FiNNISH REGIONAL ANALYSIS

Building Regional Resilience to Industrial Structural Change

Nivala-Haapajärvi region (sub-region in Oulu region) - Finland

Finnish Partner
Project Partner: University of Oulu

Managing Authority
Council of Oulu Region

UNIVERSITY OF OULU

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INTRODUCTION

FOUNDATION is an Interreg Europe funded SME Competitiveness project that brings together nine partners in a consortium led by Cork Institute of Technology from 1/08/2019 to 31/07/2023. Presently, across Europe, public bodies are pressed by an increasing need to provide preparatory support to the economic ecosystem in advance of the closure of anchor firms in their region which act as significant employers. The impacts of a closure of course go beyond direct employees and ripple, wave like throughout the regional services sector and economy. Management of such anticipated structural change requires proactive renewal of business approaches and policy supports. Regions are encouraged to introduce pilot projects based on their own strengths and to provide appropriate business supports for the re-alignment of the regional industrial base. This proactive approach by regional stakeholders is critical to building the resilience of these regions and enabling them to adapt to change.

The importance of SMEs and start-ups to the regional economy is widely recognised in terms of the provision of employment, contribution to GDP, driving innovation and supporting regional resilience. It is imperative that the relevant regional stakeholders keep informed, inspired and equipped to provide the appropriate SME and start-up supports, particularly in regions anticipating structural change.

FOUNDATION links its project partners to develop Regional Action Plans and an overall Framework and Roadmap for Anticipated Structural Change. It is imperative that industry players, business support organisations and policy makers understand how their ecosystems work and when faced with shocks (firm closures) to collaboratively develop alternative growth and employment through supportive policies and programmes to boost SME competitiveness. Key project activities included the exchange of experience and learning through interregional events (4 workshops, 4 seminars and 9 study visits).

FOUNDATION PROJECT PARTNERS

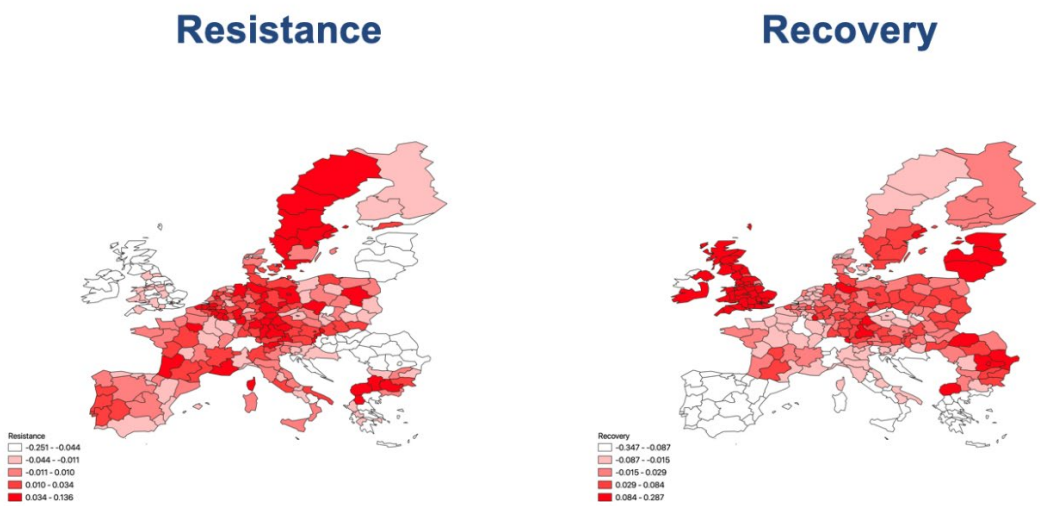
ECONOMIC RESILIENCE ACROSS EUROPE

The 2007/8 economic crisis was the most severe shock to global financial markets since the great depression in the 1930s (Bordo and Landon-Lane, 2010; Barranco and Sudrià, 2012). Following the crisis there was a re-emergence of interest in how regional economies respond to and recover from economic shocks (Martin, 2012; Fingleton, Garretsen and Martin, 2012; Martin and Sunley, 2015; Doran and Fingleton, 2016). The term resilience in economic geography refers to the ability of a region 'to anticipate, prepare for, respond to and recover from a disturbance' (Foster, 2007; 14). There are three main conceptualisations of resilience; engineering, ecological, and evolutionary. Engineering resilience is an equilibrium based notion of how an entity or system is plunged into disequilibrium, and off its steady state, following a shock and can defined 'how fast the variables return towards their equilibrium following a perturbation' (Pimm 1984: 322). The concept of ecological resilience can be defined as the 'the persistence of relationships within a system and is a measure of the ability of these systems to absorb changes of state variables, driving variables, and parameters, and still persist' (Holing 1973: 41). The region may settle on an inferior path post-shock or recover and assume a superior path post-shock.

However, these two forms of resilience have been criticised as too limiting and evolutionary resilience has gain significant focus in recent years. Martin and Sunley (2015) introduced such a conceptualisation of resilience defining it as a changing process that is adaptive. The adaptive capacities are based on the ability of the region to resist, reorientation, and recover following shocks. Martin and Sunley (2015:13) defined 'adaptive resilience' as 'the capacity of a regional or local economy to withstand or recover from market, competitive and environmental shocks to its developmental growth path, if necessary, by undergoing adaptive changes to its economic structures and its social and institutional arrangements, so as to maintain or restore its previous developmental path, or transit to a new sustainable path characterized by a fuller and more productive use of its physical, human and environmental resources'.

There are four broad ways of measuring resilience; (i) case studies, (ii) indices of particular regions in a descriptive discussion, (iii) Time series analysis focusing on the evolution over time, (iv) causal economic models. In this overview of regional resilience, it is the final approach, causal economic models, which is employed. The conceptualization of Martin and Sunley (2015:13) and Martin et al (2016) is employed to assess the resistance and recovery of regions following the 2007/08 economic crisis.

Figure 1: The resistance and recovery of European Regions to the 2008 economic crisis



In Figure 1 the left hand side shows the resistance to the 2008 economic crisis while the right hand side shows the recovery following the 2008 economic crisis. In both instances the darker red colour shows that that region performed relatively better than the European average at resisting the shock (in the left figure) or recovering from the impact of the shock (in the right figure).

COMPETITIVENESS OF SMALL AND MEDIUM-SIZED COMPANIES IN REMOTE AREAS

FINLAND (OULU) — NORTHERN DEVELOPED ECONOMY

The University of Oulu is the Finnish partner representing Pohjois-ja Itä-Suomi (North and East Finland). The region is defined in Nomenclature of Territorial Units for Statistics (NUTS[1]) as NUTS2-level Code FI1D. Overall, Finland is northern, remote and sparsely populated. This is particularly true in North and East Finland, including the Oulu region. Comprised of very sparsely populated remote areas that span more than 236 000 km2, this part of Finland is home to just 1.3 million people. It thus covers two-thirds of Finland's total land mass (338 465 km2), yet is home to less than a quarter of the country's population of just over 5.5 million (Statistics Finland 2021). North and East Finland lie at the very edge of Europe, 2,500-3,000 kilometres from Europe's core. Most of the region's neighbouring areas — in Sweden, Norway and North-Western Russia — are less developed (Ministry of Employment and the Economy 2021). Travel connections, especially airports, are thus essential for its industry. Finland is one of the most sparsely populated countries in the EU; it is home to an average of just 18.2 persons per sq. km, including in the capital region of Helsinki. North and East Finland comprise the country's most sparsely populated region, with an average population density of just 6.3 people per sq. km.

