

50 Years and Onward

Nordic Innovation Annual Report 2023

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Annual report 2023
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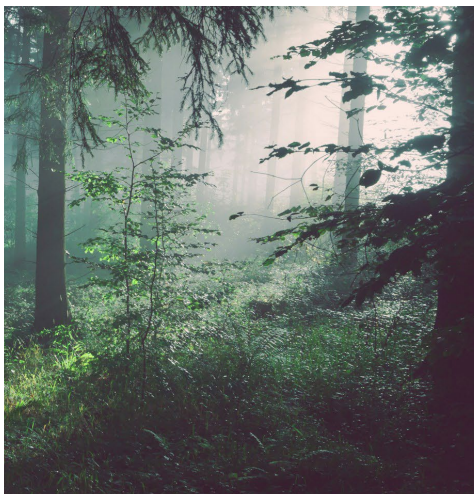


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Special Initiatives

50 years and onward

One of the first decisions the Nordic Council of Ministers made after it was established was to set up Nordisk Industrifond in 1973. The organization was later renamed Nordic Innovation. In 2023, we spent time investigating our history to understand how we have evolved through the five decades in which we have operated.

By going through the files and seeing the kind of activities that Nordic Innovation has engaged in and supported, it is striking to see how priorities and modus operandi have changed.

In the 1970s and until the mid-1980s, the focus was on using enabling technologies such as ITC in different ways. From the mid-1980s and for the next 20 years, Nordic Innovation was primarily involved in research-based innovation projects. Since 2015, the main priority has been projects that focus on sustainability

and system innovation, with the ambition to change entire value chains.

Today's focus resonates well with the vision for Nordic cooperation of the current Nordic prime ministers: to make the Nordic region the most integrated and sustainable region in the world. This is a vision which aims to create changes on a societal level, not just for individual companies, organizations or individuals. When you read the examples presented in this annual report, you should bear in mind that the ambition of the projects is to facilitate change in the Nordic region – the purpose of the projects goes beyond the projects themselves.

Nordic Innovation has evolved over the last five decades. This journey has gone hand in hand with how the Nordic region has developed. Much

"Coming together is the beginning. Keeping together is progress. Working together is success"

– Henry Ford (1863-1947)

has changed over the decades but there is one constant: the willingness to cooperate has never changed.

"Who controls the past controls the future," wrote George Orwell in his epic book "1984". The aim of reviewing our 50-year history has not been to control the past, but to learn from the past to improve the future.

We are experiencing challenging times. Action is needed and cooperation is vital. We hope the examples presented in this annual report will inspire you to be part of shaping the next chapter of Nordic cooperation.

Svein Berg
Managing Director
Nordic Innovation



The Nordic region will become the most sustainable and integrated region in the world.

Our Vision 2030

- 

A green Nordic region
Together, we will promote a green transition of our societies and work towards carbon neutrality and a sustainable circular and bio-based economy.
- 

A competitive Nordic region
Together, we will promote a green growth in the Nordic region based on knowledge, innovation, mobility and digital integration.
- 

A socially sustainable Nordic region
Together, we will promote an inclusive, equal and interconnected region with shared values and strengthened cultural exchange and welfare.

Bylaws §1 Purpose

The institution shall contribute to making the Nordic region a pioneer in sustainable growth and work to enhance entrepreneurship, innovation, and competitiveness in Nordic businesses. (Decided by the Nordic Ministers of Trade and Industry on September 4, 2015).

Board members

- Sweden:**
Cecilia Sjöberg (chair)
Head of Industrial Technologies Division, Vinnova
- Norway:**
Eva Camerer
Director Strategy and Policy Affairs, Innovation Norway
- Finland:**
Heikki Uusi-Honko
Development
Director for International Operations, Business Finland
- Iceland:**
Freyr Friðfinnsson
International Liaison Officer at KLAK - Icelandic Startups
- Danmark:**
Andreas Rahlf Hauptmann
Office Manager, EU & International Relations, Danish Business Authority
- Mathea Hilduberg,
Observer the Faroe Islands
Berglind Hallgrímsdóttir,
Observer of the Nordic Council of Ministers
Rasmus Malmberg,
Representative for the employees



Whether we will reach the ambitious goals of Vision 2030 all depends on our willingness to cooperate.

Committing to Cooperation

Cecilia Sjöberg chaired Nordic Innovation's board during 2023, which proved to be a particularly eventful year. Among a range of important milestones and activities, Sjöberg admits that the celebration of the organization's 50th anniversary was the highlight of the year.

"The celebration in Oslo was such an inspiring event. Extensive research had been done to document and present Nordic Innovation's activities through 50 years. It really showed what immense impact Nordic collaboration and innovation has had in the last five decades," says Sjöberg.

"At the same time, the celebration paid just as much attention to looking forward – being visionary about the new goals of Nordic Innovation. That is equally important," she adds.

Making Use of Our Advantages
According to Sjöberg, the Nordic region has immense potential for

growth. She points to the region's natural resources, the similarities in culture and language, and its technological competence as good foundations for the Nordics to build position and reach Vision 2030.

"The question is whether we manage to use these advantages properly. Only when we truly commit to cooperation, and the Nordic countries work even more closely together, will we have a chance to reach Vision 2030," Sjöberg says.

