European Parliament
2019-2024

Committee on Industry, Research and Energy

2020/0260(NLE)

5.3.2021

*

DRAFT REPORT

on the proposal for a Council regulation on establishing the European High Performance Computing Joint Undertaking
(COM(2020)0569 – C9-0335/2020 – 2020/0260(NLE))

Committee on Industry, Research and Energy

Rapporteur: Maria da Graça Carvalho

Symbols for procedures

*	Consultation procedure
***	Consent procedure
***I	Ordinary legislative procedure (first reading)
***II	Ordinary legislative procedure (second reading)
***III	Ordinary legislative procedure (third reading)

(The type of procedure depends on the legal basis proposed by the draft act.)

Amendments to a draft act

Amendments by Parliament set out in two columns

Deletions are indicated in ***bold italics*** in the left-hand column. Replacements are indicated in ***bold italics*** in both columns. New text is indicated in ***bold italics*** in the right-hand column.

The first and second lines of the header of each amendment identify the relevant part of the draft act under consideration. If an amendment pertains to an existing act that the draft act is seeking to amend, the amendment heading includes a third line identifying the existing act and a fourth line identifying the provision in that act that Parliament wishes to amend.

Amendments by Parliament in the form of a consolidated text

New text is highlighted in ***bold italics***. Deletions are indicated using either the ▌ symbol or strikeout. Replacements are indicated by highlighting the new text in ***bold italics*** and by deleting or striking out the text that has been replaced.
By way of exception, purely technical changes made by the drafting departments in preparing the final text are not highlighted.

CONTENTS

Page

DRAFT EUROPEAN PARLIAMENT LEGISLATIVE RESOLUTION

on the proposal for a Council regulation on establishing the European High Performance Computing Joint Undertaking
(COM(2020)0569 – C9-0335/2020 – 2020/0260(NLE))

(Consultation)

The European Parliament,

– having regard to the Commission proposal to the Council (COM(2020)0569),

– having regard to Article 187 and the first paragraph of Article 188 of the Treaty on the Functioning of the European Union, pursuant to which the Council consulted Parliament (C9-0335/2020),

– having regard to Rules 82 and 40 of its Rules of Procedure,

– having regard to the report of the Committee on Industry, Research and Energy (A9-0000/2021),

1. Approves the Commission proposal as amended;

2. Calls on the Commission to alter its proposal accordingly, in accordance with Article 293(2) of the Treaty on the Functioning of the European Union;

3. Calls on the Council to notify Parliament if it intends to depart from the text approved by Parliament;

4. Asks the Council to consult Parliament again if it intends to substantially amend the Commission proposal;

5. Instructs its President to forward its position to the Council and the Commission.

Amendment 1

Proposal for a regulation
Recital 6

Text proposed by the Commission	*Amendment*
(6) The Communication from the Commission of 19 February 2020 entitled 'Shaping Europe's digital future' presents Europe's digital strategy and focuses on few key objectives to ensure that digital solutions help Europe to pursue its own way towards a digital transformation that works for the benefit of people. Among the key actions it proposes is to invest in building and deploying cutting-edge joint digital capacities, including in supercomputing and quantum technologies, and to expand Europe's supercomputing capacity to develop innovative solutions ***for*** medicine, transport and ***the*** environment.	(6) The Communication from the Commission of 19 February 2020 entitled 'Shaping Europe's digital future' presents Europe's digital strategy and focuses on few key objectives to ensure that digital solutions help Europe to pursue its own way towards a digital transformation that works for the benefit of people. Among the key actions it proposes is to invest in building and deploying cutting-edge joint digital capacities, including in supercomputing and quantum technologies, and to expand Europe's supercomputing capacity to develop innovative solutions ***across all economic sectors, such as health and*** medicine, transport and ***mobility,*** environment ***and climate change***.

Or. en

Amendment 2

Proposal for a regulation
Recital 7

Text proposed by the Commission	*Amendment*
(7) The Communication from the Commission of 10 March 2020 entitled 'A new Industrial Strategy for Europe' is reflecting an ambitious industrial strategy for Europe to lead the twin transitions towards climate neutrality and digital leadership. The Communication stresses the support, among others, to the development of key enabling technologies that are strategically important for Europe's industrial future, including High Performance Computing and quantum technologies.	(7) The Communication from the Commission of 10 March 2020 entitled 'A new Industrial Strategy for Europe' is reflecting an ambitious industrial strategy for Europe to lead the twin transitions towards climate neutrality and digital leadership. The Communication stresses the support, among others, to the development of key enabling technologies that are strategically important for Europe's industrial future, including High Performance Computing and quantum technologies. ***The development of a world-***

class European High Performance Computing infrastructure and ecosystem represents a strategic resource for the future of EU industry, SMEs, the creation of new jobs and global competition and could benefit the achievement of a vibrant data economy.

Or. en

Amendment 3

Proposal for a regulation
Recital 14

Text proposed by the Commission	*Amendment*
(14) In order to equip the Union with the computing performance needed to maintain its research and industrial capacities at a leading edge, the Member States investment in High Performance Computing and quantum computing should be coordinated and the industrial and market take-up of High Performance Computing and quantum computing technologies be reinforced both in the public and private sectors. The Union should increase its effectiveness in turning the technology developments into demand-oriented and application-driven European High Performance Computing and quantum computing systems of the highest quality, establishing an effective link between technology supply, co-design with users, and a joint procurement of world-class systems, and creating a world-class ecosystem in High Performance Computing and quantum computing technologies and applications. At the same time, the Union should provide an opportunity for its supply industry to leverage on such investments, leading to their uptake in large-scale and emerging application fields ***such as personalised medicine, climate change, connected and automated driving or other lead markets***	(14) In order to equip the Union with the computing performance needed to maintain its research and industrial capacities at a leading edge, the Member States investment in High Performance Computing and quantum computing should be coordinated and the industrial and market take-up of High Performance Computing and quantum computing technologies be reinforced both in the public and private sectors. The Union should increase its effectiveness in turning the technology developments into demand-oriented and application-driven European High Performance Computing and quantum computing systems of the highest quality ***and widely spread across Europe***, establishing an effective link between technology supply, co-design with users, and a joint procurement of world-class systems, and creating a world-class ecosystem in High Performance Computing and quantum computing technologies and applications ***for the benefits of all Member States and regions***. At the same time, the Union should provide an opportunity for its supply industry to leverage on such investments, leading to their uptake in large-scale and emerging application fields that are

that are underpinned by artificial intelligence, blockchain technologies, edge computing or more broadly by the digitalisation of the European industry.	underpinned by artificial intelligence, blockchain technologies, edge computing or more broadly by the digitalisation of the European industry.

Or. en

Amendment 4

Proposal for a regulation
Recital 14 a (new)

Text proposed by the Commission	*Amendment*
	(14a) In order to design, refresh and implement a new range of low-power and highly energy-efficient European world-class and innovative supercomputing ecosystem, technologies and hardware systems, a vast amount of research and innovation activities and resources will need to be used. In synergy with other European partnerships and initiatives, the Joint Undertaking is well placed to establish strategic roadmaps and research and investment plans to help bolster Europe's electronics and embedded systems value chain, in view to expand the European industrial presence, to address key technological, security and societal challenges and to establish advanced European hardware design capabilities and production facilities.

Or. en

Amendment 5

Proposal for a regulation
Recital 15

Text proposed by the Commission	*Amendment*
(15) In order for the Union and its Member States to reach technological	(15) In order for the Union and its Member States to reach ***a strategic***

autonomy in key digital technologies such as High Performance Computing and quantum computing, they should invest in next generation low-power supercomputing technologies, innovative software and advanced supercomputing systems for exascale and post-exascale computing and quantum computing, and for innovative supercomputing and data applications ***for medicine, the environment, manufacturing and engineering***. This should allow the European supply industry to thrive in a wide range of key technology and application areas that reach beyond High Performance Computing and quantum computing and, in the long run, feed broader ICT markets with such technologies. It would also support the High Performance Computing and quantum computing science and user industry to undergo a digital transformation and boost its innovation potential.

technological autonomy in key digital technologies such as High Performance Computing and quantum computing, ***while preserving an open economy,*** they should invest in next generation low-power ***and energy-efficient*** supercomputing technologies, innovative software and advanced supercomputing systems for exascale and post-exascale computing and quantum computing, and for innovative supercomputing and data applications. This should allow the European supply industry to thrive in a wide range of key technology and application areas that reach beyond High Performance Computing and quantum computing and, in the long run, feed broader ICT markets with such technologies. It would also support the High Performance Computing and quantum computing science and user industry to undergo a digital transformation and boost its innovation potential.

Or. en

Amendment 6

Proposal for a regulation
Recital 16

Text proposed by the Commission	*Amendment*
(16) Pursuing a common strategic EU vision in High Performance Computing and quantum computing is essential for realising the Union's and its Member States' ambition to ensure a leading role and strategic autonomy in the digital economy. The objective would be to establish in Europe a world leading hyper-connected, federated and secure High Performance Computing and quantum computing service and data infrastructure ecosystem, and be in a position to produce innovative and competitive High Performance Computing and quantum computing systems based on a supply	(16) Pursuing a common strategic EU vision in High Performance Computing and quantum computing is essential for realising the Union's and its Member States' ambition to ensure a leading role and strategic autonomy in the digital ***transition, while preserving an open*** economy. The objective would be to establish in Europe a world leading hyper-connected, federated and secure High Performance Computing and quantum computing service and data infrastructure ecosystem, and be in a position to produce innovative and competitive High Performance Computing and quantum

chain ***that will ensure*** components, technologies and knowledge limiting the risk of disruptions.

computing systems based on a ***resilient*** supply chain ***ensuring the availability of*** components, technologies and knowledge limiting the risk of disruptions.

Or. en

Amendment 7

Proposal for a regulation
Recital 17

Text proposed by the Commission	*Amendment*
(17) A Joint Undertaking represents the best instrument capable to implement the strategic EU vision in High Performance Computing and quantum computing, ensuring that the Union enjoys world-class supercomputing, quantum computing and data capabilities according to its economic potential, matching the needs of European users, and with the required strategic autonomy in critical High Performance Computing and quantum computing technologies. The Joint Undertaking is the best instrument to overcome the present limitations, as described in the Staff Working Document accompanying this Regulation, while offering the highest economic, societal, and environmental impact and best safeguarding the Union's interests in High Performance Computing and quantum computing. It can pool resources from the Union, the Member States and countries associated to Horizon Europe and the Digital Europe Programme or the Connecting Europe Facility and the private sector. It can implement a procurement framework and operate world-class High Performance Computing and quantum computing systems. It can launch research and innovation programmes for developing European technologies and their subsequent integration in world-class supercomputing	(17) A Joint Undertaking represents the best instrument capable to implement the strategic EU vision in High Performance Computing and quantum computing, ensuring that the Union enjoys world-class supercomputing, quantum computing and data capabilities according to its economic potential, matching the needs of European users, and with the required strategic autonomy in critical High Performance Computing and quantum computing technologies***, while preserving an open economy***. The Joint Undertaking is the best instrument to overcome the present limitations, as described in the Staff Working Document accompanying this Regulation, while offering the highest economic, societal, and environmental impact and best safeguarding the Union's interests in High Performance Computing and quantum computing. It can pool resources from the Union, the Member States and countries associated to Horizon Europe and the Digital Europe Programme or the Connecting Europe Facility and the private sector. It can implement a procurement framework and operate world-class High Performance Computing and quantum computing systems. It can launch research and innovation programmes for developing European technologies and their subsequent integration in world-class supercomputing

systems.	systems.

