



Norwegian University of
Science and Technology

39th Conference of Rectors and Presidents of European
Universities of Technology
Addressing the challenges that planet earth is facing
Toril Nagelhus Hernes
Vice President Innovation
Professor Medical Technology

Key Facts

- Norway's largest university with 42000 students
- 8 faculties, 55 departments and NTNU University Museum
- 7400 person-years
- Main profile in natural sciences and technology
- Also, large programs in medicine and health, teacher education, humanities, social sciences and arts.
- Annually – more than 7000 completed bachelor's and master's degrees and ~400 doctoral degrees
- Heavily involved in Europe's research, innovation and education programmes



2014 Nobel Prize

NTNU professors May-Britt Moser and Edvard Moser were awarded the 2014 Nobel Prize in Physiology or Medicine for their discovery of cells that constitute an “inner GPS” in the brain.



Research

Participate in 154 Horizon 2020-projects value of Euro1400 mill and have 10 ERC Grants

The University in Norway that has received most funding from Norwegian research council

Host or partner in 35 large research centers

-SFI Centre for Research-based Innovation

-SFF Centre for Excellence in Research

-FME Research centers for environmentally friendly energy

-SFU Centre for Excellence in Education

Internal priorities at the university to develop and recruit excellent researchers



Norges forskningsråd



Norges forskningsråd



Norges forskningsråd



Strategic research areas

NTNU Energy



NTNU Health



NTNU Oceans



NTNUSustainability



The strategic research areas aim to:

Work together across disciplines, solve complex challenges of great importance

Face global challenges with an interdisciplinary and flexible organization

Strengthen cooperation with the world of work and our innovative capability

Increase NTNU's share of international research funds

NTNU Sustainability



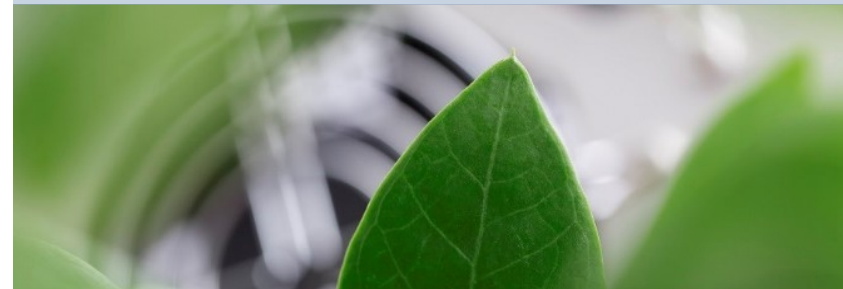
– Knowledge for change

AREAS

- Sustainable use and conservation of biodiversity and ecosystem services
- The transition to a circular economy and sustainable production and consumption systems
- The transition to smart, sustainable cities and built environment
- Climate change: Mitigation and adaptation

INTERDISCIPLINARY RESEARCH

- Innovative models, solutions and technologies
- Modelling, analysis and environmental impact assessment
- Consumer behaviour and governance for realizing improvement potential

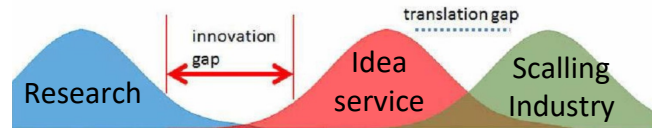


NTNU

Norwegian University of
Science and Technology

<https://www.ntnu.edu/sustainability>

Holistic Ecosystem for Innovation



Creating value from research results and good ideas

- 1776 RECEIVED IDEAS
- 628 PATENT APPLICATIONS
- 135 LICENSE AGREEMENTS
- 140 SPIN-OFF COMPANIES

Services: IDEA ASSESSMENT, PROTECTION OF IP, TECH VERIFICATION, COMMERCIALISATION

NTNU Technology Transfer AS was established in 2003 and is owned by the Norwegian University of Science and Technology (NTNU) and Central Norway Regional Health Authority (HMN).

We are our owner-institutions' strategic tool to 'create value from research' in the shape of new products and services, business and jobs.

At the most basic level our purpose is to spread technology and knowledge that benefits society.

Our core business is assessment of research—and knowledge based ideas, and developing these into socially beneficial products and services.

www.ntnutto.no

NTNU Discovery

NTNU Discovery finances development, verification and quality assurance of commercialisable research results from NTNU and Helse Midt-Norge.

