

WORLD-CLASS TESTBEDS FROM FINLAND

PLATFORMS FOR HEALTH
INNOVATIONS OF THE FUTURE

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FINLAND IS A GLOBAL INNOVATION LEADER

#1

PCT patents per origin¹

#1

in innovation internationally²

#3

In innovation linkages¹

3%

Of GDP, spending on R&D³ – a goal of 4% by 2030

**RESEARCHERS WORKING
IN R&D PER 1 MILLION⁴**

6,525

FINLAND

4,256

U.S.

¹ WIPO Global Innovation Index 2022

² Consumer Technology Association (CTA)TM Innovation Scorecard 2023

³ Eurostat 2022

⁴ World Bank 2023, 2017 or latest data available

FINLAND IS A GLOBAL LEADER IN RESEARCH AND INNOVATION

1

One of the leading countries in innovation & innovation champion.

The Consumer Technology Association (CTA)[™] 2019 & Bloomberg Innovation Index 2019

2

Ranked third in university and industry research collaboration.

Global Innovation Index 2020

3

Leading R&D investor with 2.8% of GDP, the sixth highest in Europe.

Eurostat 2020

4

Number one in intellectual property receipts (% of total trade).

Global Innovation Index 2020



FINLAND HAS UNIQUE ASSETS FOR R&D IN HEALTH

**STRONG
COMPETENCIES
IN BIG DATA
ANALYTICS & AI**

**EXTENSIVE
HEALTH DATA IN
REGISTRIES AND
BIOBANKS**

**CO-OPERATION
BUILT ON
PUBLIC-PRIVATE
TRUST**

**EXCELLENT LIFE
SCIENCES TALENT
POOL**

**WORLD-CLASS
MEDICAL
RESEARCH**

WHY COLLABORATE WITH A TESTBED

Simulated,
extremely realistic
treatment and care
environments

Feedback on
innovative ideas
and solutions under
development

Feedback on
users' experiences
of products
already on the
market

Providing
co-creation
platforms for
companies

Providing
training and
simulation
laboratories for
students

COLLABORATION IN TESTING, VALIDATION AND CO-CREATION



Testbeds can be both physical and virtual.

Different modern technologies and methods, like VR/AR, AI and digital twins are used in testing and prototyping.

Finland is the first country where the use of health data for secondary purposes is supported by legislation. This opens up interesting opportunities for developing novel applications.

TESTBEDS AS TESTING, VALIDATION AND CO-CREATION ENVIRONMENTS

Testbeds are authentic customer and expert environments that simulate real-life treatment or care situations

Different type of testbeds are provided by University hospitals, research institutions and communal primary- and home care.

Companies receive feedback on their ideas and solutions under development, in addition to users' experiences of products already on the market.

User experiences and clinical proof gained during experiments support design decisions and prototyping.

A scientist in a white lab coat is shown in profile, looking through a microscope. The background is a blurred laboratory with other people and equipment. The overall color scheme is blue and white.

**EXAMPLES OF PRIVATE
SECTOR COLLABORATION
WITH FINNISH TESTBEDS**

BREAKTHROUGH WRIST-WORN SOLUTION FOR CARDIAC ARRHYTHMIA DIAGNOSIS

HEALTH
TAMPERE

WHAT WAS TESTED?

Optical heart rate (HFR) technology company PulseOn's wearable innovative arrhythmia screening and monitoring solution with cloud-based monitoring was tested in Tampere University Hospital.

Several clinical investigations and usability studies were executed together with various departments at Tampere University Hospital including anesthesiology unit, vascular surgery ward, and department of neurophysiology.

WHAT ARE THE RESULTS?

Testbeds in Tampere area have helped PulseOn greatly throughout the company's journey as one of the first MDR certified products for cardiac arrhythmia diagnosis. These environments have offered a great testbed to the diverse needs of an agile medical start-up.

USABILITY AND USER INTERFACE TESTING FOR INFUSION THERAPY MONITORING



WHAT WAS TESTED?

Monidor needed feedback for the product development. Interesting questions were for example:

- Do you think the product is useful?
- In what kind of situations the product would be at its best?
- What are the most urgent development needs of the product?
- Would the product facilitate your work?
- Would you use the product?

WHAT ARE THE RESULTS?

The nurses gave highly positive feedback concerning the user-friendly user interface (UI) and small-sized product. The product development and the company management received valuable information for developing the product's next phase and its readiness for the market.



