

**FORTISSIMO****D7.1
Open Call 1 Report**

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Executive Summary

The Fortissimo project is driven by the end-user requirements arising from business-relevant application experiments. These involve the evaluation and demonstration of engineering and manufacturing simulation services in the Fortissimo HPC Cloud. An integral part of the design of the Fortissimo project was to organise those evaluation and demonstration activities as 3 sets of experiments, distributed in time across the whole project period; the individual experiments each having a duration of 18 months. The initial set of 20 experiments will be augmented by the sets of experiments selected through two open calls for proposals for additional application experiments. This document describes the preparation and execution of the first of the two open calls “Call 1”. It summarises the results of the evaluation process used for selection of experiments to be included with the Fortissimo project.

Call 1 was announced in three national newspapers, via multiple online media channels and through presentations. Call 1 opened on November 4th, 2013 and closed on January 2nd, 2014, 17:00 CET. 65 proposals were submitted.

Each proposal was assessed by two independent expert evaluators external to the project, using a pool of 38 evaluators in total. The individual assessments were consolidated in 65 consensus meetings held by teleconferences, with one member of the three-strong scapos team acting as moderator and recorder. Having the consensus reports drafted by the scapos team before the meetings proved to be very effective and enabled the consensus process to be completed within two weeks.

The subsequent ranking from this process resulted in 33 proposals scoring above the evaluation threshold in all criteria (i.e. being eligible for funding) and 32 scoring below threshold in one or more criteria. As the first 33 proposals represented a total funding request of approximately 7.7M€, only the first 22 proposals were selected (in agreement with the EC), representing a total funding close to the 5M€ allocated for the call (as proposed: 5.09 M€). The entire evaluation process was finished by March 11, 2014 when the results were communicated to the proposers.

The Fortissimo project will therefore include 22 new experiments with 51 new partners (34 SMEs, 17 other partners), who will contribute to the project from July 2014 until December 2015.

Call1 will be followed by a second open call that is expected to be launched at the beginning of May 2014.

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1 Introduction

The Fortissimo project is driven by the end-user requirements arising in business-relevant application experiments. These involve the evaluation and demonstration of engineering and manufacturing simulation services in the Fortissimo HPC Cloud. An integral part of the design of the Fortissimo project was to organise those evaluation and demonstration activities as 3 sets of experiments, distributed in time across the whole project period; the individual experiments having a duration of 18 months. The initial set of 20 experiments will be augmented by the sets of experiments selected through two competitive Open Calls for proposals for additional application experiments.

Fortissimo Workpackage 7 is responsible for the planning and execution of the open calls for proposals that will lead to the second and third sets of application experiments within the project. This deliverable first describes all activities undertaken for the process used for the first Open Call (“Call 1”): preparation of the Call 1 documentation, selection of independent expert evaluators, public announcements and promotion of Call 1, proposal submission procedures, and organisation of the proposal evaluation. Lessons learned from the Call 1 process are presented. The subsequent section summarises the results of the Call 1 evaluation. The report closes with some concluding remarks and summarises the key aspects of the lessons learned.

2 Call 1 Process

2.1 Call 1 Preparation

Call goals and participation:

The purpose of the first Open Call was to recruit a new set of experiments to help shape and evaluate the Fortissimo Marketplace and its one-stop-shop approach to the HPC cloud. As this marketplace is backed by the resources of the Fortissimo HPC centres, and the objective of the call was to target the additional application experiments, not an extension of the Marketplace resources, it was made a mandatory condition that all new experiments employed the existing Fortissimo infrastructure. As a consequence, proposals were expected to include one of the Fortissimo HPC Centres, either as a contributing partner or simply as a resource provider.

In agreement with the responsible unit from the European Commission, a modification of the standard guidelines for competitive calls was used. These standard guidelines, applicable to Integrated Projects, were defined for the very different situation where an open call targets the inclusion of partners to handle tasks not able to be addressed by the existing consortium. Consequently a modification was necessary.

In addition to the HPC Centres, HPC or application domain experts and software providers already included within the Fortissimo Consortium were eligible to be included within the consortia for proposals. Detailed information about all Fortissimo partners and on the computing facilities available at the HPC Centres was prepared and made available via the Fortissimo web-site [1]. In order to maintain impartiality in the evaluation process, only the partner scapos was involved in that evaluation process including the assignment of, and interactions with, the external evaluators.

