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# Report

## First among smart regions in Norway

Evaluation of Nordland's innovation strategy for smart specialisation 2014-2020

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# Report

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**ABSTRACT****A successful innovation in industrial development policy**

The report evaluates Nordland County Council's innovation strategy (2014-2020), the first regional strategy for industrial development in Norway following the EU scheme for smart specialisation. The strategy differs from earlier industry development by focusing innovation as the prominent driver of growth, using place-based strengths, targeting a more diversified industrial structure, increasing companies' research interactions, and co-operating broadly in order to discover, facilitate, and release innovation initiatives with great potential for growth. The most important measures have been to develop, diffuse, and anchor a new body of thought among policy and public support actors, to co-ordinate instruments towards the strategy, to improve relations between the county council and trade and industry, to increase the region's capacity for relevant research and education offerings (modern localisation conditions for companies), to use innovation system hubs to drive company collaboration in innovation and relevant research, and to direct cluster projects towards the latter. The strategy work has i.a. resulted in strengthening a sustainable experience economy in tourism and increasing company-initiated R&D in industry, and exciting side effects like a broad initiative towards algaculture and advanced plans for a giga-factory for electrical car batteries in Helgeland. The organisation of further work should adapt to new constraints following the recent regional reform.

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## SUMMARY

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### Conclusion

Nordland County Council's innovation strategy (2014-2020) is an innovation in policy for development of trade and industry<sup>2</sup>, built on the EU model for smart specialisation. Based on our evaluation, we consider it a success in its first period, with good examples of what can be achieved in industry, despite a significant reduction in the county council's funds to support such development work. Our assessment is supported by the fact that the EU repeatedly uses Nordland as a success case.

Significant changes have been achieved in conceptualising industrial development as place-based innovation with a strong emphasis on research, in coordinating policy actors formally and in practice under the regional strategy, and in improving public actors' relationship with the business community. The strategy's body of thought, its new ways of working, and the main logic for its implementation have become a shared competence of the county council and cooperating actors. Several knowledge parks etc. in the region have become proactive hubs for driving cluster projects more strongly in the direction of research and innovation collaboration, where companies together turn their core strengths towards entrepreneurial discovery of unexplored opportunities. Several of these collaborations have become self-reinforcing, and the business community's innovation activities in the county have increased significantly.

Modern localisation advantages have been established: a relevant, self-renewing knowledge base emanating from research and development communities, and a project ecology with strong collaborative relationships and a good flow of experience and competencies. These, together with classical localisation advantages, attract initiatives with great potential for growth and diversification. The power processing industry and its related knowledge and development community in the Helgeland sub-region<sup>3</sup> has become the home of an advanced project to establish a giga-factory for electrical car batteries. Around the many activities in the marine sector along the entire coast and with a link to small but growing knowledge and development communities in the region, a network of companies has emerged that explores commercial opportunities in new value chains around algaculture. Tourism's transition to the experience economy has led to considerable attractiveness among tourists who are happy to pay for facilitated experiences – to the extent that the county council's innovation work now increasingly also takes into account sustainability and public goods management.

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<sup>1</sup> This summary report is a translation of the summary section of the main report, slightly augmented for the benefit of readers not familiar with Norway and Nordland. The main report is Håkon Finne, Åge Mariussen and Jarle Løvland (2020): *Først blant smarte regioner i Norge. Evaluering av Nordlands innovasjonsstrategi for smart spesialisering 2014-2020*. SINTEF Rapport 2020:01465, Trondheim: SINTEF. All reports from the trailing research project are available for download at <https://www.sintef.no/projectweb/smart-spesialisering/publikasjoner>. The authors work at Nordland Research Institute (Løvland and Mariussen) and SINTEF (Finne). The front-page picture shows an excerpt of project networks set up under the innovation strategy.

<sup>2</sup> In this document, "industry" is frequently short for "trade and industry" and other sectors of the economy, sometimes as a synonym for smaller sectors of industry or trade. We refer to industrial development as development of the entire economy or an entire industry (or business sector) – as distinct from business development as development of single companies. In Norway, county councils are elected regional bodies charged with community development; the term also includes the council's administrative branch and various public services under its auspices.

<sup>3</sup> Nordland (243,000 inhabitants) consists of the sub-regions (north to south) Vesterålen, Lofoten, Ofoten, Salten, and Helgeland, with Bodø in Salten as the largest city and home to the county council.



Many of the intended effects in the breadth of industry presuppose that the new working methods and priorities are embedded even better as a normal approach to innovation and innovation support throughout the innovation system (companies, educational and research institutions, innovation agents, policy actors and public support actors). In the next period of the innovation strategy, this will require continued anchoring and further development of ideas and methods in the strategy work, strengthening of an experimental ethos among those who have strategic and operational responsibility for implementing the strategy, continued development of proactive operators in some of the hubs that intermediate between companies and towards research, continued strengthening of innovation orientation in the cluster projects, and continued strengthening of industry relevant research that is integrated into the companies' innovation processes. The strategy's working method facilitates the turn of innovation efforts even more in the direction of social, economic, and ecological sustainability, and the taking of digitalisation and other megatrends into account, as long as one can identify opportunities and actors with strengths or needs in these areas at an early stage. In addition, the organisation must take into account the changes that the regional reform has brought about for the county council's opportunities to fulfil its community developer responsibility.

