



SMART SPECIALISATION in the Oulu Region

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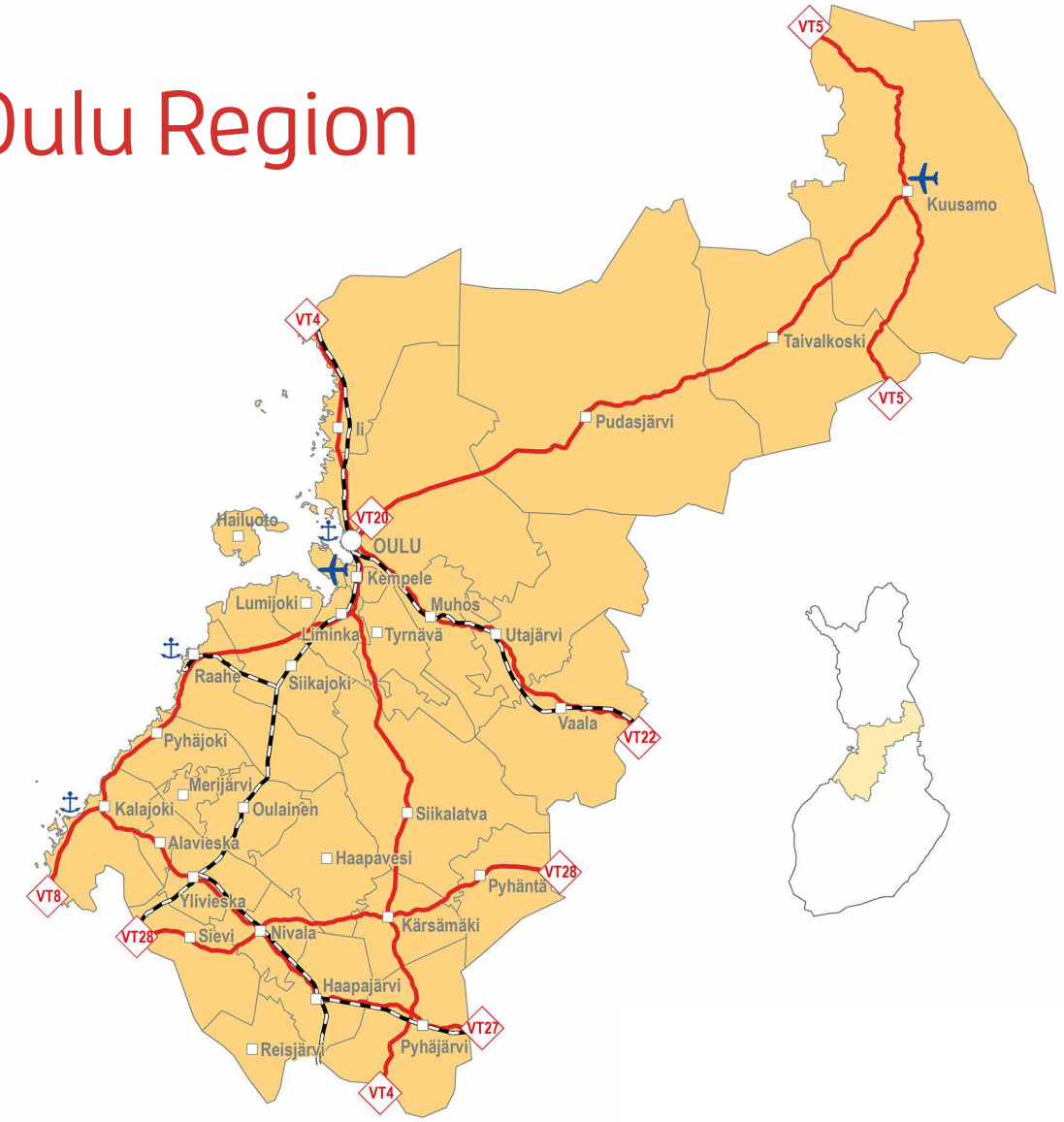
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Cover photo	VTT

The Oulu Region



The Oulu Region is the fourth most populated and second largest region in Finland with steady population growth. The average age of the population in the region is one of the youngest in Europe with every fifth inhabitant being under 15 years old. Every 9th child in Finland is born in the Oulu Region.



Oulu is the largest city in the region and the city is region's technological, educational, and cultural centre. As a vibrant university city, Oulu has the largest student population in North Finland – there are about 23 000 post-secondary students in the city. International start-ups, and more than 200 foreign companies, with top-notch expertise in their field are located in the Oulu area.