Finland's population is concentrated in the capital region and in the biggest university cities (e.g. Kotavaara et al. 2012; Spiekermann et al. 2015). Finland has a developed economy, at 43,563 € GDP per capita (Statistics Finland 2019). It also has a highly educated population — with the third highest share of tertiary education in Europe, after Luxembourg and Ireland (OECD 2021). Finland's economy has competed globally with great success. The country's international competitiveness ranking has long been excellent and—even as it has experienced a decline in competitiveness in recent years — Finland was still 11th in the 2019 World Economic Forum's global competitiveness ranking (Schwab 2019). In innovation-driven economies, businesses are knowledge-intensive, while efficiency-driven economies rely on economies of scale (see Schwab 2019). Finland is an innovation driven economy and ranks high among innovation indexes. For example, in 2020, Finland ranked 7th in the Global Innovation Index (GII[2]) among the 131 economies listed in the report and 6th among the

[1] https://ec.europa.eu/eurostat/web/nuts/background

[2] https://www.wipo.int/edocs/pub—docs/en/wipo_pub_gii_2020/fi.pdf

European countries. However, entrepreneurship indexes show somewhat mixed results; According to World Bank Ease of Doing Business[3] score, Finland ranks 20th and is among the best performing countries. Moreover, Finland ranks 11th, right behind Sweden, according to The Global Entrepreneurship Index (GEI, Acs et al. 2019). However, according to according to World Bank New Business Density[4] (new registrations per 1,000 people ages 15-64) statistics, Finland has a lot to improve. Although, Finland scores higher than European Union average, it lags its nearest EU neighbours, the Nordic Countries and Estonia. There seems to be a social disconnect in social values related to entrepreneurship in Finnish context; According to GEI nearly 83% of the population believe entrepreneurs have high status and consider it as a good career choice; yet very few Finns end up starting up their own business.

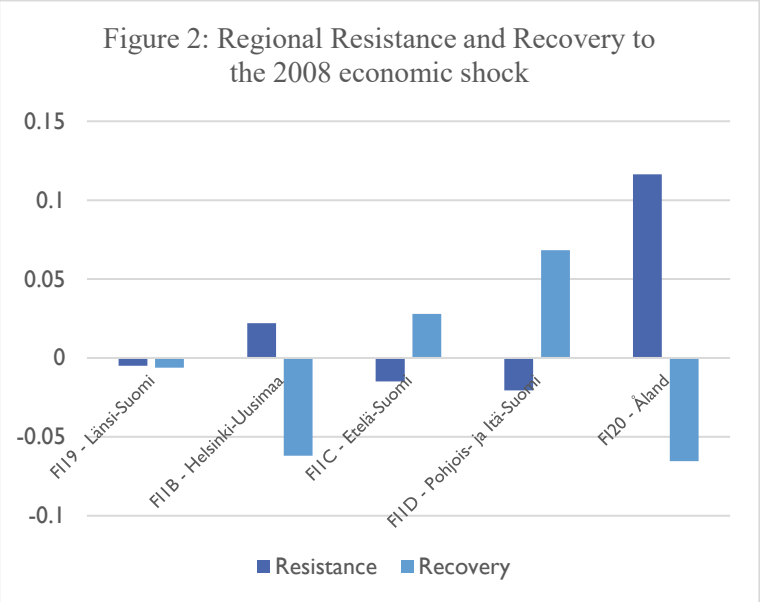
Since the late 1950's, Finland has experienced a strong trend toward urbanisation. While this occurred markedly later than in other European countries, Finland now clearly has a post-industrial economy and a service-emphasising employment structure (OECD 2018). Across Finland, 86.4 % of the population lives in urban areas and economic activity and employment are even more concentrated in the cities. In the Oulu region, 84.0 % are urban-dwellers. This study's focus area is the rural Nivala-Haapajärvi region (Figure 1), where just 60.6 % of the population live in urban areas (Statistics Finland 2019).

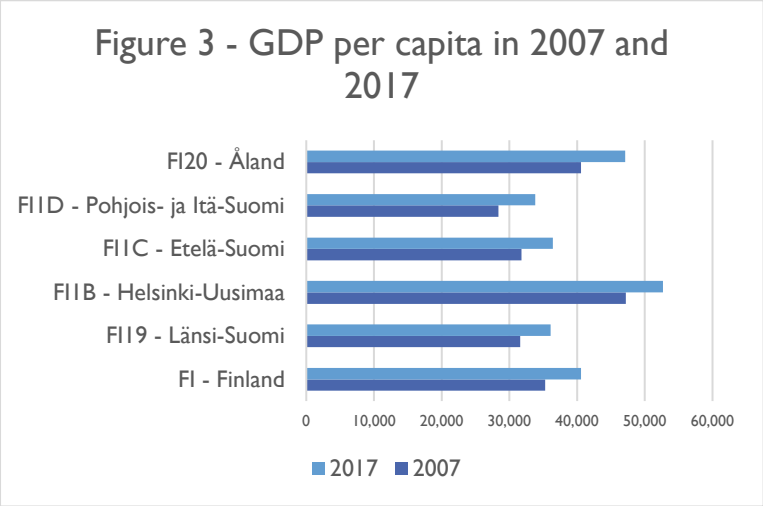
[3] https://data.worldbank.org/indicator/IC.BUS.EASE.XQ?most_recent_value_desc=true

[4] https://data.worldbank.org/indicator/IC.BUS.NDNS.ZS?most_recent_value_desc=true

THE NORTH & EAST FINLAND (POHJOIS-JA ITÄ-SUOMI) — NUTS2 REGION

To provide insights into the impact of past shocks on this region's economy—and its relative resistance and recovery following these shocks—Figure 2 presents an analysis of the GDP of each NUTS2 region of Finland. We can observe that Pohjois-ja Itä-Suomi was amongst the most negatively impacted regions, following the 2008 economic shock. Yet it subsequently recovered strongly, post-2009, relative to the other regions.





However—despite its relatively strong recovery—the region, which had the country's lowest GDP per capita in 2007, still lags behind other Finnish regions. This can be observed in Figure 3. The region's GDP per capita was 83% of the national average in 2017. Still, this shows an improvement from 2007, when it was just 80% of the national average.

The proportion of the workforce employed across sectors, in the Pohjois-ja Itä-Suomi region, is very similar to that of the overall Finish economy. Yet slightly more people are employed in the agriculture, forestry and fishing and public administration sectors of the region's economy. A lower proportion, in contrast, are employed in the region's information and communication and financial and insurance activities sectors.

Figure 4 - Proportion of employment by sector

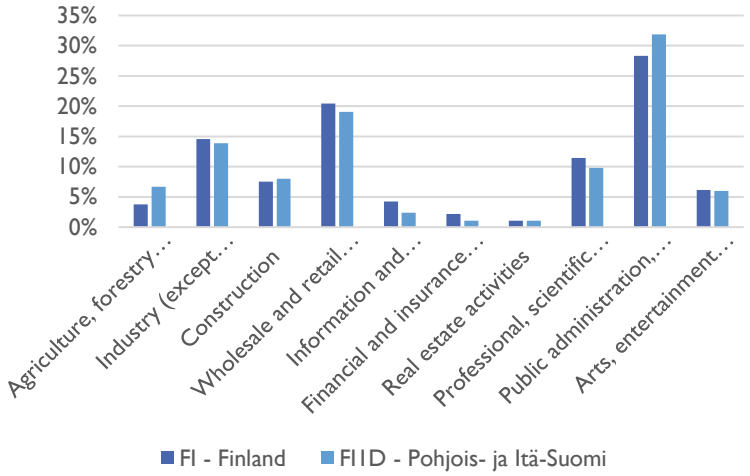
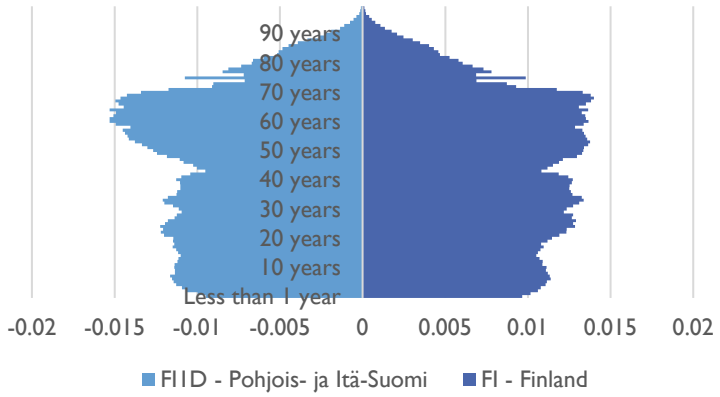


Figure 5 - Age profile of region



The age profile of the Pohjois- ja Itä-Suomi region is very similar to the national average; its average age is just one year higher than nationwide. Yet the proportion of older individuals is increasing, with a population spike over the age of 45. This is a national trend; yet it suggests potential issues for the region, relating to an aging workforce.

Figure 6 compares Pohjois-ja Itä-Suomi to the national average, regarding its engagement in high-technology employment from 2008–2018. As seen, the region has relatively lower levels of employment in high technology sectors and there is a relatively flat trend. There does not appear to be a convergence with the national average and values in 2017 and 2018 have dropped below their high point in 2008.

