Position Paper

European Commission Proposal for a Council Regulation on establishing the EuroHPC Joint Undertaking

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On 18th September 2020, the European Commission (EC) proposed a new Regulation for the European High Performance Computing (EuroHPC) Joint Undertaking (JU) to maintain and advance Europe's leading role in supercomputing and quantum computing.[1]

Bitkom welcomes the continuation of EuroHPC under the next EC Multiannual Financial Framework (MFF) and particularly supports the increased importance of industrial use of EuroHPC resources as well as the consideration of new technological developments such as quantum computing.

In the following, Bitkom will comment on a number of aspects, which in our view are important for a successful implementation. We remain available for further discussion of these topics and would be happy to support EuroHPC definition and implementation with further advice, where needed and as far as possible.

Involvement of industrial end-users in definition and implementation of EuroHPC

Bitkom supports the increased involvement of industrial end-users (SME and large corporate) both in EuroHPC research and development programs and in the use of Euro-HPC infrastructure resources.

Based on feedback from our members we question however the new concept of industrial grade supercomputers. We propose not to create an extra category of industrial supercomputers, but instead to define and implement *all* EuroHPC supercomputers compliant with industrial requirements, in particular in the fields of security and accessibility / usability.

- We do not see sufficient value and differentiation in EuroHPC industrial grade supercomputers to motivate the necessary private investments in such systems, compared with other existing and evolving market solutions, including cloud solutions.

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[1] https://ec.europa.eu/digital-single-market/en/news/proposal-council-regulation-establishing-european-high-performance-computing-joint-0

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- For companies to participate and invest jointly in buying consortia for industrial grade supercomputers, we see very high hurdles in the field of procurement rules (public or corporate), operations (availability, SLAs), governance, responsibility and liability.

- Regarding security requirements, we recommend putting the focus on defining the security level of the core EuroHPC systems to be compliant with typical industrial usage scenarios. Often, the data used on industrial HPC systems are business critical and thus demand for a high level of security.
  This approach will be more cost-efficient and will push competitiveness of the European HPC ecosystem and European industries much more than spending significant amounts of money on additional systems dedicated for industry. Severe security incidents have been reported during 2020 for European supercomputing centers. We believe there is no justification for different security levels but all scientific and industrial public supercomputing resources should comply with the highest possible security standards.

We see a major success factor for EuroHPC in a much broader, intensive and systematic communication of its benefits and participation opportunities into the industrial target groups, both SME and large enterprises. Otherwise, there is the risk that benefits will reach only a few well-known active industrial participants without creating an economic impact for European industry as a whole.

Quantum Computing

Bitkom supports to include quantum computing infrastructures into EuroHPC acquisition programs, including the relevant connection technologies.
We see a risk, however, of a potential divergence of these EuroHPC quantum acquisition programs on one side, and European quantum research and innovation programs, such as Quantum Flagship, on the other side. In our understanding, a major motivator for EuroHPC in the past was to bring European HPC research and innovation programs and procurement programs under the same governance structure. We therefore recommend not to rely only on informal strong collaboration between EuroHPC and other quantum research and innovation initiatives, but to take this into account already in EuroHPC regulations and governing rules.

Federation of Supercomputing Services

The proposed union-wide federation of the EuroHPC supercomputing services can create significant benefit if this federation includes relevant data and access infrastructures in the academic as well as in the industrial sector. Therefore, we strongly recommend to propose and discuss an adequate architecture for this federation and access to it by academia and industry as soon as possible.

Specifically, we suggest, to extend the scope of the EuroHPC federation to the European Open Science Cloud (EOSC) and Gaia-X to form a strong European eco-system in which each cloud-user has potential access to high-end computing resources as well as to scientific and commercial data-repositories. Putting Gaia-X into the center of such an ecosystem would make the overall architecture simple and effective.

We also recommend cooperating with and learning from globally operating public cloud providers who have built up already significant knowledge about balancing and managing resources across countries.

Technology development and digital sovereignty

EuroHPC research and innovation programs for technologies newly developed in Europe which have a particular target to increase digital sovereignty of Europe, should take into account necessary efforts and investments for the full solution stack as well as the full value chain. Otherwise, we see the risk to create European technology building blocks without reaching acceptance and usability in the market.

For the European Processor Initiative, as an example, we recommend developing not only hardware, but in parallel ensure the evolution of the complete software ecosystem including HPC middleware and, above all, HPC applications. We see a risk that the complexity of interests within such a software ecosystem, the required effort and the time effort for development and market introduction of relevant components are underestimated. We recommend having a special focus on independent software vendors' HPC applications, which are widely used in European industries.

In order to achieve digital sovereignty, we also recommend considering not only development but also manufacturing competencies and capacities in Europe. Otherwise, dependencies within the value chain will just be shifted, but not solved.

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International Collaboration

For Bitkom, global collaboration in the field of HPC remains essential to further grow HPC capacities, competencies and competitiveness in Europe. Therefore, for the implementation of EuroHPC programs we recommend strong collaboration with global academic and industrial organizations in order to exchange on latest global technological innovations relevant for EuroHPC.

In the field of Research and Innovation collaboration, we recommend to specify early within EuroHPC regulations those areas which are of particular interest and candidates for global collaboration. In particular for larger size, strategic collaborations, this will give global organizations the necessary lead-time and planning security compared with ad-hoc project specific planning.

HPC dissemination and competence building

We welcome the launch of the EuroHPC programs EuroCC and CASTIEL in 2020. During further program implementation, we recommend having a focus on broad dissemination of information into the industrial target groups.

It is important to build up competences directly in small and medium enterprises (SMEs) to allow them to benefit from the advantages of HPC in their business. As topics for the yet-to-be-developed training courses, we propose services for modelling simulation-supported developments and manufacturing. Training on the job for a broad range of SMEs beyond a few showcases should be a main aim. To reach the target group and assess the needs, local associations and infrastructures that reach out to the industries of the particular area should be used. With the help of these multipliers' qualification, campaigns can attract businesses that typically would not participate in European projects, e.g. due to formal barriers.