Or. en

Amendment 8

Proposal for a regulation
Recital 19

Text proposed by the Commission	*Amendment*
(19) The Joint Undertaking should be set up and start operating at the latest by ***early*** 2021 until 31 December 2033 to equip the Union with a world-class federated, secure and hyper-connected supercomputing infrastructure, and to develop the necessary technologies, applications and skills for reaching exascale capabilities around 2022-2024, and post exascale around 2025 – 2027, while promoting a world-class European High Performance Computing and quantum computing innovation ecosystem.	(19) The Joint Undertaking should be set up and start operating at the latest by 2021 until 31 December 2033 to equip the Union with a world-class federated, secure and hyper-connected supercomputing infrastructure, and to develop the necessary technologies, applications and skills for reaching exascale capabilities around 2022-2024, and post exascale around 2025**-**2027, while promoting a world-class European High Performance Computing and quantum computing innovation ecosystem.

Or. en

Amendment 9

Proposal for a regulation
Recital 25 a (new)

Text proposed by the Commission	*Amendment*
	(25a) The Joint Undertaking should be organised around seven pillars, one administrative and six technical pillars. The infrastructure pillar, part of the federation of supercomputing services pillar and the widening usage and skills pillar should be funded by the Digital Europe Programme. The remaining activities of the federation of supercomputing services pillar, including the interconnection with the Union's

common European data spaces and secure cloud infrastructures, should be funded by Connecting Europe Facility Programme. The technology, the application and the international cooperation pillars should be funded by the Horizon Europe Programme.

Or. en

Amendment 10

Proposal for a regulation
Recital 26

Text proposed by the Commission	*Amendment*
(26) The Joint Undertaking should contribute to reducing the specific skills gap across the Union ***by engaging in awareness raising*** measures ***and*** assisting in the building of new knowledge and human capital.	(26) ***Considering that the lack of skills is the number-one obstacle to access R&I infrastructure and investing more in R&I and digitalisation,*** the Joint Undertaking should ***actively*** contribute to reducing the specific skills gap across the Union ***and to adopting*** measures ***to increase the gender balance and address the gender dimension. It should do so by*** assisting in the building of new knowledge and human capital***, by engaging in awareness raising campaigns and by promoting educational and dissemination activities, with the involvement of academic, scientific and knowledge networks, social and economic partners, media, industry and SMEs organisations and other players***.

Or. en

Justification

This includes the design and support of specific educational and training activities in close cooperation with the relevant public and private actors.

Amendment 11

Proposal for a regulation
Recital 27

Text proposed by the Commission	*Amendment*
(27) In line with the external policy objectives and international commitments of the Union, the Joint Undertaking should facilitate cooperation between the Union and international actors by defining a cooperation strategy, including identifying and promoting areas for cooperation in R&D and skills development and implementing actions where there is a mutual benefit, as well as ensuring an access policy of respective High Performance Computing and quantum computing capabilities and applications ***mainly*** based on reciprocity.	(27) In line with the external policy objectives and international commitments of the Union, the Joint Undertaking should facilitate cooperation between the Union and international actors by defining a cooperation strategy, including identifying and promoting areas for cooperation in R&D and skills development and implementing actions where there is a mutual benefit, as well as ensuring an access policy of respective High Performance Computing and quantum computing capabilities and applications based on reciprocity.

Or. en

Amendment 12

Proposal for a regulation
Recital 28

Text proposed by the Commission	*Amendment*
(28) The Joint Undertaking should aim at promoting the exploitation of any resulting High Performance Computing technologies in the EU. It should also aim at safeguarding the investments in the supercomputers it acquires. In doing so, it should take appropriate measures to ensure the security of the supply chain of acquired technologies that should cover the whole lifetime of these supercomputers.	(28) ***The Joint Undertaking should cooperate with the 'Partnership for Advanced Computing in Europe' (PRACE), the GÉANT network, as well as with other European and national supercomputing and data infrastructures.*** The Joint Undertaking should aim at promoting the exploitation of any resulting High Performance Computing technologies in the EU. It should also aim at safeguarding the investments in the supercomputers it acquires. In doing so, it should take appropriate measures to ensure the security of the supply chain of acquired technologies that should cover the whole lifetime of these supercomputers.

Or. en

Amendment 13

Proposal for a regulation
Recital 30

Text proposed by the Commission	*Amendment*
(30) In order to achieve its objectives to design, develop and use the most innovative technologies in High Performance Computing and quantum computing, the Joint Undertaking should provide financial support in particular in the form of grants and procurement following open and competitive calls for proposals and calls for tenders based on annual work programmes. Such financial support should be targeted in particular at proven market failures that prevent the development of the programme concerned, should not crowd-out private investments and should have an incentive effect in that it changes the behaviour of the recipient.	(30) In order to achieve its objectives to design, develop and use the most innovative technologies in High Performance Computing and quantum computing, the Joint Undertaking should provide financial support in particular in the form of grants and procurement following open***, transparent*** and competitive calls for proposals and calls for tenders based on annual work programmes. Such financial support should be targeted in particular at proven market failures that prevent the development of the programme concerned, should not crowd-out private investments and should have an incentive effect in that it changes the behaviour of the recipient.

Or. en

Amendment 14

Proposal for a regulation
Recital 33

Text proposed by the Commission	*Amendment*
(33) The Joint Undertaking should hyper-connect all the supercomputers and data infrastructures it will own or co-own with state-of-the-art networking technologies, making them widely accessible across the Union, and should interconnect and federate its supercomputing and quantum computing data infrastructure, as well as national,	(33) The Joint Undertaking should hyper-connect all the supercomputers and data infrastructures it will own or co-own with state-of-the-art networking technologies, making them widely accessible across the Union, ***especially for SMEs,*** and should interconnect and federate its supercomputing and quantum computing data infrastructure, as well as

regional and other computing infrastructures with a common platform. The Joint Undertaking should also ensure the interconnection of the federated, secure supercomputing, and quantum computing service and data infrastructures with the common European data spaces and federated, secure cloud infrastructures announced in the Communication from the Commission of 19 February 2020 on ‘A European Strategy for Data’, for seamless service provisioning to a wide range of public and private users across Europe.

national, regional and other computing infrastructures with a common platform. ***In order to form a strong European ecosystem in which each cloud user has potential access to high-end computing resources as well as to scientific and commercial data repositories,*** the Joint Undertaking should also ensure the interconnection of the federated, secure supercomputing, and quantum computing service and data infrastructures ***with the European Open Science Cloud (EOSC) and*** with the common European data spaces and federated, secure cloud infrastructures announced in the Communication from the Commission of 19 February 2020 on ‘A European Strategy for Data’, for seamless service provisioning to a wide range of public and private users across Europe.

Or. en

Amendment 15

Proposal for a regulation
Recital 34

Text proposed by the Commission	*Amendment*
(34) Horizon Europe and the Digital Europe Programme should respectively contribute to the closing of the research and innovation divide within the Union and to deploying wide-range supercomputing capabilities by promoting synergies with the European ***Structural and Investments Funds (ESIF***). Therefore, the Joint Undertaking should seek to develop close interactions with ***the ESIF, which can*** specifically help to strengthen local, regional and national research and innovation capabilities.	(34) Horizon Europe and the Digital Europe Programme should respectively contribute to the closing of the research and innovation divide within the Union and to deploying wide-range supercomputing capabilities by promoting synergies with ***all relevant programmes and policies, with particular emphasis on*** the European ***Regional Development Fund (ERDF), the European Social Fund+ (ESF+), the European Maritime and Fisheries Fund (EMFF*** ***and the European Agricultural Fund for Rural Development (EAFRD), as well as the Recovery and Resilience Facility (RRF), InvestEU and other EIB programmes***. Therefore, the Joint Undertaking should seek to develop close

interactions with ***those funds, with the purpose to*** specifically help to strengthen local, regional and national research and innovation capabilities.

Or. en

Amendment 16

Proposal for a regulation
Recital 35

Text proposed by the Commission	*Amendment*
(35) The Joint Undertaking should provide a favourable framework for Participating States that are Member States to use ***their ESIF*** for the acquisition of High Performance Computing and quantum computing and data infrastructures and their interconnection. The use of ***ESIF*** in the Joint Undertaking activities is essential for developing ***in*** the Union an integrated, federated, secure and hyper-connected world-class High Performance Computing, quantum computing service and data infrastructure***, since the benefits for such infrastructure extend well beyond the users of the Member States***. If Member States decide to use ***ESIF*** for contributing to the acquisition costs of the supercomputers and quantum computers of the Joint Undertaking, ***the Joint Undertaking*** should ***take into consideration the Union's share of ESIF of this Member State, while accounting only the*** national ***ESIF share as national contribution*** to the budget of the Joint Undertaking.	(35) The Joint Undertaking should provide a favourable framework for Participating States that are Member States to use ***financial contributions under programmes cofinanced by ERDF, ESF+, EMFF and EAFRD*** for the acquisition of High Performance Computing and quantum computing and data infrastructures and their interconnection. The use of ***financial contributions*** in the Joint Undertaking activities is essential for developing ***across*** the Union an integrated, federated, secure and hyper-connected world-class High Performance Computing, quantum computing service and data infrastructure. If Member States decide to use ***those financial contributions*** for contributing to the acquisition costs of the supercomputers and quantum computers of the Joint Undertaking, ***those contributions*** should ***be considered*** national ***contributions*** to the budget of the Joint Undertaking***, provided that Article 106 and other applicable provisions of the Common Provisions Regulation and the fund-specific regulations are complied with***.

Or. en

Amendment 17

Proposal for a regulation
Recital 35 a (new)

Text proposed by the Commission	*Amendment*
	(35a) The RRF funds can complement the actions funded by the Joint Undertaking, provided that support under the RRF is additional to the one provided by the Union funds of the Joint Undertaking and it does not cover the same cost, despite of the fact that RRF should not be accounted as national contribution to the budget of the Joint Undertaking.

Or. en

Amendment 18

Proposal for a regulation
Recital 36

Text proposed by the Commission	*Amendment*
(36) The Union's contribution from the Digital Europe Programme funds should partly cover the acquisition costs of high-end supercomputers, quantum computers, industrial-grade supercomputers and mid-range supercomputers to align with the Joint Undertaking's objective to contribute to the pooling of resources for equipping the Union with top-class supercomputers and quantum computers. The complementary costs of these supercomputers and quantum computers should be covered by the Participating States, or the Private Members or consortia of private partners. The share of the Union's access time to these supercomputers or quantum computers should be directly proportional to the financial contribution of the Union made for the acquisition of these supercomputers	(36) The Union's contribution from the Digital Europe Programme funds should partly cover the acquisition costs of high-end supercomputers, quantum computers, ***at least mid-range*** industrial-grade supercomputers and mid-range supercomputers to align with the Joint Undertaking's objective to contribute to the pooling of resources for equipping the Union with top-class supercomputers and quantum computers. The complementary costs of these supercomputers and quantum computers should be covered by the Participating States, or the Private Members or consortia of private partners. The share of the Union's access time to these supercomputers or quantum computers should be directly proportional to the financial contribution of the Union made for the acquisition of these

and quantum computers and should not exceed 50% of the total access time of these supercomputers or quantum computers.

supercomputers and quantum computers and should not exceed 50% of the total access time of these supercomputers or quantum computers.