- 153 projects, in the period 2011-2018 projects have been awarded NOK 60 million in financial support.
- 41 companies established, and a number of patents granted.
- 600 people involved in the projects, 40% of the projects have collaborated with external R & D environments.

These funds are essential to bring the technology to the next step.

Feedback from projects document that the funding from NTNU Discovery covers a very critical stage in the transition from research to commercialization and business creation.

Discovery projects have triggered more than NOK 200 million in additional funding from Innovation Norway, Research Council of Norway, investors and other funding schemes. This is 6.8 times as much as the support from Discovery. It shows that it is a substance in the Discovery portfolio and that the projects have a high technology and innovation content. The high proportion of funding from Research Council of Norway (34%) shows that many of the projects are still in the early stages when they have completed the Discovery period.

NTNU Discovery funds up to one million NOK to main projects and NOK 200 000 to pre-project.

www.ntnudiscovery.no

NTNU'S STRATEGIC PROGRAM FOR KNOWLEDGE-BASED INNOVATION (SKI)

Why?

- It is an unexploited potential for innovation based on research from universities. Ideas from research with great potential for innovation must be disclosed.
- Transfer of innovation and knowledge from NTNU to our business partners and public sector must be increased.
- NTNU wants to make innovation activities more visible and available for people, society, business and public sector.

How?

- 15 innovation leaders will work close with our scientists to increase the pace of innovation and transfer of knowledge from research to impact.
- Culture and competence within innovation in academia is increased by monthly interdisciplinary meetings and transfer on co-working with relevant ideas and innovation projects.
- Relevant funding mechanisms are available for bringing ideas to the next step of innovation.
- The gap between idea and market is shortened by inviting business and public sector into the program together with academia.

Filed of study: examples

- Architecture and design, zero emission buildings in smart cities.
- Information Technologies and electronics, artificial intelligence, big data and the internet of things.
- Information Technologies and electronics, cybernetics and autonomous systems.
- Engineering, science, energy, hydro power, hydrogen.
- Engineering, green change in building sector.
- Medicine and health studies, ultrasound.
- Social sciences, teachers education.
- Economy, green change in the energy sector.
- Information Technologies and electronics, energy and digitalisation.

https://www.ntnu.no/nyskaping/kunnskapsbaseret-innovasjon

NTNU

NTNU STUDENT INNOVATION

The Norwegian University of Science and Technology (NTNU) wants to make an important contribution to research-based sustainable value creation, innovation and increased competitiveness. The three development goals of NTNU's innovation strategy are:

- Strengthen long-term collaboration with educational business and public sector to improve the innovation capability.
- Increase the number of innovations, commercialization projects and start-ups from staff and students.
- Include training in innovation in our students' education.

NTNU's strategy clearly facilitates that students will get an introduction to entrepreneurship and innovation during their studies. NTNU facilitates the creation of student start-ups that work in business-business markets solving industrial and other problems. This is a unique characteristic of the innovation ecosystem around NTNU.

These are the most important actors in NTNU's student innovation ecosystem:

- ENGAGE** (www.engageppc.no) is a centre of excellence in entrepreneurship education. Engage's ambition is to ensure that the ability to identify new opportunities, and the knowledge to acquire the resources and skills needed to innovate for the better, becomes fundamental elements in all disciplines at the higher education level.
- NTNU SCHOOL OF ENTREPRENEURSHIP** (www.entrepreneurship.no) is a two-year MSc-program in entrepreneurship at NTNU where students create and learn through their own ventures as an integral part of their education. NTNU has a various range of innovative education programs, one example is Electronic Systems Design - Experts in Research (EiE) in NTNU's largest interdisciplinary compulsory master's degree course where students develop their interdisciplinary teamwork skills. PhD candidates can attend Ocean School of Innovation with aim to create a culture for innovation, strengthen the awareness and competence on innovation and contribute to increased commercialization of research results.
- SPARK NTNU** (www.sparkntnu.no) is a student-driven extracurricular entrepreneurship initiative including entrepreneurship and innovation to students by offering free coaching by a senior university person in the entrepreneurial process to all students at NTNU.
- START NTNU** (www.startntnu.no) is a student-driven organization set up to promote entrepreneurship and innovation to students. Start NTNU aim to motivate and inspire students to create a business idea. They do this through hosting several large annual events sponsored by local and national industry actors.
- FRAM NTNU** (www.framntnu.no) is the students' shared hub for innovation and entrepreneurship at NTNU. FRAM offers a place to host events such as presentations and competitions, meeting and lecture rooms, a workspace and a studio for audio and video recording and editing.
- START-UP BARRACK**, space for student start-ups.