The primary criteria related to Call 1 proposals were defined in the Call 1 documentation (detailed in the following paragraphs) where it was made clear that proposals for experiments should, apart from Fortissimo infrastructure usage, otherwise be self-contained in that

proposed experiments should include all participants necessary for the execution of the experiment. In line with the objectives of Call 1 and of the I4MS¹ projects as a whole, it was made clear that priority would be given to proposals for experiments which were complementary (i.e. not similar) to the activities already included within Fortissimo and which addressed the needs of engineering and manufacturing SMEs.

In order that proposers could adequately assess complementarity of their proposed experiments with those already active in Fortissimo, descriptions of all experiments (sorted by industrial sector, application type and software used) were compiled and made available on the Fortissimo web-site [1].

Call Documentation:

Proposers were provided with a number of documents covering: the Call 1 objectives; guidelines on the submission procedures and evaluation criteria; an exemplar/template for proposals; responses to Frequently-asked-questions (FAQs). These documents are included within Appendix 1. All documents were made available via the Fortissimo web-site [1] and also via the I4MS web-site [2].

2.2 Call 1 Public Announcement

Several mechanisms were used to promote Call 1, covering both printed and electronic media, webinars and presentations, emails to targeted mailing lists and the use of social media. The first Fortissimo Press Release and Project Flyer also provided information about Call 1. In addition to the Fortissimo and I4MS web-sites [1, 2] the web-sites of several partners also hosted information about the Call, including Arctur, CESGA, INRIA.

The I4MS-Gate project [2] provided most valuable support, more on which below, and that support is most gratefully acknowledged. Based on the response to the call, the promotional activities are considered to have been very successful. Specific improvements to the call, for example, the involvement of all Fortissimo HPC Centres in the set of new experiments, are the target of project-internal discussions and are hoped to be addressed in the 2nd Call. Since the Call management team has not been in direct contact with proposers, it is not possible to ascertain which media channels were the most effective in attracting (high-quality) proposals. Nevertheless, it is our opinion that the placement of advertisements in 3 national newspapers, in line with EC guidelines, did not deliver an effective return on investment: the cost for the 3 newspapers selected, taking care to minimise costs, was close to 10,000€, whereas media channels viewed to be more effective were free of charge.

Newspaper adverts:

Adverts were placed in the following national newspapers (date of publication in brackets):

- The Times, UK (12.11.2013);
- Il Sole 24 Ore, Italy (14.11.2013);
- Die Zeit, Germany (21.11.2013).

I4MS:

The I4MS-Gate project acted as an international information dissemination medium. The I4MS Web-Site posted a first announcement of the Call on November 4th, 2013 and information updates (including the provision of Call documentation) thereafter. This was supplemented by announcements on the I4MS Group on LinkedIn and via Twitter. The 2

¹ICT Innovation for Manufacturing SMEs European initiative

I4MS webinars about Call 1 were advertised through all of those channels and a recording of the first webinar provided as a video on YouTube [3]. On the basis of the numbers of participants in the I4MS webinars, I4MS proved to be a very effective media channel.

Electronic Media:

Table 1 provides information on articles and posting in electronic journals (both national and international) and newsgroups, including URLs and, when possible, dates of first appearance.

Name	URL	Date of 1st appearance	Comments
International			
CFD Online	www.cfd-online.com	14.11.2013	“Call for HPC Cloud based Experiments, Fortissimo EU Project”
Digital Manufacturing Report	www.digitalmanufacturingreport.com	21.11.2013	“HPC hopes to resonate with manufacturers through HPC Cloud”; “Today’s Top Feature” article
ETP4HPC Web-site	http://www.etp4hpc.eu/news	21.11.2013	FORTISSIMO open call for end-user driven application experiments in an HPC Cloud
HPCcloud LinkedIn Group		11.11.2013	> 2000 members
Imagine Future Factory Weekly		18.11.2013	IMAGINE subsequently posted on Twitter, Facebook & LinkedIn
InsideHPC	http://insidehpc.com/2013/12/03/helping-europes-missing-middle-call-proposals-hpc-cloud-application-experiments/	3.12.2013	“Call for Proposals: HPC App experiments in Europe”
NA Digest	http://www.netlib.org/na-digest-html/13/v13n38.html#6	14.11.2013	V13. #38
National			
AIRI Focus	http://www.airi.it	28.11.2013	The newsletter of the Italian Association for Industrial Research
Confcooperative Siena	http://www.confcooperativesiena.it/circolari-varie/prima-call-competitive-del-progetto-fortissimo-esperimenti-per-favorire-la-creazione-di-una-piattaforma-di-servizi-hpc-cloud/		

