

ARCTIC Smartness



ARCTIC
DEVELOPMENT
ENVIRONMENTS

CLUSTER

ARCTIC
DESIGN

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ARCTIC
INDUSTRY
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CLUSTER

LAPLAND
Above Ordinary

ARCTIC Smartness



Arctic Smartness with its five modern clusters, each awarded the European Cluster Management Excellence label (BRONZE)* in 2016, of Arctic Industry and Circular Economy, Arctic Smart Rural Communities, Arctic Design, Arctic Safety and Security and Arctic Development Environments, are looking beyond conventional operational boundaries, endorse cross-fertilisation, make the best use of the regional expertise and actively network over the borders.

*awarded by the European Secretariat for Cluster Analysis (www.cluster-analysis.org)

The cluster is where the smart specialisation thrives

What are the competitive advantages of Lapland? How to support emerging SMEs and increase capacity of Lapland? How to implement smart specialisation strategy? How could businesses from Lapland that use natural resources sustainably gain fresh impetus in international markets? These questions, among other things, were asked when the Smart Specialisation Strategy work was started in Lapland.

Lapland is the northernmost region of Finland and EU having total land area of 98 984 km² and 181 815 (2014) inhabitants. Lapland is a mixture of abundant natural resources, strong accumulation of Arctic knowhow and expertise and unique nature. Backbones of the economy are the strong forestry and mining based industries and tourism producing together almost 10% of the export of Finland. Specific characteristic of the industry in Lapland is the existence of the large refining industry, few medium size businesses and huge number of small and micro level enterprises.

The region of Lapland was one of the first regions in Finland adapting the concept of Smart Specialisation (S3). The vision of the Lapland smart specialisation is to enjoy a leading position in exploiting and commercialising Arctic natural resources and conditions. Despite remarkable

industrial development, Lapland keeps its position as a region with the cleanest water in the world and the cleanest air in the European Union.

From the very beginning S3 was seen as a very practical concept, bringing in new insights into the regional development. S3 approach has been used in Lapland as a means to become recognised in EU as an attractive and knowledgeable collaborator. The work according to S3 has helped in finding new ways of working together and to get out from the box to seek new possibilities from the cross-sectoral collaboration, to develop common approaches towards regional development and to be active in seeking international collaboration. To put the smart specialisation to practise, we developed a special "Arctic Smartness" regional development approach.

We are reaching towards the vision via having the development focus in regional clusters and ecosystems supporting the co-creation among, the development of new regional value chains generate growth and innovation activities of SMEs on supporting the green economy. The implementation of the Lapland S3 focuses on bringing in the crosscutting intervention, which will stimulate in finding the interfaces where cross-fertilisation appears and innovations will be born.

With the modern cluster of Arctic industry and circular economy, Arctic smart rural communities, Arctic design, Arctic safety and Arctic development environments, we are looking beyond the boundaries, cross-fertilisation, the best use of the regional expertise and strategic networking over the borders.

FURTHER INFORMATION

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How does the cluster work?

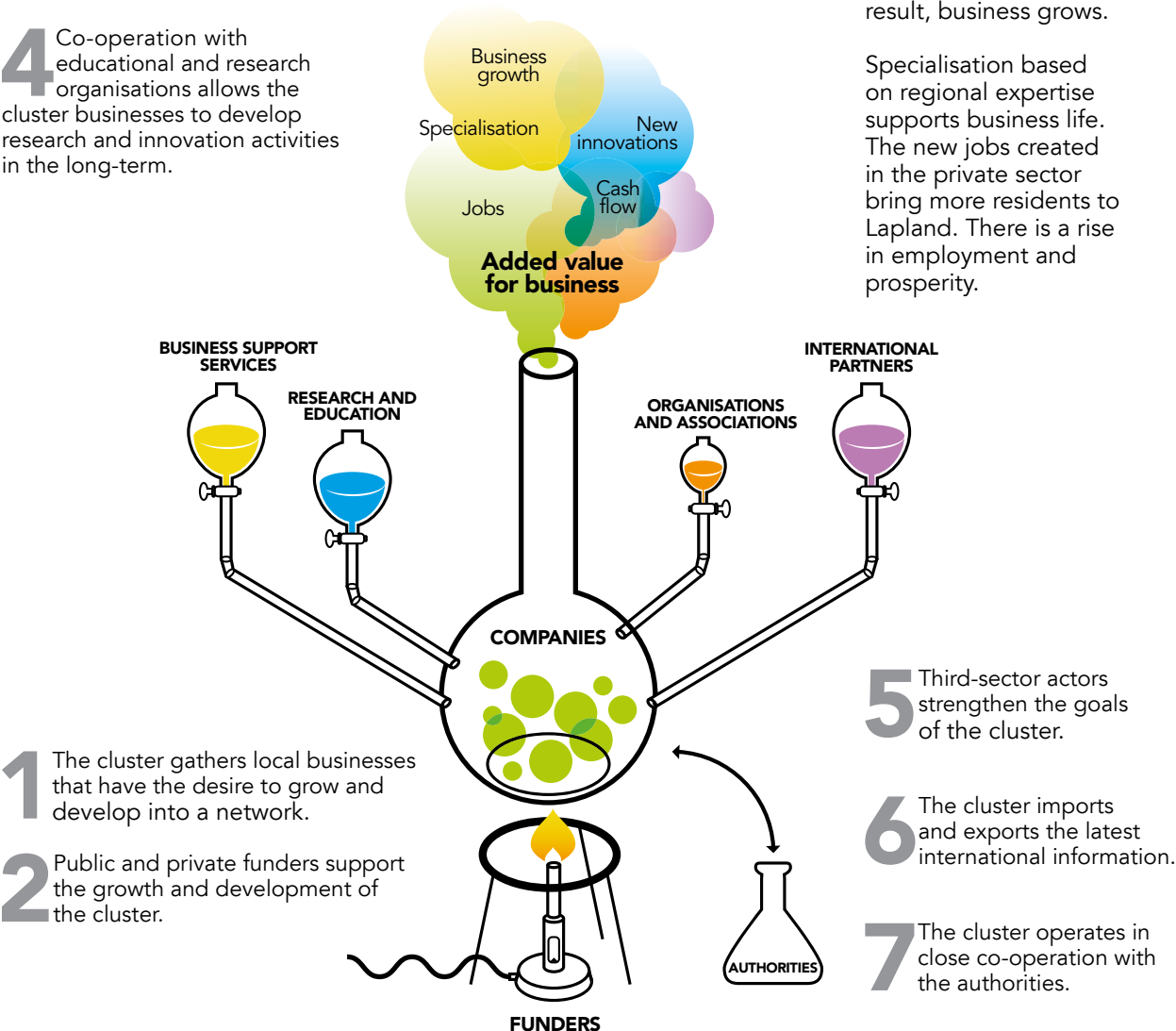
The Arctic Smartness cluster approach - Implementing the smart specialisation