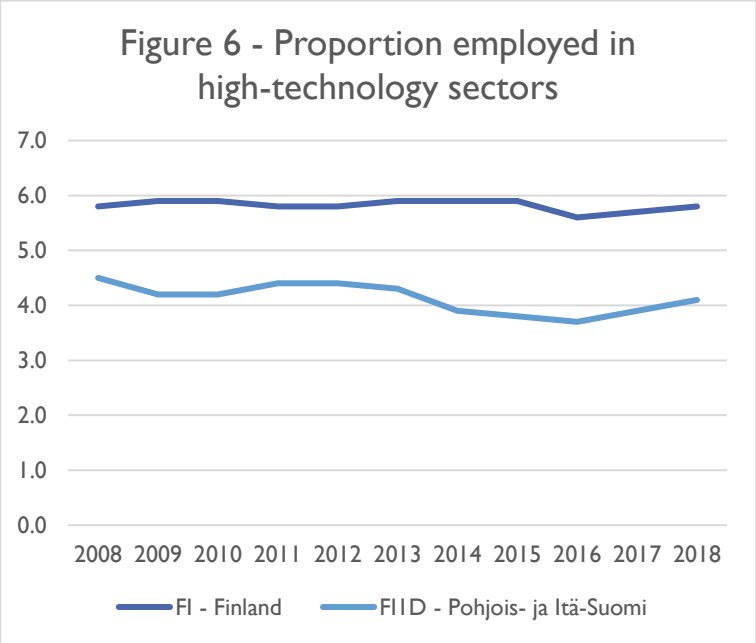


Table 1, below, presents a brief comparison of the regions participating in this project. Significant variations can be observed across the regions—with the Southern region of Ireland standing out for its exceptionally high levels of GDP per capita and high-tech employment. Poland's Podkarpackie region has the lowest GDP per capita, while Lithuania's Vidurio ir vakaru Lietuvos regionas has the lowest level of high-tech jobs as a proportion of employment.

Table 1: Comparison of Study Regions

Region	GDP - 2017	High Tech Emp % - 2018
FI1D - Pohjois- ja Itä-Suomi	33,800	4.10%
UKD3 - Greater Manchester	30,500	5.00%
IE05 – Southern Region	74,700	7.40%
LT02 - Vidurio ir vakaru Lietuvos regionas	12,400	1.50%
PL82 - Podkarpackie	8,500	2.10%
HU22 - Nyugat-Dunántúl	13,400	3.90%
AT31 - Oberösterreich	43,100	3.00%
ITC2 - Valle d'Aosta/Vallée d'Aoste	35,200	3.30%
ES62 - Región de Murcia	20,600	1.60%

OULU REGION (NUTS3) AND NIVALA-HAAPAJÄRVI SUB-REGION (LAU1)

The study case of the Nivala-Haapajärvi sub-region forms part of the Oulu region (i.e. the county of Northern Ostrobotnia). This, in turn, is part of North & East Finland at the NUTS2-level, along with six other regions or counties at NUTS3 level. For example, at its longest, the driving distance through this sparsely populated region reaches 1200 kilometres. The Oulu region had 412,830 inhabitants in 2019, across a land area of 36,800 km², resulting in a population density of just 11.2 people per km². The region's population has grown steadily each year, from 1990–2019. Its population is relatively young; the average age is 40.5 and 19.2 % of people are under the age of 15. The region's share of foreign citizens is just 2.2 % and nearly half the population (49%) lives in the same municipality in which they were born; most locals are thus very committed to their region.

The private sector provides 59.3 % of all jobs in the region and 10.1 % of those employed are entrepreneurs. The municipalities, state and majority-state-owned companies provide another 36.1 % of the region's jobs. Economic development plans for the Oulu region have been focussed around large firms and clusters of firms; such firms are significant producers, employers and investors (Ahokas, 2010; Simonen et al., 2020).

The city of Oulu is the provincial centre and the region's only larger city (Fig 1.) The Oulu city region is the key driver of population growth; nearly half the region's population lives in the city. The rest of the population is mainly located in the southern half of the region, within a dense network of small towns and rural settlements that have a low central place hierarchy (Fig 2). The Oulu region has been regarded as a significant area of innovation and offers high-quality education (University of Oulu, Oulu University of Applied Science) and expertise. This is especially true in the fields of technology — namely, the IT and software industries — as well as in metal and forest-based industries (Council of Oulu Region 2019). It is an expertise-filled, global and viable business-driven region, with the city of Oulu at the centre of its growth (Council of Oulu Region 2019).

The Nivala-Haapajärvi sub-region is located to the south of the Oulu region. It consists of five predominantly rural municipalities: Haapajärvi, Kärsämäki, Nivala, Reisjärvi and Pyhäjärvi. In contrast to the Oulu region, the population of the Nivala-Haapajärvi sub-region has been constantly decreasing, mainly due to negative net migration (Table 2). The region has a lower education level than that of either Finland or the Oulu region, overall. The percentage of the population that has received higher education (11.2 %) is about half the regional average (20.8 %) (Statistics Finland 2021). Agriculture, forestry, and fishery comprise 14.2 % of the jobs at this sub-region, contrasting with much lower averages at the national and regional levels.

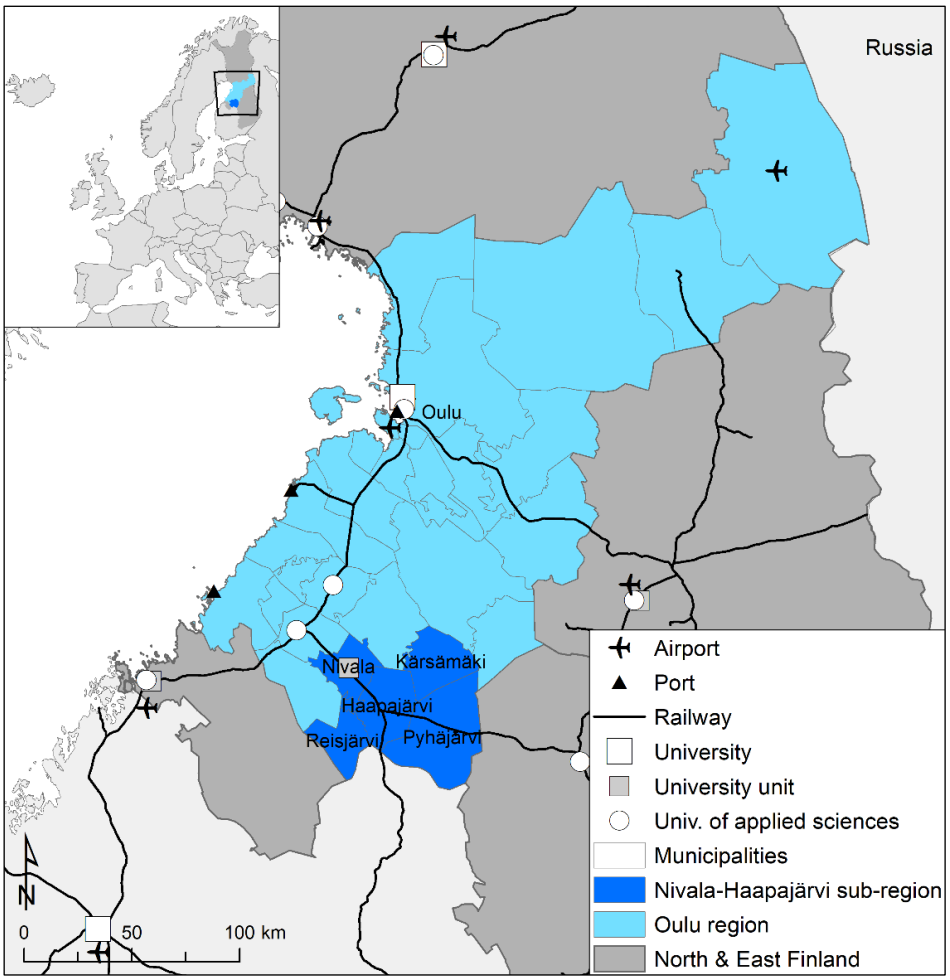


Figure 1 Nivala-Haapajärvi sub-region, as a part of arctic and rural North and East Finland

Table 2. Population dynamics at the levels of Finland, the Oulu region and the Nivala-Haapajärvi sub-region, in 2000–2019 (Statistics Finland 2021).

