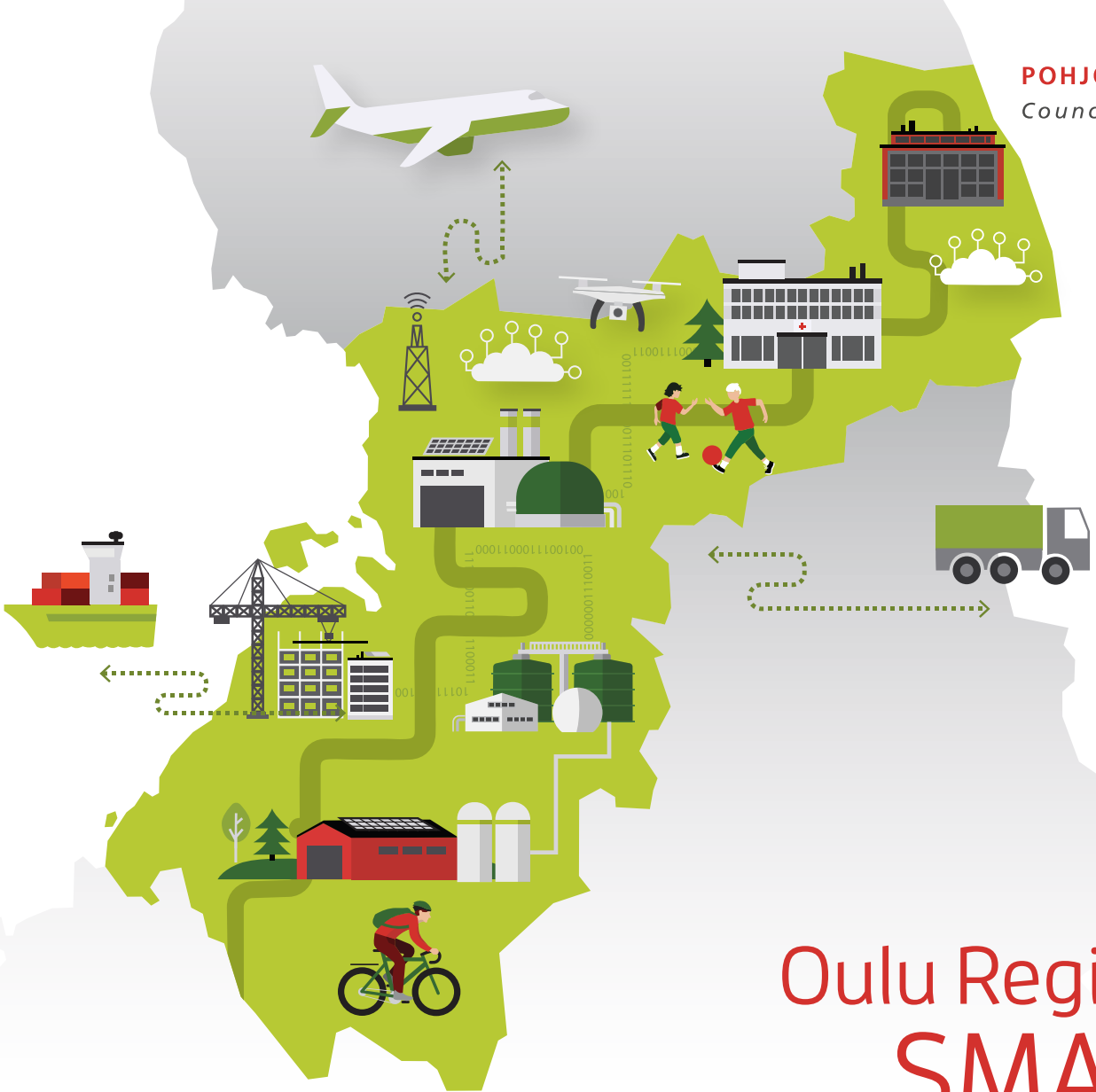
POHJOIS-POHJANMAA
*Council of Oulu Region*



# Oulu Region's SMART SPECIALISATION STRATEGY 2021–2024

# Smart specialisation

Smart specialisation is an innovation policy framework where regions identify their strengths and areas for development. The strengths allow regions to stand out and thrive, but in terms of preparedness, the focus must not be too narrow, and regions must also be able to regenerate themselves.

The aim of smart specialisation is to create regional innovation ecosystems that can help the business community renew itself. Cooperation between research and educational institutions and companies in generating and adopting new innovations is a key pillar of the strategy. It is also important to complement local expertise by working together with others. Partners can be found in the same country or region, but increasingly in international networks.

