Interreg Europe

European Union | European Regional Development Fund

Sharing solutions for better regional policies

SMARTY

Interreg Europe

European Union
European Regional Development Fund

ACTION PLAN:

Industry Digital Transformation "One-stop-shop in Lapland and Arctic"

THE REGIONAL COUNCIL OF LAPLAND

REGIONAL COUNCIL OF LAPLAND

Content

EXECUTIVE SUMMARY

Lapland is a mixture of abundant natural resources with a unique nature. The backbones of the economy are strong forestry and mining based industries and tourism that jointly produce almost 10% of the export of Finland. A specific characteristic of the industry in Lapland is the existence of a global large refining industry, few medium-sized businesses and a high number of small and micro-level enterprises. Balancing with and between sustainable development factors sets new challenges for the Arctic and Lapland. Sustainable development needs better use of the I4.0 solutions and applications among regional SMEs and micro-companies. The Regional Council of Lapland wants to support that through the SMARTY Action plan.

The Regional Council of Lapland will initiate the "Industry Digital Transformation "One-stop-shop in Lapland and the Arctic". It will continue to create awareness and provide services to grow digital competencies, share digital experience and case studies locally, regionally and internationally, and influence the government to adopt regulations and open its data to foster entrepreneurship.

SMARTY - Introduction

SMARTY - Smart SMEs for Industry 4.0 is an interregional cooperation project for improving innovation infrastructure policies to support Small and Medium-Sized Enterprises (SMEs) to unlock the full potential of Industry 4.0. SMARTY aims to trigger a policy change in implementing regional policies and programs related to the Structural Funds, increasing SMEs' awareness and adopting Industry 4.0 solutions and technologies.

The project aims to improve the partners' capacity to design and deliver policies that support SMEs innovation projects, particularly as regards investments in services for technological, strategic, organisational and commercial innovation in line with their S3s that uphold Industry 4.0 as the new paradigm to drive industrial development in the coming years. SMARTY will implement interregional learning activities to identify, analyse and share solutions that – already adopted in one region – can help innovate other partners' regional industrial systems.

Partners exchanged experiences and good practices through thematic seminars, training workshops and online case study visits focusing on four themes:

- Regional platforms and clusters supporting SMEs to adopt I4.0 related technologies and increase their competitiveness
- Digital Innovation Hubs for supporting digital transformation in SMEs
- Digitalisation for Green Transition and Sustainability
- Digital Innovation and Skills in Industry 4.0

In Lapland, the SMARTY focus is on contributing to the better regional implementation of the Innovation and Skills Finland 2021-2027 – EU regional and Structural Policy Programme, Priority - Innovative Finland and its Specific Objective (SO) 1. ii: Exploiting the benefits of digitalisation for citizens, businesses, and public administration.

The aim is to fully use the business opportunities related to digitalisation, data economy and technology. Region-specific projects in the I4.0, especially in the process industry, are needed to create more efficient production, competitive advantage and growth. Lapland will gain an integrated model for I4.0. Increasing the synergies among stakeholders on local, regional and national level programmes project will create a favourable environment for I4.0 investments. Core stakeholders in Lapland are Arctic Industry and Circular Economy Cluster and Arctic Development Environment Cluster.

Part I – General information

PROJECT: SMARTY -

PARTNER ORGANISATION: Regional Council of Lapland

COUNTRY: Finland

NUTS2 REGION: East and North Finland (Action plan is on NUTS 3 Lapland)

CONTACT PERSON: Päivi Ekdahl, Development director, Regional Council of Lapland

EMAIL: Paivi.Ekdahl@lapinliitto.fi

MOBILE: +358 400 383578

The region of Lapland

Arcticness is a natural part of everyday life in Lapland. People living in Lapland have adapted themselves and their activities to the environment and surrounding nature to become high-level experts in Finland and the EU on sustainable development of the northernmost regions. The Arctic is one of the cleanest and best-preserved places but faces many dynamic and complex changes. Worldwide interest in Arctic natural resources and the impact of climate change place Arctic countries and areas in a new position. Balancing with and between sustainable development factors sets new challenges for the Arctic and Lapland.