TESTED BY:
Oamk SimLab &
OYS TestLab

GAMIFIED STRENGTH TRAINING UTILIZING REAL-TIME TRAINING DATA

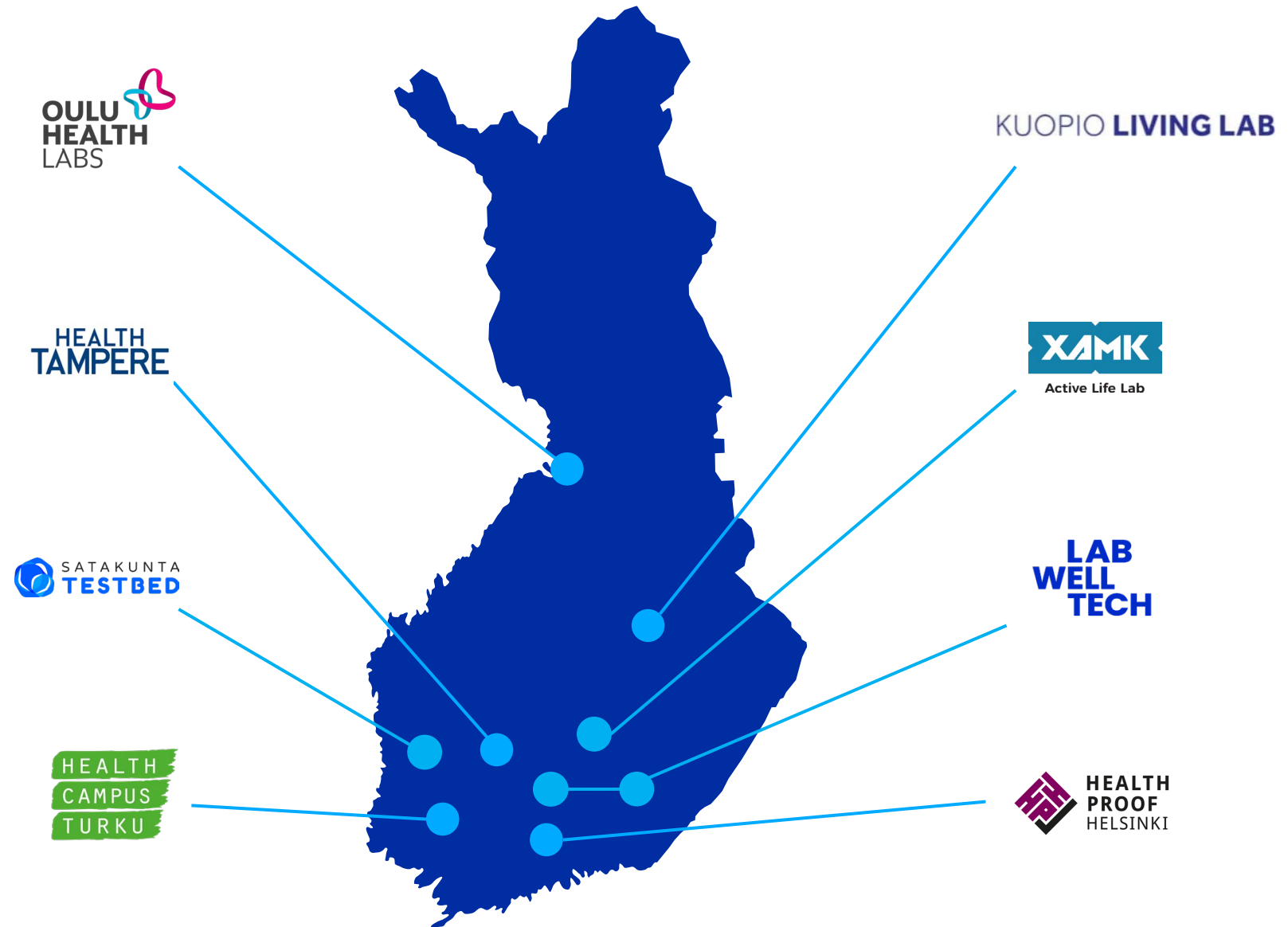


Active Life Lab

- **WHO** HUR Oy Ab provides world-leading training solutions for active ageing, rehabilitation and inclusive wellness.
- **WHAT** HUR Oy AB seeks to provide additional customer value from data-driven training concepts. For his purpose, Active Life Lab developed a combined strength & cognitive training concept and effectiveness research
- **HOW** Active Life Lab conducted a systematic literature search and published a systematic review of combined strength & cognitive training concept. To take the research into practice, Active Life Lab developed a custom application programming interface to access the real-time training data from HUR devices, and a pilot game which was based on the effective practices identified in the systematic review. Finally, Active Life Lab tested the concept in lifestyle counseling participant base.

