Fortissimo Plus, EuroHPC Project 101163317, https://www.ffplus-project.eu/

Call for Proposals for Innovation Studies for the Development of Generative AI Models

Identifier: FFplus_Call-1-Type-2

Call Title: First call for innovation studies for the development of generative AI models

Project name and grant agreement number: Fortissimo Plus, 101163317

Project Acronym: FFplus

Deadline: September 4th, 2024 at 17:00 Brussels local time

Expected duration of innovation studies: 10 months, with targeted commencement December 1st, 2024

The indicative total funding budget for all sub-projects funded under this call is € 4M.

Funding and eligibility: A number of funding constraints and eligibility conditions apply, detailed in the full announcement text, which include in particular

- A main participant is an SME or start-up and supporting participants are organisations supporting the main participant to complete the foreseen activities. Applications are to be submitted by one main participant with a business case/challenge and optionally (if well justified) up to two supporting participants.
- The maximum funding request for the SME (main participant) is € 200,000. Each supporting participant may receive up to € 150,000 over all studies selected for funding under this open call (i.e. under call identifier FFplus_Call-1-Type-2).
- FFplus beneficiaries are ineligible to participate as either main or supporting participants.
- Only organisations with head offices based in an EU Member State or in associated countries that are eligible to receive funding from the Digital Europe Programme are eligible to receive funding. Natural persons (individuals) are not eligible to receive funding.

Submission language: English

Internet address for full open call information and proposal submission
https://ffplus-project.eu/en/open-call/innovation-studies/

E-mail: ffplus-call-t2@scapos-tools.de

FFplus Introduction

FFplus is funded by the EuroHPC Joint Undertaking (EuroHPC JU) action DIGITAL-EUROHPC-JU-2023-SME-01 "Supporting the competitiveness and innovation potential of SMEs". The central objective of the action is to empower SMEs with advanced computational capabilities based on HPC, enabling them to drive innovation, enhance competitiveness, and overcome challenges in the digitisation of R&D and business processes.

Consequently, the work carried out under FFPlus will lead to innovative business experiments and innovation studies that will showcase the benefits of adopting HPC for SMEs and startups throughput Europe.

In particular, the FFplus project will use open-calls for proposals to select business experiments and innovation studies (also referred to as sub-projects) that will be funded through the mechanism of Financial Support for Third Parties (FSTP). Over the duration of the project, FFplus will provide over € 24 million to such sub-projects selected through a total of six open calls: three of which will target small and medium-sized enterprises (SMEs) using high-performance computing (HPC) to improve their business (business experiments), and three of which will target SMEs/Start-ups in the field of generative artificial intelligence (innovation studies).

FFplus_Call-1_Type-2 Objectives

In line with the general objective of supporting SMEs in their adoption of HPC technologies and services, this FFplus open call for the development of generative AI models addresses the needs of SMEs and Start-ups proficient in generative AI and HPC for large-to extreme-scale computing resources. The strategic objective is to facilitate and strengthen the technological development of European SMEs in the area of generative AI. The participating SMEs and Start-ups will be supported in enhancing their innovation potential by leveraging new generative AI models, such as Large Language Models (LLMs), building on their existing expertise, application domain, business model and potential for expansion.

This announcement is the first call for proposals for "innovation studies" driven by the business needs of SMEs and Start-ups highly competent in generative AI, professional software development, and data processing. The innovation studies must use large-scale European HPC resources (e.g., pre-exascale and exascale supercomputers) to develop and customise generative AI models such as foundation and large language models.

This FFplus call is complementary to the open call for proposals for business experiments addressing the uptake of HPC by SMEs (Identifier FFplus_Call-1-Type-1) that is executed in parallel. It should be noted that SMEs[1] may only participate in one of the two types of sub-projects; i.e. participation is mutually exclusive.