The backbones of the economy are strong forestry and mining based industries and tourism that jointly produce almost 10% of the export of Finland. A specific characteristic of the industry in Lapland is the existence of a large refining industry, few medium-sized businesses and a high number of small and micro-level enterprises.

Smart choices help to meet future challenges. Lapland is the northernmost part of Finland and the entire European Union. At the same time, Lapland is geographically the most international region of Finland. The Arctic elements are an essential part of the internationally known Lapland brand that is being further strengthened. Lapland wants to be the most innovative and entrepreneur-friendly region of the sparsely populated and circumpolar areas. That requires a commitment of the regional innovation actors and a solid regional ecosystem, which will create a foundation for sustainable growth. Lapland is a melting pot of industries, and it is one of Finland's fastest-growing regions, with its backbones in forestry, mining, metallurgy and tourism.

Picture 1: Lapland in facts and figures

Lapland's natural resources have a significant role in Finnish export. Lapland possesses natural resources and conditions that are globally interesting. The EU industrial policy emphasises the further increase of self-sufficiency. Consequently, increasing the value-added locally is the foundation for advancements in the Arctic industry. For growth, developing Arctic business needs strong value chains that serve as a basis for high-quality manufacturing and service production. Therefore, the region must actively seek links to global cross-border value chains that provide a good growth forum for Lappish enterprises.

The level and capability to adapt the I4.0 solutions will be the success factors for Lapland's economic sustainable and inclusive growth. The starting point for the efficient utilisation of digitalisation is sufficient infrastructure and functional connections throughout the region. We need to increase skills and capacity building that promote digitisation. Accessibility in the digital environment must also be ensured.

Construction of these conditions will create new product, service and process innovations, in which the whole service concept has been rethought. Digitalisation is a prerequisite for developing hybrid work, studies and multi-location. Digitalisation also promotes extensive transformation processes, such as the green transition.

Part II – Policy context

THE ACTION PLAN AIMS TO IMPACT: Other regional development policy instruments

Name of the policy instrument addressed: Innovation and Skills Finland 2021-2027 – EU regional and Structural Policy Programme - Priority - Innovative Finland and ***Specific Objective (SO) 1. ii: Exploiting the benefits of digitalisation for citizens, businesses, and public administration***.

II.1 The SMARTY policy instrument in Lapland

In the SMARTY application, Lapland's policy instrument addressed for improvement was Sustainable growth and jobs 2014-2020 Finland's structural funds programme. SMARTY project phase I operated between two programming periods, and funds from the original policy instruments were running out. To reach maximum benefit from the exchange of experiences and the impact of the SMARTY action plan in Lapland, the Regional Council of Lapland decided to update the policy instrument to follow the current programming period.

Finland mainland has one Operational Programme, "Innovation and Skills Finland 2021-2027 – EU regional and Structural Policy Programme" (OP) receives financing from the European Regional Development Fund (ERDF), the European Social Fund (ESF) and Just Transition Fund (JTF) under the Investment Package for growth and jobs in Finland. OP management authority is the Ministry of Economic Affairs and Employment (MEAE). Although in Finland we use NUTS classification between 1-3, our decision-making structure differs from other EU member states. We don't have NUTS 2 level management authority. The regional councils at the NUTS 3 level act as intermediate bodies to manage the OP, and also, based on regional development regulation, S3s are developed and implemented at the NUTS 3 level. Regional level work is supported by the regional strategic programmes and plans, highlighting regional needs and directing the use of public funding in the region in line with the OP.

MEAE distributes the structural funds financing to the regional level management authorities: Regional Councils and the Centres for Economic Development, Transport and the Environment (ELY Centres). Regional councils and ELY Centres are primarily responsible for deciding which projects will be carried out as part of the operational programme in the regions.

