Access Policy

of the EuroHPC Joint Undertaking Supercomputers

v2.0

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Table of Revisions

Version	Date	Comments
2.0	13/12/2023	- Final version v2.0 incorporating suggested corrections from the Governing Board
2.0b4-8	21/11/2023	- Proofreading. Text improvements.
2.0b3	8/11/2023	- Expanded definitions list. Added definitions of SME and startup. - Restructured document moving paragraphs from Section 4 to Section 1 - Eliminated Section 4. Kept only KPIs which are now included in an Annex - Added introduction to Sections 1 and 2 - Removed RAP as actor of the process - Further improvement of wording in various places
2.0b2	1/10/2023	- Clarification for project extensions - KPIs revision - Eligibility conditions - Access principles revisited. - Improved wording in various places
2.0b1	17/9/2023	- Introduction of Industry Access for AI call - Revised Fast track access - Regular Access calls reduced to two per year - Revision of commercial access - Practical considerations for access - Various improvements
2.0b0	08/06/2023	- Removed PRACE references - Incorporated the latest regulation 2021/1173 together with the old one 2018/1488 - amends 3 reg call to 2 calls per year - No continuation possibility for regular - Added industry call details in the usual tracks as agreed to have a new form only, - clarifies the reporting part both for academia and industry. - Removed fast track - Efficient usage clarifies the usage according to Gantt chart and if not penalty. - Energy efficiency and CO2 - changes in the roles, teams and committees involved, - the role of PRACE in chapter 4

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 supercomputers and quantum computers (the EuroHPC supercomputers) which are located at and operated by supercomputing centres (Hosting Entities) in the Union. The Joint Undertaking manages the Union's access time (from 35% up to 50% of their total capacity) of these supercomputers. Access time is 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 represents a significant investment from the JU members (European Commission and Participating States). Defining rules and procedures for providing access to these systems is therefore an important process. It is essential that computation time is allocated in such a way as to maximise the 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 the main principles and core characteristics of the Access Policy for the allocation of the Union's share of the supercomputers co-funded by the Joint Undertaking focusing on the allocation of access time for Open Research and Innovation activities. In addition, it covers specific allocation conditions to support industry uptake with focus on Small to Medium Enterprises (SMEs).

The document has been prepared by the EuroHPC JU with the support of the EuroHPC JU Infrastructure Advisory Group (INFRAG) and the scientific experts of the current Access Resource Committee (ARC).

DEFINITIONS

'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 programmes;

'EuroHPC supercomputer' means any computing system fully owned by the Joint Undertaking or co-owned with other Participating States or a consortium of private partners; it can be a classical supercomputer (high-end supercomputer, industrial-grade supercomputer, or mid-range supercomputer), a hybrid classical-quantum computer, a quantum computer or a quantum simulator;

'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;

'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;

'high-end supercomputer' means a world-class computing system developed with the most advanced technology available at a given point in time and achieving at least exascale levels of performance or beyond (i.e. post-exascale) for applications addressing problems of greater complexity;

'hosting agreement' means an agreement concluded between the Joint Undertaking and the hosting entity of an EuroHPC supercomputer, which defines the rights and obligations of the two parties during the acquisition and operation of the supercomputer;

'hosting consortium' means a group of Participating States that have agreed to contribute to the acquisition and operation of a EuroHPC supercomputer;

'hosting entity' means a legal entity which includes facilities to host and operate a EuroHPC supercomputer and which is established in a Participating State that is a Member State;

'mid-range supercomputer' means a world-class supercomputer with at most one order of magnitude lower performance level than a high-end supercomputer;

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

'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);

'pre-exascale supercomputer' or 'precursor to exascale supercomputer' means a computing system with a performance level capable of executing more than 100 Petaflops and less than 1 Exaflop

'quantum computer' means a computing device that harnesses the laws of quantum mechanics to solve certain particular tasks using therefore fewer computational resources than classical computers;

'Small to Medium Enterprise' or 'SME' refers to enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro

'startups' means young SMEs exhibiting high and rapid growth, aimed at developing innovative, technology-enabled products and services.

'supercomputing' means computing at performance levels requiring the massive integration of individual computing elements, including quantum components, for solving problems which cannot be handled by standard computing systems;

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

1 INTRODUCTION

1.1 THE EUROHPC JU MISSION AND CURRENT STATUS

The EuroHPC JU vision is to establish a world-leading federated and secure HPC and quantum service infrastructure ecosystem in the European Union and ensure wide use of this infrastructure for many public and private users, to support the development of key skills for European science and industry.

EuroHPC JU aims to develop, deploy, maintain, and extend in the Union a world leading federated and secure supercomputing, quantum computing service and connection to the data infrastructure ecosystem such as federated data spaces and data lakes.

The first EuroHPC JU supercomputers came online and were made available to researchers in April 2021. Currently, there are eight EuroHPC supercomputers across Europe which are operational and available for use: Leonardo in Italy, LUMI in Finland, MeluXina in Luxembourg, Karolina in Czech Republic, Vega in Slovenia, Discoverer in Bulgaria, Deucalion in Portugal and MareNostrum 5 in Spain. Two more exascale supercomputers, the first in Germany and the second in France, will be installed and become operational by 2026. Additionally, a number of midrange systems will be procured and installed in Sweden, Greece, Poland, Hungary and Ireland. In parallel, EuroHPC JU is procuring six quantum accelerators to for integration into current HPC systems and at least three of them are also expected to be operational by early 2026.

This Access Policy document defines the processes and conditions for the allocation of access time to European users, from the Academia, Research, Industry and Public Sectors. The principles of this policy are defined in the EuroHPC Regulation as established in 2018 and refined in 2021. The ultimate goal of this policy is to optimise the usage of EuroHPC Supercomputers, maximising their exploitation by European researchers and Industry, accelerating knowledge growth and innovation, ultimately ensuring the best possible societal and economic impact for the European Union and its citizens.

