

A prosperous Lapland – with sustainable innovations

Lapland's Sustainable Smart
Specialisation Strategy 2023–2027

**ARCTIC
Smartness**

LAPLAND
Above Ordinary



REGIONAL COUNCIL
OF LAPLAND

Leverage from
the EU
2014–2020



European Union
European Regional
Development Fund

A prosperous Lapland – with sustainable innovations

Lapland's Sustainable Smart Specialisation Strategy 2023–2027

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Introduction

Lapland is going through a significant shift together with the rest of Europe. The move to a greener and digital economy, as well as the altered security landscape in Europe, present challenges. The region's prosperity will depend on its capacity to adjust to the shifting operational environment. These large changes call for the development of new solutions, which is necessary. In Lapland, it's crucial to ensure both the prosperity of the region's citizens and the expansion of business life and favourable economic growth. Supporting, for instance, the competitive edge of small- to medium-sized businesses, key industries, and collaboration between them, furthers these objectives.⁵ The long-term indirect consequences on, for example, have been a worry of the altered working environment. The changing operating environment has raised concerns about the long-term indirect consequences on things like energy prices, raw material availability, production costs, and cybersecurity^{9,3}.

By enhancing research, development, and innovation (RDI) activities and the accompanying efficient use of financing in diverse regions of Europe, smart specialisation is a way to promote growth. This smart specialisation strategy was developed with the demands of businesses for innovation-driven development, the region's competence, the growth of regional cooperation, the main obstacles to innovation, and sustainability objectives in mind. The strategy's priorities have been selected to support business expansion and the renewal of knowledge through R&D and innovation activities.

The goal of the strategy is to foster sustainable growth in Lapland while taking into account the various dimensions of sustainability. The strategy advances the implementation of the following UN sustainable development objectives:

- Economical and clean energy
- Decent work and economic growth
- Sustainable industry, innovations and infrastructures
- Sustainable cities and communities
- Responsible consumption
- Climate actions
- Underwater life
- Responsible consumption
- Co-operation and partnership

The ecosystem for smart specialisation in Lapland has in the past allowed for the development of cooperation and the strengthening of international partnerships. The development of regional industries through efficient operations in R&D and innovation is the main objective of this strategy. In fact, promoting regional wellbeing through smart specialisation is a key goal by creating the conditions for the diversification of the economic structure and, consequently, the growth of resilience.

The strategy's starting point is to be a document that exists in real time, anticipates the future, broadly engages the region's actors, and supports the expansion of Lapland's innovation environment to the extent that it contributes to the region's sustainable growth. The strategy process is based on an evaluation of the previous strategy and the process also takes into consideration the peer reviews with other European regions and the Joint Research Centre (JRC) of the Commission, particularly in terms of coordinating smart specialisation policies and the UN's sustainable development goals⁸. The strategy process considers the programme policy and conceptual development of smart specialisation, and complements the Lapland Agreement by focusing on RDI activities, as well as the renewal of expertise and industries through innovation activities. The elements of the Lapland Green Deal roadmap were also taken into account when developing the strategy.



SMART SPECIALISATION

- Smart specialisation requires identifying the region's strengths and directing development investments to them.
- Smart specialisation is therefore a tool for directing research and innovation activities in the region. It's about making smart choices.
- The implementation of the strategy emphasises strong regional cooperation. Growth based on innovations is aimed for, and this can be achieved with increased collaboration between RDI organisations, businesses, and civil society.
- International networks and collaboration are also used in the creation of the strategy's priorities and the acquisition of new expertise, in addition to regional networks.



1. Smart specialisation in Lapland

1.1. Description of the operational environment

With initiatives supporting the digital and green transition, Lapland's smart specialisation emphasises the consolidation of measures for the region's sectors as well as RDI activities. It is crucial to invest in RDI activities by boosting both public and corporate investments for the ability of businesses to renew themselves. Increasing investments is crucial, particularly in Lapland where the economy of micro, small, and medium-sized enterprises is often weaker than the national average and expectations for the development of innovations are below average³. According to Statistics Finland (Tilastokeskus), the proportion of Lapland's R&D expenditure by reference to the gross national product was 1% in 2020. Slightly over 30% of the companies in the area of Lapland are aspiring to growth in order to retain their position in the market, and 4% are vigorously pursuing growth³. R&D expenditure in the corporate and public sector has declined since 2013, but it has clearly risen in the university sector. The substantial investment in the higher education sector can be seen in R&D spending as the only sector higher than the 2013 figures. R&D investments are examined in Fig. 1.

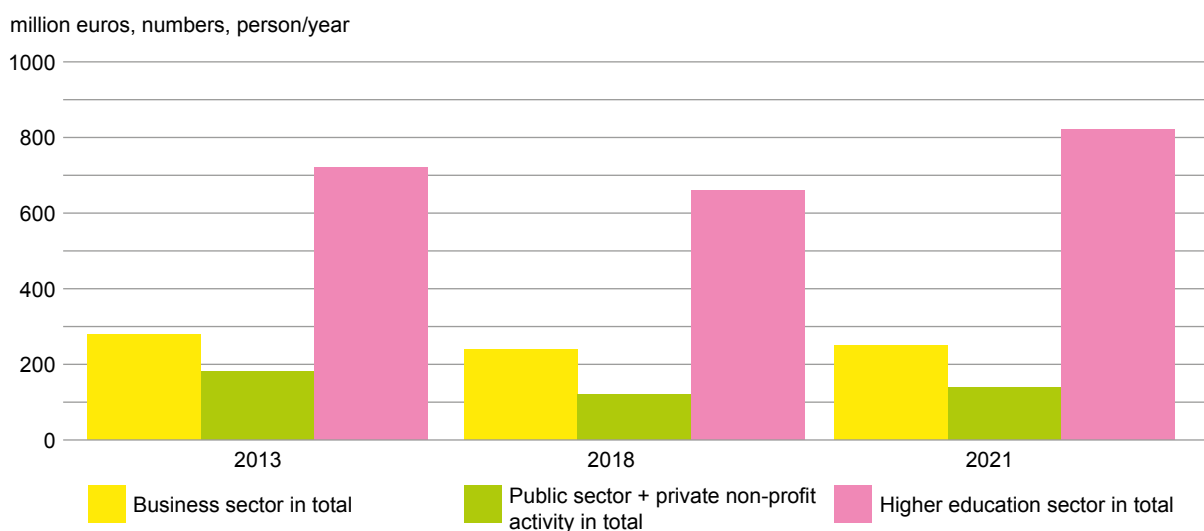
The total number of research and development personnel in higher education is rising alongside R&D expenditure. It is different in the corporate and public sector, where the figures are still below the 2013 level but have risen from the 2018 level.

R&D personnel totals in Lapland in 2013, 2018 and 2020 per sector (Source: Statistics Finland) (Fig. 2)

	2013	2018	2021
Business sector (total)	287	242	256
Public sector + private non-profit activity in total	181	116	137
Higher education sector in total	706	653	809

R&D expenditure: personnel and work years per region. Variables: Region, sector, year.