The ***SMARTY action plan of Lapland will contribute to better regional implementation of the*** Innovation and Skills Finland 2021-2027 – EU regional and Structural Policy Programme, Priority - Innovative Finland and its ***Specific Objective (SO) 1. ii: Exploiting the benefits of digitalisation***

for citizens, businesses, and public administration. The aim is to fully use business opportunities related to digitalisation, data economy and technological transformations.

This SO is extremely important for Lapland, as innovation and resource efficiency of production processes, products and services promoting the utilisation of digitalisation and the technologies utilising digitalisation are fundamental and differ from other Finnish regions. SO implementation must be developed so that region-specific conditions are met. The needs of regional SMEs with the capacity for I4.0 have to be targeted and support the business's scaling. The sustainable development of the regional economy depends on the SMEs' ability to participate in innovation processes regionally, nationally and internationally. That will be possible *through a region-specific innovation support mechanism.* The national operational programme – does not take region-specific challenges into account.

II.2 Why does Lapland differ from the other regions in Finland?

Lapland is the northernmost and most sparsely populated region in the EU (see information in the infographic Part I). But together with other so-called NSPA (Northern Sparsely Populated regions), it is also the most prominent region with the strategic and critical raw materials deposits enabling the European Green Deal investment plan, for example, the cobalt and graphite.

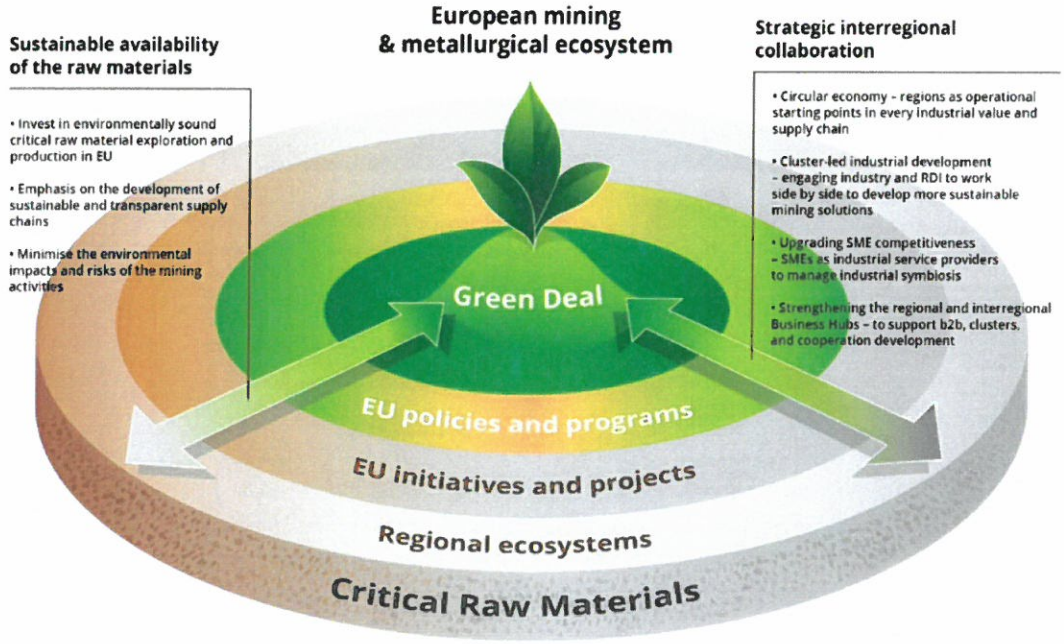
> "The European Green deal is resource-intensive and strongly depends on the availability of the raw materials. The contradictory fact is that when we are trying to reduce natural resources, we must increase the use of other natural resources. The World Bank Group report "Minerals for Climate Action: "The Mineral Intensity of the Clean Energy Transition" shows that the need for some minerals, such as graphite 383, cobalt 585 and lithium, even up to 965% by 2050, to meet the growing demand. EU needs to support its domestic raw material production. That will bind the regions and regional ecosystems as core players in implementing the Green Deal into the practice." [1]

Mineral-rich regions hold the core role in increasing the EU domestic raw-material production. Therefore, they play a crucial role in building European industrial ecosystems. Sustainable extraction and refining with an extraordinary solid circular economy focus are the cornerstones. The focus on the extractive and refining industries is on developing sustainable and intelligent mining technologies supporting the digital transformation – twin transition.

