



FLAGSHIP PROGRAMME

2018–2026

The northern fleet of excellent science, successful collaboration and solutions for tomorrow

The Finnish Flagship Programme provides a new, unique way of doing R&D&I in Finland. Substantial, long-term funding is granted for large ecosystems, Flagships, each operating in their specific field.

The Programme promotes active collaboration between research, business and society in the field of each Flagship. This supports future knowledge and know-how, and helps to create solutions to societal challenges, develop new business opportunities, and contribute to sustainable growth.

Attractive, large ecosystems and hubs for excellent people with high ambitions

THE FINNISH FLAGSHIPS REPRESENT

- effective mix of **cutting-edge research**
- **long-term plan**
- versatile **societal impact** e.g. in support of sustainable growth and development
- close **collaboration** with business, industry and society
- high ambition level
- excellent working facilities, infrastructures and **strong commitment** from host organisations
- **high-quality research and proven impact**, peer-reviewed by an international panel of experts and selected by the Academy of Finland, Research Council of Finland.

Finnish strengths

- A high-class education and research system
- High quality research environments, including infrastructures
- Strong collaboration and innovation culture
- Continuous investments in R&D
- Gender equality



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THE FINNISH FLAGSHIPS

– BREAKING THE ICE FOR A BETTER FUTURE

INVEST

– Inequalities, Interventions and New Welfare State

The **INVEST** Flagship aims at improving wellbeing and skills development among Finnish children, young people and early adults. INVEST will provide a new model for the welfare states that is more equal, better targeted to problem groups, more anticipatory as well as economically and socially sustainable. Based on cutting-edge research on the conditions and mechanisms involved at different periods of development, INVEST will evaluate and develop various universal and targeted interventions to improve the efficiency of the current welfare state institutions at critical points of the early life course.

Director: Professor **Jani Erola**, University of Turku

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Researchers: 200



PREIN

– Photonics Research and Innovation

The **PREIN** Flagship brings together actors of the Finnish photonics ecosystem in an integrated network that covers the whole innovation chain from fundamental to applied research up to commercialisation of disruptive light-based technologies. Our research and technology developments have a wide range of applications in telecommunications, biomedicine, healthcare, energy and environmental engineering, manufacturing and consumer products.

Director: Professor **Goëry Genty**, Tampere University

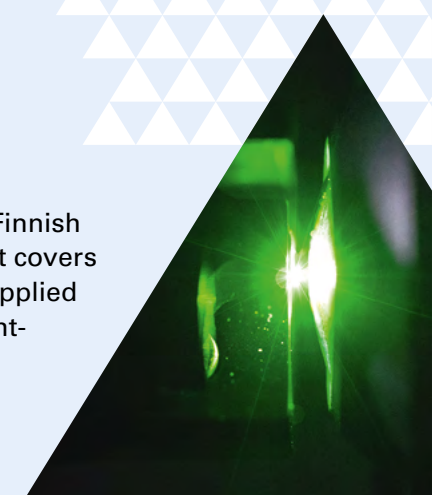
Host organisations: Tampere University, University of Eastern Finland, Aalto University and VTT Technical Research Centre of Finland Ltd

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Researchers: 350



6G Flagship

– 6G-Enabled Wireless Smart Society & Ecosystem

The **6G Flagship** is a global leader for envisioning and defining a 6G-enabled digital world towards 2030, aligned with the UN SDGs, where the physical and virtual worlds meet and wireless connectivity expands to all areas of life. For this purpose, 6G Flagship's experts develop fundamental 6G technology components, novel wireless solutions and business approaches in four interrelated research areas: wireless connectivity, device and circuit technologies, distributed intelligent computing, and sustainable human-centric services and applications. The programme partners with numerous stakeholders for 5G adoption and 6G co-creation, which opens new business opportunities and paves the way for a sustainable data-driven society enabled by near-instant, unlimited connectivity.



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FCAI

– Finnish Center for Artificial Intelligence

The mission of the **FCAI** Flagship is to create real artificial intelligence for real people in the real world.

FCAI creates new types of AI tools for AI-assisted decision-making, design and modelling. The research is based on top-tier expertise in machine learning, especially probabilistic modelling and deep learning, and on multidisciplinary collaboration with experts from other fields. The activities span a wide spectrum of fields and include versatile training and cooperation with industry.