The rest of this summary provides a more systematic review. For further details, both figures and in-depth studies, we refer to the main part of the report.

### **The county council's innovation strategy**

Nordland County Council's innovation strategy (2014-2020) has three objectives:

1. To increase the competitiveness of trade and industry by strengthening the innovative ability of companies
2. To grow employment in commercial services and innovative supply companies
3. To achieve an innovation system in Nordland with good interaction, learning and cooperation between central actors in trade and industry, the labour market, education, research and various public sector fields.

The innovation strategy has five priorities that make it a strategy for industrial development and economic growth, based on the EU's work with smart specialisation:

1. a *focus*: that such growth strategies should be formulated as innovation strategies (because innovation is predominantly important for economic growth)
2. a *basis*: that they should be place-based, i.e. based on the region's local conditions, and in particular its existing strengths (which give existing specialisations their competitive advantage), identified through scientific analyses of the innovation potential (because it is such advantages on which new innovation efforts most effectively can build)
3. a *direction*: that they should aim for a more diversified industrial structure with more specialisations, at least in regions where the industrial structure is relatively undiversified in the first place, as in Nordland (because it makes the economy more robust)
4. a *measure*: that they should place considerable emphasis on research as one of several measures in many innovation processes (because much of what will give a competitive advantage is knowledge that does not yet exist, at least not in business)
5. a *mode of operation*: that they should actively stimulate cooperation between a wide range of actors, including companies, entrepreneurs, researchers, financiers, educational actors, public service providers, and public authorities (because such collaborations are often needed to detect, facilitate, and trigger innovation initiatives).

Although the strategy in this way is more aimed at changes in how the innovation system works, than at supporting individual companies in selected industries, it is still primarily aimed at five selected *focus fields* or business sectors:

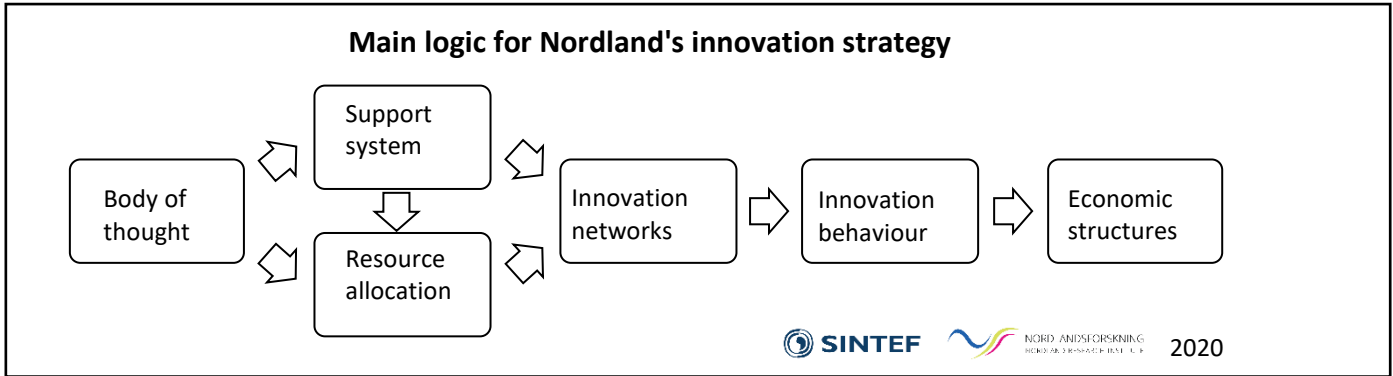
- Seafood (and other marine industries)
- Suppliers (to other industries)
- Industry (i.e., process, manufacturing, etc.)
- Tourism (combined with cultural production)
- KIBS (knowledge-intensive business services).

It is, however, not a sectoral initiative towards these business sectors. These are focus fields because analyses have shown that it is among these that it is most likely to find place-based resources (competencies and institutionalised action patterns in addition to any natural and cultural resources) that make these industries competitive (see priority No. 2). These strengths can in turn be used to develop new, related activities that provide a more robust industrial environment (No. 3), often requiring an element of research collaboration (No. 4).

Although the strategy is very much about structural changes, behavioural changes are still the key to success, both for the county council and other supporting actors, and for the innovative companies. The logic of the strategy is therefore to effect changes in the following six areas:

- **The body of thought:** Changes in how one thinks about innovation, industrial development, and the county municipality's (and others') roles and functions in the innovation system
- **The innovation support system:** Changes in how the county council and other actors in the innovation system act and interact to underpin changes in the companies' innovation behaviour
- **Resource allocation:** Changes in how the county council directly or indirectly uses resources (primarily grant funds), in line with the new ways of thinking, to achieve the objectives
- **Innovation networks:** Changes in how companies take part in innovation networks and immerse themselves in project ecologies
- **Innovation behaviour:** Changes in companies' innovation behaviour, individually or with others
- **Economic structures:** Changes in the region's competitiveness, industrial structure, and employment, i.e., at an aggregate level, primarily as a result of changed innovation behaviour.

