



Nordic infrastructure of test facilities



Nordic
Innovation

Nordic infrastructure of test facilities

© Nordic Innovation – 2017

This report was produced by Finnsson & Co for Nordic Innovation

Layout: Finnsson & Co, www.finnsson.dk

Cover photo: Johannes Jansson / norden.org

Print: CopyCat Lysaker



Nordic Innovation
Stensberggt. 25
NO-0170 Oslo
+47 47 61 44 00
www.nordicinnovation.org

Index

6-7

Preface by Nordic Innovation

8-13

Improved testing infrastructure in Nordic healthcare

14-17

Nordic hospitals turn to new technologies

18-21

Establishing links between municipal care and businesses

22-25

NHS Test Beds are testing novel solutions to improve patient care

DENMARK

- 27 - Center for assisted living technology - City of Aarhus
- 28 - Center for Welfare Technology - City of Odense
- 30 - Centre for Welfare Technology North
- 31 - Copenhagen Healthtech Cluster
- 32 - The Department of Welfare Technology - Gladsaxe Municipality
- 34 - FORCE Technology
- 35 - Health and Care Administration - City of Copenhagen
- 36 - The Health Innovation Centre of Southern Denmark
- 38 - Idélinikken - Region of North Denmark
- 39 - LSI - Life Science Innovation North Denmark
- 41 - MTIC - MedTech Innovation Consortium
- 42 - Unit of Quality and Innovation
Department of Care for the Elderly and Disabled - Municipality of Aalborg
- 43 - One Point of Entry to Clinical Trials and Tests - Capital Region of Denmark
- 44 - Public Intelligence
- 45 - Vaeksthus Copenhagen
- 46 - VihTek - Capital Region of Denmark
- 49 - Welfare Tech

FINLAND

- 51 - Centre for Health and Technology - University of Oulu
- 52 - Emergency Services College
- 53 - Health Capital Helsinki
- 54 - City of Helsinki - Social Services and Health Care Division
- 55 - HUS Testbed
- 56 - Kalasatama Living Lab
- 58 - Kuopio Health - Open Innovation Ecosystem
- 59 - Kuopio University Hospital Living Lab - KUH Living Lab
- 60 - Kuopio Living Lab – City of Kuopio - Social and healthcare services
- 61 - OULLabs
- 62 - OuluHealth Labs – a testbed engaging patients and health professionals
- 64 - Satakunta Living Lab - Prizztech Ltd
- 65 - Savonia University of Applied Sciences - Kuopio HealthLab
- 66 - SGS Fimko Ltd – Part of SGS Group
- 68 - Tekes - The Finnish Funding Agency for Innovation
- 69 - TWICT - Turku University of Applied Science Living Lab for Wellbeing and ICT

ICELAND

- 71 - Akureyri Municipality - Living Lab
- 72 - City of Reykjavík - Department of Welfare
- 74 - Innovation Center Iceland
- 76 - Landspítali University Hospital
- 77 - Primary Health Care of the Capital Area – HH
- 78 - SI – The Federation of Icelandic Industries

NORWAY

- 80 - BTO - Bergen Technology Transfer
- 81 - InnoMed
- 82 - Intervention Centre - Oslo University Hospital
- 85 - Agency for Health – Oslo Municipality - The Living Lab method in Oslo
- 86 - Norway Health Tech
- 87 - Norwegian Smart Care Lab
- 88 - Operating Room of the Future (FOR) - St. Olavs Hospital
- 89 - Centre for Connected Care (C3)
- 90 - Oslo University Hospital - Department of Innovation
- 92 - Sunnaas Rehabilitation Hospital

SWEDEN

- 95 - Botnia Living Lab
- 96 - Experio Lab - County Council of Varmland
- 98 - Innovation Akademiska - Region Uppsala
- 100 - Innovation Skåne
- 101 - Karolinska University Hospital - Center for Innovation
- 102 - Interaction and Service Design research group – Linköping University
- 104 - MISTEL - Municipality of Västerås
- 105 - Nordic Medtest AB
- 106 - Örebro University - Norrlandicus method
- 107 - Region Norrbotten
- 108 - SLL Innovation - Stockholm County Council
- 109 - Testbed for elderly and disabled - Örebro
- 110 - Stockholm Living Lab - RISE SICS
- 111 - SVID - Swedish Industrial Design Foundation
- 112 - Test Environment Norrköping
- 114 - Testbed for the Elderly Care in the City of Malmö
- 116 - Unit for technology assessment, testing and innovation
Centre for Healthcare Development - Region Östergötland
- 117 - VINNOVA - The Swedish Governmental Agency for Innovation Systems

Nordic infrastructure of test facilities

Preface

Health, care and innovation enjoy a strong position in the five Nordic countries, who are all famous for offering world-class health and welfare products and services and to their citizens.

Often both patients and staff have been involved in the development process of these products and services, ensuring that they actually solve the needs of the users.

This can happen because several healthcare provider institutions across the Nordic countries, like hospitals and municipal care services, are offering companies and entrepreneurs facilities to test innovative solutions and prototypes in realistic settings.

Together with Tekes, Vinnova, Innovation Norway and Rannis, Nordic Innovation has funded three projects working with test facilities in hospitals and municipalities.

For companies in the health and welfare sector, it is important to test their ideas in a real life setting to get feedback from users and employees. By engaging in testing and implementation of new products and solutions, hospitals and care facilities can improve their innovation capacity and market overview. Together, these three projects have brought together some of the main institutions and actors offering test facilities to innovative companies.

However, they do not encompass everyone. With this publication, we aim to increase the overview of the Nordic infrastructure of test facilities. Although not complete, we hope this document will provide both companies and test facilities with information that can increase cooperation among the actors within this field, and help transform our health and care services to tackle the challenges facing the Nordic welfare states.

Improved testing infrastructure in Nordic healthcare

Currently at 27 million, the Nordic region's population is expected to reach 31 million by 2050, and an ageing population and more people dealing with long-term health conditions raise new challenges for the Nordic welfare states. These societal challenges are the context for three Nordic projects on test facilities that are working towards expanding the infrastructure for test and verification of new products, technologies and services in hospitals and municipal health and care.

Innovation, growth and healthcare exports

The projects share a common goal of creating improved conditions for companies and healthcare organisations working on introducing new products, technologies, processes and treatment methods in the healthcare sector. Apart from encouraging an innovative approach to providing the best possible care at the best possible price, an overarching goal is to stimulate economic growth and create export opportunities.

Two of the projects, Nordic Test Beds (NoTeB) and Nordic Network of Test Beds (NNTB) focus primarily on trialling innovations in clinical pathways in hospitals, while the third project, Nordic Business and Living Lab Alliance, addresses innovations in municipal care.

The funding for the projects comes from Nordic Innovation, an institution that works towards increasing innovation and cross-border trade in the Nordic region, and from national innovation agencies VINNOVA in Sweden, Tekes in Finland, Innovation Norway and Rannís, Iceland.

"For us, the main goal is to create a Nordic infrastructure of test facilities that can be an asset for Nordic companies and start-ups that develop solutions for the health sector," says Arvid Løken, Senior Adviser at Nordic Innovation. "This is important for companies, but definitely also for the public health sector that faces big challenges and needs new innovative solutions."

Strong involvement from hospitals across the region

Nordic Network of Test Beds has brought together many of the largest university hospitals in the region, including Karolinska, Oslo University Hospital, HUS in Helsinki and the hospitals of the Capital Region of Denmark. The objective is to share best practices and give innovative companies better testing opportunities in secondary and tertiary care.

"The university hospitals is where the most research and development takes place, and they have a long tradition of working with the industry," says Bent Håkon Lauritzen of Norway Health Tech, project manager of NNTB. "We've focused on two aspects. One is the strategic drive for renewal and improvement of hospital services and the other is to create new jobs, either by assisting Nordic businesses in their product development or by attracting international players to the region."

According to Lauritzen, being able to document testing and implemen-

tation of a new solution or technology in the Nordic health sector creates the perfect springboard for companies looking to expand internationally. One of the aims has been to turn the Nordic market into one home market for the companies, which would open export pathways into larger international markets.

A key outcome is the development of a single-entry-point platform, Nordic Proof, through which innovative companies can present their ideas towards all the hospitals involved in the project.

"Nordic Proof offers a structured outside-in approach, where companies can establish contact in one place and get feedback from a large network of Nordic hospital testbeds," Lauritzen says.

NoTeB – Access to testing in five university hospitals

The second project, Nordic Test Beds, has initiated cooperation between established test facilities in the Nordic countries and provides access to five university hospital test facilities across the region. By the end of the project, fifteen novel products will have undergone testing in real hospital environments, spanning everything from a bed lift that enables easier cleaning of beds to advanced systems that provide ultra-clean air zones for surgery and other infection-sensitive procedures.

"We wanted to give innovative companies an insight into the requirements for new healthcare technology, products and services in other Nordic markets," says project coordinator Kalevi Virta of the Centre for Health and Technology in Oulu. "Each of the products has thus been tested in more than one country in order to provide better understanding of the different market environments."

Virta explains that in recent years, hospitals and healthcare organisations have been given increased responsibility to support regional development through cooperation with industry.

"While the test activities in NoTeB are based on the needs of the hospitals – they want to keep up-to-date on the latest technologies and how they can be adopted in the hospital environment – there's also this added dimension of supporting regional development."

Innovation and business in municipal care

The Nordic Business and Living Lab Alliance emanated from the Nordic Independent Living Challenge, organised by Nordic Innovation in 2015-

16, where all the Nordic capital cities joined forces to find solutions to the major healthcare challenges that the countries are facing. Developing new solutions in municipal care, e.g. to help elderly and disabled citizens in maintaining an independent life, requires closer cooperation between the public sector and the industry.

"The public sector must open up to dialogue with innovative businesses," says Gunhild Sander Garsdal of Vaeksthus Copenhagen, which leads the Nordic Business and Living Lab Alliance project. "Living labs provide a structured approach to finding solutions to meet future healthcare challenges. Health and care organisations can actually engage in quite extensive dialogue in order to define their needs before reaching a point where they must launch a procurement process."

According to project manager Christian Brix, the living lab approach has proved useful when sourcing new technologies and solutions in municipal care. So useful that two Nordic capitals, Oslo and Reykjavik, neither of which has applied the methodology before, are now adopting the method to structure their dialogue with innovative companies.

"Innovative businesses gain insights into the public sector's needs and the processes that dictate how new products and services make their way into the public sector market," he says.

National innovation agencies lead the way

In 2011, Vinnova became the first Nordic innovation agency to launch a large-scale programme focusing on idea processing, testing and verification in the health sector. Tasked by the Swedish Government, Vinnova supported a range of innovation gateways, dedicated to developing ideas from healthcare staff, and later launched a test bed initiative oriented towards businesses.

"These programmes lifted innovation higher on the agenda and resulted in increased commitment from hospital and healthcare management," says Karin Eriksson, Head of Vinnova's Health Division. During the innovation gateway programme, around 900 development projects involving 480 companies were considered, and, subsequently, 109 solutions were implemented.

"Evaluations show that these projects led to increased cooperation between the healthcare system and the surrounding innovation ecosystem," says Eriksson.

In Finland, Tekes, The Finnish Funding Agency for Innovation, is currently supporting the formation of a national network of testbeds in locations all around the country. As an example, Helsinki University Hospital runs a test facility providing operation room testing services, while OuluHealth Labs assists innovators in progressing into a prototype and testing phase.

"There are clear benefits of teaming up," says Kari Kataja, Programme Manager at Tekes. "The testbeds serve the companies well by providing clinical data, testing and feedback from healthcare professionals and patients, and possibilities for co-creation. Taking the idea further, a Nordic network would enable our companies to get feedback from customers in other target markets."

Innovation Partnerships to open public markets

Innovation Norway has taken a different approach. The agency recently started experimenting with a new type of procurement procedure, the so-called Innovation Partnerships, which allow for a combination of research and procurement. Companies are invited to submit solutions that meet the needs of the public sector – healthcare providers in this case – and the company presenting the best solution receives up to NOK 10 million to finance the further development of the solution.

"We're testing new cooperation models to promote closer and better public-private cooperation and opening the market to innovative companies," says Jorunn Birgitte Gjessing-Johnrud, Head of Health and Welfare at Innovation Norway. "Our aim is to use the Innovation Partnerships to get from need via development and verification towards purchase and implementation."

Stavanger Municipality has already launched the first process, looking to reduce the need for around-the-clock care in elderly care. Other projects are C3 Center for Connected Care, seeking to improve post-discharge follow-up of stroke patients, and The Patient's Health Service, aiming to digitalise and coordinate treatment in a way that allows patients to become increasingly involved in their own treatment.



Photo: Johannes Jansson / norden.org

Nordic hospitals turn to new technologies

As the cost of care continues to rise, Nordic hospitals are looking to test and integrate up-to-date technology to increase operational efficiency, provide patients with better information and care, and improve health outcomes. Establishing a comprehensive testing infrastructure and an active dialogue with suppliers of new solutions is crucial to ensuring efficient and effective health care delivery in the future.

Remodelling hospital services

The trends in Nordic hospitals are in many ways similar to those in the rest of Europe. An increasing number of treatments are ambulatory, the average length of hospital stay has been reduced, and more attention is being given to prevention, remote treatment and patients' ability to self-manage their conditions. Many of these changes are driven by new technologies.

The Nordic Test Beds (NoTeB) and Nordic Network of Test Beds (NNTB) projects have approached testing of healthcare innovation from two different angles. While NoTeB has focused on testing products or services that cater to the needs of the hospital sector, NNTB has introduced a more coordinated approach to testing in the region's university hospitals.

"All our partner hospitals are looking into how new technologies could remodel and improve their service provision," says Bent-Håkon Lauritzen, Project Manager of NNTB. "There are, however, differences in the ways in which they operate their test facilities. Some of them are mostly need-driven, while others have taken a more commercial approach, providing a gateway for all types of businesses."

Karin Eriksson, Head of the Health Division at Swedish Innovation Agency Vinnova, says that increased cooperation on testing is beneficial to hospitals and businesses alike.

"Providing companies with good test facilities gives the hospitals access to the latest technology, whereas the companies acquire valuable data to document the implementation and effect of their innovations."

