

Technology Transfer to Enhance Science Based Business in Finland

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SUPPORT SYSTEMS IN FINLAND



Ministry of Employment and Economy National Innovation Policy

decisions taken to develop the innovation system

- Research, technology and expertise
- Demand and user-driven innovation
- Service innovations
- Growth entrepreneurship
- Internationalization of innovation activities
- Innovative environments

Research, technology and expertise

- Research and expertise are the most important sources of, and preconditions for, innovation. Scientific and technological research create new knowledge, whose application boosts national competitiveness and prosperity.
- Multidisciplinary skills and expertise, a holistic view, and an appreciation of complexity are vitally important
- The knowledge base for improving expertise and for financing research, development and innovation (R&D&I) is being strengthened.
- Research and development will create opportunities for innovation in businesses and in the public sector

Demand and user-driven innovation

- Open markets and effective competition are general prerequisites of innovation. Growing demand provides a key stimulus to the development of new products, services and solutions.
- Demand driven innovation policy aims at improving the innovation-friendliness of the market.
- User-driven innovation makes use of information on customers, user communities and customer companies. It engages users as active participants in innovation activity.

Service innovations

- Competitive services are crucially important for economic growth and the creation of jobs.
- Vital services and social and healthcare services
- Very different types of service which are based on special customer needs.
- Service innovation may either be a new way of providing a customer with a service or a brand new service altogether. The growth in the information-based economy and the production and storage of digital information that goes with it are bringing new dimensions to the market.

Growth entrepreneurship

- The majority of new jobs and increase in productivity are generated by rapidly growing small and medium-sized enterprises.
- The aim is to create internationally competitive growth enterprises in Finland, and lines of business that generate new enterprises with high added value.

Internationalization of innovation activities

- The Ministry of Employment and the Economy bears the overall responsibility for business environment policy, as well as promotion of exports and the internationalization of enterprises as part of the policy.
- The Ministry's export promotion policy aims to ensure that Finnish enterprises have at least equal internationalization conditions and operating possibilities in the market compared to the companies of our competitor countries.

Innovative environments

- Innovations are the result of cooperation between many actors. Cooperation can only come about in a fruitful innovation environment´.
- the production of competitive innovations needs more multi-dimensional networks in which knowledge, skills, abilities, needs and interests can connect.
- An innovative company in many ways is tied to its global, national and local environment.
- For innovation networks to emerge the actors often have to be close to one another. Trust is built on direct and close interaction.
- Intellectual property rights are important instruments of business and international trade. Intellectual property (intellectual property rights, IPR) includes patents, copyrights, industrial designs, and trademarks, for instance.

Research and Innovation Council's policy guidelines

- For research, development and innovation activity funding, the target level is four per cent of GDP.
- Funding focus is small and medium-sized, growth-oriented enterprises aiming to enter international markets.
- [Tekes](#) - the Finnish Funding Agency for Innovation
 - For companies
 - For research organizations
 - For the producers of public services (for municipalities and other organizations who are legally obliged to arrange or produce services)

Tekes – Key Figures 2013

577 M€

Funding for companies and research organizations

349 M€

For companies R&D –projects

133 M€

Of which for young growth companies

67 %

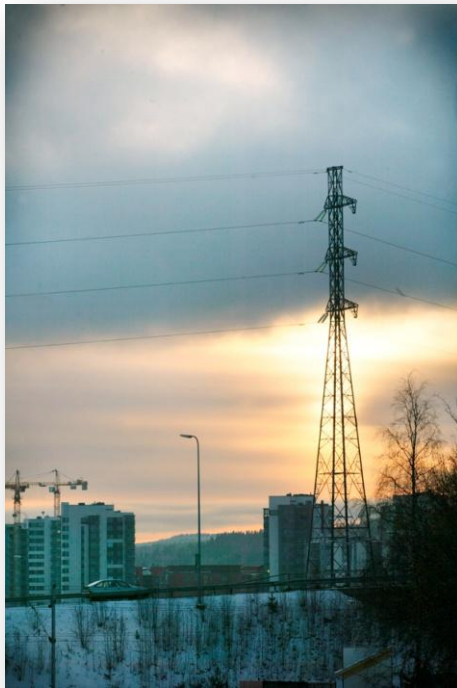
Of company funding to SMEs

Tekes systems for support of TT at universities

- Strategic public-private partnership in Science, Technology and Innovation
- Funding universities in development of technology transfer processes and building of expertise
- Funding research projects, where scientists take the development of an idea further while preparing for the commercialization of the idea into new business