		Year & period	Finland	Oulu region	Nivala-Haapajärvi sub-region
Population	**(N)**	2000	5,181,115	372,639	32,530
		2010	5,375,276	398,335	30,455
		2015	5,487,308	410,054	29,371
		2019	5,525,292	412,830	28,074
	average change per year (%)	2000–2010	0.4	0.7	-0.6
		2010–2015	0.4	0.6	-0.7
		2015–2019	0.2	0.2	-1.1
Annual net migration		2000	0.05	0.2	-1.1
		2010	0.3	0.01	-0.9

share of population (%)	2015	0.2	-0.1	-0.8
	2019	0.3	0.03	-1.1

INDUSTRIAL RESTRUCTURING IN THE NIVALA-HAAPAJÄRVI SUB-REGION

As the study case, the Nivala-Haapajärvi sub-region is interesting, a predominantly rural area that still hosts metal and manufacturing industries and exporting companies. The industry sector provided 15.2 % of all jobs in the sub-region in 2018, which is relatively high for a rural area and well over the national average of 12.8 % (Statistics Finland 2021). The sub-region has had a strong mining sector, providing 2.7 % of all jobs. Yet, following the unexpected closure of the Hitura mine and the loss of over 100 direct jobs, the sub-region is experiencing another structural change, this one anticipated: The closure of the significantly larger Pyhäsalmi mine, which produced zinc and copper. Pyhäsalmi mine has been a significant economic driver in the region, not just in terms of the jobs it has directly created but through its impact on employment in the services sector. In 2018, the mine alone provided about 240 direct jobs—equalling 14 % of all jobs in the town of Pyhäjärvi town—and had a remarkable multiplicative effect on the town's service sector, as well as its public economy. While re-use activities for the mine site are both planned and already underway, their effect cannot yet be directly evaluated. Overall, although the sub-region is losing population, companies and jobs, the regional economy is growing by the growth of the remaining companies. This means that not just the region's relative numbers, but also its absolute economic numbers, are growing well (Table 3)

In a regional survey targeting small- and medium-sized enterprises (SMEs) in Northern Finland, Hänninen et al. (2018) found that these companies were seeking growth either in domestic business (43%) or in terms of employees (35%). Yet one out of seven SMEs was aiming at growth in exports. Thus, in spite of their peripheral location, many small companies are aiming at international success; companies like these are important for towns like Pyhäjärvi, especially at a time of structural change.

Despite its being a rural region whose already sparse population is in decline, it also houses one of the Finland's largest technology parks, Nitek, in Nivala. Hosting 100 companies, Nitek's key strengths are its flexibility and well-functioning low threshold support services. It offers—all on the same premises—technology services; business and economic development services; and a unit of the University of Oulu called the Kerttu Saalasti institute, which is an international research institute with a mission to provide evidence-based knowledge and education on micro-enterprises and their operating conditions.

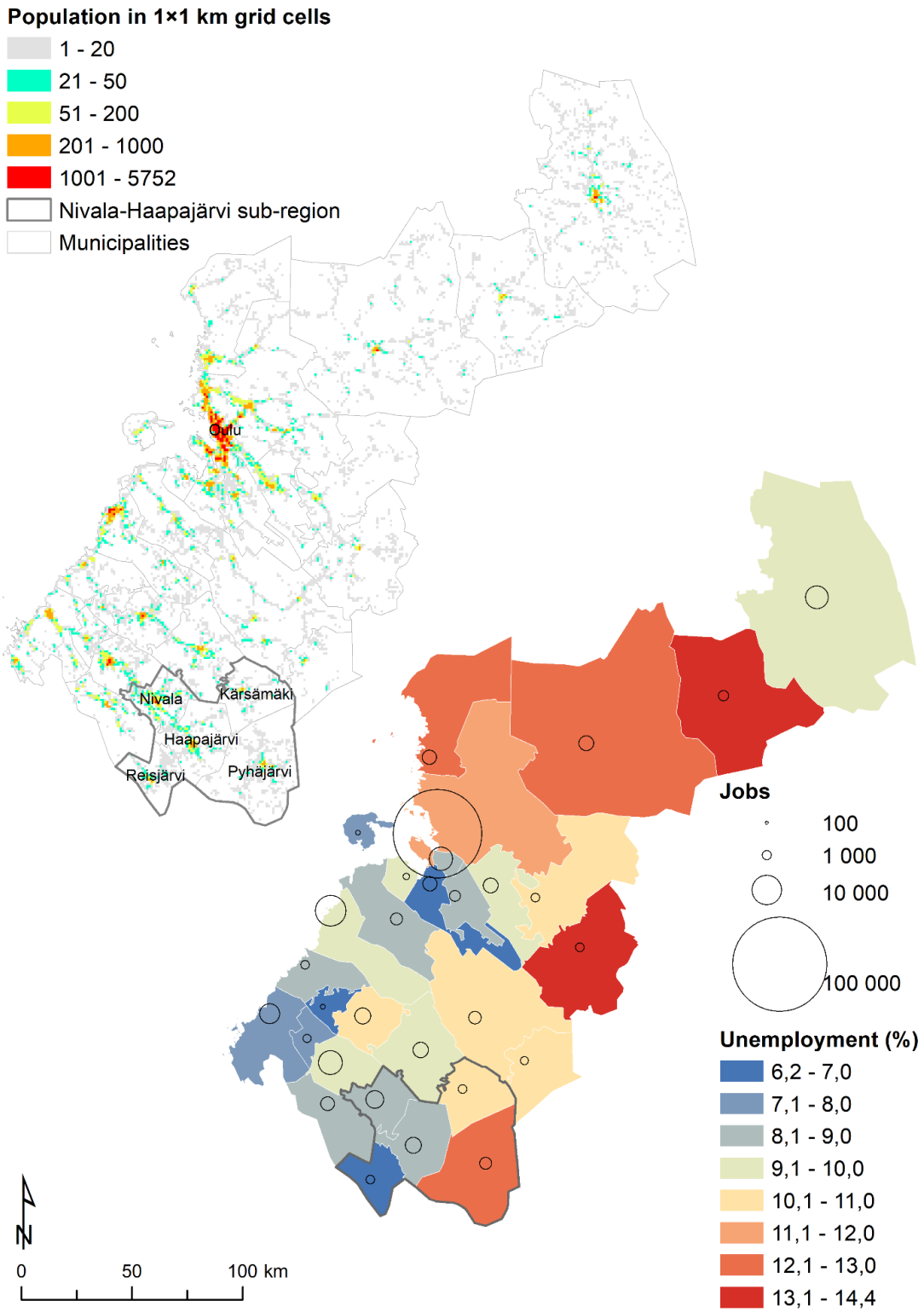


Figure 2. Urban and rural settlement structure by 1×1 km population grid cells and distribution of jobs and unemployment rate in the Oulu region.

Table 3. Change in the number, employment and turnover of companies and their branches at the levels of Finland, the Oulu region and the Nivala-Haapajärvi sub-region.

		Year & period	Finland	Oulu region	Nivala-Haapajärvi sub-region
Companies and branches	**(N)**	2013	389,578	24,691	2,508
		2015	391,512	24,777	2,455
		2019	400,346	25,861	2,390
	change (%)	2013-2015	0.5	0.3	-2.1
		2015-2019	2.3	4.4	-2.6
Employees	**(person-years) change (%)**	2013	1,472,245	94,201	6,126
		2015	1,422,013	92,547	5,863
		2019	1,524,397	100,569	5,741
		2013-2015	-3.4	-1.8	-4.3
		2015-2019	7.2	8.7	-2.1
Turnover	**(M €)**	2013	393,947	19,560	980
		2015	379,766	19,763	983
		2019	442,759	24,231	1,064
	change (%)	2013-2015	-3.6	1.0	0.3
		2015-2019	16.6	22.6	8.2

KEY POLICY PLAYERS IN THE OULU REGION

This section describes how the policy ecosystem is connected in the Oulu region and how collaboration occurs around different schemes, initiatives and programmes. The information for this chapter was adapted from Struturalfund.fi & the Council of Oulu Region webpage.

A single structural fund programme is being realised, throughout mainland Finland. This programme will include both European Regional Development Fund (ERDF) and European Social Fund (ESF) activities. Finland's structural fund programme includes five policy lines that specifically support the competitiveness of SMEs and employment. Cross-cutting themes include the promotion of a low-carbon economy, sustainable development and parity and equality between the sexes. The structural fund programme will pursue the objectives of the Europe 2020 strategy.

