



Brussels, 24.1.2024
COM(2024) 29 final

2024/0016 (CNS)

Proposal for a

COUNCIL REGULATION

**amending Regulation (EU) 2021/1173 as regards an EuroHPC initiative for start-ups to
boost European leadership in trustworthy Artificial Intelligence**

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE PROPOSAL

• Reasons for and objectives of the proposal

Council Regulation (EU) 2021/1173,¹ repealing Council Regulation (EU) 2018/1488,² establishes the European High Performance Computing Joint Undertaking and sets out its mission and objectives. The Joint Undertaking's mission is to develop, deploy, extend and maintain in the Union a world-leading federated, secure and hyper-connected supercomputing, quantum computing, service and data infrastructure ecosystem; to support the development and uptake of demand-oriented and user-driven innovative and competitive supercomputing systems based on a supply chain that will ensure the availability of components, technologies and knowledge, limit the risk of disruption, and enable the development of a wide range of applications optimised for these systems; and to widen the use of this supercomputing infrastructure to a large number of public and private users as well as supporting the twin digital and green transitions and the development of key skills for European science and industry.

In her 2023 State of the Union Address,³ President Ursula von der Leyen announced a new initiative to make the Union's supercomputing capacity available to innovative European startups in trustworthy artificial intelligence (AI) to train their models. These models require substantial amounts of computing power to train and finetune the most advanced foundation models in order to unlock the full potential of AI, a requirement that can be met only with supercomputing.

Given that the Union's most powerful world-class supercomputing capacity is found in the European High Performance Computing (EuroHPC) Joint Undertaking's (the "Joint Undertaking") facilities, it is these facilities that will need to be made available in order for this initiative to become a reality. It is accordingly proposed to introduce a further objective for the Joint Undertaking, which will cover the contribution made by supercomputers to this new AI initiative of the Union.

This new objective will allow the Joint Undertaking to support the further development of a highly competitive and innovative AI startup and research ecosystem in Europe, including the development and uptake of European AI solution, by operating AI Factories. It will consist of deploying and operating AI dedicated supercomputers co-located with large data centres or connected to data centres via very high speed networks, enhancing the performance of these supercomputers by regularly upgrading their AI capabilities; and, providing dedicated AI oriented supercomputing services in support of the AI startup, science and innovation ecosystem for the large scale training and development of general purpose, trustworthy and ethical AI models and systems, and of AI user communities for the development, validation and running of emerging AI applications, in particular in the areas of health and care, climate change, robotics, and connected and automated driving. It will also foster a talent development pool to provide advanced education, training, skilling and reskilling activities to relevant AI stakeholders. The AI Factories will establish synergies at EU level and will cooperate with and federate other relevant Union AI initiatives, such as the Artificial

¹ Council Regulation (EU) 2021/1173 of 13 July 2021 on establishing the European High Performance Computing Joint Undertaking and repealing Regulation (EU) 2018/1488 (OJ L 256 19.7.21 p. 3).

² Council Regulation (EU) 2018/1488 of 28 September 2018 establishing the European High Performance Computing Joint Undertaking (OJ L 252, 8.10.2018, p. 1).

³ https://ec.europa.eu/commission/presscorner/detail/en/speech_23_4426

Intelligence On-Demand platform, the AI Testing and Experimentation Facilities, the EuroHPC Competence Centres, the EuroHPC Centres of Excellence, and any other emerging European AI initiative. These changes will enable the Joint Undertaking to offer tailored computing power and services to nurture large-scale AI training and development and uptake in the Union, which the current Regulation does not specifically foresee.

- **Consistency with existing policy provisions in the policy area**

The objective of this proposal is to widen the scope of Council Regulation (EU) 2021/1173 of 13 July 2021 on establishing the European High Performance Computing Joint Undertaking and repealing Regulation (EU) 2018/1488 in order to enable the Union to respond to new technological developments and strategic imperatives, namely the development of AI softwares and infrastructures, and to the need to open up supercomputing technologies to startups.

- **Consistency with other Union policies**

This proposal is fully in line with other Union policies, especially those policies enacted under the Commission priority ‘A Europe fit for the digital age’.

2. LEGAL BASIS, SUBSIDIARITY AND PROPORTIONALITY

- **Legal basis**

The legal basis of the proposed amended Regulation is Article 187 and the first paragraph of Article 188 of the Treaty on the Functioning of the European Union.

- **Subsidiarity**

The subsidiarity principle applies insofar as the proposal does not fall under the exclusive competence of the Union.