Or. en

Amendment 19

Proposal for a regulation
Recital 37

Text proposed by the Commission	*Amendment*
(37) The Joint Undertaking should be the owner of the high-end supercomputers and quantum computers it has acquired. The operation of each high-end supercomputer or quantum computer should be entrusted to a hosting entity. The hosting entity should be able to represent a single Participating State that is a Member State or a hosting consortium of Participating States. The hosting entity should be in position to provide an accurate estimate and to verify the operating costs of the supercomputer, by ensuring, for example, the functional separation, and to the extent possible, the physical separation of the Joint Undertaking's high-end supercomputers or quantum computers and any national or regional computing systems it operates. The hosting entity should be selected by the Governing Board of the Joint Undertaking ('Governing Board') following ***a*** call for expression of interest evaluated by independent experts. Once a hosting entity is selected, the Participating State where the hosting entity is established or the hosting Consortium should be able to decide to call for other Participating States to join and contribute to the funding of the high-end supercomputer or quantum computer to be installed in the selected hosting entity. If additional Participating States join the selected hosting Consortium, this should be	(37) The Joint Undertaking should be the owner of the high-end supercomputers and quantum computers it has acquired. The operation of each high-end supercomputer or quantum computer should be entrusted to a hosting entity. The hosting entity should be able to represent a single Participating State that is a Member State or a hosting consortium of Participating States. The hosting entity should be in position to provide an accurate estimate and to verify the operating costs of the supercomputer, by ensuring, for example, the functional separation, and to the extent possible, the physical separation of the Joint Undertaking's high-end supercomputers or quantum computers and any national or regional computing systems it operates. The hosting entity should ***develop a sustainable energy management plan for the acquired infrastructure. The hosting entity should*** be selected by the Governing Board of the Joint Undertaking ('Governing Board') following ***an open and transparent*** call for expression of interest evaluated by independent experts. Once a hosting entity is selected, the Participating State where the hosting entity is established or the hosting Consortium should be able to decide to call for other Participating States to join and contribute to the funding of the high-end supercomputer or quantum computer to be

without prejudice to the Union's access time to the supercomputers. The contributions of the Participating States in a hosting Consortium to the supercomputer or quantum computer should be translated into shares of access time to that supercomputer or quantum computer. The Participating States should agree among themselves the distribution of their share of access time to the supercomputer or the quantum computer.

installed in the selected hosting entity. If additional Participating States join the selected hosting Consortium, this should be without prejudice to the Union's access time to the supercomputers. The contributions of the Participating States in a hosting Consortium to the supercomputer or quantum computer should be translated into shares of access time to that supercomputer or quantum computer. The Participating States should agree among themselves the distribution of their share of access time to the supercomputer or the quantum computer.

Or. en

Amendment 20

Proposal for a regulation
Recital 39

Text proposed by the Commission	*Amendment*
(39) The Joint Undertaking should jointly with Participating States acquire the mid-range supercomputers. The operation of each mid-range supercomputer should be entrusted to a hosting entity. The hosting entity should be able to represent a single Participating State that is a Member State or a hosting consortium of Participating States. The Joint Undertaking should own the part that corresponds to the Union's share of financial contribution to the acquisition costs from Digital Europe Programme funds. The hosting entity should be selected by the Governing Board following ***a*** call for expression of interest evaluated by independent experts. The share of the Union's access time to each mid-range supercomputer should be directly proportional to the financial contribution of the Union from Digital Europe Programme funds to the acquisition costs of that mid-range supercomputer. The Joint Undertaking should be able to	(39) The Joint Undertaking should jointly with Participating States acquire the mid-range supercomputers. The operation of each mid-range supercomputer should be entrusted to a hosting entity. The hosting entity should be able to represent a single Participating State that is a Member State or a hosting consortium of Participating States. The Joint Undertaking should own the part that corresponds to the Union's share of financial contribution to the acquisition costs from Digital Europe Programme funds. The hosting entity should be selected by the Governing Board following ***an open and transparent*** call for expression of interest evaluated by independent experts. The share of the Union's access time to each mid-range supercomputer should be directly proportional to the financial contribution of the Union from Digital Europe Programme funds to the acquisition costs of that mid-range supercomputer. The Joint

transfer its ownership to the hosting entity or when it is being wound up. The hosting entity should reimburse the Joint Undertaking the residual value of the supercomputer.	Undertaking should be able to transfer its ownership to the hosting entity or when it is being wound up. The hosting entity should reimburse the Joint Undertaking the residual value of the supercomputer.

Or. en

Amendment 21

Proposal for a regulation
Recital 39 a (new)

Text proposed by the Commission	*Amendment*
	(39a) To promote a balanced distribution across the Union of EuroHPC supercomputers and the emergence of a federated infrastructure ecosystem approach, specific eligibility conditions should apply in the calls for expression of interest of a EuroHPC supercomputer to a Participating State which is already hosting a EuroHPC supercomputer.

Or. en

Amendment 22

Proposal for a regulation
Recital 40

Text proposed by the Commission	*Amendment*
(40) The Joint Undertaking should be able to acquire together with the Private Members or a consortium of private partners industrial-grade supercomputers. The operation of each such supercomputer should be entrusted to an existing hosting entity. The hosting entity should be able to associate itself with the Private Members or the consortium of private partners for the acquisition and operation of such	(40) The Joint Undertaking should be able to acquire together with the Private Members or a consortium of private partners industrial-grade supercomputers***, that are at least mid-range***. The operation of each such supercomputer should be entrusted to an existing hosting entity. The hosting entity should be able to associate itself with the Private Members or the consortium of private partners for the

supercomputer. The Joint Undertaking should own the part that corresponds to the Union's share of financial contribution to the acquisition costs from Digital Europe Programme funds. The hosting entity and its associated Private Members or consortium of private partners should be selected by the Governing Board following a call for expression of interest evaluated by independent experts. The share of the Union's access time to such supercomputer should be directly proportional to the financial contribution of the Union from Digital Europe Programme funds to the acquisition costs of that industrial-grade supercomputer. The Joint Undertaking should be able to reach an agreement with the Private Members or the consortium of private partners to sell such supercomputer to another entity or decommission it. Alternatively, the Joint Undertaking should be able to transfer the ownership of such supercomputer to the Private Members or the consortium of private partners. In this case or when the Joint Undertaking is being would-up, the Private Members or the consortium of private partners should reimburse the Joint Undertaking the residual value of the Union's share of the supercomputer. In the case the Joint Undertaking and the Private Members or the consortium of private partners decide to proceed to the decommissioning of the supercomputer after the full depreciation of its operation, such costs should be covered by the Private Members or the consortium of private partners.	acquisition and operation of such supercomputer. The Joint Undertaking should own the part that corresponds to the Union's share of financial contribution to the acquisition costs from Digital Europe Programme funds. The hosting entity and its associated Private Members or consortium of private partners should be selected by the Governing Board following a ***transparent, open and competitive procedure and the*** call for expression of interest ***should*** evaluated by independent experts. The share of the Union's access time to such supercomputer should be directly proportional to the financial contribution of the Union from Digital Europe Programme funds to the acquisition costs of that industrial-grade supercomputer. The Joint Undertaking should be able to reach an agreement with the Private Members or the consortium of private partners to sell such supercomputer to another entity or decommission it. Alternatively, the Joint Undertaking should be able to transfer the ownership of such supercomputer to the Private Members or the consortium of private partners. In this case or when the Joint Undertaking is being would-up, the Private Members or the consortium of private partners should reimburse the Joint Undertaking the residual value of the Union's share of the supercomputer. In the case the Joint Undertaking and the Private Members or the consortium of private partners decide to proceed to the decommissioning of the supercomputer after the full depreciation of its operation, such costs should be covered by the Private Members or the consortium of private partners.
	Or. en

Amendment 23

Proposal for a regulation
Recital 41

Text proposed by the Commission	*Amendment*
(41) ***For*** industrial-grade supercomputers the Joint Undertaking should take into account the specific needs of industrial users, for example access procedures, quality and type of services, protection of data, protection of industrial innovation, and intellectual property, usability, trust, and other confidentiality and security requirements.	(41) ***In the medium-term, the Joint Undertaking should aim at defining and implement all EuroHPC supercomputers compliant with the highest possible security, in particular cybersecurity, accessibility and usability standards and requirements, in particular for industry and SMEs. For the*** industrial-grade supercomputers the Joint Undertaking should take into account the specific needs of industrial users, for example access procedures, quality and type of services, protection of data, protection of industrial innovation, and intellectual property, usability, trust, and other confidentiality and security requirements.

Or. en

Amendment 24

Proposal for a regulation
Recital 42

Text proposed by the Commission	*Amendment*
(42) The design and operation of the supercomputers supported by the Joint Undertaking should ***take into consideration*** energy efficiency and environmental sustainability, using for example low-power ***technology***, dynamic power-saving and re-use techniques like advanced cooling and heat recycling.	(42) The design and operation of the supercomputers supported by the Joint Undertaking should ***always address*** energy efficiency and environmental sustainability, ***taking into consideration the added value of their integration into the comprehensive energy system existing where they are located,*** using for example low-power ***technologies***, dynamic power-saving and re-use techniques like advanced cooling and heat recycling ***and others***.

Or. en

Amendment 25

Proposal for a regulation
Recital 44

Text proposed by the Commission	*Amendment*
(44) User allocation of access time to the supercomputers of the Joint Undertaking should be free of charge for public users. It should also be free of charge for private users for their applications related to research and innovation activities ***funded by Horizon Europe or the Digital Europe Programme***, as well as for private innovation activities of SMEs, where appropriate. Such allocation of access time should primarily be based on open calls for expression of interest launched by the Joint Undertaking and evaluated by independent experts. 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 this access, in accordance with the Horizon Europe Regulation. 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 access rights should be allocated in a transparent manner. 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 either by the Union or by the Governing Board. Representative examples of strategic initiatives of the Union include: Destination Earth, the Human Brain Project Flagship, the "1+	(44) User allocation of access time to the supercomputers of the Joint Undertaking should be free of charge for public users. It should also be free of charge for private users for their applications related to research and innovation activities, as well as for private innovation activities of SMEs, where appropriate. Such allocation of access time should primarily be based on open calls for expression of interest launched by the Joint Undertaking and evaluated by independent experts. 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 this access, in accordance with the Horizon Europe Regulation. 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 access rights should be allocated in a transparent manner. 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 either by the Union or by the Governing Board. Representative examples of strategic initiatives of the Union include: Destination Earth, the Human Brain Project Flagship, the "1+ Million Genomes" initiative, the common European data spaces operating in domains

Million Genomes" initiative, the common European data spaces operating in domains of public interest, and in particular the health data space, the High Performance Computing Centres of Excellence and Competence Centres, the Digital Innovation Hubs, etc. Upon Union's request, the Joint Undertaking should grant direct access time on a temporary or permanent basis to strategic initiatives and existing or future application platforms that it 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 should be allowed to carry out some limited economic activities for commercial purposes. Access should be granted to users residing, established or located in an EU Member State or a country associated to the Digital Europe Programme and to Horizon Europe. The access rights should be equitable to any user and allocated in a transparent manner. The Governing Board should define and monitor the access rights to the Union's share of access time for each supercomputer.	of public interest, and in particular the health data space, the High Performance Computing Centres of Excellence and Competence Centres, the Digital Innovation Hubs, etc. Upon Union's request, the Joint Undertaking should grant direct access time on a temporary or permanent basis to strategic initiatives and existing or future application platforms that it 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 should be allowed to carry out some limited economic activities for commercial purposes. Access should be granted to users residing, established or located in an EU Member State or a country associated to the Digital Europe Programme and to Horizon Europe. The access rights should be equitable to any user and allocated in a transparent manner. The Governing Board should define and monitor the access rights to the Union's share of access time for each supercomputer.

