FED4SAE 1st Call
GUIDE FOR APPLICANTS

Participating in the competitive first call for Application Experiments in an ICT innovation action (IA) (FED4SAE, Grant agreement number: 761708)

Table of Contents

1. General information

The **Guide for Applicants** contains the basic information needed to guide you in preparing a proposal to submit to FED4SAE Open Call. It gives introduction on how to structure your proposal. It also describes how the proposal should be submitted, and the criteria on which it will be evaluated.

Please note:

Every selected applicant will be required to sign a standard agreement, a model example of which can be found at the https://fed4sae.eu/innovative-projects/open-calls/ website.

> This Guide for Applicants does not supersede the rules and conditions laid out, in particular, in Council and Parliament decisions relevant to the H2020 framework programme.

1.1 Context and background

FED4SAE is part of the Smart-Anything-Everywhere Initiative under the Horizon 2020 Leadership in Enabling Industrial Technologies (LEIT). The three-year project aims to facilitate the acceleration of European Cyber-Physical System (CPS) solutions to market and will boost digitization of European industry by strengthening companies' competitiveness in the CPS market. By creating a pan-European network of Digital Innovation Hubs with leading industrial companies providing multiple industrial platforms and R&D centers providing access to several advanced platforms and test beds, the FED4SAE project will harness the benefits of existing regional tech and businesses ecosystems across complete value chains and multiple competencies to enable European startups, SMEs and midcap companies in all sectors to build and create new digital products and services through three open calls. The project mission also includes innovation management – linking these companies to suppliers and investors to create innovative CPS solutions and accelerate their development and industrialization.

Through this 1st open call, FED4SAE provides a unique marketplace organized as a one-stop-shop providing access to technologies, technical expertise, business and financial services to develop new and innovative CPS solutions based on existing industrial platforms, advanced technologies & several test beds and innovation management. Successful Application Experiments (AEs) are based on collaboration with at least one of our industrial platforms, advanced platforms and networking partners. Technology access and assistance from the industrial platform partners along with expertise, know-how, coaching, design support, tech transfer and access to several advanced technologies and testbeds are provided by our advanced platform partners. Innovation management from our innovation management partners - linking applicants to suppliers, well-connected business infrastructures and existing regional innovation hubs - ensures the relevant conditions for innovation adoption and access to further investments to facilitate the industrialization of the developed CPS solutions. Such an offer will enable the rapid development, lower the entry costs for the design and optimization of your novel CPS solutions and accelerates the market entry of your proposed CPS solution. The expected duration of the Application Experiment is from 9 to a maximum of 18 months. The average funding per applicant is 50k€ with a maximum of 60k€ for one, at a funding rate of 70% of the budget. Multiple experiments per applicants are possible, with a total maximum funding for all experiments of 100k€ (through all three open calls).

You are invited to submit Application Experiment proposals, targeting an innovative CPS solution, for exciting new markets, such as smart cities, smart agriculture, smart food, smart health and wellbeing, smart building, smart transport, etc. Each AE must focus on at least one of the following areas:

- **Software-intensive AE**: Building a system solution using existing programmable CPS software platforms and complementary advanced software platforms. The AE will cover access enablement to the FED4SAE industrial platforms, embedded software development complementary competences from research institute/advanced platform partner and eventually test bed validation. The outcome of such an experiment will be a software prototype demonstrator running on a FED4SAE industrial platform.

- **System integration AE**: Building an innovative system solution using **existing software and hardware components**. Such an AE offers access to a broad range of competencies (system expertise, product technical experts, design kits, API) through the FED4SAE consortium. The AE will cover hardware-software integration and access enablement to both the industrial platforms and the complementary competences from research institute/advanced platform provider and eventually test bed validation. The outcome of such an AE will be an **integrated system prototype demonstrator**.