R&D expenditure in Lapland in 2013, 2018 and 2020 per sector (Source: Statistics Finland) (Fig. 1)



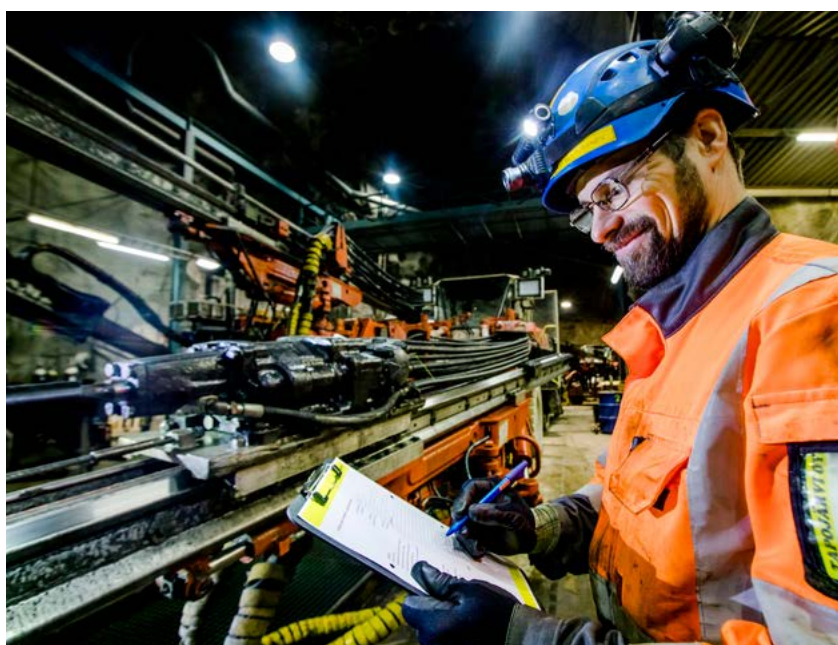
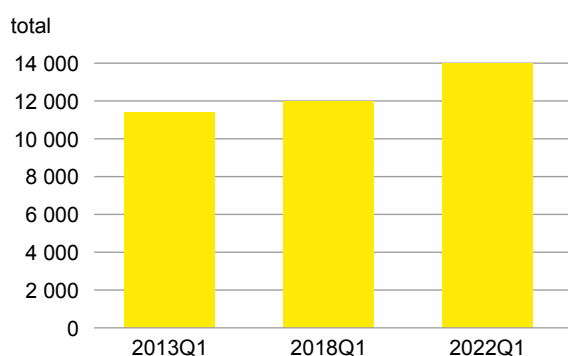
The corporate base in Lapland has risen consistently during the last decade. Nevertheless, the total number of companies in the area during the last few years has clearly risen. The development of Lapland's corporate base is seen in Fig. 3.

Forests, extractive and metal industries, and tourism, which make up the foundation of Lapland's economy, enable self-sufficiency, emergency supply, and the development of a green and digital society, particularly from the perspectives of minerals, bio-rare materials, circular economies, and renewable energy. These ideas tie Lapland into North Calotte's industrial developments, and through revitalizing existing industries, Lapland's investment potential are encouraged.⁹

In terms of turnover and employment effects, the industrial sector is the largest in Lapland. In comparison to the rest of the nation, Lapland's business operations are more specialised in the fields of mining, metal ore extraction, tourism, metal processing, and lodging, as well as forestry and timber harvesting⁶. Lapland has been identified as having significant potential, primarily for industry but also for energy development, particularly in relation to wind power. In terms of infrastructure and tourism investments, Lapland's investment potential has increased⁷.

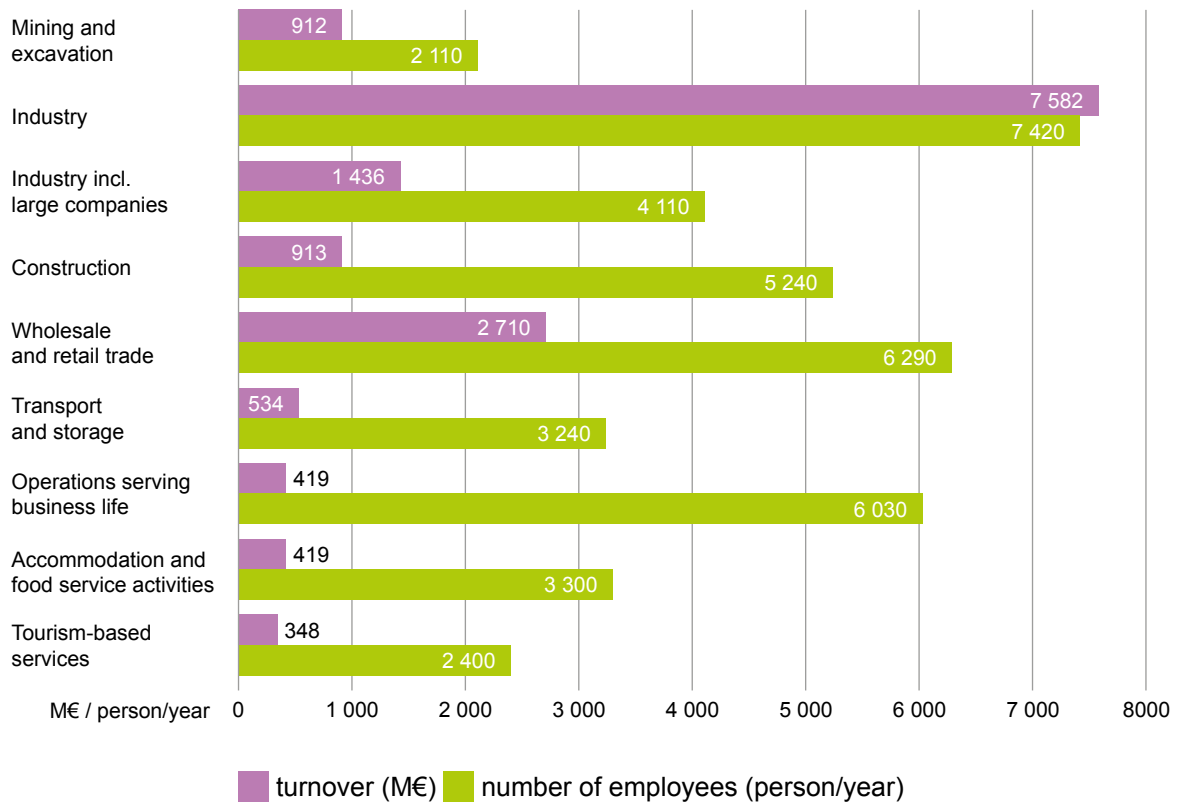
The application and initialisation of new technology as an aspect supporting the development of many sectors in Lapland has also been brought to the fore. In digital services, the greatest readiness to develop is perceived to be in the development of online commerce and the introduction of artificial intelligence applications and software robotics³. Examples of new technology include the creation of network connections and automation.⁷ Lapland's advantages from the standpoint of various industries include its pure environment, the accessibility of raw materials, and the potential for global trade.

Total corporate base in Lapland in all sectors: 2013, 2018 and 2022 (Fig. 3)



Turnover of sectors and number of employees in Lapland (forecast)

Source: Lapland's Economic Outlook 2021 (Fig. 4)



A green and digital transition entails sustainable and responsible efforts to support climate policies, as assessed from sector to sector. This can take the form of more energy-efficient logistics solutions, low-carbon and smarter mobility solutions, or better utilisation of restaurant and visitor waste. In mining, technical advancement is emphasised by the automation of important processes, and answers to sustainability needs are being explored, for instance, by creating novel mineral discovery techniques that support biodiversity. The desire to switch from plastic to wood-based products is a growing trend in the forest business. The automation and digitalisation of procedures in the wood harvesting industry contribute significantly to the field's advancement. The creation of novel logistical solutions, various carbon footprint and carbon sink estimates, and creative logistical solutions are all closely tied to the forest industry. The goal of the steel industry is carbon-free operation, and digitalization, for instance, has had a significant impact on the creation of simulation and conveyor systems⁷.