Sustainable Growth and Jobs 2014–2020—Finland's structural funds programme—has five priority axes and 13 specific objectives. North and East Finland comprise one of the country's least favoured regions. Due to the area's specific geographical challenges and development possibilities—along with its aging population structure and population decline across broad areas—two-thirds of all structural funds are focussed on this region that is inhabited by less than one-fourth of Finland's population.

Yet these sparsely populated areas have significant development potential. These include, for example, the sustainable utilisation of natural resources and the application of arctic technology and expertise throughout Europe—as well as enabling the region itself to benefit from new global accessibility and transport options. Financing from the structural funds is thus focussed on leveraging these areas of potential. The regional plan for the North & East Finland supplements the national Sustainable Growth and Labour structural fund programme and provides details on how the programme will be realised within the region. The regional plan highlights the special characteristics of the region, and its key priorities, in terms of the programme's realisation.

The area-specific realisation that takes place in counties (NUTS3) is based on the regional programme; this is further specified in the regional programme's implementation plan. All counties have their regional councils, in which all municipalities have members (with the number of representatives dependent on the number of inhabitants). The regional council holds the highest decision-making power, and each regional management committee coordinates structural fund activities throughout their own region. These committees also monitor and supervise the systematic realisation of structural fund programmes. The members of a regional management committee comprise representatives from different

trade unions and from the region's largest municipalities—along with other regional authorities.

The development priorities (table 3) for the Oulu region have been defined in Northern Finland's ERDF programme objective diagramme for 2040, entitled 'North Ostrobothnians are creating the future'. The aim is to develop North Ostrobothnia into 'an expertise-filled, international and viable enterprise-driven region with Oulu, the north's largest urban area as its centre. The North Ostrobothnia region is characterised by wellbeing, a high standard of living and biodiversity'.

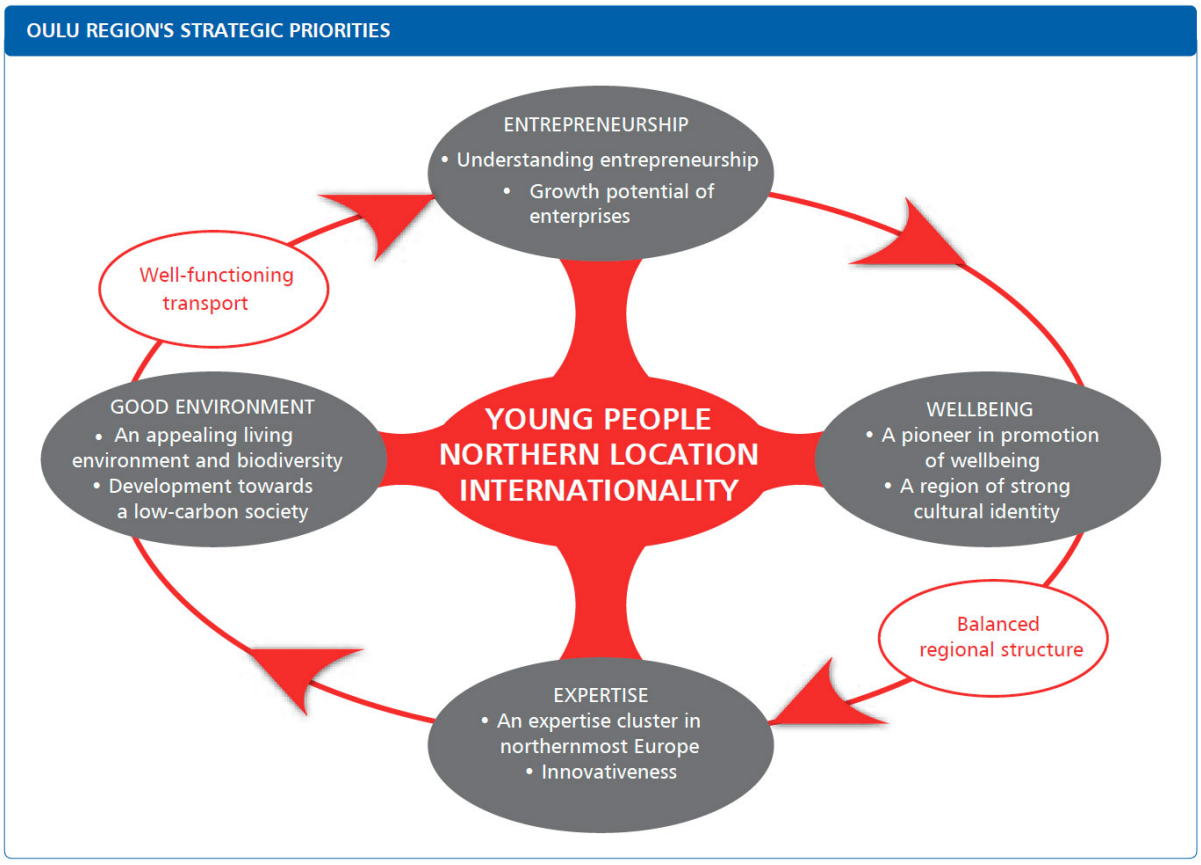


Figure 3. Strategic priorities by council of Oulun region (Ministry of Employment and the Economy[5]).

[5] https://www.rakennerahastot.fi/web/en/north-ostrobothnia

Municipal- and county-level decision-making focusses on different factors. This is because municipalities are quite heterogeneous within the county; there are also subregions (LAU1) that collaborate around topics such as industry policy, service creation and regional planning. Each municipality forms part of a subregion and is created via commuting and co-operating principles. Although 'subregion' stopped being an official classification in 2014, subregions are still used as statistical units to better understand and support regional development. Yet legislative orders are not set for these areas; instead, the participating municipalities make their own decisions. Many subregions have decided to shift some of the decision-making power from municipalities to subregional governmental bodies, including subregional councils (such as in the Nivala-Haapajärvi subregion NIHAK ry), to operate more effectively.

ECONOMIC RESTRUCTURING AT OULU REGION — THE CASE OF NOKIA

This section will open the key learnings for rapid economic restructuring by the case of collapsing Nokia phones in the Oulu Region, which has led the region to become more resilient via crisis and adaptation and growth.

From a historical perspective, Oulu has a 400-plus year history as the capital of Northern Finland and it has played an important role as a logistical centre for shipping, as well as in providing tar for wooden ships across the globe. In more recent decades, the Finnish economy has transformed rapidly from a resource-based economy to a knowledge-based economy, using education as the key component for its success (Finland 2004). This is evident particularly in the Oulu Region, where the foundation of knowledge-based regional growth was laid by establishing the University of Oulu in 1960. Oulu began to move toward its current status as a technology-based city in the 1980s, through a strong collaboration among triple helix actors—universities, industry and government. This led to the 'Oulu miracle': A globally recognized hub of mobile technologies and wireless network development.

The most powerful single factor behind the 'Oulu miracle' was Nokia's decision to invest billions into the city for research and development (R&D). More than 15,000 IT jobs were created in Oulu in the 2000s. Yet many of the area's small and medium-sized high-tech firms became extremely dependent on Nokia. The risks of this dependency began to appear after the first years of the 2000s, when Nokia began to move its activities into low-cost countries. Local subcontractors were faced with major challenges in finding new customers. Some of the local subcontractors followed Nokia to low-cost countries, but a number of them were forced to close their establishments—or at least to reduce their activities in Oulu (Simonen et al. 2016).

In the early 1990s, Finland had seen a great economic decline and a high unemployment rate of 18%, along with a soaring national debt of 60%. The economy recovered by adopting knowledge-based business innovation within the telecommunications sector. Nokia's launch and ground-breaking success was most notable amidst the recovery, and another 800 high-tech companies also emerged during this time (Finland 2004). The success of Nokia has accounted for 64% of Finland's GDP, and has led to important investments in human capital and technology. Nokia's success was a major factor in the development of Oulu as an internationally known high-tech cluster 'Nokia city' in Northern Finland. Yet it also serves as an example of how narrow specialisation and other aspects of an innovation ecosystem can cause serious problems for regional development when a region faces a shock (Simonen et al. 2020).

Regional actors recognised that the area's innovation network was built around Nokia and a handful of other medium-sized companies. Yet—even though regional actors were aware that any problems Nokia might face, in its mobile phone business, would likely cause serious problems for Oulu—not much was done to anticipate the crash before it happened. Then, in 2007, Apple introduced the iPhone. Seemingly overnight, Nokia lost its competitive edge and dragged its subcontractors down with it. In the worst phase, there were 3500–4500 unemployed IT specialists in Oulu. The aftermath continued into 2010, bringing down other Oulu-based companies as well: Polar, Elektrobit and Jot Automation were all casualties. It became well-recognised, in Oulu, that the industrial structure of the high-tech sector had been far too specialised in electronics—and far too dependent on Nokia's success in the international market.