- **CPS and Embedded System with innovative component AE**: Building an integrated Hardware-Software prototype requiring **specific hardware-software components**. Such AEs rely on access enablement to FED4SAE industrial platforms and complementary competences from research institute/advanced platform partner. The AE will only cover hardware-software architecture study to define the needs in terms of enablement for access to core platforms. The outcome will be **system architecture virtual prototype demonstrator** of the CPS and Embedded System product

The FED4SAE Application Experiments are expected to be designed and developed on a collaboration based on at least one of the following seven FED4SAE industrial platforms

- *STM32F platform* from STMicroelectronics France
- *WeSu platform and ODE-STM32 Nucleo Expansion Boards from STMicroelectronics Italy*
- *Compute Card* from Intel – a credit card sized computer.
- *Neural Compute Stick* from Intel –Computer Vision at the edge.
- *TIME4SYS* from Thales
- *Integrated and Open Development Platform* from AVL
- *Silicon Platform Architectural Study* from STMicroelectronics & CEA France

Additional services will be provided by our networking partners and at least one of the advanced platform partners, whose services include access to advanced technologies and testbeds. Details of these are to be found on the www.fed4sae.eu website:

- *Silicon Impulse, LINC, Sensinact and SigmaFusion* from CEA
- *WiseNET ,GPS free localization solver, Vision in a Package, Hyper Visio, Wise-Dep Chemical Sensing, Soft Mems, Adv Mfg & package from CSEM*
- *π-Fab* from FhG
- *AIDE* from KTH
- *Eclipse 4diac* from fortiss
- *Reliability* testbed from BME
- *Products and Technologies Living-lab* testbed from CEA
- *Lorawan LPWAN Testbed* from DigiCat
- *Research Concept Vehicle* testbed from KTH
- *Santander Smart City* testbed from UNICAN

The testbed environments brought by our research institutes will enable applicants to test and validate their innovative CPS solutions in real or quasi-real environments. The Application Experiment will receive business case support by the innovation management partners.

Interested SME and mid-Cap companies are encouraged to review details of these platforms and technologies on the www.fed4sae.eu or contact one of the FED4SAE project members listed below to find out more:

- CEA Leti[A,N, IM] (France)
- Intel Research and Development Ireland[CPS] (Ireland)
- STMicroelectronics SRL[CPS] (Italy)
- STMicroelectronics Grenoble[CPS] (France)
- Thales SA[A,N,CPS] (France)
- AVL List GmbH[A,N,CPS] (Austria)
- Digital Catapult[A,N,IM] (UK)
- Fraunhofer-Gesellschaft[A,N,IM] (Germany)

- fortiss GmbH[A,N,IM] (Germany)
- CSEM[A,N,IM] (Switzerland)
- KTH Royal Institute of Technology[A,N,IM] (Sweden)
- Budapest University of Technology and Economics[A,N,IM] (BME) (Hungary)
- Cantabria University[A,N,IM] (UNICAN) (Spain)
- Blumorpho SAS[N,IM] (France)

N = Networking Partner, A = Advanced platform partner, CPS = CPS Industrial Partner, IM=Innovation management partner

1.2   Funding of proposals

The expected duration of the Application Experiment is 9 to a maximum of 18 months. The average funding per applicant is 50k€ with a maximum of 60k€ for one, at a funding rate of 70% of the budget. Multiple experiments per applicants are possible, with a total maximum funding for all experiments of 100k€ (through all three open calls).

Each application experiment will include justifications of cost and resources. The total European Commission available funding per AE will represent 70% of the total cost involved by the Third party. Further in-kind support by the advanced platform partner whose services include access to advanced technologies and testbeds and assistance from CPS platform partners as well as background and expertise in the domain of innovation management by the innovation management partners is provided on top of the funding contribution. More details on available CPS and advanced platforms and partners are available at www.FED4SAE.eu.

The amount of financial support will be calculated on the basis of the estimated costs. Each AE will include an implementation plan including milestones and deliverables, and a cost estimate justifying the costs and resources in relation to the implementation plan. The industrial third party will be funded 70% of their respective cost. Third parties can receive pre-financing of up to 25% of their respective total funding amount. Further payments will be made upon successful completion of milestones and/or deliverables.

The budget must follow H2020 rules, among them:

- It must respect the limit of 15% for specific subcontracting tasks that neither the FED4SAE partners nor the Third party can carry out
- The Third party shall not make profit from the EC funding
- The funding rate is 70% of the budget.

