necessary procurement and licensing will be discussed with the Hosting Entities in advance.
3. Submitted applications and reviews must be treated confidentially and may only be used for review purposes.
4. Reviewers must not have any conflicts of interest.
5. Reviewers remain anonymous.
6. Planned deviations from the standard procedure must be reported by the Executive Director to the Governing Board and approved by the GB.

4.3 OBLIGATIONS OF AWARDED PROJECTS

Projects that have been allocated access must:

- In the case of Calls for Extreme Scale access, the Principal Investigators of the successful applications should provide a yearly interim report (possibly also in the form of a presentation at a status workshop) that documents the progress of the project and lists all relevant publications that have arisen from the project. At the end of the project, a corresponding final report must be submitted.
- In the case of Calls for Extreme Scale and Regular access, the results of the projects must be presented at joint workshops and other events and published in a suitable form. The project must be ensured that the reporting volumes of the centres have a largely uniform format and scientific quality.
- All projects being granted resources from EuroHPC must clearly acknowledge in publications and dissemination material, the usage of EuroHPC JU resources and the type of allocation.

EuroHPC should aim for strong presence of major projects at conferences and in the general public.

4.4 KEY PERFORMANCE INDICATORS

The KPIs should be chosen so that it is as easy as possible to measure the achievement of the most important goals:

a. quality of supported scientific projects, (e.g. through publications)
b. quality of supported industrial projects, (e.g. through publications or patents)
c. number of projects of new communities
d. balance of resource utilization:
    - between participating states
    - between the scientific-industrial communities and public sector users
    - between the scientific communities in general

Key Performance Indicator	Purpose
Volume of resources offered vs. volume of resources requested	To evaluate the global pressure level of the request and the adequacy of the offered HPC service to the science communities
Number of applications vs. number of awarded projects	To evaluate the pressure level of the request and the coverage of a maximum number of projects from the science communities, serving diversity criteria
Volume of resources awarded vs. volume of resources used	To monitor the adequateness of the available resources and associated services to serve the need of the communities
Share by country of the total number of awarded projects	To evaluate fairness of attribution process in answer to the interests of the stakeholders. Also, informing Participating States about the general scientific level of their teams against scientific competition
Share by country of the total awarded resources	Allowing Participating States' stakeholders to evaluate the return of investment in terms of scientific HPC needs satisfaction
Share of PIs (Principal Investigators) applying for the first time	To evaluate capacity to attract new user and communities on the long term and avoid emergence of "reserved" resources by very strong and influencing domains (different from strategic orientations willing by stakeholders)
Share of PIs affiliated to a different country than the hosting site	To evaluate the level of cooperation at European and even international level (avoid unbearable local reservation of resources violating fairness criteria of the process)
Share of projects involving partners from different EU country than the PIs	To evaluate the level of European collaboration fostered by the access modes
Share of projects involving partners from a country outside the EU	To evaluate the level of collaboration beyond the EU fostered by the access modes
Share of requested resources per domain	To evaluate the needs pressure according to scientific diversity criteria; help for anticipating future needs and guiding national and European scientific policies (for instance helping new communities to access HPC services)
Share of awarded resources per domain	To evaluate the needs satisfaction according to scientific diversity criteria; help for anticipating future needs and guiding national and European scientific policies (for instance helping new communities to access HPC services)
Number of applications vs. number of awarded projects led by industry	To evaluate the industry interest and variety of industry needs for HPC services and the level of satisfaction reached by the proposed HPC service offer

Key Performance Indicator	Purpose
Volume of resources requested vs volume of resources awarded to industry led projects	To evaluate the general industry needs satisfaction for HPC services and guide national and European policies in evaluating new needed future effort to satisfy the requests
Volume of resources awarded to SMEs	To evaluate the attraction and impact of HPC allocations on SMEs.

Table 2 - Key Performance Indicators

5 ANNEX 1 - ACCESS POLICY PROVISIONS IN THE EUROHPC REGULATION

5.1 DEFINITIONS

The following definitions are included in the EuroHPC JU regulation. They are important for the description of the Access Policy and are used in this document.

The number in the parenthesis depicts the actual numbering of the respective article in the regulation.