In addition to challenges, global changes bring great potential. As the northernmost region of Finland and the European Union, Lapland is in the middle of these universal changes and opportunities. Sustainable development is the foundation of growth in Lapland. Looking for the best balance in utilising natural resources leads to continuous economic and social benefits for the current generations and the ones to come. Smart and arctic knowledge, sustainable

utilisation of natural resources and strong communities are the evolving competitive advantages of Lapland.

With the support of the RDI ecosystem, the regional industrial service sector could develop new emerging services supporting the twin transition and responsible use of natural resources. With the picture "EU M&M ecosystems" below, the role of the regions has been demonstrated[1].



Picture 2: EU M&M ecosystems

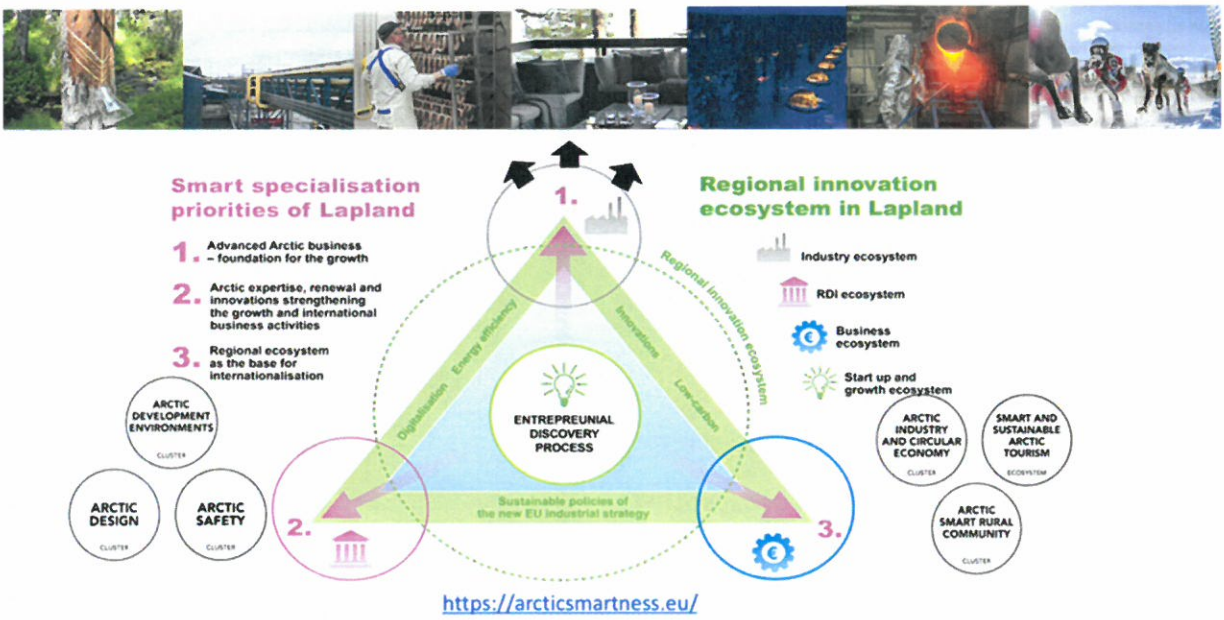
II.3 The improvement we would like to achieve in the policy instrument

In Lapland, we think regional development programs, strategies, and funding sources must support the regional ecosystem actors by increasing their capacity and expertise to be part of the global business operating in Lapland. Due to the specific Arctic environment and fragile ecosystem, the solutions must be applied and tailored with the "region-specific development measures".