While Nordic Innovation can help push in the right direction, Sjöberg believes it all depends on a commitment among all sectors – from academia to industry – to build partnerships across the Nordic borders.

With Geopolitics in Mind
The Nordic region has a strong tradition for innovation within areas such as renewable energy, sustainable transport, circular economy, green technology, and digitalization. As the

world takes steps towards a greener and more digitalized future, Sjöberg thinks these areas will be of lasting importance for the region, but she also sees some new areas with growth potential.

"With the uneasy and turbulent geopolitical situation, I believe that resilience and security will climb higher on the agenda in the near future. For the Nordic countries, this includes defense and security cooperation, which is tightly linked to innovation and research. How we can use technological development and innovation for defense, including civil defense, is likely to become increasingly important," she states.

Concentrating the Work
Another highlight for Sjöberg in 2023 has been preparing the ground for the coming program, which has been a collaboration between Nordic Innovation and its board. She explains how the process has included analyzing the strengths and weaknesses of the Nordic countries, as well as Nordic Innovation's own work.

"Nordic Innovation is involved in an impressive number of projects, but we are always looking for ways to make our work even better. One lesson from our analysis was to avoid spreading the work and resources too

"With the uneasy and turbulent geopolitical situation, I believe that resilience and security will climb higher on the agenda in the near future."

- Cecilia Sjöberg

thin. There are so many important projects to get involved in, but we need to prioritize. When we sharpen the focus of our work, the results will become even more impactful," Sjöberg claims.

Next Important Steps
There are exciting times ahead for Nordic Innovation, according to Sjöberg, with a new program period coming up. Before moving ahead, however, she emphasizes the importance of delivering the results of the program period that is coming to an end.

"Having worked in innovation agencies for many years, I know how easy it is to just continue with new, exciting things. It is crucial to look closer at what has been achieved and analyze it properly," says Sjöberg.

She regards the new program period as a suitable occasion for focusing on strategy and work tactics.

"New tasks and programs offer exciting opportunities to explore novel ways of working, instead of just continuing to do what we always have done," Sjöberg says and adds:

"Being innovative about how to work with innovation – that's a perfect job for Nordic Innovation!"



Exploring our past and looking into the future.

50 Years Anniversary

Nordic Innovation was established in Stockholm on July 1, 1973. For 50 years we have connected innovative minds in business and politics with the power of the Nordic countries.

2023 was a year marked by our 50th anniversary, with a celebration in Oslo on November 2 at the city's imposing Deichman library bringing an event-full year to a close.

An organizational memory As a part of the anniversary, we wanted to turn the spotlight on Nordic Innovation's history, and our role in one of the Nordic region's most innovative eras. We studied annual reports and magazines from the past to get a better understanding of ourselves, our history and our development.

Our efforts culminated in the book 'Innovation in the Nordics 1973–2023'. The book visualizes 50 years of innovation in the region by highlighting what Nordic Innovation has achieved as an organization. For example, Nordic Innovation explored the use

of artificial intelligence in cancer treatment as far back as 1985. This is one of many stories presented in the book, which also pays tribute to our partners throughout the years.

We also developed a webpage dedicated to our anniversary, with a timeline of our history and stories on innovation projects from five different decades.

Nordic Next While history is an important aspect of learning, as an innovation organization, looking forward is our DNA. We have used our anniversary year to take a step into the future with 'Nordic Next'.

During the celebration in Oslo, a panel of current partners discussed 'The next 50 years with cross-Nordic innovation' and turned the spotlight on the Nordics' current and future position within areas such as artificial intelligence and electric aviation.

The panel consisted of Maria Fiskerud, Heart Aerospace; Cathrine Barth,

Nordic Circular Hotspot; Sean Barrett, Interesting Times Gang; Helga Brøgger, DNV; and moderator Cecilie Sjøberg, a member of Nordic Innovation's board.

Prior to the panel discussion, a conversation about Nordic Innovation's history and development took place between Ivar Horneland Kristensen, Managing Director of Nordic Innovation (2008–2012), Susanne Ringdal, Advisor at Nordic Innovation (1995–2003), and Rasmus Malmberg, current Advisor at Nordic Innovation.

How do you think the Nordics will look like in 1973? As a part of 'Nordic Next', we prepared the survey "Envisioning the Future", with questions about the future of the Nordics in 2073.

What do you think the Nordics will look like in 2073? We invite you to share your thoughts with us:



Nordic Innovation's advisers share their highlights and experiences from 2023.

Advisers Perspectives

Marthe Haugland,
Senior Innovation Advisor,
Head of Program Circular
Business Models

Biggest achievement for Nordic Innovation in 2023: One major achievement was our co-hosting, with Sitra, of the World Circular Economy Forum in Helsinki, where the EU, UN, World Bank and other major international organizations participated. As Iceland's former president Ólafur Ragnar Grímsson stated during the Nordic Circular Summit in 2023, "There is no circular economy in the Nordic countries unless the rest of the world also goes circular." I believe it is the Nordic region's responsibility, as one of the world's largest polluters and consumers of materials, to be at the forefront of the transition to a more circular world, as a tool to achieve climate and environmental goals.