Or. en

Amendment 26

Proposal for a regulation
Recital 47

Text proposed by the Commission	*Amendment*
(47) The Joint Undertaking governance should be assured by two bodies: a Governing Board, and an Industrial and Scientific Advisory Board. The Governing Board should be composed of representatives of the Union and Participating States. The Governing Board	(47) The Joint Undertaking governance should be assured by two bodies: a Governing Board, and an Industrial and Scientific Advisory Board. The Governing Board should be composed of representatives of the Union and Participating States. The Governing Board

should be responsible for strategic policy making and funding decisions related to the activities of the Joint Undertaking, including all the public procurement activities. The Industrial and Scientific Advisory Board should include representatives of academia and industry as users and technology suppliers. It should provide independent advice to the Governing Board on the strategic research and innovation agenda, on the acquisition and operation of the supercomputers owned by the Joint Undertaking, the capability building and widening activities programme and the federation, connectivity and international cooperation activities programme.	should be responsible for strategic policy making and funding decisions related to the activities of the Joint Undertaking, including all the public procurement activities. The Industrial and Scientific Advisory Board should include representatives of academia and industry as users and technology suppliers. It should provide independent advice to the Governing Board on the strategic research and innovation agenda, on the acquisition and operation of the supercomputers owned by the Joint Undertaking, the capability building and widening activities programme and the federation, connectivity and international cooperation activities programme. ***The Joint Undertaking governance should also be composed by a User Forum providing independent advice on user needs.***

Or. en

Amendment 27

Proposal for a regulation
Recital 47 a (new)

Text proposed by the Commission	*Amendment*
	(47a) Since the supercomputers are demand-oriented and user-driven, the EuroHPC requires a permanent dialogue with civil society and users of HPC infrastructures. The continuous, effective involvement of users, particularly to implement the co-design approach needed to strengthen the uptake, in particular for commercial applications, by industry, SMEs, and innovative companies and start-ups and by strengthening the role of HPC intermediaries via public support, can have a high added value and multiplier effect. The user-side input should be actively sought through a regular consultation process with end-users from the public and private sectors.

	For that purpose, a working group (the 'User Forum') should be set up by the Governing Board to assist in the identification of the enhanced quality of service, usability, trust, and security requirements of public and private users. The User Forum should should include representatives of the civil society, industrial and public users, EU social partners, SMEs organisations and independent European value chain actors in software development.

Or. en

Amendment 28

Proposal for a regulation
Recital 50

Text proposed by the Commission	*Amendment*
(50) To foster an innovative and competitive European High Performance Computing and quantum computing ecosystem of recognised excellence, the Joint Undertaking should make appropriate use of the procurement and grant instruments, including joint procurement, pre-commercial procurement and public procurement of innovative solutions.	(50) To foster an innovative and competitive European High Performance Computing and quantum computing ecosystem of recognised excellence ***and widely spread across the Union***, the Joint Undertaking should make appropriate use of the procurement and grant instruments, including joint procurement, pre-commercial procurement and public procurement of innovative solutions. ***The use of such procurement and grant instruments should facilitate the involvement of SMEs, microenterprises and startups, and their clusters.***

Or. en

Amendment 29

Proposal for a regulation
Recital 53

Text proposed by the Commission	*Amendment*
(53) Participation in indirect actions funded by the Joint Undertaking should comply with Regulation (EU) No xxx establishing Horizon Europe. The Joint Undertaking should, moreover, ensure the consistent application of those rules based on relevant measures adopted by the Commission. In order to ensure appropriate co-financing of indirect actions by the Participating States, in compliance with Regulation (EU) No xxx establishing Horizon Europe, the Participating States should contribute an amount at least equal to the reimbursement provided by the Joint Undertaking for the eligible costs incurred by beneficiaries in the actions. To this effect, the maximum funding rates set out in the annual work programme of the Joint Undertaking in accordance with Article 30 of Regulation (EU) No xxx establishing Horizon Europe should be fixed accordingly.	(53) Participation in indirect actions funded by the Joint Undertaking should comply with Regulation (EU) No xxx establishing Horizon Europe. The Joint Undertaking should, moreover, ensure the consistent application of those rules based on relevant measures adopted by the Commission. In order to ensure appropriate co-financing of indirect actions by the Participating States, in compliance with Regulation (EU) No xxx establishing Horizon Europe, the Participating States should contribute an amount at least equal to the reimbursement provided by the Joint Undertaking for the eligible costs incurred by beneficiaries in the actions. To this effect, the maximum funding rates set out in the annual work programme of the Joint Undertaking in accordance with Article 30 of Regulation (EU) No xxx establishing Horizon Europe should be fixed accordingly ***by the Governing Board***.

Or. en

Amendment 30

Proposal for a regulation
Recital 53 a (new)

Text proposed by the Commission	*Amendment*
	(53a) In order to ensure the right balance of stakeholders' participation in the actions funded by the Joint Undertaking, it is necessary to allow a differentiation of reimbursement rates, in particular for SMEs, start-ups and non-profit legal entities. The application of differentiated rates should not increase administrative complexity of the projects and should be done in the simplest and most effective way.

Or. en

Amendment 31

Proposal for a regulation
Article 2 – paragraph 1 – point 4

Text proposed by the Commission	*Amendment*
(4) 'Centre of Excellence' in HPC means ***an*** initiative to promote the use of upcoming extreme performance computing capabilities enabling user communities in collaboration with other HPC stakeholders to scale up existing parallel codes towards exascale and extreme scaling performance;	(4) 'Centre of Excellence' in HPC means ***a collaborative*** initiative ***selected through an open, transparent and competitive call for proposals*** to promote the use of upcoming extreme performance computing capabilities enabling user communities in collaboration with other HPC stakeholders to scale up existing parallel codes towards exascale and extreme scaling performance;

Or. en

Amendment 32

Proposal for a regulation
Article 2 – paragraph 1 – point 5

Text proposed by the Commission	*Amendment*
(5) 'co-design' is a collective approach between technology suppliers and users engaged in a collaborative and iterative design process for developing new ***technology, application and*** systems;	(5) 'co-design' is a collective approach between technology suppliers and users engaged in a collaborative and iterative design process for developing new ***technologies, applications,*** systems***, services, skills and competences***;

Or. en

Amendment 33

Proposal for a regulation
Article 2 – paragraph 1 – point 6

Text proposed by the Commission	*Amendment*
(6) 'Competence Centre' in High Performance Computing (HPC) means a legal entity established in a Participating State providing users from industry, ***including SMEs***, academia, and public administrations with access on demand to the supercomputers and to the latest High Performance Computing technologies, tools, applications and services, and offering expertise, skills, training, networking and outreach;	(6) '***Union*** Competence Centre' in High Performance Computing (HPC) means a ***Union*** legal entity ***selected through an open and transparent process and*** established in a Participating State providing users from industry, ***in particular SMEs and start-ups***, academia, and public administrations 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;

Or. en

Amendment 34

Proposal for a regulation
Article 2 – paragraph 1 – point 16

Text proposed by the Commission	*Amendment*
(16) 'industrial-grade supercomputer' means ***a*** supercomputer specifically designed with security, confidentiality and data integrity requirements for industrial users that are more demanding than for a scientific usage;	(16) 'industrial-grade supercomputer' means ***at least a mid-range*** supercomputer specifically designed with security, confidentiality and data integrity requirements for industrial users that are more demanding than for a scientific usage;

Or. en

Amendment 35

Proposal for a regulation
Article 2 – paragraph 1 – point 19 a (new)

Text proposed by the Commission	*Amendment*
	(19a) 'multiannual strategic programme' means a document laying out

strategy and plans for achieving the objectives of the Joint Undertaking;

Or. en

Amendment 36

Proposal for a regulation
Article 2 – paragraph 1 – point 20

Text proposed by the Commission	*Amendment*
(20) '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 administrations 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;	(20) 'national High Performance Computing competence centre' means a legal entity***, or a consortium of legal entities, selected through an open and transparent process and*** established in a Participating State that is a Member State, associated with the national supercomputing centre of that Member State, providing users from industry, ***in particular SMEs and start-ups***, academia, and public administrations 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;

Or. en

Amendment 37

Proposal for a regulation
Article 3 – paragraph 1

Text proposed by the Commission	*Amendment*
(1) The mission of the Joint Undertaking shall be 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; support the production of	(1) The mission of the Joint Undertaking shall be 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***, thereby contributing to achieve***

innovative and competitive supercomputing systems based on a supply chain that will ensure components, technologies and knowledge limiting the risk of disruptions and the development of a wide range of applications optimised for these systems; and, widen the use of this supercomputing infrastructure to a large number of public and private users, and support the development of key skills for European science and industry.	***a scientific, digital and industrial leadership of the Union in the world***; support the production***, preferably within the Union,*** of innovative and competitive supercomputing systems based on a supply chain that will ensure components, technologies and knowledge limiting the risk of disruptions and the development of a wide range of applications optimised for these systems; and, widen the use of this supercomputing infrastructure to a large number of ***Union's*** public and private users***, with particular attention to SMEs and start-ups***, and support the development of key skills ***and competences*** for European science and industry.

