

European High Performance Computing Joint Undertaking

2018/0003(NLE) - 11/01/2018 - Legislative proposal

PURPOSE: to establish a European Joint Undertaking for High Performance Computing (EuroHPC) during the period 2019-2026.

PROPOSED ACT: Council Regulation.

ROLE OF THE EUROPEAN PARLIAMENT: the Council adopts the act after consulting the European Parliament but without being obliged to follow the opinion of the European Parliament.

BACKGROUND: **High performance computing (HPC)** is an indispensable tool for addressing major scientific and societal challenges such as early detection of diseases, forecasting climate change or the prevention of natural disasters. It has an increasingly important impact on industries and businesses as it reduces design and production cycles. Lastly, it is essential for national security and defence.

At present, the **supercomputers available in the Union do not satisfy demand**. European scientists and industry are increasingly processing their data outside the EU. This lack of independence can create problems, especially with regard to the protection of personal data and the ownership of data, in particular for sensitive applications such as health.

Since 2012, the Commission has been promoting EU initiatives in this area:

- on 19 April 2016, the Commission adopted the European Cloud Initiative, as part of its [Digitising European Industry strategy](#). This involves the Commission and the Member States creating a leading European HPC and big data ecosystem, underpinned by a world-class HPC, data and network infrastructure;
- on 23 March 2017, at the Digital Day in Rome, seven Member States (France, Germany, Italy, Luxembourg, the Netherlands, Portugal and Spain) signed the EuroHPC declaration. They were subsequently joined by Belgium, Slovenia, Bulgaria, Switzerland, Greece and Croatia. These 13 countries agreed to work together and with the Commission to acquire and deploy, by 2022/2023, a pan-European integrated exascale supercomputing infrastructure (EuroHPC) (i.e. at least 10 to the power of 18 or 1 billion calculations per second), which is expected to be reached around 2021-2022.

The EuroHPC initiative will **enable Member States to coordinate together with the Commission their HPC investments and strategies**. The end goal is to establish in the EU a world-class HPC and data infrastructure that Member States on their own cannot afford.

IMPACT ASSESSMENT: the chosen option is that of the **creation of a Joint Undertaking** providing a legal, contractual and organisational common framework to structure the joint commitments entered into by its participating members. It also provides its members with a firm governance structure and budgetary certainty. It can:

- implement joint procurement and operate world-class HPC systems via the promotion of (in particular European) technology;
- as the owner of the pre-exascale supercomputers funded jointly by its members and so facilitate non-discriminatory access to them;
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launch R&D&I programmes for developing technologies and their subsequent integration in European exascale supercomputing systems.

CONTENT: the proposed Regulation aims to establish a ‘**European Joint Undertaking for High Performance Computing**’ for a period until 31 December 2026.

The key objective is to provide European scientists, businesses and the public sector with the latest data and HPC infrastructures and to support the development of its technologies and its applications across a wide range of fields. The following activities are provided to this effect:

- **provide a framework for acquisition of an integrated world-class pre-exascale supercomputing and data infrastructure in the Union:** in 2019-2020, the Joint Undertaking will procure two world-class pre-exascale machines of a few hundred petaflops and co-finance the acquisition of at least two additional machines of the order of a few tens of petaflops; it will manage access to these supercomputers for a wide range of public and private users starting in 2020;
- **support the research and development of an integrated High Performance Computing ecosystem** in the Union covering all scientific and industrial value chain segments notably hardware, software, applications, services, engineering, interconnections, know-how and skills.

Governance of the Joint Undertaking: the Joint Undertaking governance shall 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. It should be responsible for strategic policy making and funding decisions related to the activities of the Joint Undertaking, in particular for all the public procurement activities. The Industrial and Scientific Advisory Board should include representatives of academia and industry as users and technology suppliers.

Financing: the Union's financial contribution to the Joint Undertaking would be up to a maximum of **EUR 486 million under the current multiannual financial framework**, broken down as follows: (i) EUR 386 million from the [Horizon 2020 programme](#); (ii) EUR 100 million from the [Connecting Europe Facility](#) (CEF). This contribution shall be matched by Participating States and the Private Members of the EuroHPC Joint Undertaking.