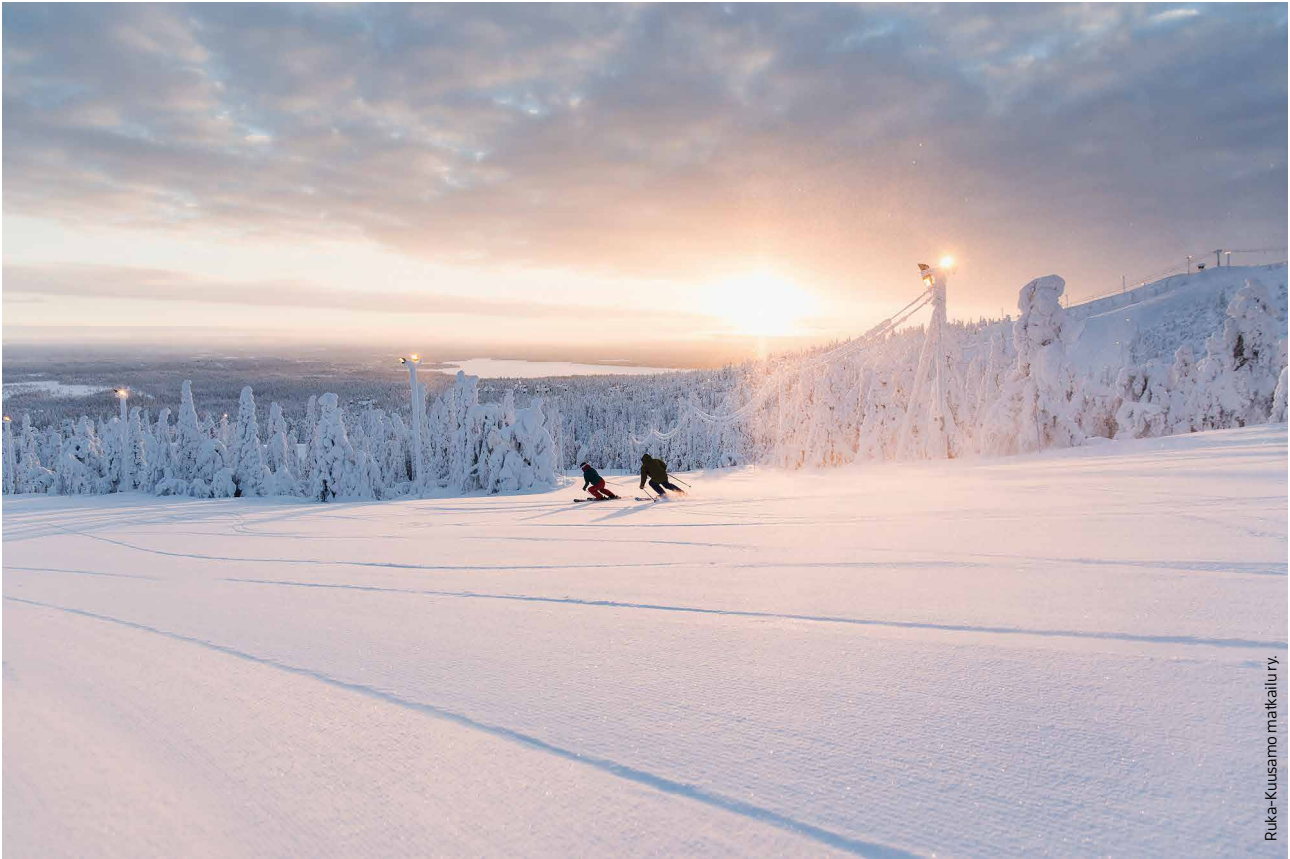


The Oulu Region serves as the logistics centre of the north with its two international airports in Oulu and in Kuusamo. The Oulu airport has direct flights to Helsinki and Stockholm in Sweden. When measured by the number of passengers, it is the second biggest airport in Finland. There are also deep-water harbours in Oulu, Raahe and Kalajoki.

The research and development investments in relation to the size of the regional economy are the highest in Finland. The percentage of the educated population is in the top tier internationally – about 29 % of the population has a higher education degree. There are plenty jobs available in the international growth areas of businesses of the future. The relatively low cost of living in the region helps to secure availability of the workforce.

Oulu Region

	Population	412 161
	Municipalities	30
	Largest city Oulu	203 567 inhabitants
	Land area	36 818 km ²
	Forests	25 326 km ²
	Average age	40,2 years



The University of Oulu is an international science university creating new knowledge, well-being and innovation for the future through multidisciplinary research and education. The university was founded in 1958 and has 8 faculties, 13 500 students and 2 800 staff members. Close cooperation with research institutes, companies, and the public sector has created an internationally significant research and innovation hub.

The University of Oulu contributes to solving some of the greatest global challenges by combining multidisciplinary approaches, high level research and fruitful collaborations in the following five focus areas: creating sustainability through materials and systems, molecular and environmental basis for lifelong health, digital solutions in sensing and interactions, Earth and near-space system and environmental change, and understanding humans in change.

The Oulu University of Applied Sciences (Oamk) has 8 800 students and in total 580 members of staff. The university offers Bachelor's Degrees in Arts & Communication, Business & Information Management, Natural Resources, Health Care & Social Services, and Engineering. Master's Degrees are offered in the fields of Business, Engineering and Health & Social Care.