Nordic Proof – Testing solutions for world-class healthcare

The NNTB project partners have developed a new portal, Nordic Proof, offering easier access to the university hospitals' testing facilities. The platform provides one-point-of-contact to the partner test facilities. The aim is to encourage more companies to engage in testing to accelerate innovation and business development in the health sector.

"Testing activities in the network span everything from simple early-phase development and user interface testing to complex clinical trials that require detailed clinical protocols," says Lauritzen. "We've tried to capture this broad approach in Nordic Proof."

The platform gives companies access to an extensive selection of services, covering all aspects of healthcare testing, from data collection and analysis to IT-testing, technical lab testing, pre-clinical studies and clinical trials at the partner hospitals.

The partners behind Nordic Proof are Helsinki University Hospital, Karolinska, SLL Innovation and Danderyd Hospital, The Capital Region of Denmark, the Intervention Center at Oslo University Hospital, Innovation Center Iceland and Norway Health Tech.

Increased self-management constitutes a major change

The Capital Region of Denmark runs some of the country's largest hospitals. The Region has established a knowledge centre, VihTek, which supports the hospitals in defining their needs and identifying relevant new technologies and welfare solutions.

"We focus on three overall strategic areas," says Charlotte Kira Kimby, Manager of VihTek. "These are technologies for rehabilitation, technologies that prevent complications during hospitalisation, e.g. pressure ulcers, dehydration or infections, and, thirdly, technologies that optimise collaboration between sectors, notably between hospitals and municipal care."

"We're looking into ways in which to activate the patient's resources during hospitalisation," Kimby explains. "Enabling patients to self-train and self-manage, using technologies that facilitate better information flows between patients and health professionals, constitutes a major change in healthcare delivery. It allows healthcare professionals to spend more time with their patients."

Valuable insights into market needs

One of the companies that have tested their products through NoTeB is Finnish Monidrop that is developing a device that enables accurate intravenous therapy. The device was tested at the university hospitals of Lund, Uppsala and Oulu, and, according to CEO Mikko Savola, the testing provided valuable market and user insights.

"We were confirmed in our belief that there is a need for the product, also in other Nordic markets," he says. "It's crucial for the development of all new innovations to be able to evaluate the product's suitability in different hospital environments, for different end-users and in different markets."

Another technology that has undergone testing is CompactaSteril, which provides ultra clean air zones to prevent surgical site infections. The infections are associated with longer post-operative hospital stays, additional surgery, intensive care treatment and even higher mortality. The technology therefore touches upon many of the issues that hospitals wish to address by implementing new and innovative healthcare technologies.

Test facilities cut costs and promote innovation

One of the most advanced test facilities in the Nordic region is the Operation Room of the Future at St. Olavs Hospital in Trondheim, which has been instrumental in transforming surgery from open surgical procedures towards image-guided minimally-invasive procedures. This is very cost-effective, as many of the patients can be discharged immediately after surgery.

"Test facilities in the Nordic countries, Europe and internationally are absolutely essential to drive the development of new technologies towards implementation in the sector," says Skogås. "Our facilities enable us to test prototypes of new technologies, developed by international industry partners, and contribute to their further development. In 1985, 80 per cent of surgical procedures were open surgery, and today, the figure is 20 per cent. This would not have been possible without the research infrastructure of the Operation Room of the Future."

According to Kari Kataja of Tekes, the task at hand is to cut the cost of healthcare, while at the same time striving for better treatment of patients and an improved patient experience.

"The only way to reach these objectives is to increase collaboration and co-creation between companies, hospitals, healthcare professionals and patients. The test facilities are the perfect means to achieve this."

Establishing links between municipal care and businesses

The Nordic Business and Living Lab Alliance has worked towards establishing connections between service providers in municipal health and care and private companies providing new welfare solutions. Using the living lab method to conduct a need-based market dialogue and testing activities, cities in the Nordic region are sourcing new solutions and technologies to support independent living for elderly and disabled people.

Need for more welfare technology in municipal care

There is room for improvement in the municipal care sector when it comes to the implementation of new welfare technologies and independent living solutions. The health and care sector is faced with the challenge of having to do more with fewer hands in the future. This calls for increased use of assistive aids and technologies to enable citizens to lead a good life in their own homes for longer, thus reducing the need for care personnel.

"The idea is that the public sector in the five Nordic countries and their capital cities can learn from each other with regards to how they should interact with innovative companies," says Gunhild Sander of Vaeksthus Copenhagen. "It's highly beneficial for the companies to get access to the public sector, and also, it can potentially lead to substantial growth in the national economy."

The project is led by Vaeksthus Copenhagen, a regional organisation that promotes growth in the Capital Region of Denmark. Other partners are Forum Virium, MISTEL test bed from Vesterås in Sweden, the City of Oslo and SI – The Federation of Icelandic Industries. Sander highlights the MISTEL test facility as a good example of a structured approach to matching innovators with the needs of the public sector and supporting them in developing solid business cases around their solutions.

Increased prevention and remote monitoring

Municipal health and care is shifting emphasis towards a more preventive effort by encouraging physical activity among senior citizens, and, when needed, providing simple assisted aids that allow them to take care of their basic daily tasks.

Some of these technologies are simple household appliances and assistive aids, but as the need for support increases, the solutions can consist of everything from an alarm button to call for assistance in case of an emergency to advanced monitoring of e.g. dementia sufferers, using cameras, motion sensors and GPS technology.

Following their participation in the Nordic Independent Living Challenge and the Nordic Business and Living Lab Alliance, Oslo and Reykjavik have now adopted the living lab method as a tool to define needs in health and care services and stimulate dialogue with the private sector. According to Tonje Haugen, Special Advisor at the City of Oslo's Agency for Health, the method will ensure that all solutions are selected with user and staff needs in mind.

The Agency for Health is responsible for the overall coordination of welfare technology in the city, while the implementation is carried out in its different local areas.

"We're currently implementing a large project to make sure that all our welfare technologies can communicate with each other," says Haugen. "Also, we're establishing a response centre that will be responsible for reacting to all alarms coming from these welfare systems."

The technologies utilised in the city's health and care include electronic medicine dispensers, available in all the city's local areas, GPS technologies for people with dementia, and digital technologies for remote monitoring and patient check-up.

"

Our vision is that people should feel safe and secure in their own homes, be able to master their everyday life and be active," says Haugen. "We need to act now to ensure that we can live up to this vision and enable people to stay in their own homes as long as possible."

Motiview tested in all Nordic countries

Motitech is a Norwegian company that has developed the motivational tool MOTIview, which encourages elderly patients with dementia to engage in physical activity. The solution consists of a large video catalogue, from which the users can select bike trips in their local area. The users experience reminiscence and enjoy talking about familiar sights in the videos.

The solution has been tested in all five Nordic countries.

"We had some experience from Norway but we wanted to know how the health sector works in the other countries, how public procurement is conducted and how people relate to physical activity such as cycling, and watching film," says CEO Jon Ingar Kjenes. "We needed confirmation of the concept and our business model in order to make sure that MOTIview would produce the same positive effect in the other countries."

Motiview has already been implemented in locations all across the Nordic region.

"We benefitted greatly from the testing activities in our development phase, and received valuable feedback into how simple our users want-

ed the solution to be," says Kjenes. "However, we also realised that good test results do not necessarily lead to implementation. We've done similar introductions in normal care homes around the region, and these are the ones that have actually implemented the technology. The road from testing to implementation needs to be shorter than it is today."

Guide to the Nordic healthcare sector

On 8 November 2017, Nordic Business and Living Lab Alliance is launching a Guide to the Nordics, describing the countries and their healthcare systems. The objective is to share knowledge about the challenges of entering these markets with new solutions in health and welfare.

The guide contains information about each of the five Nordic countries, introduces case stories from companies that have entered new markets in the region and describes some methods and results which have been produced through the Nordic Business and Living Lab Alliance.

NHS Test Beds are testing novel solutions to improve patient care

Since 2015, NHS England, Office for Life Sciences and Department of Health, has run an ambitious Test Beds programme, focusing on testing 'combinatorial innovation', i.e. novel combinations of digital technologies and process innovations. The aim is to improve patient outcomes at the same or lower cost than current practice, whilst supporting economic growth. These innovations are tested in real-world settings and evaluated on whether the solution works, how it was implemented and whether it was cost-effective.

NHS sites link up with innovators

The Test Beds programme was first described in NHS' Five Year Forward View in 2014, a document that examines ways of adapting NHS services to the changes in society, including a growing elderly population, an increasing number of people living with long-term health conditions and expanding healthcare demands. A key solution to these challenges is to take advantage of the latest advancements in science and technology and apply them to clinical and system challenges in real-world settings.

The programme was designed to address three challenges to the uptake of innovation: that technologies are often implemented in isolation from each other and the infrastructure in which they function; evidence on their effectiveness is usually obtained from experimental or research settings rather than real-world settings; and, innovations are not usually introduced in conjunction with complementary changes in work practices. By testing a combination of digital technologies with pathway redesign, the programme asks whether a combinatorial approach makes a bigger impact on patient outcomes than individual technologies would on their own.

After a global call, 32 NHS sites applied to participate in this programme, alongside around 370 innovators. Several matchmaking events, in which NHS sites linked up with innovators who best fit their challenge, led to 14 joint NHS-innovator applications. In January 2016, seven sites were announced at the World Economic Forum in Davos, by NHS England's Chief Executive Simon Stevens. Testing is currently underway for the seven Test Beds, with clinicians, patients and carers participating in testing new care pathways.

The programme has a total budget of around £25 million; this is a pooled budget from across NHS England, the Department of Health and Innovator in-kind investment.

Transforming clinical pathways through digital technology

Three types of innovations are being tested: predictive algorithms to identify patients at risk of developing a chronic or acute problem; aggregation of data to inform clinical decisions and use of resources; and, technology to allow for self-care and remote monitoring of long term conditions, such as respiratory conditions, diabetes, heart failure and dementia.

The goal for these innovations is to transform the clinical areas targeted by the initiative by supporting collaborative working and personalised care. Increasingly, patients are expressing a desire for greater involvement in their own care and tools to self-manage their condition, which the NHS acknowledges as very important. Many of the solutions being tested give patients and their carers tools to do this with support from health and social care professionals, personalising care.

As an example, Technology Integrated Health Management gives dementia sufferers and their carers access to live data on their daily activity and vital signs. A network of connected devices, including GPS trackers, door and electricity monitors, motion sensors and vital sign readers, provide the necessary information to monitor the patient's health at home. If the data identifies a significant deviation from the individual's pre-set baseline, a healthcare professional is alerted who then assesses what action is needed. Depending on the situation, this could vary from a phone-call to the patient's carer, a GP appointment, a visit from the Alzheimer's Society Dementia Navigator, or if necessary, alerting emergency services.

Shifting from intervention to prevention

Two of the Test Beds, the Long Term Conditions Early Intervention Programme and RAIDPlus, are developing predictive algorithms designed to foresee the risk of patients developing long-term conditions, such as COPD and heart failure, and in the case of RAIDPlus identify when individuals are at risk of developing a mental health crisis. Moreover, RAIDPlus collects real-time data on patient flows in order to optimise bed and staff availability in mental health urgent care services.

"Technologies using predictive algorithms have the potential to shift care delivery from intervention to prevention, empowering health and social care professionals to support people to feel better for longer," says Emily Hough, Deputy Director of the Strategy Group, who hosts the programme's national delivery team.

Knowledge to facilitate uptake of proven innovations

The learning from the process to date has been written in the report Test Beds: The Story So Far, which highlights lessons from establishing the national programme, as well as setting up the seven Test Beds. In the autumn, 'how to' guides covering areas of support, such as information governance, data security and evaluation, will be published.

This knowledge will be shared widely to inform future public-private collaboration efforts to deliver health and care innovation at scale. Furthermore, the programme will provide insights into some of the enablers required to facilitate the procurement and uptake of proven innovations in the healthcare system. The current phase of the NHS Test Beds Programme runs until summer 2018.

For further information visit:

www.england.nhs.uk/ourwork/innovation/test-beds/

If you would like to get in touch with the NHS Test Bed team

email: england.testbeds@nhs.net

Nordic Testbeds and Innovation Gateways

Denmark

Center for assisted living technology - City of Aarhus
Center for Welfare Technology - City of Odense
Centre for Welfare Technology North
Copenhagen Healthtech Cluster
The Department of Welfare Technology - Gladsaxe Municipality
FORCE Technology
Health and Care Administration - City of Copenhagen
The Health Innovation Centre of Southern Denmark
Idélinikken - Region of North Denmark
LSI - Life Science Innovation North Denmark
MTIC - MedTech Innovation Consortium
Unit of Quality and Innovation
Department of Care for the Elderly and Disabled - Municipality of Aalborg
One Point of Entry to Clinical Trials and Tests - The Capital Region of Denmark
Public Intelligence
Vaeksthus Copenhagen
Welfare Tech

Center for assisted living technology City of Aarhus

Testing environment

The Center for assisted living technology (CAT) is the primary driver of innovations within assisted living technology in the City of Aarhus. CAT tests the latest assisted living technologies and also supports implementation of innovations with large-scale potential.

CAT is occupied with the entire range of assisted living technologies, from technology development to testing and evaluation of specific technologies. It collaborates with private companies offering innovative assisted living solutions that meet the needs of the citizens and improve the work environment for care workers. Testing is conducted in real environments, and subsequently, technologies that meet the requirements are implemented in municipal health and care institutions in Aarhus. All healthcare institutions in the city are potential testbeds for new technology.

Furthermore, CAT hosts a range of events that bring together healthcare organisations, professionals working with disabled and elderly persons, end-users and innovative companies, notably the annual CareWare Conference in Aarhus and DokkX, an innovative development forum for welfare technologies and digital healthcare solutions.

- 15 employees
- 250-300 companies assisted
- 30 products developed and tested

Contact

Ivan Kjær Lauridsen
Head of Health and Assisted Technology
City of Aarhus
ijk@aarhus.dk
+45 5157 6079

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business Development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Center for Welfare Technology City of Odense

Innovation gateway

Odense municipality participates in more than thirty projects and activities regarding health and welfare solutions, ranging from feedback on product prototypes to large-scale implementation projects. The Center for Welfare Technology is Odense's intersectional centre focusing on local business growth. It collaborates with private partners, national as well as international, in testing new welfare technologies. The Center has three employees.