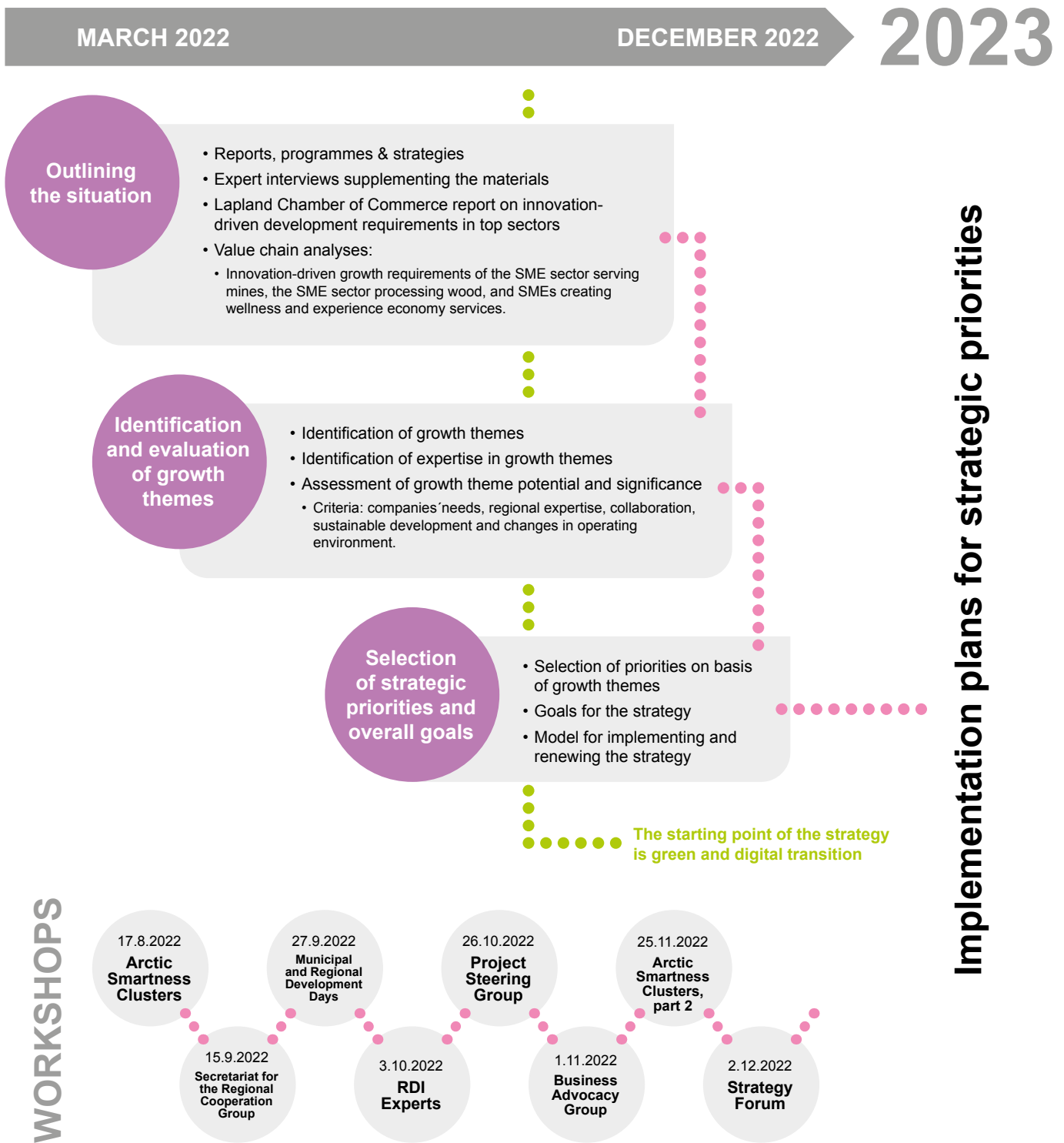
1.2. Description of the development path of smart specialisation in Lapland

This strategy is the third Smart Specialisation Strategy for Lapland. The first strategy was drawn up in 2013, when the focus was on Arctic expertise and the sustainable utilisation of natural resources and

natural conditions. In 2018, the strategy was given more focus and those measures were prioritised that further international growth.

Smart specialisation in Lapland has been the focus of numerous studies from various perspectives¹², and in 2021, the strategy's implementation was evaluated¹⁰. The evaluation's key finding is that smart specialisation in Lapland has improved communication and visibility both regionally and abroad. Also, it has increased the readiness of actors to utilise collaboration in various funding initiatives. With approximately 53 million euros from the Regional Council of Lapland and approximately 11 million euros from the Northern Ostrobothnia Centre for Economic Development, Transport, and the Environment, the European Regional Development Fund has funded projects in line with smart specialisation during the programme period 2014–2020. The organisation of the activities, however, has been mostly RDI-driven, and the relationship to companies has not always been evident. Prior strategies lacked monitoring and evaluation criteria, making it difficult to evaluate how well the strategies were implemented.

This strategy has been compiled in a participatory process with the regional actors. The strategy is made up of three main sections, outlining the situation, identifying growth themes, and specifying the strategy's priorities and overall goals. This process has been described in Fig. 5.



The strategy work began with the acquisition of materials, which comprised expert interviews (N=54) in addition to written material. The actors also participated in eight workshops where the strategy's objectives, priorities, and operational issues were covered. Three surveys were conducted to map the innovation-driven growth requirements of the SME sector serving mines, the SME sector processing wood, and SMEs creating wellness and experience economy services in order to map the development needs of industries.

To complement the strategy effort, the Lapland Chamber of Commerce also created a report on the growth requirements of Lapland's main innovation-led industries. Data collection led to the identification of growth topics for Lapland, which were then assessed in light of companies' needs, regional expertise, collaboration, and sustainable development. The growth themes served as the foundation for the construction of the priorities of the strategy that were considered to have the greatest potential for the companies' growth. Section 3.1 of the strategy outlines the broad goals of the plan. The Appendix 2 lists the organisations that took part in the workshops and the acquisition of materials.



Photo: Lapin AMIK/Pia Kuha

1.3. The challenges of Lapland's innovation operations

Only 15% of Lapland's companies collaborate with universities or other research organisations, and 38% of such collaborations are for the purpose of developing new products or services.^{3,7} Almost 28% of companies collaborate with vocational colleges. The services and expertise of Lapland's universities and research institutions are mostly unknown². Vocational colleges, universities and research organisations in Lapland are depicted in Figure 6.

Nonetheless, companies show a lot of interest in working on joint development with RDI organisations. Businesses look to RDI partnership in particular for the reinforcement of expertise as well as current knowledge about markets and future trends, as well as details on the possibilities for the deployment of new technologies². Getting additional businesses on board with RDI operations and using, for example, the financial options offered is one of the major challenges.

