FORTISSIMO

D7.2
Open Call 2 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 (July 2013 until June 2016), the individual experiments each having a duration of 18 months. The initial set of 20 experiments, running from month 1 (July 2013) until month 18 (December 2014), will be augmented by the sets of experiments selected through two open calls for proposals for additional application experiments. The first call opened in November 2013, closed in early January 2014 and resulted in the selection of 22 additional experiments [5]. It was anticipated (now not possible) that the Call 1 proposals would start in month 13 (July 2014) and run until month 30 (December 2015). This document describes the preparation and execution of the second of the two open calls "Call 2". It summarises the results of the evaluation process used for selection of experiments to be included with the Fortissimo project. It is expected that the Call 2 proposals will run from month 19 (January 2015) to month 36 (June 2016).

Call 2 was announced in three national newspapers, via multiple online media channels and through presentations. Call 2 opened on May 6th, 2014 and closed on June 18th, 2014, 17:00 CEST. 82 proposals were submitted.

Each proposal was assessed by two independent expert evaluators external to the project, using a pool of 47 evaluators in total. The individual assessments were consolidated in 82 consensus meetings held by teleconferences, with one member of the Fortissimo evaluation team acting as moderator and recorder. Having the consensus reports drafted by the team based on the individual assessments and before the meetings proved to be very effective and enabled the consensus process to be completed within four weeks.

The subsequent ranking from this process resulted in 42 proposals scoring above the evaluation threshold in all criteria (i.e. being eligible for funding) and 40 scoring below threshold in one or more criteria. As the first 42 proposals represented a total funding request of approximately 6.8 M€ for new beneficiaries, only the first 11 proposals were selected for direct integration into the project (in agreement with the EC), representing a total funding close to the 2M€ allocated for new beneficiaries (as proposed: 1.9 M€). At the time of writing, a small number of proposals have been included in a reserve list should the final available budget allow the inclusion of 1 or 2 additional experiments. The entire evaluation process was finished by August 22, 2014 when the results where communicated to the proposers.

The Fortissimo project expects therefore to include 11 new experiments with 27 new partners (17 SMEs, 10 other partners), who will contribute to the project from January 2015 until June 2016.

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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 ("Phase 1") will be augmented by the sets of experiments selected through two competitive Open Calls for proposals for additional application experiments.

Fortissimo Work package 7 is responsible for the planning and execution of the open calls for proposals. Call 1 took place from November 2013 (opening) until March 2014 (completion of the evaluation) and resulted in 22 additional experiments forming the second phase of experiments ("Phase 2"). The first Open Call ("Call 1") was followed by the second Open Call ("Call 2") documented by this deliverable. It first describes all activities undertaken for the process used for the second Open Call ("Call 2"): preparation of the Call 2 documentation, selection of independent expert evaluators, public announcements and promotion of Call 2, proposal submission procedures, and organisation of the proposal evaluation. Lessons learned from the Call 1 process are presented and how they have been addressed by Call 2. The subsequent section summarises the results of the Call 2 evaluation. The report closes with some concluding remarks and summarises the key aspects of the lessons learned.

2 Call 2 Process

2.1 Call 2 Preparation

Call goals and participation:

The purpose of the second Open Call was to recruit the final 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.

As in Call 1, in agreement with the responsible unit from the European Commission, the competitive call was made based on a modification of the standard guidelines. 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 some modification of the guidelines 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 partners scapos and Intel were involved in that evaluation process including the assignment of, and interactions with, the external evaluators.

The primary criteria related to Call 2 proposals were defined in the Call 2 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 2 and of the I4MS[1] 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 (Phase 1) or to be including as result of Call 1 (Phase 2), and which addressed the needs of manufacturing SMEs. In contrast to the Call 1 text, that also addressed engineering SMEs, the focus was now clearly on manufacturing SMEs as end users.

In order that proposers could adequately assess complementarity of their proposed experiments with those already active in Fortissimo, descriptions of all Phase 1 and Phase 2 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 2 objectives; guidelines on the submission procedures and evaluation criteria; an exemplar/template for proposals; responses to Frequently-asked-questions (FAQs), and a checklist. 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 2 Public Announcement

Several mechanisms were used to promote Call 2, covering both printed and electronic media, webinars and presentations, emails to targeted mailing lists and the use of social media. In addition to the Fortissimo and I4MS web-sites [1, 2] the web-sites of several partners also hosted information and press releases about the Call, for instance ARCTUR, SURFSara, CINECA, CESGA, and XLAB.