Strategic public-private partnership in Science, Technology and Innovation

The University of Jyväskylä is a shareholder in



- FIBIC Ltd (bioeconomy)
- DIGILE Ltd (ICT industry research)
- FIMECC Ltd (metal products and mechanical engineering)
- CLEEN Ltd (energy and environment)
- SalWe Ltd (health and wellbeing)

Tekes funds also

- **Public research networked with companies:** The funding is targeted to research projects that create new competence and solutions for identified needs of businesses and industries.
- **Strategic research openings:** create new high-level competences in areas expected to be important for businesses in the future

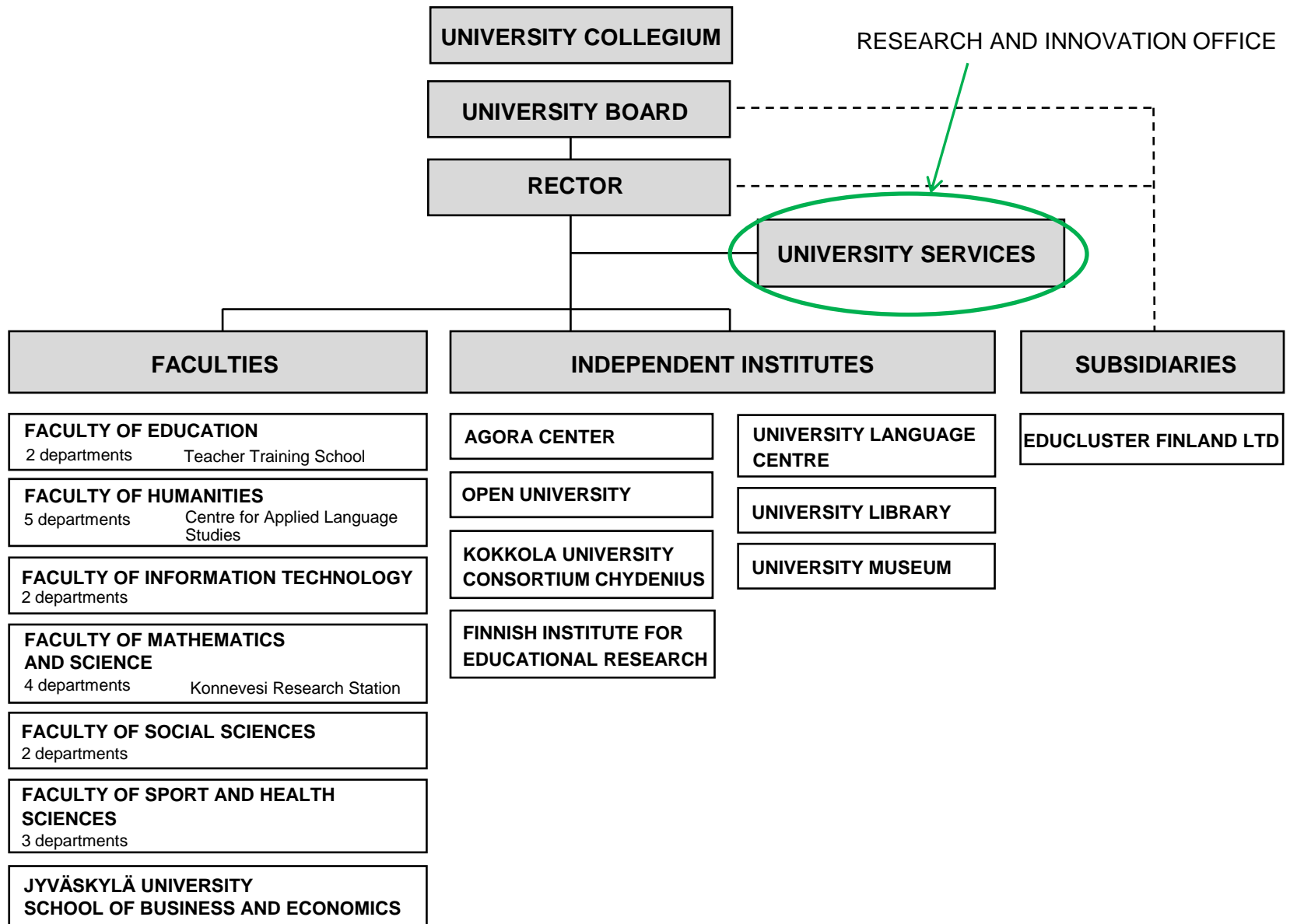
Tekes: New knowledge and business from research ideas