3 Development companies, regional development organisations and other business support services help the cluster businesses through, for example, the supervision of interests and development of business skills.

4 Co-operation with educational and research organisations allows the cluster businesses to develop research and innovation activities in the long-term.

8 Network co-operation leads to new innovations and regional specialisation. Companies find new markets and, as a result, business grows.

Specialisation based on regional expertise supports business life. The new jobs created in the private sector bring more residents to Lapland. There is a rise in employment and prosperity.



Aiming for concrete results and long-term impact

Why is the cluster co-operation seen as a tool to implement the regional development in Lapland?

There are internationally competitive skills, high-quality products and services as well as plenty of ideas to commercialise in Lapland.

The cluster co-operation between those operating in Lapland increases the visibility of the expertise and experts of Lapland and raises new opportunities to bring the developed products and services to the market.

In 2014, Lapland was chosen as the cluster model region of the EU from among 44 candidates – right now is an excellent time to utilise and market Lapland's cluster co-operation internationally!

*Cluster development expert
Jukka Teräs from Nordregio*

Is there a real need for cluster co-operation?

Regional clusters have been launched and developed around the world for a long time now. The models and implementation methods of clusters vary, but the co-operation between businesses, research and educational institutions, the public sector and funders that is at the heart of cluster activities has brought euros, jobs and visibility to the regions and the those operating there.

The need for cluster co-operation is still there and the most active regions and regional actors utilise clusters effectively.

*Senior Advisor Kristiina Jokelainen,
Regional Council of Lapland*

What motives do businesses have when participating?

Businesses seek increasing their competitiveness, euros and jobs from cluster co-operation. Cluster co-operation is most successful when the key objectives

of the businesses are taken into account from the very beginning.

Businesses certainly compete with each other from time to time, but co-operation between enterprises is sought and promoted in clusters while taking the competitive situation into account.

Businesses are also looking for new initiatives, ideas and contacts from cluster co-operation in order to develop their operations.

*Cluster Development Manager Ilari Havukainen,
Regional Council of Lapland*

What are the challenges of cluster co-operation?

Cluster co-operation tests the ability to co-operate of the region and the those operating there. The leaders of cluster organisations must be able to inspire actors to participate in active co-operation.

Concreteness is a challenge: increased co-operation alone is not enough, but rather it should lead to measurable results such as euros, jobs or new research and innovation projects. Cluster co-operation as such does not automatically guarantee success.

What could the co-operation in Lapland's clusters be like in the future?

The cluster co-operation will arise from the starting points of the actors, be active and inspiring, have sufficient long-term goals but still be result-oriented. Activities that promote the interests of Lapland and those operating there in a concrete way.

The close collaboration between cross-sectoral actors in clusters will provide good breeding ground and the interface for the innovations to grow. Sustainable utilisation of the arctic natural resources will remain at the heart of the cluster development work in Lapland.

International growth from clusters

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"LAPLAND HAS GAINED visibility and a firm foothold in many international forums. We have made cluster work one of the regional focus areas, based on Lapland's strategy for Arctic specialisation.

We have got off to an excellent start: Lapland was selected as one of the model regions for cluster development in Europe along with five other top regions.

Our goal is to support the competitiveness and growth of business clusters that are genuinely market-based and strive to be international.

Cluster activities provide new operating models for the business life of Lapland and strengthen, for example, our public and private funding opportunities.

Now is the time to seize the opportunity and get busy. *Tenemä pois – Consider it done!*"

*Mika Riipi,
County Governor of Lapland*

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Consider
it done!



LAPLAND
Above Ordinary

Arctic Magic



LAPLAND
Above Ordinary

Open and Arctic



LAPLAND
Above Ordinary

Pure Madness



LAPLAND
Above Ordinary

Rich in Nature



LAPLAND
Above Ordinary

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Lapland – a development region

Approximately 50 development environments operate in the area of Lapland. How are these premises, originally built as learning environments, being used for the innovation and product development of businesses?

Around 50 different development environments for businesses

Cluster has set a goal to gather RDI and learning environments in Lapland to same network, which strengthens the regional business by providing new business opportunities for SMEs.

Development environments are physical and virtual environments, learning and innovation environments, laboratories, research facilities, studios, workshops and simulation environments in which products and services can be tested and developed further.

Seven organisations from Lapland are involved in the recently assembled cluster of Arctic development environments: the Lapland University of Applied Sciences, the University of Lapland, the Lapland Vocational College, the Vocational College Lappia, the Geological Survey of Finland, the Natural Resources Institute Finland and the Finnish Forest Centre.

In total, the cluster has around 50 different development and innovation environments available for rent to businesses and communities. The facilities are located in various parts of Lapland at, for example, educational institutions, universities and research institutes.

“By compiling Lapland’s development environments into a network, we aim to attract synergy from one development environment to the next but, primarily, save the time and money of entrepreneurs when they are looking for a suitable workshop, laboratory or space for innovation,” says Cluster Manager Raimo Pyyny from the field of Industry and Natural Resources at the Lapland University of Applied Sciences.

Theory and testing for real demands

Even in Lapland, testing an electric sledge in a temperature of -20°C is only possible in natural conditions during cold winter days.

In the Arctic Power cold testing laboratory, the properties of the electric sledge can be tested in freezing temperatures all year round. In development environments, companies can test their products and services in an environment that is authentic or built to resemble an authentic environment.