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, surpassing even the high number of submissions of Call 1, the promotional activities are considered to have been very successful. 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, does not deliver the most effective return on investment: the cost for the 3 newspapers selected, taking care to minimise costs, was about 5,000€, 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 (6.5.2014);
- Irish Times, Ireland (9.5.2014);
- De Volkskrant, The Netherlands, (9.5.2014).

I4MS:
The I4MS-Gate project acted as an international information dissemination medium. The I4MS

[1] ICT Innovation for Manufacturing SMEs European initiative

Web-Site posted a first announcement of the Call on May 8th, 2014, including the provision of Call documentation. This was supplemented by announcements on the I4MS Group on LinkedIn and via Twitter. The 2 I4MS webinars about Call 2 were advertised through all of those channels and a recording of the first webinar provided as a video on I4MS [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	9.5.2014	"Open Call for HPC Cloud based Application Experiments"
I4MS	www.i4ms.eu	8.5.2014 2.06.2014	Web site / news letter
HPC magazine Europe	http://www.hpcmagazine.eu/news/competitive-call-for-hpc-cloud-based-application-experiments-for-the-fortissimo-project/	19.5.2014	"Competitive call for HPC- & Cloud-based Application Experiments for the Fortissimo project"
InsideHPC	http://insidehpc.com/2014/05/call-proposals-enabling-smes-benefit-hpc-digital-simulation/	14.05.2014	"Call for Proposals: Enabling SMEs to Benefit from HPC and Digital Simulation"
NA Digest	http://www.netlib.org/na-digest-html/14/v14n14.html	13.05.2014	V14. #14
LinkedIn: Groups "HPCcloud", "HPC services for SMEs"	https://www.linkedin.com/groups/Fortissimo-2nd-Open-Call-proposals-2070857.S.587337809778445926 6?trk=groups_search_item_list-0-b-ttl&goback=.gna_2070857		> 2000 members
HPC5	http://www.hpc5.eu/news/2014050914392973/Competitive%20call%20for%20HPC-Cloud-based%20Application%20Experiments%20for%20the%20FORTISSIMO%20project/	9.5.2014	Italian-Slovenian cross-border competence consortium for promoting HPC.
Twitter	https://twitter.com/FortissimoPro/status/463619121570390016	6.5.2014	Many similar tweets mentioned Call 2.
	National		
Instituto Tecnológico de Matemática Industrial	http://www.itmati.com/abierta-convocatoria-fortissimo-2014-una-oportunidad-para-colaborar-con-las-pymes-manufactureras	16.5.2014	Spanish portal for industrial mathematics

'Breakthrough project for SMEs'	http://www.doorbraakmetmkb.nl/agenda/detail/18-juni-deadline-open-call-hpc	27.5.2014	Site of the Dutch Ministry of Economic Affairs
AIRI Focus	http://www.airi.it/2014/06/seconda-call-progetto-fortissimo-per-le-pmi/	June 2014	The newsletter of the Italian Association for Industrial Research
ASTER	http://www.aster.it	25.5.2014	Web page not longer available. Competence centre of the region Emilia Romagna.
Sardegna Ricerche	http://www.sardegnaricerche.it/		Bulletin 13/2014, newsletter about funding opportunities for industrial research and innovation opportunity, by a Consortium headed by the Sardinia regional government
Diverse Slovenian newspapers	http://www.dnevnik.si/posel/novice/veliko-si-obeta-od-superracunalniskega-centra	9.6.2014	“Finance”, “Delo”, “Dnevnik”, “Primorske novice”
Slovenian chamber of commerce	www.gzs.si		Web page not longer available
Código Cero	http://codigocero.com/O-programa-Fortissimo-que-coordina	13.5.2014	Galician news portal on new technologies

Table 1 Call 2 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 2, which took place on May 14th and 19th, 2013, given by G. Lonsdale, scapos. Each webinar was attended by around 30 participants. In addition, the Fortissimo Partner CESGA organised a Spanish language Webinar about Call 2 which took place on May 21st, 2014, and was attended by 5 participants. Also, the call was presented at the InfoDay on May 22th about the opportunities for Galicia and Portugal SMEs organized by the project CloudPYME [4], and on the Gompute user meeting in Gothenburg on May 7th.