www.ntnu.no

NTNU

NTNU Technology Transfer as Norwegian Science and Technology

NTNU Discovery

NTNU Innovation Managers

NTNU Student Innovation

Technology of the Future

*Developing the framework for
NTNU's
educational programmes in
technology and engineering for the
future beyond 2025:*



Adding European Dimension through Collaboration With Peers

Launching the future university of technology in the light of the covid pandemic



NTNU
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CHALMERS
UNIVERSITY OF TECHNOLOGY

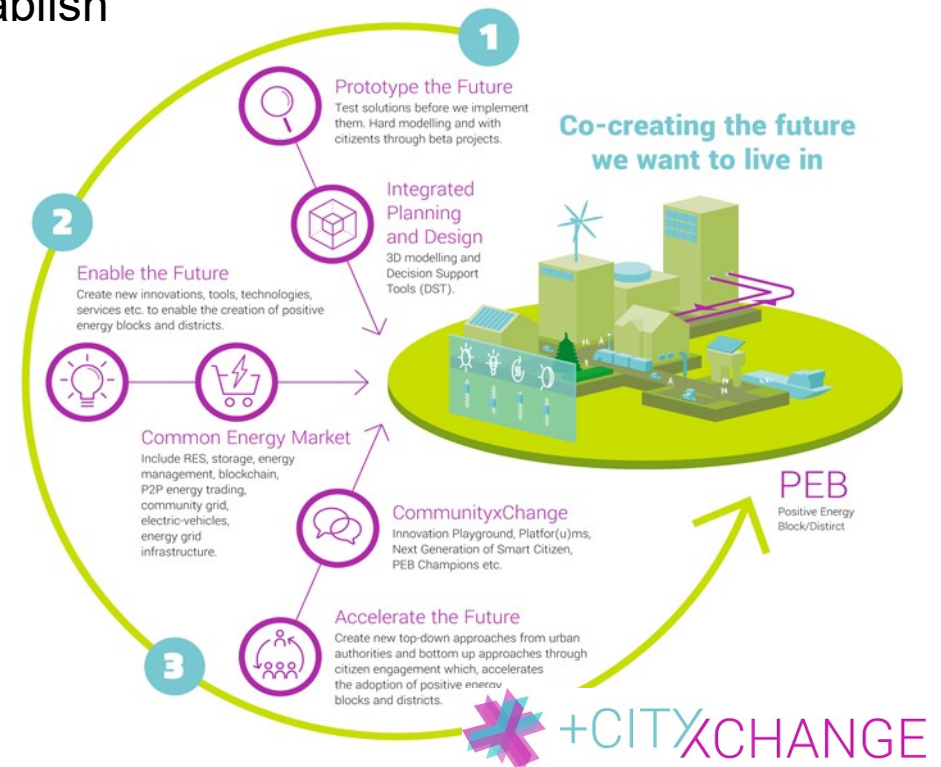


Warsaw University
of Technology



Innovation and Restructuring in Public Sector

Developing Collaboration models on strategic priorities that breaks down silos and establish knowledge and innovation networks



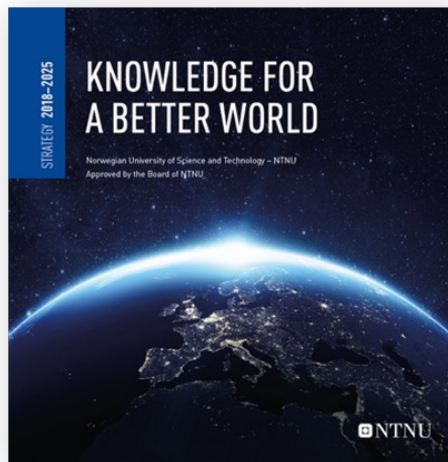
The Forum of Young Scholars in Sustainability (FYSS)



40 new sustainability ph.d. students

A new interdisciplinary research initiative, for better systems understanding on transformative changes for sustainability and interest conflicts between SDGs





SUSTAINABLE DEVELOPMENT GOALS



Thank you for your attention

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