A challenge to innovation operations, in addition to RDI cooperation, is the low rate at which companies use digital channels for the distribution and marketing of services, as well as for utilising digital services generally. About 7% of companies in Lapland use digital channels, and only approximately 4% employ services like cloud computing.³

Actors in Lapland are still underdeveloped in digital channels, and increasing operators' visibility in these channels is viewed as a crucial prerequisite for development. Few businesses have the in-depth knowledge of the target market required to recognise shifts in demand and communicate with customers directly.

The hiring of skilled labour is a crucial bottleneck in Lapland's innovation processes. Recruitment issues have surfaced in open positions due to the shortage of skilled workers, but the issue of mismatching has also become apparent. The jobs are still unfilled even though there are open positions and unemployed job searchers in the region⁴.

Innovation as a term refers to development work and renewal – for the most part, highly concrete and even uncomplicated effort towards something new. Innovation and business development represent means of survival in future markets, the ability to create an international competitive advantage, and opportunities to move the industry forward.

Innovation guide for SMEs, Business Finland

Vocational schools, universities and research organisations in Lapland. (Fig. 6)

UNIVERSITIES' RESEARCH STATIONS

Lapland Research Centre Kevo
(University of Turku)

Kilpisjärvi Biological Station
(University of Helsinki)

Värriö Research Station
(University of Helsinki)

Sodankylä Geophysics Observatory
(University of Oulu)

LAPLAND UNIVERSITY CONSORTIUM

University of Lapland

Lapland University of Applied Sciences

VOCATIONAL SCHOOLS

Sámi Education Institute

Rovaniemi Educational Consortium REDU

Lappia Vocational School

STATE RESEARCH INSTITUTES

Finnish Meteorological Institute

National Land Survey of Finland

Geological Survey in Finland

Natural Resources Institute Finland (Luke)

1.4. The goals of the Smart Specialisation Strategy

With Lapland's smart specialisation, the region's main industries' sustainable growth as well as the companies' capacity for innovation are encouraged. The four objectives of Lapland's smart specialisation strategy are shown in Fig. 7

In addition, the strategy highlights four thematic priorities (Fig. 8). The priorities are:

- Circular economy as a foundation of sustainable growth
- Wellbeing and experience economy services from nature
- Renewable energy solutions as a promoter of self-sufficiency
- Technologies as a reformer of sustainable production and services

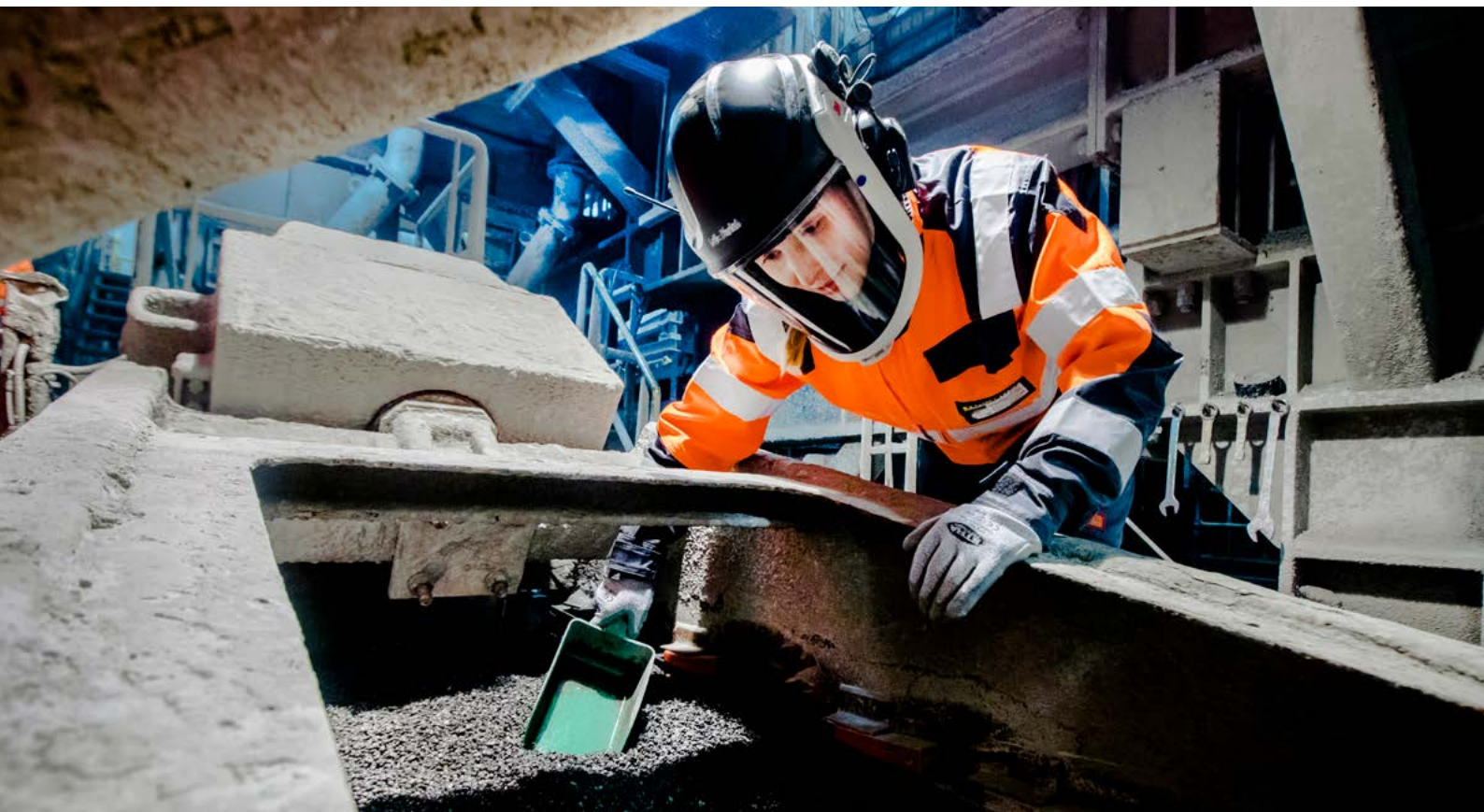
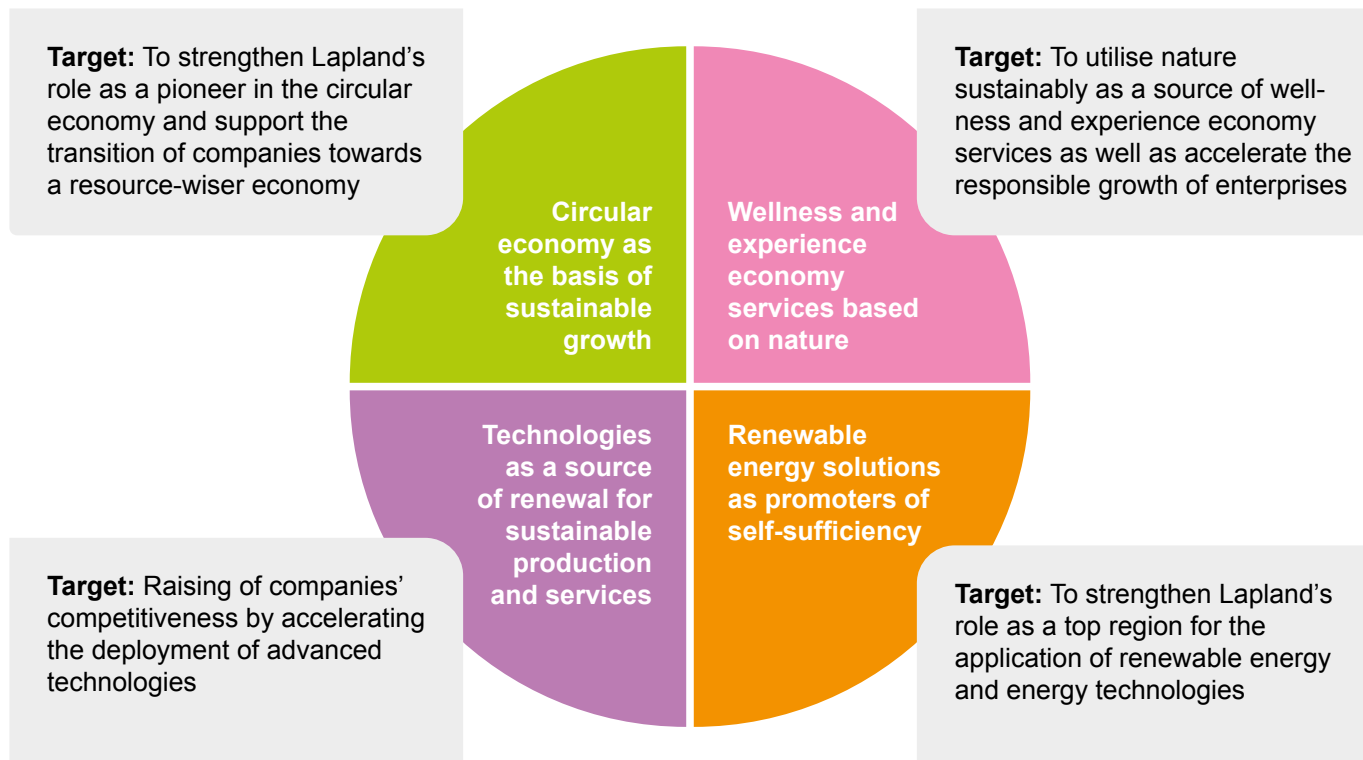
The target group of the strategy is comprised of companies, research institutions, universities, vocational colleges, municipalities, the public sector, development organisations, and civil society. The strategy emphasises the development of effective regional co-operation, so that we can renew the expertise of the region and promote the willingness of companies to invest in the development of expertise, production, services and processes and generate new business.