[Frontiers | Strength-Cognitive Training: A Systemic Review in Adults and Older Adults, and Guidelines to Promote "Strength Exergaming" Innovations \(frontiersin.org\)](#)

8 HEALTHCARE TESTBEDS IN FINLAND





HEALTH PROOF HELSINKI

OUR SERVICE PORTFOLIO

Health Proof Helsinki is a collaboration of three major RDI environments: Metropolia University of Applied Sciences, City of Helsinki and Helsinki University Hospital. Together we can better serve healthtech and medtech company needs in product and/or service development, testing and validation path.

Our services include expert feedback and reports, usability studies, research, creating and testing prototypes and proof-of-concepts and much more. We aim to tailor our services depending on customer's needs and requirements.

OUR TESTBED FACILITIES

- State of the art simulation environments (for example: operating rooms, ICU, ambulance and much more)
- Public health and social service providers' onsite testing facilities
- Specialized care and diagnostics testbed services, data repositories, HUS Acaademic secure cloud environment for research and development projects (including AI projects)





HEALTH PROOF HELSINKI

OUR STRENGTHS

Situated in the capital of Finland, Health Proof Helsinki combines testing services of the three largest Finnish RDI entities. Together we are in the forefront of European research, innovation and development. With us companies are able to access modern simulation environments, get expert services from seasoned healthcare and other professionals in the field of AI, 5G, IoT and more.

HOW TO GET STARTED

Fill out the Health Proof Helsinki inquiry form on our website www.healthproofhelsinki.fi and the collaboration can begin.

Our pricing is tailored depending on the scope of testing and experts involved.

CONTACT

Eija Raussi-Lehto

Health Proof Helsinki coordinator

eija.raussi-lehto@metropolia.fi

+358 40 6300 988

www.healthproofhelsinki.fi



SATAKUNTA TESTBED

OUR SERVICE PORTFOLIO

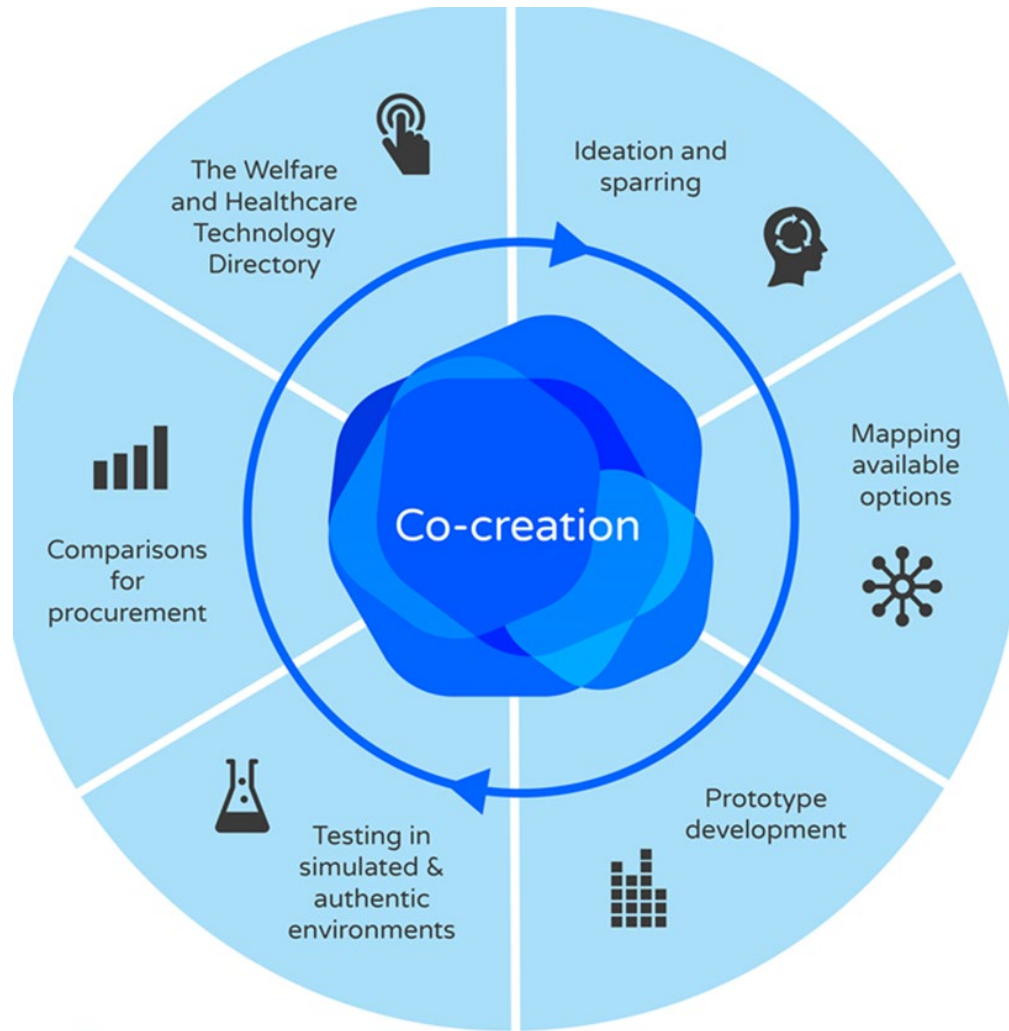
Satakunta Testbed is an innovative and professional platform for testing welfare and health technologies in the social and healthcare sector. We help companies in different phases of product and software development from ideation to clinical tests. We provide professional sparring, evaluation of the usability of prototypes, and testing in clinical environments.