Yet the Oulu area was able to turn this serious shock around quite rapidly—turning itself into a new success story through creative actions and effective regional policy. Regional development authorities launched several projects to mitigate the negative effects of the sudden structural change in the Oulu area. The focus of this structural change management was to support employment and create new entrepreneurship, with the aim of building an innovation ecosystem that based on cooperation between local industries and actors.

Supporting start-up firms and re-educating the unemployed have been key measures, in facilitating the regional resilience needed to build a new Oulu success story. Yet the area's highly educated people—and their commitment to the region—played the most important role. Oulu was able to adapt its structure and find a new path for growth. Today its high-tech sector employs even more people than during the phase formerly described as the 'Oulu miracle' (Martin & Sunley 2015, Simonen et al. 2020).

The next section looks the ongoing and anticipated transition at the current industry sectors in the subregion of Nivala-Haapajärvi . The situation is very different from Oulu and Nokia. This is because the subregion is characterised by its natural, rural scenery and the main structural changes it faces are related to the closing of mines (Pyhäsalmi, Hitura). The demographic profile is also very different. Nokia workers were—on average—younger, more highly educated and more entrepreneurially oriented than are the mine employees of this rural region, where the unemployment rate is higher and education possibilities more scarce. The common characteristics, between the two subregions, are the local people's commitment to their home region and their wish to stay there—to use their own capabilities to earn a living in the place where they want to live. Collaborative local networks and top-down activities are the engine for strengthening regional resilience (see the case of Yritystakomo[6]).

INDUSTRY IN TRANSITION – CASE STUDY

THE ECONOMIC SITUATION – ANALYSIS & METHODOLOGY

The purpose of this regional analysis was to examine the resilience and potential of the Nivala-Haapajärvi region of Oulu South, from the perspective of exporting and growth-seeking companies. The companies were chosen especially from among the region's most important industries (such as the metal and wood products industry). However, the sample represents a wide range of industries in the region.

The aim of this study was to analyse the structures and capabilities related to the competitiveness and resilience of the target companies, such as networking. The analysis has also identified the targets and measures set by the companies to maintain their competitiveness and strengthen growth—as well as their challenges and bottlenecks. The idea was to recognise solutions that can strengthen business and employment in the region, as well as regional resilience.

Based on the background study, a group of 26 companies were selected for interview and 14 of these companies were interviewed for this study. The interviews were conducted during December 2020, applying a semi-structured form. Due to the challenging situation caused by the COVID-19 pandemic, the interviews were conducted remotely—either by phone or video. The average duration of the interviews was about one hour. Background information, such as

[6] https://www.interregeurope.eu/policylearning/good-practices/item/3452/yritystakomo-enterprise-smithy/

financial statements and information on the company's products and services, was retrieved from the companies in advance. The interviews themselves had three main themes:

1. Company business (environment), networks and location
2. Company growth and competitiveness prospects
3. Growth bottlenecks and needs for strengthening competitiveness, skills and networks

The purpose of the questions was to get a closer look at the target companies' networks (customers, subcontractors, partners, competitors) and their scope (local, regional, national, international) and concentration. The questions also aimed to explore what growth means for these companies, and what kind of goals they have set for growth and internationalisation. The questions likewise addressed each company's future plans. The aim was to determine the resources, skills and capabilities that describe resilience and that are needed for companies' future growth. The idea of the analysis was also to identify the region's capabilities and key actors, when it comes to supporting the resilience and growth plans of the interviewed companies. Issues around which the public sector and other public / semi-public actors can exert influence were thus also identified.

Table 4 presents the background information of the companies interviewed. The target companies are small- or medium-sized enterprises. Most of the companies interviewed were family businesses or independent / entrepreneur-driven businesses. Most were also domestic, single-site companies that have operated in the same area throughout the company's history. Only two of the companies interviewed sell their products or services directly to consumers; the rest are B2B companies.

Table 4. Background information from the interviewed companies.

INDUSTRY	PERSONNEL	TURNOVER	COMPANY AGE
Wholesale electrical household appliances	0–4	< 1 M€	> 20 years
Wood sawing, planing and impregnation	0–4	1-2 M€	> 20 years
Computer hardware and software consulting	5–9	< 1 M€	< 5 years
Manufacture of other builders' carpentry and joinery	5–9	1-2 M€	> 20 years
Manufacture of others' fabricated metal products	5–9	< 1 M€	5-10 years
Manufacture of others' wearing apparel and accessories	5–9	< 1 M€	> 20 years
Construction of residential and other buildings	10–19	2-5 M€	10-20 years
Manufacture of agricultural and forestry machinery	10–19	1-2 M€	10-20 years
Manufacture of doors and windows	10–19	5-10 M€	> 20 years

Construction of public distribution networks for liquid and gaseous substances	10–19	1-2 M€	< 5 years
Retail trade of motor vehicle parts and accessories	50–99	5-10 M€	> 20 years
Wholesaling of other machinery and equipment	50–99	> 10 M€	> 20 years
Manufacture of special glass	50–99	> 10 M€	5-10 years
Joinery installation work	50–99	5-10 M€	> 20 years

Table 5. Location of interviewed firms.

MUNICIPALITY	NUMBER OF COMPANIES
Nivala	6
Haapajärvi	3
Pyhäjärvi	2
Reisjärvi	2
Kärsämäki	1

In the next sections, we will first present our general observations around the Nivala-Haapajärvi region as an operating environment for companies and our main findings around regional resilience. This is followed by an in-depth look at the company-level observations, regarding the typical characteristics of success and resilience.

REGIONAL STRUCTURAL CHANGE IS NOT SEEN AS OBSTACLE TO GROWTH

One of the most significant observations in the regional analysis is that none of the companies directly pointed to the remote location of the Nivala-Haapajärvi region, its shrinking development and its ongoing structural change—especially due to the closure of the Pyhäjärvi mine—as obstacles to growth. This chapter examines, in more detail, the situation and future plans of the interviewed companies. It also analyses the Nivala-Haapajärvi region as a business environment.

The timing of the interviews was challenging, from an economic development perspective, since the interviews were conducted in the midst of the global COVID-19 pandemic and the situation was gloomy around the world. Compared to many other European countries, Finland had been relatively successful at treating the pandemic by the time the case study was implemented. It is noteworthy that the pandemic had not caused serious shock to virtually any of the interviewed companies—and that, given the circumstances, many companies described the situation as good.

A clear message is that many of the interviewed companies are growth-oriented and have coherent plans for growth and internationalisation. Only two of the companies stated that they were not actively looking for new customers and / or markets. Nine of the fourteen companies are export companies; only two companies said they have no plans to promote internationalisation. Table 6 shows the export situation.

Table 6. Export, share of turnover (%)

EXPORTS AS A SHARE OF TURNOVER	NUMBER OF COMPANIES
Not exporting / No plans for internationalisation	2
No direct exports / Have some plans for internationalisation	3
< 10 %	3
10–20 %	3
20–50%	2
50–80%	2

The main export markets are the Nordic countries and Europe. The most significant countries are Sweden (9 companies), Norway (7), Germany (5), Russia (3), Switzerland (2), Great Britain (2) and Poland (2). However, the largest export companies have markets around the world. It was also noteworthy that many companies had analysed export markets very extensively, from around the world.

The COVID-19 pandemic had mainly brought about changes in operating models and had challenged sales activities, in particular. The effects of the pandemic were identified as having a possible impact by creating more delays. One possible reason for these companies' resilience amidst the pandemic is that many of them are either directly or indirectly dependent on the construction industry—which was not particularly hard-hit by the corona pandemic, at least in Finland. However, several companies pointed out that their plans for internationalisation and growth had at least been delayed due to COVID-19. One company pointed out that sales promotion often requires a physical presence, for example, and that this has not been possible due to the pandemic. Several companies also pointed out that the pandemic has forced them to come up with new ways to boost sales and retain customers through digital means.

Virtually all the interviewed companies have their main market areas outside the region. Yet they all noted that they do not currently see the need to relocate and move, for example, to growth centres. Several companies have also evaluated and mapped other locations in Finland, but still do not see the need to change location given the current situation. A significant reason, cited by most interviewees, is that the companies' history and roots are in the region and that—above all—the entrepreneur-founders and employees live in the region. As a result, these companies are strongly committed to the current location area, as are their entrepreneurs and employees. This is a very significant characteristic of regional resilience.