Through the CoLab Odense collaboration, the centre also participates in cross-sectoral activities. New welfare solutions are tested at one of eight designated care facilities, with independent living, solutions regarding dementia and economic gain from more efficient and effective healthcare delivery as key focus areas.

Contact

Katrine Schousbøll Leth
Development Consultant
ksle@odense.dk
+45 3012 2334
www.odense.dk/cfv



Photo: Johannes Jansson / norden.org

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Centre for Welfare Technology North

The Centre for Welfare Technology North is a demonstration unit in the City of Aalborg. It is part of the Centre for Assistive Aids and Welfare Technology I/S, a collaborative effort between Aalborg, Brønderslev and Jammerbugt municipalities in Northern Denmark to promote welfare technology.

Since 2014, the Centre for Welfare Technology has operated a visionary demonstration apartment, in which citizens, healthcare staff and other stakeholders can experience welfare technologies first hand. Visitors are invited to test and learn about the latest welfare technologies, with focus on the functionality and usefulness of technology in care for elderly and disabled people. The Centre displays technologies that enable independent and dignified living and a high quality of life, as well as technologies that improve work environments in health and care.

Furthermore, the Centre for Welfare Technology runs educational facilities aimed at building and spreading knowledge about new technology and providing insight into some of the major challenges in healthcare, such as an aging population and cuts in healthcare funding.

- 2 employees
- Collaboration with 100+ companies

Contact

Centre for Welfare Technology North
cfv-aeh@aalborg.dk
+45 2520 2884
www.cfv-nord.dk

Copenhagen Healthtech Cluster

Innovation gateway

As part of Copenhagen Capacity, Copenhagen Healthtech Cluster (CHC) works towards making healthtech an engine of growth for Greater Copenhagen. CHC approaches this task through four initiatives:

- By ensuring that companies have access to testing and development of new healthcare solutions in cooperation with testbeds, hospitals and municipalities.
- By helping companies obtain access to healthcare data and provide a continuous mapping of the Danish healthcare data landscape.
- By providing companies with updated knowledge about healthcare needs of hospitals and municipalities.
- By providing hospitals and municipalities with updated knowledge on healthtech, both regarding current matches for existing needs as well as the ongoing healthtech trends and developments of likely relevance for future solutions.

CHC facilitates a growing network of testbeds and living labs spanning from professional test or simulation facilities to units with less innovation experience but thorough subject matter expertise, such as specialized clinical environments, healthcare professionals and patient groups.

Contact

Henning Langberg
Director
hlj@copcap.com
+45 2612 7913
www.cphhealthtech.dk

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Cost benefit analysis
Healthcare data services
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

The Department of Welfare Technology Gladsaxe Municipality Innovation gateway

The department of Welfare Technology in Gladsaxe Municipality provides testing, implementation and evaluation of welfare-technological products and innovations. Main target groups are elderly, people with chronic disease or mental illness and people with disabilities in various forms and degrees.

There are four main goals to why Gladsaxe invests in welfare technology: better quality of life for the citizens; better work environment for the employees; to do things smarter to minimize time-consuming operational or administrative tasks, i.e. reduction of costs; and local business growth.

The Department of Welfare Technology in Gladsaxe Municipality engages in approximately 20 projects per year, ranging from simple testing of technological prototypes to implementing new technology on a wider scale. It cooperates with private partners, national as well as international. Welfare technology testing is performed in elderly care, rehabilitation and in care homes for people with disabilities.

- 3 ½ employees
- DKK 2 million annually for welfare technology for the elderly, +65
- 30 test and implementation projects since 2013

Contact

Anne Skjoldan
Head of Department of Welfare Technology
Gladsaxe Municipality
sofasp@gladsaxe.dk
+45 3957 5526
www.gladsaxe.dk/kommunen/servicemenu/om_kommunen/velfaerdesteknologi



Photo: Gladsaxe Municipality Department of Welfare Technology

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

FORCE Technology

Testing environment

FORCE Technology is an independent, self-owned and self-governed technological consultancy and service provider. It services the health-care sector and medical device industry from the first idea to market approvals and production. FORCE Technology has offices and test laboratories in Denmark, Sweden, Norway, the UK, Singapore, China, and the United Arab Emirates.

FORCE Technology provides an overview of regulatory requirements and outlines preparatory measures and technical guidance to bring medical devices on the market. FORCE Technology has multiple accreditations and acknowledgements of its advanced facilities and laboratories with services for a wide variety of technical aspects relevant for medical devices and healthcare solutions. As an accredited test lab and National Certification Body under the IECEE CB Scheme, as well as a Notified Body on several European directives, FORCE Technology can issue certificates for use in market approvals worldwide.

FORCE Technology has the status of a Research and Technology Organization and is a part of the Danish network for RTO's – GTS, approved by the Danish Ministry of Higher Education and Science.

- 1,461 employees
- EUR 183.2 million annually
- 9700+ assignments per. year
- 5000+ products developed/tested per year

Contact

Brian Hedegaard
Senior Consultant
bhe@force.dk
+45 5177 8762
www.forcetechnology.com

Health and Care Administration City of Copenhagen

Testing environment and innovation gateway

The Health and Care Administration in the City of Copenhagen established a Living Lab and testbed in 2015. Here they screen, select and test the most promising solutions in regards to the needs and challenges of citizens and healthcare employees.

Initial testing takes place in the Living Lab, together with citizens and employees. Welfare tech companies can present and get feedback on ideas and prototypes. Companies can also choose to be close to the testing process to monitor the results. Technologies that show promise in the initial test phase are then tested on a larger scale in a relevant environment.

The Living Lab is part of The Department of Welfare Innovation, established in 2016. The overall focus of the department is innovation and projects oriented towards innovative solutions, including technologies, services and organisational routines.

The Living Lab is placed at one of the City of Copenhagen's rehabilitation- and activity centre and provides the following services: test facilities; need identification; idea development; proof of concept; and collaboration with private organisations and companies.

- 2 employees
- DKK 1.5 million annually for the Living Lab
- 1,700 visitors since August 2015
- Around 70 welfare technologies screened
- Around 30 welfare technologies tested

Contact

Monica Andersen
Head of Department, Department of Welfare Innovation
G82Y@suf.kk.dk
+45 5180 5254
www.velfaerdsinnovation.kk.dk

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

The Health Innovation Centre of Southern Denmark

Testing environment and innovation gateway

The Health Innovation Centre of Southern Denmark is the entry to the Region of Southern Denmark when it comes to innovation and testing in the health and social care sector. Established in 2012, the Centre focuses on bringing quality, efficiency and growth to the health and social sectors.

At the Centre, new solutions within health innovation are developed, including new ways of designing hospitals, testing and implementing eHealth and telecare solutions, and involving patients and users in co-creation processes and engaging in public private partnerships. Involving users – patients, citizens, relatives and employees – is at the core of the Centre's operations.

The programme CoLab Denmark is a partnership between the Health Innovation Centre of Southern Denmark, four hospitals and several municipalities in the region. It consists of six Living Labs, or CoLabs. Four of them are situated at the local hospitals, one covers the region's recovery and rehabilitation to citizens with mental illnesses, physical and mental disorders (CoLab Recovery and Rehab), and lastly there is one shared test and demonstration laboratory supporting the development, testing and certification of technological healthcare products (CoLab Plug & Play).

- 63 employees
- EUR 10.8 annually
- On average 100 companies assisted per year
- On average 100 projects tested per year

Contact

Simon Lindegaard
Head of Unit ad interim
slg@rsyd.dk
+45 2122 2224
www.innosouth.dk



Photo: The Health Innovation Centre of Southern Denmark

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Idéklinikken Region of North Denmark Testing environment and innovation gateway Tech-Trans Office

Idéklinikken is now the main innovation hub of the North Denmark Region within the field of health. It overarches a number of initiatives such as employee-driven innovation, research-driven innovation and providing sparring concerning idea and product development, industrial design, IPR-issues and commercialization.

In addition, Idéklinikken is the coordination office for Aalborg University Hospital's test bed and living lab environments. These include clinical test facilities and Clinical Trial Denmark North as well as public-private development opportunities.

The latest addition to the North Denmark ecosystem is the platform Life Science Innovation North Denmark, in which Idéklinikken is a partner.

The region and the European Structural Funds fund the innovation initiatives jointly. The combined budget is DKK 9,4 million. More than 600 ideas have been processed and more than 100 companies have been aided in their innovation. Idéklinikken has also obtained funding through Nordic Innovation and Interreg BSR projects.

- 12 employees
- DKK 9.4 annually
- 100+ companies assisted
- 600+ ideas tested
- 15 products developed/tested
- 13 patent applications

Contact

Jesper Bredmose
International Project Manager & Business Developer
j.bredmose@rn.dk
+45 2033 9895
www.ideklinikken.dk

LSI Life Science Innovation North Denmark Innovation gateway

Life Science Innovation (LSI) North Denmark was founded in March 2017 by Region North Jutland, the North Jutland municipalities, Aalborg University (AAU), University College North Jutland (UCN) and SOSU North, together with local health and welfare technology companies.

LSI strives to strengthen health and welfare innovation in North Jutland and create value through business growth, knowledge development and better health and welfare solutions for the benefit of businesses, citizens and the healthcare system.

The main goal of LSI is to help create more and stronger companies, create jobs in the field of life science and to ensure a match between the needs from the citizens and the healthcare system and the knowledge and innovative solutions provided by the companies.

LSI provides project management and evaluation that involves users throughout the process. It supports business development, focusing on developing needs-driven innovations from idea to marketing and implementation. The platform plays an important role as an access point with matchmaking and networking activities between members.

- 5 employees
- DKK 5.5 million annually
- 40 companies assisted
- 20 ideas tested

Contact

Finn Allan Larsen
CEO
fal@lsi-nd.dk
+45 4070 6558
www.lifescienceinnovation.dk

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials



Photo: Yadid Levy / Norden.org

MTIC MedTech Innovation Consortium

MedTech Innovation Center has existed since 2009 as a commercial sparring partner for companies that develop, produce and market products and welfare technologies to the health care system. In 2015, MedTech Innovation Consortium was established by the University of Aarhus, VIA University College, Central Denmark Region and the municipalities in the region.

MTIC works across the private sector, scientific institutions, municipalities and hospitals. It focuses on corporate growth potential and on creating an optimal environment for developing health and welfare technology products. Therefore, a great deal of MTIC's work takes place within public-private innovation projects. In these projects, MTIC, as a bridge-builder, ensures that focus is on the real need for the product, and, also, that scalable products with measureable benefits are created through a proper development process.

For the period 2015-18, MITC's board has selected four areas for close cooperation: the patient pathway, ageing and dementia, preventable admissions and rehabilitation. These priorities have been carefully selected to contribute to the better treatment, greater efficiency and better pathways when citizens become patients in the healthcare system.

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Contact

Mette Herlev
Communication Manager
mh@mtic.dk
+45 8993 5100
www.mtic.dk

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Unit of Quality and Innovation Department of Care for the Elderly and Disabled Municipality of Aalborg

Testing environment and innovation gateway

The unit of quality and innovation is involved e.g. in Living Lab cooperation with private companies and other public partners, such as research and educational institutions. The Living Lab is not a physical location, but in principal, every institution in the department can come into play as a Living Lab with regards to testing and developing novel products and services. Testing is conducted in real-life environments with involvement from healthcare staff and end-users alike.

The Living Lab focuses on developing, testing and evaluating new assistive technologies and related work processes, as well as gathering knowledge about and inspiration for the ways in which health and care services to citizens can be innovated and improved.

- 4 employees
- 10 companies assisted
- 30 ideas tested
- 10 products developed/tested
- 15 services developed/tested

Contact

Bent Sørensen / Lars Nøhr
Consultant / Senior Consultant
bent.soerensen@aalborg.dk / noehr@aalborg.dk
+45 3199 5349 / +45 3199 5350
www.aalborg.dk/innovation

One Point of Entry to Clinical Trials and Tests Capital Region of Denmark

Sparring, guidance and matchmaking

One Point of Entry to Clinical Trials and Tests in The Capital Region of Denmark is a service for developing and testing new pharmaceutical drugs and medtech solutions in Denmark. The unit facilitates matchmaking between pharmaceutical and medtech companies and clinical hospital environments. Depending on the project requirements, consultants provide sparring and guidance and identify potential partners for clinical trials and tests.

One Point of Entry to Clinical Trials and Tests has a broad regional network covering six hospitals. Besides this regional network, the unit has a well-established national network as well, covering all five regions in Denmark (www.clinicaltrialsdenmark.com). In addition to the extensive clinical network, One Point of Entry to Clinical Trials and Tests has a large network within research, policy, law, IT, finance/funding, business development, various types of test facilities and academic institutions, etc.

Contact

Jane Tidemand / Michelle Rosgaard Birknow
Special Consultants
One Point of Entry to Clinical Trials and Tests
Centre for Regional Development
jane.tidemand@regionh.dk / michelle.birknow@regionh.dk
+45 2059 9448 / +45 2977 9093

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Public Intelligence

Testing environment and innovation gateway

Public Intelligence is a private consulting firm working on welfare innovation. It works with municipalities, hospitals and in the field between private companies and public organisations. The company's mantra is 'development through a user- and employee-driven focus.'

Public Intelligence advises municipalities and hospitals on developing future-proof welfare. The effect is a unique approach to health innovation, based on Public Intelligence's Health Innovation Method – a coherent set of models and methods used in commercial contexts in Denmark and England. The starting point is an approach to user-centred development and a methodology that guarantee innovation in close interaction between private companies' technologies and the needs of public organisations.

Public Intelligence's key activities include health innovation for the public sector, design of Living Labs and Innovation Testbeds, private or public, and product testing in relevant context and use-cases. Furthermore, Public Innovation assists companies with e.g. product development, service design, market analysis, implementation and commercialisation.

- 10 employees
- > 100 companies assisted
- > 250 ideas tested
- > 100 products developed/tested
- > 100 services developed/tested

Contact

Peter Julius
CEO and Partner
peter@publicintelligence.dk
+45 3070 8593
www.publicintelligence.dk

Væksthus Copenhagen

Væksthus Copenhagen offers guidance to start-ups and businesses with ambitions towards growth.