“A development environment is a sandbox for a business or a community that wants to develop their products or test their services. The purpose of innovation and product development is to improve the competitiveness of a product or service on the market,” says Cluster Manager Pyyny from the Lapland University of Applied Sciences.

Educational institutions support working life and vice versa

These days, educational institutions and research institutes collaborate with other parties in the region increasingly. For educational institutions, for example, knowledge of new materials and related testing activities create the basis for understanding the industry of the region.

Co-operation helps young professionals graduating from educational institutions specialise and find employment while the business, in turn, gains skilled labour.

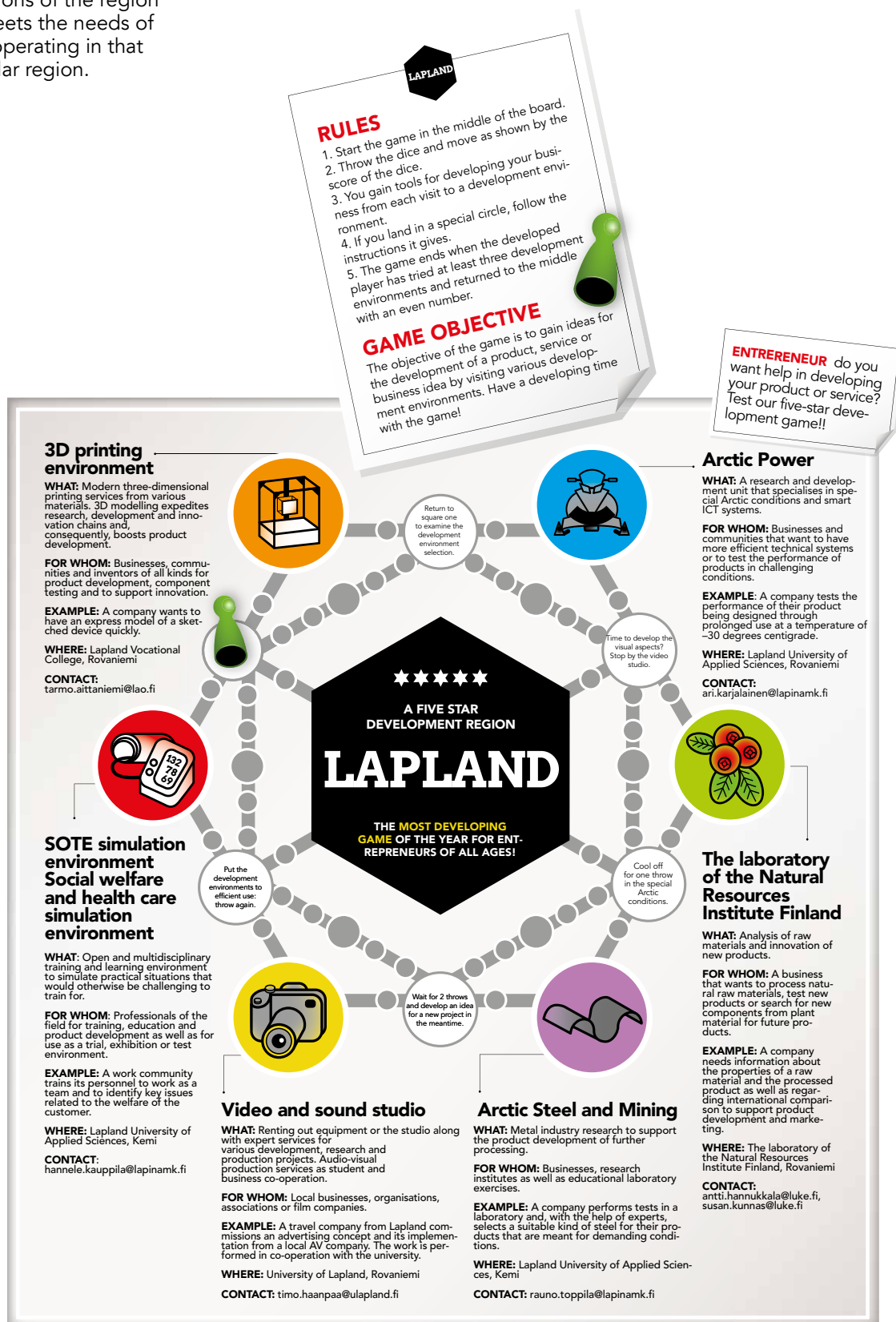
Often there is specialised expertise available in the research and educational institutions of the region that meets the needs of those operating in that particular region.

In Lapland, there is experience of the fields of cold testing, metal industry, development of natural products and research in tourism, among many other things. Testing environments for, for example, social welfare and health care as well as sports in Arctic conditions in particular are currently also much in demand.

FURTHER INFORMATION

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Often there is specialised expertise available in the research and educational institutions of the region that meets the needs of those operating in that particular region.



BRONZE



Cluster
Management
Excellence

STRIVING FOR CLUSTER EXCELLENCE

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Design intersects industries and services

Businesses, science and art come together Design intersects industries and services that is at the heart of the Arctic design cluster. This results in solution-oriented innovations that stem from Arctic expertise.

Lapland has been profiled as having special expertise in the field of design for years already. Design is an intersectional activity and affects companies and communities on many levels.

Design is connected with the planning and development of services, products, production processes, corporate cultures and facilities, among other things. The goal is to make the business, product or service more competitive.

The Centre for Expertise in Arctic Design is the heart of the Arctic design cluster. Its concept is to promote co-operation between the business life, educational institutions and research institutes of the region. A centre of expertise that focuses on northern and Arctic design supports the smart specialisation of Lapland.

In addition to the Faculty of Art and Design of the University of Lapland, several participants are deeply involved in the Arctic design cluster, including Rovaniemi Development Ltd. as well as the City of Rovaniemi with the theme Arctic Design Capital.

What added value does design bring to the planning of a service or product, Project Coordinator Tuomas Honka from the University of Lapland?

Design gives the product an accessible and functional look. User-oriented design improves ergonomics, aesthetics, usability, manufacturability, cost-effectiveness and eco-friendliness.