Confindustria Toscana Servizi	http://servizi.confindustria.toscana.it/gruppo/focus-europa/ict-innovation-manufacturing-smes	10.12.2013	
EEN Slovenian Posting (Partner Profile)	http://een.ec.europa.eu/tools/services/PRO/Profile/		Profile no longer online
I-community	https://www.icommunity.fr/evenement/fortissimo	1.11.2013	
NAFEMS Online Magazine	www.nafems.org/magazin	9.12.2013	German Language Report, 4/2013, 28 th Edition NAFEMS : International Association for the Engineering Analysis Community
Newsletter FIRST	http://first.aster.it	14.11.2013	Newsletter about funding opportunities for industrial research, by ASTER, a Consortium headed by the Emilia Romagna regional government
Newsletter Sardegnaricerche	http://www.sardegna.ricerche.it/	22.11.2013	Newsletter about funding opportunities for industrial research and innovation opportunity, by a Consortium headed by the Sardinia regional government
Relevant.at	http://relevant.at/wirtschaft/pr/1192123/eu-projekt-fortissimo-kmu-koennen-sich-fuer-simulationsprojekte-bewerben.story	18.11.2013	
TeraTec Web-Site	http://www.teratec.eu/	13.12.2013	
Código Cero	http://www.codigocero.com/O-CESGA-busca-empresas	14.11.2013	Galician news portal on new technologies
Press people	http://www.presspeople.com/nota/pymes-ibericas-dispondran-hasta-5-millones	14.11.2013	Spanish press portal
Ingenieros.es	http://www.ingenieros.es/noticias/ver/fortissimo-5000000-para-experiencias-de-simulacion-numerica-al-alcance-de-las-	14.11.2013	Spanish engineering portal

pymes-ibericas/4155

Table 1 Call 1 announcements and related articles in Electronic Media

Webinars and presentations:

As mentioned above, the I4MS-Gate project promoted and organised 2 webinars about Fortissimo Call 1, which took place on December 5th and 12th, 2013, given by G. Lonsdale, scapos. The level of participation was around 20 participants per event. In addition, the Fortissimo Partner CESGA organised two Spanish language Webinars about Call 1 which took place on November 20th and 21st, 2013.

During SC13 in Denver, USA, a part of the Intel Exhibition stand was made available to host multiple special sessions at the Mid-Market Discussion Hub about Fortissimo and Call 1. In addition, presentations on the project and specifically on Call 1 were given at the Intel Theater.

Direct Mailings:

General emails to mailing lists about Call 1, as opposed to direct email contacts concerning potential proposals, were made to approximately 190 contacts from the ETP4HPC [4] contact list and to approximately 450 SME contacts of INRIA (SMEs already aware of the advantages provided by simulation).

2.3 Call 1 Proposal Submission

Fortissimo Call 1 was first announced on the I4MS Web-site on November 4th, 2013 and closed on January 2nd, 2014, 17:00 CET. All potential proposers were directed, via the call documentation and the (same) information posted on the Fortissimo and I4MS web-sites [1,2], to the Fortissimo web-site from which access to the electronic proposal submission tool was provided. Proposal submission was restricted to electronic submission of PDF documents via that tool.

The proposal submission tool was developed and hosted by CESGA and is an adaptation of their online tool for the management of applications for access to their computing systems. The tool allows proposers to enter short administrative (identification) information in the online tool (requiring only standard web-browser access), to upload an initial PDF document and then, using the userid-password and proposal identifier provided, to subsequently update the document by uploading a replacement. The tool was used by the call management team at scapos to collect all proposals for the evaluation and also to enable the external evaluators to download those proposals assigned to them. One omission, which will be corrected in the second call, was the possibility for a proposer to withdraw/delete a proposal. This caused a problem in only one case.

Support for proposers was provided through the FAQs on the web-site, through the Q&A session of the proposer webinars and through email correspondence (with potential follow-up via telephone): proposers were provided with the calls@fortissimo-project.eu as contact address. The call management team did not provide advice on individual proposals (or proposal sketches), but was open to answer questions about the call text and about the call objectives in particular. The FAQs document in Appendix 1 reflects the type of questions raised by proposers contacting us for assistance.