Most memorable 2023 moments: It's difficult to pinpoint a moment, but I think it must be the Nordic Circular Summit in Reykjavik, Iceland, which had 260 physical participants and a further 1,000 joining in online. It's the fourth time we've organized the conference with the Nordic Circular

Hotspot, and it truly reflects the state of the circular economy in the Nordic region. More and more participants recounted their success stories and challenges. Many new collaborations, results and projects emerge during such conferences.

Most inspirational 2023 moment for your programs: It's hard to single out one experience as the most meaningful. I find purpose in my work every day, and witnessing Nordic collaborations leading to better and faster solutions is incredibly inspiring. It is therefore hard to single out one in particular. But if I had to highlight one moment, it would be the Venture Challenge.

This is a Nordic collaborative project aimed at training new fund managers. As a result, 11 new first-time funds have been established in the Nordic region, with over EUR 180 million in total capital that will benefit Nordic startups as the funds begin to invest. This is a concrete outcome of Nordic cooperation, and it's inspiring to see that such collaborative platforms can yield tangible results for the entire Nordic region, with relatively modest resources.



Thordur Reynisson,
Senior Innovation Advisor,
Head of Program Sustainable
Ocean Economy

Biggest achievement for Nordic Innovation in 2023: Our most significant achievement in 2023 was fostering widespread engagement and enthusiasm among Nordic businesses for the concept of co-located activities at sea. This initiative has successfully prompted people to think about this subject in innovative and transformative ways. We presented this agenda widely in 2023, at Arendal Week, the Arctic Circle, the Blue Mission Banos, the Nordic Circular Summit and elsewhere, and received a remarkably positive response. Moreover, we have observed a tangible impact on the industry, as our efforts have propelled this topic higher on the agenda of key players in the ocean economy.

Most memorable 2023 moments: I have vivid memories of the inspiring Hack the Ocean hackathon held in Reykjavik and organized by the Iceland Ocean Cluster in 2023. This remarkable event not only showcased collaborative efforts to explore multi-use at sea but also underscored the potential of conducting a variety of



marine activities in the same location to foster a sustainable ocean economy. With the support of Nordic Innovation, the hackathon aimed to translate theoretical concepts into practical solutions and showcase them to those at the pitching session and beyond.

Most inspirational 2023 moment for your programs: One of the most memorable experiences in my program area throughout 2023 was the visit to Grindavík in Iceland to explore the Circle Feed project. This initiative focuses on utilizing macro-algae in animal feed to reduce methane emissions, particularly from livestock such as cattle. The project's potential to contribute to the sustainability of the food industry by harnessing ocean resources in an eco-friendly manner is truly remarkable.

What made this experience particularly impactful was the unforeseen challenge that followed. Just days after our visit to the project site in Grindavík, the town and project facilities were severely affected by a seismic event, leading to evacuations and infrastructure damage. Witnessing the resilience and adaptability of the project team in the face of such

"I hope and believe that the additional publicity and engagement surrounding Nordic innovation in 2023 have been an eye-opener."

- Nina Egeli



adversity was truly inspiring. Despite the challenges, they managed to pivot and continue their work in other locations.

Nina Egeli,
Senior Innovation Adviser,
Head of programmes Green Mobility,
Smart Connectivity, Nordic Scalers

Biggest achievement for Nordic Innovation in 2023:In 2023, we succeeded in emphasizing even more strongly the value of Nordic cooperation and the central role that innovation and business collaboration play in achieving the green transition and the joint Nordic vision of sustainability and regional integration. There is an increased awareness of the importance of innovation and the significant achievements we can make together in the Nordic region if we are ambitious enough.

Most memorable 2023 moments: Something entirely unique for 2023 was celebrating 50 years of innovation collaboration through Nordic Innovation. I hope and believe that the additional publicity and engagement surrounding Nordic innovation in 2023 has been an eye-opener: the issues we grapple with nationally

are often better solved collectively at the Nordic level. We find that our way of collaborating and creating innovation and change together is attracting increasing interest in the world around us, as seen, for example, at the Nordic Innovation House's Bifrost Summit 2023 in Silicon Valley.

Most inspirational 2023 moment for your programs: 2023 has brought us one year closer to realizing significant changes in mobility. We are one step closer to the realization of electric airplanes and commercially scheduled electrically powered flights in the Nordic region. We are steadily moving closer to the vision of seamless and sustainable travel between our countries – without the use of private cars. It will take even less time before commercial transport is fossil free – with the advent of hydrogen-fuelled trucks or ammonia-powered ships, for example. Changing our mobility systems is an incredibly complex job, and we are entirely dependent on industry players taking a leading role – as they are doing with regard to mobility on land, at sea, and in the air, under our Nordic smart mobility and connectivity program.



Katrine Winding. Foto: Erhvervstyrelsen

Nordic businesses will thrive if we manage to share data across borders.

Seamless Business Through Data Sharing

Katrine Winding is Director General of the Danish Business Authority and serves as the chair of Nordic Smart Government & Business (NSG&B). The initiative has an ambitious goal: to simplify the lives of small and medium-sized enterprises (SMEs) and create new business opportunities based on economic data.

"We aim to make it easier to do business in the Nordic countries by making data more accessible across the Nordic borders. We want to make it easy for businesses to use e-documents and e-receipts across borders, so trading within the Nordics can be automated."

Reaching a Milestone Winding reveals that 2023 was a milestone, in the sense that Nordic Smart Government & Business created pilots enabling businesses to send and receive e-documents across borders.