The Oulu Region has a high level of innovation activity, and expenditure in research and development is above the national average. However, the commercialisation of research findings and efficient dissemination of innovation are found challenging in the region. The operational environment is developed towards information sharing, networking and making use of international connections. The RDI environments in the Oulu Region are developed to meet the needs of the business community and to ensure greater regional competitiveness.

The Oulu Region's strategy for smart specialisation has been prepared in cooperation with stakeholders. The work has included representatives from public administration and development companies as well as researchers and entrepreneurs. The end result is a strategy with a vision for a more networked Oulu Region that is better prepared for future challenges. These challenges are met with long-term development and cooperation of innovation activities.

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# Regional cooperation and information transfer are key in the dissemination of innovations

Challenges facing the promotion of innovations and innovation activities in the Oulu Region include lack of commercialisation and funding expertise. Furthermore, people living in the region, especially further away from the growth centre and the primary sphere of influence of higher education, feel that the benefits of high research know-how are not sufficiently evident in the region. Of the region's companies, 92% are micro-enterprises with fewer than 10 employees. We must pay special attention to the expansion of growth companies. By increasing networking and information transfer, we can strengthen the region's position as a versatile innovation activity hub.

Smart specialisation strategy measures strengthening the dissemination of innovations:

- cross-sectoral networking events
- cooperation between companies and research and educational institutes
- strengthening company clusters, incl. micro-enterprises
- ensuring that education provision is up-to-date
- ensuring the availability of skilled labour
- utilising international networks effectively
- integrating to international value chains
- supporting the sustainable urban development approach

# Oulu Region's smart specialisation priorities

The Oulu Region's strategy for smart specialisation aims to promote, at the regional level, measures leading to and utilising innovations that meet the challenges posed by climate change, digitalisation and globalisation. The strategy aims to actively disseminate innovations and innovation activities throughout the region and enhance the regional economy and well-being. The strategy supports cooperation across industries and borders. The Oulu Region is an international, attractive and networked region, whose competitiveness is based on high know-how, renewable industry, well-being and climate wisdom.

## Smart specialisation in the Oulu Region

**1.** **RENEWABLE AND HEALTHY**
- versatile digital services and products
- comprehensive health and well-being
- renewable low-emission industry.

**2.** **CLIMATE-SMART**
- sustainable construction and transport
- innovative bio- and circular economy
- smart food production.

**3.** **INTERNATIONAL, ATTRACTIVE AND NETWORKED**
- skilled
- involved
- competitive.

*IMAGE I. Oulu Region's smart specialisation priorities.*

# Renewable and healthy Oulu Region

The Oulu Region is known for its strong ICT expertise and company base. The strongest industrial sectors are the metal and metal products industry and the further processing of wood, including both biorefining and mechanical processing. New emerging industries include applications and equipment related to health and well-being, as well as various applications of printed electronics, for example.

New innovations and industrial solutions are emerging at the interfaces of sectors, where digitalisation and climate chance control are often crucial. The activities of the Digital Innovation Hub support the digitalisation of business life and the accumulation of digital skills.

