



Building Economic and Social Resilience in the Nordic Regions

What are Nordic regions at risk of?

What makes them resilient?

Building regional resilience is vital in an interconnected global economy where external events have significant impact on regional and local communities. Resilience thinking gives regions the possibility to anticipate and respond to unexpected events. Read more about how and why this matters in this brief overview.



This policy brief examines different types of risks and a series of factors that help building resilience in the Nordic regions. This research is part

of the work of the Nordic Thematic Group on Innovative and Resilient Regions established by the Nordic Council of Ministers.



WHAT IS REGIONAL RESILIENCE?

Regional resilience refers to regions' ability to cope with uncertainty due to external and internal disturbances. Uncertainty arises from a region's exposure to **shocks, risks** and **stress** (see the key concepts below). Anticipating and reacting to risks, shocks and long-term stress depends on regions' **adaptive capacity** and ability to respond and redirect its development path.

Resilience thinking offers an analytical framework to address some of the complex challenges societies are facing today. These issues may be related to e.g. technological transformations, geopolitical shifts and climate change. The impact of global trends is asymmetric (Sensier et al. 2016). Therefore, building resilience calls for increased attention to policy measures and actions at local and regional levels.

WHY TO USE SYSTEMS THINKING TO ASSESS THE RESILIENCE OF REGIONS?

The methodology applied in this project is based on the 'Guidelines for Resilience Systems Analysis' (RSA) developed by the OECD (2014). The RSA builds on risk management approaches and was originally designed to provide public administrations with a tool to assess resilience in communities and integrate resilience thinking into policies and strategies.

The RSA uses 'the system' as the unit of analysis. In this case, the region serves as the system unit. Through the RSA, it is possible to gain a comprehensive picture of the system and its parts, and to draw connections between different risks. The RSA brings also a temporal perspective, which helps to relate past events and actions to present developments as well as to potential future shocks and disturbances.

KEY CONCEPTS

Regional resilience: the ability of a region to cope with global and local disturbances and recover from shocks and stress.

Shocks: abrupt events with (negative or positive) impacts on the region or parts of the region.

Risks: the probability of shocks to occur.

Stress or stressor: long-term trends and factors that erode regions and their actors.

Slow burn: long-term deterioration of a region resulting from accumulated stress and struggle to cope with transformation and restructuring.

Adaptive capacity: the ability of a region to flexibly rearrange its economic, social and institutional structures upon shocks and stress.

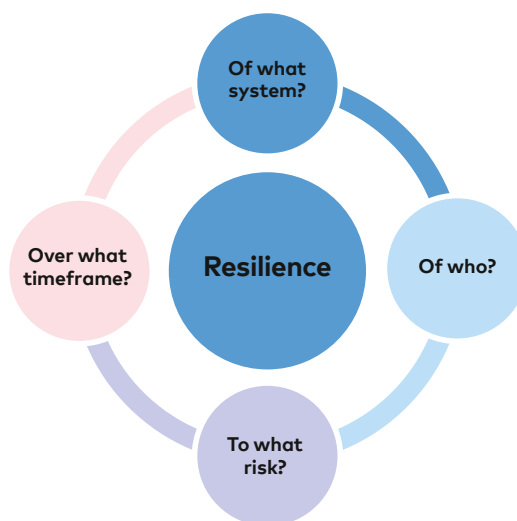


Figure: Dimensions of the Resilience systems analysis. Source: OECD, 2014

CASE STUDY REGIONS

To explore resilience, five case study regions across the Nordic countries were studied in-depth. The regions were selected based on a combination of interesting pre-identified conditions such as the types of risks displayed, and the 'resilience factors' that helped them respond to previous shocks.

Northern Ostrobothnia, Finland experienced a 'technological shock' when Nokia was surpassed by its global competitors, which snatched the mobile phone industry with new innovations. In terms of geopolitical risks, the EU's sanctions against Russia placed rural areas of Northern Ostrobothnia under pressure. These rural areas were also suffering from demographic decline. A diagnosis of the economic and social structures was key for addressing regional resilience. Effective counteracting measures resulted from the collaborative culture and trust among regional actors.

