

Research, Development and Innovation Programme ICT 2023: New ICT Solutions for Space Industry and Sectors Utilising Space-Based Data

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 with a view to further improving Finland's scientific expertise in computer science and promoting the extensive application of ICT. The programme is based on the report [21 Paths to a Frictionless Finland \(PDF\)](#) by the ICT 2015 Working Group.

At least 10 million euros of the Academy's budget authority for 2020 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 topic through Business Finland's normal application process ([see Business Finland, Funding services](#)).

New ICT Solutions for Space Industry and Sectors Utilising Space-Based Data

The space industry is undergoing a major transformation as more and more commercial actors have appeared alongside traditional governmental space operators, equipped with new technologies and new opportunities derived from them.

As a rule, the methods and solutions used in the space sector, such as applications used in low and high temperatures and challenging radiation environments, are designed to be robust and reliable to weather the challenging conditions.

Space technologies for remote sensing, telecommunications and positioning have progressed at a fierce pace in recent decades, opening up extensive benefits to serve the needs of several application areas, such as transport, agriculture and forestry, navigation, environmental monitoring, emergency and rescue solutions, space science and research, and the design of the built environment.

The field is undergoing a transformation and there is demand for the miniaturisation of sensors and new, intelligent IT solutions that increasingly exploit the opportunities of space-based data for society's various needs, from export industry to scientific advances.

Space-based big data comprise both satellite images and a range of sensors and radio signals. Intelligent methods must be developed for both the generation and utilisation of space-based data to accelerate the transformation and ensure its sustainability. New ICT solutions for the space sector will facilitate a disruption of the processes and operating methods of the space and user segments by using satellite-generated data.



ACADEMY OF FINLAND

The aim of the ‘New ICT Solutions for Space Industry and Sectors Utilising Space-Based Data’ call is to explore new ways of producing data from space and to develop new methods for analysing that data.

Examples of research topics:

- high-reliability software solutions and systems (both up-stream and down-stream)
- critical equipment for challenging conditions
- new techniques for satellite remote sensing
- signal processing for satellite positioning and accurate
- timing machine learning and image processing
- utilisation of artificial intelligence for analysing large amounts of satellite data, including climate, environment and natural resources data
- space-related IoT solutions
- satellite communications and radio technologies
- processing of geoinformation
- geospatial technologies
- IT solutions to combat climate change with space data
- systems for Arctic conditions.

The projects to be funded can explore and develop methods for the use of space-based data in a wide range of application areas and in solutions for receiving space-based data. The projects may also develop instruments, sensors and sensor systems and the intelligent use of the spectrum and explore new methods for satellite software and management as well as for data processing.

How the application is reviewed

The applications will be reviewed by a panel of international experts. Read the review questions that will be used in the review: [ICT 2023 review form \(PDF\)](#). Two threshold values will be used in the review:

- The threshold rating for the ‘Project’s relevance to the programme/call’ item is 4 on a scale from 1 to 6. If an application fails to meet this rating, the review will be discontinued and the applicant will only receive feedback on that item.
- The threshold rating for the ‘Scientific quality, novelty and innovativeness of the research’ item is 4 on a scale from 1 to 6. If an application fails to meet this rating, the review will be discontinued and the applicant will only receive feedback on two items: ‘Project’s relevance to the programme/call’ and ‘Scientific quality, novelty and innovativeness of the research’.

In addition to the general review criteria of Academy research programmes, 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.

Consortium applications

If the funding is applied for by a consortium, read the [guidelines for consortium applications](#). The consortium application is submitted by the consortium PI only after all subprojects have completed their applications. The non-negotiable 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 business collaboration plan as a separate appendix.

Business 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, also read item 10.1 in the Academy of Finland's funding terms and conditions.

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.