Design increases the quality and credibility of the product or service. The organisations, products and services of Lapland have great potential that can be refined into even more competitive business through design thinking.

How does Arctic design differ from ordinary design?

Design can be perceived as Arctic when it relates to phenomena, services or things that are typical of the Arctic regions, environmental conditions and materials. Arctic Design gives local businesses a competitive advantage and generates Arctic expertise.

Arctic design generates new solution models for, for example, digital services in the tourism and experience industry.

Design increases the comfort of people in northern regions and provides plenty of opportunities for the productisation of Arctic expertise. New business is generated for the important trades of the region.

How will the arctic design cluster and the Centre for Expertise in Arctic Design change the whole world and not just Lapland?

The Centre for Expertise in Arctic Design aims to be a state-of-the-art centre of excellence where research and development work is conducted together with the regional business community and development organisations.

The Centre for Expertise also has a strong national and international network. Co-operation with various actors promotes the dissemination of the latest research information into practice. The extensive network of The Centre for Expertise in Arctic Design opens possibilities for research funding that is greater in terms of the amount received as well as duration, from both the EU and in Finland.

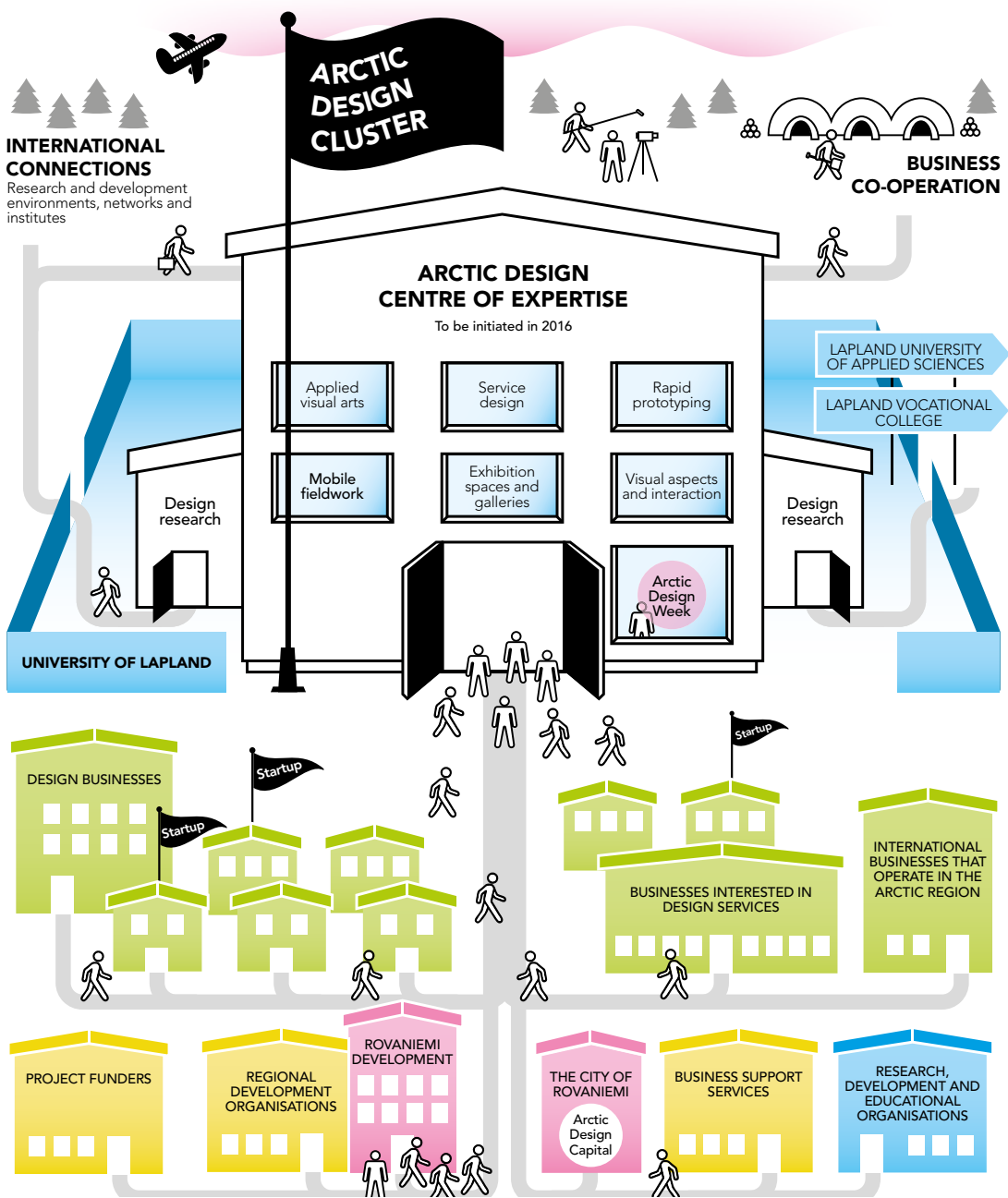
In the Centre for Expertise in Arctic Design, those operating in the region cross paths within the context of art and science. This results in prototypes and testing that combine the latest research, creative arts and design expertise.

Changing the whole world represents a major challenge. In 2025, however, the Centre for Expertise in Arctic Design will be the best place in the world to do design research which combines expertise on Arctic culture and conditions through design and art.

FURTHER INFORMATION

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Design increases the comfort of people in northern regions and provides plenty of opportunities for the productisation of Arctic expertise.



The Centre for Expertise in Arctic Design is the heart of the Arctic design cluster

The centre for expertise created at the Faculty of Art and Design of the University of Lapland promotes co-operation between Lapland's business life, development organisations, educational institutions and research institutes. Those deeply involved in the Arctic design cluster include Rovaniemen Kehitys Oy and the city as well as other regional and international actors through networks.

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Lapland – the Arctic beacon of Europe

Lapland, the northernmost region of Finland and EU, aims at becoming the leading Arctic region in the sustainable utilisation of its vast natural resources. The balanced combination of the industrial expertise and commitment to the sustainable development are the core of the refining the natural resources in the region.