2.4 Call 1 Evaluation

The coordination of the proposal evaluation process started well in advance of the opening of Call 1, with the initial definition of potential independent expert evaluators (hereafter, simply “evaluators”). The coordination then progressed following the close of Call 1 with an analysis of proposals submitted, assignment of evaluators to proposals, appointment of evaluators (in

collaboration with the Fortissimo Project Officer), distribution of proposal documents to evaluators, evaluator briefings and answering specific questions during the remote-reading phase, organisation and moderation of consensus meetings, analysis of the consensus results and (in collaboration with the Fortissimo Project Officer) selection of the proposals for integration into the project.

The key milestones in the final time-line for the evaluation process were:

- Call 1 close – 02.01.2014
- issue of evaluator appointment letters – 17.01.2014
- completion of consensus meetings – 17.02.2014
- announcements of results to proposers – 11.03.2014

2.4.1 Selection of Evaluators

An initial list of potential evaluators was prepared well ahead of the call with the help of project partners and the Fortissimo Project Officer, and agreed with the latter. Given the need to include existing project partners in the proposals, it was mandatory that evaluators be clearly external to the project, i.e. not affiliated with any of the partners. The initial list of evaluators was subsequently extended in order to increase the percentage of evaluators from industrial organisations and in order to cover the broad set of industrial sectors addressed by the proposals received.

Finally, a set of 38 reviewers was appointed with a 50-50 balance between academic and industrial evaluators (but an emphasis on industrial evaluators in terms of the proposals assigned). The maximum number of proposals assigned to a single evaluator was 8. On average each evaluator received 4 or 5 proposals. Two evaluators were assigned to each proposal. In addition to assignment of evaluators based on technical expertise, a best practice policy was adopted whereby the assignment of proposals to evaluators took account of the following targets:

- There should be a minimum of 1 industrial evaluator per proposal.
- Geographical balance should be assured (evaluators from different countries than the proposers, geographical distribution of the evaluators).
- Ensure that both application and IT/HPC aspects are covered.

All evaluators who had declared availability were required to complete non-conflict of interest declarations, which were repeated and supplemented by confidentiality and code-of-conduct declarations within the appointment letters. Upon receipt of an electronic copy of the signed appointment letter, the evaluators were given access to the relevant proposals.

2.4.2 Briefing of Evaluators

Evaluators having returned a signed non-conflict of interest declaration were sent an info package consisting of

- All material available about Call 1 as provided to the proposers (call text and proposer guidelines, proposal template, FAQs, information on project partners and existing experiments).
- Information about Fortissimo (project presentation).
- A summary of the call objectives and evaluation priorities.
- Templates for Individual Assessment Reports (IAR) and Consensus Reports (CR).
- A “Guide for Evaluators” outlining the evaluation process and the evaluator’s responsibilities.

- An extract of the EC briefing for “consensus recorders”

In addition to this material, two interactive webinars were offered to evaluators in early January (i.e. after the call closed, but before the evaluations started). Further questions were answered by email or phone.

2.4.3 Evaluation Process

After the call closed on the 2nd of January 2014, all submitted proposals were checked. Two duplicates were found and removed (after verifying with the proposers they were indeed duplicated). Key information was extracted from the proposals in tabular form (partners, budget numbers, application type, industrial sector). This was important for the purpose of documentation and most importantly for the assignment of evaluators.

The evaluation process itself was organised in 3 phases: individual independent assessments by the evaluators; consensus meetings and the completion of the report containing the agreed consensus position (the consensus report); ranking of proposals and selection for integration into Fortissimo. The relevant proposals were made available to the evaluators through the submission tool (see Section 2.3) after receiving a copy of the signed appointment letter constituting the formal contract between evaluators and the Fortissimo project. The evaluators were given two weeks in which to complete their individual assessment reports, with delivery to the evaluation management team at scapos by January 31st, 2014. Thereafter, consensus meetings were held (as teleconferences/web-based conferences) between the 2 evaluators and one of the scapos team as moderator. In a modification to the initial plans, the moderator role was taken on by one of the scapos team, which included drafting of the consensus reports based on the individual assessments and the consensus meeting. Though generating additional work for the scapos team, this is considered to have led to a very efficient process and, despite the real challenges of scheduling meetings for each of the 65 proposals, allowed the consensus meetings to be completed by February 17th.

Based on the set of consensus reports, a review of the proposal results was made (discussed in more detail in the next section of this report). Proposals were ranked according to total scores and scores per category (see Section 3.1). The distribution of funding according to partner types (SMEs vs other organisations; new vs existing beneficiaries) and industrial sectors was also analysed. The final selection of proposals for integration into the Fortissimo project was made in collaboration with the Fortissimo Project Officer based on the rankings made above.