Vestmannaeyjar, Iceland is permanently challenged by extreme weather conditions, volcanic activity and demographic changes. The archipelago has a risky dependency on a single industry, fisheries. This de-

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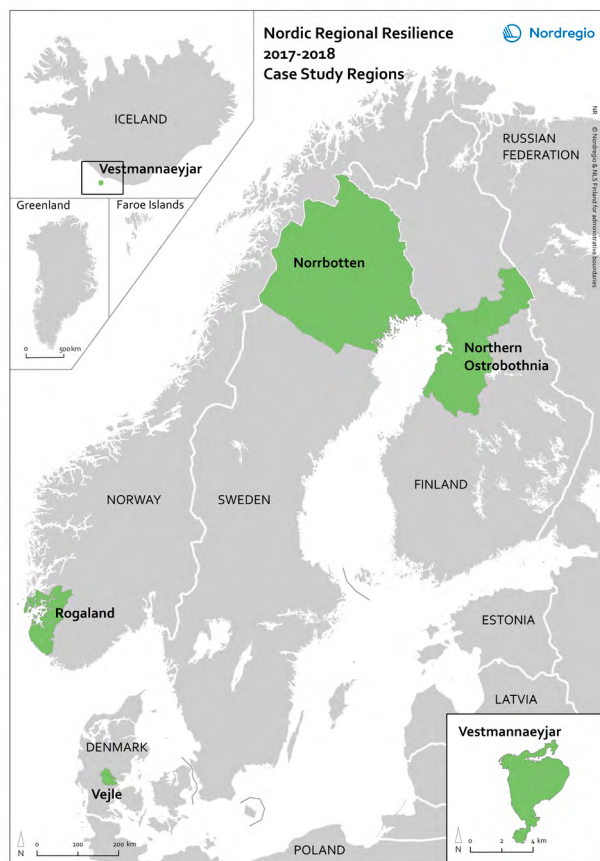
SENSIER et al. 2016

pendency makes the area vulnerable to shifts in the global economy, geopolitics and national politics that may affect fish prices and currency value. The 'island spirit' has been crucial for fighting challenges when the existing institutions have not been able to provide a comprehensive response.

Rogaland, Norway has proven highly exposed to various global developments affecting the prices of oil and gas. The strong oil and gas industry in the region has led to an over-dependency on exports and a concentration of labour and investment within this sector. The latest oil price dip in 2014 was interpreted to be a 'positive shock' to the region as it served as a catalyst for institutional adaptation, diversification of investment and tackling unsustainable practices. Trust and collaboration between regional actors were key to overcoming the crisis.

Norrbotten, Sweden exhibits a high dependency on natural resources and displays acute demographic challenges. Climate change puts additional pressure on the Sápmi communities. Despite the high risk of commodity price shocks, diversification and automation may decrease the negative impacts on individuals and jobs. Innovation and collaboration between the university and the industry, and the direct relations with local authorities make Norrbotten highly adaptable.

Vejle, Denmark is at high risk of sea level rising. Despite the strategic location and attractiveness of the city, automation and centralisation challenge the labour market and skill supply. The Resilience Strategy and membership to the 100 Resilience Cities network has raised citizen-awareness and engagement and contributed to establish cross-thematic approaches for solving challenges across institutions and sectors.



Map: Case-study regions selected for field research.

WHAT TYPES OF RISKS ARE NORDIC REGIONS MOST VULNERABLE TO?

A variety of risks and stressors were identified in the case-study regions.

■ **Financial risk.** In a deeply globalised economy and society, global financial bubbles can be devastating for regional and local economies. The consequences of the 2008–2010 financial crisis in the Nordic regions are clear reminders of the financial risk.

■ **Commodity price risk.** Commodity prices fluctuate considerably as they are determined by supply and demand in global exchange markets. High dependency on commodity exports, such as natural resources, is thus a risk. Most of the case-studies exhibit this risk through their dependence on oil, fish, mineral, metal and forest industries.

■ **Technological risk.** Technological risk is present in all countries and regions. Technological innovations represent competitive advantages for pioneer firms and their host regions. Global competition leads to both the rise and fall of firms. This process, however, is geographically asymmetric resulting in winner and loser regions. For instance, the technological shock hitting Nokia, Telia and Ericsson had major consequences for Northern Ostrobothnia and Norrbotten, while it represented an enormous gain for e.g. California, USA. Furthermore, it was precisely technological adaptation that enabled a re-bounce and new upturn in those regions after the technological shock.