1.2 REGULATORY FRAMEWORK

This Access Policy has been developed in the scope of the Council Regulation (EU) 2021/1173 and Council Regulation (EU) 2018/1488 on establishing the EuroHPC JU and concerns the allocation of access time of the supercomputers procured in the context of these Regulations. Article 16 (3) of Council Regulation (EU) 2021/1173 states that users residing, established or located in a Member State or in a third country associated to Horizon 2020 shall be granted access to the Union's share of access time of the supercomputers acquired by the EuroHPC Joint Undertaking established by Regulation (EU) 2018/1488. Article 16 (4) of that Regulation states that users residing, established or located in a Member State or in a third country associated to the Digital Europe Programme or to Horizon Europe shall be granted the Union's share of access time to EuroHPC supercomputers acquired after 2020.

1.3 PRINCIPLES OF THE EUROHPC 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 Council Regulation (EU) 2021/1173 and its Annexes. The following list summarises the key principles laid out in the Regulation and are guiding the procedures described in this policy document:

- The use of the supercomputers of the Joint Undertaking should focus on civilian applications for public and private users residing, established or located in a Member State or in a third

country associated to the Digital Europe Programme (DEP) or to Horizon Europe Programme (HE), including applications in cybersecurity that may be of dual use.

- Users should be granted the Union's share of access time according to access policy rules defined by the Governing Board.
- The use of these supercomputers should respect international agreements concluded by the Union.
- 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. The selection procedure should be adapted to the particular access mode.
- With the exception of SME users undertaking private innovation activities, all users benefiting from free-of-charge access time to the supercomputers of the Joint Undertaking should adopt an open science approach and disseminate knowledge gained through that access, in accordance with Regulation (EU) 2021/695.
- User allocation of access time for economic activities other than private innovation activities of SMEs, which face particular market failures, should be granted on a pay-per-use basis, based on market prices. Allocation of access time for such economic activities should be allowed but limited and the level of the fee to be paid should be established by the Governing Board.
- The Governing Board should define specific rules to grant access time free of charge, where appropriate, and without a call for expression of interest to initiatives that are considered strategic for the Union.
- Upon the Union's request, the Joint Undertaking shall grant immediate access to initiatives that the Union considers essential for providing health-related or other crucial emergency support services for the public good, to emergency and crisis management situations or to cases that the Union considers essential for its security and defence.
- The Joint Undertaking may carry out some limited economic activities for commercial purposes.
- 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.
- Access should be granted to users residing, established or located in a Member State or a third country associated to the Digital Europe Programme or to Horizon Europe.
- Access to the Union's share of access time of the precursors to exascale (pre-exascale) and petascale supercomputers acquired by the EuroHPC Joint Undertaking established under Regulation (EU) 2018/1488 should continue to be granted to users established in the Union or a third country associated to Horizon 2020.

1.4 CONTACTS WITH EUROHPC

The EuroHPC JU Peer-Review office is responsible for implementing the Access Policy. The necessary committees listed in Section 2 and external experts from the EuroHPC JU experts' database are assisting EuroHPC JU with the Peer-Review evaluation processes. All enquiries regarding the access calls should be directed to the PRO using the following email: access@eurohpc-ju.europa.eu

1.5 PROPOSAL SUBMISSION

Proposals for Accessing the EuroHPC systems under one of the Access Modes described in this document are to be submitted online using the Peer-Review portal provided by EuroHPC JU. Prospective applicants must use the application templates provided from the portal. Any other document format will lead to application rejection during the administrative checks. All information

regarding access opportunities is available from https://eurohpc-ju.europa.eu/access-our-supercomputers_en

1.6 ASSUMPTIONS AND PRACTICAL CONSIDERATIONS FOR APPLICANTS

EuroHPC allocations are project-based and are offered for a fixed period of time, adhering to a predefined resource usage schedule. In principle, users will need to respect the usage schedule defined in their proposal. Allocations should not be exploited for production usage, as access to EuroHPC Supercomputers is dedicated to research purposes, such as computer simulations, in-silico scientific experiments or in the case e.g. of AI applications, for demanding model training but not for production, day-by-day, inference runs.

EuroHPC Supercomputers provide multitenancy executing environments. Resources are shared with other users running their applications on the system. Applications in principle run as jobs, submitted through a shared resource management system. This batch-mode nature of system access implies that large executions (e.g. jobs requesting large number of compute nodes, CPU cores or GPUs) will not be scheduled immediately but will typically take time to start running depending on the load of the system during the specific period. In addition, jobs have a restricted lifespan defined by the Hosting Entity operations team. This lifespan is for example typically set to maximum 48hrs. Large executions that need to run for a longer period require the implementation of snapshotting functionality.

EuroHPC Supercomputers provide high-speed connectivity to the external world (typically through multi-Gbit links to GEANT network), however large data transfers need to be coordinated with the hosting site.

Similarly, although most EuroHPC Supercomputers provide large storage capabilities, they do not offer long-term archiving, data curation or other form of data preservation. Extremely large storage requirements need to be agreed with the Hosting entity prior to running an application.

Users receiving access time to EuroHPC systems are expected to have at least a basic level of understanding regarding how to use high-performance computers effectively. This knowledge must be demonstrated in the access application. This requirement is relaxed for the Benchmark and Development Access calls. Non-expert HPC users should only be eligible with adequate support of Hosting Entities and their Application Support Teams (ASTs) or the EuroHPC AI Support Centre.

The software and libraries required for the proper execution of the applications need to be provided by the user in case they are not already available in the requested system. In case access to commercial software is necessary, relevant licensing requirements need to be arranged with the Hosting Entities in advance.

2 PROCESS AND ROLES

2.1 INTRODUCTION

As mandated by the EuroHPC Regulation, 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. The EuroHPC JU Infrastructure needs to serve a large and diverse user community, as well as a variety of goals and policy-level strategies As such, the EuroHPC JU has established a scalable, diverse access allocations mechanism, relying on different access modes and actors engaged in the implementation process. The following section introduces the key actors involved in the implementation of the Access Policy and outlines the core principles of the evaluation process to be applied in most of the access allocation scenarios.

2.2 ACTORS OF THE ACCESS POLICY

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

2.2.1 Governing Board

The EuroHPC JU Governing Board (GB) is 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.