"The pilots are significant because they lay the groundwork for future transactions across Nordic borders to go directly between bookkeeping and business systems. We want trade and transactions to happen as easily between the Nordic countries as they happen within a country," she says.

Beneath the Vision Most of NSG&B's achievements in 2023 are not necessarily visible, explains Winding, but they are important to the facilitation of cross-border trade.

"We are working on the technical stuff, to put it simply. This is what lies beneath the vision," she says.



Innovation advisor Olivia Rekman gives a presentation at the Nordic-Baltic Sustainable Business Summit.

"All the Nordic countries are quite digitalized, but there are differences. What we have managed to agree upon in NSG&B is a decentralized model, which means that interoperability is key. In other words, we do not need to have the exact same standards or work with the same regulations, as long as the different systems can work together supporting the same vision."

Exporting A Way of Working Unlike the EU, the Nordic collaboration contains no regulatory mandate. Winding fears that this will prolong the implementation time and lessen the sense of urgency. She emphasizes that the overall success of the program depends on the way it is implemented nationally.

"Right now, the project is in the implementation phase, where we are wrapping up years of collaboration," she says.

"It is completely unique that five countries are working together at a technical level like this. We have achieved a collaboration of great value, and we are looking at the possibility of exporting this to the rest of the EU as a way of working."

The Nordic region pioneers the field of ethical AI.

Ethical AI – Mobilizing the Nordic Innovation Ecosystem

"When we started focusing on ethical AI in the Nordics, not many people in the field were discussing this topic and we saw a gap. Now, it is an increasingly important part of the public debate, and we are frequently invited to events and panels on ethical AI and digitalization," says Innovation Adviser at Nordic Innovation, Olivia Rekman.

Together with Accenture and Silo AI, Nordic Innovation runs the project Nordic Ethical AI & Data Ecosystem Building. The project's aim is to support the development and deployment of ethical AI and responsible data solutions in Nordic companies, by encouraging collaboration, knowledge transfer, competence building and data sharing in the Nordic region.

"The project was initiated as a result of extensive mapping of the strengths and weaknesses of the AI ecosystem in the Nordics. We found that the region has a considerable potential to create competitive advantage through ethical AI. In this, we have a good foundation in our Nordic values, such as collaboration, trust and equity, as well as a proliferation of AI start-ups with this particular focus," says Rekman.

In 2023, the project established an expert group and started working on a toolbox to help in the adoption of ethical AI. Rekman explains that one overarching goal is to communicate that something which can often seem quite abstract offers tangible business advantages.

"Our first target group is the Nordic business community. The toolbox will assist businesses transition from theory to practice in designing, developing and deploying ethical AI. This could, for example, include checking for bias in the use of data, which can lead to serious discrimination," says Rekman and continues:

"Then we have Nordic decision makers as a second target group. Our expert group, which is composed of Nordic AI industry leaders, is due to present a series of recommendations to government ministers with responsibility for trade, business, industry and digitalization in the Nordic countries in late spring 2024. Politicians need to know what to do to strengthen the Nordic business environment for ethical AI."

The Nordics need a venture capital model that reflects Nordic values.

A New Venture Capital Model



Virginia Vegas and Peter Munch-Madsen.

The Nordic Venture Capital Challenge is a competence program that helps emerging managers to set up their first fund. It is also a platform to share venture capital best practices across investment ecosystems in the Nordic region.

In 2023, the Nordic Venture Capital Challenge helped more than 25 fund teams across the Nordics.

While helping emerging managers, the project has also discovered the need for a Nordic Venture Capital Model. As it is today, fund managers are learning from American experts, but they do not provide all the answers that Nordic fund managers are looking for.

"We brought Stanford experts to teach about venture capital, but we realized that our managers in the Nordics are trying to do things that

are very pioneering. Like how can we invest in circular economy? How can we bring diversity to the forefront? How can we create impact? The Americans didn't have all the answers we were looking for," says Virginia Vegas, Managing Director at Nordic Venture Capital Challenge.

Participants taking part in the program learn about venture capital topics such as sourcing and dealflow, portfolio construction, fundraising strategy and fund operations.

While working on these topics, the program has highlighted the importance of Nordic values as a part of a venture capital model.

"We have a lot of questions. But no one has all the answers. And that is when we started talking about developing a Nordic Venture Capital Model. If we build this model, it will

be based on how we in the Nordics want society to be like, how we want to support the environment, how we can build a venture ecosystem that we are proud of and that resonates with our values," Virginia explains.

"We are trying to reinvent venture capital by using Nordic values. We believe that the Nordics could be the intersection of innovation, financial returns and impact," she states.

In the end of 2023, the Nordic Venture Capital Challenge moved into a new phase, called the Nordic Venture Opportunity. The new phase will identify barriers and challenges related to investment in Nordic venture funds with a clear ESG profile and create a tool to ensure that circularity becomes a part of the due diligence process of investors.

5 years with Nordic Circular Hotspot. From Niche to Mainstream

Nordic Innovation has supported Nordic Circular Hotspot since 2018. By bringing Nordic actors together, the network has helped put the circular economy higher on the agenda in the Nordics.