Or. en

Amendment 38

Proposal for a regulation
Article 3 – paragraph 2 – point a

Text proposed by the Commission	*Amendment*
(a) to contribute to the implementation of Regulation (EU) No xxx establishing Horizon Europe and in particular Article 3 thereof, to deliver scientific, economic, environmental, technological and societal impact from the Union's investments in research and innovation, so as to strengthen the scientific and technological bases of the Union, deliver on the Union strategic priorities, contribute to the realisation of EU objectives and policies, and contribute to tackling global challenges, ***including*** the Sustainable Development Goals by following the principles of the Agenda 2030 and the Paris Agreement;	(a) to contribute to the implementation of Regulation (EU) No xxx establishing Horizon Europe and in particular Article 3 thereof, to deliver scientific, economic, environmental, technological and societal impact from the Union's investments in research and innovation, so as to strengthen the scientific and technological bases of the Union, deliver on the Union strategic priorities, contribute to the realisation of EU objectives and policies, ***including those related to the European Green Deal, the European Recovery Plan, the European Data, digital, SME and industrial strategies, achieveing Europe's strategic autonomy while preserving an open economy*** and contribute to tackling global challenges, ***addressing*** the Sustainable Development Goals by following the principles of the Agenda

2030 and the Paris Agreement;

Or. en

Amendment 39

Proposal for a regulation
Article 3 – paragraph 2 – point b

Text proposed by the Commission	*Amendment*
(b) to develop close cooperation and ensure coordination with other European Partnerships, including through joint calls, as well as seek synergies with relevant activities and programmes at Union, national, and regional level, in particular with those supporting the deployment of innovative solutions, education and regional development, where relevant;	(b) to develop close cooperation and ensure ***synergies and*** coordination with other European Partnerships, including through joint calls, as well as seek ***sequential, parallel or integrated*** synergies with relevant activities and programmes at Union, national, and regional level, in particular with those supporting the deployment of innovative solutions, education and regional development, where relevant;

Or. en

Amendment 40

Proposal for a regulation
Article 3 – paragraph 2 – point d

Text proposed by the Commission	*Amendment*
(d) to federate the hyper-connected supercomputing and data infrastructure and interconnect it with the European data spaces and cloud ecosystem for providing computing and data services to a wide range of public and private users in Europe;	(d) to federate the hyper-connected supercomputing and data infrastructure and interconnect it with the European data spaces and cloud ecosystem for providing computing and data services to a wide ***and geographically diverse*** range of public and private users in Europe;

Or. en

Amendment 41

Proposal for a regulation
Article 3 – paragraph 2 – point d a (new)

Text proposed by the Commission	*Amendment*
	(da) to promote scientific excellence and support the uptake and systematic use of research and innovation results generated within the Union;

Or. en

Amendment 42

Proposal for a regulation
Article 3 – paragraph 2 – point e

Text proposed by the Commission	*Amendment*
(e) to further develop and support a highly competitive and innovative supercomputing and data ecosystem in Europe contributing to the ***standing*** and technological autonomy of the Union in the digital economy, capable to autonomously produce computing technologies and architectures and their integration on leading computing systems, and advanced applications optimised for these systems;	(e) to further develop and support a highly competitive***, sustainable, energy efficient*** and innovative supercomputing and data ecosystem in Europe contributing to the ***scientific*** and technological ***leadership and the standing and strategic*** autonomy of the Union in the digital ***transition, while preserving an open*** economy, capable to autonomously produce ***and own*** computing technologies and architectures and their integration on leading computing systems, and advanced applications optimised for these systems;

Or. en

Amendment 43

Proposal for a regulation
Article 3 – paragraph 2 – point f

Text proposed by the Commission	*Amendment*
(f) to widen the use of supercomputing	(f) to widen the use of supercomputing

services and the development of key skills that European science and industry need.	services and the development of key skills that European science***, society*** and industry need.

Or. en

Amendment 44

Proposal for a regulation
Article 3 – paragraph 3

Text proposed by the Commission	*Amendment*
(3) The Joint Undertaking shall contribute to safeguarding the interests of the Union when procuring supercomputers and supporting the development of High Performance Computing technologies, systems and applications. It shall enable a co-design approach for the acquisition of world-class supercomputers, while safeguarding the security of the supply chain of procured technologies and systems. It shall contribute to the Union's ***technological*** autonomy by supporting the development of technologies and applications reinforcing the European HPC technology supply chain and promoting their integration in supercomputing systems that address a large number of societal and industrial needs.	(3) The Joint Undertaking shall contribute to safeguarding the interests of the Union when procuring supercomputers and supporting the development of ***world-class*** High Performance Computing technologies, systems and applications. It shall enable a co-design approach for the acquisition of world-class supercomputers, while safeguarding the security of the supply chain of procured technologies and systems ***and ensure the highest standards of cybersecurity***. It shall contribute to the Union's ***strategic*** autonomy***, while preserving an open economy,*** by supporting the development of technologies and applications reinforcing the European HPC ***energy-efficient*** technology supply chain and promoting their integration in supercomputing systems that address a large number of societal and industrial needs.

Or. en

Amendment 45

Proposal for a regulation
Article 4 – paragraph 1 – point b

Text proposed by the Commission	*Amendment*
(b) Infrastructure pillar, encompassing	(b) Infrastructure pillar, encompassing

the activities for the acquisition, deployment, and operation of the secure, hyper-connected world-class supercomputing, quantum computing and data infrastructure, including the promotion of the uptake and systematic use of research and innovation results generated ***in the Union***.	the activities for the acquisition, deployment, and operation of the secure, hyper-connected world-class supercomputing, quantum computing and ***European*** data infrastructure, including the promotion of the uptake and systematic use ***within the Union*** of research and innovation results generated ***by the Joint Undertaking***.

Or. en

Amendment 46

Proposal for a regulation
Article 4 – paragraph 1 – point c – introductory part

Text proposed by the Commission	*Amendment*
(c) Federation of supercomputing services pillar, covering all activities for providing EU-wide access to federated, secure supercomputing and data resources and services throughout Europe for the research and scientific community, industry (***including*** SMEs) and the public sector. In particular this includes:	(c) Federation of supercomputing services pillar, covering all activities for providing EU-wide access to federated, secure supercomputing and data resources and services throughout Europe for the research and scientific community, industry (***in particular*** SMEs) and the public sector***, in cooperation with PRACE and GEANT among others***. In particular this includes:

Or. en

Amendment 47

Proposal for a regulation
Article 4 – paragraph 1 – point c – point i

Text proposed by the Commission	*Amendment*
(i) support to the interconnection of the High Performance Computing, quantum computing and data resources owned fully or partially by the EuroHPC Joint Undertaking or made available on a voluntary basis by the Participating States;	(i) support to the interconnection of the High Performance Computing, quantum computing and data resources owned fully or partially by the EuroHPC Joint Undertaking or made available on a voluntary basis by the Participating ***or the***

Observer States;

Or. en

Amendment 48

Proposal for a regulation
Article 4 – paragraph 1 – point c – point ii

Text proposed by the Commission	*Amendment*
(ii) support to the interconnection of the supercomputing, and quantum computing data infrastructures with the Union's common European data spaces and federated, secure cloud infrastructures;	(ii) support to the interconnection of the supercomputing, and quantum computing data infrastructures with the Union's common European data spaces and federated, secure cloud ***and data*** infrastructures;

Or. en

Amendment 49

Proposal for a regulation
Article 4 – paragraph 1 – point d – introductory part

Text proposed by the Commission	*Amendment*
(d) Technology pillar, addressing ***the activities for supporting an*** ambitious research and innovation ***agenda*** for developing a world-class, competitive and innovative supercomputing ecosystem addressing hardware and software technologies, and their integration into computing systems, covering the whole scientific and industrial value chain, for ensuring ***technological*** autonomy of the Union. ***Focus*** shall ***be on*** energy-efficient High Performance Computing technologies. Activities shall address inter alia:	(d) Technology pillar, addressing ambitious research and innovation ***activities*** for developing a world-class, competitive***, sustainable*** and innovative supercomputing ecosystem ***across the Union*** addressing hardware and software technologies, and their integration into computing systems, covering the whole scientific and industrial value chain, for ensuring ***strategic*** autonomy ***while preserving the open economy*** of the Union. ***The implementation of the pillar*** shall ***take in due consideration energy consumption and focus on the most*** energy-efficient High Performance Computing technologies***, with particular emphasis on renewable-based solutions***. Activities shall address inter alia:

Or. en

Amendment 50

Proposal for a regulation
Article 4 – paragraph 1 – point d – point iii

Text proposed by the Commission	*Amendment*
iii) technologies ***and*** systems for the interconnection and operation of classical supercomputing systems with other, often complementary computing technologies, such as neuromorphic ***or*** quantum computing and ensure their effective operation.	iii) technologies***,*** systems ***and algorithms*** for the interconnection and operation of classical supercomputing systems with other, often complementary computing technologies, such as neuromorphic***,*** quantum computing ***or other emerging technologies*** and ensure their effective operation.

Or. en

Amendment 51

Proposal for a regulation
Article 4 – paragraph 1 – point d – point iii a (new)

Text proposed by the Commission	*Amendment*
	iiia) research and innovation activities for the technological development of low-power supercomputing hardware systems.

Or. en

Amendment 52

Proposal for a regulation
Article 4 – paragraph 1 – point e – introductory part

Text proposed by the Commission	*Amendment*
(e) Application pillar, addressing activities for achieving and maintaining European excellence in key computing and data applications and codes for science,	(e) Application pillar, addressing activities for achieving and maintaining European excellence ***and leadership*** in key computing and data applications and codes

industry (***including SMEs***) and the public sector, including;	for science, industry (***in particular SMEs and start-ups***) and the public sector, ***while paying special attention to geographical diversity and gender balance,*** including;

Or. en

Amendment 53

Proposal for a regulation
Article 4 – paragraph 1 – point e – point i

Text proposed by the Commission	*Amendment*
i) applications for public and private users that exploit the capabilities of high-end supercomputers and their convergence with advanced digital technologies such as artificial intelligence, high performance data analytics, cloud technologies, etc. through the co-design, development and optimisation of High Performance Computing-enabled large-scale and emerging lead-market codes and applications;	i) applications***, algorithms and software development*** for public and private users that exploit the capabilities of high-end supercomputers and their convergence with advanced digital technologies such as artificial intelligence, high performance data analytics, cloud technologies, ***quantum computing,*** etc. through the co-design, development and optimisation of High Performance Computing-enabled large-scale and emerging lead-market codes and applications;

Or. en

Amendment 54

Proposal for a regulation
Article 4 – paragraph 1 – point f

Text proposed by the Commission	*Amendment*
(f) Widening usage and skills pillar, aiming at fostering excellence in supercomputing, quantum computing, and data use and skills taking into account synergies with other programs and instruments, in particular Digital Europe Program, widening the scientific and industrial use of supercomputing resources	(f) Widening usage and skills pillar, aiming at fostering excellence ***and developing skills, capabilities and competences*** in supercomputing, quantum computing, and data use and skills taking into account synergies with other programs and instruments, in particular Digital Europe Program, widening the scientific

and data applications and fostering the industrial access and use of supercomputing and data infrastructures for innovation adapted to industrial needs; and providing Europe with a knowledgeable leading scientific community and a skilled workforce for scientific leadership and digital transformation of industry, including the support and networking of national High Performance Computing Competence Centres and High Performance Computing Centres of Excellence	and industrial use***, in particular by SMEs and start-ups,*** of supercomputing resources and data applications and fostering the industrial access and use of supercomputing and data infrastructures for innovation adapted to industrial needs; and providing Europe with a knowledgeable leading scientific community and a skilled workforce for scientific leadership and digital transformation of industry, including the support and networking of national High Performance Computing Competence Centres and High Performance Computing Centres of Excellence***; all activities in this pillar should take into consideration gender diversity and the need to increase women participation;***

Or. en

Amendment 55

Proposal for a regulation
Article 4 – paragraph 2 a (new)

Text proposed by the Commission	*Amendment*
	(2a) When implementing the activities listed in paragraphs 1 and 2, the Joint Undertaking shall pay constant attention to geographical and gender diversity, as well as to the involvement of newcomers on the market such as startups and SMEs. In addition, all pillars shall take in due account the complementarities with other supercomputing initiatives at Union level, such as PRACE and GEANT.