3 Call 1 Results

The response to Call 1 went well beyond the Fortissimo’s expectations with 65 proposals received, involving participants from 14 European countries. For proposals above threshold in each mandatory category (see section 3.1) the funding requested (7,708,369€) exceeded the total funding of 5 M€ available for the call. Thus, only the top 22 proposed experiments, requesting a total funding of 5,088,047€, have been selected for integration into the Fortissimo project.

3.1 Summary of the proposal ranking

The evaluation criteria and scoring system used – as communicated to proposers in the Call documentation - was as follows. Four categories (and corresponding criteria) were included in the assessment reports:

1. Impact including industrial relevance and exploitation plans.
2. Soundness of concept, innovation and quality of the work plan.
3. Quality of the consortium as a whole and of the individual proposers.

4. Effective and justified deployment of resources.

Each criterion was assigned a score ranging from 0 to 5. A threshold score of 3 was applied to the first three criteria. The first criterion was assigned a weight of 2, the other criteria a weight of 1. Thus, the maximum overall score was 25 points.

There were sufficient good-quality proposals which fully matched the targets of the call and had the potential for significantly contributing to the goals of the project.

However, 32 proposals were ranked below threshold in one or several of the first 3 criteria. Most of those failed on criterion 1 (impact), most often because the orientation was not aligned with call objectives: the proposed work did not target engineering and manufacturing SMEs; the industrial relevance was not sufficiently demonstrated; the proposal was too research oriented or proposed a large amount of R&D work, as opposed to focusing on business-driven end-user experiments.

The proposals above the evaluation thresholds were ranked according to

1. total score
2. impact score
3. soundness score
4. total requested funding (lower funding meant higher ranking)

From these, the highest ranked proposals were selected, such that the total requested funding exhausted the total funding announced in the call text. Of these 22 proposals, 6 involved existing Fortissimo partners other than the mandatory HPC centre (those partners mostly acting as technology hubs). In total, 34 new SME partners and 17 other new partners (research institutes, ISVs or universities) will be added to Fortissimo.

Although the overall result from the viewpoint of the Fortissimo project is very satisfactory, and the success rate certainly acceptable, several proposals failed one or more of the first three criteria. Furthermore several proposals had low scores in the fourth criteria “Effective and justified deployment of resources”, which should be mentioned as part of the lessons learned from the evaluation. Many proposals paid insufficient attention to providing clear and justified resource planning. Specific shortcomings were missing breakdown of efforts by task and participant, and missing justification of computing resources (e.g. by linking problem sizes to estimated number of core hours) which is particularly surprising given the target of demonstrating the benefits of using HPC-Cloud.

3.2 Proposal “demographics”

The following table presents the distribution of the proposals’ partners by geographic region:

Country	In proposals	As lead partner	In successful proposals
Italy	17	16	6
Spain	17	15	7
Slovenia	7	7	0
Germany	8	7	4
France	6	6	3
UK	7	5	2
Poland	3	3	0
Austria	2	2	0
Belgium	1	1	0
Hungary	1	1	0
Ireland	1	1	1
Switzerland	2	1	1
Norway	2	0	2
Netherlands	2	0	1
Greece	2	0	1

Table 2 Proposals by geographic origin of partners, sorted by number of proposals as lead partner

Most proposals were uni-national: Only 9 of 65 proposals included partners from more than one country (12 if taking the HPC centres into account), 4 of those 9 were successful.

The following table gives an overview on the industrial areas of the proposals, both successful and otherwise. Note that several proposals were categorised into more than one industrial area.

Industrial area	# Successful	# Above threshold	# Below threshold	Total
Automotive	2	3	1	4
Aerospace	3	3	1	4
Construction	1	2	1	3
Energy (incl. renewable energy)	4	7	2	9
Electrics / Electronics	2	2	2	4
Environment	2	3	4	7
Maritime	2	3	2	5
Oil&Gas	3	2	1	3
Pharma&Biotech	1	1	2	3
Plastics	1	2	4	6
Engineering (Various)	2	5	10	15
Other	3	7	9	16

Table 3 Proposals per industrial area.

4 Concluding Remarks

As mentioned in the previous section, the response to the first Fortissimo Open Call, which closed on January 2nd 2014, exceeded the project's expectations with 65 proposals received, involving participants from 14 European countries, and the funding requested for high-quality proposals was about 7.7M€, thus greatly exceeding the total funding of 5 M€ available for the call.