The products and processes of Lapland's industry are suitable to any demanding conditions. Arctic expertise is embedded to the products and services, and the businesses do not always recognise it as a competitive factor," says Programme Director Kari Poikela from the Kemi Digipolis.

In addition to deep specialist expertise, those operating in Lapland have good networks and they know each other. This facilitates the rapid advancement of issues when it is necessary.

It is time to raise the profile of Lapland's industry.

The investment boom in the Arctic has been estimated at dozens, even hundreds of billions of euros. There is a need for Arctic expertise and specialisation.

"We need to set the goals high enough. When we market Lapland as a whole and as an important part of the Cap of the North, we are an considerable and desired partner on the international market and in the competition for, for example, EU funding," Poikela continues.

In addition to Arcticness, the new wave of successful businesses from Lapland is defined by ecological innovation, the utilisation of industrial symbiosis and a sustainable way of operating. According to the industrial strategy of Lapland, natural resources are

refined with respect for nature and people and in co-operation with other trades.

Credibility from network co-operation

A reliable regional network of actors establishes credibility and effectiveness on the international market. Development work that aims at the sustainable growth of industry, mines and their service businesses has been conducted for a long time in Lapland.

However, there has been a desire to intensify the co-operation of the network of actors

further. The development team of the Arctic industry and circular economy cluster established in autumn 2015 strives for this in wide-ranging co-operation with the other clusters of Lapland.

The Arctic industry and circular economy cluster assembles the industrial enterprises of the forest, metal and mining industries and their service actors into the same network which is supported by the development, research and funding organisations in the region.

Co-operation helps businesses with, product development, the identification of new business opportunities, internationalisation and the supervision of interests etc..

The Arctic industry and circular economy cluster's goal is to find new operating models, partners and funding opportunities that will bring more success to the Arctic industry businesses of Lapland. The growth of business life increases jobs and, consequently, prosperity throughout the region.

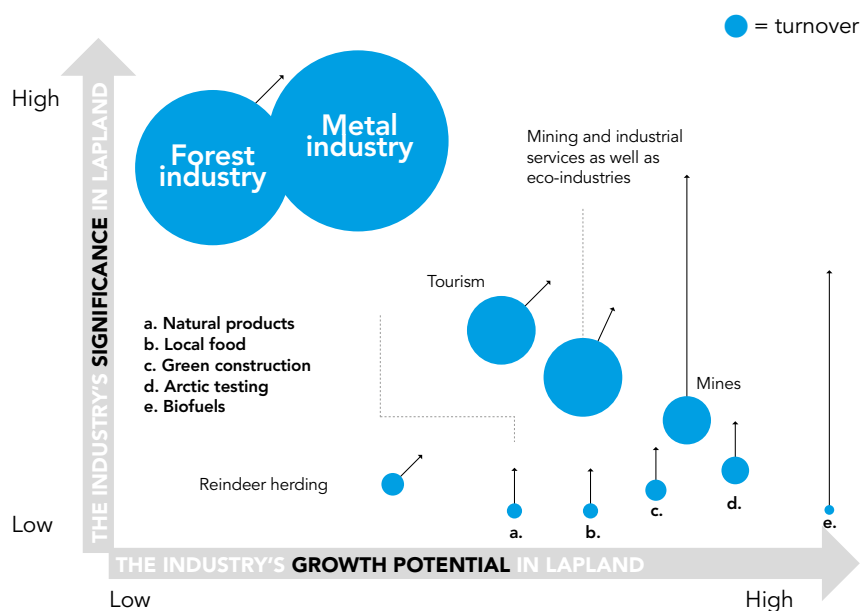
FURTHER INFORMATION

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"We need to set the goals high enough."