Several of its programmes are dedicated to establishing new Public-Private Innovation partnerships, aiming at capturing the substantial growth potential within health, welfare and assisted living. Væksthus Copenhagen is the project lead for the Nordic Business and Living Lab Alliance.

Key focus is to create new solutions in elderly care, childcare, health and social care. Væksthus Copenhagen matches companies with the public sector, i.e. nursery homes, rehabilitation centres, schools, kindergartens and other institutions in the municipalities in Greater Copenhagen. The purpose is to identify needs – and develop and test new products and services.

Væksthus Copenhagen's target group is start-ups and businesses that wish to enter new international markets, develop new products and increase profit. Its vision is to make the Capital Region the leading region in terms of high growth businesses. The guidance delivered is free of charge and independent.

Væksthus Copenhagen is financed by the National Agency of Enterprise and Construction and the 29 municipalities in the Capital Region of Denmark.

Contact

Gunhild Sander Garsdal
Chief Project Manager
gg@vhhr.dk
+45 2926 1969
www.vhhr.dk / www.opall.dk

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

- Inside out
- Outside in
- Idea testing
- Product testing
- Service testing
- IT testing
- Business development
- Cost benefit analysis
- IPR consulting
- Regulatory documentation
- Internationalisation
- Public procurement
- Research collaboration
- Pre-clinical trials
- Clinical trials

VihTek – Capital Region of Denmark

VihTek is a research and test centre that provides the hospitals in the Capital Region of Denmark with information about new welfare technology, tests and verifies new solutions and supports the implementation of technology that creates value for the hospitals and the region. The centre participates in innovation and development projects in cooperation with clinical departments, educational institutions and companies.

VihTek's three strategic priority areas are technologies for rehabilitation in hospitals, prevention of complications during hospitalisation, and technologies that support cross-sectoral cooperation, notably between the hospital sector and the municipal sector.

Testing ranges from smaller studies and user tests to a broader assessment of welfare technology, its effect on patients and staff and the costs of implementation. The most comprehensive testing method is the Model for Assessment of Telemedicine (MAST), which involves detailed analysis of the technology, implementation, resource use, security and clinical effect. These assessments are carried out in close cooperation with the Region's hospitals and clinical staff.



Photo: VihTek

Contact

Charlotte Kira Kimby
 Head of VihTek
 +45 2136 2288
charlotte.kira.kimby@regionh.dk
www.regionh.dk/vihtek



Photo: Karen Beate Nøsterud / norden.org

Welfare Tech

Welfare Tech is the largest member-based cluster organisation in Denmark for innovation and business development in healthcare, home care and social services. With members across the nation, including private companies, public organisations, municipalities, hospitals and leading research and educational institutions, Welfare Tech promotes business opportunities and collaboration between members and business partners.

The coherence between the members makes Welfare Tech a national entry point and test bed for companies who want to enter the Danish and European markets. Welfare Tech conveys new ideas and insights into the demands and requirements of hospitals and municipalities. The cluster has been awarded The Gold Label of the European Cluster Excellence Initiative (ECEI) – Proven for Cluster Excellence.

Welfare Tech has 15 employees. It is funded by public grants, project income and private membership fees, and has a budget of EUR 1.5 million. Major stakeholders are: The Region of Southern Denmark, The Danish Government and The European Regional Development Fund
Welfare Tech's services are:

- Market Knowledge
 - Matchmaking
 - Network
 - Collaboration and Internationalisation
-
- 15 employees
 - EUR 1.5 million annually
 - 650 companies assisted

Contact

Christian Graversen
CEO
info@welfaretech.dk
+45 3177 8078
www.welfaretech.dk

Nordic Testbeds and Innovation Gateways

Finland

Centre for Health and Technology - University of Oulu
Emergency Services College
Health Capital Helsinki
City of Helsinki - Social Services and Health Care Division
HUS Testbed
Kalasatama Living Lab
Kuopio Health - Open Innovation Ecosystem
Kuopio University Hospital Living Lab - KUH Living Lab
Kuopio Living Lab - City of Kuopio - Social and healthcare services
OULLabs
OuluHealth Labs - a testbed engaging patients and health professionals
Satakunta Living Lab - Prizztech Ltd
Savonia University of Applied Sciences - Kuopio HealthLab
SGS Fimko Ltd - Part of SGS Group
Tekes - The Finnish Funding Agency for Innovation
TWICT - Turku University of Applied Science Living Lab for Wellbeing and ICT

Centre for Health and Technology University of Oulu

Centre for Health and Technology (CHT) at the University of Oulu is innovating connected health solutions together with researchers and entrepreneurs. CHT facilitates open collaboration and accelerates innovation by bringing together those who contribute to the needs of the healthcare sector. CHT's long-term, systematic work in creating and developing strategic connected health RDI-entities enables them to identify research and business challenges and opportunities relevant to the healthcare sector.

A systematic R&D&I collaboration model – the OuluHealth Ecosystem Model – has been operational since 2012, aiming to develop large research & innovation projects and programmes, as well as national and international partnerships. Moreover, companies have benefitted from piloting and testing of their products and services in real-life environments in the OuluHealthLabs.

Coordination of multidisciplinary research, development and innovation in the OuluHealth ecosystem, which consists of businesses, academic institutions and public health providers

Support for the commercialization and deployment of novel healthcare solutions

Building a strategic innovation agenda

Enhancing innovation capacity through the development of agile innovation processes

Facilitating strategic cooperation through international networks and partnerships.

- 5 employees
- €0.5 million annually
- 10 companies assisted
- 10 ideas tested

Contact

Maritta Perälä-Heape
Director
maritta.perala-heape@oulu.fi
+358 40 673 41 59
www.oulu.fi/cht

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Emergency Services College

Testing environment

The Emergency Services College is a state run teaching facility providing high quality education for the fields of Fire and Rescue Services, Emergency Medical Services, Emergency Dispatch and various industries. With a world-class training ground and state of the art training facilities, the college is a leader in providing teaching and research activities in all prospects of safety.

The Research, Development and Innovation services unit has a long tradition in providing high quality research services to a versatile clientele. The experts of the unit work in close cooperation with clients in testing and developing products to meet and exceed existing standards in product safety. The core competence of the team is concentrated around burn behaviour and fire safety of products and materials, design and development of fire extinguishing systems and the physiological and health impacts of exposure to elements in Fire and Rescue work.

Contact

Marko Hassinen
Research Scientist, Ph.D.
marko.hassinen@pelastusopisto.fi
+358 50 596 69 22
www.pelastusopisto.fi

Health Capital Helsinki

Innovation gateway

Health Capital Helsinki (HCH) is an alliance between Aalto University, the City of Helsinki, Helsinki University Hospital (HUS), and the University of Helsinki. HCH brings together scientific research, clinical know-how and the business activities of life science and health technology in the Helsinki metropolitan region, providing an entry point for the strong life science hub.

The goal of HCH is to create business opportunities, partnerships, exports and growth for life science and health technology companies. Further, HCH catalyzes the acceleration of research commercialization, and increases the number of business ideas, start-ups and jobs.

The HCH alliance offers access to different test and innovation environments, workspaces and facilities, and supports the commercialization of research ideas from the early identification of innovations to the initiation of international business. Additionally, the HCH alliance facilitates networking as well as public-to-public and public-to-private partnerships within the life science and health technology fields.

The activities of HCH are jointly organized by the alliance members and coordinated by the HCH project office.

- Established in 2016
- 6 employees in the HCH project office
- 100+ companies assisted

Contact

Tuula Palmén
Head of Project Office
Health Capital Helsinki
tuula.palmen@healthcapitalhelsinki.fi
+358 50 461 72 90
www.healthcapitalhelsinki.fi

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

City of Helsinki Social Services and Health Care Division Testing environment

The City of Helsinki Social Services and Health Care Division, with 15,000 employees, offers its daily operations as a testbed for companies and innovation organisations. The City of Helsinki organises and primarily produces social welfare and health services for 640,000 residents.

Companies are invited to test and co-develop their healthcare solutions in every day settings at healthcare stations, hospitals, home care, rehabilitation and elderly and social care service facilities, together with clients and health and social care professionals.

Examples of the City of Helsinki's main testbeds are Kalasatama Health and Wellbeing Center, Kustaankartano Comprehensive Service Centre for elderly, home care and Service Center Helsinki, which provides and develops virtual care services. The Social Services and Health Care Division also offers pharmaceutical companies possibilities to conduct clinical trials in primary healthcare. Testbed activities are need-driven and all proposals from companies and organisations are considered against actual development needs and the interests of the organisation.

Contact

Sanna Hartman
Business Development Advisor
sanna.hartman@hel.fi
+358 40 634 15 94
www.hel.fi/sote/en

HUS Testbed Testing environment

HUS Testbed is a service unit offering health tech companies real hospital environments for testing or developing products or services. It is integrated in the Helsinki University Central Hospital (HUCH), thus offering an authentic testing environment for any kind of health tech companies in need of facilities or user feedback. HUS testbed started operations in early 2017.

HUS Testbed offers: Device usability testing in a realistic user environment, as well as education, survey and research collaboration for everything from start-up companies and SMEs to large, multinational companies in collaboration with the staff of HUCH.

HUS Testbed collaborates with and is a partner of the Nordic Testbed Network, a project financed by Nordic Innovation, and the one-point-of-entry-platform Nordic Proof, which provides access to university hospitals all around the Nordic region.

Contact

Nina Lindfors/ Satu Pesola
HUS Test Bed Manager/ Head of Development
nina.c.lindfors@hus.fi/ satu.pesola@hus.fi
+358 9 4711
www.hustestbed.fi

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out

Outside in

Idea testing

Product testing

Service testing

IT testing

Business development

Cost benefit analysis

IPR consulting

Regulatory documentation

Internationalisation

Public procurement

Research collaboration

Pre-clinical trials

Clinical trials

Kalatatama Living Lab

Testing environment and innovation gateway

Kalatatama is a living lab, residential area and a practical test and development laboratory for innovative services. The agile piloting in Kalatatama accelerates Smart City innovation by developing and piloting service prototypes in real city environments. The project portfolio comprises a group of ventures and projects implemented by the City, companies, organisations and other stakeholders. This collaboration supports the development of business ecosystems and sharing economy.

The tested solutions may relate to, for example, smart grids, apartment-specific electrical systems, solutions reducing unnecessary mobility, virtual work places and enhancing community spirit, e.g. by utilising vacant public premises and health and wellbeing services.

A new health and wellbeing centre run by the city of Helsinki opens in February 2018. The centre will serve as a platform for experimentation – co-designing and developing services with the companies.

Smart Kalatatama is a project based on the Living Lab methodology. During 2016-2017 a total of 4 co-creation piloting projects have been executed in the agile piloting program in collaboration with Helsinki Social Services and Health Care Division. Companies have approached the programme with more than 50 pilots related to health and wellbeing.

- 3 employees in project-based Living Lab
- 50+ health and wellbeing companies assisted
- 1 idea tested
- 4 services developed/tested

Contact

Kaisa Spilling

Development Manager

kaisa.spilling@forumvirium.fi

+358 40 744 88 31

www.fiksukalatatama.fi/en

www.fiksukalatatama.fi/en/agile-piloting



Photo: Johannes Jansson / norden.org

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Kuopio Health Open Innovation Ecosystem Innovation gateway

Kuopio Health is a network of healthcare professionals committed to advancing health technology expertise, research, business life and awareness of the area. Kuopio Health promotes development, re-search and innovation based on customer needs and serves as a platform for new products and services.

Kuopio Health is an open innovation platform enabling co-creation and transfer of knowledge and technologies for the benefit of society. It offers excellent health technology competence, training, infrastructure and a business network for domestic and international health technology companies and innovators.

Strong international R&D and business areas in the life sciences sector in the Kuopio region are: health technologies, diagnostics, pharmaceutical development, bioinformatics, treatment effectiveness, wellness services and clinical nutrition with emerging, groundbreaking and "disruptive" technologies.

Contact

Mikko Juuti
Director of Health Technologies Innovation Ecosystem
mikko.juuti@uef.fi
+358 40 485 88 26
www.kuopiohealth.fi

Kuopio University Hospital Living Lab KUH Living Lab

Testing environment and innovation gateway

Kuopio University Hospital (KUH) is one of the five university hospitals in Finland. KUH provides specialised medical care in an area of 248,000 inhabitants and is responsible for the advanced specialised medical care of nearly a million people in Eastern and Central Finland.

From 2016, the KUH Living Lab project has provided an authentic testing and research environment for companies in the most appropriate departments and outpatient clinics in the University Hospital. The companies involved range from small start-ups to large corporations. Our services include product and IT innovation and testing, help with documentation for regulatory processes, research collaboration and clinical trials.

The KUH Living Lab is currently a project funded by the European Regional Development Fund and Regional Council of Northern Savo. We work in partnership with the City of Kuopio Living Lab and in close collaboration with the Savonia UAS/Health Lab and University of Eastern Finland.

- 2 employees
- €50,000 annually
- 20 companies assisted
- 10 ideas tested
- 7 products developed/tested

Contact

Kirsimarja Metsävainio
Project Coordinator, MD, Anaesthetist
kirsimarja.metsavainio@kuh.fi
+358 44 717 54 61
www.pssh.fi/web/en/

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Kuopio Living Lab – City of Kuopio

Social and healthcare services

Testing environment and innovation gateway

The City of Kuopio has Living Lab services that companies developing future healthcare solutions can use to test and improve their products and services in an authentic healthcare environment. The Living Lab environment is for primary health care services and is specialised in geriatric and home care. Through the Living Lab, companies receive information about the usability of their solutions, while healthcare providers get information about the benefits of the latest solutions and their cost-effectiveness.

Kuopio Living Lab is currently a project funded by the European Regional Development Fund and Regional Council of Northern Savo. The Living Lab works in partnership with the Kuopio University Hospital Living Lab and in close collaboration with the Savonia UAS/Health Lab and University of Eastern Finland. Kuopio Living Lab is a reference site for the European Innovation Partnership on Active Healthy Ageing.

