



Summaries of the PROFI 5 final reports Profi 5 -loppuraporttien yhteenvedot

Aalto University

Funding 10 400 000 euros

Summary

Profi5 focused on three spearheads building on our research strongholds within the key research areas. The themes were Autonomous systems, Data-driven society, and Powering the future.

Profi5 funding was used to strengthen research excellence by recruiting 52 tenure-track professors and 27 other professors in Profi5 profiling themes. Profi 5 also supported the setting up of the Energy platform.

Aalto has positioned number 1 in Finland in relevant rankings specific to all Profi5 research areas. Our advancement in research excellence is also reflected by our ability to win significant competitive research funding, such as ERC grants, flagships, the coordinated Centre of Excellence in High-Speed Electromechanical Energy Conversion Systems and the BATCircle 2.0 initiative. We also established the Aalto Center for Autonomous Systems (ACAS).

The MNCS indicators show that the citation impacts of publications by Aalto staff in Profi5 areas are 33-44% above the world average. Top10% indicators demonstrate that a remarkable share of publications in Profi5 areas (14-19%) belong to the 10% most highly cited publications in the world.

Profi5 activities also supported collaboration with our strategic partners, such as VTT, TAU, the Unite! and Nordic 5 Tech alliances, Hanken and many companies.



Hanken School of Economics

Funding 500 000 euros

Summary

The Profi 5 researchers have had impact on the academic community and our understanding of societies. To highlight some topics, Profi 5 resulted in publications on topics including gender disparities, cryptocurrency and comprehension of markets in the context of contemporary technological advancements, cognitive abilities of others affecting social interactions such as co-operation or co-ordination scenarios, and even COVID-19 vaccinations from societal and economics perspectives.

Profi 5 was developed in parallel with Hanken's research strategy and the two informed each other. The profiling area eventually selected as one of the thematic areas of strength of Hanken at the same time, and significantly contributed to developing Hanken's research. It was instrumental in bringing together researchers from consumer behaviour and behavioural economics. It will have several lasting effects on the university and beyond:

- Spearheading the Behavioural Economics research group at Helsinki GSE is set to continue research in the area, and to also integrate consumer behaviour research with economics at Hanken and beyond. This research group has already attracted further funding to the university, and strengthened the collaboration with Aalto University, University of Helsinki, and VATT.
- New recruitments are expected to contribute to the flourishing of the research related to the profiling area.
- The establishment of the new research infrastructure Helsinki Labbet will continue to support the implementation of research that requires randomised controlled trials in behavioural and social science.



Lappeenranta-Lahti University of Technology LUT

Funding 1 100 000 euros

Summary

Our profiling in accordance with LUT's strategy, LUT 2030 System Earth, has been to enhance the systemic approach to global challenges, sustainability and responsibility and impact, as well as society's resilience. All PROFI 5 funding received was allocated to the air in our new profiling area at the time. With LUT University's strategic research solutions for clean air, we have sought to find and further develop solutions to remove emissions from the atmosphere and convert emissions into a usable form. We have developed the hydrogen economy and have created a revolutionary power-to-x technology that can solve much of the challenges of the entire energy and food production system. Currently, the Air Research Laboratory studies carbon capture and storage, power-to-x technology, as well as hydrogen storage, air pollution, gas film separation, catalysts, and industrial-scale gas separation. The new laboratory will feature state-of-the-art analytical laboratory equipment. They have become diverse as LUT University is home to Finland's largest academic research unit focusing on separation and purification technology. The laboratory has expanded our capabilities and opportunities to collaborate with multidisciplinary research groups worldwide. We will continue to build an international centre of excellence that is important in the long term; in particular, the gas separation laboratory will accelerate research into clean air and clean energy. In turn, research contributes to the UN Sustainable Development Goals (SDGs), such as health, sustainable economic growth and development, innovation and climate action.



University of Eastern Finland

Funding 4 000 000 euros

Summary

The strategies of the University of Eastern Finland for years 2015-2020 'Interdisciplinary solutions' and 2021-2030 'Seizing a Sustainable Future' call for multidisciplinary research to solve global challenges in UEF's profile areas. With PROF15 funding UEF has strengthened the research foci in three profiling areas: 1) In the CULTCHANGE (Cultural encounters, mobilities and borders) profiling area, we developed research focus to meet the current development in society, i.e. the challenge of Social-cultural (re)borderings in Europe. 2) In the HEALTHLIFE (Ageing, lifestyles and health) profiling area, we have continued our previous actions towards Precision medicine in cardiovascular and metabolic diseases. 3) In the SUSTENVIRON (Environmental change and sufficiency of natural resources) area, profiling actions strengthened expertise on Aerosols, climate change and human health. UEF has done 18 new recruitments to strengthen research activities and has established strong national role in these areas. UEF's research assessment panel have been evaluated research in these focuses to be of excellent and outstanding quality in international context in 2023. Two of these PROF15 areas are partners in two Finnish Flagships in Atmosphere and Climate Competence Center (ACCC) and Gene, Cell and Nano Therapy Competence Cluster for the Treatment of Chronic Diseases (GeneCellNano).