Oamk features new and flexible education models, such as an e-Campus, a lab learning environment and entrepreneurship studies. It is also an active participant in local innovation centres. Current significant research subjects are printed intelligence, rapid diagnostics, development of entrepreneurship and the role of the women in the enterprises. Oamk has also research projects in the fields of ICT and business, and social and health care technology. Oamk and the University of Oulu will be found from the same campus area from autumn 2020.

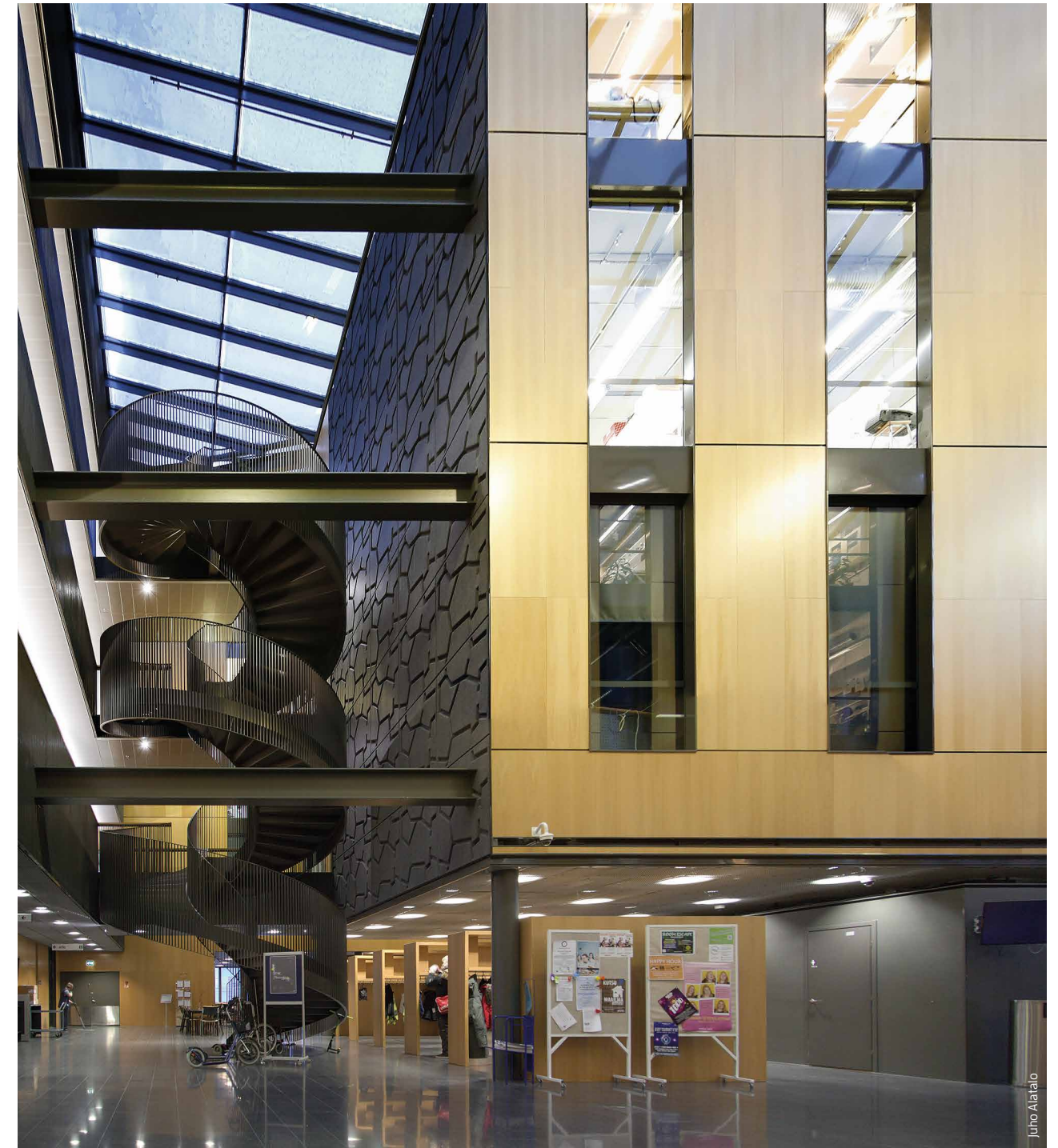
The Centria University of Applied Sciences has a campus in Ylivieska with almost 700 students. Centria offers degrees in the fields of technology, social affairs, health and business. Centria is an international organisation and participates in regional development through research, development and innovation work.