The fourth Nordic Circular Summit took place in Reykjavik on October 17–18, 2023. The Nordic Circular Summit is one of the main initiatives of Nordic Circular Hotspot and the largest circular economy conference in the Nordics.

This year, the main focus was 'human factors in the circular economy'. How can the circular transition contribute to increased equality and equity, and build safe and future-ready societies and industries?

The circular economy agenda has evolved rapidly since Nordic Circular Hotspot was founded in 2018. Going from summits focusing on knowledge sharing, collaboration and financing to 'human factors' in 2023, the circular economy in the Nordics has moved to a new level.



Marthe Haugland, Einar K. Holthe and Elva Rakel Jónsdóttir.

"The circular economy has become much more mainstream now than it was when we started," said Marthe Haugland in her opening remarks at the Nordic Circular Summit 2023.

The aim of Nordic Circular Hotspot is to be the go-to place for circular economy knowledge sharing and a source of new opportunities for business, civil society, research and public authorities in the Nordics. Nordic Circular Hotspot seeks to bring together Nordic actors within the circular economy field.

The main initiatives of Nordic Circular Hotspot:

Nordic Circular Partner:
A Circular Market Transition program for collaboration across segments, sectors and silos.

Nordic Circular Arena:
The first digital multi-stakeholder platform for the circular transition in the Nordics.

Nordic Circular Summit:
An annual conference exploring the circular potential of the Nordic region.

Accelerating the circular transition requires a broad transformation of our society.

Hosting World Circular Economy Forum

Nordic Innovation co-hosted the World Circular Economy Forum in collaboration with the Finnish Innovation Fund Sitra, from May 30 to June 2, 2023. The event gathered top international organizations and circular economy pioneers from all around the world.

The World Circular Economy Forum is an annual event held in different locations, with different co-hosts and focusing on different themes. Since 2017, the Forum has gathered forward-looking thinkers, presented the game-changers in circular economy and showcased the world's leading circular economy solutions.

In 2023, the theme was 'Circular solutions for nature and the economy', with a special focus on Nordic solutions. With almost 2,000 participants on site and more than 10,000 people participating online from all around the world, the event proved that the circular economy is a topic

of high relevance, not only in the Nordics, but also globally.

Managing Director of Nordic Innovation, Svein Berg, took part in the opening session, where he emphasized the urgency of the situation and the potential to find solutions in collaboration:

"Nordic Innovation is committed to promoting sustainable economic growth, and we believe that the circular economy is a key component of this. By co-hosting the World Circular Economy Forum in Helsinki, we bring together leading thinkers, innovators and policymakers from around the world to share best practices and develop concrete solutions for advancing the circular economy. We must use this forum to make changes happen. Given the urgency of what we are facing, I can't stress enough the need for change."

Collaboration through Systems Thinking The topics discussed included the need to strengthen collaboration at different levels, leverage finance and policy to support circular businesses, regenerate land, translate global ideas to local solutions, and re-consider the way we consume and do business.

As in previous years, the discussions highlighted collaboration as a critical factor in accelerating the circular transition. However, unlike previous years, the focus in 2023 was on collaboration through systems thinking – we cannot change the world just by redesigning single products. Instead, we should focus on redesigning the systems by bringing finance, policy and practice, as well as whole value chains, to the same table.

Standing together for a stronger Nordic voice To create a strong, unified voice from the Nordic region,

Nordic Innovation partnered with eight Nordic institutions to create a Nordic pavilion. Together, we showcased the scale of circular economy solutions in the Nordics. The pavilion became a busy meeting place during the forum and laid the foundation for good conversations with representatives from both Nordic and international institutions.

"Nordic Energy Research decided to take part at the Nordic Expo Stand at WCEF to meet with stakeholders. Having a shared Nordic stand created value for all participating organizations. It was a great initiative active from Nordic Innovation," says Ole Aune Ødegaard, Advisor at Nordic Energy Research.

In 2024, the World Circular Economy Forum will take place in Brussels, with support from Nordic Innovation.



Hanna Törmänen with visitors at the Nordic expo stand.

Facts: World Circular Economy Forum 2023

- 1.800 on site participants
- 10.000 online participants
- 120 speakers
- 42 accelerator sessions
- 48 side events
- 155 countries represented
- 50 organizations at the Expo Area
- 21 international partners including: European Investment Bank, United Nations Industrial Development, Organization, World Economic Forum, Government of the Netherlands, Government of Finland.



Sarah Hitz, Nils Arne Haagensen, Lena Henriksson, Peter Munch-Madsen, Vilde Paulsen, Hege Guttormsen and Ole Aune Ødegaard.



Hege Guttormsen, Nina Egeli, Thiago Freitas, Aina Bredeesen and Otto-Wille Koste.

Sharing data between stakeholders plays a key role in the transition to sustainable mobility.

Data as the driving force

In 2023, Nordic Innovation finalized an innovation process exploring how to establish the Nordic region as frontrunner in smart connectivity and sustainable mobility.

As a first output, a study was published on developments within the digitalization of the Nordic mobility sector, focusing on personal mobility, road and traffic management, and logistics. The aim of the study was to understand the current state of digitalization within these mobility areas, including challenges and innovation potential. The study also acts

as a guide for the next steps in the innovation process.

Following this, Nordic Innovation published a call for proposals by the end of 2023, with the aim of finding 2–4 projects where connectivity and data sharing can help to accelerate the transition to sustainable mobility.