- 4 employees
- €150,000 annually
- 20 companies assisted
- 2 ideas tested
- 19 products developed/tested
- 4 services developed/tested

Contact

Pauliina Kämäräinen
Project Coordinator
pauliina.kamarainen@kuopio.fi
+358 44 718 64 40
www.kuopio.fi

OULLabs

Virtual testbed and collaborative environment

OULLabs – Oulu Urban Living Labs – is a non-profit living lab managed by Center for Ubiquitous Computing, University of Oulu. OULLabs provides test users, UX specialist services, involvement tools and methods to support the development of solutions in e.g. eHealth and welfare consumer markets. OULLabs has conducted hundreds of customer projects for private and public companies, varying from idea generation to testing products and services.

OULLabs services can be provided also for international companies through time and location independent user involvement tool PATIO. It allows for easy collection of user experiences and needs, and also enables co-innovation with users – anywhere and anytime.

OULLabs' main partners are the University of Oulu and the City of Oulu. OULLabs is also a member of the European Network of Living Labs (ENoLL), and the EIT ICT Labs Experience and Living Lab Network.

- 4 employees
- ~50 companies assisted
- ~50 ideas tested
- ~50 products developed/tested
- ~75 services developed/tested

Contact

Satu Väinämö
Director of OULLabs
contact@oullabs.fi
+358 50 437 09 78
www.oullabs.fi/en

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

OuluHealth Labs – a testbed engaging patients and health professionals

OuluHealth Labs provides companies and innovators with an integrated health test and development environment, including feedback from professionals. OuluHealth Lab services cover three test environments, which may be used separately or in combination, depending on the particular test case: OYS TestLab, Oamk SimLab and Oulu WelfareLab. This powerful combination covers the whole patient care chain from home to hospital.

OYS TestLab

OYS TestLab, operated by Oulu University Hospital (OYS), is a brand new test environment for specialized health care products and services. In close collaboration with the industry, OYS also uses the laboratory to develop its processes and to model and simulate building projects for the Future Hospital programme. The laboratory covers 300 square metres over two floors. Various hospital units can be built into open spaces: an operating theatre, clinics, wards, control rooms, waiting areas etc. OYS TestLab has a 3D virtual space, and is located within Oulu University Hospital. The concept and processes can be extended to cover real hospital wards and information systems.

Oamk SimLab

Oamk SimLab, operated by the Oulu University of Applied Sciences, is a versatile simulation and studio environment, which is used as a learning environment for health and social professional education. Simlab can be used as a testing and development environment in the product development of health technology and welfare services, featuring considerable student involvement. Oamk SimLab covers bioanalytics, nursing and emergency nursing, optometry, oral health care, radiography and radiation therapy as well as rehabilitation. Oamk SimLab includes also UsabilityLab which supports usability testing of health technology devices and software. Oamk SimLab is located at the OuluHealth campus, in the University of Applied sciences premises.

Oulu WelfareLab

Oulu WelfareLab, operated by the city of Oulu, is a test environment where the end-users are at customers' and patients' homes and in all social and health care services. The City of Oulu opened a technology healthcare centre in Kaakkuri area in Oulu in 2008. In addition to usual patient care, Kaakkuri healthcare centre contributes to the development of the city's technology-enhanced processes and provides companies with a basic healthcare environment for product testing and development. Oulu WelfareLab testing operations extends to cover other social and health services in the city as well, including home care.

OuluHealth Labs offers a user-centric innovation platform for the products and solutions that are in the development phase. Structured collaboration methods between healthcare professionals and companies ensure effective utilization of resources. Feedback from the healthcare professionals in the development phase ensures that better products will be brought to the market. Through collaboration with other test beds in the Nordic countries and Japan, it is possible to test new products also in international context.

Contact

Timo Alalääkkölä
Manager, Testing and Innovations
Oulu University Hospital
+358 40 561 43 90
timo.alalaakkola@ppshp.fi

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Satakunta Living Lab Prizztech Ltd Innovation gateway

Prizztech Ltd is a non-profit business development company owned by municipalities in the Satakunta region. The key areas of expertise are entrepreneurship and business life, attractive business environments and research communities. The company is a key player in the world of innovation environments working towards improving business performance and competitiveness.

Since 2009, Prizztech has implemented Living Lab activities in several welfare technology projects. Living Lab Co-operation developed by Prizztech Ltd was nominated as a finalist in the EU's RegioStars Competition 2013 in the category of social innovation.

The ongoing project HYVÄKSI (Common Weal) – Innovation Network on Welfare Technology – focuses on testing and developing user-friendly welfare technology for various user groups as well as health care professionals. The user-driven product development of welfare technology enterprises is implemented in collaboration with organisations in the social and health care sector. The project is funded by the Regional Council of Satakunta (ERDF), the municipalities of the Pori region and SAMK, which is also a project partner.

- 31 employees (in the project 1)
- 10 companies assisted per year
- 3 ideas tested per year
- 1 product developed/tested per year
- 9 services developed/tested per year

Contact

Niina Holappa
Project Manager
niina.holappa@prizz.fi
+358 44 710 54 55
www.prizz.fi/hyvaksi-innovation-network-on-welfare-technology

Savonia University of Applied Sciences Kuopio HealthLab Testing environment

Savonia University of Applied Sciences has two main tasks: education & training and R&D and innovation (RDI). Savonia has a focus area of applied health technology. They are responding to the need for reform of the social and healthcare sector and increased efficiency and quality of social and healthcare services. This will be achieved through the promotion of the development and commercialisation of technological applications, improving professionals skills for e-services, and applied research into the digitalisation of social and healthcare services.

Savonia has expertise in applying health technologies, gamification, computational intelligence, ICT solutions and Big Data to develop new information services, and in evaluating health and wellness technologies designed to improve quality of life. Kuopio Health Lab provides patient/customer group-specific usability testing and evaluation of new service or product ideas as well as service design combining digital and traditional healthcare services.

- 450 employees
- 60 companies assisted
- 15 ideas tested
- 25 products developed/tested
- 9 services developed/tested

Contact

Petteri Jääskeläinen
Research and Development Manager
petteri.jaaskelainen@savonia.fi
+358 44 785 6466
www.savonia.fi

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out

Outside in

Idea testing

Product testing

Service testing

IT testing

Business development

Cost benefit analysis

IPR consulting

Regulatory documentation

Internationalisation

Public procurement

Research collaboration

Pre-clinical trials

Clinical trials

EC certification

SGS Fimko Ltd – Part of SGS Group

Testing environment

SGS is a global leader in inspection, verification, testing and certification. The company offers its clients access to a worldwide network of offices, laboratories and experts. Key focus areas include safety testing, risk management, regulatory compliance and internationalisation.

SGS Fimko Ltd provides testing and certification of medical devices, including pre-testing and training in complex regulatory compliance issues; services to certify medical devices to the European market by assisting businesses in obtaining the CE-mark for their products as a notified body 0598; and certification of quality systems to meet the requirements of the ISO 9001, ISO 13485 or ISO 14001 standards.

SGS Group is a publicly traded company that operates a network of more than 2,000 offices and laboratories and has more than 90,000 employees around the world. The services of its network grant access to multiple international approvals, including CB, CE, NRTL, CMDCAS/MDSAP, JPAL, INMETRO, etc.

- Over 90,000 employees globally, 200 in Finland
- Around 1,400 products tested per year

Contact

Seppo Vahasalo
Medical Devices
MDD NB 0598 Manager
seppo.vahasalo@sgs.com
+358 40 560 95 00
www.sgs.fi/en

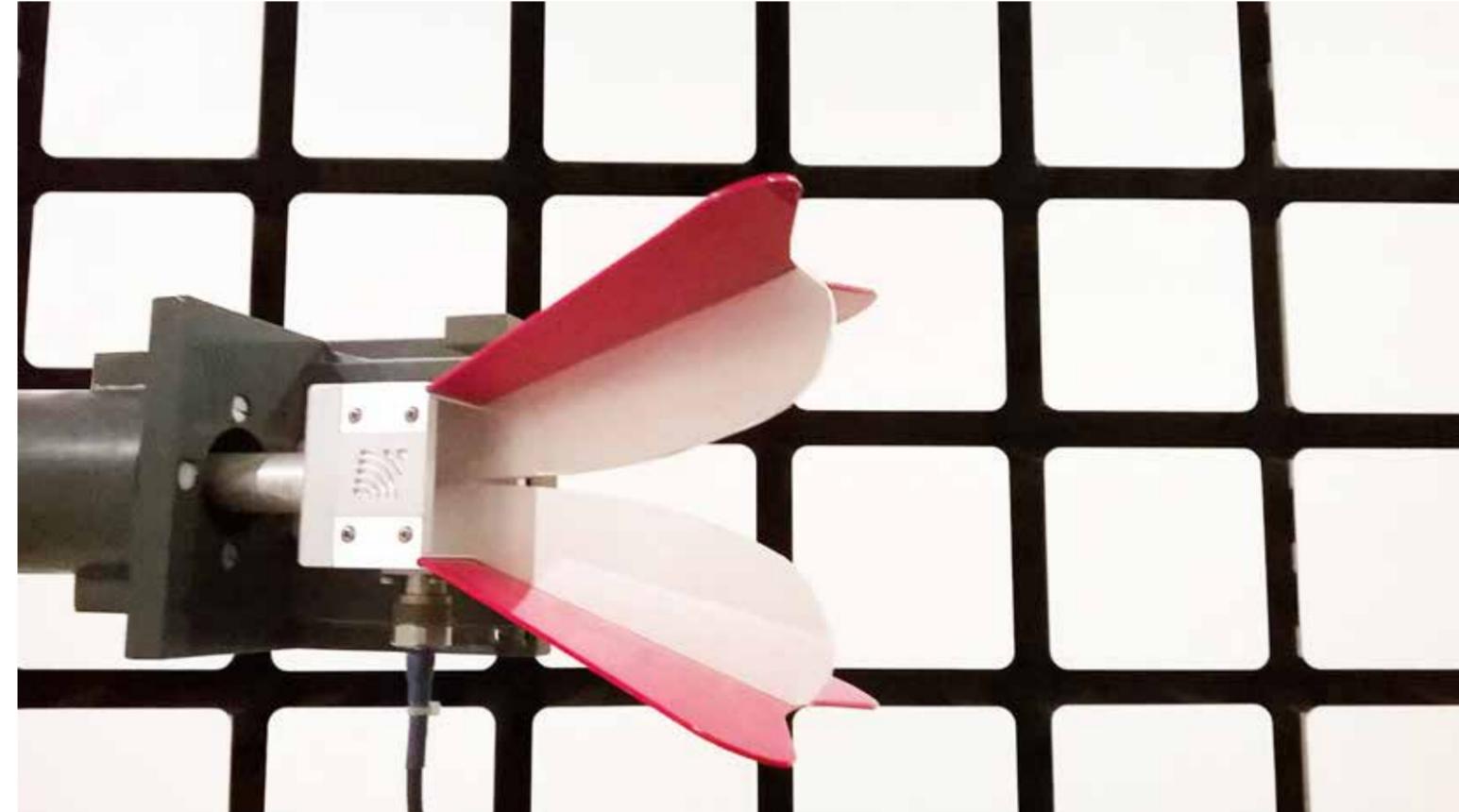


Photo: SGS Fimko Ltd

Tekes

The Finnish Funding Agency for Innovation

Tekes annually awards funding of approximately €500 million to innovation, research and development as grants and loans. Around 20 per cent of the amount is in health and wellbeing projects.

In addition to funding, Tekes runs a range of programmes in a number of industry areas, including the Bits of Health programme in health and wellbeing. The aim is to establish Finland as a hub for digital health and a central site for innovation and testing in the sector. The programme supports companies that utilise digitalisation and strive for international growth by developing products and services promoting health, prevention, early diagnosis, health monitoring and personalised care. One of the programme activities, Clinical Entrepreneur Finland, promotes innovation and entrepreneurship among healthcare professionals, with participation from all the Finnish university hospitals.

Tekes' and Bits of Health Programme's role and main interest in test beds is to support Finnish companies that need different services e.g. from the ones in conjunction to University Hospitals. Tekes strives to form a national network of test beds to connect all test bed initiatives and form one view and contact point to the whole country.

- In 2016, Tekes funded projects generated 2,250 products, services or other innovations
- 1,000 patents or patent applications
- In 2018 Tekes will be part of Business Finland, which will bring under the same roof all the present services related to innovation funding and internationalisation as well as to the promotion of exports, foreign investment in Finland and tourism

Contact

Kari Kataja
Programme Manager
Bits of Health and Clinical Entrepreneur Finland
kari.kataja@tekes.fi
+358 29 505 5626
www.tekes.fi, www.tekes.fi/bitsofhealth

TWICT

Turku University of Applied Science Living Lab for Wellbeing and ICT

Innovation hub combining physical environments for innovation, education and testing with public and private actors in ICT, health and wellbeing

TWICT is part of Turku University of Applied Sciences. It operates across educational and research fields providing support in activities requiring expertise and facilities in ICT, user centric approach and testing particularly in the fields of home and health care.

Testing facilities include own 4G LTE mobile network using 700MHz bandwidth, a simulated home environment (KunnonKoti) and mobile eHealth testing cube, as well as business innovation environments The FIRMA and Business Academy. The underlying principle is innovation pedagogy, which offers students real life environments to learn, experiment and innovate together with experts from private companies and public institutions.

Currently the focus is in strengthening the co-operation between Turku and Stockholm regions health care companies, particularly their export actions by offering a joint innovation and testing platform Nordic Health Living Lab (NHLL).

Contact

Tiina Ferm
Senior Lecturer
tiina.ferm@turkuamk.fi
+358 40 355 0140
www.tuas.fi

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Nordic Testbeds and Innovation Gateways

Iceland

Akureyri Municipality - Living Lab

City of Reykjavík - Department of Welfare

Innovation Center Iceland

Landspítali University Hospital

Primary Health Care of the Capital Area – HH

SI – The Federation of Icelandic Industries

Akureyri Municipality

Living Lab

Testbed and development partner

A municipality of 18,500 inhabitants, Akureyri provides social services and independent living support, ranging from cleaning to round-the-clock services for people with complicated service needs and retirement homes.

Akureyri Retirement Homes took part in the Nordic Connect initiative, mapping best practices in implementing welfare technology. They have been at the forefront of innovation and introducing modern technology in caretaking and were awarded the national European Enterprise Promotion Awards in 2017 for implementing a medication management system. Examples of ongoing welfare technology projects are electronic health records, procurement and menu management, motivating exercise and furthering communication between users, service providers and other caregivers.