- The project group prepares the commercialization of the research idea.
- The project examines possible paths to utilization and the most promising route and method for taking the idea further (start up, existing company)
- The preparation of commercialization plays a significant role: at minimum it must account for 30 percent of project costs in all phases.
- The applicant must have the rights to background and foreground

UNIVERSITY OF JYVÄSKYLÄ



Organization



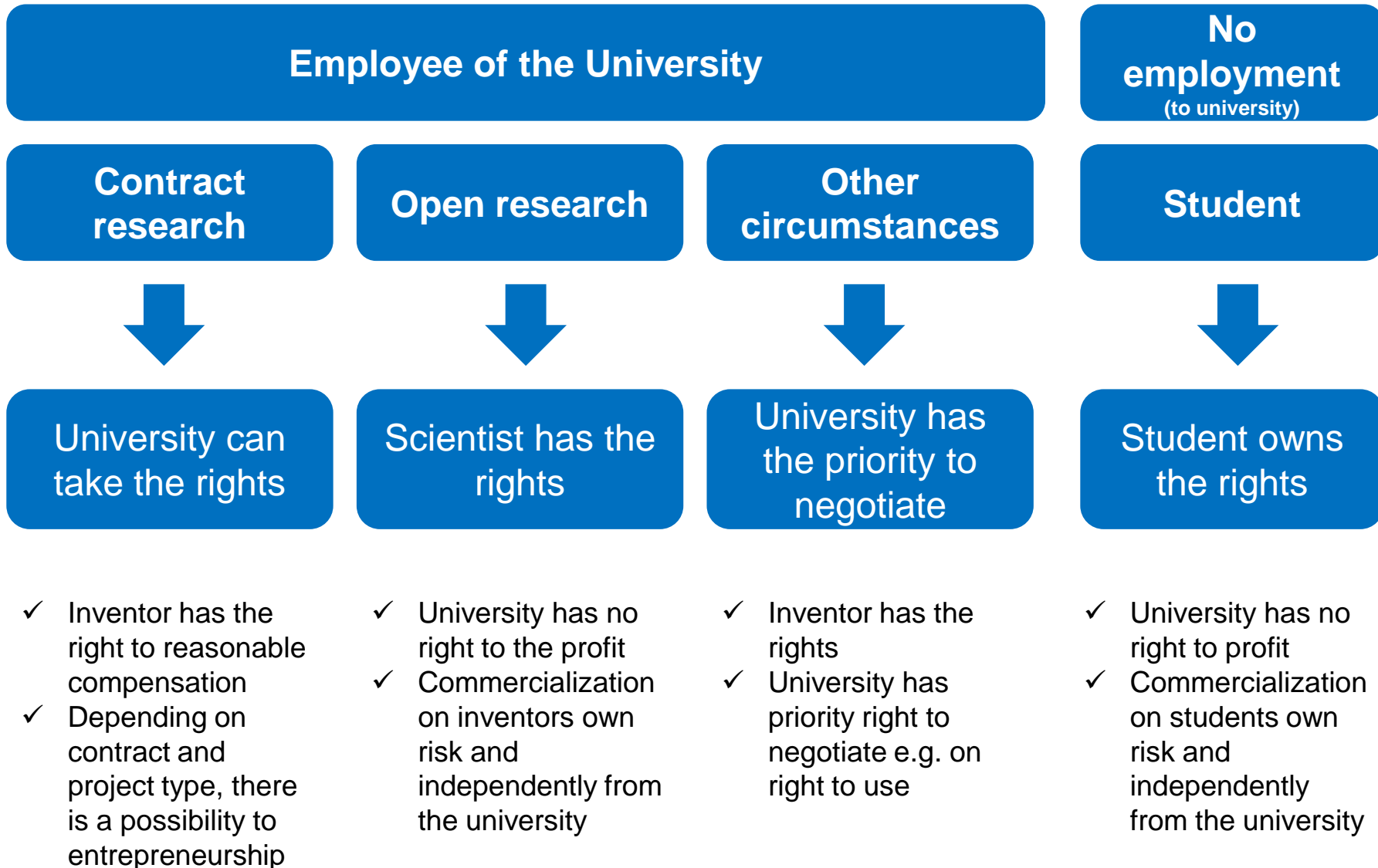
Research and Innovation Office

- Research and Innovation Office has ten employees, two full time and two part-time persons working for TT
 - ✓ Manager of the Office
 - Master of Economic Sciences
 - Leads Project, Legal and Innovation Services
 - ✓ Lawyer
 - Master of Laws and Trained at the Bench (Jyväskylä District Court)
 - Main responsibilities in TT is to making agreements related to commercialization of research results and to help with questions related to immaterial rights (copyrights in special)
 - ✓ Innovation Advisor
 - Ph.D. in Chemistry, Patent Attorney and minor in Technology Business Studies
 - Four years at Joanneum Research, Austria (photonics, technical physics, material science)
 - Since 2008 Innovation Advisor
 - ✓ Project Manager working for business development:
 - Entrepreneur
 - M. Soc. Sc.
 - Products & Service development specialist degree
 - Multicultural experience, has been working with non-profit organizations