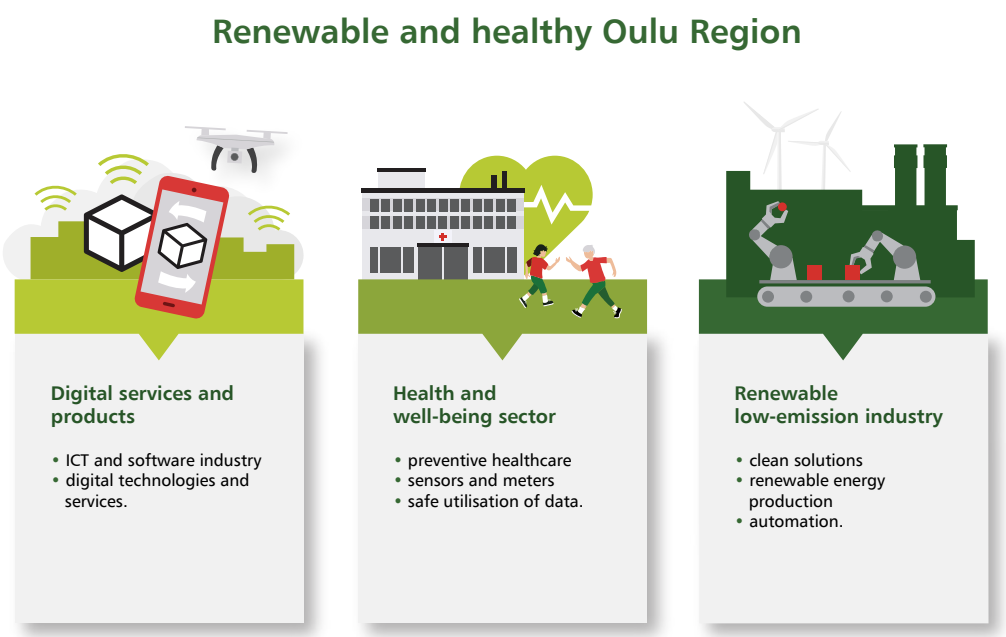



*IMAGE 2. Renewable and healthy Oulu Region.*

# Climate-smart Oulu Region

The strategy of smart specialisation aims to have a reducing effect on the region's greenhouse gas emissions through measures agreed in the Oulu Region's climate roadmap. The total climate emissions of the Oulu Region's municipalities were 3.30 million tonnes of CO2 in 2018. The largest emissions came from agriculture (29%), road transport (22%), district heating (14%) and electricity consumption (heating and consumer electricity combined, 11%). Since 2007, the per capita emissions of municipalities in the Oulu Region have decreased by 23%. (Source: Finnish Environment Institute). The figures do not include industrial process emissions. The largest emissions from industrial processes are at the Raahe steel plant: 3.31 million tonnes of CO2 in 2019 (Source: Energy Agency).

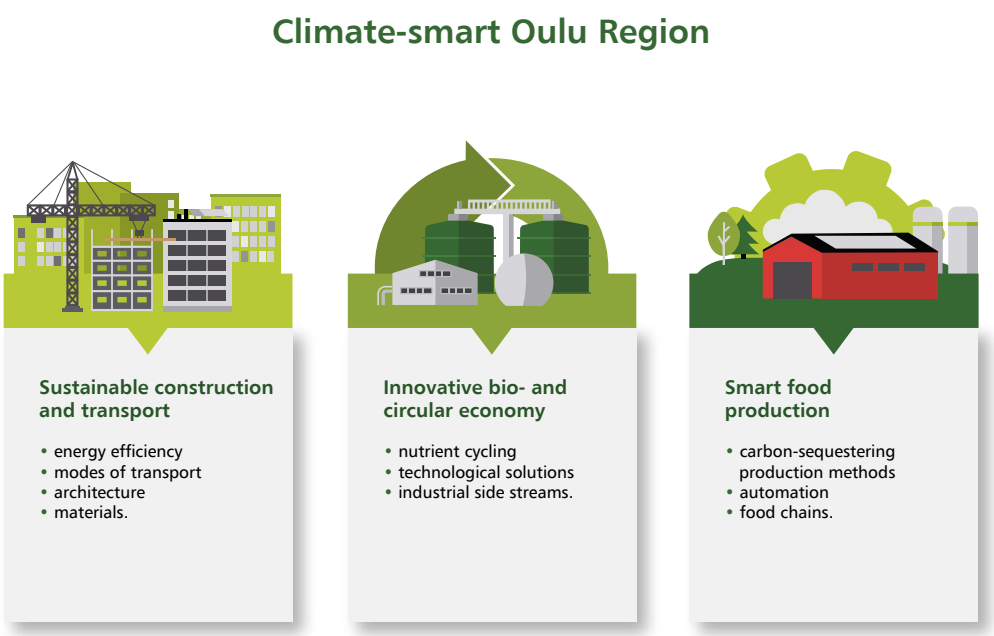



*IMAGE 3. Climate-smart Oulu Region.*

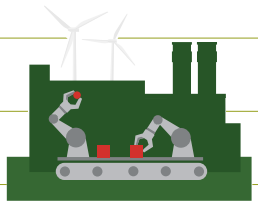
# International, attractive and networked Oulu Region

A high level of expertise, sustainable values, active innovation ecosystems and efficient data transfer strengthen the regional economy and reform the business community. Internationalisation and networking are ways of increasing the Oulu Region's competence and competitiveness and promoting the development of the priority areas selected in the smart specialisation strategy. The RDI environments in the Oulu Region are maintained and developed to meet the needs of the business community, and actors are encouraged to participate in international projects and networks. The attractiveness of the region has a significant impact on the location of companies, investments, skilled labour and students in the area. From the point of view of the tourism industry, the attractiveness of the region is a key success factor, to which the northern dimension and the location at the Arctic add value. Creative industries support the development of the region's attractiveness.