The weak demographic development of the Nivala-Haapajärvi region is, of course, highlighted as a challenge from the perspective of ensuring a skilled workforce. Yet the Nivala-Haapajärvi region forms a natural labour market area, with employees moving from neighbouring municipalities in search of work. Thus, few companies saw the region's shrinking development as an acute problem. Instead, they saw national education policies—and, in particular, the cuts and closures of secondary and tertiary education and training from the region, while concentrating them in growth centres—as the most challenging development. This will have major negative impacts on the conditions and prerequisites for operating in the region.

The challenge, here, is that young people leave—during or after their studies—and no longer return to the area as before. Several companies highlight the challenges caused by the closure of secondary and tertiary education in the region. This has directly reduced companies' recruitment opportunities and made cooperation with educational institutions more difficult.

Another significant challenge is also broadly related to national education policy and structure. Companies see that the valuation of vocational education is declining nationally and that the focus is on the number of higher education graduates, as a measure of a region's success. This weakens the conditions for success in shrinking regions and shifts the focus to growth centres. Yet companies's ability to operate in the region is based on the availability of a workforce with good basic and vocational training. Until now, such a workforce has been available.

The closure of the Pyhäsalmi mine—and thus the structural changes in the region with regard to the mining industry—does not appear to have a direct impact on the interviewed companies. Two companies even saw it as an opportunity. The founder of one of the interviewed companies, for example, has worked in the mine; his business idea is built around supporting the mine closure measures. The situation allows his business' services to be scaled to other mines where closure measures are relevant. For another company, the closed mine offers a potential opportunity to build a testing and training environment for its own equipment and services.

All the interviewed companies saw their future prospects in the Nivala-Haapajärvi region as unchanged, or even positive. When mapping the region's strengths for companies, its logistical location in the middle of Finland is particularly significant; the north-south and east-west highways appear to be basic conditions for many companies, from a logistics point of view.

Along with the location, many other significant factors are also raised locally as to why the outlook in the area is seen as positive. For a large proportion of the interviewed companies, the emphasis is on a good business environment and on partnership networks in the area—between municipalities and other public actors, companies and educational institutions. The positive and encouraging attitudes towards companies and entrepreneurs in the municipalities, and the activities of the regional development company NIHAK, are attractive to entrepreneurs. There is a direct dialogue between municipalities, development actors and entrepreneurs. Companies are consulted and are understood well in the area. Operations in the region are seen as more flexible and easier than in larger cities, and the needs and situation of companies are taken into account holistically.

The Industrial Park in Nivala, in particular, seems to be very important to the companies located there. This Industrial Park builds and leases industrial and business premises to companies, manages development projects and—together with NIHAK—provides business services to companies in the area. The Industrial Park in Nivala has quickly responded to the needs of companies. It also offers good opportunities for business expansion, which have supported the endeavours of several interviewed companies. Nivala Technology Centre, (Nitek) and ELME Studio—which is a community and production studio for an electromechanics and metals studio, including a research laboratory with state-of-the-art equipment—also operate in connection with the Industrial Park, as do the JEDU Training Centres and the Kerttu Saalasti Institute of the University of Oulu. Along with the above-mentioned actors and operating environment, one of the region's strengths is that it receives higher EU subsidies, compared to many other regions, and that business-oriented projects are being launched very actively and quickly.

CHARACTERISTICS OF COMPANIES' SUCCESS AND RESILIENCE

Business networking

Most of the target companies are domestically driven, in terms of turnover and main customers. The markets of the interviewed companies are geographically dispersed, especially in Finland. Customers are mainly concentrated outside the company's location. It

is also noteworthy that the turnover of the interviewed companies does not depend on just a few customers. These factors have strengthened companies' resilience and their ability to operate from their current location. Most companies directly note that they have actively expanded their customer base and dependence on one or a few customers, as well as trying to seek new markets. Thus, the companies have strengthened their competitiveness in the changing operating environment. At the same time, the companies see the need to further deepen existing customer relationships—and to develop products and services together with customers—to better meet current and future needs. Two of the companies, however, mainly subcontract intermediate products. They thus see their customer relationships as very straightforward and aim to compete mainly in terms of price, reliability of supply and capacity.

The geographical scale of companies' subcontractors and suppliers is also very wide. The companies enjoy both strong local co-operation relationships and imports—for example, importing raw materials from abroad. A typical characteristic of the interviewed companies is that they have well-established relationships with suppliers. The companies see stronger partnerships with suppliers as improving the reliability of supply and quality. Critical subcontracted raw materials, products and services must still, of course, be secured by expanding the supply base where necessary. The importance of locality is mainly emphasised in terms of business support functions and supplies, in which the aim is to find partners as nearby as possible. The interviewed companies do not represent a single 'cluster' and, for some companies, it is not even possible to find a large supplier base in the same area. Yet many interviewees point out that efforts have been made to build partnerships with nearby companies, as this is perceived to be easier in many respects.

Other significant partnerships for companies included NIHAK and the Industrial Park in Nivala (as well as Nivala Technology Centre and ELME Studio)—along with educational institutions such as JEDU and the Kerttu Saalasti Institute. In addition, the Centria University of Applied Sciences in Ylivieska is a significant educational institution for the companies interviewed. Oulu University of Applied Sciences and the universities of technology (especially the University of Tampere); funders (such as Business Finland, Finnvera, ELY); and research institutes (e.g. VTT) are also highlighted. However—with the exception of a few companies—cooperation and dialogue with other partners, apart from customers and suppliers, cannot be considered continuous. This can be seen as one potential bottleneck in maintaining competitiveness, since the strengthening of external inputs, networks and signals—as well as gaining new knowledge and expertise—can be seen as crucial factors in strengthening regional resilience.

Striving for growth and internationalisation

The study clearly signals that the interviewed companies are growth-oriented and have explicit plans for growth and internationalisation, as 12/14 companies have invested in growth. This growth is seen as coming from the international market. With a few exceptions, all the interviewed companies also have a systematic strategy for internationalisation and have budgeted euro-denominated targets for growth and internationalisation. While most point out that growth and internationalisation are being pursued in stages, through organic growth and according to income financing, a few companies also had very strong and ambitious growth targets. This is, of course, very understandable since most of the companies are entrepreneur-driven; just one of the interviewed companies directly highlighted a venture capitalist behind the growth. Yet many companies had already invested in, or were seeking, additional expertise to support their growth—either at an operational or a strategic level (board members).

Growth and internationalisation take place primarily through the search for new customers and previous references. Of course, many companies saw some untapped potential and sales with existing customers. In a large number of family businesses, the change of ownership had given a new impetus to the company's renewal, growth and internationalisation. Growth is especially related to companies that offer their own products and / or services. The few subcontracting companies that do not offer their own products are more likely to express satisfaction with the current situation and do not see a strong need to invest in growth—or they assume that growth will take place mainly according to the terms and requirements of existing customers. Small size may even be a factor of competitiveness, since competitiveness may be based on specific deliveries and growth brings about many challenges, along with an extensive need to scale operations.

One of the major challenges for the exporting companies is to find partners and networks that support exports. Internationalisation is also particularly linked to the need to strengthen skills. It can be linked directly to certain recruitment challenges, too—such as the recruitment of a suitable export manager or a language expert. A lack of sales and marketing expertise is also often a bottleneck to growth. With regard to these needs, the location of the company was not directly raised as a challenge for recruitment. Still, the diminished availability of experts in their area has challenged and slowed down the growth and internationalisation of certain companies, at least indirectly.

Efforts in RDI activities

Most of the interviewed companies (Table 7) invest significantly in research, development and innovation (RDI). Only a few subcontracting companies—ones that do not offer their own products—stated that they do not directly invest in RDI. However, it is noteworthy that many

companies seeking growth and internationalisation also invest significant amounts, up to over 10% of their turnover, in RDI activities. A precise definition of RDI activities was not used. Yet, generally, these companies invest in continuous development work on existing or new products, services and internal processes.

Table 7. Estimate of RDI activities as a share of turnover (%)

RDI ACTIVITIES AS A SHARE OF TURNOVER	NUMBER OF COMPANIES
No estimate / significant RDI activities	4
< 3 %	2
3-5 %	3
5-10%	4
> 10 %	1

A significant characteristic is also the fact that the birth history and growth of these companies are often strongly founded on practice-based development and innovation activities. The business is built very strongly around customer needs and problem solving, as well as through a trial-and-error-based development path. In many companies, the core of the business has been changed and refocussed greatly through continuous iteration. The history of the creation and development of companies has also had a great influence on the nature of RDI activities. It likewise strongly impacts the extent to which companies carry out RDI activities together with other companies, educational institutions and partners.