(2) 'access time' means the computing time of a supercomputer that is made available to a user or a group of users to execute their computer programs;

(4) 'national High Performance Computing competence centre' means a legal entity established in a Participating State that is a Member State, associated with the national supercomputing centre of that Member State, providing users from industry, including SMEs, academia, and public sector users with access on demand to the supercomputers and to the latest High Performance Computing technologies, tools, applications and services, and offering expertise, skills, training, networking and outreach;

(6) 'exascale supercomputer' means a computing system with a performance level capable of executing ten to the power of eighteen operations per second (or 1 Exaflop) supporting applications that deliver high-fidelity solutions in less time and that address problems of greater complexity;

(7) 'hosting agreement' means an agreement concluded between the Joint Undertaking and the hosting entity of a pre-exascale supercomputer or between the Joint Undertaking, the other co-owners of a petascale supercomputer and the hosting entity of a petascale supercomputer, which may take the form of a service contract or other contract;

(8) 'hosting consortium' means a group of Participating States that have agreed to contribute to the acquisition and operation of a pre-exascale supercomputer or of a petascale supercomputer; (9) 'hosting entity' means a legal entity which includes facilities to host and operate a supercomputer and which is established in a Participating State that is a Member State;

(10) 'national supercomputer' means a national computing system located in a Participating State with a performance level of at least 0,4 Petaflops and that is not procured under this Regulation;

(12) 'Participating State' means a country that is a member of the Joint Undertaking;

(13) 'petascale supercomputer' means a computing system with a performance level capable of executing ten to the power of fifteen operations per second (or 1 Petaflop);

(14) 'pre-exascale supercomputer' means a computing system with a performance level capable of executing more than 100 Petaflops and less than 1 Exaflop

(16) 'supercomputer' means any computing system having at least petascale computing performance and procured under this Regulation;

(18) 'user' means any natural or legal person, entity or international organisation that has been granted access time to use a Joint Undertaking supercomputer;

5.2 USE OF EUROHPC SUPERCOMPUTERS (ART 12)

(1) The use of supercomputers shall be primarily for research and innovation purposes falling under public funding programmes, shall be open to users from the public and private sectors and shall have an exclusive focus on civil applications.

(2) The Governing Board shall define the general access conditions to use the supercomputers in accordance with Article 13 and may define specific access conditions for different types of users or applications. The quality of service shall be the same for all users.

(3) Without prejudice to international agreements concluded by the Union, only users residing, established or located in a Member State or in a country associated to Horizon 2020, shall be granted access time, except if decided otherwise by the Governing Board in duly justified cases, taking into account the interests of the Union.

5.3 ALLOCATION OF UNION'S ACCESS TIME TO THE EUROHPC SUPERCOMPUTERS (ART 13)

(1) The share of the Union's access time to each pre-exascale supercomputer shall be directly proportional to the financial contribution of the Union referred to in Article 4(1) to the total cost of ownership of the supercomputer and shall not exceed 50 % of the total access time of the supercomputer.

(2) Each Participating State where a hosting entity is established or each Participating State in a hosting consortium shall be allocated a share of the remaining access time to each pre-exascale supercomputer. In the case of a hosting consortium, the Participating States shall agree among themselves the distribution of access time to the pre-exascale supercomputer.

(3) The share of the Union's access time to each petascale supercomputer shall be directly proportional to the financial contribution of the Union referred to in Article 4(1) to the acquisition costs of the supercomputer.

(4) Each Participating State where a hosting entity is established or each Participating State in a hosting consortium shall be allocated a share of the remaining access time to each petascale supercomputer. In the case of a hosting consortium, the Participating States shall agree among themselves the distribution of access time to the petascale supercomputer.

(5) The Governing Board shall define the access rights to the Union's share of access time to the pre-exascale supercomputers and petascale supercomputers and to the Union's share of access time to the national supercomputers. As a guiding principle, allocation of access time for publicly funded research and innovation activities for any user of a Member State or country associated to Horizon 2020 shall be based on a fair and transparent peer review process following continuously open calls for expression of interest launched by the Joint Undertaking, which shall target users from science, industry, including SMEs, and the public sector. Expressions of interest shall be evaluated by independent experts. As a general rule, Horizon 2020 principles shall guide the criteria to evaluate the user projects submitted in the calls for expression of interest.