Technology Transfer Process

- Takes place in four stages:
 - ✓ Activation, Identification
 - ✓ Evaluation
 - ✓ POR, Refinement phase
 - ✓ Negotiations with suitor, TT-agreements
- University prioritizes to invest the TT resources on IPR owned by the university
- The creators of the IPR get 50 % of the net income

Act on the Right in Inventions made at Higher Education Institutions

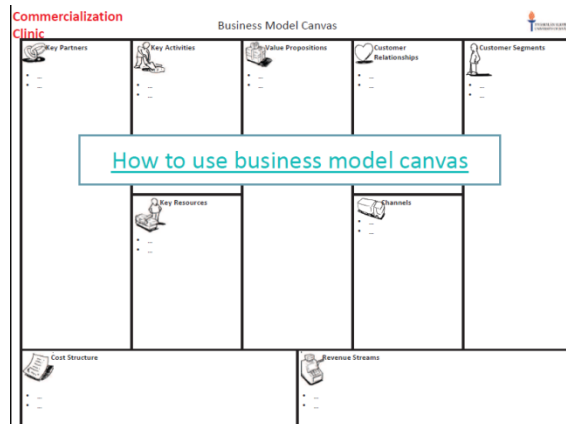


TT – roles and responsibilities

ACTORS/PHASES	Activation and culture change	Preliminary evaluation	Refinement, POR phase	New business	Benefits
TTO	Informs and activates, promotes entrepreneurship, brings out encouraging success stories	Supports, develops tools, evaluates	ensures target-oriented action	Has option to sell IPR Future plan is to make capital contribution (+money)	University based start ups, license income, interaction with society
Researcher	produces innovative research and knowhow	Is committed to the commercial goal, responsible for the scientific substance	Takes research towards commercialization	Possible entrepreneur, board member or shareholder	Chance to become entrepreneur, extra income, new projects
Students	Sees entrepreneurship as attractive alternative	Get business ideas, bold initiators	Can be part of the entrepreneur team or scientist	Potential member of the entrepreneur team	entrepreneurship, learning by doing thesis
Outside Business experts	Advisor for the commercialization process	Helps to clarify the preconditions for commercialization, advises the scientist	Possibility to join the entrepreneur team	Possible entrepreneur, board member or shareholder	Entrepreneurship, income
Companies	Training jobs, thesis, business examples	Can be evolved e.g. to ensure market need	Possible partner (e.g. pilot customer)	Partner or target of technology transfer	R&D action and infra, exploitation of science based knowhow
Investors (VC)	-	-	Follows potential projects	VC investments	Profit
Funders	Supports with funding for developing TT process	Choses projects for funding, follows and evaluates achievement of set goal			Shared target: New, vital businesses Growth companies

Evaluation

- Inventiveness: PatSnap, public databases, “google”, sometimes outsourcing
- Commercial potential: NABC, BMC, JAMK Pre-incubator, Business and Innovation Factory



Commercialization Clinic

NABC Project Worksheet

Present your TEKES project idea using the NABC-A format shown below.
Be ready to present it - it should last no more than three minutes!

PROJECT IDEA	<IDEA NAME>	
What is the important, large, URGENT customer and market NEED AND WANT that you have discovered? Quantify the problem.	<ul style="list-style-type: none"> - - - 	N
What is the specific APPROACH you have developed to satisfy that unmet need? How will it fulfil the need AND delight the customers?	<ul style="list-style-type: none"> - - - 	A
What are the BENEFITS per cost of your approach? Client perspective	<ul style="list-style-type: none"> - - - 	B
Who is your COMPETITOR, what are the alternatives. Why are your benefits superior?	<ul style="list-style-type: none"> - - - 	C
What do you want from TUEP? Include a specific call to ACTION.	<ul style="list-style-type: none"> - - - 	A

Est. investment in xxx Euros, revenue estimate for JY in yyy Euros in 5 years.