Thus, companies invest in RDI activities. Yet RDI activities take place alone or—at most—together with a specific customer or supplier. Most companies' RDI activities appear in the form of individual development projects, however. Companies have not been very active in participating in larger RDI projects involving other companies, educational institutions and universities and public bodies. Most companies, at least, are thus not yet active in RDI ecosystems. They are likewise not used to cooperating more widely in innovation activities or may not be very aware of, for example, development platforms from which they could benefit from their RDI activities. The importance of operating in RDI ecosystems is not necessarily recognised. There is also a lack of resources, experience and know-how for co-operation—and the companies are not accustomed to open innovation models. This can also weaken the resilience of companies. RDI cooperation often requires new skills, development resources or

a person in the company who is building collaboration outside the company on these issues, as well.

In terms of RDI activities, local or neighbouring universities and colleges play an important role in supporting business renewal. Especially in a more remote rural area, new skills that come to companies through thesis researchers and recruitment can play a significant role in business renewal. The companies interviewed have utilised the recruitment of thesis researchers and graduates to reform their production management, for example, or to take significant digital leaps.

Exploiting the possibilities of digitalisation

The business opportunities brought about by digitalisation are utilised in a variety of ways, in the interviewed companies. Many of the companies operate in the manufacturing industry—which comes with some long-standing and hard-to-break traditions—and some of the benefits of digitalisation are also quite limited. Based on the data, a clear characteristic in the utilisation of digitalisation is that—as the size and internationality of a company increases—so does the importance of digitalisation for the company. In addition, companies that offer their own products and / or services also invest and—often *must* invest—in digitalisation to survive in the market, due to their customers' requirements. From a resilience perspective, the opportunities offered by digitalisation are still untapped in many respects. External support and stimulation would also strengthen the long-term success of companies in the digital revolution. For example, there is a lot of untapped potential in terms of process streamlining (such as sales processes), ERP and reporting and documentation. Centria University of Applied Sciences has been an important partner for many companies, in promoting digitalisation. Students who have come to work through internships, or immediately after graduation, have played an important role in helping companies to better utilise digitalisation—along with implementing and developing various digital tools.

Entrepreneurship as a significant factor in strengthening resilience

Entrepreneurial orientation is also a clear unifying characteristic of these companies, interviewed for their success and growth. This can be seen, for example, in an effort to seize opportunities rather than succumb to the constraints and challenges of the operating environment. The courage to keep trying, and to move forward through trial and error, is also important. One characteristic embedded in these companies is that they train their own experts and support these experts' education. The most important prerequisite for hiring is employee attitude. The resilience of companies and the conditions for success in the Nivala-Haapajärvi region are thus also strengthened by the fact that employees are often recruited

by companies regardless of educational background—and the companies themselves take on the responsibility for training and on-the-job learning.

CONCLUSIONS – GOALS FOR POLICY LEARNING

Based on the case study and analysis, the future outlook for the Nivala-Haapajärvi region is quite positive, despite shrinking demographic development and ongoing structural change. There are companies in the region that are strongly growth-oriented and strive for internationalisation. These companies see the future in the region as quite positive and are committed to staying in the region. In addition, these companies see the good business environment, regional partnership networks and uncomplicated cooperation as remarkable strengths of the region. These characteristics are essential to strengthen regional resilience. Yet many measures and issues were also identified, which can strengthen regional resilience and fuel the conditions for business to flourish.

1. Strengthening the active and continuous dialogue between education and research institutions and business

The role of *regional education and research institutions is very important in strengthening the resilience* of the region. In the future, cooperation between education institutions will be still more emphasised. Several of the interviewed companies will have a need for thesis workers, trainees and a skilled workforce. The regional analysis showed that, especially in rural areas, vital new skills and knowledge have become available to companies through the recruitment of thesis researchers, trainees and graduates. Yet companies may be unfamiliar with the education and research opportunities that institutions can offer, with how these services could be used and with what support is available to companies. It is thus *important to provide timely and explicit targeted information to companies, on issues where education and research institutions can help*. Education and research institutions should listen carefully to companies and approach them with topical themes.

2. Strengthening business networks in RDI ecosystems

A typical characteristic of many interviewed companies is that they have not been very active in participating in larger RDI projects involving other companies, educational institutions and universities and public bodies. Many companies are not used to broader cooperation in RDI activities and the importance of operating in RDI ecosystems may not be recognised. Education and research institutions have an important job to do in strengthening business networks in RDI ecosystems—as do regional development organisations. They should support

companies in RDI cooperation through development projects and practical information. Companies and education and research institutions should move from project-based cooperation towards long-term partnership models. They should also make joint investments (infrastructure and education). Several companies noted that they also need a wake-up call to identify new directions, trends and useful technologies, for example. It is particularly useful to bring benchmarking information from abroad and to provide companies with targeted information, new signals, training and research results regarding the challenges and opportunities of today's manufacturing industry.

3. Targeted assistance to companies' skills and training needs, to strengthen growth and resilience

Strong cooperation between companies, educational institutions and development organisations in the region is required—to meet the skills and training needs of companies. A *wide range of skills and training needs were highlighted among companies, where education institutions and development organisations can support*. In terms of growth and internationalisation, four companies will require—currently or in the near future—internationalisation-related expertise or an export manager. Sales and marketing expertise were also emphasised. In a few companies, digital sales and e-commerce expertise were topical. Digital sales expertise is especially emphasised, during the COVID-19 pandemic. Many companies need support around the use of virtual tools and brochures, videos, technical documentation and 3D models—as well as for the development of operations and processes in general. Companies also noted either acute or near-term needs for financial experts and technical accounting expertise; for coders and programming experts; and for carpenters, welders and metal industry experts. Developing and strengthening expertise around board work was one of the more specific needs in a few companies. Education and skills that meet the needs of many companies are not available in the region. Companies are thus very much responsible for the training of the workforce and employees come from a wide variety of backgrounds. On-the-job learning solutions and various apprenticeship arrangements are thus required. Many of the companies point out that they require a young workforce in the region—one equipped with basic skills, along with the desire and capacity to learn.

4. Support for networking

On the basis of the regional analysis, the existing networks between companies in the region can, and should, be strengthened. The potential for cooperation should also be identified together. *Several companies point out the need for good networking opportunities*—noting the ELMO community as one positive example. Seasonal work was also highlighted as one of the opportunities for cooperation between companies in the region. Some companies could

provide year-round work in the region, if they cooperated around seasonal needs. The potential for cooperation could likewise be found in new types of export cooperation measures—in which the regional development organisation would selectively seek a number of companies, along with other potential partners with the same target markets, promoting synergies between these organisations.

5. Support for change of ownership and generation

In many of the companies interviewed, especially those that are family businesses, a change of generation or change of ownership had given a new impetus to business reform and growth and internationalisation. This is a particularly important point, to which regional development organisations and education institutes in the region should be alert and provide support and assistance. Changes in ownership are significant phases in which to change the direction of a company and invest in growth and internationalisation.

6. Supporting labour and skills migration

Cooperation with companies, municipalities and education and research institutions in labour and skills-based migration could strengthen companies' skills and help with recruitment challenges. These measures could also support the internationalisation and success of the region more broadly, in the longer term. Municipalities should provide support for companies and new solutions—especially in terms of housing supply and companies' integration into the community.

SUMMARY

Strengthening SMEs' capabilities requires both an innovative state of mind from the companies, and the support of the public sector and regional authorities. Risk-taking, robust relationships and trust between the private and public sectors, professional financial services and a networking-focussed attitude are all vital. Based on this study, it can be stated that:

1. There is a need for shared operating models to overcome the challenges created by centralisation of population to regional policy—focussing on constant development and ensuring that regional instruments are compatible with current needs.

2. The key challenge for SMEs' competitiveness, within the structural changes anticipated in the region, is to find employees with the right kinds of capabilities. This need can be answered, especially, by offering secondary level education in this region.

3. To grow and to internationalise, strong collaborative networks—covering different geographical scales and a variety of actors—are essential. The possibility for good networking opportunities should be supported by regional policy instruments and facilitated by regional development agencies, along with higher education organizations like universities.

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