Research institutions

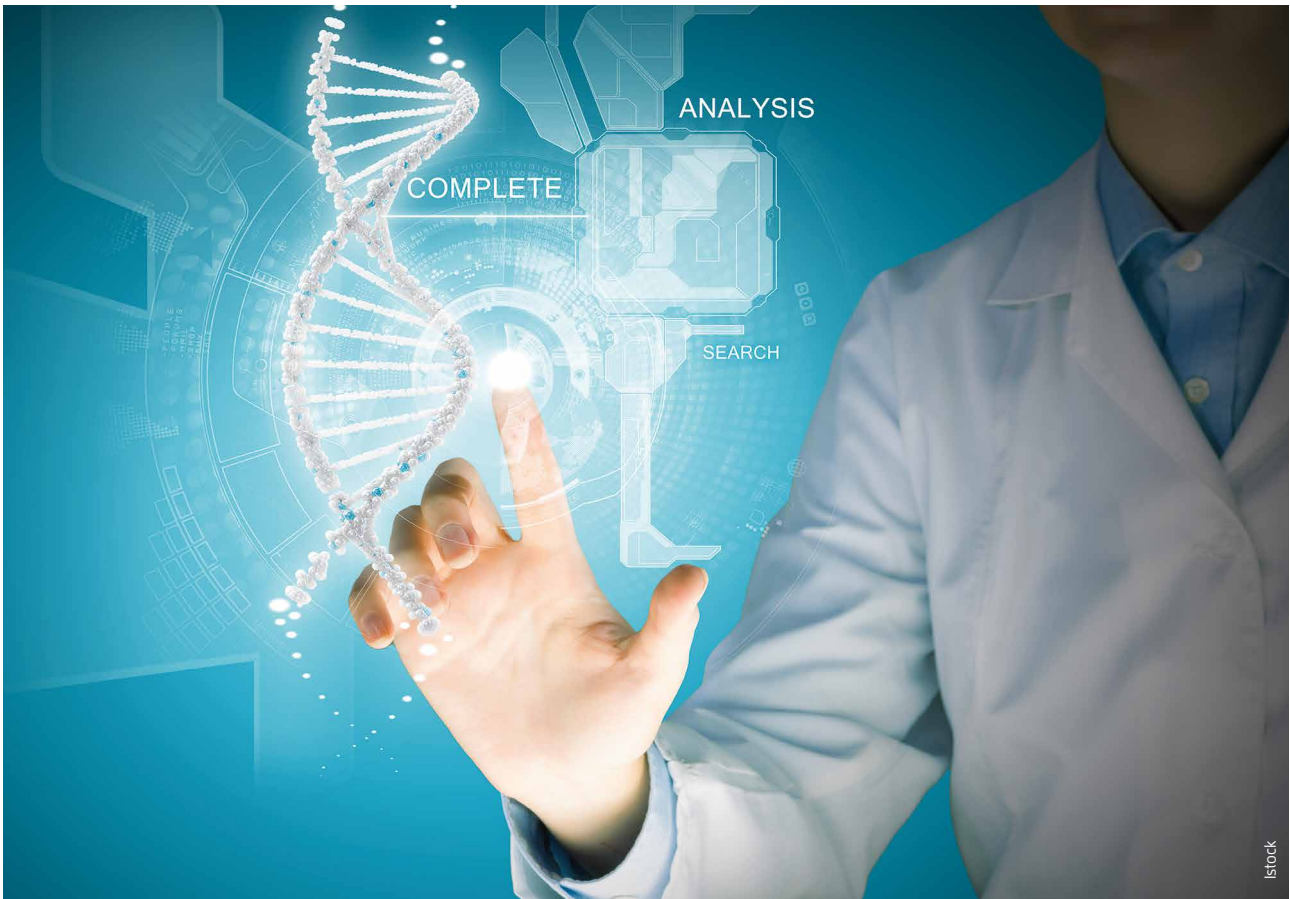
Finnish Food Safety Authority
Natural Resources Institute Finland
Finnish Environment Institute
VTT Technical Research Centre of Finland Ltd
National Institute for Health and Welfare
Finnish Institute of Occupational Health

Educational institutions

University of Oulu
Oulu University of Applied Sciences
Centria University of Applied Sciences
Diaconia University of Applied Sciences
Oulu Vocational College
The Federation of Education in Jokilaaksot
Brahe Vocational College



What is smart specialisation?



Smart specialisation is an approach to increasing innovation and employment through analysis of regional strengths and competitive advantages. Smart specialisation strategies are based on internationally competitive expertise, businesses, the strengths of research and development,

and the use of R&D in developing businesses and increasing employment. Sharing information between different actors creates an environment, where creativity and innovation thrive, and quality is improving.

Developing innovation regionally has two dimensions: development and innovation work reforming local business, and innovation work producing and applying new knowledge, based on strong research expertise. The goal is to encourage regional actors to take advantage of international co-operation networks and European initiatives in the advancement of regional smart specialisation.