Satakunta Testbed expertise consists of professionals of social and health care sector and academic, education and business world. We also work closely with a wide range of associations and other end-users of technology.

OUR TESTBED FACILITIES

We offer a large variety of testing environments:

- Simulation environments e.g. operation rooms, ambulance, home environment, ICU
- Clinical facilities of private and public health and social service providers
- Associations
- Teaching facilities
- Regional health data lakes and data repositories





Testbed
Activities in
Satakunta
since 2009

SATAKUNTA TESTBED

OUR STRENGTHS

We excel in helping social and healthcare organizations and technology companies achieve their goals and improve their products and services. We support the development of customer-driven welfare and health technologies and seek solutions to meet the individual needs of participating organizations.

Satakunta Testbed operates as a large consortium, uses a wide range of testing environments, and collaborates with an extensive user and partner network. The consortium includes public and private social and healthcare service providers, vocational and higher education providers, associations, as well as business development organizations.

HOW TO GET STARTED

If you would like to have your product or service tested, please contact us by using the form on the Contact page on our website. We process contact requests once a month. We will select the most suitable testing site from our extensive network and work out a testing plan with you. We prepare the necessary permits and contracts, coordinate the testing, collect feedback, and provide reports. We are systematic in our approach and aim to make the testing easy for both companies and testers. The main target is to produce information that can be used to improve your product.

CONTACT

Mervi Vähätalo

Testbed Coordinator

mervi.vahatalo@samk.fi

+358 44 710 3983

www.satakuntatestbed.fi



OULUHEALTH LABS

OUR SERVICE PORTFOLIO

OuluHealth Labs provides user-oriented development and testing services for companies through innovative, demand-driven co-creation model. With a track record of 150 executed test cases, OuluHealth Labs provides following services: 1) fast track feedback and feedback panel sessions with health and social care professionals, 2) prototype end-user trials and product trials, 3) prototype testing sessions, 4) rent-a-lab / launch-in-lab services, 5) 30-day trial / showroom services, 6) brainstorming sessions, 7) end-user-oriented research, and 8) simulation education.

OUR TESTBED FACILITIES

OuluHealth Labs consists of four different testbed facilities, which provide an integrated development environment and end-users' feedback for every phase of a R&D process. The purpose of these testbeds is to cover all healthcare services and patient paths. These testbeds are:

OYS TestLab - A testing environment for specialized health care products and services in Oulu University Hospital.

Oulu WelfareLab - A testing environment for primary healthcare products and solutions in social and healthcare centers and homes.

OAMK SimLab - A testing environment that provides simulated health and social environments in University of Applied Sciences.

Mittlab - A testing environment for medical imaging in Oulu University Hospital.