[1] With the role of main participant – defined under "funding and eligibility criteria"

Expectations for the innovation studies and proposals

The proposed innovation studies are expected to:

1. Be fully aligned with the FFplus call objectives defined above.
2. Give grounds as to why generative AI serves as a solution to the business problem or business prospect, why the development of a new model is imperative[2] and why this could not be addressed sooner. Specifically, list the obstacles preventing the utilization of existing generative AI models to address the business problem, by e.g. few-shot prompting, licencing issues, etc.
3. Present a vision of success, i.e. how using large-scale HPC will lead to positive business impact. If applicable, define the value propositions and the process of value creation.
4. Define specific objectives that must be achieved in order to successfully address the business problem and the accompanying action plan described in terms of a ML lifecycle: data preparation, model development/engineering and model evaluation[3]. Additionally:
   i. Provide a detailed description and demonstrate the availability of a suitable training data set;
   ii. Detail the characteristics of the models to be developed, including type, size, hyperparameters, and architecture, and outline their repercussions to training and exploitation.
   iii. Establish Performance Metrics and Reproducibility Plan: Clearly outline and justify the selection of performance metrics for model evaluation, scaling, and optimisation. Describe benchmarks to establish baselines and specify methods to ensure experiment reproducibility.
   iv. Identify potential risks considering EU guidelines for trustworthy AI, including unfairness, bias, hallucinations, and model drift during the exploitation phase, and present means to address and mitigate them.
5. Justify Resource Allocation: Conclusively demonstrate how the allocated resources (personnel, IT/computing, and any other resources) address and fill current gaps in the processes needed to implement the proposed action.
   Detail HPC Requirements: Clearly explain the HPC resources (hardware, software, frameworks, and compute volumes) appropriate for the execution of the innovation study. Define the HPC resources needed, possibly using computing resources provided directly (free of charge) by the EuroHPC JU, e.g., through their AI and Data-Intensive Applications Access system, or through national actions. The HPC National Competence Centres[4] may be able to provide assistance with the selection of appropriate resources and the application process. (FFplus will not be in a position to provide computing resources itself).

[2] Development of a new generative AI model may involve customizing a foundational model to suit specific needs.
[3] Model exploitation/deployment/operation is out of scope.
[4] https //www.eurocc-access.eu

6. Describe the ML lifecycle: Clearly define the business problem at hand. Provide an overview of crucial dataset characteristics. Detail the models intended for development and deployment and outline their application in production.
7. Submit a Comprehensive Data Management Plan: Present a data management plan that covers policies for data access, usage, sharing, retention, and disposal; outlines methods for protecting sensitive or personal data; and incorporates FAIR principles and their implementation when applicable.
8. Support the FFplus project in the generation of success stories suitable for publication, including in multi-media form, discussing business benefits (e.g., additional income, new business models, decreasing cost), technical and business challenges, and societal and environmental impact, e.g. energy-to-solution improvement.
9. Produce a pre-final results and potential impact report: It is a requirement of all innovation studies that they deliver an intermediate report on the results achieved (and those expected by the end of the study) and the potential impact of those results on the SME's business model and potentially by third parties using the results. This report is to be delivered by the end of the 7th month. It will be used to evaluate the eligibility to submit a proposal for extension/continuation of the innovation study to a subsequent open call for proposals.

Funding,Eligibility Criteria and Obligations

The total indicative funding budget for Call 1 sub-projects performing innovation studies for the development of generative AI models is € 4 million.

FFplus will make use of the FSTP (Financial Support of Third Parties) funding method for the innovation study consortia selected through the open call. For all sub-projects funded under FSTP, an agreement will be concluded between the innovation study consortium and the FFplus Coordinator; provisions for avoidance of conflicts of interest between sub-projects will be anchored in that agreement. Before conclusion of the funding agreements, the SME will be required to document: a) their self-assessment of adherence to EU guidelines for trustworthy AI; b) their status as SME in line with European Commission definitions.

Third Parties will receive 100% funding of incurred, eligible direct costs necessary for the completion of experiment activities; no indirect costs or overheads will be funded. The FFplus project receives funding based on a Grant Agreement following the regulations of the Digital Europe Programme and the eligibility rules of that Grant Agreement will apply for the direct costs arising in the sub-projects.

Consortia selected for funding via the proposal evaluation process will be invited to conclude a funding agreement with the FFplus project coordinator, the University of Stuttgart. That funding agreement will define the payment schedule, whereby payment will be made in multiple tranches, partly linked to the delivery of reports and outputs defined in the innovation study workplan and in the funding agreement itself. The principle followed will be that the sub-project participants will receive an advance payment at the start of the innovation study followed by subsequent instalments.