The logic of implementation is that the changes reinforce one another in a structure that generally looks like this:



The strategy has direct activities in all these areas, but mostly in the left half of the figure. The evaluation of the strategy follows this main logic.

### Changes in the body of thought

In the absence of specific objectives for the development of the new body of thought, we can express the outcomes in relation to expectations in this area:

- The understanding of what smart specialisation means in Nordland has been further developed, not least through international collaboration, through trailing research with emphasis on strengthening the knowledge platform, and through in-depth reflection in the trailing research reference group. Notably, it has meant
  - developing a stronger understanding of conducting proper analyses in advance
  - starting from place-based strengths (and not actors) in the focus fields
  - seeing the importance of collaborating broadly to identify opportunities and to connect partners that can explore the opportunities together<sup>4</sup>
  - combining the search for new path development with the continued development of existing competitive companies (without being locked into a path dependency that is difficult to get out of).
- The body of thought is to a large extent shared among those who work with the strategy, both in the county council and elsewhere.
- The new way of thinking has increasingly characterised the work of implementing the strategy, through experimentation with how concrete measures can be developed and implemented. The most difficult aspect is to combine the necessary proactive and prioritising role with the assumptions that public administration should be neutral, predictable, and not lock themselves too strongly into private interests.
- The new way of thinking has made a positive contribution to the impacts of the strategy and thus to the achievement of objectives, as we explain below.

### Changes in the innovation support system

The innovation support system consists of all the actors in the innovation system that support the companies' ability to innovate and their actual innovation activity. This primarily includes policy actors, public support actors, research communities, educational institutions, and private or public actors that carry out specialised activities in innovation processes for others or act as operators of public programs and instruments.

<sup>4</sup> These explorations are called entrepreneurial discovery processes because the perspective is always to find ways of turning opportunities into value-creating activity.

One of the objectives of the innovation strategy is, as mentioned, "to achieve an innovation system in Nordland with good interaction, learning and cooperation between central actors in trade and industry, the labour market, education, research and various public sector fields".

The changes in question can be linked to expectations in three areas:

- A somewhat higher degree of internal cross-sectoral coordination has been achieved in the county council. Much work has been done to consolidate the innovation strategy not only in policies of industrial development and research, but also in planning and licensing processes and in upper secondary education. This is challenging because there are other, primary interests to deal with, and no one expects these areas to primarily focus on industrial development. It is also difficult for an administrative body to take into account both stability and development dynamics in one and the same organisation.
- A more focused, and thus more effective, collaboration between the actors in the region has clearly been achieved. Significant work has been done to get the county council, Innovation Norway, the Research Council, and Siva<sup>5</sup> to coordinate better and to lay the regional innovation strategy at the foundation of their work, both in terms of the body of thought, prioritisation of the strategy's goals and focus fields, and clarification of the relationship to these actors' directives from the national level. This is laid down in formalised co-operation agreements, in organised strategic follow-up interaction, and in coordination at the operational level. Regional actors outside this constellation are also increasingly referring to the innovation strategy as a basis for their own development activities.
- Selected hubs in the region's innovation system have increasingly become extended arms for the implementation of the innovation strategy. This does not apply equally to all the knowledge parks and business parks, but we will especially highlight what is happening in the Helgeland sub-region. There, the county municipality (and others) have strategically directed many complementary efforts: Campus Helgeland with established and new educational and research institutions, a knowledge park with expertise and legitimacy to serve companies, cluster projects, research mobilisation, and innovation strategy implementation, a strong development oriented industrial park, and many others. Together, this strengthens not only the innovation abilities in the region, but also the modern localisation conditions for new industrial activities. The latter can be said to include
  - a self-renewing knowledge base in a research community with a strong position in a relevant global academic network
  - a project ecology where both the innovator and surrounding supplier industries are able to benefit from each other
- and these localisation conditions exist, of course, on top of the classic ones, such as raw material supply, access to plots, a stable and competent workforce, and suppliers, industrial environment, market access, and so on.

### **Changes in resource allocation**

The innovation strategy does not have its own budget. It will use available grant funds where they exist.

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<sup>5</sup> The three latter bodies are national agencies for support of research and/or innovation. They all also have regional presence throughout the country and regional objectives. The Research Council funds research proposals, Innovation Norway funds innovation projects in companies, Siva funds infrastructure and services for innovation and growth. Together, they also sponsor the Norwegian Innovation Cluster (NIC) program.