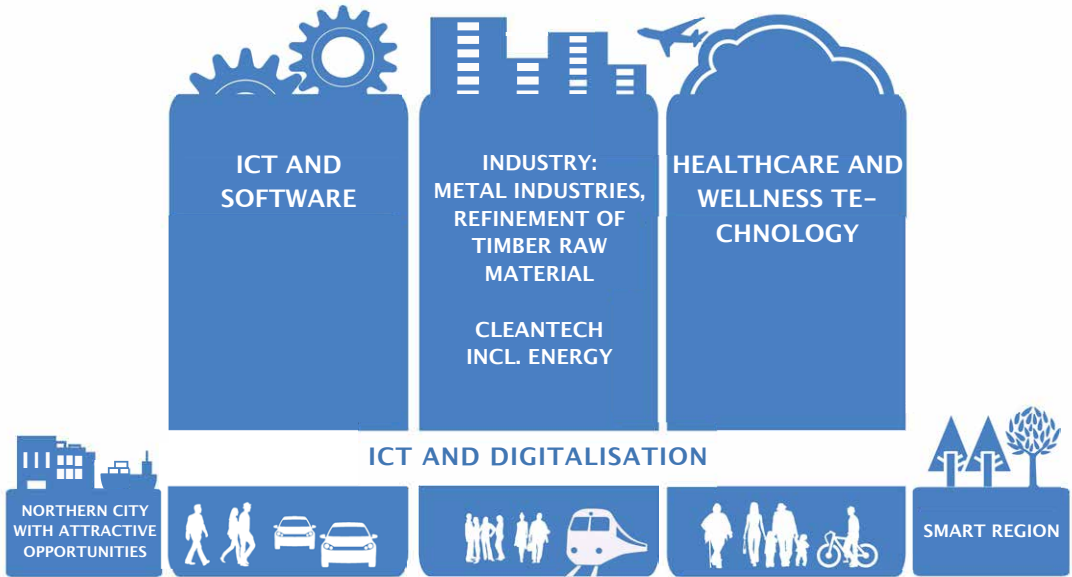
Smart specialisation in the Oulu Region is supported by the European Regional Development Fund, which is controlled by regional administration. Smart specialisation is closely linked with the operations of the Oulu Innovation Alliance and the other actors in the region.