2.2.2 The Executive Director

The EuroHPC JU Executive Director (ED) is responsible for the implementation of the access policy, supported by the EuroHPC JU staff. The Executive Director is particularly empowered to decide autonomously on the allocation of resources to applications in case of emergency scenarios.

2.2.3 EuroHPC JU Peer-Review office

The EuroHPC JU Peer-Review Office (PRO) comprises of EuroHPC staff members dedicated to the task of managing and implementing the Access Policy. The PRO is responsible for launching the calls, receiving the applications, performing the administrative checks, assigning applications to technical and scientific reviewers and supporting the Access Resource Committee to carry out the scientific Peer-Review process. It is also responsible for communicating the results to the successfully awarded projects and remains the main contact point for them.

2.2.4 Access Resource Committee

The Access Resource Committee (ARC) consists of a group of highly qualified experts in HPC, covering a maximum of application domains and user communities. In the frame of the ARC, these experts should act on a personal basis, and independently of their employer organisation or Participating State. In addition, the ARC ensures a balanced representation of both industry and academia.

The Executive Director is responsible for establishing the criteria for eligible candidates (including Conflict of Interest rules) and for the appointment of its members.

Candidate members 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 of the ARC members is 2 years, renewable once. The ARC will appoint a chair among its members.

The ARC is supported by the EuroHPC JU Peer-Review Office to carry out their tasks. These tasks are twofold:

- Support the Executive Director in the preparation of the planning and scope of the EuroHPC access calls.
- 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.

2.2.5   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 may participate in the following tasks:

- Participation in the periodic assessment of the EuroHPC Access Policy, advising on adjustments and improvements to the process.
- Propose experts and criteria for the composition of the Access Resource Committee.

2.2.6   Applicants / End Users

Applicants submit proposals requesting access time on EuroHPC Supercomputers. They comprise HPC users coming from academia, public sector and Industry, as well as large groups from Strategic EU initiatives and EC funded projects. They are led by a Principal Investigator (PI) who is responsible to submit the proposal on behalf of the group and represent the latter during the interactions with the EuroHPC JU. Successful applicants sign an Acceptable Use Policy with the requested system Hosting Entity in which defines their limits and obligations when accessing the systems as End Users.

2.2.7   Hosting Entities

Hosting Entities (HEs) are responsible for the provision of HPC resources to End Users having allocated access time in the scope of the EuroHPC JU Access Policy. The Hosting Agreement between the JU and the HE defines the HE obligations in terms of service provisioning, security, user support etc. HEs ensure the allocation of Union's access time of the EuroHPC supercomputers to projects allocated by the EuroHPC JU Access Policy. In principle, the percentage of access time allocation is averaged over a period of one year of provisioning. Within this period, each HE will need to ensure that the agreed levels of time allocation are respected. HEs provide an annual report to the EuroHPC JU indicating how EuroHPC JU time was allocated.

2.3   OVERVIEW OF THE PROCESS

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

1. Definition of the call
2. Opening/closure of the call
3. Application submission
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.
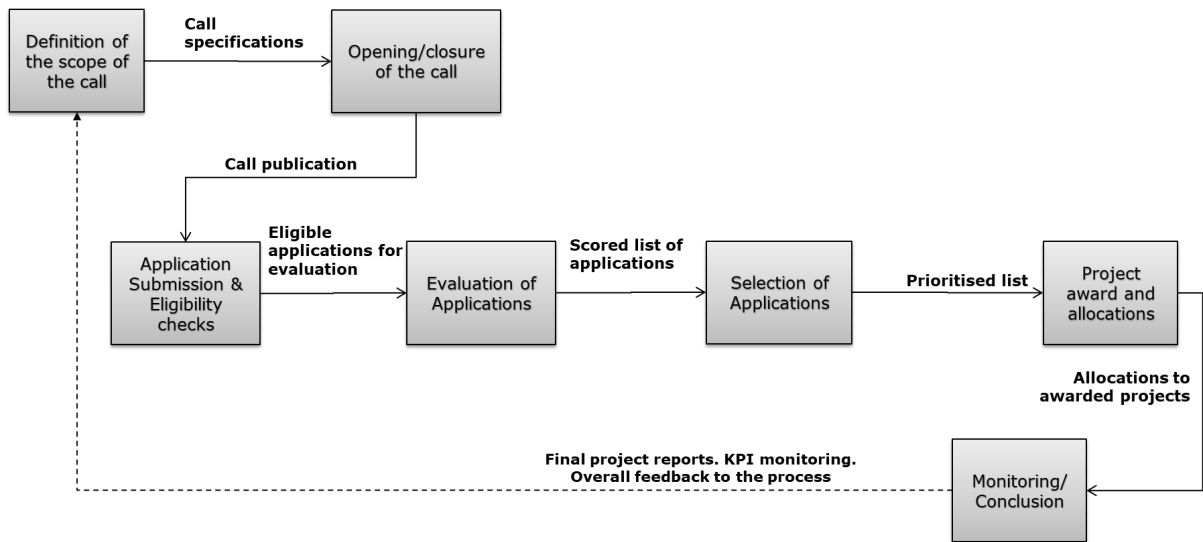

Figure 1 - EuroHPC JU system allocation process workflow

2.4 DEFINITION OF THE CALL

The EuroHPC JU Peer-Review office, under the supervision of 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 respective access mode for which the call is launched (see Section 3 Access modes)
- cut-off dates of the continuous calls for the evaluation of applications.
- estimated dates for the selection and award of applications.
- rules for participation, including specific eligibility criteria for applications and users.
- evaluation criteria for applications, and their relative weight if applicable. In principle, application domain excellence, impact, quality and efficiency of implementation will be the primary evaluation criteria for accessing the EuroHPC resources. Other applicable criteria will be clearly outlined in the calls, such as innovation, socio-economic impact, etc. Evaluation criteria and their weighting are adapted per access mode in order to support the specific goals of this mode e.g. innovation being the primary criterion for industrial 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.

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.

Where 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.