**University of Helsinki**

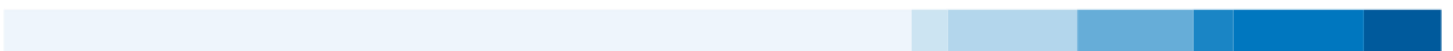
Funding 14 700 000 euros

Summary

FinPharma has enabled a new era of regenerative medicine in Finnish pharmaceutical research by forming an internationally recognized network. This effort has supported the renewal of pharmaceutical research, considerably enhanced research infrastructure, and aimed to develop top professionals and foster strong business collaborations, innovation valorisation, and the distribution of research outcomes across society.

Mind and Matter (M&M) has consistently supported the values of the university by pursuing new knowledge and promoting high-quality research and teaching. By gathering leading experts from various disciplines, M&M has focused on evolving concepts like matter, consciousness, information, and intelligence. This has included both technological and basic research. The key impact of the profiling area includes establishing new research directions, long-term planning, stable funding, and robust national and international partnerships.

Thriving Nature has both strengthened existing research areas and enabled rapid advancements through its emphasis on interdisciplinary themes, joint appointments, and innovative, transparent support mechanisms. Researchers have bridged basic biological processes with translational practices, an increasingly important endeavour as both natural and domesticated species face significant challenges from environmental change.





University of Jyväskylä

Funding 4 000 000 euros

Summary

The Strategy of the University of Jyväskylä (JYU) sets the ambitious aim of being an internationally renowned multidisciplinary research university and one of the world's leading universities in the fields of learning and teaching by the year 2030. The results and implementation of the profiling actions in all the profiling rounds have been one of the key drivers to this renewed JYU strategy called "Wisdom and wellbeing for us all".

JYU selected three profiling actions in Profiling round five, directly linking JYU strategy and vision to the core fields and previous profiling actions. These actions are seeking answers to even more acute problems than were envisaged five years ago, when these actions started. "Multiliteracies for social participation and in learning across the life span (MultiLEAP)" studies the problems in the society and extends the discussion to diversity and equality. "Physical activity through life-span (PACTS 2)" tackles the effects of activity from childhood to old age both in terms of physical and psychological aspects. "Fundamental interactions in Physics" deepens the knowledge of the atoms and the origins of the universe to the smallest details of the quantum world.

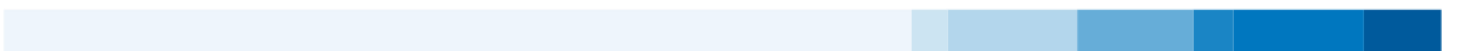
The tremendous impact which JYU achieved with these profiling actions, has been based on carefully implemented recruitment plans to further increase the number of leading researchers in the JYU core research areas. Commitment, support for the necessary infrastructures, and resources from the university itself were essential in ensuring impact, e.g. JYU allocated funding for each of the profiling areas for doctoral students, initiated programs for International Visiting Scholars, and to support Open Science in many ways. International conferences, seminars, community events, and summer schools have been channels to disseminate and publish research results. The number and level of peer reviewed international



Research Council of Finland

publications, research projects, and national and international collaboration activities have substantially increased during the profiling period 2019-2023.

These actions of the three profiling areas have led for instance to: 1. realizations on different ways to learn both in the childhood and at work, as well as how Artificial Intelligence can be utilised in learning; 2. findings on quark matter and dark matter extends the knowledge of the universe; 3. gut microbiota analysis revealed that combinations of diet, and physical activity can be connected to well-being in general, and also specific to fatty liver disease and some cancers, leading to more personalized treatment options.



**University of Lapland**

Funding 500 000 euros

Summary

The University of Lapland Profi5 funding was split between two interdisciplinary profiling areas: Welfare Law, and Responsible Tourism Planning. The limited funding supported partially two professorships in Welfare Law. In addition, the funding supported directly the national and international collaboration of the researchers in these areas and wider societal interaction with professional communities, local municipalities, national and international companies, various operators and stakeholders, ministries and other operators in the public sector. Multiple seminars and events were arranged with the support of the funding. The funding has enabled the consolidation of these research areas at the University of Lapland and provided seed money for future research, resulting in publications both to academic and wider audiences, as well as national and international research projects. In the area of Welfare Law, the funding has also enabled societal impact towards the development of the future social and healthcare service sector.