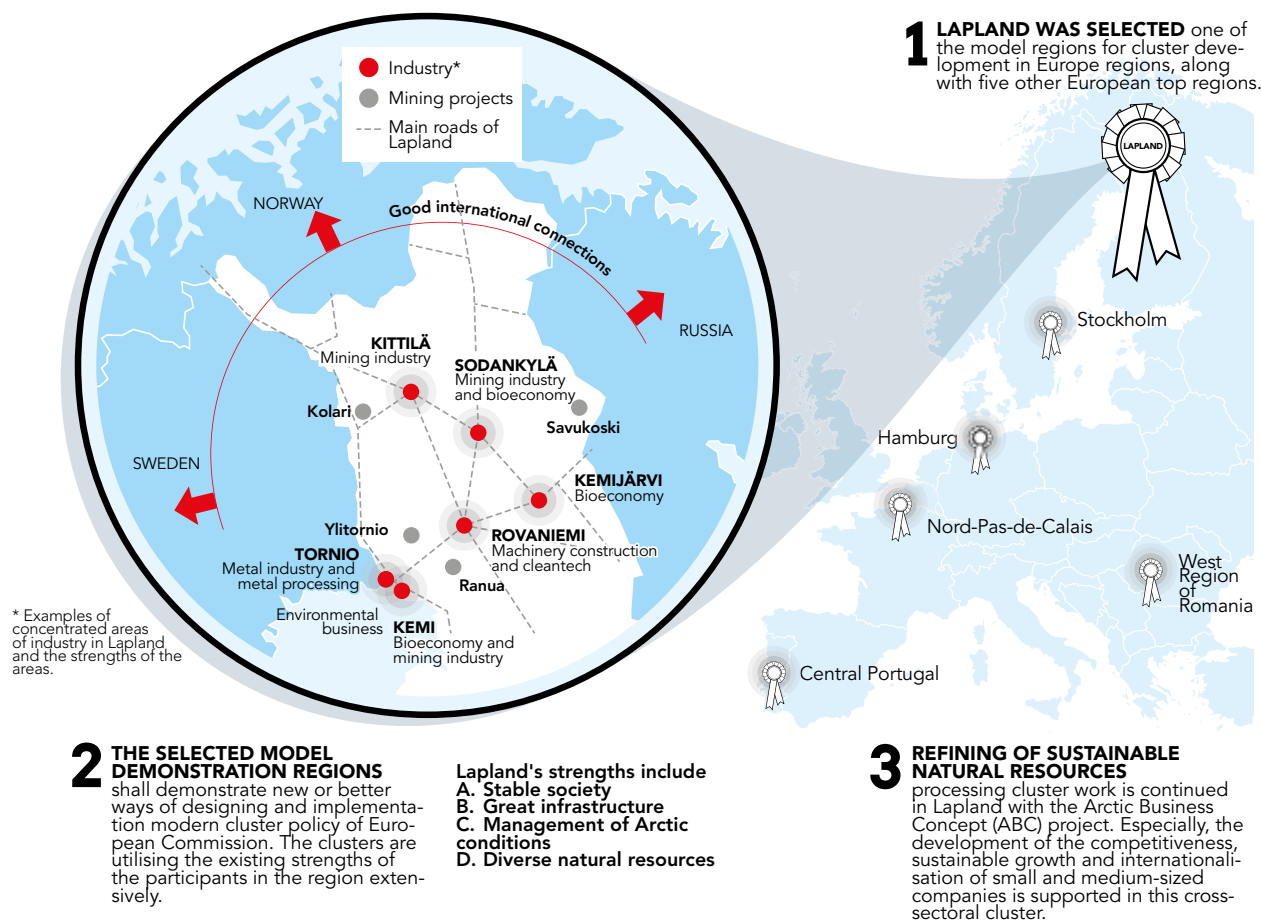
Kari Poikela, Digipolis

What is the growth potential of industries related to the Arctic business of Lapland?

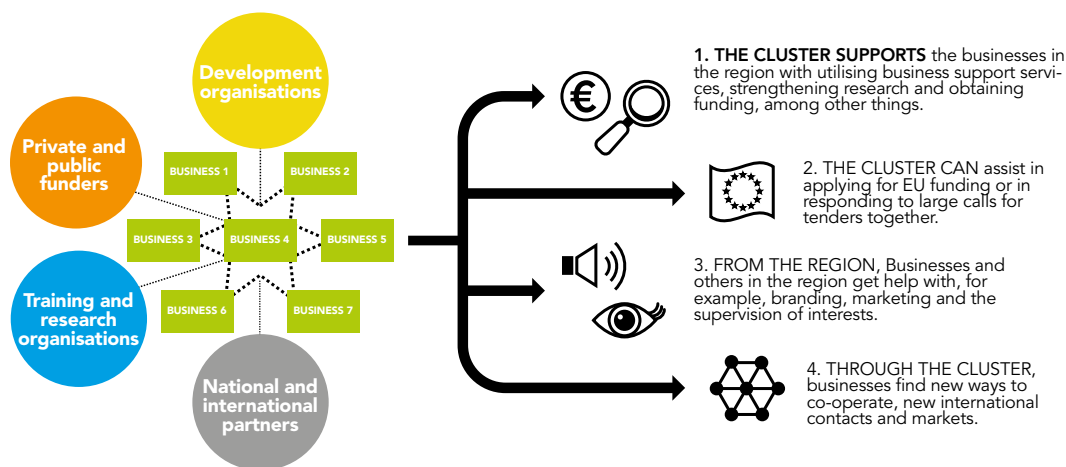


Source: The Arctic specialisation programme 2013, page 24

Lapland is Europe's model region in the sustainable refining of natural resources



The cluster connects and strengthens organisations operating in the region



Lapland resin sparks industrial-scale activities

Bioeconomy is predicted as the next wave of the economy. In Lapland, there are both natural resources and expertise in the field of bioeconomy.

The Finnish resin salve intended for wound care recently passed a strict screening and was awarded full medicine reimbursement in the United Kingdom. In addition to Finland, resin salve is sold in Austria, Germany, Sweden, Australia, Greece and other countries.

“There are only five million inhabitants in Finland, so the market here is limited. You must look for growth abroad,” says Production Manager of Repolar Oy Kyösti Vanha from Kolari and emphasises the importance of finding good partners when entering the international field.

In the Repolar family business, research and development work on resin products has been conducted for ten years now. The time and money consuming research evidence is an important selling point, as is also the clean nature of Lapland.

“Finns have used a salve made from resin to treat, for example, chronic wounds and burns in humans and animals for hundreds of years. Now there is research evidence of its effect as well and the market is clearly ready for spruce resin from Lapland,” Production Manager Vanha rejoices on the opening up of new international markets.



Repolar Pharmaceuticals Oy Production Manager Kyösti Vanha monitors the spruce resin product development line.

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Big visions of rural Lapland – still down to earth

Rural Lapland is more than a wilderness. The multiple alternatives utilising the forests and hundreds of lakes could upgrade and safeguard livelihood in the peripheral rural communities. Openminded development and smart utilisation of the potential will provide new breeding ground for the emerging industries and plays a focal role in breaking the tendency of declining economies in peripheral rural communities.

“We live in the midst of nature’s own treasure trove. If we combine the expertise of those operating in different sectors in Lapland, we will have the knowledge and skills to develop the products and services that are already high in quality into world-class success stories,” says Johannes Vallivaara from ProAgria Lapland, who has followed the matter on company level for years.

“We just need to dismiss our notions of a dying countryside and trace a new smartly specialised, living rural Lapland of opportunities,” Vallivaara says.

Specialisation key to make Lapland’s rural cluster top in Europe

By working together, companies and communities learn from each other and build trust, the basis of successful co-operation.

“The purpose of the smart rural cluster that we have put together is to be an easily approachable network of experts, and with its joint efforts we aspire to raise rural Lapland from amateur level straight to top European class. You cannot succeed in European funding arenas as an individual organisation, you need to have a more extensive group of participants

from Lapland,” says Vallivaara, who coordinates the cluster.

In addition to ProAgria Lapland, participants involved in designing the Arctic smart rural cluster include the Natural Resources Institute Finland, the Lapland University of Applied Sciences, the City of Kemijärvi, the Sodankylä municipality, Rovaniemi Development Ltd., the University of Lapland, Digipolis and many others in the region.

Energy-independent village in Lapland

Xylitol, resin salve, berries, fish and functional plants. Wood construction, advanced biofuels, biodegradable packaging materials and wood composite products.