The objective formulated as "... strengthening the innovative ability of companies " involves channelling risk-reducing grants to increase the pace of innovation. The expectation was that the significant grant and support scheme that the collaborating policy actors had at their disposal should be turned more in the direction of the strategy's priorities, and not primarily towards the five focus fields, but in line with the idea of more innovation, more research collaboration, more diversified industrial structure, and to a lessening extent contribute to locking in existing businesses in their current development path, no matter how lucrative it may be in the short term.

The grant and support scheme available to the county municipality decreased from approximately 450 million NOK<sup>6</sup> in 2013 to approximately 220 million in 2018, and in the same period there was a strengthened national government directive in prioritising these funds for the public sector. In the same period, commitments for loans, guarantees, and grants from Innovation Norway Nordland increased from approximately 240 million to approximately 320 million. Siva's subsidies for innovation services in Nordland increased in the same period from approximately 5 million to approximately 10 million. The total available resources have thus decreased, and especially the share under the county council's direct control. This means that it becomes significantly more difficult for the county council to prioritise new strategies, and it also means that the county council's cooperation with the other policy actors becomes all the more important in order to be able to allocate resources in accordance with the innovation strategy.

Among the five main focus fields, there is a relative (but small) increase in funding for experience-based tourism and KIBS (including research and higher education). The available funding data does not provide a sufficient basis for saying anything certain about whether the relevant priorities in the innovation strategy (collective industrial development over individual business development, innovation processes based on local strengths, on more research, on more collaboration, and contribution to greater diversification of industry) have been more strongly prioritised through the strategy operating period.

### **Changes in innovation networks**

The innovation strategy is particularly aimed at innovation networks, primarily those that receive a status as cluster projects with grants from Innovation Norway through the NIC scheme, but also other collaborative relationships that contribute to the objective of "strengthening the innovation ability of companies".

For many years, the county council has supported getting companies in the county to join forces through cluster projects with innovation purposes. They have also had a scheme for funding business networks that do not succeed in the competition for NIC funding. There is good research evidence that such collaborative networks, in which the research community and others also participate, can be of significant importance for the innovation ability. But the direction and processes must be well facilitated, and the participants must have a relevant resource base and be willing to go further into the collaboration than just backing up simple common interests. In the worst case, such projects can have a negative impact if these preconditions are not met.

The expectations are primarily that more companies will be involved in project collaboration in networks during the strategy's duration, so that it will thus be more normal for companies to take on

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<sup>6</sup> 1 NOK = 0.0943 EUR, 1 EUR = 10.60 NOK, as of December 1st, 2020.

impulses from others that can be used in their own development work. This expectation has clearly been reached, and it has been strengthened by the fact that there has also been an increasing breadth of participation from policy actors, actors in research and higher education, innovation support companies and other support actors in the innovation system, and that networks have greater overlap, so that ideas and knowledge can flow between many and diverse actors. The use of innovation hubs in the establishment and operation of cluster projects has contributed greatly to this. There is also a very interesting example of an innovation-oriented network, Algenettverk Nord (Algae Network North), which has been established by the companies themselves without being driven by the possibility of NIC funding, and which has brought about several innovations in line with the innovation strategy's priorities and objectives.

The most important measure, however, is not the stimulus to get more cluster project applications, but to work on professionalising the cluster projects and to draw them further in the direction of collaborating in areas that penetrate the companies' core tasks, and with participation from relevant research communities in the innovation processes. This upgrading work, which is primarily done through Klyngeforum Nord (Cluster Forum North), is important to get more economic and societal benefit out of the collaborative relationships and the public funds vested in the projects. We believe that the work with cluster projects and similar innovation networks, both in terms of

- the number of networks and companies
- the alignment of the projects with the goals of the innovation strategy (and not just the goals of the participating companies), and
- the quality of establishment and operation of these networks

is one of the most important and most effective measures that has been implemented during the innovation strategy's period of operation.

### **Changes in innovation behaviour in companies**

Innovation behaviour is easier to measure than innovation ability. At the same time, behaviour is often included as a component in understanding ability. Unfortunately, the available data is not sufficiently fine grained to follow the development of this at county level and broken down into industries or the focus fields of the innovation strategy. This applies to the research component – which does not always have to be present at all – as well as the innovation activities and innovation results that are closer to the market.

The innovation statistics can thus in principle shed light on two of the objectives of the innovation strategy: "strengthening the innovative ability of companies", and "to grow ... innovative supply companies".

We have to triangulate across different data sets to infer how innovation-related behaviour changes in Nordland and what it may have to do with the innovation strategy's efforts.

The proportion of companies in Nordland that are active in R&D is low compared with the country as a whole. The share increases markedly during the strategy period, at about the same rate as in the rest of the country. Resources spent on R&D are also low, but internal and external R&D costs increase significantly during the strategy period, and more than twice as fast as in the country as a whole. We suggest that this is primarily related to increased R&D activity among companies that are active in the innovation networks we have discussed, and which through this collaboration have

become more oriented towards the opportunities to use regional and national research communities in their innovation activities.