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FinnCERES

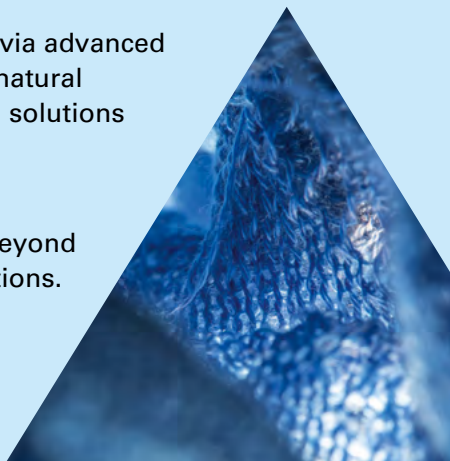
– Competence Centre for the Materials Bioeconomy

The **FinnCERES** Flagship is redefining bioeconomy via advanced bio-based materials. Our mission is to harness the natural properties of lignocellulose to create novel material solutions for sustainable growth.

Our research covers four thematic areas: future biorefineries, clean air and water, lignocellulosics beyond plastics, and electronics, optics and energy applications.

Our work uncovers answers to fundamental questions on lignocellulose disassembly and reassembly to address the main challenges of our century related to resource sufficiency and climate change.

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UNITE

– Forest-Human-Machine Interplay – Building Resilience, Redefining Value Networks and Enabling Meaningful Experiences

The mission of the **UNITE** flagship is to make Finland the leader in applying forest-based bioeconomy know-how, geospatial technologies and gamification to support human wellbeing globally. UNITE makes use of new sensor and measurement technologies to determine the structure and functionality of the forest ecosystem and produces agile methods for processing forest (big) data. It also aims to develop smart decision support and the forecasting of forest development as well as the management of spatial data and uncertainties in forest calculations. The Flagship's researchers will also use gamification to develop gameful forest interactions and virtual reality approaches for enhancing human-nature interplay both in the real world and in virtual environments.

The Flagship brings together world-leading research teams in forest sciences, geospatial technology and gamification. The cooperation will support the creation of a biosociety that will provide a sustainable, rich and meaningful living for generations to come.

Director: Professor **Jyrki Kangas**, University of Eastern Finland
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ACCC

– Atmosphere and Climate Competence Center

Using multidisciplinary research and comprehensive research data, the **ACCC** Flagship will create opportunities for Finland, the European Union and the world to reach the Paris climate targets. The Flagship aims to promote adaptation to climate change through sustainable, cost-effective and research-based solutions. The objective of the Flagship is to mitigate climate change by increasing forest and soil carbon sequestration and to improve global air quality.

The collaboration with the business sector will help create new practical solutions, such as atmospheric measurement instruments and climate and air quality analysis services. The Flagship's key company partners represent the business auditing, energy, transport, technology, food, agriculture and forestry sectors.

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iCAN

– Digital Precision Cancer Medicine Platform

The **iCAN** Flagship is a discovery platform integrating molecular and digital approaches for improved treatments for cancer patients. iCAN builds on highly acclaimed precision cancer medicine research and connects this with the ongoing digital health revolution, leveraging on Finnish strengths including longitudinal and digital healthcare registries. The iCAN Flagship is a globally unique public-private partnership integrating deep molecular profiling with extensive dynamic digital health data for thousands of samples– keeping the patient in the focus at all levels. iCAN provides engagement opportunities for partners – small and large - in pharma, digital, and healthtech sectors, leveraging on the Finnish regulatory framework supportive of health research and innovation.

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Researchers: 300



InFLAMES

– Innovation Ecosystem Based on the Immune System

The overall goal of the **InFLAMES** Flagship is to integrate the immunological and other research activities to develop and exploit new diagnostic and therapeutic tools for personalised medicine. The Flagship produces breakthrough knowledge on immunological principles and diseases and will be the biggest immunological R&D cluster in Finland serving the needs of the whole country. Its expertise in immunology together with exceptional study cohorts and digital health registers makes the Flagship an attractive partner for diagnostic and pharmaceutical companies.

Through new initiatives, the Flagship will promote collaboration between academia and the business sector, create new business opportunities and boost the commercialisation of discoveries made in laboratories.

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GeneCellNano

– Gene, Cell and Nano Therapy Competence Cluster for the Treatment of Chronic Diseases

The **GeneCellNano** Flagship develops new biological drugs, so-called ATMP products, biomarkers and diagnostics for common chronic diseases. The objective of the Flagship is to significantly increase domestic and foreign funding for gene, cell and nanotechnology and to introduce new effective treatments for severe chronic diseases. The aim is also to create new jobs and businesses in the biotechnology and pharmaceutical sectors. This will contribute to the development and economic welfare of Finnish society.

The Flagship brings together all of Finland's leading gene, cell and nanotherapy researchers, clinical operators, companies and third-sector actors. The cooperation will create a new kind of ecosystem that combines public and private actors and has excellent opportunities to become an international leader in a rapidly developing sector.

Director: Professor **Seppo Ylä-Herttuala**, University of Eastern Finland
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