Bioeconomy is all of this and more. Sustainable processing of natural raw materials with modern technology.

The potential of the bioeconomy springs from real needs. Traditionally forest in Lapland is seen as a source of one product mainly used by the large forest industry. By thinking small, we can actually develop something big - new generation SME development brings hope for the future. For example, people around the world are interested in fresh food from Lapland and the new generation wood processing business is growing.

Substitutes are sought for non-renewable raw materials. When we decrease our dependence on fossil fuels, we create new jobs in sparsely populated areas at the same time.

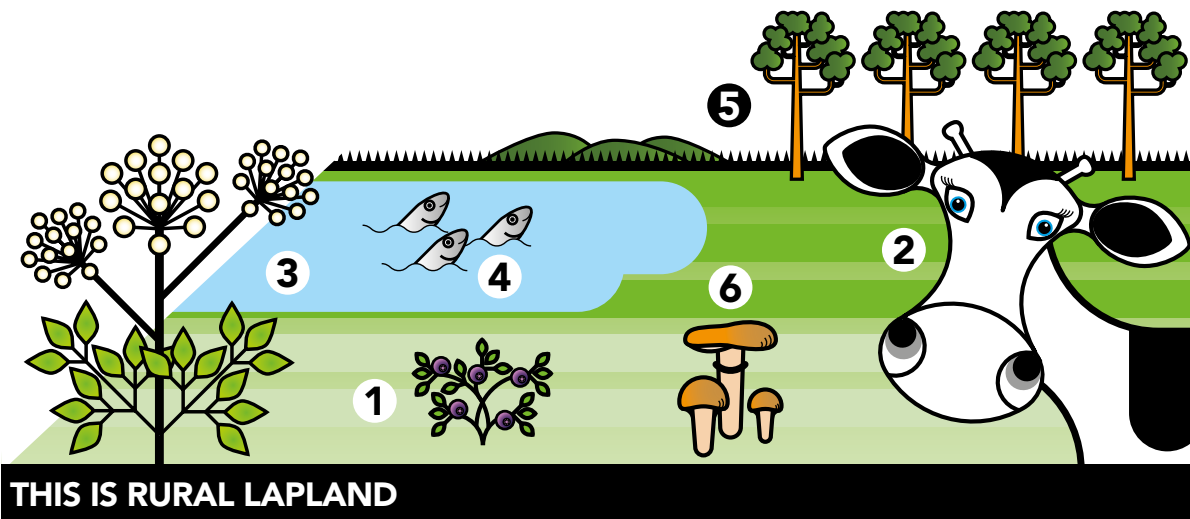
“With modern technology, an individual farm can utilise a reasonable amount of waste energy and bioenergy. On the other hand, a whole village can be transformed almost energy-independent with moderate investments,” says senior rural business developer Keijo Siitonen from ProAgria Lapland.

Based on recent research by ProAgria and the Natural Resources Institute Finland, such an energy renovation would bring annual savings of approximately €800,000 to a village of 65 houses. That will have a direct cumulative impact on to economic development and generation of new business.

FURTHER INFORMATION

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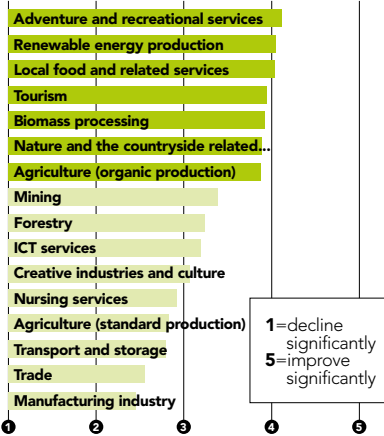
Examples of rural Lapland’s potential



TODAY			TOMORROW		
1. Bilberry It is estimated that about 10 percent of the blueberry crop is harvested each year. Bilberries are exported to China and elsewhere, where they are used in the manufacturing of health products.	2. Milk In Lapland, 2.5 times more milk is produced than is consumed. Processing is done only at a few farm dairies.	3. Angelica Wild angelica is harvested to some extent. It is used in jams, sweets, health products and other products.	1. Bilberry Bilberries from Lapland are valued and harvested more than before. Bilberries are processed into a variety of natural products, most of which are exported.	2. Milk Only a fifth of the milk produced in Lapland is processed outside the region. Lapin Maito Oy is a new and growing dairy company.	3. Angelica Angelica is grown on fallow fields. Processed special products have gained strong international recognition. The plant is protected under EU name protection similarly to the "Lapin puikula" potatoes from Lapland and reindeer meat.
4. Freshwater fish 1.8 million Finns go fishing as a hobby. 75% of the fish eaten in Finland is imported from abroad. Selective fishing is done to manage fish stocks. Substantial amount of valuable protein ends up in landfills.	5. Wood Less than half of the yearly growth of forests is utilised mainly by the large industry. Timber is used for the firewood and sold as raw material. Forestry is mainly seen as a source of one product.	6. Mushroom Small quantities of mushrooms that have grown in the cleanest air in the world are harvested from Lapland's forests. Only a fraction of the mushrooms are exported.	4. Freshwater fish The most enthusiastic recreational fishers become professional fishermen. More Finnish fish is consumed than imported fish. The formerly so-called coarse fish and processed fish products are exported to gourmet kitchens of Central Europe.	5. Wood Refining of the wood creates competitive and diversified SME business. Lapland produces modern construction elements. The Kemijärvi bioproduct mill utilises wood in an innovative manner. Biodiesel is produced from tall oil and new bio-based products are developed.	6. Mushroom Mushrooms from Lapland have become a hit product. Finns have found foreign partners with whom a variety of mushroom products are developed for the growing world market. Event organiser companies have begun to offer mushroom safaris.

WHAT TYPE OF POSSIBILITIES DO RURAL ENTREPRENEURS BELIEVE IN?

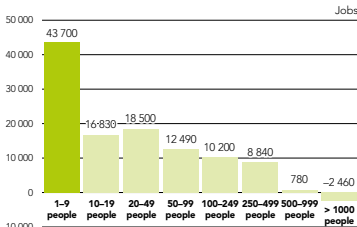
A question for entrepreneurs: in your opinion, how will the business opportunities of the following industries develop in rural areas?