Direct Mailings:
A large number of targeted email contacts were made by Fortissimo partners, using for instance the existing customer base, regional clusters and local chambers of commerce.

2.3 Call 2 Proposal Submission

Fortissimo Call 2 was first announced on the Fortissimo Web-site on May 6th, 2014 and closed on June 18th, 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, or to withdraw the proposal (the latter functionality was added as a result of the Call 1 experience). 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.

Support for proposers was provided through the FAQs and the checklist 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 2 Evaluation

The coordination of the proposal evaluation was based on the list of potential independent expert evaluators (hereafter, simply “evaluators”) from Call 1, augmented with additional experts suggested by project partners. The coordination then progressed following the close of Call 2 with an analysis of proposals submitted, assignment of evaluators to proposals, appointment of evaluators (with the approval from the EC unit), 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 (again, with the approval from the EC unit) selection of the proposals for integration into the project.

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

- Call 2 close – 18.06.2014
- issue of evaluator appointment letters – 30.06.2014
- completion of consensus meetings – 13.08.2014
- announcements of results to proposers – 22.08. to 26.8.2014

2.4.1 Selection of Evaluators

An initial list of potential evaluators was based on the list of evaluators for Call 1, which had been agreed with the Fortissimo Project Officer, and was augmented with additional experts suggested by project partners. 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.

Finally, a set of 47 reviewers was appointed with a balanced mixture between academic and industrial evaluators (but with an emphasis on industrial evaluators. The maximum number of proposals assigned to a single evaluator was 6. On average each evaluator received 4 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 2 as provided to the proposers (call text and proposer guidelines, proposal template, FAQs, check list, 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 July (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 18th of June 2014, all submitted proposals where checked. Three duplicates were found and removed (after verifying with the proposers they were indeed

duplicated). One proposal had been withdrawn. 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. 18 of the proposals were identified as resubmissions of unsuccessful Call 1 proposals and assigned to the same evaluators wherever possible, to ensure consistency of evaluation.

The evaluation process itself was organised in 3 phases (identical to Call 1): 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 July 11th, 2014. Thereafter, consensus meetings were held (as teleconferences/web-based conferences) between the 2 evaluators and one of the call evaluation team (the scapos team, supported by project partner Intel) as moderator. Based on the good experience from Call 1, the moderator role was taken on by one of the call evaluation team, which included drafting of the consensus reports based on the individual assessments and the consensus meeting. Though generating additional work for the evaluation team, this is considered to have led to a very efficient process and, despite the real challenges of scheduling meetings for each of the 82 proposals in the summer vacation period, allowed the consensus meetings to be completed by August 13th.

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 consultation with the EC Unit based on the rankings made above.

3 Call 2 Results

The response to Call 2 went well beyond the Fortissimo's expectations with 82 proposals received, involving participants from 20 European countries. For proposals above threshold in each mandatory category (see section 3.1) the funding requested for new beneficiaries (6.8 M€) exceeded the total funding of 2 M€ available for new beneficiaries for the call. Thus, only the top 11 proposed experiments, requesting a total funding for new beneficiaries of 1.9 M€, have been selected for integration into the Fortissimo project. At the time of writing, a small number of proposals are included in a reserve list should the final available budget allow the inclusion of 1 or 2 additional experiments.

3.1 Summary of the proposal ranking

The evaluation criteria and scoring system used – as communicated to proposers in the Call documentation - was identical to that used for Call 1 and 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, 40 proposals where ranked below threshold in one or several of the first 3 criteria. Similar to Call 1, 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 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 proposal did not demonstrate the need for HPC as opposed to standard cloud offerings.

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 11 proposals, 3 were considerably improved resubmissions from Call 1. Only 2 of the 11 successful proposals involved existing Fortissimo partners other than the mandatory HPC centre. In total, 17 new SME partners and 10 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 problems sizes to estimated number of core hours) which is particularly surprising given the target of demonstrating the benefits of using HPC-Cloud. On the positive side, a number of proposals from Call 1 had been considerably improved, taking in to account the evaluators comments: This is demonstrated by the fact that among the 11 highest ranked proposals, 3 were resubmissions.