In addition to enhancing the efficiency of networks and markets and the economic competitiveness of the regions, the priorities of the smart specialisation strategy also support Lapland's capacity to prepare for a range of crises and disruptions. The mainstays of Lapland's economy – forests, mining and metals, and tourism – enable supply stability, self-reliance, and the development of a green and electronic society. From the perspective of security of supply, the special features of critical expertise and innovation operations are being developed in the priorities, by taking the climate and northern position, for instance, into consideration. The global crises and, for example, the rapid development of technology have set challenges with respect to ensuring security of supply. These crises will be addressed through a smart specialisation strategy by, e.g. reducing dependence on imports of raw materials through a circular economy or by investing in renewable energy. The development of cybersecurity and other critical technology also improves regional crisis resilience. Together with industrial and technological development targets, the strategy promotes wellbeing of individuals and communities, and promotes the sustainable utilisation of the environment in the production of services.

Lapland's smart specialisation strategy goals (Fig. 7)

- To boost research and education organisations' ability to support the innovation operations amongst Lapland's micro-, small- and medium-sized enterprises
- To renew expertise and joint action models in the research and education sector
- To promote the willingness of companies to invest in the advancement of expertise, production, services and processes, as well as foster the attractiveness of Lapland as an investment target
- To strengthen co-operation among businesses, research and educational institutions, municipalities, the public sector, development organisations and civil society round strategic priorities

Smart specialisation priorities and their goals (Fig. 8)



2. Strategic priorities of smart specialisation

2.1. Circular economy as a foundation for sustainable growth

TARGET: To reinforce Lapland's role as a pioneer in the circular economy and to support the transition of companies towards resource-wiser operations

There is a long history of strong public-private partnership in Lapland to promote business based on the circular economy. The green transition and the mitigation of climate change require a shift towards more energy and material efficient operations, in which circular economy solutions play a key role. The circular economy is an opportunity for Lapland to establish sustainable economic growth. The transition to a carbon-neutral and circular economy creates new jobs and new business opportunities for sustainable solutions. Also from the perspective of self-reliance, the crossover to a circular economy is a necessity.

SMEs need expertise and tools for the deployment of circular economy-based business models as well as for the development of production and services that are less carbon-based. The transition of companies to a low-carbon operation must be accelerated by the design of sustainable products and services and the application of digital solutions and technologies to production.

For Lapland's industry, the circular economy is a possibility to develop industrial production to make it more resource-efficient. In the mining industry, for example, the circular economy enables the wider use of extracted soils and the recycling of process water. In the forestry industry, circular economy principles have long been implemented, for example, in the design of wood fibre-based products and the production of bioenergy.

The municipalities are in a key position as enablers of the circular economy, as many matters that are determined in municipalities are essential from the perspective of transitioning to the circular economy. Municipalities can promote a more sustainable recy-

cling of materials through, for example, decisions related to construction, waste management or public catering services. By developing circular economy solutions in accordance with the principles of a just circular economy, people's wellbeing and inclusion in society are also promoted. Municipalities play a strong role in promoting a just circular economy.

Examples of development packages:

- Promoting industrial symbioses
- Developing digital platforms and services for the circulation of products/services/materials
- Building the expertise and renewal of SMEs in the transition to a carbon-neutral economy
 - Promoting circular economy business models
 - Carbon footprint calculation-based tools and emission reduction paths
 - Technology solutions in the development of material and energy efficiency (e.g. robotics, 3D and automation)
 - Planning, testing and design of new bio-based products
 - Utilisation of production side streams in various industries
- Furthering the circular economy in construction
- Developing services in sustainable mobility
- Building collaboration in the region for the facilitation of the circular economy among companies, municipalities, and research and education operators

2.2. Wellness and experience economy services from nature

TARGE: To utilise nature sustainably as a source of wellness and experience economy services as well as accelerate the responsible growth of companies

Nature, including wellbeing, is one of the leading international megatrends in tourism alongside responsibility and digitalisation¹¹. The nature of Lapland offers excellent recreational and living opportunities for residents and visitors, for leisure and for multi-location work, which promotes not only traditional tourism and tourism products, but also a new kind of business based on wellbeing. Wellbeing refers to, for instance, meaningful leisure time, health-promoting activities and both sustainable and high-quality nature-based experiences.

The sustainable development of nature-based wellness and experience economy services requires the promotion of smart year-round and high-quality product and service development processes, marketing and sales, in addition to the continuous development of co-operation. Growth is being sought particularly from the development, marketing and sales of services and products during the snowless season, as well as by developing local solutions for how seasons of low demand can gradually be set on a path to growth. Smart solutions in improving accessibility are essential for the development of wellness and adventure services in the region. Unused potential for the snowless season has been identified in, for instance, clean environment and the season of darkness, and the period of the midnight sun; as well as in culture and art and in the utilisation of natural products as part of experience economy services.¹

The purchasing decisions of consumers are influenced more strongly by the travel destination and the wellbeing generated by the products it offers as well as the responsibility and sustainability of its services. Responding to these requirements and anticipating changes in the operating environment is essential for the business of more and more companies.