2.5 OPENING/CLOSURE OF THE CALL

The Governing Board decides on the Calls for proposals prepared by the Executive Director. Following a positive decision, the Executive Director mandates the PRO to 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 an annual report of their outcome with a proposal for continuation, closure or amendment of the scope and conditions of the calls.

2.6 APPLICATION SUBMISSION & ELIGIBILITY CHECK

The Executive Director establishes the operational processes, applications forms 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 should 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 confirmed eligible by the PRO will proceed to the next steps. Non-eligible applications will be informed of the reasons for rejection.

2.7 EVALUATION OF APPLICATIONS

The Executive Director is 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[1]. Experts

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[1] Some Access Modes will not need the Peer-Review process because of the simplicity, see section 3 for detailed description.

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 ARC 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 is 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). The panel of experts should include a balanced representation of experts from academia and the private sector. Involvement of experts will be based on Horizon Europe 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 apply:

1. The Call establishes the range of scores to be used by the experts in the different evaluation criteria during the evaluation process. The Call also establishes the minimum threshold (per criteria and overall) to be attained for an application to proceed to the following selection and allocation steps.
2. The evaluation process shall always include the technical assessment carried by the hosting entities, evaluating 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 are anonymised and remain confidential.

The outcome of this step is 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 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. The JU shall systematically carry out ethics reviews for proposals raising ethical issues in order to verify the respect of Horizon 2020 and Horizon Europe ethical principles[2].

2.8 SELECTION OF APPLICATIONS FOR ALLOCATION

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

The RAP consists of:

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[2] See the Ethics section in the H2020 Online Manual

- 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.

The allocation of resources is performed by the RAP typically in two steps:

1. The RAP establishes a final list of applications, based on the ranked list(s) from the previous step and proper consideration of the allocation guidelines set by the Governing Board for the Call.
2. The RAP then proceeds to allocate the resources available within the call to the final list of applications, **guaranteeing accessibility of the resources, while maximising the 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.
   - Possible re-allocation in another system than the one requested, if better suited to the application requirements or to ensure optimal spread and balancing of applications across all systems.

The outcome of this step is a list of granted applications on a given supercomputer with a specific resource allocation.

As a final step, the Executive Director submits this list to the Governing Board for formal approval.

2.9 AWARDING AND ALLOCATION OF ACCESS TIME TO PROJECTS

The EuroHPC Peer-Review Office, under the supervision of 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, 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 to ensure the awarded teams 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 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.

2.10 MONITORING AND CONCLUSION OF THE CALL

The allocation of the Union's access time is monitored and reported periodically 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 Annex – Key Performance Indicators). The annual monitoring report is also made available to the other bodies of the EuroHPC JU (INFRAG and RIAG). A simplified version of the report will be also published on the EuroHPC JU website 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-adapting access times per category of activity or user, to optimise the use capabilities of the EuroHPC supercomputers,
- additional support measures for providing fair access opportunities to users from eligible countries, which 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 ensure the alignment of European and national calls for system access, to achieve the highest synergies and optimal utilisation 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.

Once finished, all the projects which have been awarded computing time on the EuroHPC supercomputers will be asked to provide a summary report to be made publicly available on a dedicated section of the EuroHPC JU website. Additional details may also be requested by the EuroHPC JU to produce specific success stories.

3 ACCESS MODES

3.1 OVERVIEW

The EuroHPC JU Access Modes define the different modalities in which the EuroHPC JU resources are offered to Users. The Access Modes are categorised according to several parameters such as the volume of resources offered, the complexity of the evaluation process that is applied, the type and maturity of applications targeted by each mode, and the periodicity of cut-off dates. Typical values for these parameters are provided in this document, but actual values are 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.

3.1.1 Application evaluation complexity

A call for access involves an evaluation process. For Access Modes allocating large proportions of system resources, a Peer-Review evaluation is required to rank the applications based on the established evaluation criteria. These modes are:

- Extreme Scale Access (§3.2)
- Regular Access (§3.3)
- Access for Artificial Intelligence and Data-Intensive Applications (§3.4)

These modes require the involvement of large number external experts which support the Access Resource Committee to conclude the final ranking of proposals. The result of this rigorous process is that a number of applications may be rejected due to lower ranking. This is because the JU must first allocate resources in order of ranking, with the highest ranked proposals receiving resources first until the latter are exhausted.

Two Access Modes follow a simplified approach to application evaluation to accelerate the review process and reduce the time to inform the results and start of allocation period. These modes are:

- Benchmark Access (§3.5)
- Development Access (§3.6)

In addition to the above modes, allocations can be granted following exceptional procedures as foreseen by **Strategic Access** (§3.7) and **Emergency Access** (§3.8).

3.1.2 Access opportunities for Industry and SMEs

Support for industry, and in particular European SMEs and startups, is one of the key goals of EuroHPC supercomputers. Depending on the purpose of usage we identify three cases/opportunities for access:

- <u>Access for traditional computational Research and Development (R&D) applications following the Open Science principle.</u> All access modes are open to users from industry for publicly funded research and innovation activities, which involves publication of the outcome of the use of the resources. The need of industry applicants is met by prioritising a share of the offered resources to applications led by industry[3] in a given call. In these cases, innovation and impact is prioritised over scientific excellence.

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

- Access for Artificial Intelligence and Data-intensive Applications. EuroHPC JU offers a specific access mode aiming to support Artificial Intelligence applications with a special focus on Foundation Models and Generative AI e.g Large Language Models (LLMs). This access mode pays particular attention to European SMEs and startups for which access to large supercomputing resources is typically challenging.

- Pay-per use commercial access. European enterprises can also benefit from the commercial access offered by the EuroHPC JU. This is particularly suitable for industrial HPC applications, for which the restrictions of open calls and Peer-Review processes are prohibiting (e.g. commercial exploitation incompatible with open publication of the project's results). The specific conditions for Commercial Access are described in §3.9.