The highest-ranked 22 proposed experiments have been selected for integration into the Fortissimo project. This 2nd tranche of experiments, to be executed in the period July 2014 to December 2015, will help to shape the development of the Fortissimo marketplace and will investigate and demonstrate the business benefits of engineering and manufacturing computational services in the Fortissimo HPC Cloud. This new set of experiments complements those currently active within Fortissimo and broadens the engineering and manufacturing applications from an extended range of industrial sectors including: Automotive, Aerospace, Construction, Energy & Renewable Energy, Environmental, Maritime, Metal Processing, Oil & Gas, Pharmaceutical & Biotech, and Plastics. Amongst the new partners who will be joining the project are a total of 34 SMEs, solving core business challenges with the support of application-domain and HPC experts and resources.

The evaluation procedure adopted was both timely and efficient. Indeed, we were pleased to have received feedback from a number of expert evaluators praising the professional, efficient execution by the evaluation management team. Based on our experience in Call 1, the assignment of the consensus moderation role to the evaluation management team is deemed to be the best solution for the scenario used in which all consensus meetings are organised as teleconferences/web-conferences.

Nevertheless, certain aspects in the overall Call execution were identified that could be improved: the call text should be reviewed to address and resolve all identified ambiguities (e.g. specifying more exactly the expectations for complementarity and for the target of manufacturing companies); additional potential industrial expert evaluators should be approached to facilitate the selection and assignment of proposals to evaluators; a proposal withdrawal option should be included in the proposal submission tool; proposal templates should include page numbering.

Concerning the promotion of the Call, the support of the overall I4MS Initiative (for Call 1, the I4MS-Gate project) was extremely valuable and will be the preferred international media vehicle for Call 2 (to be launched at the beginning of May 2014). In order to comply with Commission guidelines, advertisements in national newspapers are necessary, but these do not deliver an appropriate return on investment.

5 References and Applicable Documents

- [1] Fortissimo project, <http://www.fortissimo-project.eu>
- [2] I4MS Initiative, <http://www.i4ms.eu/>
- [3] Fortissimo Call 1 Webinar, <http://www.youtube.com/watch?v=crKInFnKuCk>
- [4] ETP4HPC, The European Technology Platform for HPC, <http://www.etp4hpc.eu/>

6 Appendix 1 (Call Documentation)

6.1 Call Text

FORTISSIMO: Factories of the Future Resources, Technology, Infrastructure and Services for Simulation and Modelling

FP7 Project 609029 <http://www.fortissimo-project.eu/>

Call for Proposals for HPC-Cloud Application Experiments

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

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

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 website: <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

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 2nd, 2014.

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

6.2 Guidelines on submission procedures and evaluation criteria

FORTISSIMO: Factories of the Future Resources, Technology, Infrastructure and Services for Simulation and Modelling

FP7 Project 609029 <http://www.fortissimo-project.eu/>

Call for Proposals for HPC-Cloud Application Experiments

Proposal submission & evaluation criteria

Identifier: FORTISSIMO-1

Call title: New SME modelling and simulation experiments

Project full name: Factories of the Future Resources, Technology, Infrastructure and Services for Simulation and Modelling

Acronym: FORTISSIMO

Grant agreement number: 609029

Deadline: 2nd January, 2104, at 17:00 Brussels local time

Expected duration of participation: 1st July 2014 to 31st December 2015

Total indicative funding available for new activities: 5,000,000 €

Maximum funding request per proposal: 250,000 €

Submission language: English

Internet address for full open call information: www.fortissimo-project.eu/calls

Proposal submission: www.fortissimo-project.eu/calls/submission

E-mail: calls@fortissimo-project.eu

Submission Details

Submission deadline: All submissions must be made by 17:00 Brussels local time, January 2nd 2014.

Electronic submission: Proposal submission is exclusively in electronic form using the proposal submission tool accessible via the Fortissimo web-site:

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

The central component of proposal submission is the uploading of a PDF-document (whose size must not exceed 3.0 MB) compliant with the proposal structure and formatting instructions given below.

Proposal format and structure: Proposals must be submitted in English and should not exceed 10 pages in length (with text no smaller than 11 point normal font). The structure of the proposal (and indicative length per section) should be as follows:

- Summary (0.5 pages)
- Industrial relevance, potential impact and exploitation plans (3.5 pages)
- Description of the work plan and concept (3 pages)
- Quality of the consortium as a whole and of the individual proposers (2 pages)
- Justification of costs and resources (1 page)

A management structure will be imposed on the successful proposals. That is, the proposal will not need to contain a description of how the resultant project would be managed.