Source: Taloustutkimus, Rural Barometer 2014

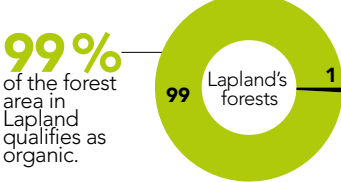
MOST JOBS ARE CREATED IN MICRO AND SMALL BUSINESSES

Change in the number of employed people in Finland from 2001 to 2012



Source: Statistics Finland
The figures have been converted into full-time jobs excl. agriculture and forestry

LAPLAND IS THE LARGEST REGION IN THE WORLD TO HARVEST ORGANIC NATURAL PRODUCTS



The air is proven to be among the cleanest in the world and the nature is rich. In addition to superfoods, rural treasures include fast-growing forests and the offerings of the waters.

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Safety not brought about in isolation

The aim of the Arctic safety cluster, or the Lapland safety network, is to forecast and ensure the safety of citizens and the fluent running of business and trade. In Lapland, safety co-operation is carried out in civil safety, the mining operating environment, tourism and at sea.

Lapland's geographical location, sparse population, nature conditions and, on the other hand, large numbers of tourists require safety risk management know-how and competence to operate in Arctic conditions.

The Arctic safety cluster brings together companies, authorities, research and training organisations, cities and towns, and other organisations across Lapland. The aim is to strengthen international networks and safety business opportunities of the Arctic region.

Safety networking in Lapland has been recognized as a national and international good practice. The keyword in co-operation is network competence.

Safety is integral to any company's quality



"THE PORT OF KEMI has already served as a centre of Arctic maritime safety testing and events several winters now. The wintry Bay of Bothnia offers an outstanding setting, and the Port of Kemi has excellent infrastructure. We look forward to significant growth in this business."

Managing Director
Reijo Viitala
Port of Kemi



"HERE, IT HAS BEEN understood in an exemplary fashion that the mental and physical well-being of people starts with small things, the circle of people close to you and cooperation between neighbouring areas."

Erkki Parkkinen,
current Mayor of Salla,
formerly of Pelkosenniemi, comments on the Development of Wellbeing and Civil Safety in Municipalities concept in 2013



"TAKING care of safety means taking care of your business. A good safety reputation translates directly into more sales. A company with a good safety reputation increases global demand."

Hotel Manager
Vesa Narkaus,
Hotel Santa Claus
Tourism and restaurant safety award 2013



"YOU MUST BE ABLE TO document and verify safety with an auditing scheme, risk assessment and accident reports. The verification requirement runs through the entire network all the way to the last subcontractor. The entire network must understand their own obligations and responsibilities as to how to take care of safety, what information to convey to the client and, on the other hand, how to prepare for risks."

Director of Operations
Rami Korhonen,
Lapland Safaris
Tourism and restaurant safety award 2011



CIVIL SAFETY

Civil safety and security consists of people's safety and well-being.

EUROPE'S BEST REGIONAL DEVELOPMENT MODEL. Cities and towns must produce municipal services with fewer resources than before. Development of Wellbeing and Civil Safety in Municipalities is a concept developed in Lapland, helping various groups to work together in a co-ordinated fashion. Municipalities take the leading role in the processes. The model was awarded the European Public Sector Award, EPSA (2013).

HOW?

- Proactive role
- All participants have a shared objective

WHAT?

- Safe home, living and working environment
- Safe schools
- Safety of movement
- Well-functioning basic services and quick help when needed

CIVIL SAFETY AND SECURITY

- ✓ Livelihood
- ✓ Services
- ✓ Participation

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TOURISM

Tourism safety boosts the competitiveness and fault-free operations of companies and increases tourists' feeling of safety.



Centralised data

- Tourism Safety Research and Innovation Data Resources REIDAR [matkailu.luc.fi/-Hankkeet/ Tutkimuksen-tietopankki](http://matkailu.luc.fi/-Hankkeet/Tutkimuksen-tietopankki)
- Tourism safety website www.tourismsafetytools.fi
- matkailu.luc.fi/Turvallisuus



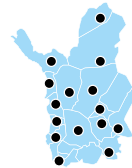
Increase of competence level

- Training events, training, company-specific coaching
- Local multi-disciplinary safety work groups
- Further information from tourism destination organisations



Tools for entrepreneurs

- www.matkailunturvallisuustyokalu.fi
- Risk management tool for risk evaluation and management
 - Self-monitoring tool to develop and monitor safety
 - Destination-specific safety plans



Municipalities involved in the Lapland tourism safety and security system

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SEA

Maritime safety focuses on the development of Arctic testing, training and presentation environments.



Companies and sustainable business

- Logistics
- Risk management
- Materials competence
- Winter seafaring
- Shipbuilding
- Etc.



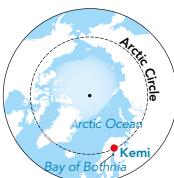
Environment and climate

- Weather and condition competence
- Environment solutions
- Ice competence
- Etc.



People and society

- Telecommunications and radio technology
- Legislation
- Ports
- Infrastructure
- Etc.



OBJECTIVE: international Arctic testing and training cluster in Kemi.

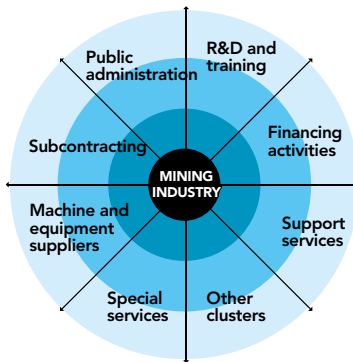
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MINING OPERATING ENVIRONMENT

THE VALUE NETWORK MAKES UP the mining operating environment cluster. The cluster generates business opportunities regionally, nationally and internationally.

■ Regional ■ National ■ International



* Global, national and regional extractive companies
Source: adaptation of thematic co-operation of Eastern and Northern Finland 2014–2020, extractive industry

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ARCTIC Smartness



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