It is strongly recommended that the Third party include travel costs for dissemination in the *other direct costs* budget.

How to prepare and submit a proposal

1.3   One stage submission

Proposals for a FED4SAE Application Experiment are submitted in a single stage, by submitting a complete proposal.

1.4   Proposal language and length

The proposal should follow the structure of the proposal template provided in Annex 1 of this document. It has to be written in English. Proposals submitted in any other language will not be evaluated. The proposal shall not be longer than 10 pages (not including the title page and section 4 (Ethical Issues) of the proposal)

1.5   Submission of proposals

Applicants are required to contact one of the FED4SAE networking partners in order to get more information on the required CPS platforms, the advanced platforms' competences and advice on how to create an eligible proposal prior to submitting. It is essential to also choose at least one of the FED4SAE advanced platform partners for design support located across the European region at CEA, AVL, THALES, DIGICAT, FhG, FORTISS, CSEM, KTH, BME and UNICAN and at least one CPS platform partner (INTEL, ST-I, ST-F, THALES or AVL). All the information needed is provided on the public FED4SAE website.

If you discover an error in your proposal - provided the call deadline has not passed - you may submit a new version of your proposal. Only the last version received before the call deadline will be considered in the evaluation. Proposals must be received by the closing time and date of the call (a Tuesday at 5:00pm CET). Late proposals or proposals submitted to any other address or by any other means will not be evaluated. The proposals will be evaluated as submitted; after the close of a call, no additions or changes to received proposals shall be taken into account.

Do not wait until the last minute to submit your proposal. Failure of your proposal to arrive on time for any reason, including communication delays, is not acceptable as a delay circumstance. The time of receipt of your message as recorded by the email system will be definitive.

1.6   Acknowledgement of receipt

The submission of each proposal will be confirmed by the proposal submission system. As soon as possible after the closure of the call and per receipt of each proposal, an acknowledgement of receipt will be emailed to you by FED4SAE project (see Annex 2 of this document). The sending of an acknowledgement of receipt does not imply that your proposal has been accepted as eligible for evaluation.

2 Proposal evaluation and selection

2.1 Proposal evaluation

The FED4SAE project will evaluate proposals received in the light of the criteria that govern the Commission's original evaluation and selection of their projects through an Internal Evaluation Committee (IEC) with the assistance of three experts who are independent of any member of the consortium and of any proposer in regard to the criteria of *Excellence*, *Impact* and *Quality*, as well as through an evaluation with focus on the *business case* of the proposal by the FED4SAE consortium member BLUMORPHO. The evaluation criteria are described in detail below.

The experts will be individuals from different sectors: science, industry or academic and with experience in the field of innovation. These experts are internationally recognised authorities in the relevant specialist area. They will sign a non-disclosure agreement with the FED4SAE coordinator. During a consensus meeting, the FED4SAE IEC will evaluate the technical aspects of the proposals in the same way as the external reviewers. The internal evaluation will be performed by at least one person of the committee, who is not directly involved in the AE. The averaged reviewer scoring will then be averaged with the IEC scoring and then combined with the business case scoring to calculate a total score for each proposal. The process of the Application Experiment selection process is illustrated in figure 1.
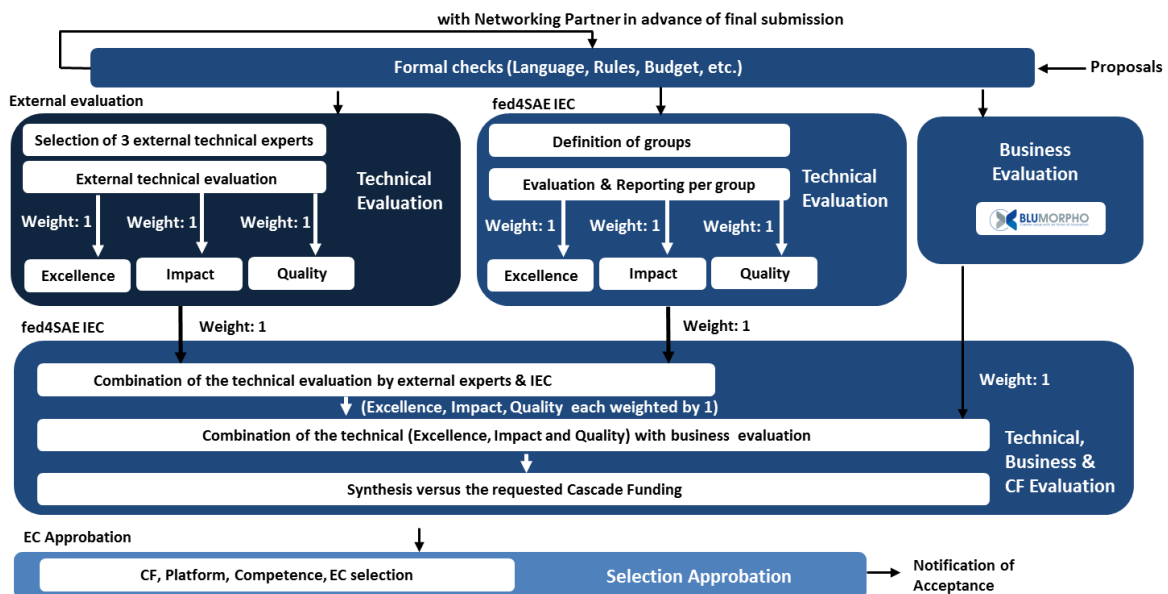

