



The FFplus Project: A decade of enhancing the innovation potential of European SMEs

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Building on the methods and achievements of the Fortissimo project series, FFplus, with a total budget of €30m, will continue to support and empower SMEs and start-ups to innovate. With more than a decade of history and a strong reputation in Europe, the Fortissimo projects (Fortissimo, Fortissimo 2, FF4EuroHPC) received a budget of €42.8m and successfully executed more than 130 experiments involving more than 300 partners. These efforts have resulted in 120 success stories from more than 20 EU countries where SMEs have used HPC (high performance computing) and AI to develop new products and services, boosting the EU economy.

Ahead of the launch of the second open call, we spoke to project coordinator Dr Bastian Koller, deputy director of the High-Performance Computing Centre Stuttgart, and open call lead Dr Guy Lonsdale, CEO of scapos, who gave us valuable insights into the world of Fortissimo.

The iconic Fortissimo project series has been running since 2014, spanning more than a decade. How did its success story begin?

Dr Bastian Koller: Well, at that time, the European Commission had increasingly focused on onboarding SMEs to HPC in order to increase the competitiveness of European SMEs. This opened up an opportunity and the University of Edinburgh's Supercomputing Centre (EPCC) took a leading role in bringing together the key players to manifest the Fortissimo concept in a first project. These key players already had good experience of working with industry, particularly SMEs, and of setting up and running open calls within projects.

What has made this series of projects so successful and effective that it continues to be funded after all these years?

Dr Bastian Koller: I would say the key words are "success stories". Since Fortissimo (I), the success stories speak for themselves and inspire the industry as well as the entire HPC landscape. Fortissimo has evolved to include success stories that demonstrate the benefits

of an open call experiment in a way that industry can understand. At the same time, it has always been important to us to give the funding agencies something in return for the trust (not just money) they have placed in us. The Fortissimo series has thus become an important part of the EU's SME strategy.

The Fortissimo projects have had a profound impact on the adoption of HPC by European SMEs. How does FFplus build on this legacy and what new dimensions does it bring?

Dr Bastian Koller: FFplus is an evolution of the previous projects. On the one hand, it continues the classical path of business experiments with HPC, but at the same time it addresses the ever-growing need to make AI technologies usable for SMEs. As a result, for the first time, there are two tracks in the open calls: a classical one, which deals with the use of HPC as in the previous projects, and a new one, which uses generative AI to realize innovation studies for SMEs and start-ups using AI.



Dr Bastian Koller



Dr Guy Lonsdale

As coordinator of the FFplus and EUROCC2 projects, what are the main objectives of the collaboration among FFplus partners and the NCCs from 33 European countries?

Dr Bastian Koller: The classic saying is "do good and talk about it". However, this is easier said than done as the target groups of SMEs and start-ups are not always easy to reach. With the network of National Competence Centres (NCCs), EuroHPC has created a multiplier that ideally sits directly with SMEs and start-ups and can promote the FFplus opportunities (open call, funding, HPC, and AI) to them. At the same time, the NCCs can offer support to SMEs and start-ups, ranging from assistance in writing applications to help with onboarding to the EuroHPC systems.

How does FFplus contribute to the EU economy and innovation landscape?

Dr Bastian Koller: I see FFplus as a kind of accelerator. It speeds up processes without creating total dependency and, by supporting SMEs and start-ups, it unlocks potential that would otherwise be difficult for them to exploit. For the experimentation/innovation study partners, it is primarily about their business model, but at the same time we show similar SMEs and start-ups what is possible through the success stories. This can have a multiplier effect, making it clearer to companies that it is worth investing in this area.

What is your vision for the future of projects like Fortissimo and FFplus? How do you see them shaping the course of industrial digitalization and Europe's competitiveness on the global stage?

Dr Bastian Koller: Of course, I am biased and therefore say that projects like Fortissimo must always continue. After all, activities such as FFplus can provide targeted support to companies in order to exploit the full potential of technologies. In this way, Europe can gradually put its companies in a much better competitive position. At the same time, there is great potential for start-ups to become champions, especially in the field of AI, and get a quick boost from a programme like ours.