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	30	**29**	2
Spain	17	**15**	2
Germany	11	**9**	2
Slovenia	9	**6**	1
UK	10	**3**	2
Netherlands	4	**3**	2
France	3	**3**	2
Sweden	4	**2**	0
Poland	3	**1**	1
Portugal	3	**2**	1
Austria	2	**2**	0
Belgium	2	**1**	0
Norway	2	**1**	1
Estonia	1	**1**	0
Macedonia	1	**1**	0
Lithuania	1	**1**	1
Greece	1	**1**	0
Switzerland	1	**0**	1
Ireland	1	**0**	0
Croatia	1	**0**	0

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

Most proposals were uni-national: Only 23 of 82 proposals included partners from more than one country (29 when taking the HPC centres into account), 5 of those 23 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	5	2	7
Aerospace	0	5	3	8
Construction	0	6	5	11
Energy (incl. renewable energy)	1	7	2	9
Electrics / Electronics	0	2	2	4
Environment	0	3	3	6
Maritime	3	11	5	16
Oil&Gas	0	1	1	2
Pharma&Biotech	0	2	1	3
Medical Devices	1	5	2	7

Measurement equipment	2	4	1	5
Metal Processing	0	4	4	8
Plastics	2	5	1	6
Engineering (Various)	1	12	8	20
Other	0	8	7	16

Table 3 Proposals per industrial area.

4 Concluding Remarks

As mentioned in the previous section, the response to the second Fortissimo Open Call, which closed on June 18th 2014, exceeded the project's expectations with 82 proposals received, involving participants from 20 European countries, and the funding requested for high-quality proposals was about 6.8 M€ for new beneficiaries, thus greatly exceeding the total funding of 2 M€ available for the call.

The highest-ranked 11 proposed experiments have been selected for integration into the Fortissimo project. This 3rd tranche of experiments, to be executed in the period January 2015 to June 2016, 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 or about to start within Fortissimo and further broadens the manufacturing applications from an extended range of industrial sectors including: Automotive, Energy & Renewable Energy, Maritime, Measurement Instruments, Medical Devices, and Plastics. Amongst the new partners who will be joining the project are a total of 17 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. Reinforcing our experience from 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.

Problems identified in Call 1 have been addressed: The call text was reviewed to address and resolve all identified ambiguities, by specifying more exactly the expectations for complementarity and for the target of manufacturing companies; additional potential industrial expert evaluators have been approached to facilitate the selection and assignment of proposals to evaluators (particularly important as the evaluation period fell into the main vacation period); a proposal withdrawal option was included in the proposal submission tool; the proposal template now included page numbering, and a check list was created to guide both proposers and evaluators.

Concerning the promotion of the Call, the support of the overall I4MS Initiative was again extremely valuable and was an appropriate international media vehicle for Call 2. In order to comply with Commission guidelines, advertisements in national newspapers are necessary, but these do not provide good value for money.

5 References and Applicable Documents

[1] Fortissimo project, http://www.fortissimo-project.eu
[2] I4MS Initiative, http://www.i4ms.eu/
[3] Fortissimo Call 2 Webinar, http://i4ms.eu/videos/video.php?id=6&type=p
[4] CloudPYME Info Day, http://www.cloudpyme.eu/info-day-oportunidades-pymes-galicia-norte-portugal/
[5] Fortissimo Deliverable D7.2: "Open Call 1 Report", April 2014.

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 currently being carried out within Fortissimo focusing on simulation services for the benefit of manufacturing SMEs.

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 improvements to the design process and resulting 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 an HPC-based cloud infrastructure 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. Following the successful first CfP, "Call-2", covered by this document, addresses additional experiments executing for an 18-month period commencing in January 2015.

The target is for the additional experiments to complement the existing experiments (i.e. addressing different areas). The term "existing experiments" is to be understood to mean both the experiments already running and also those experiments selected from the first CfP and scheduled to commence in July 2014. A description of the existing experiments can be found at: http://www.fortissimo-project.eu/experiments. The additional experiments from Call-2 should expand the evaluation and demonstration of modelling and simulation services in the Fortissimo HPC Cloud that could create business benefits for manufacturing SMEs. Expectations for the proposed experiments are detailed below.