Or. en

Amendment 56

Proposal for a regulation
Article 5 – paragraph 1 – introductory part

Text proposed by the Commission	*Amendment*
(1) The Union financial contribution to the Joint Undertaking including EFTA appropriations shall be up to EUR [XXXXX], including up to ***EUR [XXXXX]*** for administrative costs, distributed as follows:	(1) The Union financial contribution to the Joint Undertaking including EFTA appropriations shall be up to EUR [XXXXX], including up to ***5%*** for administrative costs, distributed as follows:

Or. en

Amendment 57

Proposal for a regulation
Article 5 – paragraph 3

Text proposed by the Commission	*Amendment*
(3) Additional Union funds complementing the contribution referred to in paragraph 1 may be allocated to the Joint Undertaking to support activities for the research and innovation and deployment of innovative solutions.	(3) Additional Union funds complementing the contribution referred to in paragraph 1 may be allocated to the Joint Undertaking to support activities for the research and innovation and deployment of innovative solutions ***within the Union***.

Or. en

Amendment 58

Proposal for a regulation
Article 5 – paragraph 6

Text proposed by the Commission	*Amendment*
(6) The Union's financial contribution referred to in point (a) of paragraph 1 shall be used for the Joint Undertaking to provide financial support to indirect actions as defined in Article xxx of the Horizon Europe Regulation***, corresponding to the*** research and innovation agenda.	(6) The Union's financial contribution referred to in point (a) of paragraph 1 shall be used for the Joint Undertaking to provide financial support to indirect actions as defined in Article xxx of the Horizon Europe Regulation ***through open, competitive and transparent procedures, along the priorities identified in*** research and innovation agenda.

Or. en

Amendment 59

Proposal for a regulation
Article 5 – paragraph 7

Text proposed by the Commission	*Amendment*
(7) The Union's financial contribution referred to in point (b) of paragraph 1 shall be used for capability building across the whole Union, including the acquisition, and operation of High Performance Computers, quantum computers or quantum simulators, the federation of the High Performance Computing and quantum computing service and data infrastructure and the widening of its use, and the development of advanced skills and training.	(7) The Union's financial contribution referred to in point (b) of paragraph 1 shall be used for capability building across the whole Union, including the acquisition, and operation of High Performance Computers, quantum computers or quantum simulators, the federation of the High Performance Computing and quantum computing service and data infrastructure and the widening of its use, and the development of advanced skills and training***, taking in due account the need to improve the gender perspective***.

Or. en

Amendment 60

Proposal for a regulation
Article 5 – paragraph 8

Text proposed by the Commission	*Amendment*
(8) The Union's financial contribution referred to in point (c) of paragraph 1 shall be paid from the appropriations in the general budget of the Union allocated to the Connecting Europe Facility and shall be used for the interconnection of the High Performance Computing and data resources and the creation of an integrated pan-European hyper-connected High Performance Computing and data infrastructure.	(8) The Union's financial contribution referred to in point (c) of paragraph 1 shall be paid from the appropriations in the general budget of the Union allocated to the Connecting Europe Facility and shall be used for the interconnection of the High Performance Computing and data resources ***established within the European territory*** and the creation of an integrated pan-European hyper-connected High Performance Computing and data infrastructure.

Or. en

Amendment 61

Article 6 – paragraph 1

Text proposed by the Commission	*Amendment*
Contributions from Union programmes other than those referred to in Article 5(1) that are part of a Union co-financing to a programme implemented by one of the Participating States shall not be accounted for in the calculation of the Union maximum financial contribution referred to in Article 5.	Contributions from Union programmes other than those referred to in Article 5(1) that are part of a Union co-financing to a programme implemented by one of the Participating States shall not be accounted for in the calculation of the Union maximum financial contribution referred to in Article 5 ***and shall not cover the same costs***.

Or. en

Amendment 62

Proposal for a regulation
Article 6 – paragraph 1 a (new)

Text proposed by the Commission	*Amendment*
	Financial contributions under programmes co-financed by the ERDF, the ESF+, the EMFAF and the EAFRD may be considered as a contribution of the participating State to EuroHPC, provided that the relevant provisions of the Common Provisions Regulation for 2021-2027 and the fund-specific regulations are complied with.

Or. en

Amendment 63

Proposal for a regulation
Article 7 – paragraph 1

Text proposed by the Commission	*Amendment*
(1) The Participating States shall make a total contribution of at least equal to the amount of the Union contribution referred to in Article 5 of this Regulation, including up to ***EUR [XXXXX] contribution*** for administrative costs[equal to the amount of the Union contribution for administrative costs referred to in Article 5 of this Regulation]. The Participating States shall arrange among them how they will deliver their collective contribution.	(1) The Participating States shall make a total contribution of at least equal to the amount of the Union contribution referred to in Article 5 of this Regulation, including up to ***5%*** for administrative costs[equal to the amount of the Union contribution for administrative costs referred to in Article 5 of this Regulation]. The Participating States shall arrange among them how they will deliver their collective contribution.

Or. en

Amendment 64

Proposal for a regulation
Article 7 – paragraph 2

Text proposed by the Commission	*Amendment*
(2) The Private Members of the Joint Undertaking shall make or arrange for their constituent entities and affiliated entities to make contributions for at least EUR [XXXXX] to the Joint Undertaking, including up to ***EUR [XXXXX]*** for administrative costs [equal to 22.22 % of the amount of the Union contribution for administrative costs referred to in Article 5 of this Regulation].	(2) The Private Members of the Joint Undertaking shall make or arrange for their constituent entities and affiliated entities to make contributions for at least EUR [XXXXX] to the Joint Undertaking, including up to ***5%*** for administrative costs [equal to 22.22 % of the amount of the Union contribution for administrative costs referred to in Article 5 of this Regulation].

Or. en

Amendment 65

Proposal for a regulation
Article 8 – paragraph 1

Text proposed by the Commission	*Amendment*
(1) EuroHPC supercomputers shall be	(1) EuroHPC supercomputers shall be

located in a Participating State that is a Member State. A Participating State shall only host more than one EuroHPC supercomputer if there are more than ***two*** years between ***their*** acquisition ***or if they are from differing technologies (classical/quantum)***.	located in a Participating State that is a Member State. A Participating State shall only host more than one EuroHPC supercomputer if there are more than ***four*** years between ***the selection dates following the calls for expression of interest. In the case of*** acquisition ***of quantum computers and simulators or in the case of upgrade of a EuroHPC supercomputer with quantum accelerators, this period is reduced to two years***.

Or. en

Amendment 66

Proposal for a regulation
Article 8 – paragraph 5 – introductory part

Text proposed by the Commission	*Amendment*
(5) Following ***a*** call for expression of interest, the hosting entity referred to in paragraph 2 of this Article and the corresponding Participating State where the hosting entity is established or the corresponding hosting consortium shall be selected by the Governing Board through a fair and transparent process based, inter alia, on the following criteria:	(5) Following ***an open and transparent*** call for expression of interest, the hosting entity referred to in paragraph 2 of this Article and the corresponding Participating State where the hosting entity is established or the corresponding hosting consortium shall be selected by the Governing Board through a fair and transparent process based, inter alia, on the following criteria:

Or. en

Amendment 67

Proposal for a regulation
Article 8 – paragraph 5 – point d a (new)

Text proposed by the Commission	*Amendment*
	(da) provision of an energy management plan that examines the availability of an adequate access to clean

affordable energy and a strategy to increase energy-efficiency of the installations;

Or. en

Amendment 68

Proposal for a regulation
Article 10 – paragraph 3

Text proposed by the Commission	*Amendment*
(3) The selection of the supplier of the high-end supercomputer shall address the security of the supply chain.	(3) The selection of the supplier of the high-end supercomputer shall ***assess compliance with the general system specifications, including user needs. It shall also*** address the security of the supply chain.

Or. en

Amendment 69

Proposal for a regulation
Article 11 – paragraph 3

Text proposed by the Commission	*Amendment*
(3) The selection of the supplier of the quantum computers and quantum simulators shall address the security of the supply chain.	(3) The selection of the supplier of the quantum computers and quantum simulators shall ***assess compliance with the general system specifications, including user needs. It shall also*** address the security of the supply chain.

Or. en

Amendment 70

Proposal for a regulation
Article 12 – paragraph 1

Text proposed by the Commission	*Amendment*
(1) The Joint Undertaking shall acquire together with the Private Members, or a consortium of private partners, supercomputers, or partitions of EuroHPC supercomputers, primarily destined for use by industry, and shall own them or co-own them with the Private Members or a consortium of private partners.	(1) The Joint Undertaking shall acquire together with the Private Members, or a consortium of private partners, ***at least mid-range*** supercomputers, or partitions of EuroHPC supercomputers, primarily destined for use by industry, and shall own them or co-own them with the Private Members or a consortium of private partners.

Or. en

Amendment 71

Proposal for a regulation
Article 12 – paragraph 3

Text proposed by the Commission	*Amendment*
(3) The selection of the supplier of an industrial-grade EuroHPC supercomputer shall address the security of the supply chain.	(3) The selection of the supplier of an industrial-grade EuroHPC supercomputer shall ***assess compliance with the general system specifications, including user needs. It shall also*** address the security of the supply chain.

Or. en

Amendment 72

Proposal for a regulation
Article 13 – paragraph 3

Text proposed by the Commission	*Amendment*
(3) The selection of the supplier of the mid-range supercomputer shall address the security of the supply chain.	(3) The selection of the supplier of the mid-range supercomputer shall ***assess compliance with the general system specifications, including user needs. It shall also*** address the security of the supply chain.

Or. en

Amendment 73

Proposal for a regulation
Article 15 – paragraph 6

Text proposed by the Commission	*Amendment*
(6) Use of the Union's share of access time to the EuroHPC supercomputers shall be free of charge for the users from the public sector referred to in Article 14(4) of this Regulation. It will also be free of charge for industrial users for applications related to research and innovation activities ***funded by Horizon Europe or the Digital Europe Programme*** and for private innovation activities of SMEs, where appropriate. As a guiding principle, allocation of access time for such activities shall be based on a fair and transparent peer review process defined by the Governing Board following continuously open calls for expression of interest launched by the Joint Undertaking.	(6) Use of the Union's share of access time to the EuroHPC supercomputers shall be free of charge for the users from the public sector referred to in Article 14(4) of this Regulation. It will also be free of charge for industrial users for applications related to ***open*** research and innovation activities and for private innovation activities of SMEs, where appropriate. As a guiding principle, allocation of access time for such activities shall be based on a fair and transparent peer review process defined by the Governing Board following continuously open calls for expression of interest launched by the Joint Undertaking.

Or. en

Amendment 74

Proposal for a regulation
Article 16 – paragraph 1

Text proposed by the Commission	*Amendment*
(1) Specific conditions shall apply to all industry users for commercial purposes. This service for commercial use shall be a pay-per-use service, based on market prices. The level of the fee shall be established by the Governing Board.	(1) Specific conditions shall apply to all industry users for commercial purposes. This service for commercial use shall be a pay-per-use service, based on market prices. The level of the fee shall be established by the Governing Board ***but shall not constitute an entry barrier, in particular for SMEs***.