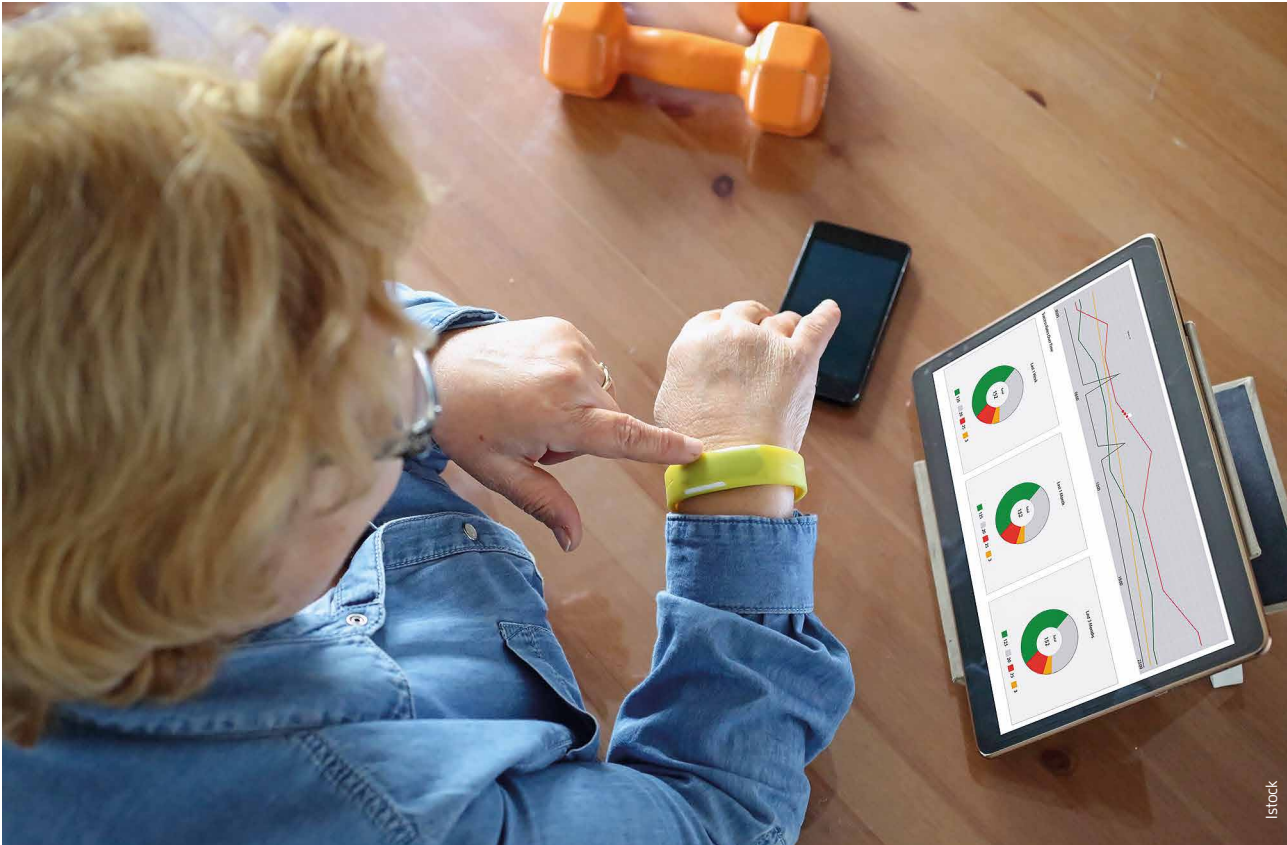
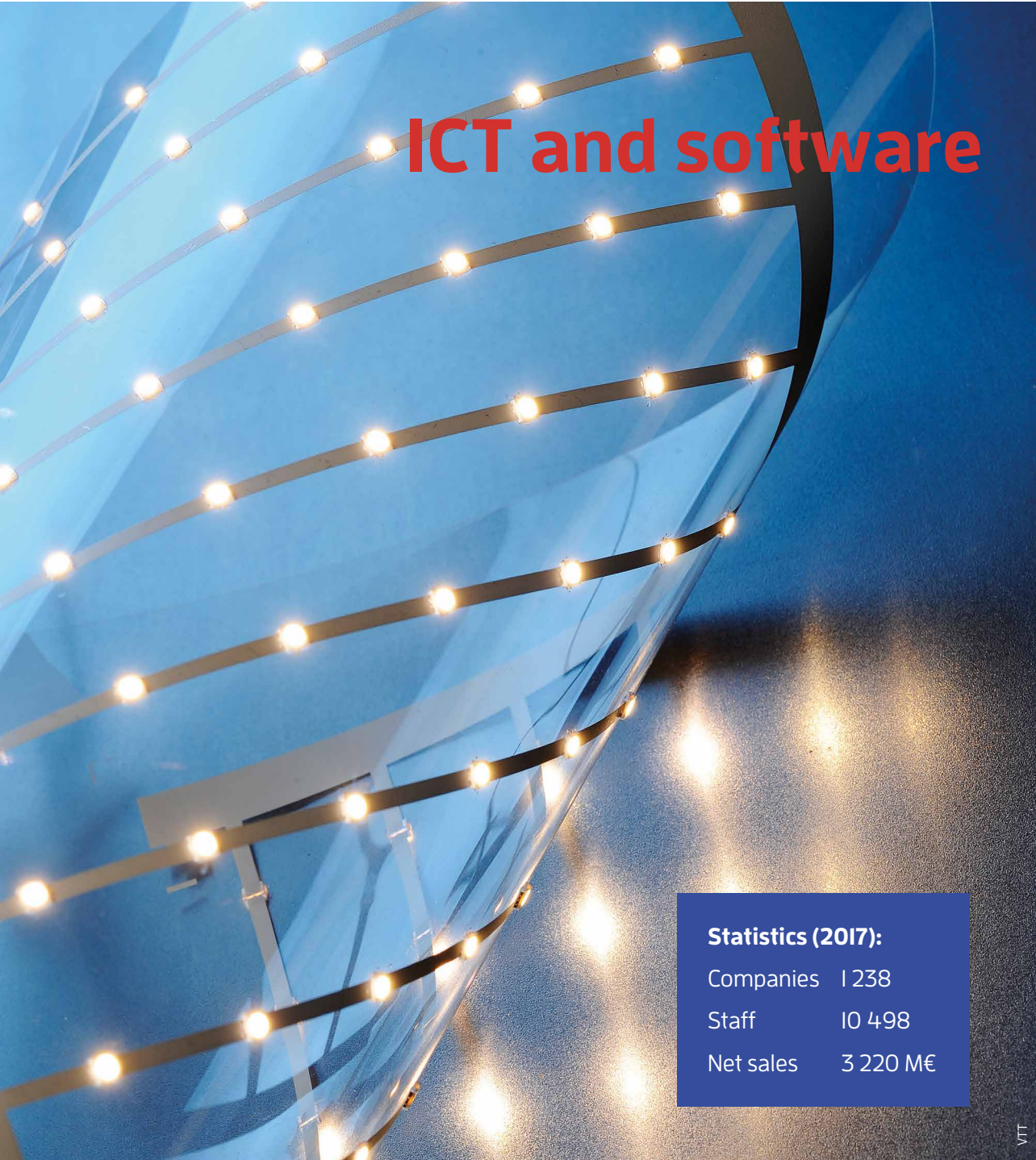
OIA //

OULU
INNOVATION
ALLIANCE

Oulu Innovation Alliance (OIA) is a network consisting of several thematic ecosystems in the Oulu area, such as Agile Commercialization, OuluHealth, ICT & Digitalization and Industry 2026. OIA seeks to accelerate innovation by creating connections between business expertise and top research in the area.