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 Call-2 targets the augmentation of the current set of application experiments. **The expectations for the proposed experiments are that they should:**

- **be complementary to those already included in the project,**
- **contain all those actors in the value chain necessary for the realisation of services meeting the end-users' engineering and manufacturing needs, and**
- **be based on the use of the (distributed) HPC resources already offered within the Fortissimo infrastructure.**

In this context, complementarity is understood to mean activities that address new applications, business cases, industrial sectors and market segments and the enhancement of the project's ability to demonstrate the impact of the Fortissimo approach for a broad set of industrial users. Extensions of existing experiments are thus not considered to be complementary.

The new application experiments should provide business relevant investigations and demonstrations of simulation services in the Fortissimo HPC Cloud that have the potential to create business benefits for manufacturing SMEs. **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.

Proposed experiments should include all participants necessary for the experiment, which may include HPC experts, HPC Centres or ISVs either already included within or external to the Fortissimo consortium. Experiments will employ the Fortissimo HPC infrastructure using the HPC Centres already involved in the project. Interactions with existing Fortissimo partners is supported by a partnering facility available on the Fortissimo web-site: **http://www.fortissimo-project.eu/calls/partnering**.

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, June 18th, 2014.

Foreseen budget for Call-2: up to 2 M€ funding for new beneficiaries; the funding for individual experiments should not 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 Call-2

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: 18th June, 2014, at 17:00 Brussels local time

Expected duration of participation: 1st January 2015 to 30th June 2016

Foreseen budget for Call-2: up to 2 M€ funding for new beneficiaries

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, June 18th 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) issued by the European Commission (http://ec.europa.eu/research/participants/portal/desktop/en/organisations/register.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-2: up to 2 M€ funding for new beneficiaries; the funding for individual experiments should not exceed 250 K€.

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 Call-2 targets the augmentation of the current set of application experiments. The new application experiments should provide business relevant investigations and demonstrations of simulation services in the Fortissimo HPC Cloud that have the potential to create business benefits for manufacturing SMEs. Priority will be given to proposals for experiments which complement the activities already included within Fortissimo. In this context, complementarity is understood to mean activities that address new applications, business cases, industrial sectors and market segments and the enhancement of the project's ability to demonstrate the impact of the Fortissimo approach for a broad set of industrial users. Extensions of existing experiments are thus not considered to be complementary.

Proposed experiments should include all participants necessary for the experiment, which may include HPC experts, HPC Centres or ISVs either already included within or external to the Fortissimo consortium. Experiments will employ the Fortissimo HPC infrastructure using the HPC Centres already involved in the project. Interactions with existing Fortissimo partners is supported by a partnering facility available on the Fortissimo web-site: **http://www.fortissimo-project.eu/calls/partnering**.

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-2: 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) issued by the European Commission (http://ec.europa.eu/research/participants/portal/desktop/en/organisations/register.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. Experiments are expected to be driven by the end-users' engineering and manufacturing needs and demonstrate the business benefits of the use of HPC for manufacturing SMEs. 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 internal management of the experiment – 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.

Q: What is meant by the target for complementary experiments?

Proposed experiments should complement those already included in the project. In this context, complementarity is understood to mean activities that address new applications, business cases, industrial sectors and market segments and the enhancement of the project’s ability to demonstrate the impact of the Fortissimo approach for a broad set of industrial users. Extensions of existing experiments are thus not considered to be complementary.

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 January, 2015. We expect to be able to communicate the results of the evaluation of proposals in the August- September 2014 time-frame.

6.4 Check list

Fortissimo Call-2: Proposer-Evaluator Check-List

Evaluation Criterion: Impact including industrial relevance and exploitation plans

Check-List:

If the proposed work were successful would it have a significant impact on the engineering and manufacturing market?

If the proposed work were successful, would its outcome be relevant to the manufacturing and engineering sector?

If the proposed work were successful, would it benefit the SMEs involved in the project and demonstrate the potential benefit for SMEs beyond the Consortium in using the Fortissimo marketplace?

Do the exploitation plans ensure that a significant industrial impact will be realised? Are the expected returns for each and every partner clearly explained?

Does the proposed work address well the target for the call, the expectations of the call and the priorities of the call? In particular:

> Is the proposed work driven by the business needs of the industrial partner(s)?
>
> Is any genuine R&D effort minor compared with effort related to “cloudification”, i.e. porting and adapting workflows to the cloud business model?
>
> Is the proposed experiment sufficiently different from existing experiments to satisfy the requirement for complementarity?
>
> Does the proposal require HPC resources and do the computational needs clearly exceed those offered by a modern workstation (particularly in terms of computing times for solution delivery).