*IMAGE 4. The Oulu Region is an international, attractive and networked region that invests in know-how, competitiveness and sustainability.*

# Preparing for changes with innovations and their application

The Oulu Region's business community faces challenges e.g. from climate change, increased digitalisation and automation, and economic globalisation. The strategy of smart specialisation aims to prepare for the industrial transition and changes in business life. Preparedness requires sector-specific measures, new innovations and innovation adoption.

| Industry | Challenges | Solutions |
|---|---|---|
| | Availability of skilled labour. | Education and training. |
|  | Investments. | Investment aid and advice. |
| | Selection and availability of required equipment. | Help with the definition of needs and more test-before-invest opportunities. |
| | | Implementation, development and manufacturing of automation and robotics. |
| | | Need-based product development. |
| Metal processing | Large carbon dioxide emissions from steel manufacturing; 7% of Finland's carbon dioxide emissions. | New production method based on hydrogen and carbon-neutral electricity. New steel products. |
| | Availability of renewable energy. | Increasing the availability of carbon-neutral electricity. |
| Forest industry, incl. further processing of wood | Sustainable use of wood, maintaining carbon storages, complying with the EU's biodiversity strategy. | With good forest management ensuring new growth, carbon storages can be increased with sustainable use. |
| | Carbon dioxide emissions from production plants. | New technologies and transition to renewable energy. |
| | Efficient and sustainable use of natural resources. | Better utilisation of side streams, products manufactured out of renewable materials. Better utilisation of technological solutions. |

| Energy production | Challenges | Solutions |
|---|---|---|
| | Sufficient production of renewable energy and reducing the use of peat for energy. Industrial emission reductions require a significant increase in the production of clean electricity. | Developing wind power technologies and building new wind farms. |
| | | Building a nuclear power plant. |
| | | Efficient utilisation of solar energy. |
| | | Regional mapping and utilisation of potential geothermal energy. |
| | | Bio-fuel production. |
| | | Developing energy storage methods. |
| | | Building and developing energy networks, developing decentralised energy solutions. |
| | | Linking different energy systems, sector integration. |

| Construction | Challenges | Solutions |
|---|---|---|
| | Carbon footprint of construction and recyclability of materials. | Wood construction. |
| | | Promoting recyclable materials and making ecological material choices. |
| | | Technology development in steel and cement manufacturing. |
|  | Improving the energy efficiency of buildings. | Sensors and measuring instruments supporting the monitoring of energy efficiency. Software improving energy efficiency in construction engineering applications. |
| | | Adopting technical applications in order to ensure more efficient heat recovery, for example. |
| | Automation of industrial house construction. | Investment aid. |

| Food production | Challenges | Solutions |
|---|---|---|
| | Carbon footprint of production, transport and storage. | Carbon-sequestering production methods. |
| | | Developing local food chains. |
|  | Adapting to the changing climate. | Using renewable energy and increasing energy efficiency. |
| | | Developing nutrient cycling. |
| | | Opportunities of indoor cultivation. |
| | | New crops. |
| | Nutrients released into waterways from agriculture. | Measures aiming to control nutrient emissions. |
| | Availability of labour. | Ensuring the availability of skilled labour. |
| | | Increasing automation. |
| | Investments. | Investment aid and advice. |
| | The demand for basic foodstuffs in the region will not be growing significantly. | Growing markets must be found outside the region, observing different consumer preferences. |

| Bio- and circular economy | Challenges | Solutions |
|---|---|---|
| | Utilising digital solutions. | Producing need-based solution models, e.g. platform economy. |
|  | Generating business in bio- and circular economy and creating new companies. | Increasing piloting opportunities. |
| | | Business acceleration, developing business concepts for circular economy areas. |
| | | Increasing the processing of side streams. |
| | Conservation of natural diversity. | Using natural resources in a sustainable manner that maintains diversity. |
| | Clean waters. | Water-smart circular economy. Reuse of purified wastewater, recovery and recycling of substances. |

| ICT cluster and digital services | Challenges | Solutions |
|---|---|---|
| | Implementation of digital solutions. | Promoting adoption and supporting local production. |
|  | Expansion of growth companies and availability of skilled labour. | Developing support for sales, networking and growth. Ensuring the availability of sufficient training and labour. |
| | Data utilisation, incl. health and consumer data. | Better utilisation of data-based services and data analytics. |
| | Knowledge-based work that can be performed anywhere is challenged by globalisation, e.g. cheap labour on other continents. | Maintaining competitiveness by strengthening and maintaining know-how. |

# Monitoring and evaluation of the strategy

The implementation of the smart specialisation strategy is monitored and evaluated annually, while also mapping any need for changes. An inclusive monitoring and evaluation process is created in cooperation with stakeholders. The planned annual review process is described in image 5. The stakeholders participating in the monitoring process include representatives from research and educational institutions, the ELY centre, regional council, municipal development companies and businesses. The strategy is linked to operational planning, and the work acknowledges the valid recommendation of the European Commission's Country Report. In 2025, the evaluation will be linked to the evaluation process of the regional programme.