OULUHEALTH LABS

OUR STRENGTHS

OuluHealth Labs is a versatile co-creation platform that enables co-operation between health and social care providers, research and innovation organizations and companies. OuluHealth Labs is a part of OuluHealth ecosystem, that has a unique culture of collaboration along a broad spectrum: academia and researchers, social and healthcare providers, businesses, local government and citizens. The OuluHealth ecosystem is a world leader in using technologies, such as 5G/6G, IOT, AI, VR, AR and BigData, to develop health and life science innovations. This unique ecosystem enables diverse testing and piloting collaboration with different stakeholders.

HOW TO GET STARTED

To start the co-creation or testing process, companies can submit their proposals through [online-form](#). OuluHealth Labs consider these proposals in bi-weekly meetings and companies are contacted after that. For accepted proposals, OuluHealth Labs has structured procedures to organize and facilitate testing and co-creation processes. OuluHealth Labs price list can be found [here](#).

CONTACT

Timo Alalääkkölä

Manager of Testing and Innovations

timo.alalaakkola@ppshp.fi

+358 40 561 4390

<http://ouluhealth.fi/labs/>



OULU
HEALTH
LABS
Est. 2015



Oulu WelfareLab

Oamk SimLab

OYS TestLab

Mittlab



KUOPIO LIVING LAB

Kuopio Living Lab is a concept for product development and testing services formed by three expert organisations: Kuopio University Hospital (KUH), the City of Kuopio, and Savonia University of Applied Sciences.

KuopioHealth is an open innovation platform enabling co-creation and transfer of knowledge and technologies for the benefit of society.

OUR STRENGTHS

We offer excellent health technology competence, training, infrastructure and a business network for domestic and international health technology companies and innovators.

We make it possible for companies in the field of health and wellness technologies, and food to test the product in authentic customer and expert environments. We provide services to the companies at different stages of the product development from idea to market.





KUOPIO LIVING LAB

OUR SERVICES

- Expert appraisals
- Workshops
- Usability testings
- Feasibility assessments
- Consumer-insights mapping
- Development collaboration

HOW TO GET STARTED

Do you have a health technology product or service that needs to be tested in an authentic healthcare environment? Do you need to understand better your customers and consumers to develop or improve your food or other product?

- 1. Contact:** [Fill the contact form here](#)
- 2. Input:** Company information & Needs and expectations for collaboration
- 3. Response:** within 1 week, Initial feasibility check

CONTACT

Jouko Miettinen

City of Kuopio, Project Manager
[jouko.miettinen\(at\)kuopio.fi](mailto:jouko.miettinen(at)kuopio.fi)
+358 44 718 1851

Arto Holopainen

City of Kuopio, Chief Innovation Officer
[arto.holopainen\(at\)kuopio.fi](mailto:arto.holopainen(at)kuopio.fi)
+358 45 139 3996

<https://www.businesskuopio.fi/en/why-kuopio/livinglab/>



ACTIVE LIFE LAB

OUR SERVICE PORTFOLIO

Active Life Lab is specialized in investigating and developing effectiveness of health and wellbeing services, as well as validation and other testing projects. We provide a possibility to test the services (user testing, effectiveness, etc.) in people participating in municipal lifestyle counselling, screened based on elevated type 2 diabetes risk, and having participated in health testing at our laboratory as part of the close collaboration with the regional healthcare. By building the testing upon the existing and to-be collected data from a well-defined and reached target group, our testing service is cost-effective and relatively fast.

OUR TESTBED FACILITIES

Active Life Lab has approximately 700 square meter laboratory facilities surrounded by large exercise and event facilities, located in Saimaa Stadiumi, Mikkeli, Finland. The laboratory is equipped with state-of-the-art research-grade physiological and biomechanical equipment, as well as field testing capabilities.



ACTIVE LIFE LAB

OUR STRENGTHS

Our strengths include a multidisciplinary staff, covering expertise e.g. from exercise physiology, biomechanics, data analysis, service testing, commercialization, and a close collaboration with other university as well as healthcare testing capacities and support services. The core strength is the lifestyle counselling collaboration with regional healthcare, enabling easy reach of hundreds of at-type-2-diabetes-risk clients, who have given a consent to participate in research and development projects.

HOW TO GET STARTED

Please contact us at <https://activelifelab.fi> and directly by emailing us.

CONTACT

Arto Pesola

PhD, Active Life Lab director
arto.pesola@xamk.fi
+358 400 475 955
<https://activelifelab.fi>



TAMPERE HEALTH TESTBEDS

OUR SERVICE PORTFOLIO

Tampere Health Testbeds is a network consisting of the City of Tampere, Tampere Universities, Tampere University Hospital and healthcare sector companies located in the region.