DEVELOPMENT OF POR

(proof-of-relevance)

POR (PROOF-OF-RELEVANCE)

- Two main routes to analyze the possible commercialization paths for the utilization, the most promising route and method for taking the research results further towards commercialization:
 1. 5 – 15 k€ university's own funding OR
 2. New knowledge and business from research ideas from Tekes (100 k€ to 1 m€)

University funding

- Meant for putting the finishing touch to already existing research results.
- The funding is for preparing the research results and related IPR for the transfer to a company that brings it to the market and end users.
- The funding is small (typically 5000 - 15 000 €) and the precondition is that the IPR is owned by the university. Our researchers have to right to compensation which is 50 % of the net income gained by the university.

Requirements of Tekes for New K & B

- Important customer and market needs must be fulfilled
- Projects must have significant international business potential
- Simultaneous applied research (70 %) and preparation of commercialization as a new business (30%)
- Strong multidisciplinary project team
- The university must own the IP-rights (also for background)
- The project are build on previous research results and preliminary actions around commercialization

TT-agreements

- Typical assembly of the negotiation team is TT-officer, scientist and company representative
- Pricing on market orientated
 - We take in to account that the commercial partner takes the risk in product/service development + possible IPR enforcement and prosecution.

SUCCESS STORIES

Story telling

- **Hybtonite** is trademark of Amroy Europe Oy for carbon nanoepoxy resins, now owned by B&W Norway. It is a family of composite resins reinforced with carbon nanotubes (CNTs).
- [Firstbeat Technologies Ltd](#)
- [Magister Solution Ltd](#)
- [nEMCell Ltd](#)
- [MetaCase Ltd](#)
- [Humap Ltd](#)
- [Magnasense](#)



TT stories

Start ups

- [Nfleet Ltd](#)
- [TrulyProtect Ltd](#) ([Youtube](#))

Under work e.g.

- [Gigbuds](#)
- [Visguard](#)
- [Recenart](#)

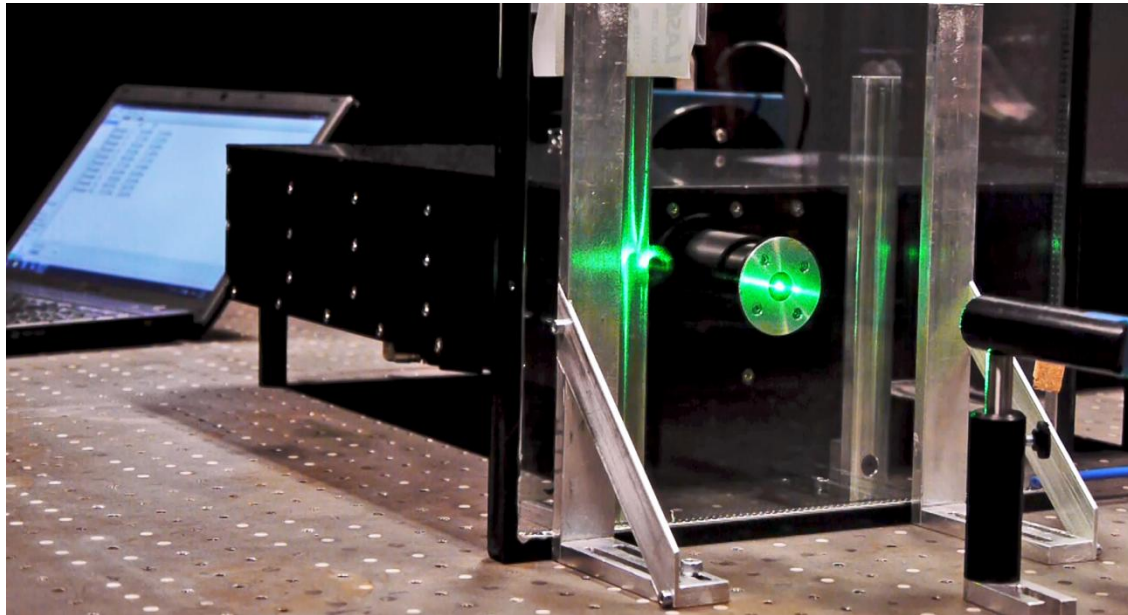
Existing companies

- [Oscare Medical Ltd](#)
- [Metso Automation Ltd](#)

Another kind of story

Novel non-destructive technology for gas analysis

<https://moniviestin.jyu.fi/ohjelmat/science/en/nsc/gasanalyser/video>



Motivation

- 72 M€ external funding
 - 6,3 M€ from Tekes
 - 5 M€ from Finish companies
 - 4.1 M€ from the EU
- 1700 research and teaching staff
- Foreign staff 250 from 58 different countries
- Funding and tools to put research results into use

THANK YOU FOR YOUR TIME