Other innovation costs in SMEs are also growing significantly throughout northern Norway. In 2008, the region was at the bottom of these statistics in Norway. In 2013, the region was in the middle of the range, and in 2016, Northern Norway was at the very top.

Other indicators of innovation activity and innovation-driven changes in revenue streams also show marked increases, but these figures are more difficult to interpret unambiguously, other than that there is clear progress to be detected.

### **Changes in industrial structure**

The strategy document specifies two objectives in this area: "To increase the competitiveness of trade and industry", and "to grow employment in commercial services".

In addition, there is, albeit implicitly, an expectation that new establishments will contribute to giving the business community not only more companies to stand on, but more industries to stand on, i.e. that many new companies will enter industries where the county has no companies from before.

We expect the innovation strategy to have little impact on the statistics in these three areas, for two reasons: Firstly, the funding measures are small. Secondly, it is not to be expected that changes in the innovation system and subsequent changes in innovation behaviour will have time to do a lot with the structural conditions during the strategy period. This should, however, become visible over time, when changes in system and behaviour have become more firmly entrenched and more widespread.

The employment statistics for Nordland clearly show that research and higher education is the big winner (in percentage terms), that the power processing industry has large fluctuations, that KIBS, secondary tourist businesses (mostly retail) and the residual component (other) fluctuate around a stable level, and that seafood recovers after a significant fall until 2015. Employment in KIBS admittedly ends up at a level that is higher than in 2010, but hardly higher than in 2012. It is difficult to trace these changes back to the strategy.

The review of newly established companies shows that in the period 2013 to 2019, almost 9,500 new companies and other organisations were established in Nordland. Among these, there are 90 new companies in 36 industries where there were no companies before in Nordland; seven of these industries have three or more start-ups. All the policy actors (including SkatteFUNN<sup>7</sup>) have been involved in companies in one or more of these industries, but there is no clear pattern.

We seek to shed light on competitiveness by looking at the development over time of the proportion of companies (joint stock companies) in the individual focus fields that have a positive operating result. It is typically between 50 and 80 per cent and has a declining trend for most focus fields, which reflects the need to strengthen profitability in the region. For companies in a start-up, innovation, or growth phase with capital behind them, it is no problem to have red figures in the accounts for some time, but these rarely make up so many that it has a strong effect on the statistics.

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<sup>7</sup> SkatteFUNN is a tax rebate scheme for R&D in companies (with or without external collaboration).

Secondly, we calculate the same statistic for the companies that are part of project collaborations identified in our data on public funding through the main public sources. Among these, the state of profitability is significantly better in the KIBS field, better in the seafood field, and somewhat worse in the secondary tourism field, compared with these fields in the county as a whole. It is important to emphasize that the statistics only show covariation and not causal relationships. We have also not corrected for national business cycles.

### **Developments in the focus field power processing industry and suppliers**

Until now, it has not always been clear how much change there has been in the six areas described (body of thought, innovation support system, resource allocation, innovation networks, innovation behaviour, and industrial structures), and what role the innovation strategy has played in this. If, on the other hand, we look at how all the above changes have played together in a single case, we find clearer pictures of the innovation strategy's results and effects. We now do this for three of the focus fields: Power processing industry and suppliers, marine industries (seafood) and suppliers, and experience-based tourism and related activity.

In the Helgeland sub-region, there has been a targeted effort to support the innovation potential in the dense industrial environment. Over a long period of time, a number of actors and expertise have been built up that can assist companies in their innovation activities. This includes a knowledge park, a research institute, several other research communities, offers of higher education, a dedicated public project funding office, and a campus that brings it all together. The knowledge park has in particular worked to mobilise for cluster projects and research projects, and a large number of related activities. They have also gained considerable experience in leading such projects in a way that has built considerable trust between the corporate environment and the policy actors, and – not least – between the companies themselves. Many of the leading industrial companies individually have their own research experience, but that work has been sector-oriented and with national and international relations. It also seems to have strengthened existing development paths, which primarily presuppose ever stronger productivity growth and raw material focus within given limits, a path from which it is often difficult to break out. During the strategy period, they have become more oriented towards their own, local issues and opportunities in both companies and the education and research communities in their own region, and they have begun to work together, not least through the cluster project Arctic Cluster Team (ACT), that in November 2020 "moved up" to funding as an Arena Pro project in the NIC scheme, but also through concrete research collaboration. Circular economy is high on the agenda, a topic that to a large extent can be based on companies with related activity with a short distance between them entering into joint entrepreneurial discoveries, and where the knowledge base is in rapid development in the associated research communities.

Together, this build-up of the development base for the industrial companies in Helgeland has also functioned as a strengthening of what we can call modern localisation conditions for newly established industry. Norwegian venture capital therefore chose Helgeland as the location for a planned giga factory for the manufacturing of electrical car batteries in its newly established company Freyr. In the autumn of 2020, Freyr is in the process of recruiting (international) technology experts with a good understanding of the emerging markets for technology. As far as we know, they were not on the policy actors' radar before they chose Helgeland. Now, however, they have entered into cooperation with several support actors and competence actors in the region, and they have also joined ACT. It is still a long way to go before such a factory is actually realised in full scale, but we take the localisation decision in itself as a sign that the regional investment under the auspices of the innovation strategy has been successful, and then it will be a significant bonus if the battery factory is one of the major innovations to actually succeed.