3.1.3 Eligibility Criteria

The acquisition and operation of EuroHPC JU supercomputers are funded using a variety of different EU programmes, notably Horizon 2020, Horizon Europe and Digital Europe Programme. In particular, pre-exascale and petascale systems were funded by Horizon 2020 whereas exascale, mid-range and quantum systems are funded by the Digital Europe Programme. Following the EuroHPC Regulation, eligibility for access depends on the country in which the applicants are established and whether this country is affiliated to the abovementioned programs. Therefore:

- Eligible for accessing Pre-exascale and Petascale supercomputers are users residing, established or located in an EU Member State or in a country associated with Horizon 2020[4] Programme. By analogy,
- Eligible for accessing Exascale (High-end) and Mid-range supercomputers are users residing, established or located in an EU Member State or in a country associated with Horizon Europe[5] program or Digital Europe[6] Programme.

In addition, dedicated international cooperation activities may be carried out, with specific conditions defined by the Governing Board.

3.1.4 Overview of EuroHPC Access Modes

The following table summarises the access modes and offers and quick reference for assessing their differences and suitability for specific applications. The table does not include commercial access.

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[4] See list of participating countries in Horizon 2020

[5] See list of participating countries in Horizon Europe

[6] See list of countries associated to Digital Europe Program

Access Mode	Extreme Scale Access	Regular Access	Access for AI	Benchmark Access	Development Access	Strategic Access	Emergency Access
Allocation Duration	1 year	1 year	1 year	3 months	6 months to 1 year	Defined by the GB	Medium to long term or permanent. Defined by the ED
Recurrence	Continuous call, cut-offs every six months (2 cut-offs per year).	Continuous call, cut-offs every six months (2 cut-offs per year).	Continuous call, bi-monthly cut-offs (6 cut-offs per year)	Continuous call, monthly cut-offs (12 cut-offs per year)	Continuous call, monthly cut-offs (12-cut offs per year)	Upon request of the Union or based on GB decision	Upon request of the ED
Possibility for project extension	Yes, max 3 months and up to 10% of initial allocation, subject to progress report approval.	Yes, max 3 months and up to 10% of initial allocation, subject to progress report approval.	Yes, max 3 months and up to 10% of initial allocation, subject to progress report approval.	No	No	Extension conditions defined in the GB decision	Upon decision of the ED
Share of resources (indicative)	Up to 50 % of participating systems High-end systems (pre-exascale and exascale)	Up to 70 % of participating systems All systems	up to 20% of participating systems All system partitions with AI capabilities	up to 5% of participating systems All systems	up to 5% of participating systems All systems	Up to 10% of participating systems, aggregated for all selected initiatives All systems	As necessary and upon decision of the ED
Data storage needs	Large storage for the duration of the allocation	Large storage for the duration of the allocation	Large storage for the duration of the allocation	Limited	Limited	Large storage for medium to long term	Large storage for medium to long term
Accessible to industry	Yes Specific track and evaluation criteria	Yes Specific track and evaluation criteria	Primarily for Industry AI applications – Special conditions for SMEs and startups	Yes	Yes	Specific conditions to be defined by the respective GB decision	Upon decision of the ED
Scientific Peer-review	Yes	Yes	Yes (specific to ethical AI aspects)	No	No	No	No
Technical assessment	Yes	Yes	Yes	Yes	Yes	Yes	No
Data Management Plan	Yes	Yes	Yes	No	No	Yes	No
Application type	Full application	Full application	Full application	Technical application	Technical application	Official request submitted to the GB	Official request submitted to the ED
Prerequisite	Benchmark	Benchmark	None	None	None	None	None
Duration of evaluation process	6 months	4 months	1 month	2 weeks	2 weeks	No evaluation. Acceptance process subject to GB discussions	Immediate access upon ED decision

Table 1 - Access Modes

3.2 EXTREME SCALE ACCESS

3.2.1 Description

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

Resources are allocated through a continuously open call for applications with **two (2) cut-off dates** per year. **The allocations are granted for a period of one (1) year** possibility of extension of 3 months in case resources have not been consumed.

Applicants (Principal Investigators) can, in principle, **only be awarded access time for one** Extreme scale application at any given time. However, where an applicant has applied for access time for more than one project, awards of additional ranked projects from the same Principal Investigator are possible, provided that computing time is still available in the given call.

The availability of large-scale systems opens the possibility of supporting outstanding research and innovation projects requiring access to very large-scale computing and storage resources. Extreme Scale calls will allocate resources primarily from EuroHPC-JU high end systems (pre-exascale and exascale).

Calls for Extreme Scale access are open for all categories of applications (Scientific, Industry and Public Sector) defining three distinctive tracks respectively for each category. Applicants need to specify which track they are applying for. The evaluation is based on the appropriate established criteria for each track. Each call defines the level of resources available for each track. The ranking of proposals is done separately for each track and applications are awarded until the resources reserved for each track are exhausted.

The scientific excellence of the application is the primary factor in the final allocation decision of the scientific track. Innovation and impact are prioritised for the final allocation decision of the industry and public sectors tracks.

Flagship scientific applications that are able to exploit the full scale of EuroHPC exascale and pre-exascale supercomputers are the main target for Extreme Scale Access.

Candidates for Extreme Scale Calls may indicate in their application form the necessity to be supported by a EuroHPC Application Support Team.

3.2.2 Requirements

The eligibility requirements for applicants to Extreme Scale Access calls are the following: Users from academia, research institutes, public authorities and industry, residing, established or located in a Member State, or in a third country associated to Horizon Europe 2020, the Digital Europe Programme or to Horizon Europe, are eligible to apply to the Union's share of access time to EuroHPC supercomputers (see eligibility criteria 3.1.3).

Applicants should submit a full application supporting the relevance of the application to the call. The application must:

- 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, in the form of a GANTT chart, with adequate time schedule of the expected resource consumption during the lifetime of the project.
- Commit to publish the results of their project[7].

3.2.3 Evaluation process

As well as the technical assessment, the application will be evaluated based on a set of evaluation criteria which cover:

- **Excellence** in the relevant application domain, and in particular:
  - Scientific excellence for calls targeting public research and academia. The proposed research must demonstrate scientific excellence and a potential for high European and international impact.
  - Industrial impact and innovation for calls targeting industry. 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.
  - Public sector impact and innovation for calls targeting users from the public sector. The proposed application must demonstrate public sector relevance of the application and potential socio-economic impact for the Participating States of EuroHPC JU.