SMART SPECIALISATION OF THE OULU REGION





Oulu Region is known of ICT, where telecommunications has been considered a particularly strong area of expertise. The Nokia cluster created a seed for new business and a large number of innovative start-ups emerged in the region. Some of them have developed into high-growth firms that employ dozens and even hundreds of people. Several large foreign companies have also established themselves in Oulu Region, because of the strong research and development expertise in the area.

An industry that has been emerging powerfully in recent years is financial technology or FinTech, which is centred on the development of ICT for the finance and banking sector. Serving as the core foundation of this trend are the devel-

opment centres established in Oulu by large banks. Health technology is another sector, where Oulu is a strong performer.

The Oulu University of Applied Sciences, the University of Oulu and VTT provide strong basis for expertise in ICT and digitalization, and their research is greatly valued by businesses. A recent confirmation of the quality of research in the area is the funding granted by the Finnish Academy for a large-scale university project, 6 Genesis, altogether 250 M€ for eight years. Cooperation between research institutions and local business is fuelled by the Oulu Innovation Alliance, Allied ICT Finland, Digital Innovation Hubs, as well as testing and piloting environments.



Metal industries

SSAB

Statistics (2017):

Companies	615
Staff	8 079
Net sales	1 724 M€

The metal and machinery manufacture industry has long been the flagship of Finnish exports. The industry bears great significance also in the Oulu Region, where it has a prominent presence alongside ICT. The backbone of the industry is formed by the steel factories of the north and strengthened by strong steel expertise based on industrial know-how and frontline research.

The University of Oulu, leading research in the field, can be called a steel university with good reason. As a result of active R&D, the R&D&I infrastructure of the industry in the region is modern and efficient. This is reflected in varying environments throughout the region: the university, other educational institutions and the ELME Studio in Nivala, which has a largely unique set of machinery for development use. In addition to special-purpose steel, other spearheads of the industry are comprehensive services, the use of modern technologies including ICT, and cost-effective automation of production.

The continuing trend of the growing significance of resource and energy efficiency and green development supports the success of the industry. Demand for light and energy-efficient structures made from stronger materials will grow. Designing smart and light structures with new materials requires expertise in steel design and planning, today and in the future. Efficient utilisation of 3D-printing in metal will facilitate new opportunities in the region, as will increasing automation and the flexible and cost-effective use of ICT in small-scale automation.



Gitte Meriläinen



Refinement of timber raw material

Statistics (2017):	
Companies	223
Staff	3 662
Net sales	1 565 M€

Juho Alatalo



The most vital value chain in the Oulu Region's bioeconomy sector, alongside the food supply chain, is timber refinement from forestry to industrial refining. It is particularly important in terms of exports. The forest industry (the timber, pulp and paper industries) is one of the largest industries in the region with high rates of employment and revenue.

The Oulu Region is the leading region of the timber house and log industries. The TOPI6 list of small house production companies features seven producers from the region, and a significant share of the production is exported. The wood construction industry in the region is largely based on local expertise and materials, further processing, industrial production, logistics and locally done installation work. The town of Pudasjärvi is named as log capital of Finland.

Processing of the wood-based products, like pulp and paper industry and the utilisation of the side streams in production of organic chemicals, e.g. the tall oil, is robust in the region. The demand for products that sequester carbon is on the rise. This will deliver potential for value adding growth in wood product industry, e.g. in the areas of public construction, hall and bridge construction and demand-driven concept building.

Products with a high degree of processing and the use of industrial side streams in enterprise symbioses produce profitable business for SMEs and niche markets. An example is the refinement of side streams of the mechanical forest industry (sawdust, bark and wood chips) into high value-added products, e.g. next generation biofuels, technical coal and extractives.



Cleantech including energy

Statistics (2017)

Companies	282
Staff	1 393
Net sales	959 M€

Environmental technology is one of the fastest growing industries globally. The Oulu Region invests heavily into the development of cleantech, which is fuelled by the strong ICT expertise in the region. For example, combining printed electronics and wireless technology into cleantech solutions enables the birth of entirely new applications. The growth potential of the region's SMEs is high in terms of both turnover and the number of jobs. Oulu has strong expertise in the field, e.g. in energy-efficient lighting solutions, water technology, measuring technology and decentralised energy production. In addition to businesses, significant research and development work in cleantech is being conducted by the region's universities and research institutions.

Cleantech products produced in Oulu Region are being used all around the world. The key areas of expertise that are of interest to both the researchers and the business are water and energy supply, smart sensors, intelligent and resource-efficient building, smart and sustainable mobility and resource-efficiency. The development of new solutions is facilitated by digitalisation and use of modern technologies.

