ACADEMY OF FINLAND

RESEARCH, DEVELOPMENT AND INNOVATION PROGRAMME ICT 2023: INNOVATION, BUSINESS AND SUSTAINABILITY IN AND WITH SOFTWARE

Research, development and innovation programme ICT 2023

The research, development and innovation programme ICT 2023 is jointly coordinated and funded by the Academy of Finland and Business Finland (formerly Tekes, the Finnish Funding Agency for Innovation). The aim of the programme is to further improve Finland's scientific expertise in computer science and to promote the extensive application of ICT. The programme is based on the report 21 Paths to a Frictionless Finland by the ICT 2015 Working Group.

At least 10 million euros of the Academy's budget authority for 2018 will be used to implement the ICT 2023 programme. Business Finland will not open a parallel call for business-related projects, but funding is available under this theme through Business Finland's normal application process (see www.businessfinland.fi/en/for-finnish-customers/services/funding/in-brief).

Innovation, business and sustainability in and with software

Software is pervasive – turning every business into software businesses. The digital transformation has resulted in a situation where software provides fuel for companies in their quest for scalability, innovative products, improved quality and, in general, more agility. This has made software-related capabilities a key competence in almost any field of industry. Consequently, the design, development and management of software and software-based businesses will become increasingly critical competitive factors for the Finnish economy.

The digital transformation of businesses and society makes ecosystems grow large in scale and complex in nature, and so does the software in supporting them. New methods, tools and design and management principles are needed, which calls for both applied and basic research on fundamentals of software to keep Finland in the forefront of the digital economy. The private sector is in urge due to global competition for business competitiveness. However, the public sector also calls for ever-increasing improvements in productivity. Software is the core catalyst in this digital transformation driving innovation, business and sustainability.

This thematic call seeks project proposals in all areas that have an impact on how software is specified, constructed, analysed, tested, validated, verified, reused and deployed. The call is interpreted widely, covering a wide spectrum of software research from practical mechanisms to theoretical underpinnings and principles. The key topics of this thematic call are:

- development, maintenance and reuse approaches and assessment methods, for example methods for specification, design, implementation, prototyping, testing, verification, validation and diagnostics
- infrastructure that supports software development, deployment, and (re)use, such as virtualisation, software runtimes, build-in security, test automation and continuous software engineering
- management of software engineering, development and operations, including organising software engineering, scaling agile/continuous software engineering processes, managing software ecosystems, fostering innovation in software, embracing sustainability in software engineering practices.

How applications are reviewed

In making funding decisions, in addition to the Academy of Finland's general review criteria for research programmes (see Review criteria on our website), particular attention will be paid to the following issues:

- international engagement
  - attracting top-level young, talented researchers from abroad to Finland or hiring researchers who have recently come to Finland to work on the project
  - research visits by Finnish researchers to leading-edge foreign universities and research institutes
- business collaboration
  - cooperation between universities, research institutes and business companies
  - problem-setting in research
  - application potential of results
- intersectoral mobility of leading-edge researchers
  - mobility from universities to business companies
  - mobility from business companies to universities
- use of universities' and research institutes' own resources to carry out research
  - use of resources of the site of research and the partners
  - level of commitment and funding contribution by the site of research.

The applications will be reviewed by an international panel of experts. The reviewers will use the Academy's review form for Academy Programme/Targeted call.

There will be two threshold ratings in the evaluation:

If an application does not receive at least rating 4 on the scale from 1 to 6 for evaluation item "Project's relevance to the programme/call, the review will be discontinued and the applicant will only receive feedback on evaluation item "Project's relevance to the programme/call".

If an application does not receive at least rating 4 on the scale from 1 to 6 for evaluation item "Scientific quality and innovativeness of research plan", the review will be discontinued and the

applicant will receive feedback only on evaluation items "Project's relevance to the programme/call" and "Scientific quality and innovativeness of research plan".

Consortium applications

If the applicant is a consortium, see detailed guidelines on our website under Guidelines for consortium application. Please note that consortium PIs can submit the consortium application only after all consortium subprojects have completed their applications. The non-negotiable call deadline also applies to consortia. Consortium compositions cannot be changed after the call deadline has expired. If the project involves business collaboration, see the detailed guidelines below.

Business collaboration

If the project involves business collaboration, that collaboration must be clearly indicated in the research plan. In addition, your application must also include a collaboration plan as a separate appendix.

Collaboration plan (only one plan regardless of the number of companies; no more than 3 pages):

- List all project parties.
- Describe the collaboration as well as the management and research duties included in the project.
- Describe the mechanisms by which the project will integrate all participating organisations and individual researchers.
- Describe, if relevant, the implementation of intersectoral researcher exchange.
- Define each PI's required input to the project, and justify why each party's expertise is necessary to achieve the project's objectives.
- Describe the complementary roles of the parties involved, and explain which research results can be jointly utilised by the participating companies.
- Describe the application potential of the results.
- Make sure that the collaboration plan's length and details are proportional to the size of the project. The plan should be extensive enough to ensure that the project parties will work together as one whole.

In the Academy's online services, enter as consortium parties only parties that are applying for funding from the Academy.

If the project involves business collaboration, please also see section 10.1 of the Academy's general conditions and guidelines for funding.

Programme coordination

The PIs of the projects are required to

- assume responsibility for and report on the scientific progress of the project and on the use of the funds in accordance with the Academy's instructions

- ensure that the whole research team attends all events organised by the programme coordinators, and facilitate exchange and cooperation between research teams in the programme

- take part in producing reviews, syntheses and information material around the programme, and actively disseminate information about the programme's progress and results on public and scientific forums.