# **Proposal to Inno4scale Call-2023**

## Part B

Call Information:

Identifier: Inno4scale-2023

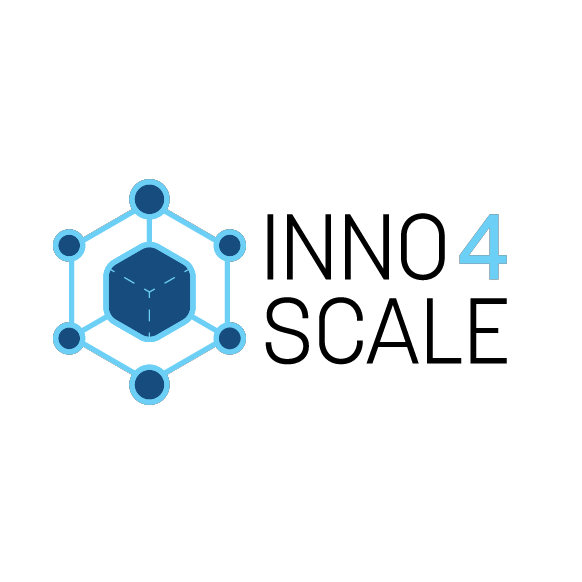
Call title: 2023 Call for Inno4scale Innovation Studies

Project full name: Innovative Algorithms for Applications on European Exascale Supercomputers

Acronym: Inno4scale

EuroHPC Project 101118139

Deadline: 28th September 2023, at 17:00 Brussels local time



## **Innovation Study Title[[1]](#footnote-1)**

**Name of the coordinating person**:  
Title First Name, Last Name, Partner Organisation

**E-mail**:

***This cover page may not be extended with any additional text/information.***

***This cover page will be ignored when the page count of the proposal is checked.***

# Summary

(Guideline: 1 page)

# State of the art

(Guideline: 1 page)

*Describe clearly the state of the art (baseline) of the concept and implementation which should be in line with the scope of the call regarding the TRL: Innovation study activities are expected to commence at TRL 0-1 and achieve TRL 3-4[[2]](#footnote-2) by the end of the 12-month study period.*

# Concept and design of the innovative algorithm

(Guideline: 1 page)

*Explain the concept and design of a fundamentally new and innovative algorithm. Present a sound theoretical concept, substantiated by, for example, peer-reviewed publications.*

*The Inno4scale expectation for the innovation studies:*

*Demonstrate scientific excellence on the identified and proposed novel, forward-looking and potentially disruptive approaches to the solution of complex mathematical, numerical or data processing problems on current and future European exascale supercomputers.*

# Expected impact and exploitation by existing applications

(Guideline: 2 pages)

*Inno4scale innovation studies should realise proof-of-concept demonstrators of fundamentally new and innovative algorithms with a clearly identified potential impact through integration and use in important applications.*

*The Inno4scale expectation for the innovation studies:*

*Demonstrate the potential to be integrated into important applications, addressing relevant use cases with a broad user base.*

*Provide a list of applications frequently used on HPC systems with typical use cases which could substantially benefit from the proposed solution including an estimate of the reduction of time-to-solution for the use cases.*

# Baseline performance and means of verification of the improvements

(Guideline: 1 page)

*The Inno4scale expectation for the innovation studies:*

*Clearly demonstrate significantly superior performance compared to existing solutions and exploiting the specific capabilities of exascale supercomputers by recovering compute or improving substantially time-to-solution and energy-to-solution for important use cases, possibly across scientific domains.*

# Description of the work plan

(Guideline: 2 pages)

*Present a credible and convincing plan to achieve a first proof-of-concept implementation and demonstrate the feasibility of the work plan, in terms of quality and efficiency. Present a clear and sound financial management of the study.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experiment Title** | | | | | |
| **Participant short name** |  |  |  |  |  |
| **Role** |  |  |  |  |  |
| **Description:** | | | | | |
| **Workplan**  **Task 1 Task name**  Task description.  ***Deliverable****: Deliverable short description (Experiment Month MM (i.e. within months 1 to 12 of the innovation study))*  *…*  **Task N Task name**  Task description.  ***Deliverable****: Deliverable short description (Experiment Month MM (i.e. within months 1 to 12 of the innovation study))* | | | | | |
| **Impact and Outputs**  *(Output = concrete results from the study, such as, but not limited to, software releases, user workflows, experience reports, performance results*  *Impact = explanation of the use of the innovation study results, enhanced capabilities of target applications, etc.)*  The output of the experiment will be:  The results of the experiment will be … | | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Participants and effort** | | | | | | | |
| **Participant** |  |  |  |  |  | **TOTAL** |
| **Task 1 effort (PM)** |  |  |  |  |  |  |
| **…** | … | … | … | … | … | **…** |
| **Task N effort (PM)** |  |  |  |  |  |  |

*PM = Person Months*

*If the proposal involves use of data covered by the EU General Data Protection Regulation or national regulations implementing these, this should be raised, and adequate protection measures for these should be specified.*

*Risks affecting the success of the technical activities should be briefly characterized, and mitigation measures discussed, where applicable.*

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

(Guideline: 1 page)

*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 innovation study, to carry out the assigned tasks. The description of the consortium (for the innovation study) 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). Each participant should have a significant and well-justified role.*

*The Inno4scale expectation for the innovation studies:*

*Involve a balanced and appropriate consortium which: Includes all necessary parties required for the effective and efficient execution of the proposed study; Involves at most 3 organisations, each of which is assigned at least 6 person months of effort.*

# Justification of costs and resources

(Guideline: 1 page)

*Cost breakdown per Participant according to funding rules for Third Parties. The total requested funding may not exceed € 200,000. The total effort for the study may not exceed 24 person months.*

*(The table below is an embedded spread-sheet, please use it, by double-clicking the table, to input your data. The data in the spread-sheet is purely for illustration purposes)*



*The Inno4scale expectation for the innovation studies:*

*Involve a balanced and appropriate consortium which: Includes all necessary parties required for the effective and efficient execution of the proposed study; Involves at most 3 organisations, each of which is assigned at least 6 person months of effort.*

*Proposals that do not meet those expectations should clearly justify the construction of the proposed consortium in terms of effectiveness of the workplan and quality of the expected results.*

*Costs for subcontracting and other direct costs, including computing costs need to be clearly explained. Indirect costs are to be calculated as 25% of direct costs (i.e. personnel costs + other direct costs).*

*Successful proposals will be encouraged and assisted to obtain access to exascale technology for their development purposes, notably through the Benchmark and Development Access calls for the EuroHPC JU systems, in order to test and implement their algorithm concepts and/or novel solutions. Other or additional computing costs should be scoped, in terms of the required core hours, and assigned under “Other Direct costs” The need for the requested computing resources should be substantiated.*

1. Please provide an acronym for the proposal alongside the title [↑](#footnote-ref-1)
2. See the Inno4scale Call-2023 Announcement and Proposers Guide for a TRL definition [↑](#footnote-ref-2)