The Oulu Region is the biggest wind power producer in Finland, owing 42 % of the lands production capacity. In the near future, one third of the new investments to wind power are made in the Oulu Region. Expectations for bio-economy and its development through digitalisation are high. The number of produced end-products from wood is growing and the growth is built on sustainable and profitable forestry. New investments have been made for energy production for example from waste materials and for collection of biogases. The research and product development of energy-efficient solutions for buildings and smart grids has been very active in the region.

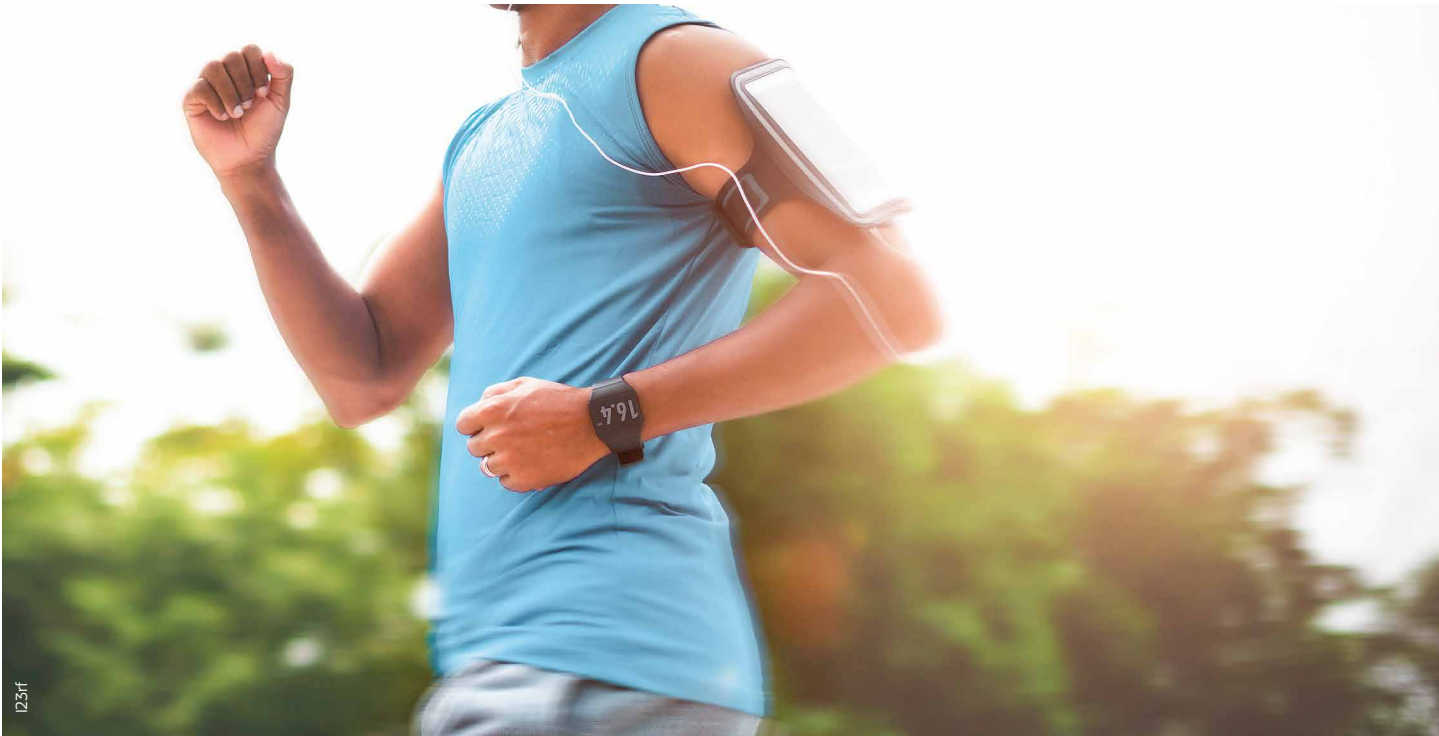




Healthcare and wellness

Statistics (2017)	
Companies	1771
Staff	6691
Net sales	584 M€

Health technology has emerged as one of the most important high-technology export industries in Finland. The growth of the industry is evident in the Oulu Region as the second largest cluster of health technology in the country, OuluHealth, is located in the city of Oulu. The number of employees in the field has grown by 34 % from 2013. Turnover of health care and health technology companies



has also been growing evenly in the four years preceding the end of 2018 by a total of 27 %.

The strengths of the businesses in the region are particularly in digital solutions and the development of 5G and 6G technologies. The OuluHealth ecosystem supports the growth and development of wellness technology companies. The ecosystem advances co-operation between business and public sector by providing the unique OuluHealth Labs test environment, which enables the testing of products and services in an authentic setting.

The development of new wellness solutions take advantage of digitalization, big data, wireless technologies and robotics. The Oulu area has a central role in reinforcing the role of Finland as a base location for data-intensive industry and services, health technology, personal health and medical science. The multidisciplinary basic research and education in the region, the diverse competences of local businesses, and global business activities produce nationally significant added value to the change driven by the digitalization of the health and wellness industry.