## Developments in the focus field marine industries and suppliers

Both cod and farmed salmon make a strong contribution to Nordland's exports. It is not the natural resources alone, but the competence applied in utilising them, that gives this competitiveness. Development in the whitefish segment is characterised by complex regulations, salmon farming is characterised by salmon lice as the strongest obstacle to growth. The focus in both value chains is on the raw material end, just as in the process industry. The work with new cultured species is characterised by some unsuccessful attempts and also by the need for a broad and complex effort to build up the conditions and entire value chains. The latter condition makes it a good candidate for a joint direction of entrepreneurial discovery processes across many private and public interests, but the strongest participating candidates have focused on further developing the possibilities in their respective existing development paths. This has characterised both the research effort and the cluster projects in the field.

However, a network for establishing algae cultivation as a new industry in Nordland has emerged and established its permanent organisation through Algenettverk Nord, which was established as a separate company in 2015 after many years of fragmented attempts to do something new in the algae context. There are many newly established companies here, several of them established as innovation projects without any operating revenue, but with risk capital on the owner side. Some of the players also have positions in established companies in the whitefish industry and salmon farming. They have chosen to separate the exploration of new opportunities in algae as independent companies based on network activities (mostly without staff), so as not to disrupt operations and development in the established value chains.

The network has also entered into a consortium agreement with many relevant public authorities and research communities (Nordland County Council, Nord University, Nordland Research, Nibio, and Innovation Norway, and with opening for the regional departments of the administrative institutions Fisheries Directorate, Coastal Administration, Norwegian Food Safety Authority and the County Governor, and other relevant institutions with algae cultivation on the program) with the aim of "developing a complete knowledge and innovation system for the cultivation of marine algae". The collaboration has also shown that renewed coastal zone planning is necessary to have a well-regulated access to areas in the sea over which there may otherwise be conflicts of use, and activities have been initiated in the county council to accelerate such work, among other things with the involvement of relevant stakeholders from an early stage instead of waiting for the planning documents to be sent out for public consultation. This move has been made with competence support from an EU-funded research project in which the county council and Nordland Research are among the participants.

Actors in the algae network have established process plants for growing, drying, and processing macroalgae, and the product is in use in newly established products for household consumption. This is small-scale production that involves smaller companies in several places in Nordland, and where only one company is a member of the algae network. Successful investment on a larger scale will depend on regulatory issues and on new, research-based knowledge that can be combined with existing practice-based knowledge about the sea as a basis for cultivation and harvesting, and access to relevant sales channels to relevant markets. It may seem that some of the hard-earned experience with cod farming in the former cluster project NCE Aquaculture can be useful in the strategies for exploring algae opportunities, which begin small with macroalgae and in the long run have a significant potential.



The county council has been keeping an eye on, and nurtured, a possible algae investment for many years, but it was not until the business actors organised themselves – without aiming for public funding for a cluster project – that confidence in the opportunities was sufficiently strengthened, and it was found an almost cost-free, but potentially very effective, form of cooperation from 2019 through the consortium agreement.

In the algae case, network collaboration and increasing research involvement have gone hand in hand. Here, it is to a large extent the collaboration that has triggered the research commitment, and the support actors' participation in the network has identified many of the challenges and opportunities that lie between the current situation and a growing volume of business in the field.

It is difficult to say how we would have assessed the results and effects of the innovation strategy in the seafood field if the algae network had not been established. The rise of the Cod Cluster to Arena Pro status can be attributed to the strategy as an important result with a great potential for further development through overcoming current fragmentations in the innovation system, as a diversification within the whitefish field. We are reasonably confident that the strengthening of the innovation support system, based on the five priorities that make the innovation strategy a strategy for smart specialisation, will make it easier for the algae network to explore more paths to a comprehensive algae industry in Nordland, even though the specific opportunities mentioned in the strategy document was about whitefish and salmon farming, while algae were not mentioned in a word. It was not an initiative of the innovation strategy's agents that resulted in the creation of the network, but once it was there, several actors have contributed to the fact that it was so quick for the companies there to intervene with research and public project funding. Thus, although the innovation strategy's primary focus was on existing value chains, it has also laid the groundwork for path finders with the ambition of establishing other businesses to also benefit from the groundwork that has been done, and the strategy's agents have had sufficient flexibility to follow up further on this.