- **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 and efficiency of implementation** including a clearly defined 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:

- The call is open continuously with bi-yearly cut-off dates.
- The evaluation process runs over 6 months and includes:
  - Administrative check
  - Assignment of rapporteurs to each application by the Access Resource Committee (ARC)
    - The ARC assigns 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 experts proposed by the rapporteurs.

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[7] In case of disclosure issues due to the Intellectual Property from the industrial projects, the applicant should duly justify the cause of the limitation and submit a limited report to be used for public dissemination.

- 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) during a Resource Allocation Panel (RAP) and are submitted to the Executive Director. Based on the ranking and the recommendations from the ARC, dedicated effort a EuroHPC AST maybe assigned to support successful applicants.
  - The Executive Director submits the results to the Governing Board for their final approval.

3.2.4 Confidentiality and Non-Disclosure

The following principles apply:

- Submitted applications and reviews are treated confidentially and are only be used for review purposes.
- Reviewers are checked that they do not have any conflicts of interest.
- Reviewers remain anonymous.

3.2.5 Project extensions

Users may request extension of their allocation of up to 3 months in the event that they were not able to consume the assigned resources and complete their project in the allotted time. In such cases, the PI should submit a formal request to EuroHPC JU PRO at least 1 month before the conclusion of the project. The request should clearly state the reasons behind the underspending and provide a short progress report with the work performed so far and the remaining activities to achieve the foreseen goals of the project. Up to 20% of initial allocation can be used during the extension period. If the underutilised time is more than 20% then the excessive time is removed from the total remaining allocation. No allocation of additional resources is possible. In this instance, a new proposal needs to be submitted in one of the established calls. The EuroHPC PRO will consult members of the ARC involved in the initial evaluation, to finalise the decision for extension. No further requests for extension will be accepted after the 3-month extension.

3.2.6 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[8] within three (3) months of the completion of a resource allocation, including information on energy use and carbon footprint of the project while using the supercomputers.
- update the list of publications typically semi-yearly for another two years.
- contribute to public reports prepared by the JU[9]

Misuse of resources includes:

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[8] In case of disclosure issues due to the Intellectual Property from the industrial projects, the applicant should duly justify the cause of the limitation and submit a limited report to be used for public dissemination.

[9] In case of disclosure issues due to the Intellectual Property from the industrial projects, the applicant should duly justify the cause of the limitation and submit a limited report to be used for public dissemination.

- significant under-usage of the allocation without justification,
- use for not intended purposes as described in the evaluated application,
- unethical behaviour, or
- any other breach of the Hosting Entity Acceptable Use Policy.

Such misuse will be recorded and considered in future calls and proposals submitted from the same PI and user group. Additionally, the allocated usage will be monitored on quarterly bases and in case of under-usage the PI will be requested to duly justify the reason. In case of repeated underusage, the project can be penalised by a proportional decrease of allocated resources.

3.3 REGULAR ACCESS

3.3.1 Description

This access mode is open to all fields of science, industry and the public sector, and invites applications which present compelling cases that will enable scientific innovation in the domains covered. The expected impact in the application's domain should justify the need for large allocations in terms of compute time, data storage and support resources.

This access mode will allocate resources through a continuously open call for applications associated with **two (2) cut-off dates per year**.

The allocations are granted for one (1) year. Applicants (Principal Investigators) can, in principle, be awarded access time for **only one** Regular Access application at any given time. However, where an applicant has applied for access time for more than one project, awards of additional ranked projects from the same Principal Investigator can be granted provided that resources are still available in the given call.

The Regular access mode is meant to serve research domains or communities that require medium- to large-scale access to compute and/or storage resources.

The scientific excellence of the application is the primary factor of the final allocation decision of the scientific track. Innovation and impact is prioritised for the final allocation decision of the industry and public sectors tracks.

The majority of European scientific applications are expected to be served by this access call.

Regular Access calls allocate resources from all EuroHPC systems. Around 70% of total time from these systems are expected to be allocated depending on requirements for allocation from other access modes for these systems in a given period (e.g. allocation requirements for Strategic Initiatives or Urgent applications).

Maximum allocations accepted for this access are aligned with the minimum allocations of the Extreme Scale access.

Calls for Regular Access are open for all categories of applications (Scientific, Industry and Public Sector) defining three distinctive tracks respectively for each category. Applicants need to specify which track they apply for. The evaluation is based on the appropriate established criteria for each track. Each call defines the level of resources to be available for each track. Ranking of proposals is done separately for each track and applications are awarded until the resources reserved for each track is exhausted.

3.3.2 Requirements

The eligibility requirements for applicants to Extreme Scale Access calls are based on criteria set out in section 3.1.3. Users are eligible to apply to the Union's share of access time to EuroHPC supercomputers must come from academia, research institutes, public authorities and industry and should be residing, established or located in a Member State, or in a third country associated to Horizon 2020, the Digital Europe Programme or to Horizon Europe.

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

- 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 or Development Access.
- Provide a project plan, with adequate time schedule of the expected resource consumption during the lifetime of the project as well as a GANTT chart.
- Commit to publish the results of their project[10].

3.3.3 Evaluation process

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

The evaluation process is structured as follows:

- The call is open continuously, with minimum 1 month between the availability of the (updated) call documentation and the corresponding cut-off date.
- The evaluation process runs over 4 months and includes:
  o Administrative check
  o Technical assessment of each application by the experts of the Hosting Entities
  o Peer-Review performed by domain panels.
    ▪ The ARC appoints a domain panel chair, selected amongst its members having expertise in the specific domain.
    ▪ The domain panel chair assigns 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)
  o A ranking per domain is produced by each domain panel.
  o The global consolidated ranking is done by the Resource Allocation Panel (RAP) 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 Confidentiality and Non-Disclosure

See §3.3.4

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[10] In case of disclosure issues due to the Intellectual Property from the industrial projects, the applicant should duly justify the cause of the limitation and submit a limited report to be used for public dissemination.