We help actors find partners, to internationalize and provide networking possibilities in order to ensure that network's researchers, clinicians and companies succeed. Tampere Health Testbeds provides testbed services and approaches; multiprofessional expertise, testing and development environments for health technology products.

The testbed services include e.g. evaluations and validations for functionality, usability, general safety and performance. The safety and performance of a medical device in clinical use can be demonstrated in the testbed.

Our testbeds serve companies at every phase of the innovation process from the initial idea to product development and even to a ready product to test its features and performance.

OUR TESTBED FACILITIES

- Tampere centre for skills training and simulation
- Optical 3D-Imaging Microscopy
- VISAXIONA
- Finnish Clinical biobank
- FHAIVE (Finnish Hub for Development and Validation of Integrated Approaches)
- Laitetori
- Mass Spectrometry facility
- HEAT Lab – Health and Assistive Technology Laboratory
- TAMK Virtual Lab for Social and Health Care
- Regea Cell and Tissue Center



TAMPERE HEALTH TESTBEDS

OUR STRENGTHS

Tampere Health testbeds offers a versatile and flexible testing and training facilities in real and simulated environments to all sizes of companies and organizations. The services can be customized according to the needs and time schedules of the companies.

Tampere Health testbeds provide cutting edge development in medical technology, digital health and ICT, signal and image processing, bio(degradable)materials, regenerative medicine and tissue engineering. Tampere also has the best training facility for medical devices in Europe.

HOW TO GET STARTED

Tampere has a large testing and RDI-ecosystem and lots of opportunities to collaborate. Please contact us for more information.

CONTACT

Aino Salmi

Business Advisor

aino.salmi@business tampere.com

+358 407015598

<https://business tampere.com/business-environment/region-as-a-development-platform/testbeds-health-technology/>



HEALTH CAMPUS TURKU

OUR SERVICE PORTFOLIO

Health Campus Turku (HCT) is a multidisciplinary collaboration network that brings together all region's healthcare and life sciences related co-creation activities, and acts as a one-stop-shop for various services for small and large enterprises.

Network's focus areas are professional health and medical technologies (incl. diagnostics), drug development, biomedical imaging, and food.

Health Campus Turku facilitates birth of new ideas and brings them to life. In collaboration with Spark Finland, HCT supports research groups to solve complex healthcare and life sciences challenges with their expertise.

Prohealth Growth Programme helps new startups to mature their business ideas and grow into a stable business.

The network helps companies to create new products, and to improve their current ones with a bilingual network of scientific excellence. Network's research groups are available for companies in research and development activities.

OUR TESTBED FACILITIES

HCT testbed services cover healthcare and life sciences field as a whole; including simulated facilities for health technology usability assessment (Health Tech Lab), laboratory settings for human performance analysis (LiiLab), wide-ranging services for immunological research collaboration (InFLAMES), and clinical studies in the wellbeing services county of the Southwest Finland.

HEALTH CAMPUS TURKU

OUR STRENGTHS

Turku is the home of the headquarters of the European Euro-BioImaging (ERIC). The region also hosts the national PET Centre, cutting edge imaging facility.

The city of Turku is also the pharmaceutical capital of Finland with 21 of 22 Finnish drugs brought to market in Finland having been developed in Turku. The region is responsible of 70 % of Finnish drug exports and is the home of the National Drug Development Centre.