Looking at it from a more distant perspective, I see it the same way, but with the clear premise that it will continue to evolve based on the needs of the target groups. Even now, in FFplus, we are constantly learning from the experiments/innovation studies we have carried out: what was well planned/defined by us, what might still be missing, or what does not work as we had imagined. And yes, we can gradually improve this with open call 2 and 3. The open call system has been used in other projects in a similar way to FFplus, so our experience can help here too.

Let us take a closer look at the proposals selected in the first open call. What are the most common technologies used? Which sectors are leading the way? Are there any "hot topics" or key challenges that companies are particularly focused on? What about the EU countries? Are there certain countries that stand out as leaders in submitting proposals to the call?

Dr Guy Lonsdale: As mentioned, we have two types of proposals: using HPC to address any type of SME business challenge, and using HPC to develop or tune/adapt generative AI methods and tools. For the latter, we see a range of technologies and approaches, depending on a variety of specific application targets. But one of the striking things – and a change that gained momentum with the previous FF4EuroHPC project – is that the AI/ML topic is present in the majority of proposals selected in the first type of proposals. Where modelling and simulation play a key role, this is often combined with the use of AI/ML approaches or integrated in digital twins.

Regarding the "EU demographics" of proposal submissions and selection, while a small number of countries was particularly well represented in terms of the number of proposals submitted (I would like to highlight Germany, Italy, and Spain), we are proud to see that a large number of EuroHPC member states is represented in the set of sub-projects that will be implemented as a result of the first call.

SMEs often face technical and financial barriers to adopting HPC and AI. What are some of the key strategies FFplus is using to overcome these challenges and demonstrate tangible business benefits?

Dr Guy Lonsdale: The key approach of FFplus (and indeed Fortissimo in general) is to design the experiments or studies in terms of scope and timeframe to address a very specific business challenge. An open-ended research objective is not appropriate. Each of the sub-projects will receive funding that should be commensurate with achieving the objectives of the experiment/study. Obviously, it is not possible under FFplus to provide funding to SMEs to support their post-project exploitation path. As regards the provision of the necessary technical support, each business experiment or innovation study may comprise a small consortium where the technical competences of the SME are complemented by supporting partners bringing in the necessary technical expertise (whether in the targeted application area or in the key HPC/IT/software technology).

Are FFplus partners likely to use state-of-the-art EuroHPC JU systems for their business experiments and innovation studies?

Dr Guy Lonsdale: There is a slightly different answer to this question depending on the type of FFplus sub-project. For the business experiments, there is the opportunity to use leading-edge systems to explore the potential of using HPC to address their business challenges. The scale of the resources to be used may not be such that such a system would not otherwise be available, but the EuroHPC JU systems are provided free of charge, allowing the experiments to make the most of the budget provided by FFplus to address their business challenges. For the innovation studies, where the development of generative AI technology, such as the training of LLMs, requires extremely large resources, the EuroHPC JU systems represent a unique opportunity in Europe. The EuroHPC JU systems can be the vehicle through which the FFplus sub-projects generate their success stories, building the innovation potential of the participating SMEs and promoting HPC as an innovation vehicle for European industry as a whole and SMEs in particular.

About FFplus

FFplus builds on the methods and accomplishments of the Fortissimo project series, which have left an invaluable legacy in the European HPC and business landscapes. Starting with Fortissimo (2013-2016), Fortissimo 2 (2015-2018) and FF4EuroHPC (2020-2023), more than 130 experiments involving 330 partners have been executed, resulting in 120 success stories. The FFplus project will support and empower SMEs by addressing technical aspects, facilitating access to EuroHPC resources, and highlighting the adoption of HPC and AI for SMEs and Startups across Europe, showing the business benefits and impacts of adopting HPC and AI in real business models. Learn more: www.ffplus-project.eu