The Council Regulation (EU) 2021/1173 complies with the subsidiarity principle as its objectives, namely the strengthening of research and innovation capabilities, the acquisition of supercomputers and quantum computers, and access to high performance computing, quantum computing and data infrastructure across the Union by means of a Joint Undertaking, cannot be sufficiently achieved by the Member States, but can rather, by reason of avoiding unnecessary duplication, retaining critical mass and ensuring that public financing is used in an optimal way, be better achieved at EU level.

The growth in the importance of HPC for science, the public and private sectors in recent years has been accompanied by an exponential rise in the level of investment required to stay globally competitive. This is exacerbated by the recent surge in cost of the accelerators that are indispensable to stay competitive at global scale for the development and training of the large Artificial Intelligence models. This has led to a widespread recognition that the provision of shared infrastructure and common use of existing capabilities would benefit the European Artificial Intelligence community in all Member States. This includes Member States that may have difficulties in creating self-sufficient national HPC infrastructures while they can make valuable contributions to and benefit from federated and interconnected EU-level HPC capabilities.

The proposed amendment will enable the Joint Undertaking to make its supercomputing capacity available to innovative European startups, in order to foster the development, testing and validation of AI solutions, to enable the large scale training and development of general purpose, trustworthy and ethical AI models and systems, thus strengthening Europe’s competitiveness and industrial base in AI. Only common action of this kind at Union level

can enhance the technological sovereignty and Union's economic security and leverage its tools and regulatory powers to shape global rules and standards in AI, at the same time significantly contributing to AI uptake in European industry, research and public services.

- **Proportionality**

The proposal complies with the principle of proportionality as set out in Article 5 of the Treaty on European Union, as it consists of an effective cooperation framework, suited to all intervention areas of this initiative, does not go beyond what is necessary to solve the problems identified and is proportionate to its objectives.

- **Choice of the instrument**

The creation and operation of a Joint Undertaking in which the Union participates requires a Council Regulation, to which an amendment is now being proposed.

3. RESULTS OF EX-POST EVALUATIONS, STAKEHOLDER CONSULTATIONS AND IMPACT ASSESSMENTS

Not applicable. This is an amendment to an existing Regulation, therefore, no ex-post evaluation, stakeholder consultation, or impact assessment has been performed.

4. BUDGETARY IMPLICATIONS

No additional resources will be required from the EU budget, but the proposed measures concern a redeployment of the resources available in the Joint Undertaking.

5. OTHER ELEMENTS

- Detailed explanation of the specific provisions of the proposal

The amendment to the Regulation enlarges its scope in order to introduce a further objective to the existing six objectives of the Joint Undertaking: to develop and operate the AI Factories in support of the further development of a highly competitive and innovative AI ecosystem in the Union. **The inclusion of this objective is intended to address the unique considerations and requirements associated with the deployment and operation of computational systems required for the development, training and running of large scale AI models. It should be clarified that the amendment introduces a single change: the inclusion of AI Factories within the scope of the Regulation.**

This is in response to the major technological and regulatory developments in the field of AI that have taken place since the original Regulation came into force in 2021.

The amendment does not affect the obligations of the Member States participating in the Joint Undertaking to comply with State aid principles. Council Regulation (EU) 2021/1173 already includes provisions in this regard: specifying in its Recital (59) that any funding from Union programmes should be consistent with State aid principles to ensure the effectiveness of public spending and prevent market distortions; and specifying under Article 7 that the contributions from the Member States to its beneficiaries should be without prejudice to State aid rules.

In the light of these developments, the new proposed point 3b of Article 2 3b presents the definition of an AI dedicated supercomputer and point 3c of this Article presents the

definition of an AI Factory. Point 9 of Article 2 is amended to include the AI dedicated supercomputers as another category of EuroHPC supercomputers. A new point h of Article 3(2) presents the Joint Undertaking's new objective to develop and operate the AI Factories in support of the further development of a highly competitive and innovative AI ecosystem in the Union, while a new point h is added to Article 4(1) which defines the Joint Undertaking's new AI-focused pillar of activity. Articles 9(5) point g, 10(2) point (1), 16(1) and 17(1) are also amended in this regard.

A new Article 12a covers provisions for the acquisition and ownership of AI dedicated supercomputers by the Joint Undertaking. Article 16(1b) and 16(2b) set out how these supercomputers will be used, and their access conditions.