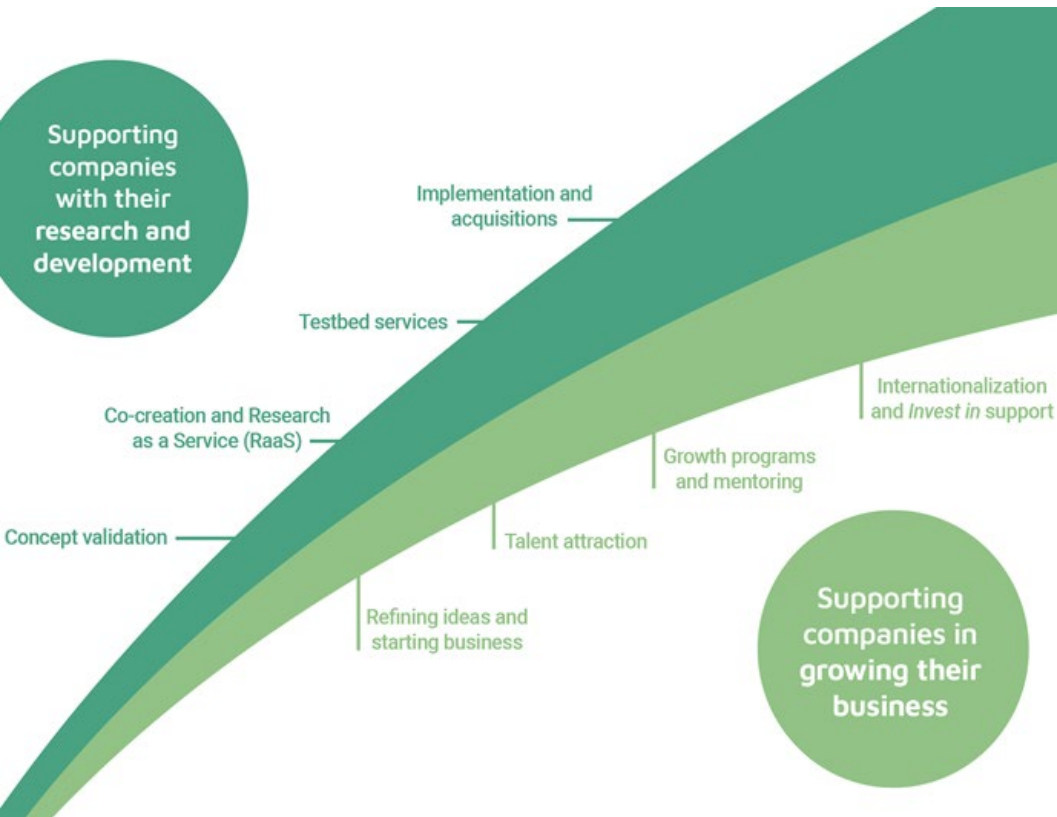
We are also leaders in healthcare data innovations. The first Finnish healthcare Digital Innovation Hub, Auria Clinical Informatics, is part of the Turku University Hospital. We are leaders in creating privacy-preserving synthetic healthcare data from operative patient data for research and development purposes.

European-wide Digital Innovation Hub (EDIH) operating under Digital Europe Programme is run from Turku, with the focus on Healthcare Data.

We are known for our cross-sectoral collaboration initiatives bringing together our region's other strengths, such as food, maritime, and clean technologies. Combining these strengths with health care and life sciences expertise creates new ideas that challenge the status quo; next generation hospital ships, change healthcare delivery, and sustainable new food products benefit security of supply, rich use of alternative proteins that contribute to consumer health and wellbeing.

CONTACT

For pricing, up-to-date service catalogue, and contacting, use our Collaboration Service [Terttu](#)



LAB WELLTECH



OUR SERVICE PORTFOLIO

We are an environment for the development and testing of new human-based well-being technologies. Our goal is to find ways to alleviate the growing workload of the health and well-being services sector through new technologies.

We help technology to adapt to the needs of the health and well-being sector, not the other way around, and support technology players in developing a version of their product that the social and health-care sector will buy and put into use.

OUR TESTBED FACILITIES

We are located in Lahti, Lappeenranta, and in virtual spaces.

We facilitate validations, tests, and developments in lab environments, simulation labs, real work, and in user experience. Our experts work closely with the welfare sector, end users, the third sector, and with our university partners.

LAB WELLTECH



OUR STRENGTHS

We provide companies with a wide range of expertise and tools with which to create the most user-oriented technology possible. As a university, we are highly recognized for our human-centered innovations and design thinking. Our goal is to develop technology that people want to use!

HOW TO GET STARTED

If you have an idea, concept, or a ready product or service, we will find the right way for cooperation. Our self-assessment model will guide you to the right tools, and we will assemble the right team to meet your challenges. Please find out more about our cooperation models on our website.

CONTACT

Sami Makkula

Team Lead

sami.makkula@lab.fi

+358 44 708 5215

www.labwelltech.fi



Euroopan unionin rahoittama –
NextGenerationEU

CONTACT INFORMATION

Terhi Rasmussen

Global Opportunity Leader,
Health & Wellbeing

+45 2054 9894

terhi.rasmussen@businessfinland.fi

Kari Klossner

Head of Program

+358 400 717 298

kari.klossner@businessfinland.fi

www.businessfinland.fi