### **Developments in the focus field of experience-based tourism and related activity**

Many of the experiences that formed the basis for the content and design of an innovation strategy for smart specialisation were gained through the county council's many years of work to transform the tourism industry from a service economy with small margins to an experience economy that can provide greater local value creation and capture. The Lofoten mountain range wall and the midnight sun are still free to experience, but many travellers are happy to pay for directed, authentic experiences that give something beyond the immediate. Through a number of cluster projects and the county council's organisation of its mobilisation project in the Research Council's VRI (mobilisation) program, it became clear that, and how, small companies could collaborate on the development of experiences and experience-dense tourism destinations, collaborate with the research community, and how the research community could organise both its research and the collaboration with the business community in such a way that it contributed to the development of both parties.

The innovation strategy therefore led to smaller changes in both thinking and support systems than was the case for the other focus fields. The policy actors have also to some extent prioritised this field of action, at least relative to other fields. The network density has increased during the strategy period, which reflects the experienced benefit in the business communities. However, the diffusion of experiences from Lofoten to Helgeland and Salten has been long overdue. It is not a question of copying solutions, but of building up a level of activity that requires a significant commitment from the participating parties.

During the strategy period, the work was increasingly focused on unintended consequences of previous success in the restructuring, namely how the visiting activity could be better carried out in a more sustainable way when the scope increased independently of marketing and put increasing pressure on local public goods. Due to a lack of national funding of research activities in this field, much of the expertise in that area has migrated to other research areas, and the interaction with the industry has been reduced. The industry is still fragmented and not very robust, even though the previous seasonal character has been reduced, and the pressure on infrastructure and public goods (and eventually also the covid-19 pandemic) present the players in the field with new and significant challenges. The county council is a natural driving force and coordinator due to its responsibility in many of the municipal issues, so that the driving role for innovative solutions is more in line with the county council's administrative responsibility than it is in relation to industrial development in industry and seafood.

### **What works?**

The main conclusion is simple. Nordland County Council's innovation strategy is an innovation in industrial policy. According to the EU's own judgment, it is also so successful that it belongs to a small number of examples repeatedly used to display the value of smart specialisation to countries and regions that still have a long way to go in this respect. Based on our knowledge of experiences in many other countries, we second this assessment. As in all long-term innovation processes, there is a lot of experimentation, trial and error. For further work in Nordland, it is therefore important to emphasise what it is that works.

In the field of experience-based tourism, we have noted the long-term interplay between the following measures as particularly effective in transforming the tourism industries into an experience economy with increased value creation and local value capture:

- establishment and guidance of a large number of cluster projects and networking with participation from many sectors, with a focus on destination development rather than destination marketing, and towards co-production of services in coordinated networks rather than in fragmented offers
- building an experiential research community in at least two institutions, with a special focus on the tourism industry in the region
- directing the mobilisation of these research communities to simultaneously work with small companies (individually and in networks) without previous experience of research collaboration
- assistance through, among other things, new education and training offers to strengthen competence and quality at all levels in the industry, not only in research-based development of experiences and business models to deliver them
- strategic assistance to municipalities and subregional actors to strengthen the sustainability of the industry and visitor management, given the visitors' use of local resources and public goods without good models for financing these
- initiative to build capacity for similar destination development in other sub-regions in the county, primarily through Reiselivsarena Nordland (Travel Arena Nordland) as a common arena for competence building and learning across the destinations in the county.

In the field of power processing industry, we have noted the long-term interplay between the following measures as particularly effective in strengthening the modern localisation conditions in the industrial environment in Helgeland, and thus also linking foreign-owned companies more closely into the region's development base:

- long-term and both short- and long-term development of Campus Helgeland, with the presence of regional and national educational and research communities with good connections to national and international cutting-edge communities in subject areas that are relevant to industry in the region
- long-term and both short- and long-range development of Kunnskapsparken Helgeland with a direction that reflects the ideas in smart specialisation, an understanding of what motivates both companies and the research community, a high legitimacy in both camps, and an action repertoire and access to instruments that make companies and researchers agree on common tasks – in good cooperation with Kunnskapsparken's own development that builds a bridge between the business community it serves, and the business and innovation policy guidelines they receive from the county council and others
- establishment and guidance of several cluster collaborations in the county, where the most recent (ACT, with a core in Helgeland) is the one that most strongly brings the resources from several industries and suppliers together in a development community.

In the focus field of seafood and other marine industries, we have noted that the most interesting thing that is happening is that there is now a better base for establishing new value chains within marine species that have not been the subject of systematic economic activity before. Although the algae network does not spring from a strong initiative in the innovation strategy, the strategy has nevertheless contributed to a greater preparedness for someone to discover new opportunities outside the dominant whitefish and salmon farming industries, and to explore the possibilities for new activity. This preparedness includes both growing relevant research-based knowledge in the region, stronger understanding among the actors for smart specialisation as a good way to diversify the industrial structure, a good understanding among many of how network collaboration within the innovation system can connect both ideas and experience and resources, and development of new role understandings for how public actors can contribute without being caught in strong dependencies on business actors.