It is expressly foreseen that the targeted SMEs may participate in more than one tranche of innovation studies, that is, if developments and results of their initial innovation study are evaluated successfully, then they would be eligible to submit a proposal for an extension of the developments in a subsequent open call. It is a necessary condition for funding that the innovation study complies with the FFplus requirement for reporting of the results achieved up to the end of the 7th month of the innovation study to enable an evaluation of the impact potential, performed by external experts. Only the top 70% (based on the ranking arising from the expert evaluation) of successful innovation studies may be given approval for an extension submission, when deemed appropriate. The selection for funding of the extension submission will depend on the evaluation by external independent experts, as usual.

The following funding conditions and eligibility criteria for participation apply:

- Only organisations with head offices based in an EU Member State or in associated countries that are eligible to receive funding from the Digital Europe Programme are eligible to receive funding. Natural persons (individuals) are not eligible to receive funding.
- A main participant is an SME or a Start-up and supporting participants are organisations assisting the main participant to complete activities foreseen for the innovation study.
- Applications are to be submitted by the main participant who must provide a business case/challenge and optionally (if well justified) up to two supporting participants. Each consortium partner needs to have a clearly defined role.
- The maximum duration of the innovation studies is 10 months, with a maximum of 200 K€ for the (main participant) SME. Where suitably justified, additional organisations might be included within a consortium designed to optimally address the targeted generative AI development. The maximum total funding for each innovation study is 300 K€.
- The total number of consortium partners (main participant and supporting participants) is limited to three (3).
- Funding limits for organisations participating as supporting participant: a maximum of 150 K€ under this open call (i.e. under call identifier FFplus_Call-1-Type-2); a maximum of 300 K€ over all FFplus innovation studies.
- SME participation in the FFplus business experiments for HPC uptake and in the innovation studies, covered by this open call, are mutually exclusive. That is, for the SMEs whose business challenge defines the business experiment or innovation study, funding may only be provided for one type of action (Type 1 or Type 2 sub-project). This will be considered during the evaluation and selection process.
- FFplus beneficiaries are ineligible to participate as either main or supporting participants.
- In principle, the major part of the funding applied for should be allocated to the main participant. Any deviations from this principle must be duly justified.
- For supporting participants, only engineering activities are eligible for funding. Activities such as business consultancy, marketing initiatives, administrative tasks, and other non-engineering activities are not eligible for funding.

The budget modules available for innovation studies are listed in the table below.

Budget module	Additional details
Personnel	Personnel costs need to be commensurate with the work to be performed
Equipment	Depreciation costs only. Only specialized equipment necessary for conducting the innovation study is permitted. Costs for common-use equipment such as laptops, monitors, etc., are not eligible.
Travel	Travel must be justified in terms of the necessity for performance of the proposed experiment work plan.
HPC compute capacity	Compute Resources need to be justified. Ideally, EuroHPC systems will be used for the work. A decision not to apply for access to the EuroHPC systems should be duly justified.
Material	1. Costs for acquiring specialised SW licenses for conducting the innovation study (licenses for general office software, for example, are not eligible). 2. Costs for acquiring or using data sets or collections needed to conduct the innovation study.

The innovation studies will receive support from the project with a range of actions relating to interactions with the project and also relating to potential collaborations with other sub-projects. Furthermore, direct support for each individual innovation study will be provided relating to gaining access to EuroHPC JU-provided computing resources and technical consultation relating to the effective execution of the innovation study work plan.

Submission Details

Submission Deadline

All submissions must be made by 17:00 Brussels local time on September 4th 2024.

Electronic Submission

Proposal submission is exclusively in electronic form using the proposal submission tool accessible via the Fortissimo web-site:
https://ffplus-project.eu/en/open-call/innovation-studies/

The central component of proposal submission is the uploading of two PDF-documents (whose individual size must not exceed 5.0 MB) compliant with the instructions on proposal structure given below.

Proposal format and structure

Proposals must be submitted in English. Each proposal must comprise two parts: Part A (containing administrative information) and Part B (containing the body of the proposal, the structure of which is explained below).