■ **Geopolitical risks.** Geopolitical risks result from the power struggle between states. For example, the EU's sanctions on Russia affected exports from Vestmannaeyjar and Northern Ostrobothnia, and the shifting power regimes in the energy sector have impacted on Rogaland's oil exports. Brexit is another potential geopolitical risk expected to affect international collaboration.

■ **Environmental risks.** Natural disasters, such as floods, storms, wildfires and volcanic eruptions, as well as human-driven actions such as overfishing and pollution, have severe consequences on both the economy and society. Sea-level rising is critical for Vejle, and weather conditions, volcanic activity and the health of fish stocks can threaten Vestmannaeyjar. In Norrbotten, climate change distresses reindeer, affecting the Sápmi culture and economy.

■ **Accumulated stress and slow burn.** Accumulated stress affects the regions' competitiveness and makes them more vulnerable to shocks and disturbances. In the long run, it can lead to a "slow burn": a gradual deterioration of the region. A wide variety of stressors can be identified in the Nordic regions. Recurrent issues are ageing population and immigration. Emigration has an impact on labour supply and social bonds in rural areas, but also in urban centres in the form of 'brain drain'. Stress and slow burn result also from a struggle in coping with technological innovation and other global trends. Other forms of stress relate to low attractiveness, unskilled workforce, youth unemployment, extreme weather conditions and challenging location.





WHAT ARE THE KEY FACTORS IN BUILDING REGIONAL RESILIENCE?

Factors relevant for regional resilience can be distinguished by conditions and actions that 1) prevent unwanted developments and strengthen regions' key structures; and 2) help respond to disturbances and help adapt organisational structures accordingly.

■ Monitoring and generating awareness

Monitoring is the first step to being prepared and to act. The Regional Council of Northern Ostrobothnia conducted a detailed diagnosis of the industries' performance and challenges, which was a key element to facilitate structural changes. In Vejle, scenario building around social cohesion, migration and technological trends were used in their resilience strategy. Monitoring the skill supply in the labour market is a key element to design actions for ensuring skills matching industries' needs.

■ Spreading the risk

Diversification of the industrial base makes it possible to withstand disturbances, for example through collaboration with the university, as in Norrbotten, or business development activities such as the 'Business Cup' in Vejle.

Another way of spreading risks is through **related variety or diversification within industries**. For example, the mines in Northern Ostrobothnia and Norrbotten have served as laboratories for developing ventilation systems, sensors, digital technologies (i.e. 4G and 5G), drone testing and particle physics research.

Diversification of employment is crucial for job security. Sectors that do not contribute with a large share of the regional income, should not be underestimated as they may absorb an important share of employment.

Market diversification is crucial to resist market losses. For example, firms in Vestmannaeyjar and Northern Ostrobothnia had to explore new markets after the international sanctions on Russia, and the Brexit vote has caused a fall in demand.

Redundancy of infrastructure and basic services is important for securing society's and industries' functioning. For example, multiple energy sources secure Norrbotten's stable electricity supply. In Iceland, alternative transport modes ensure connection between Vestmannaeyjar and the mainland.

■ Hunting for disturbance and profiting from it

Shocking events and disturbances also bring new opportunities for business renewal, adaptation to new market demands and social change. Following a profound transformation of the high-tech industry in Northern Ostrobothnia and Norrbotten, healthier and more dynamic regions emerged, offering positive growth potential.

Similarly, the oil price shock in Rogaland catalysed processes of restructuration of institutions and knowledge spillovers into other sectors bringing new opportunities beyond oil and gas.

■ Capacity to respond and adapt to change

The capacity of a region to respond to risks is less about repelling them and more about adapting to change. Comprehensive responses demand the involvement of different actors to re-shape existing institutions, re-organise work and partnerships and re-evaluate strategies.

The 'Tar Group' task force in Northern Ostrobothnia and the 'Active Efforts' consortium in Rogaland brought together public authorities, educational institutions and other key actors to identify solutions and synchronise their response to shock. In both cases, new working cultures and partnerships emerged.

The regions' capacity to respond relies heavily on social values and norms, loyalty, trust levels amongst people, sense of community and attitudes towards collaboration. The 'island spirit' in Vestmannaeyjar, the 'Jæreske spirit' in Rogaland, the closeness amongst people in Norrbotten, and loyalty to the region in Northern Ostrobothnia, describe the relevance of a strong sense of community for coping with challenges.