Akureyri Home Care Services are implementing a home care system and have used various technical aids for their users, e.g. personal amplifiers to ensure mutual understanding when assessing service needs.

Akureyri Municipality is open to participation in initiatives involving new technology or methods to further independence and empowerment among their users.

Contact

Jón Hrói Finnsson / Halldór S. Guðmundsson

Director of Independent Living Support Services / Director of Akureyri Retirement Homes

+354 460 1410 / +354 460 9100

jonhroi@akureyri.is / halldorsg@akureyri.is

www.akureyri.is

Inside out

Outside in

Idea testing

Product testing

Service testing

IT testing

Business development

Cost benefit analysis

IPR consulting

Regulatory documentation

Internationalisation

Public procurement

Research collaboration

Pre-clinical trials

Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

City of Reykjavík Department of Welfare

Testing environment and innovation gateway

The Reykjavik Welfare Department is responsible for the city's welfare services, including services for senior citizens and disabled people. This includes policy making in matters of welfare, the implementation of social services, planning and integration of welfare services, the development of new resources and evaluation of results. The Welfare Department operates nursing homes and housing solutions for elderly and disabled people.

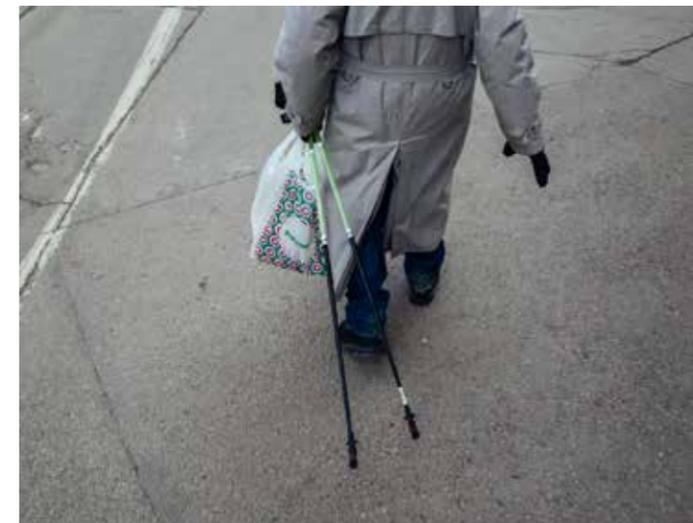
Reykjavik participated in the Nordic Independent Living Challenge, where three Icelandic companies reached the semi-final. One of them, the Heartbeat of Home, is about to start testing in real care environments operated by the Department of Welfare. The City of Reykjavik also participates in the Nordic Business and Living Lab Alliance, a project that promotes collaboration between municipalities and companies for co-creating, testing and scaling health and care solutions.

Based on the participation in these initiatives, Reykjavik City Council recently agreed to commit ISK 100 million to establishing a testbed based on the Living Lab approach. Starting from 2018, this will enable testing and development of new welfare technology in cooperation with the industry.

- 2 employees in the Living Lab, starting from 2018
- 1 idea tested
- 1 product developed/tested
- 1 service developed/tested
- 1 patent application
- 1 patent acquired

Contact

Bórhildur Egilsdóttir
Department Manager, Department of Welfare
thorhildur.egilsdottir@reykjavik.is
+345 411 9042
www.reykjavik.is



Photos: Benjamin Suomela / Norden.org

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Innovation Center Iceland

Innovation gateway

Innovation Center Iceland is a leading R&D and business support institute in Iceland. It offers R&D support and start-up funding for entrepreneurs and innovative start-ups, and provides consulting in areas of technological development, commercialisation and internationalisation.

Innovation Center Iceland is active in identifying and commercialising promising health care innovations. Its services include a toolbox for innovators in the health and welfare sector, an extensive technology transfer database, a range of web-based services, as well as business development guides and information on national and European funding. Furthermore, its health sector incubator, KIM Medical Park, provides access to certified labs and production facilities for health care staff and businesses. The R&D departments of Innovation Center are actively involved in international cooperation projects with entrepreneurs and SMEs within the health care sector.

The organisation's turnover in 2016 was approximately ISK 1,3 billion. 40 per cent of that amount was government funding, granted through the Ministry of Industries and Innovation.

Contact

Berglind Hallgrímsdóttir
Director at Innovation Centre Iceland
Impra SME and Entrepreneurship
berglindh@nmi.is
+354 522 9263
www.nmi.is/english



Photo: Innovation Center Iceland

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Landspítali University Hospital

Testing environment and innovation gateway

Landspítali University Hospital's RDI efforts include medical research, genetic studies, brain activity monitoring, eye research, risk calculations, and software- and app development for physicians and the public. Innovations are occasionally tested in the hospital's departments, ensuring feedback from health care personnel, patients and their relatives.

Landspítali University Hospital funds innovative projects through its science fund, thus indirectly providing support for companies created around innovations from hospital staff, as well as young scientists and RDI groups. Also, its quality improvement fund supports projects that improve quality of care and optimise use of resources. All projects have access to guidance with regards to good clinical practice, innovation processes and funding applications. Moreover, Landspítali cooperates with Innovation Center Iceland on commercialisation of ideas and innovations.

Landspítali serves as a secondary care hospital for more than two-thirds of the Icelandic population and is the entire country's tertiary care centre for complicated treatment. Its annual turnover is approximately ISK 57 billion.

Contact

Magnus Gottfredsson, MD, PhD, FACP
Professor and Chief of the Science Department
magnusgo@landspitali.is
+354 543 1000
www.landspitali.is

Primary Health Care of the Capital Area – HH

The Primary Health Care of the Capital Area, Heilsugaesla hofudborgarsvaedisins (HH), is the largest provider of primary care services in the Reykjavik area, which includes seven municipalities with a total of 217.000 inhabitants.

HH is a formal testbed for the development of the Icelandic electronic medical record, Saga EMR, which is marketed by a private company, TM Software, by contract with the Directorate of Health. A recent spin-off from this work is Vera, a secure patient web portal to access medical history, schedule office appointments, renew and review prescriptions and contact healthcare providers. The software will soon be ready for test implementation at three health centres in Reykjavik. HH has a number of personnel dedicated to this project, including physicians, nurses and allied healthcare professionals.

HH is a governmentally funded and owned organisation. It has a staff of around 600 and runs 15 health centres, as well as centralised clinical support services. Annual operating budget is around ISK 6.6 billion.

Contact

Óskar Reykdalsson
Medical Director
Primary Health Care of the Capital Area
oskar.reykdalsson@heilsugaeslan.is
+354 585 1300
www.heilsugaeslan.is/en

Inside out

Outside in

Idea testing

Product testing

Service testing

IT testing

Business development

Cost benefit analysis

IPR consulting

Regulatory documentation

Internationalisation

Public procurement

Research collaboration

Pre-clinical trials

Clinical trials

SI – The Federation of Icelandic Industries

Innovation gateway

SI works with a wide range of domestic and international partners on innovation and development. It takes active part in strategic planning and promotes the co-operation of industrial companies, their customers and institutions in the field of research, development and problem solving in all sectors, including the healthcare sector.

SI is not directly involved in testing activities but serves as a contact point for companies, healthcare institutions and the public, aiming to strengthen collaboration on the development, testing and marketing of new healthcare solutions. It provides information about domestic and international R&D collaboration as well as R&D funding opportunities in Iceland, the Nordic region and the EU.

SI's work in the healthcare sector is often related to financing, organisation and project development, as well as establishing contacts between companies and public sector institutions involved in the development of innovative healthcare products and services. SI takes direct part in Nordic and European innovation and development projects, and is one of the project partners in the Nordic Business and Living Lab Alliance.

Contact

Bryndís Jónatansdóttir

Project manager

si@si.is

+354 591 0100

www.si.is

Nordic Testbeds and Innovation Gateways

Norway

BTO - Bergen Technology Transfer

InnoMed

Intervention Centre - Oslo University Hospital

Agency of Health – Oslo Municipality - The Living Lab method in Oslo

Norway Health Tech

Norwegian Smart Care Lab

Operating Room of the Future (FOR) - St. Olavs Hospital

Centre for connected care (C3)

Oslo University Hospital - Department of Innovation

Sunnaas Rehabilitation hospital

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

BTO Bergen Technology Transfer

BTO is the technology transfer office in Bergen, which supports twelve research institutions in their innovation and commercialisation efforts. Its objective is to contribute to innovative research and promote ideas that are beneficial for individuals, the market and society.

The University of Bergen, Haukeland University Hospital, Helse Fonna, Haralds plass Deaconess Hospital and Western Norway University of Applied Sciences supply BTO with a broad range of health innovation projects.

BTO manages clinical studies for Haukeland University Hospital, collaborating with industry and researchers, performs testing of prototypes and applies interaction design in health innovation. In total, BTO has contributed to the start-up of 15 health companies. BTO manages the Biomedical Network and is member of the Oslo Cancer Cluster.

BTO is a publicly owned private company, funded partly by its owners, the Norwegian Research Council and Innovation Norway. Services include marketing and funding, patenting considerations, legal assistance, business development and networking. Furthermore, BTO takes part in collaborations regarding applications, agreements and contracts for externally financed projects with innovative potential.

- 49 employees
- A turnover of NOK 128 million in 2016
- 68 companies established
- 180 active projects
- 150 ideas per year
- 398 patent applications
- 194 projects have led to licences or sale
- 113 clinical studies

Contact

Dag Finne
Senior Business Developer
Dag.Finne@bergento.no
+47 555 83 050
www.bergento.no

InnoMed Innovation gateway

InnoMed is a national competence network for need-driven innovation in the Norwegian health care sector. It addresses important challenges, like the growing number of elderly, patients with chronic diseases and problems related to lifestyle.

InnoMed develops projects in an early innovation phase, i.e. identification of needs, investigating project possibilities and establishing project organization and partnerships. By the end of 2016, its portfolio entails 109 pre-projects in eight categories, including prevention, diagnostics, treatment, follow-up and rehabilitation, and solutions for patients and health care personnel. These projects have resulted in 53 development projects and more than 39 service and product innovations.

InnoMed is owned by The Norwegian Directorate of Health and run by the research organization SINTEF. The network is organized with innovation advisors in each of the four Health Regions. InnoMed works together with health care companies, municipalities, patient organizations, various R&D environments and businesses. Funding is provided by the Norwegian government, while pre-projects are mainly financed by The Norwegian Directorate of Health and Innovation Norway.

Contact

Merete Rørvik
Senior Business Developer, SINTEF, Department of Health Research
merete.rorvik@sintef.no
+47 930 08 878
www.innomed.no

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out

Outside in

Idea testing

Product testing

Service testing

IT testing

Business development

Cost benefit analysis

IPR consulting

Regulatory documentation

Internationalisation

Public procurement

Research collaboration

Pre-clinical trials

Clinical trials

Intervention Centre Oslo University Hospital

Testing environment

The Intervention Centre is a research and development centre integrated in Oslo University Hospital, which focuses on new health services from a value-based perspective. The Intervention Centre has established a clinical test facility for assessment of new medical technologies and imaging methods. The test facility has an advanced infrastructure for clinical and technological testing in all phases of development of new devices and imaging equipment. The services include pre-clinical and clinical testing.

The purpose of the test facility is three-fold:

1. To speed up the development of new treatments or procedures for various disease processes, thereby improving patient outcomes
2. To assist medical device developers in their effort to bring beneficial products to the market and thereby make them available for patients
3. To stimulate development of Norwegian medtech industry

Oslo University Hospital's Intervention Centre has an annual budget of MNOK 75, where 37% is funded from external research sources. It has assisted over 75 companies, from start-ups to large international enterprises, in development of new equipment and devices.

- NOK 75 million annually
- 77 companies assisted
- 19 products developed/tested
- 15 services developed/tested
- 5 patent applications
- 40+ patents acquired

Contact

Karl Øyri

Section Manager, PhD

koyri@ous-hf.no

+47 995 19 179

www.ivs.no



Photo: Intervention Centre Oslo University Hospital



Photo: Karen Beate Nøsterud / norden.org

Agency for Health – Oslo Municipality The Living Lab method in Oslo Innovation gateway

The Agency for Health's Welfare Technology Section was established in 2016. This section is responsible for implementing welfare-technological solutions in the City of Oslo. Current focus areas include technologies that will make the citizens more self-reliant, detect changes in health, improve quality of life and enhance the citizens' safety.

To ensure that citizen needs are the basis for development of new products and services and for improving existing solutions, the Welfare Technology Section has piloted use of a method called Living Lab. The Living Lab ensures user-centric innovation processes by facilitating early interaction between businesses, citizens, and health and care service providers.

This method, which has been used actively by the Welfare Technology Section, has been beneficial to the municipality, to health and care service providers, to users of welfare technology, and to businesses.

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Contact

Tonje Haugen
Senior Executive Officer
tonje.haugen@hel.oslo.kommune.no
+47 468 37 429

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Norway Health Tech

Testing environment and innovation gateway

Norway Health Tech has a vision to make Norway the best arena for health innovation. Key focus areas are to facilitate R&D and industrial cooperation between research, industry and health personnel. The aim is to provide better healthcare solutions for all through the dissemination of innovative solutions and cross-sector cooperation. Norway Health Tech stimulates market-driven innovation and facilitates clinical studies, testing and verification, but also contributes to business development and international scaling, builds investment networks and facilitates innovative procurement.

Norway Health Tech main objective is to improve the quality of treatment and care by industrializing healthcare solutions in the global ecosystem. The organisation aims to create sustainable solutions to the major global health challenges by strengthening competitiveness and facilitating growth in the Norwegian healthcare industry, also by expanding international cooperation. Services include acceleration programmes, project management, user-centric development processes, internationalisation and information about funding opportunities.

Norway Health Tech is the coordinator of Nordic Proof – the Nordic network of testing facilities – see more at www.nordicproof.org

- 8 employees, 3 advisors
- 20-30 projects running at all times
- Norway Health Tech is part of Innovation Norway, the Norwegian Research Council and SIVA's cluster programme at level NCE – Norwegian Centre of Expertise.

Contact

Anita Moe Larsen
Head of Communications
aml@norwayhealthtech.com
+47 416 06 800
www.norwayhealthtech.com

Norwegian Smart Care Lab

Testing environment

Norwegian Smart Care Lab is part of the Norwegian Smart Care Cluster. It is a hub for innovation and business development in health-care, home care and social services in a smart city context.