In addition to the 10-page proposal description, a tabular list of proposal participants must be provided. That list must include for each participant the Participant Identification Code (PIC) for FP7 issued by the European Commission (http://cordis.europa.eu/fp7/pp-pic_en.html).

An exemplar can be found at <http://www.fortissimo-project.eu/calls/submission>.

The exemplar document includes, in particular, instructions on budgeting for the use of computing resources.

Foreseen budget for Call-1: Total budget of 5 M€ funding; the total funding for individual experiments is not expected to exceed 250,000 €.

Successful applicants will accede to the Fortissimo grant agreement that is governed by Regulation (EC) No 1906/2006 of the European Parliament and of the Council of 18 December 2006 laying down the rules for the participation of undertakings, research centres and universities in actions under the Seventh Framework Programme and for the dissemination of research results (2007-2013) and the EC Grant Agreement and Annex II of the Grant Agreement, Version 7, adopted on 14 December 2012.

Evaluation Criteria

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. 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. In addition, they are provided with 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.

The criteria for evaluation will comprise:

1. Impact including industrial relevance and exploitation plans;
2. Soundness of concept, innovation and quality of the work plan;
3. Quality of the consortium as a whole and of the individual proposers
4. Effective and justified deployment of resources

Each criterion will carry a score ranging from 0 to 5. There will be a threshold score of 3 that will apply to the first three criteria. The first criterion will have a weight of 2, the other criteria a weight of 1.

6.3 FAQ

Fortissimo Call-1: FAQ

Q: Are there restrictions on the organisations that may participate?

Successful proposals will be included in the Fortissimo Project as new workpackages and new participants will join the Fortissimo Consortium for the period of the experiment, meaning that they will accede to the Grant Agreement with the European Commission. Thus, all organisations that are eligible to participate within the Seventh Framework Programme (FP7) are eligible to participate in Fortissimo.

Note: as part of the submission procedure, we require all participants to provide their Participant Identification Code (PIC) for FP7 issued by the European Commission (http://cordis.europa.eu/fp7/pp-pic_en.html).

Q: Are there any rules regarding the structure of the proposal Consortium?

Since the new experiment will become a workpackage in the Fortissimo project, the general rules about numbers and geographical distribution of participants are addressed by the Fortissimo project as a whole, not by individual experiments. So for example, all partners may be from one country.

The Fortissimo objectives are aligned with those of the Factories of the Future initiative (under which it is funded), which aims to help EU manufacturing enterprises, in particular SMEs. Thus, priority will be given to proposals which address the needs of engineering and manufacturing SMEs. Experiments are expected to be driven by the end-users' engineering and manufacturing needs and demonstrate the business benefits of the use of HPC. However, experiments which demonstrate the business benefits to SMEs of using HPC in general will also be considered.

The Fortissimo project expects that the Consortium for the new experiment includes all necessary partners for the execution of the experiment, which will necessitate the involvement of one of the existing Fortissimo HPC Centres. The lead participant for the experiment should be chosen to best meet the needs of the coordination of the activities to be performed within the experiment. The HPC Centre included in the experiment will have the role within the overall Fortissimo management structure – outside the scope of the activities of the experiment and its internal management– to facilitate the smooth integration of the experiment into the project as a whole.

Q: What financial restrictions apply?

The maximum EC funding expected to be allocated to an individual project is 250,000€. However, that is a maximum figure and the proposal evaluators will be asked to pay attention to the planned resources (effort & budget) being commensurate with the stated targets of the experiment.

Note: the costs for use of HPC resources must be included in the proposal budget; the Fortissimo HPC Centre chosen for the Consortium will be able to provide guidance on that.

Q: What is the funding model?

The standard conditions for funding within FP7 apply to all participants within the Fortissimo project, and thus also to those to be included through successful proposals for new experiments.

In particular, the EC funding for SMEs would be at a reimbursement rate of 75% of eligible costs (which in many cases may include a flat rate of an additional 60% for “indirect costs”, i.e. overheads above the direct costs for execution of the project, typically staff salaries and travel costs).

Q: Does the experiment have to focus on modelling & simulation?

No, although we anticipate modelling and simulation to be typical for manufacturing, it can be any application benefitting from HPC in the cloud. The problem to be solved should require or clearly benefit from HPC, and the proposal should clearly demonstrate the business benefit of using HPC to the SME.

Note: experiments should complement those already included in the project.