3.3.5 Project extensions
See §3.2.4

3.3.6 Access outcome reporting requirements and misuse mitigation
See §3.2.6

3.4 ACCESS FOR AI AND DATA-INTENSIVE APPLICATIONS

3.4.1 Description
This access mode, aims to support ethical Artificial Intelligence, Machine Learning, and in general, Data Intensive applications, with a particular focus on Foundation Models and Generative AI (e.g. Large Language Models). This access mode will allocate resources through a continuously open call for applications with **six (6) cut-off dates per year**.

The allocations are granted for one (1) year. Applicants (Principal Investigators) can, in principle, be awarded access time for **only one** Access for AI application at any given time. However, where an applicant has applied for access time for more than one project, awards of additional projects from the same Principal Investigator can be granted provided that resources are still available in the given call.

The AI access mode is primarily meant to serve Industry organisations, Small to Medium Enterprises (SMEs), startups, as well as public sector entities, requiring access to supercomputing resources to perform Artificial Intelligence and Data Intensive activities. The call is focusing on the training of Large Language Models to serve the requirements of European industry and society. Resources are allocated primarily to perform compute-demanding training executions of ethical AI models. Only a limited percentage of an allocation (no more than 10% of the overall allocation) should be dedicated to inference runs of trained AI models.

Access for AI calls will allocate resources from EuroHPC systems offering optimal hardware for Artificial Intelligence applications; for example compute partitions of EuroHPC systems with accelerators (i.e. Graphics Processing Units). Up to 20% of total time from these systems may be allocated to these projects, subject to allocation demands from other access modes for these systems in a given period (e.g. allocation demands for Strategic Initiatives or Urgent applications).

This access mode specifically targets ethical AI and Data Intensive applications. For traditional computational applications for Research and Innovation, Industries and SMEs should apply to the relevant tracks of Extreme Scale and Regular Access modes.

3.4.2 Requirements
The eligibility requirements for applicants to Access for AI calls are set out in section 3.1.1. Users from academia, research institutes, public authorities and industry, established in a Member State, or in a third country associated to Horizon 2020, the Digital Europe Programme or to Horizon Europe, are eligible to apply to the Union's share of access time to EuroHPC supercomputers (see eligibility criteria 3.1.3)

Candidates need to submit a full application supporting the relevance of their proposal to the call. The application must:

- Demonstrate that their application requires the use of EuroHPC supercomputer resources - both in terms of compute and medium and/or long-term data storage - to reach the objective.

- 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 should 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 as well as a GANTT chart.
- Adhere to ethical usage of AI.
- Generated data and models remain under the ownership of the user. SMEs and startups may use the outcome of these allocations for commercial exploitation.

3.4.3 Evaluation process

The evaluation process runs for maximum duration of 1 month and is structured as follows:

- Administrative check, performed by the EuroHPC JU Peer-Review office, including adherence to ethics as defined by the EU AI Act[11] and confirmation of the candidate's SME status.
- Assignment by the EuroHPC PRO domain expert, member of the ARC, responsible to assess the applicability and validity of described AI method.
- Technical assessment of each application by the experts of the Hosting Entity responsible to operate the requested systems (including a confirmation that an ethical check in line with EU AI Act[12] has been made).

Upon successfully passing all the above steps, applications will be granted access to the requested system.

Allocations are made on a first-come-first-served basis until the resources reserved for the specific cut-off are exhausted.

3.4.4 Project extensions

See §3.2.4

3.4.5 Access outcome reporting requirements and misuse mitigation

Successful applicants are required to submit a report on the outcome of their access including outcome of the porting and the benchmark results or results of the machine learning training data outcome, issues encountered, and solutions implemented as well as information on energy use and carbon footprint of the project while using the supercomputers.

Misuse of resources includes:

- use for not intended purposes as described in the evaluated application,
- unethical behaviour and in particular activities that do not adhere to the ethics principles of the EC AI Act, 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.

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[11] https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence

[12] https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence

Misuse of the access mode (for instance using the resources for other purposes than those documented in the request) may lead to the applicant being banned from applying for a certain period. Additionally, the allocated usage will be monitored on a monthly basis and in case of under-usage the PI will be requested to duly justify the reason. In case of repeated behaviour, the project will be penalised by a decrease of allocated resources.

3.5 BENCHMARK ACCESS

3.5.1 Description

The Benchmark access mode is meant for users who want to collect performance data or test a method, such as machine learning training, 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 period may be granted for 3 months.

This access mode allocates a small fraction (~5 %) of the available resources in each EuroHPC system. Applications granted for benchmark access may use the total capacity of the allocated system, if needed, for scalability tests.

3.5.2 Requirements

The eligibility requirements for applicants to Extreme Scale Access calls are the following: Users from academia, research institutes, public authorities and industry, established or located in a Member State, or in a third country associated to Horizon 2020, the Digital Europe Programme or to Horizon Europe, are eligible to apply to the Union's share of access time to EuroHPC supercomputers (see eligibility criteria 3.1.3).

The resources that can be requested via this mode are limited with pre-defined fixed values in terms of node-hours per application. 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:

- 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:
  o Administrative check.
  o Technical assessment of the relevance and feasibility of the request on the targeted system by experts of the targeted hosting entity. Proposals passing the technical assessment are automatically allocated access to the requested system(s).
- Requests from academia, research institutes, public sector and commercial organisations (industry) are handled the same way.

3.5.4 Project extensions

No project extensions are possible.

3.5.5 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 benchmark results or results of the machine learning training data

outcome, issues encountered, and solutions implemented as well as information on energy use and carbon footprint of the project while using the supercomputers; 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.

Misuse of resources includes:

- use for not intended purposes as described in the evaluated application,
- 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.

Given the small amount of available resources and the short timeframe associated to this access mode, misuse mitigation measures for system underutilisation will not be applied.

3.6 DEVELOPMENT ACCESS

3.6.1 Description

The Development access mode is meant for projects focusing on code and algorithm development, development of workflows, HPC trainings, as well as Natural Language Processing, Foundation Models and other methods for AI applications. This access mode is mostly targeting medium size executions that do not target large scale production runs and is aiming for code and algorithmic validation before requesting access to an Extreme Scale or Regular Access call.