Key focus is to create and test new solutions in health and social care, particularly for the elderly. The purpose is to identify needs in the municipalities and develop and test new technologies and services in assisted living, home care and nursing homes.

The Norwegian Smart Care Lab offers support in developing, testing and documentation of new ideas and concepts for start-ups and other businesses that wish to enter the Norwegian or international markets within welfare technology.

The Smart Care Lab is organised as a public/private project with more than 115 companies and 40 municipalities as stakeholders.

Contact

Marit Hagland
Manager Norwegian Smart Care Lab
marit.h@valide.no
+ 47 452 61 799
www.smartcarecluster.no

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Operating Room of the Future (FOR) St. Olavs Hospital

The Operating Room of the Future, FOR, is an integrated university clinic, situated at St. Olavs hospital in Trondheim in Norway. Its facilities allow students, researchers and innovators to do clinical research and experimental studies under the best possible conditions.

FOR includes six operating rooms, which all serve as unique laboratories for the development, testing and clinical implementation of new technology and new treatment modalities. Its goal is to encourage research and innovation to obtain better and safer patient care, more efficient logistics and better architecture of operating departments. New technologies are developed and tested in the operating rooms in collaboration with a long range of partners, private and public.

FOR is a collaboration project between St. Olavs Hospital, University Hospital of Trondheim and The Norwegian University of Science and Technology. FOR has a staff of eight and is currently involved in 57 different innovation projects.

Contact

Jan Gunnar Skogås
Managing Director, Operating Room of the Future
jan.gunnar.skogas@stolav.no
+47 982 80 585
www.stolav.no/en/About-the-hospital/Departments/Operating-Room-of-the-Future-FOR/

Centre for connected care (C3) Innovation gateway

C3 is a centre for research-based innovation (SFI), funded by the Norwegian National Research Council. NOK 96 million are allocated to the five institutions responsible for the research within C3, financing Researchers, PhDs and Postdoctoral positions. There are five main research themes:

1. Innovation processes, development of business models, tools and methods for use in the development of new innovative healthcare.
2. Communication infrastructures and platforms for future health care organization.
3. Innovative procurement processes, implementation and organization of innovative healthcare.
4. Economic analyses on the business and socio-economic level and the development of economic analysis for effective evaluation of innovation and improvement projects.
5. Simulating tool for capacity requirements, logistical challenges, effects and challenges of governance models to coordinate supply and treatment in hospitals, municipal health institutions and in homes.

The centre connects academics, clinicians and the life science industry in order to create an innovation and knowledge-sharing platform supporting collaborative, patient-centred and cross-institutional care.

Contact

Kari Hengebøl
Chief Operating Officer
+47 957 51 178
www.c3connectedcare.org

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Oslo University Hospital Department of Innovation Innovation gateway

The Department of Innovation at Oslo University Hospital fosters innovation by acquiring ideas from health care professionals, patients, relatives and researchers, as well as from actors in the health care industry. It offers a range of advice and assistance to innovators and project leaders, helping them develop, test, implement and spread their ideas.

The department's services include knowledge on innovation, project development and documentation of effects. Its web platform – www.idepoliklinikken.no – is a tool for processing innovation. It provides an overview of the hospital's ongoing and finished projects, and gives innovators and project leaders a place to work on their idea and communicate with their team. The advisors at the Department of Innovation help the project along with their diverse backgrounds and knowledge, also utilizing a broad network in and outside the hospital.

Moreover, the department helps adopt and diffuse innovation through a range of partnerships. Knowledge sharing is a key feature of its operations. It continuously aims to share its work – locally, nationally and internationally – as well as learning from others in order to improve healthcare services. The Department of Innovation has six employees.

Contact

Christian Skattum
Head of the Department of Innovation
cskatt@ous-hf.no
+47 400 00 920
<https://oslo-universitetssykehus.no/fag-og-forskning/innovasjon>
www.idepoliklinikken.no



Photo: Johannes Jansson/norden.org

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Sunnaas Rehabilitation hospital

Testing environment and innovation gateway

Sunnaas rehabilitation hospital has been involved in innovation and product development for more than 60 years. The department for innovation and e-health was established in 2011 to ensure high quality services related to the development and realization of ideas, the hospital's testbed activity, implementation of new technology, service design and LEAN processes. To further strengthen the hospitals' approach, the technology and e-health unit was merged with the innovation unit in January 2017.

In accordance with the hospital's strategic goals, ideas, innovations, services and products related to movement, cognition, virtual rehabilitation and gamification, patient-safety, as well as technology and e-health are given particular attention. Other ideas and products are also welcomed. The department addresses user- and research-driven ideas and innovations, and collaborates with employees, patients and relatives, start-ups, small- medium and large companies. Since the department was established in 2001, more than 70 projects have been launched.

Sunnaas Hospital is the largest rehabilitation hospital in Norway, and amongst the largest in Europe. It works in close collaboration with the major trauma centres in Norway, the Norwegian municipalities, and major rehabilitation research institutions across the world.

- 4 employees
- 15 companies assisted
- 100 ideas tested
- 20 products developed/tested
- 6 services developed/tested

Contact

Sveinung Tornås
Head of Innovation
Sveinung.tornaas@sunnaas.no
+47 991 59 137
www.sunnaas.no



Photo: Bård Gudim

Nordic Testbeds and Innovation Gateways

Sweden

Botnia Living Lab
Experio Lab - County Council of Varmland
Innovation Akademiska
Innovation Skåne
Karolinska University Hospital - Center for Innovation
Interaction and Service Design research group - Linköping University
MISTEL - Municipality of Västerås
Nordic Medtest AB
Örebro University - Norrlandicus method
Region Norrbotten
SLL Innovation - Stockholm County Council
Testbed for elderly and disabled - Örebro
Stockholm Living Lab - RISE SICS
SVID - Swedish Industrial Design Foundation
Test Environment Norrköping
Testbed for the Elderly Care in the City of Malmö
Unit for technology assessment, testing and innovation - Centre for Healthcare Development - Region Östergötland
VINNOVA - The Swedish Governmental Agency for Innovation Systems

Botnia Living Lab

Innovation gateway

Botnia Living Lab contributes to the creation of a better society through digital innovations in collaboration with e.g. SMEs, large companies, associations and researchers.

Botnia Living Lab supports the development of digital service innovations, involving multiple stakeholders and focusing on end-users. It supports the evolution from the early exploratory phases, through the interactive service design process, to experimentation and evaluation. End-users are involved in development and testing in real-life settings.

Since 2002, Botnia Living Lab has carried out approximately 50 Living Lab projects and more than 150 end-user engagement studies. Key subjects concerning health include Internet of Things technology, privacy and security, and digital innovations.

Botnia Living Lab currently runs five Living Lab projects: UNaLab, U4IoT, Sustainable and Digital Villages, SmartBuy and PrivacyFlag. Its services include:

- Managing innovation processes
 - Planning and performing user and citizen engagement processes
 - Implementation and testing in real life contexts
 - Evaluation of service innovation at different maturity stages
 - Design and development of digital service innovations
 - Research on methods and tools for user and citizen engagement
 - Management of multi-stakeholder involvement processes
-
- 11 employees
 - 100+ ideas tested and developed
 - 100+ services tested and developed

Contact

Anna Ståhlbröst
PhD, Managing Director of Botnia Living Lab
anna.stahlbrost@ltu.se
+46 92 049 20 91
www.ltu.se/botnia

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development /
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Experio Lab County Council of Varmland Innovation gateway and Design Lab

Experio Lab involves staff, patients and families in developing health-care services that create value in people's everyday lives. Design is their tool and approach, and the mission is to be a platform for learning and exploration that supports health care to rise to the challenges and need for transformation.

Experio Lab initiates and runs projects and builds capacity for innovation in collaboration with health care operations, with a focus on the patient's journey through the healthcare system. The lab equips health professionals with design tools to continuously involve patients in developing the daily operations. Experio Lab is finding new ways of designing healthcare services by combining the experiences of patients and staff and a collaborative approach, also involving academia and business.

During 2017, Experio Lab is undergoing a transformation from a local lab to a collaborative effort between several County Councils establishing their own embedded labs. The County Council of Varmland has been commissioned to help coordinate these labs, to share expertise, resources and a common mission to build new knowledge. Together, the labs form a collaboration identified by the European Commission as one of Europe's 40 most important design and policy labs within public sector.

- 8 employees in County Council of Varmland
- 20-30 employees in Experio Lab Collaboration
- SEK 10 million annually, County Council of Varmland
- 75-100 services developed/tested

Contact

Tomas Edman
Coordinator
tomas.edman@liv.se
+46 72 518 84 05
www.experiolab.se



Photo: Experio Lab

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Innovation Akademiska - Region Uppsala

Testbed for companies and innovation gateway for employees

Innovation Akademiska is part of Uppsala University Hospital's research and education department.

Innovation Akademiska has a regional mission to support employees in Region Uppsala develop their ideas for medical devices and services; create collaboration between healthcare and medical technology companies to ensure that products and services meet healthcare requirements; and to develop and test novel ways of working at Uppsala University Hospital and within Region Uppsala.

One key objective of the co-operation with companies is to ensure that healthcare professionals – the users – can influence designs by testing and evaluating products and services already in the development stage. All such collaborations are based on the fundamental requirement that any product or service a company is developing meets real needs in healthcare.

Innovation Akademiska's services for business collaborations include:

- Expert meetings between companies and healthcare professionals to validate clinical needs
- Usability tests, focusing on user experience and functionality
- Implementation support (process mapping, mini-HTA)
- Quality development and evaluation of existing but not yet implemented solutions

- 4 employees
- SEK 4 million annually
- 100+ companies assisted
- 250 internal ideas tested
- 100+ external ideas/products/services tested

Contact

Johan Kaarme
Head of Innovation Akademiska
johan.kaarme@akademiska.se
+46 18 611 59 18
www.akademiska.se/innovation

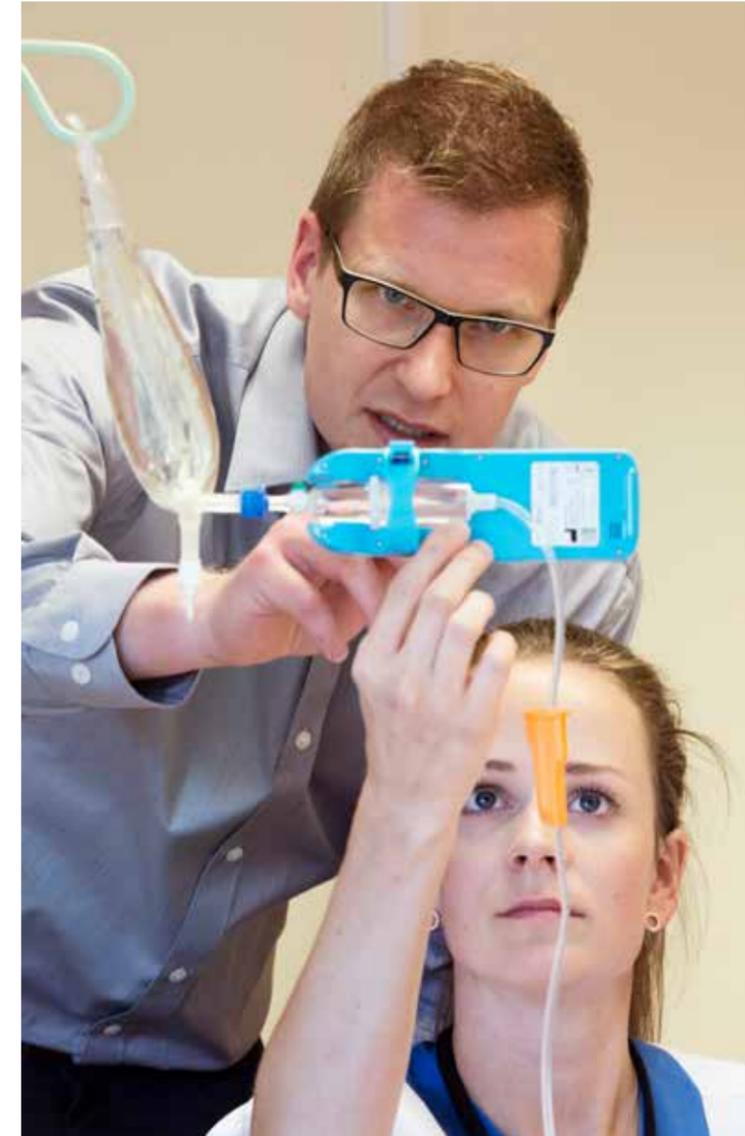


Photo: Innovation Akademiska

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Innovation Skåne

Testing environment and innovation gateway Regional Innovation actor with project and network capabilities

Innovation Skåne, a company owned by Region Skåne, supports entrepreneurs in the development of fast-growing companies and contributes to increased efficiency and quality in the healthcare sector through innovation.

Key focus areas include business advisory to fast-growing start-ups and innovation management in Region Skåne's healthcare, including digitalization and innovation procurement. Innovation Skåne also supports emerging industries through initiatives such as HealthTech Nordic, assists healthcare employees develop their ideas to reach commercialization and operates a regional testbed, Health Tech Arena.

HealthTech Arena is a test bed and meeting place to test and validate new e-health products and services. Innovative healthtech companies have the opportunity to test their solutions and have them validated against real needs in the healthcare sector at all stages of the development phase, from product idea and conceptualization to proof of concept and validation. Services include idea testing, IT testing and usability, and, moreover, Innovation Skåne provides access to clinical trials through its sister organisation.

- 45 employees
- 200+ companies assisted annually in business advisory
- 100+ ideas from innovative employees tested per year
- 10 products developed/tested yearly

Contact

Sigge Frolov
Director Industry Relations and HealthTech Arena
sigge.frolov@innovationskane.com
+46 73 424 73 89
www.innovationskane.com

Karolinska University Hospital Center for Innovation

Testing environment and innovation gateway

Karolinska University Hospital has several internal organisations focusing on innovation, development and testing, which operate, to a large extent, independent of each other. Karolinska works together with academia and industry in small collaborations, but also in larger partnerships that may or may not have been procured in advance.