WHAT IS THE ROLE OF REGIONAL ACTORS IN BUILDING REGIONAL RESILIENCE?

To build the foundations for **regional resilience**, **public authorities at different levels** (national, regional and local) have a key role by providing a regulatory framework, establishing support institutions, and delivering infrastructures and security. **The national institutions** are usually responsible for designing education and skills programmes, and for funding structural change and infrastructure.

Local and regional authorities have a key role in coordinating actions, mobilising regional actors, developing and implementing strategic plans that consider societal, economic and technological trends, support partnerships and business ideas, and enhance community building, trust, citizen participation and empowerment.

Financial institutions and private investors have a key role in funding business and generating new opportunities, wealth and employment. Together with the education institutions, they also play a major role in boosting the innovation system, assisting business promotion, funding R&D and scaling up start-ups.

However, the capacity of a region to respond to shocks and disturbances is tightly connected to human agency and social relations. For the community to act, authorities need to generate solidarity and awareness of the risks as well as the opportunities and tools available.

HOW CAN SIGNALS OF CHANGING REGIONAL RESILIENCE BE RECOGNIZED?

Regional resilience is never stable but is continuously strengthening or weakening along with market trends, technological innovations, global competition, politics, levels of education, social values, trust levels, etc. Therefore, changes in the levels of regional resilience are always to be expected.

The element of surprise is present in all shocks, at least in terms of timing, intensity, and context in which they occur. It is, however, possible to gain awareness of the region's risk landscape.

Conducting an in-depth diagnosis of the region's businesses and industries, their relevance in the global market and future scenarios is a useful exercise to identify potential threats, as well as monitoring trends with regard to technology and labour market.

Stressors are usually more visible signals of declining regional resilience and slow burn. Yet, because of their gradual and long-term character, there is a tendency to neglect them until they have reached a critical point.

RECOMMENDATIONS

These recommendations are based on the results of a comparative study on regional resilience in the Nordic regions in 2017-2018. The recommendations are mainly targeted towards authorities working with regional planning and territorial development, risk management, business development and innovation at local, regional and national levels.

■ **Generate awareness of possible risks:**

identify and monitor risks and stress related to regions' industries, institutions and society. Conduct scenario analyses considering long-term economic cycles, and global trends.

■ **Spread the risk:** it is important not to put all the eggs in one basket.

- Diversify the industrial base by investing in entrepreneurship, R&D, and scaling up start-ups.
- Encourage industries to expand their value chain and to explore different markets.
- Provide alternative (redundant) infrastructures to ensure energy-security, transportation, health-care and other basic services.

■ **Build a financial buffer:** save and accumulate financial surplus to be used in times of trouble and uncertainty.

■ **Welcome disturbances:** adapting is necessary to keep up with changes in society, technology, the economy and (geo)politics. Hunt for disturbances and turn them into opportunities. Promote entrepreneurial discovery, experimentation and R&D.

■ **Promote digital technologies** to improve public services (e.g. e-health, e-education) and companies' competitiveness.

■ **Build trust:** building trust and bonds between citizens, regional institutions and other actors is key for generating solidarity and self-organisation during crises. Boost community spirit by openly discuss challenges with the citizenship and encourage participation.

■ **Encourage individual actions and coordinate collective action.** To build resilience, regions cannot solely rely on public institutions, and hence the individual actions of all actors in the region is crucial. Leadership is needed to coordinate individual actions.

■ **Build attractiveness:** for long-term resilience, regions should build attractiveness and invest in culture, diversity, healthy lifestyles, and international environments.

■ **Develop flexible institutions:** flexible institutions can better adapt to changing conditions. Develop a system for learning, allow variability, be transparent about the challenges, welcome feedback, and establish mechanisms for active participation.

■ **Create flexible education** programmes and life-long educational opportunities to meet the changes in the labour market and upgrade workers' skillsets (competences) ●



ABOUT THIS POLICY BRIEF

This policy brief is based on the study titled "[Regional Economic and Social Resilience: An Exploratory In-Depth Study in the Nordic Countries](#)" (Nordregio, 2019) and is part of the work of the Nordic Thematic Group on Innovative and Resilient Regions within the Nordic Council of Ministers.

Further reading

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Photos:

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