Multi-purpose usage of forests is highlighted in the sustainable utilisation of nature. Through new operational modes and smart solutions, the possibility exists to harmonise the various forms of forest use and add multi-purpose functions. This way the recreational possibilities of the forests are protected, which boosts the efforts to reinforce nature-based values and the carbon sink.

Examples of development packages:

- Developing the productisation of new wellness and experience economy services particularly during the snow-free season (e.g. cycling-based tourism)
- Utilising natural products as part of the service packages of wellness and experience economy adventure services
- Promoting the utilisation of researched data in wellness and experience economy services during the snowless period

- Improving the usability of the infrastructure in the development of services for snowless season
- Advancing the sustainability and quality effort of companies as well as the utilisation of responsibility-related communications in the development of business operations (e.g. Sustainable Travel Finland)
- Improving the physical accessibility of sites and leveraging digital solutions in the delivery of wellbeing and experience economy services as well as in the general accessibility of services
- To work on behalf of the multi-purpose usage of forests in recreational activities

Wellness and experience economy services are generated mainly by small businesses, but municipalities also produce sport/fitness and wellbeing services as well as maintaining related infrastructures. In addition, sports associations represent a significant share of the generation of sport/fitness services.

2.3. Renewable energy solutions as a promoter of self-sufficiency

TARGET: To strengthen Lapland's role as a leading region in the application of renewable energy and energy technology

The need to respond to concerns about renewable energy has grown as a result of both the green and digital transformation and changes to Europe's security environment. Moving towards low-carbon and cost-effective energy solutions is one of the most important goals from the standpoint of the green transition. The use of renewable energy solutions not only supports the goals of the green transition but also increases Lapland's level of self-sufficiency.

In Lapland, expertise in renewable energy is connected to the use of energy-efficient solutions and energy technologies in the Arctic. Applications can be seen, for instance, in tourism-related logistics chain and construction sites. As the growth of renewable energy necessitates cooperation across extensive co-operative networks, the region, together with municipalities and businesses, plays a crucial role. The preservation and use of renewable energy as well as the development of infrastructure in the Lapland region are in fact closely related to the need to target renewable energy. It is important to recognise the operating environment and the conditions in Lapland as opportunities for the use of renewable energy sources and the development of new solutions. There is also a recognised need in the region for hybrid solutions and applications as well as for the introduction of energy processed from renewable energy sources. For companies in Lapland, the need for renewable energy refers to the search for

a new type of competitive advantage on the market, particularly via energy-effective solutions and carbon footprint-reducing applications.

Examples of development packages:

- Promoting the deployment of renewable energy modes (e.g. energy simulations)
- Developing hybrid and decentralised energy production solutions as well as energy storage
- Furthering the construction of external loading infrastructure off the main grid
- Advancing innovations in low-emission mobility and logistics
- Fostering the transition to the hydrogen economy and the application of hydrogen usage
- Promoting the development of Power-to-X solutions implemented with renewable energy
- Facilitating the development of self-sufficient and operationally reliable smart electricity networks

In the focus on renewable energy, it is important to promote the production and use of renewable energy and the application of energy technology in Lapland, but also to strengthen the conditions that Lapland enables as an operating environment for renewable energy and investments. The priority has a strong connection to all Lapland's top sectors as their source of renewal.

2.4. Technologies as a reformer of sustainable production and services

TARGET: Increasing the competitiveness of companies by accelerating the introduction of advanced technologies

The digital revolution brings new technologies and large datasets as well as new services and business models to companies based on technology and data. Companies require new expertise in the application of technologies in addition to possibilities and competences in testing new types of solutions. It should be possible to utilise new technologies on a customer-oriented basis, which will demand technological competence, a culture of bold experimentation, and an elevation in the technological maturity level in companies. In the future, 5G, the Internet of things (IoT), robotics and artificial intelligence will connect with each other more and more strongly. Joining in this development requires RDI investments and stronger linkage from the various sectors to operators in the field of engineering.

Digital solutions enjoy a pivotal role as an accelerator of the green transition. By advancing production methods, it is possible to, e.g. optimise the demand of various raw materials as well as intensify operations by detaching resources from routine tasks and applying them to more demanding ones. To support the production and product development of companies, increasing the degree of automation and robotics is needed, with regard to which there are development environments and strong expertise in Lapland. The Arctic operational environment enables product development and testing activities based on new technologies.

Significant technologies enabling business development and growth, with regard to which Lapland enjoys expertise, are:

- automation & robotics
- artificial intelligence & data analytics
- digital twins
- virtual and added reality
- 3D printing
- IoT

In order to develop companies' technological and digital capabilities, Lapland has expertise related to the utilisation of various simulations and game-based learning environments, which can be used to promote the introduction of technologies.

Examples of application and development for technologies:

- **TOURISM:** virtual experiences in tourism-related marketing and eHospitality, service robots, platform economy solutions
- **WELLBEING:** wellness services as adventure services (e.g. sports/fitness, services for seniors, remote care)
- **INDUSTRY:** production, intensification of the use of processes and materials (industry 4.0.)
- **CONSTRUCTION:** Remote surveillance (e.g. energy consumption, ventilation), smart systems in construction
- Implementing demonstrations and pilots in the application of new technology in various fields, supporting enterprises in the deployment of technologies
- Developing cybersecurity (and responsibility in the development of digital services)
- Building collaboration in the region to facilitate the application of the circular economy among companies as well as research and education operators

2.5. Elements supplementing strategic priorities

Implementation plans for the priorities identified in the strategy are being developed, and these plans will be supported by R&D projects. In developing priorities, the promotion of the sort of collaborative models that take the needs of companies into account and support their growth are emphasised. RDI activities that focus more strongly on the region's industries and their needs enable the renewal of industries and promote RDI investments as well as the emergence of completely new business operations. In RDI activities, end user-oriented project planning is invested in, and the awareness and accessibility of the development environments in the region are promoted. Through active international collaboration, expertise is increased and best practices are sought to be applied to Lapland, and the attachment of businesses to international value networks is promoted.

Expertise, research and development

- Increasing competence in smart specialisation priorities
- Utilising the competence of creative industries as well as social sciences and legal research within the development of companies' business operations
- Evolving collaborative models as well as investments towards the renewal of know-how and ensuring expertise-based exchange and accessibility to skilled labour
- Increasing the knowledge and application of research facilities located within the region in order to promote the competitive edge of enterprises
- Building and developing goal-oriented, innovation system-reforming operations between companies, research and educational institutions, municipalities, the public sector and civil society

Renewal of industries

- Promoting the development of structures and culture connected with SMEs' innovation operations
- Investing in end user-based planning in RDI activities
- Developing the recognition and accessibility of RDI environments
- The utilisation of more effective development environments in the creation of innovations is being enabled
- Supporting industries in green and digital transition