Article 15 is adapted to provide more flexibility for upgrading the existing EuroHPC supercomputers, including with a view to enhancing their Artificial Intelligence capabilities. The original EuroHPC Article 15 was intended to permit a timely upgrade of the supercomputers to extend their capabilities or operational lifetime. This set clear limits to keep the prioritise investment in the acquisition of new supercomputers. However, it turned out that this limit did not allow to take most advantage of the existing EuroHPC supercomputers in view of maximising the return on investment. The deployment of the EuroHPC supercomputing infrastructure took a delay of up to two years because of the COVID crisis, notably due to the scarcity of microprocessors. As the EuroHPC supercomputers have not reached the end of their operational lifetime it is much more cost effective to upgrade the capabilities of the existing EuroHPC supercomputers rather than acquiring new supercomputers of sufficient computing performance.

Proposal for a

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amending Regulation (EU) 2021/1173 as regards an EuroHPC initiative for start-ups to boost European leadership in trustworthy Artificial Intelligence

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 187 and Article 188, first paragraph, thereof,

Having regard to the proposal from the European Commission,

Having regard to the opinion of the European Parliament⁴,

Having regard to the opinion of the European Economic and Social Committee⁵,

Acting in accordance with a special legislative procedure,

Whereas:

- (1) Regulation (EU) 2024/... of the European Parliament and of the Council⁶ laying down harmonised rules on artificial intelligence (the “Artificial Intelligence Act”) aims to improve the functioning of the internal market by laying down a uniform legal framework in particular for the development, marketing and use of artificial intelligence in conformity with Union values.
- (2) Since 2021, when Council Regulation (EU) 2021/1173⁷ was adopted, the field of artificial intelligence (AI) has seen enormous technical progress and become a highly strategic and contested domain globally. The Union is at the forefront of efforts to support responsible innovation in trustworthy AI, while setting guardrails and developing effective governance.
- (3) On 13 September 2023, as part of a comprehensive approach to support responsible innovation in AI, the Commission announced a new strategic initiative to make the Union’s high-performance computing capacity available to innovative European startups in trustworthy AI to train their models. That complements work on setting guardrails for AI through Regulation (EU) 2024/... , establishing governance structures, and supporting innovation through the Coordinated Plan on Artificial Intelligence.

⁴ OJ C , , p. .

⁵ Opinion of.., OJ C, p.

⁶ Regulation (EU) 2024/... of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain union legislative acts (OJ L ...).

⁷ Council Regulation (EU) 2021/1173 of 13 July 2021 on establishing the European High Performance Computing Joint Undertaking and repealing Regulation (EU) 2018/1488 (OJ L 256, 19.7.2021, p. 3, ELI: <http://data.europa.eu/eli/reg/2021/1173/oj>).

- (4) Given that the Union’s most powerful world-class supercomputing capacity is found in the European High Performance Computing Joint Undertaking’s (the “Joint Undertaking”) facilities, it is those facilities that should be made available in order for the Commission’s initiative to become a reality. It is accordingly necessary to introduce a further objective to the existing six objectives of the Joint Undertaking that would cover the contribution made by its supercomputers to the new AI initiative of the Union.
- (5) The new objective would allow the Joint Undertaking to perform activities in the domains of acquiring and operating AI-dedicated supercomputers or partitions of supercomputers to enable fast machine learning and training of large AI foundation models. The Joint Undertaking should also be allowed to create a new access mode to its computing resources for AI startups and the wider scientific community active in AI and to develop dedicated AI applications optimized to run on its supercomputers. Those changes would enable the Joint Undertaking to offer tailored computing power and services to nurture large-scale AI training and development and uptake in the Union, which is not feasible under the current Regulation.
- (6) In order to align the application date of this Regulation with the application date of the provisions of Regulation (EU) 2024/... of the European Parliament and of the Council laying down harmonised rules on artificial intelligence, it should apply without undue delay.
- (7) Regulation (EU) 2021/1173 should therefore be amended accordingly,

HAS ADOPTED THIS REGULATION:

Article 1

Regulation (EU) 2021/1173 is amended as follows:

- (1) Article 2 is amended as follows:
 - (a) the following points (3a) and (3b) are inserted:

‘(3b) ‘Artificial Intelligence-dedicated supercomputer’ means a supercomputer that is primarily designed for training large scale, general-purpose artificial intelligence models and emerging artificial intelligence applications;

(3c) ‘Artificial Intelligence Factory’ means a centralised or distributed entity providing an Artificial Intelligence supercomputing service infrastructure which is composed of an Artificial Intelligence-dedicated supercomputer or Artificial Intelligence partition of supercomputer, an associated data centre, dedicated access and artificial intelligence-oriented supercomputing services and attracting and pooling talent to provide the competences required in using the supercomputers for Artificial Intelligence;’;
 - (b) point (9) is replaced by the following:

‘(9) ‘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, which can be a classical supercomputer (high-end supercomputer, industrial-grade supercomputer, Artificial Intelligence-dedicated supercomputer or mid-range supercomputer), a hybrid classical-quantum computer, a quantum computer or a quantum simulator;’;

- (2) in Article 3(2), the following point (h) is added:
- ‘(h) to develop and operate the Artificial Intelligence Factories in support of the further development of a highly competitive and innovative Artificial Intelligence ecosystem in the Union’;
- (3) in Article 4(1), the following point (h) is added:
- ‘(h) Artificial Intelligence Factory pillar for trustworthy and ethical Artificial Intelligence, covering activities for the provision of an Artificial Intelligence-oriented supercomputing service infrastructure that is aiming at further developing the innovation capabilities and skills of the Artificial Intelligence ecosystem; it shall include the following activities:
- (i) the acquisition and operation of Artificial Intelligence-dedicated supercomputers co-located with large data centres or connected to data centres via very high speed networks;
 - (ii) the upgrade of existing EuroHPC supercomputers with Artificial Intelligence capabilities;
 - (iii) providing access to the Artificial Intelligence-dedicated supercomputers or EuroHPC supercomputers upgraded with Artificial Intelligence, including widening their use to a large number of public and private users, including startups and small and medium-sized enterprises;
 - (iv) the operation of centralised or distributed Artificial Intelligence-oriented supercomputing service centres in support of the Artificial Intelligence startup and research and innovation ecosystem providing algorithmic support, support for the further development, training, testing, evaluation and validation of Artificial Intelligence training models and systems, and support for the development of emerging large-scale Artificial Intelligence applications in strategic areas such as health and care, climate change, robotics, or connected and automated driving.
 - (v) the operation of supercomputer-friendly programming facilities, including for the parallelisation of Artificial Intelligence applications for optimising the use of supercomputing capabilities;
 - (vi) the operation of other Artificial Intelligence-enabling supercomputing services;
 - (vii) attracting, pooling and training talent to develop their competences and skills in using the EuroHPC supercomputers for Artificial Intelligence;
 - (viii) interacting with the other Artificial Intelligence Factories, making their services accessible across Europe and cooperating with the EuroHPC Competence Centres and Centres of Excellence, and with relevant Artificial Intelligence initiatives of the Union, such as the hubs of Artificial Intelligence startups, the Artificial Intelligence and data ecosystems, the Artificial Intelligence Testing and Experimentation Facilities, the European central Artificial Intelligence platform, the Artificial Intelligence-oriented Digital Innovation Hubs, the A relevant European research infrastructuresCommunities,Knowledge and

Innovation Technology and development of Intelligent European related Artificial and other related initiatives.

(4) in Article 9(5), the following point (g) is added:

‘(g) for the Artificial Intelligence-dedicated supercomputers the following additional selection criteria shall apply for the hosting entities:

- (i) proximity with an established datacentre;
- (ii) vision, plans and capability of the hosting entity to address the challenges of the Artificial Intelligence startup and research and innovation ecosystem and the Artificial Intelligence user community and providing a supportive centralised or distributed Artificial Intelligence-oriented supercomputing service;
- (iii) quality and pertinence of experience and know-how available at the intended team that would be in charge for the supportive Artificial Intelligence-oriented supercomputing service environment;
- (iv) plans for interaction and cooperation with other Artificial Intelligence Factories, with EuroHPC Competence Centres and EuroHPC Centres of Excellence and with relevant Artificial Intelligence activities such as the hubs of Artificial Intelligence startups, the Artificial Intelligence and data ecosystems, the Artificial Intelligence Testing and Experimentation Facilities, the European central Artificial Intelligence platform, the Artificial Intelligence-oriented Digital Innovation Hubs and other related initiatives;
- (v) existing capabilities and future plans of the hosting entity to contribute to the development of the talent pool’;

(5) in Article 9, the following paragraph (6a) is added:

(6a) For the Artificial Intelligence dedicated supercomputers referred to in Article 12a, the hosting entity shall create a one-stop shop for the startups and other users to facilitate access to its support services.

(6) in Article 10(2), point (l) is replaced by the following:

‘(l) the specific conditions applicable when the hosting entity operates a EuroHPC supercomputer for industrial usage, *or an Artificial Intelligence-dedicated supercomputer.*’;

(7) the following Article 12a is inserted:

‘Article 12a

Acquisition and ownership of Artificial Intelligence-dedicated supercomputers

1. The Joint Undertaking shall acquire Artificial Intelligence-dedicated supercomputers and shall own them.
2. The Union financial contribution referred to in Article 5(1) shall cover up to 50 % of the acquisition costs plus up to 50 % of the operating costs of the Artificial Intelligence-dedicated supercomputers.