Or. en

Amendment 75

Proposal for a regulation
Article 22 – paragraph 4

Text proposed by the Commission	*Amendment*
(4) The Commission shall carry out an interim evaluation of each Joint Undertaking as part of the Horizon Europe interim evaluation, as specified in Article 47 of Regulation (EU) No xxx establishing Horizon Europe. This evaluation shall be performed with the assistance of independent experts on the basis of a transparent process once there is sufficient information available about the implementation of Horizon Europe, but no later than four years after the start of Horizon Europe implementation. The evaluations shall examine how the Joint Undertaking fulfils its mission according to its economic, technological, scientific, societal and policy objectives, including climate-related objectives, and evaluate the effectiveness, efficiency, relevance, coherence, and Union added value of its activities as part of Horizon Europe, its synergies and complementarities with relevant European, national and, where relevant, regional initiatives, including synergies with other parts of Horizon Europe (such as missions, clusters or thematic/specific programmes). Impacts achieved at Union and national level, taking into account the component of synergies and policy retrofitting will be given particular attention. The evaluations shall, where relevant, also include an assessment of the long-term scientific, societal, economic and policy-relevant impact of the Joint Undertaking and shall include an assessment of the most effective policy intervention mode for any future action, as well as the positioning of any	(4) The Commission shall carry out an interim evaluation of each Joint Undertaking as part of the Horizon Europe interim evaluation, as specified in Article 47 of Regulation (EU) No xxx establishing Horizon Europe. This evaluation shall be performed with the assistance of independent ***external*** experts on the basis of a transparent process once there is sufficient information available about the implementation of Horizon Europe, but no later than four years after the start of Horizon Europe implementation. The evaluations shall examine how the Joint Undertaking fulfils its mission according to its economic, technological, scientific***,*** ***environmental***, societal and policy objectives, including climate-related objectives, and evaluate the effectiveness, efficiency, relevance, coherence, and Union added value of its activities as part of Horizon Europe, its synergies and complementarities with relevant European, national and, where relevant, regional initiatives, including synergies with other parts of Horizon Europe (such as ***other European partnerships,*** missions, clusters or thematic/specific programmes). Impacts achieved at Union and national level, taking into account the component of synergies and policy retrofitting will be given particular attention. The evaluations shall, where relevant, also include an assessment of the long-term scientific, societal, ***environmental,*** economic and policy-relevant impact of the Joint Undertaking and shall include an assessment of the most effective policy

possible renewal of the Joint Undertaking in the overall European Partnerships landscape and its policy priorities.	intervention mode for any future action, as well as the positioning of any possible renewal ***or phasing out*** of the Joint Undertaking in the overall European Partnerships landscape and its policy priorities.

Or. en

Amendment 76

Proposal for a regulation
Article 22 – paragraph 6

Text proposed by the Commission	*Amendment*
(6) The Commission may carry out further evaluations of themes or topics of strategic relevance, with the assistance of external independent experts selected on the basis of a transparent process, to examine the progress made by the Joint Undertaking towards the objectives set, identify the factors contributing to the implementation of the activities and identify best practices. By carrying out those further evaluations, the Commission shall fully consider the administrative impact on the Joint Undertaking.	(6) The Commission may carry out further evaluations of themes or topics of strategic relevance, with the assistance of external independent experts selected on the basis of a transparent process, to examine the progress made by the Joint Undertaking towards the objectives set, identify the factors contributing to the implementation of the activities and identify best practices. By carrying out those further evaluations, the Commission shall fully consider the administrative impact on the Joint Undertaking ***and shall in particular make best efforts to reduce the administrative burden and to ensure that the evaluation process is kept simple and fully transparent***.

Or. en

Amendment 77

Proposal for a regulation
Article 27 – paragraph 1

Text proposed by the Commission	*Amendment*
The Joint Undertaking shall ensure the protection of sensitive information the	***Without prejudice to Article 28,*** the Joint Undertaking shall ensure the protection of

disclosure of which could damage the interests of its members or of participants in the activities of the Joint Undertaking.	sensitive information the disclosure of which could damage the interests of its members or of participants in the activities of the Joint Undertaking.

Or. en

Amendment 78

Proposal for a regulation
Article 30 – paragraph 2 a (new)

Text proposed by the Commission	*Amendment*
	(2a) Similar to all other European Partnerships co-funded by Horizon Europe, all data for projects submitted and funded by the EuroHPC Joint Undertaking shall be included in the single Horizon Europe database.

Or. en

Amendment 79

Proposal for a regulation
Article 31 a (new)

Text proposed by the Commission	*Amendment*
	Article 31a
	Reimbursement rates
	By way of derogation from Article 30 of the Horizon Europe Regulation, the EuroHPC Joint Undertaking may apply different reimbursement rates for the Union funding within an action depending on the type of participant, namely SMEs and non-profit legal entities, and the type of action. The reimbursement rates shall be indicated in the work programme.

Or. en

Amendment 80

Annex – Article 1 – paragraph 1 – point n

Text proposed by the Commission	*Amendment*
(n) develop close cooperation and ensure coordination with other European Partnerships, as well as operational synergies with other Joint Undertakings, ***including through centralisation of administrative functions***;	(n) develop close cooperation and ensure coordination with other European Partnerships, as well as operational synergies with other Joint Undertakings, ***especially for common tasks and with the aim of optimising the use of resources***;

Or. en

Amendment 81

Proposal for a regulation
Annex – Article 2 – point 1 – point b

Text proposed by the Commission	*Amendment*
(b) Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, [Montenegro], the Netherlands, [North Macedonia], Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, [Switzerland], [Turkey];	(b) Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, [***Malta], [***Montenegro], the Netherlands, [North Macedonia], Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, [Switzerland], [Turkey];

Or. en

Amendment 82

Proposal for a regulation
Annex – Article 3 – point 6

Text proposed by the Commission	*Amendment*
(6) Each Private Member shall inform	(6) Each Private Member shall inform

the Joint Undertaking ***once per year*** of any significant changes in the composition of the Private Member. Where the Commission considers that the change in composition is likely to affect the Union's or the Joint Undertaking's interest on grounds of security or public order, it may propose to the Governing Board to terminate the membership of the concerned Private Member. The termination shall become effective and irrevocable within six months of the decision of the Governing Board or on the date specified in that decision, whichever is earlier.	the Joint Undertaking ***without delay*** of any significant changes in the composition of the Private Member. Where the Commission considers that the change in composition is likely to affect the Union's or the Joint Undertaking's interest on grounds of security or public order, it may propose to the Governing Board to terminate the membership of the concerned Private Member. The termination shall become effective and irrevocable within six months of the decision of the Governing Board or on the date specified in that decision, whichever is earlier.

Or. en

Amendment 83

Proposal for a regulation
Annex – Article 6 – point 5 – introductory part

Text proposed by the Commission	*Amendment*
(5) For those tasks referred to in Article 7(4) points (f), (g) and (h) of these Statutes, and for each EuroHPC supercomputer, the voting rights of the Participating States shall be distributed in proportion to their committed financial contributions and to their in-kind contributions to that supercomputer until either its ownership is transferred to the hosting entity in accordance with Article 8(3) of this Regulation or until it is sold or decommissioned; the in-kind contributions shall only be taken into account if they have been certified ex-ante by an independent expert or auditor.	(5) For those tasks referred to in Article 7(4) points (f), (g) and (h) of these Statutes, and for each EuroHPC supercomputer, the voting rights of the Participating States shall be distributed in proportion to their committed financial contributions and to their in-kind contributions to that supercomputer until either its ownership is transferred to the hosting entity in accordance with Article 8(3) of this Regulation or until it is sold or decommissioned; the in-kind contributions shall only be taken into account if they have been certified ex-ante by an independent expert or auditor***, using a simple, effective and transparent process***.

Or. en

Amendment 84

Proposal for a regulation
Annex – Article 6 – point 10 – paragraph 2

Text proposed by the Commission	*Amendment*
Each observer State may appoint one delegate in the Governing Board, who shall receive all relevant documents and may participate in the deliberations of the Governing Board unless decided otherwise by the Governing Board on a case-by-case basis. ***Those delegates shall have no voting rights and shall ensure the confidentiality of sensitive information according to Article 27 of this Regulation and subject to the rules of conflict of interest.***	Each observer State may appoint one delegate in the Governing Board, who shall receive all relevant documents and may participate in the deliberations of the Governing Board unless decided otherwise by the Governing Board on a case-by-case basis.

Or. en

Amendment 85

Proposal for a regulation
Annex – Article 6 – point 14 a (new)

Text proposed by the Commission	*Amendment*
	(14a) Two or more representatives of the User Forum, selected according to its rules of procedure, shall be invited to attend the meetings of the Governing Board as observers and take part in its deliberations, but shall have no voting rights.

Or. en

Amendment 86

Proposal for a regulation
Annex – Article 6 – point 14 b (new)

Text proposed by the Commission	*Amendment*
	(14b) Any observer attending the meetings of the Governing Board shall have no voting rights, shall ensure the confidentiality of sensitive information according to Article 27 of this Regulation and shall be subject to the rules of conflict of interest.

Or. en

Amendment 87

Proposal for a regulation
Annex – Article 7 – point 3 – point j a (new)

Text proposed by the Commission	*Amendment*
	(j a) set up a 'User Forum', as a working group to advise the Governing Board on user requirements aspects, in accordance with its rules of procedure;

Or. en

Amendment 88

Proposal for a regulation
Annex – Article 7 – point 3 – point j b (new)

Text proposed by the Commission	*Amendment*
	(j b) lay down rules and specific criteria for the selection, appointment and dismissal of members of the User Forum and of the advisory groups set up in accordance with point(j) and (k) of this paragraph including considerations of gender and geographical diversity, and approve the rules of procedure laid down autonomously by this User Forum and these advisory groups;

Or. en

Amendment 89

Proposal for a regulation
Annex – Article 10 – point 2

Text proposed by the Commission	*Amendment*
(2) The Research and Innovation Advisory Group shall consist of no more than ***ten*** members, which shall be appointed by the Private Members taking into account their commitments to the Joint Undertaking.	(2) The Research and Innovation Advisory Group shall consist of no more than ***fifteen*** members, which shall be appointed by the Private Members taking into account their commitments to the Joint Undertaking ***and the opinion of the User Forum***.

Or. en

Amendment 90

Proposal for a regulation
Annex – Article 10 – point 3

Text proposed by the Commission	*Amendment*
(3) The Infrastructure Advisory Group shall consist of ***ten*** members. The Governing Board shall establish the specific criteria that will be considered for selecting the members of the Infrastructure Advisory Group. The Chair and Vice Chair of the Governing Board shall appoint the members of the Infrastructure Advisory Group, following inputs received from the Governing Board and the Executive Director.	(3) The Infrastructure Advisory Group shall consist of ***fifteen*** members. The Governing Board shall establish the specific criteria that will be considered for selecting the members of the Infrastructure Advisory Group. The Chair and Vice Chair of the Governing Board shall appoint the members of the Infrastructure Advisory Group, following inputs received from the Governing Board and the Executive Director ***and taking into account the opinion of the User Forum***.