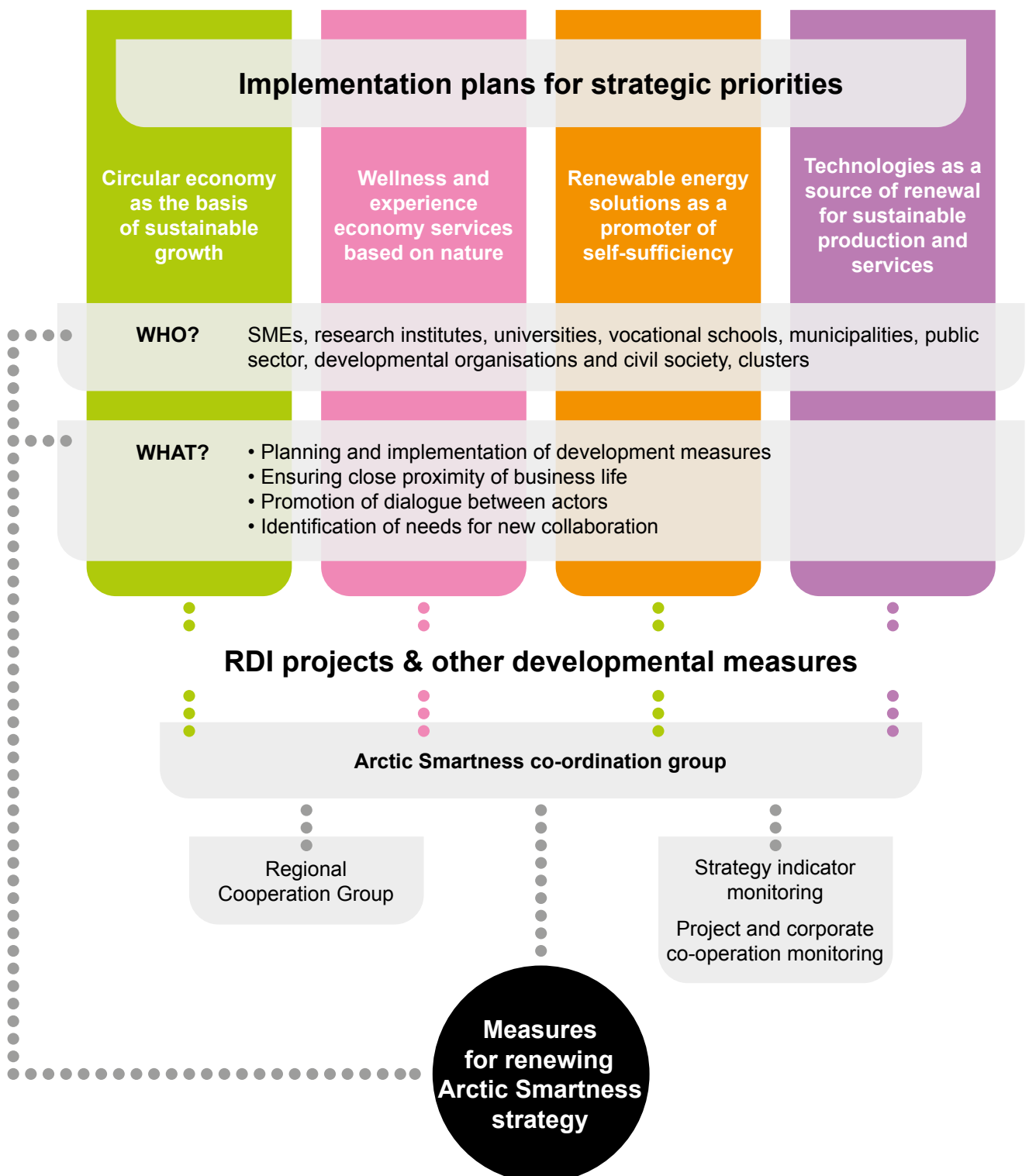
International collaboration

- Reinforcing the role of actors and operational readiness in international networks
- Taking advantage of international networks and partnerships in the implementation of influential development packages
- Utilising Lapland's geographical position as a neighbouring region of Sweden and Norway and traditional crossborder co-operation in reinforcing livelihoods and in export

In the implementation of priorities, the complementing elements from the perspective of the renewal of industries, expertise, R&D activities and international collaboration are being taken into account. (Fig. 9)

3. Implementation, monitoring and evaluation of the strategy

Model for implementing and evaluating the strategy. (Fig. 10)



3.1. Arctic Smartness – implementation of the strategy by means of co-operation.

The success of smart specialisation depends on interactive cooperation between regional actors. In order for the actors to a cooperation to commit themselves, the principles and practical modalities for cooperative action must be agreed upon. Having adequate resources, clear roles, a common understanding of the objective, enough knowledge and information available in real time, trust amongst the actors, and the belief that the operations are having an impact will make it simpler to commit to the operations. The Arctic Smartness cooperation will inspire its participants to try engage in bold experiments and take advantage of new opportunities for the strategy's implementation.

The priorities of Lapland's Smart Specialisation Strategy are being promoted with research and development projects. The goal is to create extensive development entities in which national as well as international funding instruments will be utilised synergically. The impact of the development entities on the priorities of the strategy is evaluated in connection with the monitoring and evaluation process.

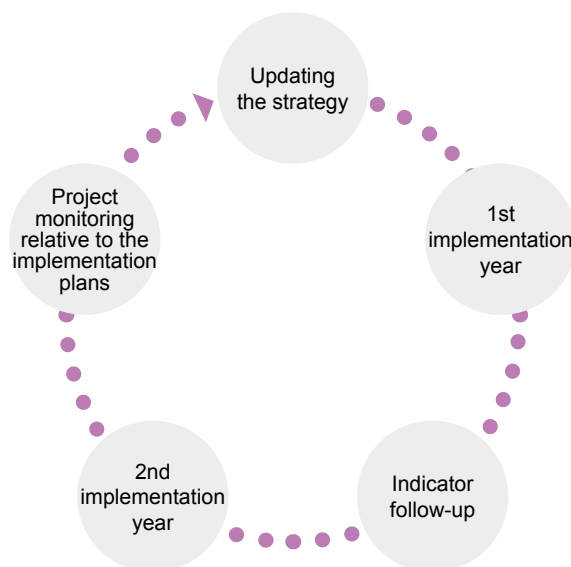
The implementation of Lapland's Smart Specialisation Strategy will be carried out under the joint Arctic Smartness brand. Its strategy and implementation will be communicated in the Arctic Smartness communication channels. In these channels, regional expertise, networks and concrete examples of the development work for the promotion of the strategy will be brought to the fore.

Communication of the strategy will be realised by the Arctic Smartness communications network. The task of the network is to share information on current issues related to smart specialisation and highlight examples of its implementation in various communication channels. The aim of communication is to make Lapland's smart specialisation familiar to target groups, so that more and more people are able to utilise the opportunities it offers.

3.2. Monitoring and evaluation

Implementation plans for the strategy according to each priority will be created. In the implementation plans, attention will be given to, for instance, the roles and responsibilities of the actors. The needs of companies or other end users of the measures will be ensured. Strategy evaluation occurs via indicator monitoring, in addition to which project monitoring is carried out in relation to the implementation plans. Project monitoring is implemented mainly with regard to the regional and structural policy funds. The implementation plans are followed up also in terms of the total number of companies involved. Based on Statistics Finland's material, the strategy monitors the development of Lapland's business base and turnover, R&D expenditures and R&D personnel by sector, Business Finland's funding in the region, and the development of the processing value of production. Indicator evaluation with respect to the smart specialisation strategy is conducted annually, and the implementation is evaluated every two years.