The innovation process was run as an industry collaboration between Nordic Innovation and Demos Helsinki, Halogen, Rambøll and RISE. The initiative is part of the Smart Connectivity program, which seeks to facilitate innovation and transformation within the mobility and logistics sectors through increased data sharing across national borders.

“The potential of data is yet to be realized and we need better data governance mechanisms. With our call for proposals, we hope to see projects with a potential for scaling,” says Nina Egeli, Head of the Smart Connectivity program.



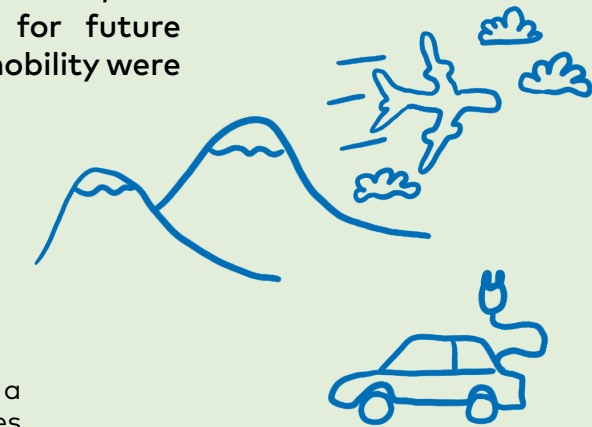
Nina Egeli and Hege Guttormsen at the ITS European Congress.

How can the Nordics become a pioneering region in green mobility? In 2023, new strategic recommendations for future collaboration within Nordic mobility were presented.

The future of Nordic mobility

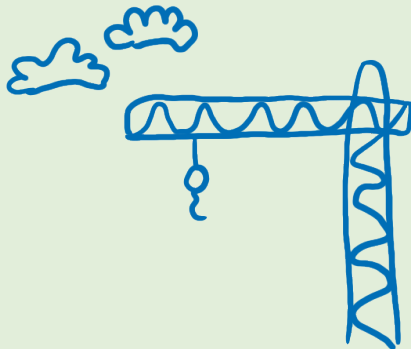
The recommendations offer a roadmap to ensure that initiatives in the mobility sector are aligned, impactful, sustainable, and in line with vision 2030. The aim of the recommendations is to offer policymakers and stakeholders clarity, a direction, and a vision for a sustainable and interconnected Nordic region within mobility.

1. The transition to green aviation
2. A sustainable and automated maritime sector
3. Infrastructure and service supporting electrification
4. Intermodal and smart mobility solutions
5. Circular economy in transportation
6. Climate-resilient infrastructure
7. Unified and progressive policy and regulation



“The 2030 milestone is just around the corner. It is time to really speed up the transition to sustainable mobility, to choose the right priorities and to gather our resources around those initiatives where our region can be frontrunners and play our part in the global transformation of mobility. These recommendations can help us get our priorities right and to take the next steps with confidence,” says Nina Egeli, Head of the Nordic Green Mobility program.

The recommendations are a part of a report prepared by Beta Mobility and commissioned by Nordic Innovation.



Electric aviation in the Nordics will benefit the rest of the world

The Sky Is the Limit



Heart Aerospace ES-30 Pink Sky

The Nordic Network for Electric Aviation (NEA) project is a collaboration between actors from the Nordic aviation industry, including airports, aircraft manufacturers, and airlines. Its aim is to speed up the transition to electric aviation in the Nordic region.

In 2023, the project identified point-to-point routes for electric aviation in the Nordics, developed new business models, looked into a Nordic charging infrastructure, and worked on a platform for Nordic, European and global collaboration to speed up knowledge sharing.

Working on a Nordic level has benefitted the network in many ways, as Maria Fiskerud explains:

“The weather is one thing that has actually benefitted us. For instance, you would usually use electricity to de-ice the wings. But you can’t do that with electric planes as they use

electricity as fuel, so we had to find other solutions to that issue. And we did. So, by working on this challenge we realized that if we can make electric planes fly in the Nordic climate, they can fly anywhere in the world.

“In that sense, we turned our cold climate into an advantage. The Nordics is the perfect test-arena for electric aviation.”

A Nordic standard for electric aviation One of the goals of the Nordic Network for Electric Aviation project is to build a Nordic standard in the field of electric aviation. A standard that will not only help build an industry, but also benefit the rest of the world in the long-term.

“Our aim is to build a standard for electric aviation in the same way as with the Nordic telecom industry. The first standard in telecom was the Nordic standard, which later evolved all around the world. The

5G we have today originated from the Nordic standard. We think the same way with electric aviation. If we can build a standard for electric aviation, then the rest of the world will be able to benefit from that,” says Maria Fiskerud.

Policy tour In 2023, Nordic Innovation decided to support the NEA project for a new period, 2023–2026, with NEA 2.0. The project is planning a policy tour to present findings and recommendations at the political level.

According to Maria Fiskerud the aim is to get the politicians and the Nordic aviation administrations to work together. “The industry has provided input on what policies and actions are needed, and now we are going to discuss this with Nordic politicians. We will also recommend an advisory board with representatives from the industry and politicians. A lot of changes will happen

“If you can fly electric in the Nordics, you can fly electric anywhere in the world,”

- Maria Fiskerud

in the coming years, and in order to proceed as quickly as possible, we need people who know about electric aviation and people who can take the decisions to work together.”