Figure 1: FED4SAE Application Experiment selection process.

2.2 Evaluation criteria

The evaluation of Application Experiment proposals will be based on scores given according to four basic criteria: *Excellence*, *Impact*, *Quality* and the *business case* of the AE.

The **Excellence** is evaluated according to the following criteria:
- **Clarity and pertinence** of the objectives.
- **Soundness** of the concept.
- Extent that proposed work is **ambitious**, has **innovation potential**, and is **beyond the state of the art** (e.g. ground-breaking objectives, novel concepts and approaches).
- **Excellence, innovation and quality** of the objectives.

The **Impact** is evaluated according to the following criteria:
- **Enhancing innovation capacity and integration** of new knowledge.
- **Strengthening the competitiveness and growth** of companies by developing innovations meeting the needs of European and global markets; and, where relevant, by delivering such innovations to the markets.
- Any other **environmental and socially important impacts** (not already covered);
- **Effectiveness of the proposed measures** to exploit and disseminate the project results (including management of IPR), to communicate the project, and to manage research data where relevant.
- We strongly encourage allocation of budget to participate to the dissemination of the project during European Commission events.

The **Quality** and the efficiency of the implementation will be evaluated according to the following criteria:
- Coherence and effectiveness of the **work plan**, including appropriateness of the allocation of tasks and resources.
- Complementarity of the **participants within the consortium**.
- Justification of **resources.**

The **Business case** evaluation of the AE will be performed during a 20 minutes interview to evaluate the following parameters:
- **Market attractiveness** taking into account the market size, expected growth and your expected market positioning
- **Differentiation (UVP)** highlight your unique value proposition compared to competition
- **Business model** explaining your revenues generation model
- **Complementarity of the team** that will be involved in the project
- **Strategic fit for the company** explaining why this project is important for your company
- **Assessment of resources required** to demonstrate you have taken into account all key elements for the success of your project to reach exploitation
- **Expected funding scheme** to explain if you will consider further public or private financing after your participation to the FED4SAE project.

Evaluation Grades

The external reviewers and the IEC will allocate scores to each Application Experiment proposal for the technical criteria as follows:

- A score 0-5 is awarded for **Excellence**.
- A score 0-5 is awarded for **Impact**.
- A score 0-5 is awarded for **Quality**.

The Business case evaluation will allocate a further score from 0-5 to each Application Experiment proposal. Therefore, the overall maximum score for an experiment proposal is 20. For a proposal to be considered for funding, each individual score must meet a minimum threshold, which is 3 out of 5 points. The total sum of the individual scores must reach the minimum threshold of 13 points.

