

EXPLANATORY MEMORANDUM FOR PROPOSED EUROPEAN UNION LEGISLATION

Proposal for a COUNCIL REGULATION on establishing the European High Performance Computing Joint Undertaking

Submitted by the Department for Business, Energy and Industrial Strategy on 29th
January 2018

SUBJECT MATTER

Summary

The European Commission (EC) is proposing a Council Regulation to establish a public-private partnership in the form of a Joint Undertaking (JU) to procure and deploy new High Performance Computing (HPC) infrastructure. Specifically, the JU will aim to acquire two HPC systems with pre-exascale performance and support the development of exascale performance systems by 2022-2023. Exascale performance is defined as machines capable of a billion-billion calculations per second, with pre-exascale machines operating at around 20-50% of this capability.

Background

HPC technology is essential to Europe's scientific capability, innovation capacity and industrial competitiveness. It has applications across all scientific disciplines, for example in the early detection of diseases, forecasting climate evolution, national security and increasing the efficiency of industrial processes.

The EC states that current European-HPC infrastructure does not meet the needs of scientists and industry and researchers are increasingly reliant on non-EU technology for data processing. This carries risks to the protection of personal and sensitive data. To mitigate this risk the EC is proposing to build its own supercomputer infrastructure with enough capacity for European users.

Although the UK is one of the world leaders in this field (both in science research and use by industry) the EU and its Member States (MS) generally invest less in HPC technology compared to other leading nations such as the USA, China and Japan. Currently the EU has no supercomputers listed in the world's top ten.

The EC is proposing a new legal and funding structure – the EuroHPC JU. This JU is designed to facilitate the necessary collaboration for Europe to deploy new HPC infrastructure and eliminate reliance on non-EU technologies.

The Proposal

This regulation will provide the legal basis on which the new JU will be established. The JU will coordinate HPC strategy and allow for the procurement of two pre-exascale machines, accessible to both public and private users, for scientific and industrial applications. The JU will also run a Research and Innovation Programme that will support the R&D required for building exascale machines and the first generation of European, low-power microprocessor technology.

The public members of this JU will be the European Union (represented by the Commission) and EU Member States that wish to participate. Membership is also open to those countries that are associated to EU Framework Programmes for research and innovation (e.g. Horizon 2020). Thirteen countries have stated an intention to participate so far: France, Germany, Italy, Luxembourg, The Netherlands, Portugal, Spain Belgium, Slovenia, Bulgaria, Greece, Croatia and Switzerland. The private sector members will include academic and industrial users, represented by the European Technology Platform for High Performance Computing (ETP4HPC) and the Big Data Value Association (BDVA). The regulation allows for new members to join at a later date should they wish.

It is envisaged that the EuroHPC JU will be funded by the current Multiannual Financial Framework (MFF) budget to a value of around EUR 486 million (approximately GBP 431 million) and that this contribution will be matched by additional contributions from participating countries. Detailed budgets and timelines are yet to be determined.

SCRUTINY HISTORY

This is a new proposal; therefore there is no previous scrutiny history on the proposal for a Council Regulation on establishing the European High Performance Computing Joint Undertaking.

MINISTERIAL RESPONSIBILITY

The Secretary of State for BEIS has principal responsibility for UK science research and ensuring sufficient access to infrastructure for UK scientists and industry.

The Secretary of State for DCMS also has an interest owing to the digital element of this proposal. DCMS has had the opportunity to comment on this Explanatory Memorandum.

INTEREST OF THE DEVOLVED ADMINISTRATIONS

The Proposal for a Council Regulation on establishing the European High Performance Computing Joint Undertaking is a reserved matter under the UK's devolution settlements. However, devolved administrations have an interest in European research and innovation policy and they have had the opportunity to comment on this Explanatory Memorandum in its preparation.