Another topic that will be discussed during the policy tour is to have more Nordic collaboration regarding regulations.

As it is right now, it is difficult to fly electric between the Nordic countries, simply because they have different regulations. “We need to start aligning regulations in the Nordics when it comes to electric aviation,” Maria Fiskerud says.

“We would also like politicians to look at electric aviation as regional transportation or even as public transportation. As it is right now, aviation cannot be public, though electric aviation is something that could substitute for trains and buses. But we must stand together on this in the Nordics, as legislation needs to be changed at the EU level.”

Nordic Innovation has supported the NEA Nordic Network for Electric Aviation project since 2019.

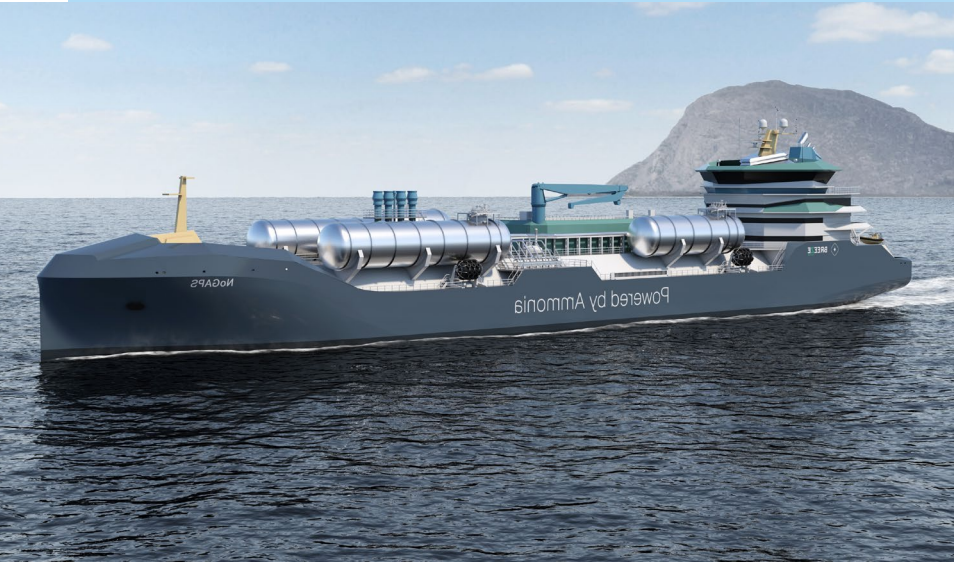
The Nordic Green Ammonia Powered Ships (NoGAPS) project has produced an initial ship design for the world’s first ammonia-powered vessel and presented ways to commercialize ammonia-powered gas carriers.

The World’s First Ammonia-Powered Vessel

Ammonia has been identified as one of the leading potential zero-emission fuels, as it can be produced from renewable electricity. However, ammonia-powered vessels also present several challenges related to fuel supply, safety, technology, and commercial viability.

The NoGAPS project has successfully developed a ship design, making the development of the first-of-a-kind ammonia-powered gas carrier, the M/S NoGAPS, possible. The project has also demonstrated ways to commercialize ammonia-powered gas carriers as early as 2026.

The NoGAPS project is an industry collaboration with partners from the Nordic maritime ecosystem, including actors such as DNV, Global Maritime Forum and Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping. The project is currently in its second phase, running from 2022–2025.



Copyright: Breeze Ship Design/Maersk McKinney Møller Center for Zero Carbon Shipping

Anders Tunold-Hanssen, Erik Frick, Rasmus Malmberg, Shahzad Rana and Ellen Rønning-Arnesen.



The Swedish company Paindrainer® was named as the winner of the very first Nordic Health App Award at Arendalsuka 2023 in Norway.

Promoting Nordic Health Apps

The Nordic Health App Award is a new competition under the Life Science and Health Tech program that aims to discover and recognize health apps from the Nordic countries. The competition is also a tool to promote the development of new innovative solutions that can ease the pressure on the Nordic healthcare system caused by demographic changes and an increased number of chronic health issues.

An evaluation panel of five experts with Nordic expertise within healthcare, technology and innovation selected five finalists, and the winner was announced during the annual democracy festival in Norway, Arendalsuka.

Paindrainer® is a digital self-management device designed for individuals suffering from chronic pain. Through a mobile application, users can log their daily activities and pain levels, allowing the app's Artificial Neural Network to identify unique pain triggers. With 95 percent

correct predictions, the app offers personalized recommendations to enhance quality of life and alleviate pain.

"We have worked diligently to ensure that the development of Paindrainer maintains a high standard across key aspects such as data and privacy, technical security and stability, usability and accessibility, and, last but not least, professional and clinical assurance. Winning this leading-edge competition for groundbreaking digital solutions is a huge pat on the back for the whole company, and I am very proud of the team's effort," says Erik Frick, CEO of Paindrainer AB.