The scores indicate the following with respect to the criterion under examination:

- 0 – Proposal **fails** to address the criterion or cannot be assessed due to missing or incomplete information.
- 1 – **Poor**. The criterion is inadequately addressed, or there are serious inherent weaknesses.
- 2 – **Fair**. Proposal broadly addresses the criterion, but there are significant weaknesses.
- 3 – **Good**. Proposal addresses the criterion well, but a number of shortcomings are present.
- 4 – **Very Good**. Proposal addresses the criterion very well, but a small number of shortcomings are present.
- 5 – **Excellent**. Proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

2.3   AEs selection

The outcome of the evaluation will be a ranked list of all proposals, ordered in descending order by the total score obtained by the proposal. Depending on the available funding and on the number of eligible and fundable proposals, the largest number of fundable proposals will be selected. The selected proposals will be reported to the FED4SAE project officer of the European Commission for a final granting decision.

2.4   Feedback to Applicants

After the evaluation of the proposals all proposers will be informed if their application experiment was accepted or not. In case a proposal was selected, the applicant will receive a short summary of the evaluation outcome along with further information about the upcoming steps. In case a proposal was not granted, they will receive a full evaluation report, including an extended summary with the main remarks of the reviewers to allow the improvement of the proposal for future submissions.

3 Support to proposers

3.1 Call Helpdesk

For further information on the call, contact our help-desk:

Name: Dr. Markus Pfeffer

Email: markus.pfeffer@iisb.fraunhofer.de

Tel: +49 (0) 9131-761-114

3.2 Networking partners

The FED4SAE project supports networking partners which can be very helpful to organisations either from their country or not both in general advice and on preparing proposals. Information about FED4SAE networking can be found on FED4SAE website: https://fed4sae.eu/innovative-projects/open-calls/

3.3 Ethical issues

FED4SAE, to be ethic compliance, didn't forecast any ethical issues. Consequentially for the acceptance of the proposals it is required to be not directly involved in ethical issues and to guarantee the ethical compliance of the AE during their implementation action.

3.4 The Intellectual Property Rights

For all questions on intellectual property rights please see the standard agreement, which is available at https://fed4sae.eu/innovative-projects/open-calls/.

Annex 1 – Proposal Format

> **Call Information:**
> Identifier: FED4SAE01 Call
> Project full name: Federated CPS Digital Innovation Hubs for the Smart Anything Everywhere Initiative
> Acronym: FED4SAE
> Grant agreement number: 761708
> Deadline: Wednesday **February 6th 2018, 5pm (Brussels Time)**

Title: *[Application Experiment name]*

Acronym for your project: *[Application Experiment Short Name]*

Industrial Platform provider: *[industrial platform provider(s)]*

Advanced platform partner: *[advanced platform partner(s)]*

Networking partner: *[networking partner(s)]*

Participant Organisation: *[Organization Name]*

Participant Organisation Number: *[Company Number or national equivalent if available]*

Participant Coordinator Name: *[Coordinator Name]*

Participant Coordinator Phone: *[Coordinator Phone Number]*

Participant Coordinator e-mail: *[Coordinator Email-address]*

Date of Preparation: *[Proposal Date of Preparation]*

Version: *[Document Version]*

We confirm that we have read the "Standard Agreement" and that we intend to sign it in case the Application Experiment will be funded:

☐ Yes   ☐ No (**IMPORTANT**: If you select "No", your AE proposal will not be eligible)

Email address to which the Acknowledgement of Receipt should be sent:

[insert]

Proposal Abstract

Mandatory (max. 2000 characters including spaces)

Table of Contents

Abbreviations used in this document

Abbreviation / acronym	Description
…	
…	

Cost and funding breakdown

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

In column 'Effort', insert the required person months for the work involved.

In column 'Personnel Costs', insert your personnel costs for the work involved.

In column 'Other Direct costs', insert any other direct costs, for example material or travel costs (technical meetings, dissemination activities, etc.)

In column 'Indirect costs', insert your indirect (overhead) costs, 25 % of all your direct costs.

In column 'Total costs', calculate the sum of all your indicated costs.

In column 'Requested Funding', insert your requested EC contribution.

You may request up to 70% of the total costs*.

Up to 15% of the cascade funding may be used for specific subcontracting tasks that neither the FED4SAE partners nor the Third party can carry out.