Innovation and Skills Finland 2021-2027 – EU regional and Structural Policy Programme, Priority - Innovative Finland funded projects must support the implementation of the regional smart specialisation strategies. In Lapland, the Arctic Smartness concept is the leading initiative for implementing smart specialisation in the region. Implementation of Arctic Smartness is based on regional cooperation, and it works like an ecosystem where the actors share common goals

[1] (Background material Tuesday 30th June 2020, Clusters for Next Generation EU Dialogue between European Commissioner Thierry Breton and European Clusters Alliance - Delivery of the interregional collaboration and strategic approach - clusters are the engines to distribute sustainable economic transformation in the region)

to develop Lapland. Arctic Smartness Clusters act as engines for regional development. Networks support the clusters' activities, and projects serve as instruments for carrying out individual activities. The core of cluster activities is to create growth and innovation opportunities for SMEs in Lapland. The clusters functioning in Lapland have established a firm foothold in regional development work and have discovered their networks in international arenas.



Picture 3: Lapland regional ecosystem

In the SMARTY project, we want to increase the Arctic Industry and Circular economy cluster's capacity to support their SMEs in adapting the I4.0 solutions. Process industry and large companies use the I4.0 approach well, and industrial processes are based on more efficient use of different I4.0 applications. However, the current state of SMEs' capacity for using the I4.0 solutions and approaches is relatively weak, threatening the competitiveness of the service industry sector SMEs.

The conditions for SMEs and emerging industries around the big companies linking to global value chains are not flowing the latest development in Lapland. However, we see enormous potential, and the tailored support action supporting SMEs' I4.0 knowledge capacity could make a significant difference. The support mechanisms provided by the intermediaries, such as clusters, are in the core role. Strengthening their capacity to support I4.0 adaptation will encourage SMEs to benefit from the I4.0.

A mix of industry expertise and commitment to sustainable development is at the core of refining natural resources in the Lapland region. The significant challenges at the regional level are threefold:

- Industry is the combination of a mix of large-scale global businesses and regional SMEs – lacking leading medium and mid-cap companies with a solid I4.0 approach
- Design and organise regional DIH operations covering the entire region and having a comprehensive service chain supporting the service-industry sector
- Enormous lack of the human resources – but there is a vast potential for the specialised industrial services sector supporting AI and sustainable digitalisation in the future extraction and refining industry going beyond I4.0

New projects in the I4.0, especially in the process industry, are needed to create more efficient production, competitive advantage and growth. A crucial part of PI improvement will be exchanging experiences with partner regions and adapting lessons learned to create a favourable environment to invest in the I4.0 solutions.

Part III – Details of the actions envisaged

III.1 The background of good practices identified during SMARTY exchange of experiences

During semester 3, the SMARTY theme was "Digital Innovation Hubs for supporting digital transformation in SMEs". As a result of the exchange of experiences process and scoring of the GPs together with RCL and stakeholders, two GPs were seen most relevant for Lapland. The good practices presented in the Warsaw online Interregional Thematic Seminar in September 2020 and later in the Barcelona online Interregional Policy Brokerage in December 2020 were DIGITAL INNOVATION HUB SLOVENIA and 3M Buckley Innovation Center, UK.

DIGITAL INNOVATION HUB SLOVENIA: presents an excellent example *of a one-stop-shop supporting Industry Digital Transformation, a diverse ecosystem with a* synergic and complementing approach and service model helping cross-fertilisation offering different solutions. It aims at connecting and supporting other industrial sectors, providing for a broad spectrum of needs and striving to support all industries that can *take advantage of and benefit from the opportunities of digital transformation*. DIH Slovenia focuses on helping the highlighted sectors *as priority ones by S4.* Key initial partners of DIH Slovenia are coming **from the S4 specialisation platform.** DIH Slovenia provides companies, especially SMEs, with digitisation and digital transformation assistance*. It brings the business closer to digital tech, simplifies the use of digital tech smart solutions,* and supports responsive ways of developing and doing business by focusing on customer innovation and experience.