Or. en

Amendment 91

Proposal for a regulation
Annex – Article 13 – paragraph 1 – point a

Text proposed by the Commission	*Amendment*
(a) draw up and regularly update the draft multiannual strategic programme referred to in Article 19(1) of these Statutes for achieving the objectives of the Joint Undertaking set out in Article 3 of this Regulation. This draft multiannual strategic programme shall include: i) the strategic research and innovation agenda identifying the research and innovation priorities for the development and ***adoption of*** technologies and key competences for High Performance Computing and quantum computing across different application areas in order to support the development of an integrated High Performance Computing, quantum computing and data ecosystem in the Union, increase ***its*** resilience and help create new markets and societal applications, and measures to promote the development and uptake of European technology; ii) potential international cooperation activities in research and innovation that add value and are of mutual interest; iii) training and education priorities for addressing the skills gap in High Performance Computing and Quantum Computing technologies and applications, in particular for industry. ***It*** shall be reviewed regularly in accordance with the evolution of the scientific and industrial demand;	(a) draw up and regularly update the draft multiannual strategic programme referred to in Article 19(1) of these Statutes for achieving the objectives of the Joint Undertaking set out in Article 3 of this Regulation. This draft multiannual strategic programme shall include: i) the strategic research and innovation agenda***, based on the scientific and industrial demands,*** identifying the research and innovation priorities for the development and ***uptake of user*** technologies***, services, applications*** and key competences for High Performance Computing and quantum computing across different application areas in order to support the development of an integrated High Performance Computing, quantum computing and data ecosystem in the Union, increase ***Union's*** resilience and help create new markets and societal applications, and measures to promote the development and uptake of European technology; ii) potential international cooperation activities in research and innovation that add value and are of mutual interest; iii) training and education priorities for addressing the ***competences and*** skills gap in High Performance Computing and Quantum Computing technologies and applications, in particular for industry. ***This draft multiannual strategic programme*** shall be reviewed regularly in accordance with the evolution of the scientific and industrial demand;

Or. en

Amendment 92

Proposal for a regulation
Annex – Article 13 – paragraph 1 a (new)

Text proposed by the Commission	*Amendment*
	When performing its tasks the Research and Innovation Advisory Group shall seek the opinion of the User Forum.

Or. en

Amendment 93

Proposal for a regulation
Annex – Article 14 – paragraph 1 – point a

Text proposed by the Commission	*Amendment*
(a) draw up and regularly update the draft multiannual strategic programme referred to in Article 19(1) of these Statutes for achieving the objectives of the Joint Undertaking set out in Article 3 of this Regulation. The draft multiannual strategic programme shall address: i) the acquisition of the EuroHPC supercomputers taking into account inter alia, the planning of the acquisition, the needed capacity increases, the types of applications and user communities to be addressed, the relevant user requirements and appropriate system architectures, the user requirements, and the architecture of the infrastructure; ii) the federation and interconnection of this infrastructure, taking into account inter alia, the integration with national High Performance Computing or quantum computing infrastructures, and the architecture of the hyper-connected and federated infrastructure; and iii) the capability building, including the Competence Centres and widening and training activities for end-users, as well as opportunities for promoting the take-up and use of European technology solutions	(a) draw up and regularly update the draft multiannual strategic programme referred to in Article 19(1) of these Statutes for achieving the objectives of the Joint Undertaking set out in Article 3 of this Regulation. The draft multiannual strategic programme shall address: i) the acquisition of the EuroHPC supercomputers taking into account inter alia, the planning of the acquisition, the needed capacity increases, the types of applications and user communities to be addressed, the relevant user requirements and appropriate system architectures, the user requirements, and the architecture of the infrastructure; ii) the federation and interconnection of this infrastructure, taking into account inter alia, the integration with national High Performance Computing or quantum computing infrastructures, and the architecture of the hyper-connected and federated infrastructure; and iii) the capability building, including the ***Union's and the national High Performance Computing*** Competence Centres and ***the High Performance Computing Centres of Excellence*** widening and training activities

notably by the Competence Centres;	for end-users, as well as opportunities for promoting the take-up and use of European technology solutions notably by the Competence Centres;

Or. en

Amendment 94

Proposal for a regulation
Annex – Article 14 – paragraph 1 a (new)

Text proposed by the Commission	*Amendment*
	When performing its tasks the Infrastructure Advisory Group shall seek the opinion of the User Forum.

Or. en

EXPLANATORY STATEMENT

Introduction

In autumn 2020, as a part of its European Data Strategy, the European Commission proposed a new regulation for the European High Performance Computing Joint Undertaking (EuroHPC JU), with a budget of €8 billion for the period 2021-2033. Our report builds on this proposal and includes a set of amendments aimed at ensuring that this joint undertaking will fulfil its greater goal of serving our citizens, businesses (including SMEs), research institutions and administrations, while remaining aligned with the Union's main development and sustainability goals.

The investment in High-Performance Computing is entirely justified by the exponential increase of generated data, from 33 zettabytes globally in 2018 to an expected 175 zettabytes in 2025, and by the many critically important application areas for supercomputing.

These range from fundamental to applied sciences, and cover just about every field of knowledge, from mathematics to physics, biology, astronomy and the atmospheric sciences. The development of a world class European HPC network will represent a strategic advantage to the EU industry and its global competitiveness. Our ability to process data at previously unthinkable speeds will play a vital role in our efforts to address climate change, modernize our industries, our cities and transports, as well as study the origins and evolution of pandemics, and develop new life-saving drugs.

The Commission proposal aims at renewing the EuroHPC JU, established in 2018 with the Regulation 2018/1488. This has been, since the beginning, a particularly ambitious partnership, aimed at no less than placing the Union at the forefront of supercomputing.

The first phase of EuroHPC JU was overall very successful, with high levels of engagement from both public and private stakeholders across the Union. Decisions were made on the initial consortia of Member States and private entities that will host and operate Europe's future network of supercomputers, including models of the next generation (exascale) able to run more than one billion billion (10^{18}) operations per second. Eight machines are currently being installed in several member states.

Now, it is the time to make this network a reality and to deploy all its potential in the service of Europeans. It is the rapporteur's goal to help ensure that this JU will indeed become "the engine of transformation" it was destined to be.

Principles

The report is built on the main principle that the **first measure of success** of this Joint Undertaking is the level of involvement, access and awareness it generates amongst its potential beneficiaries. In this case, we are dealing with **access** to key infrastructures and data to enable the digital transformation of our continent and to increase leadership and competitiveness of our economy. **Openness, transparency and simplification** need to be the cornerstones of the new EuroHPC. Simply building the main supercomputer infrastructure will not suffice and we

need now to enable the robustness of the projects. In order to fully profit from this investment, Europe will have to create an entire ecosystem of excellence, accessible not only by the biggest players but by all stakeholders, independently of their regions of origin or dimension. Achieving that will require scaling up the capabilities of many. For this reason, the establishment of **synergies and complementarities** with EU objectives, policies and programmes, notably with regional funds, Invest EU and the Recovery and Resilience funds will have to be possible in a simple and effective manner.

Furthermore, true access will require actions aimed at involving all stakeholders, informing the public about the benefits of supercomputing but also receiving important contributions on new application areas where the potential of these resources can be deployed. The supercomputers and the HPC ecosystem should be **demand-oriented and user-driven**. In order to implement effectively the co-design approach that the Commission is proposing, there is the necessity to consider the needs of the users of the HPC services, applications and technologies in ways that are more systematic. Our proposal for the creation of a User Forum is designed to meet that goal.

Creating the ecosystem behind this supercomputer network will also imply addressing, through bold **Research and Innovation activities**, the European frailties in terms of hardware manufacturing, with an **emphasis on microprocessors**. Further research on **quantum computing and accelerators** must also be properly stressed. Ensuring the availability of and the full **access to common data spaces and to the European Open Science Cloud (EOSC)** will bring added-value to the important investments made to acquire and install HPC capacities.

The same applies to the human factor. To benefit fully from these capabilities, the EU needs to work on **skills and competences**, paying special attention to increase women participation, and promoting wide **dissemination and awareness** of the opportunities to improve digital skills.

For the mentioned reasons, the EuroHPC JU will have to be adequately articulated with the main Union priorities, namely the **Industry, Health and Data Strategies**. **Alignment of** all initiatives and activities **with the European Green Deal** and with the twin transition that the Union is undertaking are essential. The respect for environmentally responsible practices while operating the supercomputers and their network is another authentic challenge.

Key measures:

In order to fulfil the mentioned priorities, we have established six main lines of action. They are **Access**, **Openness**, **Synergies**, **Alignment**, **Industry** and **Knowledge and Awareness.**

---

1) **Access**:
   - to the infrastructures and its services must consider all users, with particular attention to SMEs and startups - to this end, access fees should not discourage smaller entities;
   - to the data, as each user should have potential right to use high-end computing resources and cloud infrastructures, as well as scientific and commercial data repositories;
   - to the key decisions - to this end we recommend to increase transparency of decisions and to create a User Forum, with a counselling role to the governing

board and to the Advisory bodies and including representatives of industry and in particular SMEs, but also civil society organisations, social partners and NGOs. This will contribute to extend the reach of EuroHPC, while enriching the governance with useful and timely information on challenges that might be addressed through the activities foreseen by the different pillars to enable an effective ecosystem.

2) **Openness**:
- all activities shall be open and transparent and resources shall be distributed through competitive calls for proposals and expressions of interest, aiming at the widest diffusion possible across Europe;
- all (non-sensitive) data regarding the projects funded by the Joint Undertaking should follow the same publicity rules as for Horizon Europe and shall be included in the single database;
- all procedures should be clear and simple, designed to encourage users to benefit from it, in order to encourage the participation of all type of stakeholders, to establish effective complementarities, to reduce the administrative burden and to optimise the use of resources.

3) **Synergies**:
- with all relevant programmes and funds, namely regional (ERDF, ESF+, EMFF, EAFRD), but also the ones stemming from the Recovery and Resilience Facility, InvestEU and other programmes managed by the European Investment Bank;
- with the other partnerships, missions and instruments of Horizon Europe;
- with the other relevant Joint Undertakings, especially for common tasks but always aiming simplicity and effectiveness.

4) **Alignment:**
- with the Union strategic priorities, especially those related to the economic and social recovery, the Union's Industry, SMEs and Data Strategies;
- with the Green Deal, by contributing to innovations enabling the digital and green transition at all levels, and also by ensuring that the technology and the hardware related to supercomputers and their ecosystem rely, when possible, on the most advanced energy-efficient and low-power equipment preferably renewable-based;

5) **Industry:**
- strong emphasis is made on the relevance of a strong European ecosystem in contributing to achieve a scientific, digital and industrial leadership, to create new jobs and to strengthen the uptake by industry, SMEs and innovative companies;
- SMEs and smaller entities should be recognised as key users and their participation eased and favoured throughout all the pillars and the activities of the JU;
- the need of a vast amount of research and innovation activities is also highlighted, especially concerning the technological development of low-power supercomputing hardware systems - the JU is well placed to addressing the Union's frailties in terms of hardware manufacturing, especially of microprocessors and quantum computing;
- the HPC-related supply chains should all be considered strategic, therefore a certain autonomy should always be sought; however this must be done preserving the open character of our economy;

- in the longer-term, the whole HPC network and not just the industrial-grade supercomputers, should be compliant with the highest possible (cyber-) security, accessibility, usability standards and requirements.

6) **Knowledge and Awareness:**

- the importance of investing in skills and competences is recognised as number-one problem when it comes to investments and access to R&I infrastructure, and special attention shall be given to the gender perspective, given the inequalities in terms of access to the digital economy;
- a reinforcement of research and innovation activities in all the emerging technologies linked to high performance computing but especially in quantum computing should be central to the Joint Undertaking activities;
- public awareness about the relevance of data in modern societies and on the opportunities deriving from the use of high-end supercomputers should be actively raised;
- educational and dissemination activities, involving academic, scientific and knowledge networks are very beneficial to the development of the ecosystem and to the social acceptance of these investments.