*) The average funding per applicant is 50k€ with a maximum of 60k€ for one, at a funding rate of 70% of the budget. Multiple experiments per applicants are possible, with a total maximum funding for all experiments of 100k€ (through all three open calls). Further in-kind support by the advanced platform partner whose services include access to advanced technologies and testbeds and assistance from industrial platform partners as well as background and expertise in the domain of innovation management by the innovation management partners is provided on top of the funding contribution

Section 1: Excellence

1.1 Concept, Approach and Objectives

Describe the specific objectives for the application experiment, which should be clear, measurable, realistic and achievable within the duration of the application experiment (max. duration 18 months). Objectives should be consistent with the expected exploitation and impact of the application experiment.

Describe and explain the overall concept underpinning the application experiment. Describe the main ideas, models or assumptions involved.
RECOMMENDED 1.5 PAGE

1.2 Used industrial platform, advanced platforms and testbeds

Please reference the industrial platform and the advanced platforms and/or testbeds, which will be used for the application experiment and describe the technology of your implementation in detail (for example with a block diagram to illustrate the integration).
RECOMMENDED 0.5 PAGE

1.3 Ambition

Describe the advance your proposal would provide beyond the state-of-the-art, and to what extent the proposed work is ambitious.

Describe the innovation potential, which the proposal represents. Where relevant, refer to products and services already available on the market. Please refer to the results of any patent search carried out.
RECOMMENDED 1 PAGE

Section 2:   Implementation

2.1   Description of the work plan including the project duration

Please provide the following:
- *Brief presentation of the overall structure of the work plan; timing of the work plan (The duration of the proposed work plan cannot exceed 18 months.)*
- *Detailed work description*
- *Add a list of necessary competencies and the FED4SAE platform(s) (incl. advanced platforms and testbeds) that could be used or which is targeted.*

RECOMMENDED 1.0 PAGE

2.2   Justification of Costs and Resources

RECOMMENDED 0.5 PAGE

2.3   Company description

For each third party provide a brief description of the legal entity, the main tasks they have been attributed, and the previous experience relevant to those tasks. Provide also a short profile of the individuals who will be undertaking the work.

RECOMMENDED 0.5 PAGE

Section 3: Impact & Business Case

3.1 Expected impact

Industrial relevance, potential socially and environmental or other impacts not already mentioned, exploitation and dissemination plans, current and targeted technology readiness level (TRL).

RECOMMENDED 0.5 PAGES

3.2 Business plan

The business case evaluation will be performed through a 20 minute phone/ web interview with experts covering the following points:

- *Description of the use case and the final product*
- *Targeted market and its size*
- *Drivers and expected growth*
- *Expected company sales, yearly volumes, market share (when available)*
- *Competition*
- *Expected differentiation and unique value proposition*
- *Business model*
- *Expected target price (selling price)*
- *Resources required towards commercialization (total budget required)*
- *Expected time to market for the company*
- *Expected impact for the company*
- *Innovation project expected funding sources (after FED4SAE support)*
- *Alignement of the project with the company's strategy*
- *Team involved in the project*
- *Does the demonstrator comply to standards? Are there standards to be considered?*

Please prepare a short text or a pptx presentation to be used during the interview process.

RECOMMENDED 1.5 PAGES

Section 4:   Ethical Issues

Does your proposal involve any ethical issues?

Yes ☐ / No ☐

You can find further information about ethics issues at:

http://ec.europa.eu/research/participants/portal/doc/call/h2020/h2020-msca-itn-2015/1620147-h2020_-_guidance_ethics_self_assess_en.pdf

PROPOSALS INDICATING ETHICAL ISSUES WILL NOT BE TAKEN INTO CONSIDERATION FOR GRANTING.

Annex 2 – Acknowledgment of receipt

Dear xxx,

Thank you for submitting our proposal for consideration as Application Experiment in the H2020 project FED4SAE.

The evaluation will take place in the next few weeks. You will be notified as soon as possible after this whether or not your proposal has been successful.

On behalf of my colleagues in the project I would like to thank you for your interest in our activities.

Yours sincerely,