LEGAL AND PROCEDURAL ISSUES

Legal basis

The JU will be established under Article 187 of the Treaty on the Functioning of the EU (TFEU) and the proposal foresees its adoption as a Council Regulation in accordance with the first paragraph of Article 188 of the TFEU.

European Parliament procedure

The first paragraph of Article 188 of the TFEU provides that the Council must consult the European Parliament and the Economic and Social Committee before adopting a Commission proposal made under Article 187 of the TFEU.

Voting procedure

The Council acts by qualified majority voting.

Impact on United Kingdom law

The proposed Regulation will be directly applicable in the UK.

Application to Gibraltar

The proposal applies to Gibraltar by virtue of Article 355(3) of the TFEU.

Fundamental rights analysis

There are no implications for fundamental rights.

APPLICATION TO THE EUROPEAN ECONOMIC AREA

Membership of the JU is open to countries associated with the Horizon 2020 framework programme which includes EEA countries in accordance with the terms of the EEA Agreement. Membership is also open to entities established in such countries.

SUBSIDIARITY

The proposal is justified in accordance with the principle of subsidiarity because the development of the European HPC ecosystem is better achieved at the Union level.

POLICY IMPLICATIONS (including Exit implications where appropriate)

On 23 June 2016, the EU referendum took place and the people of the United Kingdom voted to leave the European Union. The government respected the result and triggered Article 50 of the Treaty on European Union on 29 March 2017 to begin the process of exit. Until exit negotiations are concluded, the UK remains a full member of the European Union and all the rights and obligations of EU membership remain in force. During this period the Government will also continue to negotiate, implement and apply EU legislation.

The UK is a leading participant in the working group developing the detailed planning and budget for the EuroHPC initiative however, it has not formally signed-up to the project at this stage. Decisions on future UK participation (and possible financial contributions) will be made as more detailed plans become available and in light of the UK Research Infrastructure Roadmap currently being developed by UK Research and Innovation.

The UK's right to participate in the EURO HPC Joint Undertaking after it leaves the EU will be subject to ongoing EU exit negotiations. The UK will look to establish an ambitious agreement on science and innovation with the EU that ensures the valuable research links between us continue to grow.

CONSULTATION

The UK Government has been involved in a working group formed by the EC to discuss this initiative with all EU Member States and countries associated to the EU Research and Innovation Framework Programme. The UK will consult the scientific and industrial communities as to their interest in this initiative through the work of the UKRI road-mapping exercise for research infrastructures.

IMPACT ASSESSMENT

The EC undertook an Impact Assessment around three possible strategies: A baseline scenario with no policy intervention, a European Research Infrastructure Consortia (ERIC) and a JU. The JU was found to be the most effective vehicle for achieving objectives, meeting the functional requirements of the instrument, safeguarding the interests of the Union and have a positive impact on the economy, society and the environment.

No specific UK impact assessment has been undertaken as the UK is presently not a member of the JU.

FINANCIAL IMPLICATIONS

There are no direct financial implications for the UK. The JU will draw funds from the budgets already prescribed under the current MFF of Horizon 2020 and the Connecting Europe Facility. The total contribution from this would be EUR 486 million (approximately GBP 431 million). Participating countries (jointly) would be expected to match this and private companies are expected to contribute EUR 422 million (approximately GBP 384 million).

TIMETABLE

On the 23 March 2017 seven EU 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.

In August 2017, the EC carried out an impact assessment to ascertain the best instrument for achieving the goal of acquiring and deploying a pan-European exascale supercomputing infrastructure by 2022/2023. A Joint Undertaking was identified as the best option.

It is expected that the regulation which forms the EuroHPC JU will enter into force by the end of 2018. The EuroHPC will begin operation in 2019 with the aim of reaching exascale capability in Europe by 2022/2023.

OTHER OBSERVATIONS

None applicable.

MINISTERIAL NAME AND SIGNATURE



SAM GYIMAH
Minister of State for Universities, Science, Research & Innovation.