(6) The Governing Board may grant Union's access time without a call for expression of interest in exceptional cases or in emergency and crisis management situations.

(7) Use of the Union's share of access time shall be free of charge for applications related to publicly funded research and innovation activities.

(8) The Governing Board shall regularly monitor the Union's access time granted per Member State and country associated to Horizon 2020 and per user category, including for commercial purposes. It may decide to: (a) re-adapt access times per category of activity or user, with the aim to optimise the use capabilities of the petascale and pre-exascale supercomputers; (b) propose additional support measures for providing fair access opportunities to users from all Member States and countries associated to Horizon 2020 that would aim to raise their level of skills and expertise in High Performance Computing systems.

5.4 UNION'S ACCESS TIME TO EUROHPC SUPERCOMPUTERS FOR COMMERCIAL PURPOSES (ART 14)

(1) Specific conditions shall apply to industrial users applying for the Union's access time to supercomputers for commercial purposes. The commercial service shall be a pay-per-use service, based on market prices. The level of the fee shall be established by the Governing Board.

(2) The fees generated by the commercial use of the Union's access time shall constitute revenue to the Joint Undertaking budget and shall be used to cover operational costs of the Joint Undertaking.

(3) The access time allocated to commercial services shall not exceed 20 % of the Union's total access time of each petascale supercomputer and each pre-exascale supercomputer. The Governing Board shall decide on the allocation of the Union's access time for the users of commercial services, taking into account the outcome of the monitoring referred to in Article 13(8).

(4) The quality of commercial services shall be the same for all users.

5.5 OVERALL TASKS OF THE JU RELEVANT TO THE ACCESS POLICY (STATUTES – ART. 1)

The Joint Undertaking shall carry out the following tasks:

(h) define general and specific conditions for allocating the Union's share of access time to the petascale and pre-exascale supercomputers and monitor access to these supercomputers in accordance with Article 13 of this Regulation;

(i) define general and specific conditions for allocating access time to national supercomputers and monitor access to these supercomputers in accordance with Article 13 of this Regulation;

5.6 TASKS OF THE GOVERNING BOARD RELEVANT TO ACCESS POLICY (STATUTES – ART. 7):

(3) The Governing Board shall (...) carry out the following general administrative tasks of the Joint Undertaking:

> (p) define the general and specific access conditions to use the Union's share of access time of the petascale and pre-exascale supercomputers and of the access time provided by the national supercomputers in accordance with Article 13 of this Regulation;
>
> (r) establish the level of the fee of the commercial services referred to in Article 14 of this Regulation, and decide on the allocation of the access time for those services;

(4) Tasks of the Governing Board. The Governing Board shall, in particular, carry out the following tasks related to the acquisition and operation of the EuroHPC supercomputers and generated revenues referred to in Article 14 of this Regulation:

> (f) decide annually on the use of any revenue generated by the fees for commercial services referred to in Article 14 of this Regulation;

5.7 TASKS OF THE EXECUTIVE DIRECTOR (STATUTES – ART. 9)

(4) The Executive Director shall carry out, in particular, the following tasks in an independent manner:

> (h) monitor the operations of the petascale and pre-exascale supercomputers owned or funded by the Joint Undertaking, including the allocation of the Union's share of access time, compliance with the access rights for academic and industrial users and quality of provided services;

5.8 OPERATIONAL AND FINANCIAL REPORTING (STATUTES – ART. 19)

(1) The Executive Director shall report annually to the Governing Board on the performance of the duties of the Executive Director in accordance with the financial rules of the Joint Undertaking referred to in Article 15 of this Regulation. Within two months of the closure of each financial year, the Executive Director shall submit to the Governing Board for approval an annual activity report on the progress made by the Joint Undertaking in the previous financial year, in particular in relation to the annual work plan for that year. The annual activity report shall include, inter alia, information on the following matters:

> (b) acquisition and operation of infrastructure, including the use of and access to the infrastructure, including the access time effectively used by each Participating State;