3M BUCKLEY INNOVATION CENTER: introduces the *university service chain for the industry and regional "knowledge alliance" approach RDI – Education - Industry - contributing to regional economic growth and productivity.* It provides access to knowledge, support and technology and a *systematic approach to SMEs' digitalisation and innovation processes.*

A collaborative model between business and academia enables learning and growth for all parties. The centre's focus is mainly *to understand the needs of SMEs, micro-businesses and their supply chains* – rather than the needs of larger businesses. The aim is *to encourage collaborative research and development relationships between SME / Micro companies and the University's consultants, graduates, and students*. The facility provides access to prototyping, verification, and inspection facilities to explore innovative developments to products and business models. The centre offers a model for supporting SMEs in the initial trial and prototype testing through research, intellectual property, patent development, and potentially market expansion.

III.2 Action

Preparing the ground for the main action

During semester three Regional Council of Lapland launched the last call of proposals for the ERDF projects. Lapland university of applied sciences leading the Arctic Development Environment Cluster submitted the joint project proposal *Arctic Smart Future Technologies (ASFT)* to the call together with the other educational institutions in Lapland. The project was funded with a total budget of 677 361€ (ERDF 541 887€). The project started on 1.8.2021 and will end on 31.5.2023. The development goal of this project is to specialise educational institutions in their technology choices, make a division of resources and expertise, and, through specialisation, provide companies with better services for Industry 4.0-related business product development. The Arctic Smart Future Technologies (ASFT) project is a preparation project that has already adapted lessons learned from the earlier mentioned good practices. ASAF will prepare the ground for the main action and act as a bridge between the two programming periods.

Industry Digital Transformation "One-stop-shop in Lapland and Arctic" – process & support service chain development

The action "*Industry Digital Transformation "One-stop-shop in Lapland and Arctic*" aims to strengthen the collaboration between two Arctic Smartness clusters:

- "Customer" Arctic Industry and Circular Economy Cluster:
- "Service provider": Arctic Development Environment Cluster

It will continue to create awareness and provide services to grow digital competencies, share digital experience and case studies locally, regionally and internationally, and influence the government to adopt regulations and open its data to foster entrepreneurship.

Digitalisation and enabling technologies

- promoting the application and utilisation of digitalisation and technologies utilising digitalisation (e.g. open data, robotics, automation, IoT, cybersecurity, data analytics, artificial intelligence) – "deepening the knowledge alliance" type of collaboration
- supporting the launch and developing networking DIH at the European, national and regional level
- support investments in piloting new digital solutions by supporting, for example, demonstration and laboratory environments as development platforms
- supporting the application of digital technologies and related RDI activities

Promoting digitalisation in the business supporting the sustainable refining of the natural resources

- deployment of new technologies, digital tools, products, services
- supporting the digitalisation of SMEs in the development of businesses, services and solutions; strengthening the capacity of SMEs for digitalisation

Supporting the development of the RDI service chain

- engaging the entre knowledge alliance
- grouping the service packages according to the customer-specific themes – service industry sector providing the expertise for the large scale industry extracting and refining the natural resources

III.3 Players involved

The Regional Council of Lapland is the regional managing authority for ERDF and the potential funder of the proposed action. At the moment, there is a solid commitment to funding the action.

