



Launch of the first call for projects in the field of High-Performance Computing (25.07.2022)

The Ministry of the Economy announced the launch of a new joint call for projects, in partnership with the Fonds national de la recherche (FNR) and Luxinnovation, in the field of high-performance computing. It is open to companies and research institutions that want to take advantage of high-performance computing (HPC) capacities in their research field. Like the previous joint calls, launched in the fields of [health technologies](#) and [defense](#), the call is aimed at encouraging close and interactive collaboration between private companies and public research institutes (PPP – public-private partnerships) to carry out innovative research projects on HPC infrastructures.

High-performance computing is an innovation accelerator that offers enormous potential for companies of all sizes in different sectors. HPC can reduce the costs of companies' R&D processes thanks to simulations and virtual prototyping. It is particularly useful for performing simulations that require high-resolution and -precision results in order to look into the granularity of large and complex problems with many parameters. HPC also offers great value in big data analytics and training of artificial intelligence algorithms with millions of data points. Nevertheless, HPC is used quite rarely in the private sector, often due to a lack of necessary expertise to scale numerical simulations or perform big data analyses on large computing systems.

The joint funding call by the Ministry of the Economy and FNR therefore supports the implementation of high quality, high impact and innovative applied research projects that will benefit from high-performance computing in order to accelerate the digital transformation process in companies by integrating computer aided engineering, design and analytics as well as high-performance computing into their innovation process. In this first edition, the HPC call for projects targets private stakeholders with substantial expertise in the field of computer-aided R&D, big data analytics or training of artificial intelligence (AI) algorithms, but with little or no expertise in the use of HPC infrastructures. Hence, companies that need to rely on support from a public research institute to realize the successful transfer to HPC.

The projects to be carried out within the framework of this call must be innovative, of the highest quality and in the field of industrial research¹. They must also have a positive and sustainable effect on the future development of the companies' computer-aided R&D competencies, knowledge and expertise.

¹ 'industrial research' means the planned research or critical investigation aimed at the acquisition of new knowledge and skills for developing new products, processes or services or for bringing about a significant improvement in existing products, processes or services. It comprises the creation of components parts of complex systems, and may include the construction of prototypes in a laboratory environment or in an environment with simulated interfaces to existing systems as well as of pilot lines, when necessary for the industrial research and notably for generic technology validation

The research projects must address innovative problems that require large allocations of computing and data storage resources. Applications must state why the work requires access to an HPC structure and cannot be performed on a smaller computing system.

The joint call for projects targets industrial research projects in the following HPC application fields:

- complex simulations with multiple parameters
- virtual testing and optimization (of new product designs, processes, complex materials)
- big Data analytics and visualization of millions of data points
- artificial intelligence and machine learning algorithms
- predictions and forecasting of complex models

The thematic areas thereby include manufacturing, advanced engineering, materials, energy and environmental technology, and telecommunications.

This joint call for projects will be accompanied by a dedicated portfolio of aid schemes offered by the Ministry of the Economy, which takes into account the different skill levels of private actors in the use of computer-aided R&D. The goal is to create a general awareness of the use of simulation and modeling tools and techniques in companies' R&D activities and to support a sustainable evolution towards an ecosystem of HPC use. Together with the dedicated portfolio of aid schemes, the joint call intends to accelerate the digital transformation process in companies by integrating computer-aided engineering and design as well as high-performance computing into their innovation process

To facilitate the emergence of projects and to support interested actors in their efforts, Luxinnovation, the national agency for the promotion of innovation, has set up an [online platform](#) where companies and public research actors are invited to submit their project ideas from 15 of September to 15 of November 2022.

The detailed call for projects, including the call process, can be found [here](#).

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