Part A of the proposal contains a cover page and a set of tables to provide administrative data, including a tabular list of proposal participants. The participant list should include for each participant, if available, the Participant Identification Code (PIC) issued by the European Commission[5]. and valid address, telephone/telefax and email contact data.

Only requested information should be included in Part A. Addition of extraneous information such as letters of support etc will result in the proposal being rejected without further evaluation.

The main section of the proposal – Part B - must not exceed 12 pages in length (including any appendices, but excluding the Part B cover page and excluding the provision of scientific literature references). The Part B text should be no smaller than 11-point Arial font. **Proposals submitted with a Part B whose length (excluding the cover page) exceeds the 12-page limit will be rejected without further evaluation.**

ALL PROPOSERS MUST TAKE CAREFUL NOTE OF THE ABOVE RULES.

The structure of the proposal Part B (and indicative length per section) should be as follows:

1. Summary (0.5 pages)
2. Industrial relevance, potential impact (including societal impact) and exploitation plans (3.5 pages)
3. Description of the work plan, technological/algorithmic approach, and software development strategy – please refer to the "Expectations" section above (5 pages)
4. Quality of the consortium as a whole and of the individual proposers (1-2 pages)
5. Justification of costs and resources (1-2 pages)

A management structure will be established for the successful proposals. That is, the proposal will not need to contain a description of how the management of the innovation study in the framework of the overall FFplus project will be achieved, but should include tasks for the technical management of the study activities.

Proposal templates for both Part A and Part B can be found at
https://ffplus-project.eu/en/open-call/innovation-studies/

It is a requirement that these templates be followed and in particular that the proposal budget be provided using the embedded Excel spread-sheets.

[5] To obtain a PIC, register at
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/participant-register .
Please note that having a PIC is not a requirement of the call.

Evaluation Criteria

The criteria for evaluation will comprise:

1. Impact: covering the proposed innovation study's prospects for innovation, commercial viability and potentially also societal relevance, vision of success and value creation/proposition taking the SME's business models and exploitation plans into account, alignment with the objectives of the call.
2. Excellence: covering both conceptual and technical excellence.
    a. Conceptual excellence includes conceptual soundness, cohesiveness, and articulation of plans for bridging gaps to ensure successful innovation study implementation and impact.
    b. Technical excellence includes clear definition of technical requirements, justifying technology choices; articulation of performance metrics for model evaluation, scaling, and optimization; activities for establishing baseline performance and ensuring experiment reproducibility.
3. Implementation: covering the quality of the project's workplan and data management plan, the distribution of resources to additional organisations (where applicable), capacity of the applicant(s) to carry out the proposed work, the justification for computation resources required.

Each criterion will be assigned a score between 0 and 5The overall acceptance threshold (summed over all criteria) is set to 10, while a minimum score of 3 must be achieved for each criterion. All criteria are equally weighted. However, in case of a tie in the overall score ranking, proposals are ranked based on the individual criteria scoring applying the following priority: Impact, Excellence, Implementation, and finally total requested funding.

The evaluation of proposals will be done by independent, external experts using a consensus review process; which process will be supported by the FFplus beneficiaries coordinating the open call. Each proposal will be assigned two external expects with demonstrated competency in the field of the experiment proposal, that will, independently of one another, produce individual assessment reports. In a consensus session, a moderator works with the two individual evaluators to create a consensus assessment report, representing the consensus position of both experts. The consensus report is turned into an evaluation summary report that will be shared with the proposing consortium.

The individual assessment reports, consensus reports and evaluation summary reports are structured conform with the evaluation criteria listed above.

Adherence to the proposal format and structure described previously – and notably to the prescribed page limit – will allow the independent external evaluators to evaluate the proposal against all of the above-mentioned evaluation criteria. As explained earlier in this document, failure to adhere to the funding and eligibility restrictions and to the proposal format instructions will lead to immediate rejection of the proposal. The proposers will be provided with the results of the evaluation in the form of an evaluation summary report comprising the consolidated findings of the independent expert evaluators and a decision from the project on the result of the selection procedure. That decision is final and the project will not enter into discussions concerning the evaluation results, and no appeals process will be provided.