We have thus identified three strategic measures as those that produce movement towards the goals, well supported by a fourth:

- To use cluster projects or similar for a project ecology to strengthen the interest in innovation and provide spillover effects, provided that one understands how to achieve it
- To build research capacity so that the research communities can play important roles in the project ecology, provided that there are close (and long-term) practical tests of the relevance in collaboration with the companies
- To develop strategic hubs as intermediary actors in the innovation system, provided that they are able to do the mobilisation work needed to start good cluster projects and good research collaborations, adapted to contextual conditions in the individual fields of action (industries and related actors).
- To spread, modify, and anchor the body of thought behind smart specialisation as a strategy for industrial development in the entire support section (policy, policy instruments and competence actors) of the innovation system.<sup>8</sup>

Should we highlight two important obstacles to the success of this innovation in industrial policy, it must be that the interaction between regional and national priorities sometimes could be better, and that there is a gap between the public administration's classic culture and the way of acting and the

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<sup>8</sup> The main report contains about a dozen more concrete experiences in this regard.

expectations of smart specialisation that implicitly lies in the new body of thought. Both of these characterise the implementation of innovation strategies as business development strategies for smart specialisation across large parts of Europe.

The first obstacle is mostly about how much resources are available, directly or indirectly, to realise the strategy's ambitions. This is both a political and an organisational issue; we address the organisational aspect below. This obstacle is not specific to this type of strategy, but the prioritisation of broad collaborations may be an additional contribution to dealing with the obstacle.

The second obstacle, on the other hand, is specific to smart specialisation, as effective facilitation can set requirements or expectations for public actors to act in ways that do not correspond to prevailing culture and norms for how public actors are supposed to function. The research on smart specialisation is basically a research on the interaction between private economic actors; research on publicly driven strategies for smart specialisation also addresses how non-private actors can contribute to changing this interaction in specific directions. The first prerequisite is a high level of trust between the private and public sectors. In many countries in Europe, this is in short supply. In Norway, trust is extremely high, but then other preconditions emerge, namely that many of the assumed strategic measures require public actors to do things they should not do: prioritise, discriminate, focus on someone over others, change their mind, push for specific solutions. Or, in other words, be the driving force in an innovation process.

The development of new roles that can take care of such double binds is the responsibility of the actors themselves in the most advanced regions. This work is as experimental as the actual innovation processes that the implementation of the strategy constitutes. We have identified this as a sixth element for prioritisation in a good strategy for smart specialisation: Not specifically which roles should be developed in the implementation, but which ethos should be strong among its agents:

6. a *culture*: that they should strive for an experimental ethos, where new measures and patterns of action are established and tested systematically with the aim of learning how they work (or not), without this being perceived as accidental, erroneous, or contrary to democratically given guidelines.

We can only barely read this sixth moment between the lines in the strategy document, but we see stronger hints of it in the pattern of action of the innovation strategy's agents. Innovation researchers say that it is very difficult in private companies to handle both continuous development and disruptive innovation processes in the same organisation. This form of ambidexterity is usually recommended to be implemented by keeping the two activities in separate organisations. In a county council, it is inconceivable to establish a competitor for oneself (!), so the solutions here must be considerably more complex. We also discuss this in more detail under the question of further organisation.

### **What should be done?**

In collaboration with the other policy actors, work should continue on a dynamic integration that makes the relationship between them somewhat more vivid than a letter of assignment with specified reporting requirements. The measures that have already been taken to link the competencies of the regional actors, networks, and individual companies, respectively, in the collaboration between the county counties and especially Innovation Norway, should be strengthened and given stronger strategic anchoring on both sides. In order not to be overwhelmed with detail coordination, it would make sense to organise some portfolios of projects that strengthen the exploration of new opportuni-

ties in the region and manage these according to a stronger experimental logic rather than a simple, criteria-based project logic. Precisely such a joint portfolio management will also be suitable for sharpening the understanding of the region and the companies towards each other.

In collaboration with private innovators, some attempts have been made to direct these in various ways, and especially with regard to how the county council and other public actors can function both as impartial administrative bodies and proactive innovation agents at the same time. In relation to the algae network, a form of interaction has been established that looks very promising, from several perspectives. This can hardly be copied directly to other partnerships, so further work should be done on how the county council as a community developer can provide direction for more and other types of exploration of particularly great opportunities.

In collaboration with research communities, innovation hubs and other KIBS actors that can take dedicated roles in the innovation system, it is particularly important to work further with an agreed understanding of good measures in the strategy that can be combined with these actors' framework conditions. Plenty of work remains to be done here.

All these three factors are strongly connected with the fact that the county council's ability to carry out its obligation as a community developer has changed significantly through the regional reform and subsequent budget development. The county council has become significantly more dependent on governing through others, in network relations rather than as clients, and this requires quite different ways of working compared to when one as a public body have direct control over one's turf in the greater division of labour. This redirection has been going on for some time, it has far from stabilised. A stronger integration in the county council's planning work of the ideas and practices that have been established through the strategy work seems timely. The more imminent situation now, where the county council seems to suffer from a lack of internal capacity to further develop the strategy and keep track of, and prioritise between, all the promising initiatives, is of course a challenge that must be solved.





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