Is the need for dedicated HPC resources, as opposed to standard Cloud computing offerings, and the benefit of an HPC cloud demonstrated?

Evaluation Criterion: Soundness of concept, innovation and quality of the work plan

Check-List:

Is the proposed experiment, as described in the proposal, feasible? Are risks properly described and addressed?

Is the experiment described innovative in that it demonstrates the potential for the “one-stop-shop” and that it shows how new services and business models for the use of an HPC-Cloud can be realised? Are tasks relating to service development clearly predominant compared with any research or software development activities?

Is the work plan sufficiently clear and coherent so that it gives confidence that the proposed work will be carried out effectively and will be directed towards achieving the objectives of the call?

Evaluation Criterion: Quality of the consortium as a whole and of the individual proposers

Check-List:

Is the consortium as a whole well qualified to carry out the proposed work?

Does the consortium contain the necessary participants with all the skills needed to carry out the proposed work? Are the roles of individual participants clear? Is the role and effort of the industrial participants balanced with respect to other participants? Are key personnel clearly identified and described?

Are any types of partner missing? In particular, does the Consortium include the manufacturing SME whose business needs are addressed by the experiment?

Is each consortium member as presented in the proposal qualified to carry out the work they are assigned? Is the assignment of that work clear?

Evaluation Criterion: Effective and justified deployment of resources

Check-List:

Have appropriate resources (effort and budget) been allocated to members of the consortium in such a way that each of them has the required resources needed to carry out their part in the work effectively? Is the effort of each partner required for specific tasks clear?

Are the proposed resources (effort, budget, any sub-contract) clearly justified in the proposal?

Are computing resources and licence fees clearly identified, justified and appropriate?

Are the most compute-intensive steps in the application workflows to be executed with application software with the appropriate level of parallel scalability and, in that context, is sufficient information about the performance characteristics of the application software provided?

Is the computing infrastructure requested commensurate with the application software to be used in the proposed experiment and is that adequately described in the proposal?

6.5 Proposal exemplar

Proposal to Fortissimo Project Call 2

Call Information:

Identifier: Fortissimo Call-2

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: 18th June, 2014, at 17:00 Brussels local time

FORTISSIMO

1. Experiment Title

Name of the coordinating person:

Title First Name, last Name, Partner Organisation

E-mail:

Fax:

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

No.	Participant short name	SME (yes/no)	PIC
1			
2			
3			
4			

Summary

(Guideline: 0.5 pages)

Industrial relevance, potential impact and exploitation plans

(Guideline: 3.5 pages)

Fortissimo Call-2 targets the augmentation of the current set of application experiments. The new application experiments should provide business relevant investigations and demonstrations of simulation services in the Fortissimo HPC Cloud that have the potential to create business benefits for manufacturing SMEs. 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,..). The alignment of the proposed experiments with the objectives of Fortissimo Call-2 should be explained.

Description of the work plan and concept

(Guideline: 3 pages)

Introductory text & explanation of the experiment concept.

Experiment Title					
Participant short name					
Role[2]					
Description:					
Workplan **Task 1 Task name** Task description. ***Deliverable**: Deliverable short description (Experiment Month nn (i.e. within months 1 to 18 of the experiment))*					
Impact and Outputs *(Output = concrete results from the experiments, such as, but not limited to, business case analyses/reports, software releases, user workflows, experience reports,..* *Impact = explanation of the use of project results and the related business impact, enhanced capabilities or potential for service offerings, etc.)*					

[2] Examples of roles: End-user, application or technology expert, HPC expert, ISV, HPC Centre

The output of experiment will be:

-

The results of the experiment will be ..

Participants and effort						
Participant						**TOTAL**
Effort (PM)						

PM = Person Months

Quality of the consortium as a whole and of the individual proposers

(Guideline: 2 pages)

The descriptions of the individual proposers should explain the proposer's capability, as an entity and, in terms of the key staff to be assigned to the project, to carry out the assigned tasks. The description of the consortium (for the experiment) as a whole should provide evidence that the consortium includes the necessary and sufficient set of complementary capabilities (i.e. no unnecessary overlap of capabilities nor omission of required capabilities).