The remaining total cost of ownership of the Artificial Intelligence-dedicated supercomputers shall be covered by the Participating State where the hosting entity is

established or by the Participating States in the hosting consortium, possibly supplemented by the contributions referred to in Article 6.

3. The selection of the supplier of the Artificial Intelligence-dedicated supercomputers shall be based on tender specifications that shall be demand-driven, shall take into account the user requirements and the general system specifications provided by the selected hosting entity in its application for the call for expression of interest. The selection shall also address the security of the supply chain.
 4. The Joint Undertaking may act as first user of Artificial Intelligence-dedicated supercomputers that integrate technologies primarily developed in the Union.
 5. The Governing Board may decide in the work programme, if duly justified for security reasons, to condition the participation of suppliers in the acquisition of the Artificial Intelligence-dedicated supercomputers in accordance with Article 12(6) of Regulation (EU) 2021/694 or to limit the participation of suppliers for security reasons or actions directly related to the Union's strategic autonomy, in accordance with Article 18(4) of that Regulation.
 6. The Artificial Intelligence-dedicated supercomputers shall be located in a hosting entity of a EuroHPC supercomputer located in the Union.
 7. Without prejudice to the winding up of the Joint Undertaking, as referred to in Article 23(4) of the Statutes, at the earliest four years after the successful acceptance test by the Artificial Intelligence-dedicated supercomputer installed in a hosting entity, the ownership of the Artificial Intelligence-dedicated supercomputer may be transferred to that hosting entity, sold to another entity or decommissioned upon decision of the Governing Board and in accordance with the hosting agreement. In the case of transfer of ownership of a Artificial Intelligence-dedicated supercomputer, the hosting entity shall reimburse the Joint Undertaking the residual value of the supercomputer that is transferred. If there is no transfer of ownership to the hosting entity but a decision for decommissioning, the relevant costs shall be shared equally by the Joint Undertaking and the hosting entity. The Joint Undertaking shall not be liable for any costs incurred after the transfer of ownership of the Artificial Intelligence-dedicated supercomputer or after its sale or decommissioning.'
- (8) Article 15 is amended as follows:
- (a) paragraph 1 is replaced by the following:

‘1. The Joint Undertaking may launch a call for expressions of interest to upgrade the EuroHPC supercomputers it owns or co-owns, *to raise the performance level of the supercomputer close to exascale, or for increasing the Artificial intelligence capabilities of the supercomputer, or to increase the operational performance of the supercomputer in any other way, including quantum accelerators.*’; paragraph 2 is deleted;
 - (b) 5 is replaced by the following:

‘5. The percentage of the Union’s financial contribution for the acquisition costs of the upgrade shall be the same as the percentage of the Union’s financial contribution for the original EuroHPC supercomputer, depreciated over the expected remaining lifetime of the original supercomputer. The percentage of the Union’s financial contribution for the additional operational costs of the upgrade shall be the same as the

percentage of the Union's financial contribution for the original EuroHPC supercomputer.';

(9) Article 16 is amended as follows:

(a) the following paragraph 1b is inserted:

'1b. The Artificial Intelligence-dedicated supercomputers and EuroHPC supercomputers upgraded for Artificial Intelligence capabilities shall primarily be used for the development, testing, evaluation, and validation of large scale, general purpose artificial intelligence training models and emerging Artificial Intelligence applications, as well as for the further development of artificial intelligence solutions in the Union requiring High Performance Computing and the execution of large-scale Artificial Intelligence algorithms for the resolution of science problems.';

(b) the following paragraph 2b is inserted:

'2b. The Governing Board shall define special access conditions for the Artificial Intelligence-dedicated supercomputers and the EuroHPC supercomputers upgraded for Artificial Intelligence capabilities in accordance with Article 17 taking into account the specific needs of the Artificial Intelligence startup and research ecosystem. This shall include dedicated access to startups. Only proposals for developing trustworthy and ethical Artificial Intelligence models, systems and applications that are in line with EU values shall be eligible for access.'

(10) Article 17, paragraph 1 is replaced by the following:

'1. The share of the Union's access time to each high-end, quantum, *and Artificial Intelligence-dedicated EuroHPC supercomputer* shall be directly proportional to the financial contribution of the Union referred to in Article 5(1) to the total cost of ownership of the EuroHPC supercomputer and shall thus not exceed 50 % of the total access time of the EuroHPC supercomputer.'

Article 2

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

For the Council
The President