

# Call for Proposals for HPC-Cloud Application Experiments

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Fortissimo is funded under the European Commission's 7th Framework Programme through the Call for Proposals addressing ICT for the Enterprise and Manufacturing – call (part) identifier FP7-2013-NMP-ICT-FOF. Fortissimo contributes to the achievement of the objectives of the Factories of the Future initiative, described below, specifically those of the Call Objective FoF-ICT-2013.7.12 “Application experiments for robotics and simulation”, target area “Simulation services for engineering and manufacturing”.

**This call for proposals (CfP) targets the expansion of the applications experiments for engineering and manufacturing simulation services currently being carried out within Fortissimo.**

The importance of advanced simulation to the competitiveness of both large and small companies is well established. The principal objective of Fortissimo is to enable European manufacturing, particularly small to medium enterprises (SMEs), to benefit from the efficiency and competitive advantage inherent in the use of simulation. However, such simulation requires significant computing power and specialised software tools and services. Generally, large companies, which have a greater pool of skills and resources, find access to advanced simulation easier than SMEs which can neither afford expensive High Performance Computing (HPC) equipment nor the licensing cost for the relevant tools. This means that SMEs are not able to take advantage of advanced simulation, even though it can clearly make them more competitive. The goal of Fortissimo is to overcome this impasse through the provision of simulation services running on a cloud infrastructure making use of HPC systems and also by making appropriate skills and tools available in a distributed, internet-based environment.

Fortissimo will make advanced simulation more easily accessible, particularly to SMEs, through the realisation of a “one-stop shop” where hardware, expertise, applications, visualisation and tools will be easily available and affordable on a pay-per-use basis. In doing this it will create and demonstrate a sustainable commercial ecosystem where actors at all

levels in the value chain can realise sufficient commercial benefit to enable that ecosystem to persist independently of EU funding and continue to provide affordable services to manufacturing industry, particularly SMEs.

Fortissimo will be driven by end-user requirements where business-relevant application experiments will be used to develop, test and demonstrate both the infrastructure and the “one-stop pay-per-use shop”.

Fortissimo will organise two CfPs for additional application experiments. “Call-1”, covered by this document, addresses additional experiments executing for an 18-month period commencing in July 2014.

The target is for the additional experiments to augment the initial set of 20 experiments (a description of which can be found at: <http://www.fortissimo-project.eu/experiments>) to expand the evaluation and demonstration of engineering and manufacturing simulation services in the Fortissimo HPC Cloud. **Priority will be given to proposed experiments which are complementary to those already included in the project. Expectations for the proposed experiments are detailed below, but, in summary, proposed experiments should contain all those actors in the value chain necessary for the realisation of services meeting the end-users’ engineering and manufacturing needs, based on the use of the (distributed) HPC resources already offered within the Fortissimo infrastructure.** The business-relevance of the application experiment is essential, as Fortissimo places considerable emphasis on the exploitation of opportunities at all levels of the value chain ranging from the end-user, through Independent Software Vendors (ISVs), domain experts and technology providers to the HPC infrastructure provider.

## Background - FoF

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The Factories of the Future (FoF) initiative is part of the European Economic Recovery Plan launched in November 2008 to respond to the global economic crisis. This Public-Private-Partnership (PPP) aims at helping EU manufacturing enterprises, in particular SMEs, to adapt to global competitive pressures by improving the technological base of manufacturing across a broad range of sectors. The ICT contribution to this initiative aims at improving the efficiency, adaptability and sustainability of manufacturing systems as well as their better integration within business processes in an increasingly globalised industrial context.

The aim of the ICT for the Enterprise and Manufacturing Challenge within the FoF initiative is to give support to industry for bringing together ICT suppliers and users for experiments that

target the broad uptake of ICT towards a more sustainable, efficient, performant, and smarter European manufacturing industry. The focus is on emerging innovative technologies and processes, which need to be customised, tested and validated before being able to compete on the market. A special emphasis is on strengthening European SMEs, both on the supply and on the demand side. Application experiments include simulation services for engineering and manufacturing SMEs involving a cloud-based service infrastructure that provides the necessary HPC resources.

### Expectations for the new experiments

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As discussed above, Fortissimo targets the augmentation of the current set of application experiments with new application experiments providing business relevant investigations and demonstrations of engineering and manufacturing simulation services in the Fortissimo HPC Cloud. Priority will thus be given to proposals for experiments which complement the activities already included within Fortissimo and which address the needs of engineering and manufacturing SMEs. Proposed experiments should include all participants necessary for the experiment, which may include HPC experts, HPC Centres or ISVs already included within the Fortissimo consortium (for which a partnering facility is available on the Fortissimo web-site: <http://www.fortissimo-project.eu/calls/partnering>). Experiments will employ the Fortissimo HPC infrastructure using the HPC Centres already involved in the project.

Innovation in the experiments shall be addressed at two levels: (1) Users get "one-stop-shop" access to simulation technologies novel for them, including expertise and tools for visualisation, analytics, customisation and integration, and dynamic, easy and affordable access to computing resources; (2) independent software vendors and simulation service providers, supported by competence centres, port their applications to a cloud of HPC resources and run experiments with those cloud-based service and business models in controlled environments.

## Proposal submission

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Detailed instructions for proposal submission, together with information about the evaluation criteria to be applied, are provided online at:

**<http://www.fortissimo-project.eu/calls/submission>.**

Submission deadline: submission will be exclusively in electronic form and all submissions must be made by 17:00 Brussels local time, January 2<sup>nd</sup>, 2014.

Foreseen budget for this first call: Total of 5 M€ funding; the funding for individual experiments is not expected to exceed 250 K€.