Q: Do the applications in experiments have to target use of HPC systems?

Yes. The provision of access to, and use of, high-performance computing is central to the Fortissimo project. The expectations for the experiments are that they provide feedback to the project developments and help to demonstrate the impact of the service infrastructure.

Q: Can a single organisation submit several proposals?

There are no formal restrictions on the number of proposals in which an organisation may participate. The selection of proposals will take into account the complementarity of all submitted proposals. The geographical distribution of experiments may be an issue in the assessment of complementarity.

Q. What level of travel will be required?

Each experiment is expected to hold a kick-off meeting which all participants are expected to attend. Further experiment-internal meetings, whose attendance and frequency depend on the work plan, are anticipated. As a guide, two such experiment-internal meetings are to be expected. Furthermore the partner(s) able to present the business impact of the experiment are expected to attend one Fortissimo review meeting.

Q: What are the time-scales for evaluation & commencement?

The target is for the new experiments to commence in July, 2014. We expect to be able to communicate the results of the evaluation of proposals in March 2014.

6.4 Proposal exemplar

Proposal to Fortissimo Project Call 1

Call Information:

Identifier: FORTISSIMO-1

Call title: New SME modelling and simulation experiments

Project full name: Factories of the Future Resources, Technology, Infrastructure and Services for Simulation and Modelling

Acronym: FORTISSIMO

Grant agreement number: 609029

Deadline: 2nd, January, 2014, at 17:00 Brussels local time**FORTISSIMO**

Experiment Title

Name of the coordinating person:

Title First Name, last Name, Partner Organisation

E-mail:**Fax:**

No.	Participant organisation name	Partner short name	Country	PIC
1				
2				
3				
4				

Summary

(Guideline: 0.5 pages)

Industrial relevance, potential impact and exploitation plans

(Guideline: 3.5 pages)

Fortissimo targets business-relevant application experiments which will expand the evaluation and demonstration of engineering and manufacturing simulation services in the Fortissimo HPC Cloud. 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.

The expected business impact and commercial exploitation possibilities of the targeted results should be explained and substantiated by market figures (target markets, market sizes, competitors, competing solutions,..)

Description of the work plan and concept

(Guideline: 3 pages)

Introductory text & explanation of the experiment concept.

Experiment Title					
End User	Application Expert	HPC Expert	ISV	HPC Provider	Host Centre
Description: <ul style="list-style-type: none"> 					
Workplan Task 1 Task name Task description. Deliverable: <i>Deliverable short description (Experiment Month nn (i.e. within months 1 to 18 of the experiment))</i>					
Impact and Outputs <i>(Output = concrete results from the experiments, such as, but not limited to, business case analyses/reports, software releases, user workflows, experience reports,..</i> <i>Impact = explanation of the use of project results and the related business impact, enhanced capabilities or potential for service offerings, etc.)</i> The output of experiment will be: <ul style="list-style-type: none"> The results of the experiment shall be ..					

follows. The model takes into account the restrictions placed on the project by the FP7 financial guidelines.

Most experiments will need specific software and licences installed on whatever components of the Fortissimo HPC Cloud they intend to use. We therefore expect each experiment to choose an on-demand provider for the duration of their experiment. Whichever provider is chosen may either provide free access to their resources or to charge for them. Because one beneficiary in an FP7 project may not invoice another and then charge that invoice to the European Commission Fortissimo uses the following token-based model during the project:

1. A token will have a notional monetary value of €0.01.
2. Each HPC Cloud Provider will calculate the actual direct costs with no profit component associated with providing access to their resources.
3. For example one core hour of access to the resource may cost three tokens. An experiment using 256 cores for 2 hours would therefore consume 1,536 tokens ($256 \times 2 \times 3$) on this resource (with a real monetary value of €15.36).
4. Each resource provider will record how many tokens of resource it provides to each experiment.
5. **Each experiment must include in its budget an estimate of the required resources for the successful completion of the experiment.**
6. **The costs for computing time are allocated as direct costs for the appropriate provider**
7. At the end of each project year the Project Coordinator will amend the project budget by moving money from the resource fund it holds centrally to each HPC Cloud Provider up to cover the tokens they have collected.
8. If an experiment underestimates its token requirements it may approach the management board for extra tokens, which may or may not be granted depending on the then current resources available.

In the case where an experiment requires more resources than are granted, either the HPC Cloud Provider will grant free access to complete the experiment or more tokens may be purchased from the provider. These purchased tokens will not form part of the project funding.