Smart specialisation strategy: monitoring and evaluation process (Fig. 11)



Facilitation of The Smart Specialisation Strategy, i.e. responsibility for updating, monitoring and evaluation, belongs with the Regional Council of Lapland. The task of the coordination group is to monitor the implementation of the strategy priorities and, as required, re-direct implementation. The coordination group will participate in the updating process of the strategy every two years. The Lapland Smart Specialisation updates are subject to approval by the Regional Council of Lapland. In addition to the evaluation process referred to, possibilities are examined to introduce other evaluation methods especially linked with the impact on cooperation.

3.3. Regional, national and international collaboration

The Smart Specialisation Strategy guides the development cooperation models based on the needs of the companies and other end users and the utilisation of RDI networks that strengthen the priorities. The development of business-based cooperation models involves, for example, cluster activities. Lapland's smart specialisation clusters are to be subject to the following criteria:

- The development of cluster operations to orient them to business requires that companies are involved in the cluster whose participation can be verified (by, e.g. partnership agreements)
- The cluster should have a duly appointed director
- The cluster should have a strategy and execution plan
- The cluster must generate a minimum of two activities per year for its members (events, services, production of information, etc.)
- In the management of the cluster and in planning activities and services, business needs should be taken into account
- The cluster should maintain regular dialogue and co-operation between the cluster's actors (especially companies)
- The cluster must have its own website and provide a clear, practically attainable description of what the cluster offers
- The cluster's operations are to be evaluated on a regular basis

In a central role in the implementation of the strategy are the national and international networks and partnerships, within which actors collaborate under the strategic priorities. At national level cooperation is done closely with the regions of East and North Finland particularly within the framework of the Regions in Industrial Transition (ELMO) collaboration, and region also will participate in the work of the collective network for Smart Specialisation of all regions.

Among the international partnerships, the most important are the European Commission's Smart Specialisation thematic partnerships, where goal-oriented, cooperation based on the needs of companies' is carried out with European regions that share the same priorities of smart specialisation. In addition, participating in the opportunities offered by the Vanguard Initiative, European Cluster Alliance and Northern Sparsely Populated Areas (NSPA) network will promote the implementation of Lapland's Smart Specialisation Strategy.

Lapland also participates in other international networks that add value to the development of the strategy's priorities. As part of the implementation of the strategy, the Regional Council of Lapland supports the participation of regional actors in international networks and projects and is active in the Commission's Joint Research Centre's (JRC) various data acquisitions regarding the development of the concept of smart specialisation.



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Appendixes

APPENDIX 1. Criteria for achieving the smart specialisation strategy

Condition for compliance	Criteria
<p>1. Real-time analysis of the challenges related to the distribution and digitalisation of innovations</p>	<p>The strategy for smart specialisation was renewed in 2022. The strategy work was launched with the acquisition of materials that included, in addition to written material, expert interviews (=54). In addition, eight workshops were arranged for the actors, during which the strategy goals, priorities and innovation operations-related challenges were discussed. In order to map the development needs of businesses, three surveys were carried out to survey the innovation-driven growth needs of companies in the extractive industry, forest sector, and wellness and tourism fields. Moreover, Lapland's Chamber of Commerce produced a report regarding the developmental needs of Lapland's top innovation-led sectors as support for the strategy work.</p> <p>On the basis of these materials, a picture was composed of the challenges related to the distribution and digitalisation of innovations in Lapland. These challenges are re-evaluated every second year in connection with the assessment process of the strategy.</p>
<p>2. Competent regional/national institution or body responsible for managing the smart specialisation strategy</p>	<p>The Regional Council of Lapland is responsible for the administration of the smart specialisation strategy.</p>
<p>3. Monitoring and evaluation tools to measure the results in achieving the strategy's goals</p>	<p>As support for the strategy, priority-specific execution plans will be drawn up. Strategy follow-up occurs via indicator monitoring, in addition to which project monitoring is carried out in relation to the execution plans.</p> <p>Based on Statistics Finland's material, the strategy monitors the development of Lapland's business base and turnover, R&D expenditures and R&D personnel by sector, Business Finland's funding in the region, and the development of the processing value of production.</p> <p>Indicator follow-up with respect to the smart specialisation strategy is conducted annually, and the execution is assessed every two years.</p> <p>The co-ordination responsibility for the smart specialisation strategy rests with the Regional Council of Lapland, and to support the implementation of the strategy, a co-ordination group will be established whose task is to monitor the implementation of the strategy and participate in its update process every two years.</p>
<p>4. Operation of stakeholder co-operation ("process promoting entrepreneurship")</p>	<p>Strong regional co-operation is focused on in the execution of the strategy. Increased collaboration between research, development and training organisations, business and civil society will lead to innovation-driven growth.</p> <p>A model for co-operation is being developed as part of the planning for execution of the strategy. As support for the execution of the strategy, a co-ordination group will be formed which will be made up of the members of the organisations involved in the strategy process.</p>

Condition for compliance	Criteria
5. actions to improve national or regional research and innovation systems	In developing priorities, the promotion of the sort of collaborative models that take the requirements of livelihoods into account and support their growth should be taken into consideration. RDI activities that focus more strongly on the region's livelihoods and their needs enable the renewal of livelihoods and promote RDI investments. In RDI activities, end user-oriented project planning is invested in, and the awareness and accessibility of the development environments in the region are promoted. Through active international collaboration, know-how is increased and best practices are sought to be applied to Lapland, and the attachment of livelihoods to international value networks is promoted.
6. Measures for the support of the industrial change process as required	<p>The strategy raises four thematic priorities to the fore. By focusing on these, we promote the region's sustainable growth. The priorities are:</p> <ul style="list-style-type: none"> • The circular economy as the basis of growth • Wellbeing and adventure services based on nature • Renewable energy solutions as a promoter of self-sufficiency • Technologies as a reformer of sustainable production and services <p>The priorities will focus on supporting the process of industrial transformation, in particular actions to promote the industrial circular economy and Industry 4.0 solutions</p>
7. Measures to enhance co-operation with partners outside a given Member State in priority areas supported by the smart specialisation strategy.	<p>In a central role in the execution of the strategy are the national and international networks and partnerships, within which the Lapland-based operators engage in collaboration under the strategic themes. The national networks will work closely with the regions of East and North Finland particularly within the framework of the Regions in Industrial Transition (ELMO) collaboration, and will participate in the work of the collective network for Smart Specialisation of all regions.</p> <p>Among the international partnerships, the most important are the European Commission's Smart Specialisation thematic partnerships, where goal-oriented, business-oriented collaboration is carried out with European regions that share the same theme of smart specialisation. In addition, participating in the opportunities offered by the Vanguard Initiative, European Cluster Alliance and Northern Sparsely Populated Areas (NSPA) network.</p>

APPENDIX 2. Organisations that have participated in the strategy process

The City of Rovaniemi; Business Rovaniemi; Lapland University of Applied Sciences, Digipolis; University of Lapland; Entrepreneurs of Lapland; Lapland Chamber of Commerce; Regional State Administration Agency; Finnish Lapland Tourist Board; Geological Survey of Finland (GTK); Natural Resources Institute Finland (LUKE); Lapland Education Centre (REDU); Lappia Vocational College; Employment and Economic Development Office (TE Office); Sámi Education Institute; Pohjaset Oy; Silence Festival Association; Kideve Kittilä Development; Business Finland; and the following municipalities: Team Sixpack (Seutukunnallinen kansainvälistymisen yhteistyöryhmä), Pelkosenniemi, Muonio, Utsjoki, Inari, Kittilä.

Arctic Factory Design Agency has acted as a partner in the development of the strategy.