Karolinska drives innovation and development from within, from the perspective of health care and patients. The hospital tests ideas from employees, researchers or industry, based on the needs of health care and patients. Key areas of expertise include health care, user-centred and service design methods, rules and regulations, health economy and prediction models.

The main innovation gateway is the Center for Innovation, located under Innovation & Development. There are several testing facilities in the hospital, such as the Clinical Trial Alliance, focusing mainly on clinical trials in pharma, the test facility at the Medical Technology Department, the National Testbed for Radiation Therapy and the Telemedicine Testbed. The Center for Innovation also runs an effort to establish a reality lab for AI.

- 15,800 employees
- Turnover SEK 18 billion annually
- 7 procured partnerships on new hospital buildings with larger Med-Tech companies
- Several partnerships with smaller companies, academia and EU partners

Contact

Kristina Groth
PhD, Associate Professor
kristina.groth@sll.se
+46 70 085 66 64
www.karolinska.se/en/karolinska-university-hospital/Innovation/

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Interaction and Service Design research group Linköping University

Environment for knowledge development on design, testing and collaborative development of products, systems and services

Interaction and Service Design, IxS, is a research group at Linköping University. The group studies the applied art of facilitating people's interaction, mediated by IT-based products, services and systems. Its main activities are user-driven design research projects in close collaboration with companies and organisations.

The Interaction and Service Design research group engages in projects where design competence and capacity drives a human-centred approach to innovation and development, often across several stakeholders and from the policy level to the specific project level. The group has been involved in a range of projects occupied with everything from quality of life for elderly and issues related to hearing impairment to projects aiming to improve weather services and use of technology in education. The group consists of eight researchers.

Contact

Stefan Holmlid
Professor in Design
stefan.holmlid@liu.se
+46 1328 56 33
www.liu.se



Photo: Yadid Levy / Norden.org

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

MISTEL - Municipality of Västerås

Testing environment

MISTEL is a test bed operated by the municipality of Västerås, which contributes to the independence and well being of the elderly and people with disabilities, as well as to innovations that improve municipally funded health and personal care services.

MISTEL offers customized test design throughout the entire innovation process. The test bed facilitates focus group sessions with relevant user groups as well as tests in regular housing and sheltered housing, i.e. residential homes, service housing or care homes for people with disabilities, as well as in MISTEL's own test apartment. Testing by end-users is crucial to the process. MISTEL is open to all types of innovations – products, services, methods and means of organization.

End-users involved in MISTEL's testing activities include elderly individuals in private homes, people receiving home care, healthcare professionals, managers and other staff in municipal health and personal care. The testing group varies from test to test, depending on the technology and the maturity of the solution being tested. Furthermore, MISTEL is working on a structured methodology to identify needs in municipal health care.

Contact

Karin Hedberg and Elisabeth Kjellin
Project Managers – MISTEL
mistel@vasteras.se
+46 2139 00 00
www.mistelinnovation.com

Nordic Medtest AB

Testing environment

Nordic Medtest AB is an independent and open test centre, where public and private healthcare organisations – in close cooperation with suppliers of IT systems and software - can develop, test and safely introduce new and innovative IT services in healthcare.

The main objective is to increase patient safety and IT efficiency by better testing and verification in e-health. Nordic Medtest's service catalogue includes expert consulting, testing environments, certification, test management, usability, data fabrication and validation for testing purposes, as well as education and test-driven development.

The main part of Nordic Medtest's work is related to IT services in the e-health ecosystem in a life cycle perspective, focusing mainly on interoperability, usability, security, laws and regulations.

Nordic Medtest AB is a public company indirectly owned by all county councils, regions and municipalities in Sweden.

- 23 employees
- 12 full-time consultants
- SEK 34 million in 2017

Contact

Peter Furster
CEO
peter.furster@nordicmedtest.se
+46 70 361 03 88
www.nordicmedtest.se

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Örebro University Norrandicus method

Norrandicus was an R&D project financed by VINNOVA and Väster-norrland County Council. During its project years (2012-16) it managed a testbed for health and welfare solutions in elderly care, allowing for testing of products, services and new workflows.

Results from the project are still being used as Norrandicus developed a method to evaluate whether integrating an innovation in older people's immediate environment changes the way they perceive their quality of life and dignity. At the same time, the relevance and potential of the innovation is evaluated in terms of benefit and usability.

The method is being applied and refined by researchers at Örebro University in collaboration with RISE (Research Institutes of Sweden) and Umeå University.

Contact

Isabella Scandurra, PhD Medical Informatics
Assistant Professor, eHealth and Usability
Informatics Section
Örebro University School of Business
+46 70 368 12 99
isabella.scandurra@oru.se

Region Norrbotten Innovation gateway

Region Norrbotten is run by the county's inhabitants through political elections. The region is the county's biggest employer with approximately 7,000 employees, most of which work in the health care sector. The Region's innovation activities are mainly focused on patients/users and co-workers. Region Norrbotten collaborates closely with other innovation actors in the county, occupied with e.g. financing, incubators and cluster organizations.

The innovation activities within Region Norrbotten are focused on the future development of healthcare with e-health as the main focus. Key innovation activities include:

- Early verification and validation of innovative ideas and solutions
 - Testing of CE-marked products
 - Larger scale innovative development projects
 - Implementation of innovative services, working methods and products
 - Transnational collaboration
 - Virtual development and innovation environments
 - Living Lab testing
-
- 7000 employees
 - €700 million annually

Contact

Lisa Lundgren
Development Strategic Officer
lisa.lundgren@norrbottn.se
+46 72 534 94 26
www.norrbottn.se

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

SLL Innovation - Stockholm County Council

SLL Innovation is the main unit for innovation and development of services provided by Stockholm County Council. Its role is to create strategies for how to collect and process ideas from staff and collaboration partners, with the objective of developing novel products, services and methods that lead to improvements for the county's citizens and workplaces.

SLL Innovation plays an important role in developing core activities such as healthcare and hospital services and public transport. In the healthcare sector, SLL Innovation works closely together with innovation units in the county's hospitals, which include Danderyd, Karolinska University Hospital, Södertälje Hospital and Stockholm South General Hospital, as well as with the county's healthcare centres. Testing activities are carried out in hospital units and healthcare centres.

The objective is to identify the needs of the county's healthcare institutions and support companies in answering the needs. SLL Innovation aims to support the companies throughout the innovation process.

Contact

Annette Alkebo
Strategist
annette.alkebo@sll.se
www.sllinnovation.se

Testbed for elderly and disabled - Örebro Testing environment

The testbed facilitates innovation in healthcare that promotes independent living for the elderly. Its main focus is technology-oriented solutions, which can be used at home.

The testbed operates with four interlinked processes: assisting end-users and healthcare professionals in capturing ideas; assisting companies to test prototypes with real users; enabling commercialization with other partners; and assisting companies to gain exposure to end user and eventual customer base. Test facilities include Ängen research and innovation apartment, hospitals, private residences and nursing homes. Collaboration with Örebro University's research group in robotics and intelligent systems gives access to further testing capacities.

Testbed Smarta äldre is a joint collaboration and financed by the municipality of Örebro, Örebro County Council, the University of Örebro and Alfred Nobel Science Park.

- 4-7 employees
- € 100.000 in 2017
- 20 companies assisted in 2017
- 10 ideas tested in 2017
- 3 products developed/tested in 2017

Contact

Ingela Ernestam
Project Manager
ingela@alfrednobelsp.se
+46 70 899 06 03
www.alfrednobelsp.se / www.angeninnovation.se

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Stockholm Living Lab RISE SICS

Stockholm Living Lab is focused on executing projects within the eHealth and Digital Health sector. Projects are formed together with industry, municipalities, county councils and research organisations to solve challenges with medical care over distance, social care and other care related issues in the capital Stockholm, the largest urban area in Sweden.

Stockholm Living Lab has performed detailed studies of the user groups in the home care sector. Its services range from providing methods, portal software, and access to users and test facilities, to organising meeting places and innovative interactions between companies and the public sector. Furthermore, it assists health care users and companies in their idea- and business development.

Stockholm Living Lab is a neutral and non-profit organisation and is hosted by RISE SICS, which facilitates access to more than 2,200 researchers and experts within the whole of RISE (Research Institutes of Sweden). The project is funded mainly by public organisations, such as EU, VINNOVA and others. It has a budget of EUR 2.5 million and a staff of 10.

Contact

Peter Kjäll
Head – Digital Health
peter.kjall@ri.se
+46 70 789 09 33
www.ri.se / www.sics.se

SVID Swedish Industrial Design Foundation Innovation gateway

SVID, Swedish Industrial Design Foundation is a national organization, whose aim is to implement design thinking and co-production into all improvement and innovation movements in the public and private sectors. SVID is funded mainly via an annual basic appropriation from the Swedish Agency for Economic and Regional Growth, which is mandated by the Swedish Ministry of Enterprise, Energy and Communication to strengthen regional development and facilitate enterprise and entrepreneurship in Sweden. SVID has 8 employees.

The foundation runs several projects along with different strategic partners from both public and private sector.

One example of a project is Co-lab Sweden, which is intended to act as a multisectoral platform for innovation and cooperation in order to solve, from the user's perspective, complex issues at the national level. The aim is to be able to apply the forum and methods used to any complex social challenge. The project started in 2016. From February 2018, Co-lab Sweden is funded by the Swedish Inheritance Fund and focuses on how to create better welfare and a faster way into society for child and youth migrants.

Contact

Kristina Frisk
Interim CEO
kristina.frisk@svid.se
+46 8 406 84 44
www.svid.se

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Test Environment Norrköping

Testbed

Test environment Norrköping is used for testing of e-health and welfare technology for the elderly. Testing is conducted in two neighbourhoods where 36 per cent of the inhabitants are over 65 years of age and 13 per cent over 80. This age distribution corresponds to the expected European average in 2050.

Test environment Norrköping offers the opportunity for companies and innovators to test new solutions directly with citizens and within the existing health and care infrastructure. In addition to private homes and home care services, testing is carried out with the innovation organisation – Test and innovation – at the University Hospital in Linköping. The innovation organisation has recommended companies to conduct tests that are not suited for the hospital in the Test environment.

More than one hundred citizens aged over 80 have been trained to use a tablet device. This is an important and much sought-after platform for tests due to the fact that much of the development to promote active aged living and effective care solutions focuses on mobile solutions and apps. End-users in Test environment Norrköping are thus frequently involved in the development of digital solutions that promote health and independent living.

Contact

Lina Fahlén
Municipality of Norrköping
lina.fahlen@norrkoping.se
+46 73 020 14 00
www.norrkoping.se



Photo: Yadid Levy / Norden.org

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Testbed for the Elderly Care in the City of Malmö

Testing environment

The Testbed for the Elderly Care in the City of Malmö tests and develops needs-driven innovations and ideas for elderly in regular housing. The aim is to develop and test innovations in practice that respond to the needs of women and men who are 65 years or older. These innovations are to improve the quality of the medical and social care and support, and also enhance safety and security in the homes of the elderly. The ideas and innovations can be products, services, processes or organizational solutions. The testbed enables tests and development of innovations, and provides forum that is open to new ideas and collaboration between companies, researchers, employees, users, relatives and civil society.

The Testbed for the Elderly Care in the City of Malmö was established in 2016 in co-operation with Malmö University and Medeon Ltd, with financial support from the Swedish Governmental Agency for Innovation Systems, VINNOVA.

Contact

Jaklina Strand
City Officer
testbedmalmstad@malmö.se
+46 40 34 40 85 / +46 76 869 26 79
www.malmö.se



Photo: Yadid Levy / Norden.org

Inside out
Outside in
Idea testing
Product testing
Service testing
IT testing
Business development
Cost benefit analysis
IPR consulting
Regulatory documentation
Internationalisation
Public procurement
Research collaboration
Pre-clinical trials
Clinical trials

Unit for technology assessment, testing and innovation Centre for Healthcare Development Region Östergötland Testing environment and innovation gateway

Our mission is to create opportunities to increase the County Council's innovative capacity in health care with the aim of strengthening the ability of healthcare to meet the challenges of the future – and thus provide the best possible health care for Östergötland residents. The unit is interdisciplinary and works with involving care, supporting organisations, citizens and patients, academia and enterprise in testing and development of innovations.

The main objective is to ensure that more ideas are captured, tested, evaluated in early development stages and then put to use for those who need them most.

The Unit offers services for idea development, needs assessment, testing and validation with end users, i.e. health care staff, patient and next of kin, including test bed facilities. It is important that innovations - new methods, products or services – developed by, for example, companies and researchers, meet the real needs of the healthcare sector.

- 6-10 employees
- SEK 6 million in 2017
- 58 companies assisted since 2016, 22 ongoing
- 70-80 ideas tested per year
- 5-10 products developed/tested
- 5-10 services developed/tested

Contact

Magnus Stridsman
Head of Unit
magnus.stridsman@regionostergotland.se
+46 10 103 22 51
www.regionostergotland.se/testochinnovation/

VINNOVA The Swedish Governmental Agency for Innovation Systems

VINNOVA is Sweden's Innovation Agency. Its mission is to promote sustainable growth by improving the conditions for innovations, as well as funding needs-driven research.

VINNOVA has been instrumental in the establishment of test beds and innovation gateways in Sweden. Over 20 test beds in the health care and elderly care sectors have received funding amounts to SEK 70 million in 2012-2016. In 2017, VINNOVA also finances ten Reality Labs within these areas.

Every year, VINNOVA invests about SEK 2,9 billion in various initiatives, and co-financing from actors must total at least the same amount. Funding decisions are made with assistance from national and international experts and there is ongoing monitoring and evaluation of all initiatives.

VINNOVA is a Swedish government agency working under the Ministry of Enterprise, Energy and Communications and acts as the national contact agency for the EU Framework Programme for R&D. About 200 people work at its offices in Stockholm and Brussels.

Contact

Karin Eriksson
Head of Health Department
karin.eriksson@vinnova.se
+46 8 473 31 09
www.vinnova.se

Nordic Innovation is a vital instrument for the Nordic ministers of business, energy and regional policies and shall contribute to creating the Nordic region into a leading region for sustainable growth, and shall work for increasing entrepreneurship, innovation and competitiveness in the Nordic region.

Nordic Innovation is an organisation under the Nordic Council of Ministers and is situated in Oslo.

www.nordicinnovation.org