University of Oulu

Funding 6 550 000 euros

Summary

The University of Oulu (UO) has meticulously continued to craft a scientific profile, showcasing its prowess, and employing interdisciplinary methodologies to address global challenges. In Profi5, UO focused on three strategic profiling areas committed to cutting-edge research and innovation.

'DigiHealth - Digitalized Solutions for Future Healthcare' tackles the accessibility and effectiveness of health and well-being services. DigiHealth researchers form a cohesive community that actively collaborates with scholars in Finland and beyond. This collaboration is reflected in the consistent rise of research publications and the successful securing of national and EU's research funding.

'InStreams - Inorganic Side Streams: From Basic Research and Technology Development to Sustainable Value Chains', within UO's research focus area on 'Sustainable materials and systems,' has evolved into a powerhouse. It champions cross-disciplinary inorganic materials research and fosters global collaborations. The profound impact of InStreams is evident in elevated research success, increased publications, amplified funding, and the transformative translation of scientific insights into practical solutions.

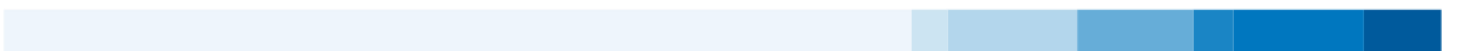
Specializing in dynamic data modelling, 'HiDyn - Data Insight for High-Dimensional Dynamics' is a key player in UO's scientific profile. Conducting research through interdisciplinary study groups, HiDyn has established a model for seamless multidisciplinary collaboration within UO, integrated into the latest Profi 6 and 7 themes. Furthermore, HiDyn contributes to other UO focus areas by sharing methodological expertise in data science and artificial intelligence across diverse research domains.

**University of Tampere**

Funding 3 900 000 euros

Summary

Sustainable Welfare Systems program (SWS) has been instrumental in practical implementation of Tampere University's (TAU) strategic focal area, "The Future of Wellbeing". Together with the TAU research platform "Transform", SWS has helped TAU to consolidate its profile as the leading Finnish university in the realm of health and social wellbeing systems. This consolidation of the profile has led to a significant increase in high quality research outputs, concrete immediate societal impact.





University of Turku

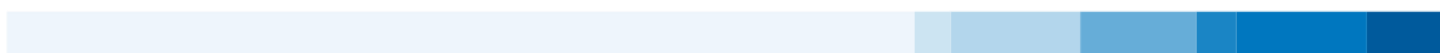
Funding 3 400 000 euros

Summary

The PROFI5 funding has supported the University of Turku's strategic principle to conduct cutting-edge basic research at the highest international level in order to tackle current and future complicated, multifaceted and multidisciplinary global problems.

The profiling measures directed to Drug development and diagnostics, Children, young people and learning and to Cultural memory and social change shared the three following crucial aspects arising from UTU's strategy: research data, open science and career paths. The aims to be reached with the help of the Research Council of Finland PROFI5 funding were to offer support for these three areas by ensuring the continuation of the cutting-edge, internationally first-class science, speeding up UTU's profiling with novel, targeted actions and implementing UTU's strategic goals related to multidisciplinary approach, data infrastructure and career paths and proceeding with the Scholars at Risk initiative.

These goals have been achieved by recruiting new professors and tenure track professors, intensifying existing high standard research, establishing interdisciplinary collaborations both internally and externally and by strengthening research environment and infrastructures.



**Åbo Akademi University**

Funding 950 000 euros

Summary

The funding was used to procure key instrumentation and personnel resources to further the research quality within the profiling areas. The funding has supported Åbo Akademi University's strategy and increased the level of research within the areas related to the profiles. This is particularly visible in the increased share of publications in highly ranked research publications. The profiling areas have been a key strategic focus, and they have especially furthered collaboration across subjects and disciplines, and have involved collaboration across humanities, social sciences, technology, and natural sciences. The networking activities within the profiles have further strengthened ÅAU's position as a Nordic university as defined in the strategy as well as increased knowledge through multiple approaches to the wicked problems we face today. Research within the profiling areas has become increasingly networked internationally, as evidenced by the increasing funding from HorizonEurope, and larger national research instruments, such as the Inflammes flagship and the Centre of Excellence in Law, Identity and the European Narratives.