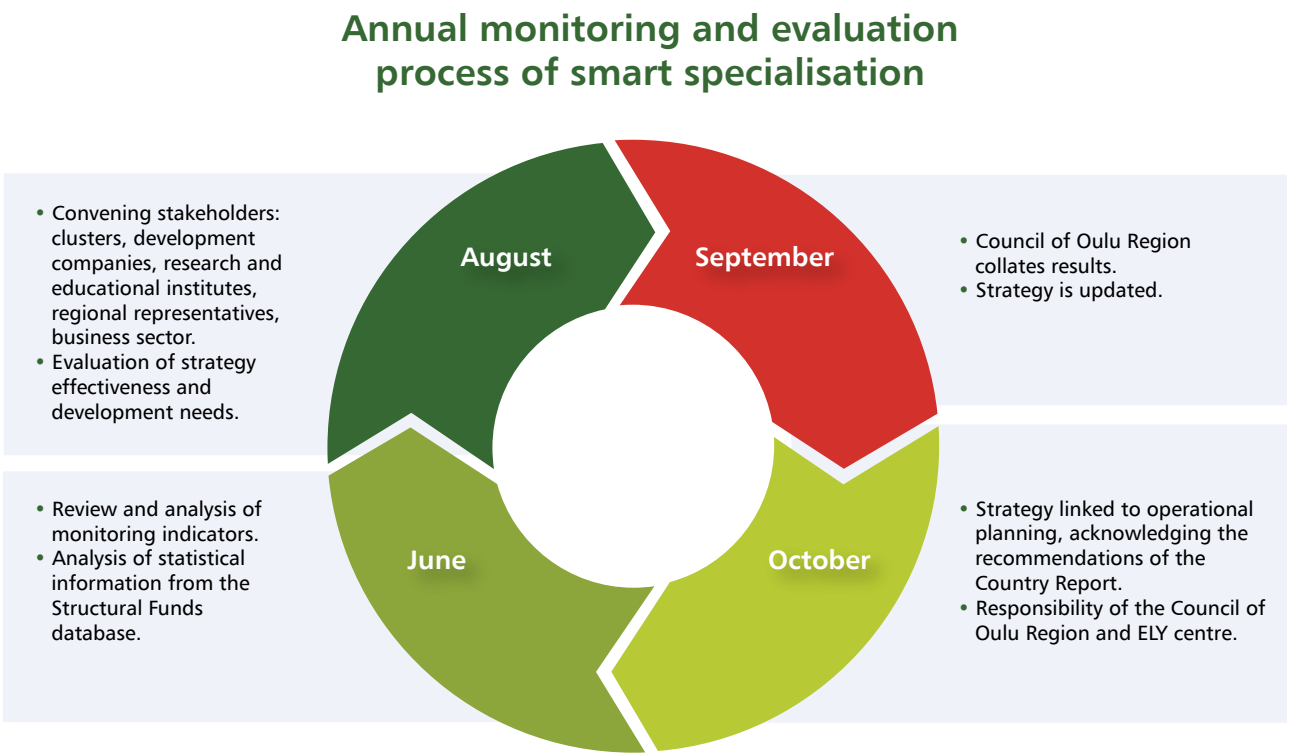



*IMAGE 5. Annual monitoring and evaluation process of smart specialisation.*

## Monitoring indicators

R&D expenditure as % of GDP (companies and public sector separately) (Statistics Finland)

EU's RDI funding through the Horizon Europe programme (European Commission)

Number of large-scale (over EUR I million) projects supporting the Green Deal programme (European Commission)

Development of value added in business locations by sector (Statistics Finland)

Number of jobs in companies and distribution between sectors (Statistics Finland)

Turnover produced by companies and distribution between sectors (Statistics Finland)

Patent applications made in the Oulu Region (companies and universities separately) (Finnish Patent and Registration Office)

Development of greenhouse gas emissions in the Oulu Region (Finnish Environment Institute, Energy Authority)

*Target levels for monitoring indicators are determined in connection with drawing up the regional programme.*

Mainostoimisto Greystone Oy




The strategy has been produced as part of the ERDF-funded project *"Developing the Internationalisation of Smart Specialization in Oulu Region"*.