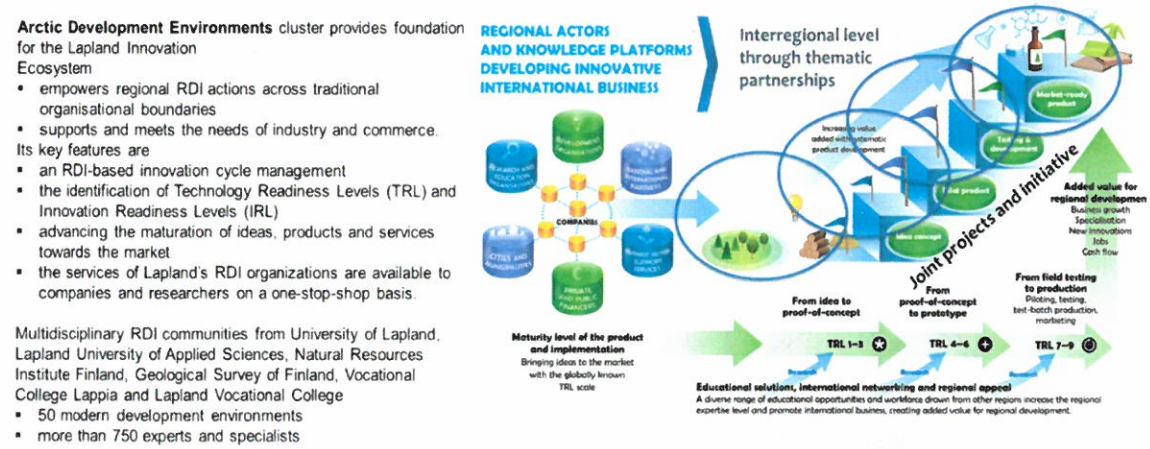
Arctic Industry and Circular Economy Cluster connect process- and mining industry companies, SMEs serving industry, universities, research institutions, funding and regional authorities to the same cooperation network. A common goal for Lapland is to be a frontrunner in sustainable utilisation of natural resources and sustainable industry and circular economy activities. The work in progress for sustainable industrial refining has been notified on national, Nordic and EU levels.

Regional cluster for the circular economy. Kemin Digipolis is the hosting organisation for the cluster. It serves industrial and SME clients as Kemi area's public development company. A potential applicant for action implementation. The cluster also offers tools and networks to further develop circular economy services and business models. Below you can see Cluster's core actors.

Picture 4: Arctic industry and Circular Economy Cluster

Arctic development environments produce services for the region's businesses. The significance of development environments and experts working there to the area's RDI activities has been traditionally valued in Lapland. The development environments are physical and virtual environments meant for use in learning and innovation, such as laboratories, studios, workshops or simulation environments where products, services and expertise can be further developed.

The objective of the Arctic Development Environments Cluster is to bring together the RDI environments and expert services operating separately in Lapland to form a uniform body to serve the region's business life and to enable the development of business life and business investments in product development and internationalisation.



Picture 5: Arctic Development Cluster

III.4 Timeframe

The action Industry Digital Transformation "One-stop-shop in Lapland and Arctic" – process & support service chain development will be targeted to the first Finnish OP 2021-2027 call. The current timeline (in May 2022) for the launching and opening of the first call for proposals in Lapland will be during the summertime of 2022. The first projects can start operations during the first months of the year 2023.

The Regional Council of Lapland will invite the regional stakeholders for the follow-up workshop in September-October 2022. The workshop aims to monitor the action's progress and agree to follow up.

III.5 Costs and funding sources

Arctic Smart Future Technologies (ASFT) was funded with a total budget of 677 361€ (ERDF 541 887€). Funding was received from the Sustainable growth and jobs 2014-2020 Finland's structural funds programme.

The action Industry Digital Transformation "One-stop-shop in Lapland and Arctic" has allocated 2M€ ERDF contribution. The funding rate for ERDF varies between 70-and 80 %. Funding is planned through the policy instrument of Regional Council of Lapland: Innovation and Skills Finland 2021-2027 – EU regional and Structural Policy Programme - Priority - Innovative Finland and *Specific Objective (SO) 1. ii: Exploiting the benefits of digitalisation for citizens, businesses, and public administration.*

This action depends entirely on the final funding decision of the Regional Council of Lapland as the funding authority, and the potential action plan proposal should fulfil the eligibility criteria of funding of the ERDF Programme as any other project proposal for the policy instrument. The Regional Council also expects that action will be implemented through joint projects or projects involving relevant regional stakeholders.

Date: 30.5.2022

Signature:

Stamp of the organisation (if available)