Justification of costs and resources

(Guideline: 1 page)

Participant Number	Participant short name	Estimated eligible costs						Requested Funding (€)
		Effort (PM)	Personnel Costs (€)	Subcontracting (€)	Other Direct costs (€)	Indirect costs (€)	Total costs	
Total								

Cost breakdown per Participant

New/Existing beneficiaries	Participant Number	Participant short name	Requested Funding (€)
New Beneficiaries			

Sub-Total			
Existing Beneficiaries			
Sub-Total			
Total			

Funding for new and existing beneficiaries[3]

Costs for subcontracting and other direct costs, including computing costs need to be clearly explained. The basis (calculation model) for the calculation of indirect costs should be reported.

Computing costs, in terms of the required core hours, should be scoped for the whole value chain of the proposed experiment and assigned under "Other Direct costs". The budgeting for computing resources is to follow the Fortissimo Token Model:

The Fortissimo Token Model for Computing Resources

Paying for on-demand access to HPC Cloud resources is a key part of running such a service. During the project lifetime, Fortissimo will study the best way of doing this sustainably and transparently in the long term. However, the project also needs a model of resource charging during the project and this will be accomplished as 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:

2. *A token will have a notional monetary value of €0.01.*
3. *Each HPC Cloud Provider will calculate the actual direct costs with no profit component associated with providing access to their resources.*
4. *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 x 2 x 3) on this resource (with a real monetary value of €15.36).*
5. *Each resource provider will record how many tokens of resource it provides to each experiment.*
6. ***Each experiment must include in its budget an estimate of the required resources for the successful completion of the experiment.***
7. ***The costs for computing time are allocated as direct costs for the appropriate provider***
8. *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.*

[3] Existing beneficiaries are those proposal participants who are already Fortissimo partners, new beneficiaries are those participants who would become Fortissimo partners in the case of the proposal being selected for integration into the project.

9. *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.

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:

-

Workplan

Task 1 Task name

Task description.

Deliverable*: Deliverable short description (Experiment Month nn (i.e. within months 1 to 18 of the experiment))*

Impact and Outputs

(Output = concrete results from the experiments, such as, but not limited to, business case analyses/reports, software releases, user workflows, experience reports,..
Impact = explanation of the use of project results and the related business impact, enhanced capabilities or potential for service offerings, etc.)

The output of experiment will be:

-

The results of the experiment shall be ..

Code(s) used		Type		Resources	
Participants and effort					
Participant					**TOTAL**
Effort (PM)					

PM = Person Months

Quality of the consortium as a whole and of the individual proposers

(Guideline: 2 pages)

The descriptions of the individual proposers should explain the proposer's capability, as an entity and in terms of the key staff to be assigned to the project, to carry out the assigned tasks. The description of the consortium (for the experiment) as a whole should provide evidence that the consortium includes the necessary and sufficient set of complementary capabilities (i.e. no unnecessary overlap of capabilities nor omission of required capabilities).

Justification of costs and resources

(Guideline: 1 page)

Participant Number	Participant short name	Estimated eligible costs						Requested Funding (€)
		Effort (PM)	Personnel Costs (€)	Subcontracting (€)	Other Direct costs (€)	Indirect costs (€)	Total costs	
Total								

Costs for subcontracting and other direct costs, including computing costs need to be clearly explained.

Computing costs, in terms of the required core hours, should be scoped for the whole value chain of the proposed experiment and assigned under "Other Direct costs". The budgeting for computing resources is to follow the Fortissimo Token Model:

The Fortissimo Token Model for Computing Resources

Paying for on-demand access to HPC Cloud resources is a key part of running such a service. During the project lifetime, Fortissimo will study the best way of doing this sustainably and transparently in the long term. However, the project also needs a model of resource charging during the project and this will be accomplished as 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:

10. *A token will have a notional monetary value of €0.01.*
11. *Each HPC Cloud Provider will calculate the actual direct costs with no profit component associated with providing access to their resources.*
12. *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 x 2 x 3) on this resource (with a real monetary value of €15.36).*
13. *Each resource provider will record how many tokens of resource it provides to each experiment.*
14. ***Each experiment must include in its budget an estimate of the required resources for the successful completion of the experiment.***
15. ***The costs for computing time are allocated as direct costs for the appropriate provider***
16. *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.*
17. *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.