Development access is provided through continuously open calls with monthly cut-offs. Access periods are granted for up to 1 year with no possibility of extension. 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 (~5 %) of the available resources in each EuroHPC system. Applications granted for development access may use the complete allocated system if needed for scalability tests and benchmarking for example.

3.6.2 Requirements

The eligibility requirements for applicants to Extreme Scale Access calls are the following: Users from academia, research institutes, public authorities and industry, established or located in a Member State, or in a third country associated to Horizon 2020, the Digital Europe Programme or to Horizon Europe, are eligible to apply to the Union's share of access time to EuroHPC supercomputers (see eligibility criteria 3.1.3)

The resources that can be requested via this mode are limited. The resources that can be requested via this mode are limited with pre-defined fixed values in terms of node-hours per application. Applicants need to submit an access request that will support the relevance of the application to the call.

3.6.3 Evaluation process

The evaluation process runs as follows:

- At the end of each cut-off date the applications submitted are forwarded for evaluation. The evaluation process allocates access to resources within maximum 2 weeks and includes:

- o   Administrative check
- o   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. Proposals passing the technical assessment are automatically allocated access to the requested system(s).
- •   Requests from academia, research institutes, public sector and commercial organization (industry) are handled the same way.

3.6.4   Project extensions
No project extensions are possible.

3.6.5   Access outcome reporting requirements and misuse mitigation
Successful applicants are required to submit a report on the outcome of their project[13]:

- •   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.
- •   Information on energy use and carbon footprint of the project while using the supercomputers.
- •   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 the applicant being banned from applying for a certain period. Additionally, the allocated usage will be monitored on monthly bases and in case of under-usage the PI will be requested to duly justify the reason. In case of repeated behaviour, the project will be penalised by a decrease of allocated resources.

3.7   STRATEGIC ACCESS
The Union can identify and propose to the EuroHPC JU Governing Board strategic European Initiatives to be granted access to EuroHPC supercomputers, without the requirement of submitting to a Peer-Review process, as defined in the previously mentioned Access Modes. Applications proposed for Strategic Access will be subject to technical review and have similar obligations for reporting, data management and proper project management planning, as the rest of the applications accepted in the context of the other calls.

A maximum of 10% of EuroHPC supercomputers total access time can be allocated for strategic initiatives. The percentage limit is aggregated across all Strategic Access initiatives (i.e. at any certain point the total access time allocated to all strategic initiatives cannot exceed the 10% limit). The exact share of resources granted to a specific initiative is decided by the Governing Board which will task the Executive Director to implement and monitor the allocation process.

The Governing Board decision will indicate the amount of resources allocated as well as the maximum period of allocation. At any given time, the Governing Board may decide to adjust the percentage of resources allocated to a specific initiative in order to accommodate other strategic applications requiring EuroHPC supercomputing resources.

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[13] In case of disclosure issues due to the Intellectual Property from the industrial projects, the applicant should duly justify the cause of the limitation and submit a limited report to be used for public dissemination.

3.8 EMERGENCY ACCESS

As defined in the EuroHPC JU regulation, upon request of the Union, the Executive Director shall grant direct access to the EuroHPC supercomputers to initiatives that the Union considers essential for providing health- or climate-related or other crucial emergency support services for the public good, to emergency and crisis management situations or to cases that the Union considers essential for its security and defence. The Executive Director is tasked with evaluating such requests and, upon approval. will determine the exact conditions of the allocations (period, level of resources). The EuroHPC JU, in collaboration with the Hosting Entities, will guarantee the prompt onboarding and execution of the application following the occurrence of the urgent situation.

Two separate scenarios for urgent computing applications are identified:

- Applications that have previously acquired allocations on EuroHPC systems and as such have passed through technical evaluation. These applications are in principle ready to run on the EuroHPC infrastructure with minimum or no porting effort. EuroHPC shall keep a registry of such applications. Users may submit a request to EuroHPC to include an application in the registry, after successfully completing an allocation in one of the EuroHPC access calls. Through this registry the Application Support Teams of Hosting Entities may have access to guidelines for efficiently supporting the application by, for example, providing the appropriate execution environment, allowing these applications to optimally use the system capabilities within a short period of time.
- Applications that have not previously run in the target EuroHPC supercomputer. In this case the Application Support Team (AST) operating in the relevant Hosting Entity, responsible for the target system, will be tasked with the preparation the execution environment and will provide the necessary urgent support that will allow the efficient porting and execution of the application.

3.9 COMMERCIAL ACCESS

EuroHPC JU can reserve up to 20% of the available computing resources for commercial purposes, offering pay-per-use access to the EuroHPC 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 possibility to any organisation, be it an industrial entity or research/academic entity, of gaining 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 is offered exclusively for civilian applications.
- Commercial access is provided to users from eligible countries (see eligibility criteria §3.1.3).

Users and applications adhering to the above two requirements 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 are offered on pay-per-use basis. Pricing is based on the actual systems' acquisition and operational costs. Pricing for each supercomputer and type of resource (e.g. GPU, CPU,

storage) is calculated in collaboration with Hosting Entities and is aligned with commercial offerings of the Hosting Entity.

3.9.2 Allocation Process

Requests for commercial access should be submitted to the EuroHPC JU Peer-Review Office. The PRO will further contact the applicant to discuss the details for the allocation including target system(s), duration of access, type and level of resources required, level of support needed and exact pricing conditions. The quality of service for commercial access is the same for all users.

4 ANNEX – KEY PERFORMANCE INDICATORS

The following KPIs are aiming to measure the efficiency of the Access Policy implementation and the success of the latter to support EuroHPC JU goals:

Key Performance Indicator	Purpose
Volume of resources offered vs. volume of resources requested	To evaluate the level requested resources and the sufficiency of the offered HPC service to the science communities
Number of applications vs. number of awarded projects	To evaluate the level of applications requests and the capacity for EuroHPC resources to satisfy them.
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 national scientific competitiveness
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 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
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 1 - Key Performance Indicators