The app's core features:

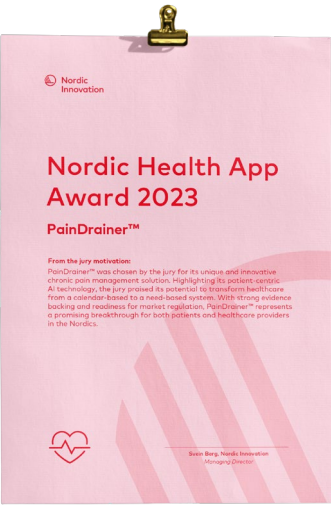
- **Patient-Centric Approach:** Through logging and AI-driven analysis, the app provides insights into changes patients can make in their daily lives, along with a pain management program comprising

articles, exercises, and tasks based on ACT (acceptance commitment therapy).

- **Healthcare Integration:** The app offers a remote monitoring device for clinics, empowering healthcare providers to observe patient progress.
- **Unbiased AI Technology:** The app's ANN is 100% patient-centric and free from external bias, enabling highly accurate and individualized care.

The companies Medanets, See-Wound, Ommej and Icura also made it to the final round and deserve an honorable mention.

All five finalists won free assessment against the Nordic Digital Health Evaluation Criteria (NordDEC) – a fast-track for evaluation and accreditation for digital health products in the Nordics.



Nordic Health App Award diploma 2023.

"The winner of the Nordic Health App Award 2023 showcases the huge potential we have within digital health in the Nordics. But to build a healthcare system that's sustainable and integrated by 2030, we must bridge the gap between innovation and implementation, between health-tech and health-care. NordDEC can be that bridge. A shared Nordic solution will not only create a bigger and more attractive home market for our winners, but it will also attract international health-tech pioneers," says Anders Tunold-Hanssen, CEO and Project Manager, Nordic Interoperability Project AS.



The hidden potential in unstructured health data

Nordic Innovation has set the vision that the Nordic region will be the most sustainable and integrated health region in the world by 2030. A key element of this vision is the sharing and utilization of health data across Nordic borders.

In 2023, Nordic Innovation started two new projects with the aim of identifying the innovation potential in data from Nordic patient records. The projects will demonstrate a concrete solution for utilizing unstructured data from patient records across the Nordic countries to solve healthcare challenges and develop an ethical AI solution that can read unstructured health data.

"Unstructured patient data are the written comments and free text in patient records," says Rasmus Malmberg. "We believe that the potential in the unstructured data is huge, and we look forward to getting a better understanding of the innovation potential in this type of data."



How can smart use of data revolutionize school children’s health and wellbeing? In Aarhus, a project is finding the first answers to this question.

Harnessing Data for Healthier Schools



What do 900 children, smartwatches and a Danish school reform have in common? They are all part of the solution in a project funded by Nordic Innovation in Denmark’s Syddjurs Municipality that aims to improve school children’s health by using data.

The catalyst for this change came from alarming statistics revealing high obesity rates among children in the Danish region of Jylland. “We wanted to find a way to address the issue of childhood obesity in our region without just sending more consultants to measure kids and do activities,” says Lasse Ziska, the project manager of the Healthy Cities project.

Inspired by Denmark’s school reform, which mandates at least 45 minutes of physical activity during a school day, Ziska embarked on a project to measure how much children actually move and if there are any patterns to their movement. The study involved anonymous tracking of the activity levels of approximately 450 school children

over ten days – in two periods with different children. The results were eye-opening.

“We could see the differences between different schools, demographics and genders. We could also see how much they moved during different classes, such as PE, languages and math, as well as during breaks,” explains Ziska. “The overall conclusion was that 86 percent of the participants got their 45 minutes of physical activity. But when we looked closer into the numbers, we could see that only 56 percent of children were active during lessons.

They also found that boys were more physically active than girls, though there were outliers on both sides of the scale: a small group of both genders were very active while another small group were very inactive.

Ziska emphasizes the importance of using data wisely. Firstly, all participants in the project were voluntary. Secondly, all data were anonymized

and used in compliance with the EU’s General Data Protection Regulation (GDPR). Finally, he highlights the importance of not misusing the findings to create stereotypes based on socioeconomic factors. “It should be a tool for sharing knowledge, best practices, and advice, and not to stigmatize or stereotype. What it should be is a tool for discussing what the schools with the most active kids do that the schools with the least active kids do not, and then learning from each other,” Ziska explains.

Ziska, who is now Head of the Tech Lab Department at ITK Aarhus, is a firm believer in preventing health issues by ensuring that children stay active, rather than merely treating problems once they arise. “Traditionally, healthcare funding has been heavily skewed towards treating illnesses rather than preventing them, the ratio being almost 9:1. We believe in challenging this approach. Nordic Innovation aims to shift this funding to a 50/50 share,” he says.

Aarhus is part of the Nordic countries’ smart city network, funded by Nordic Innovation. The network aims to foster innovation in the 20 largest cities in the region. Aarhus, as a leading smart city in Denmark, has been proactive in leveraging new technologies to benefit local communities in the Govtech Midtjylland collaboration.

Armed with the data from the study, Ziska believes schools are more likely to take deliberate steps to give children a more active school day. “If you don’t have data to prove the effects, there’s little chance that anyone will actually put money into new solutions,” he asserts.

Ziska believes the municipal sector will benefit from being more explorative. He sees his project as an example of what municipalities can achieve when they embrace innovation and collaboration. “The data collected from this project can help schools and municipalities collaborate to establish best practices that will benefit all children and the municipality as a whole,” said Ziska.

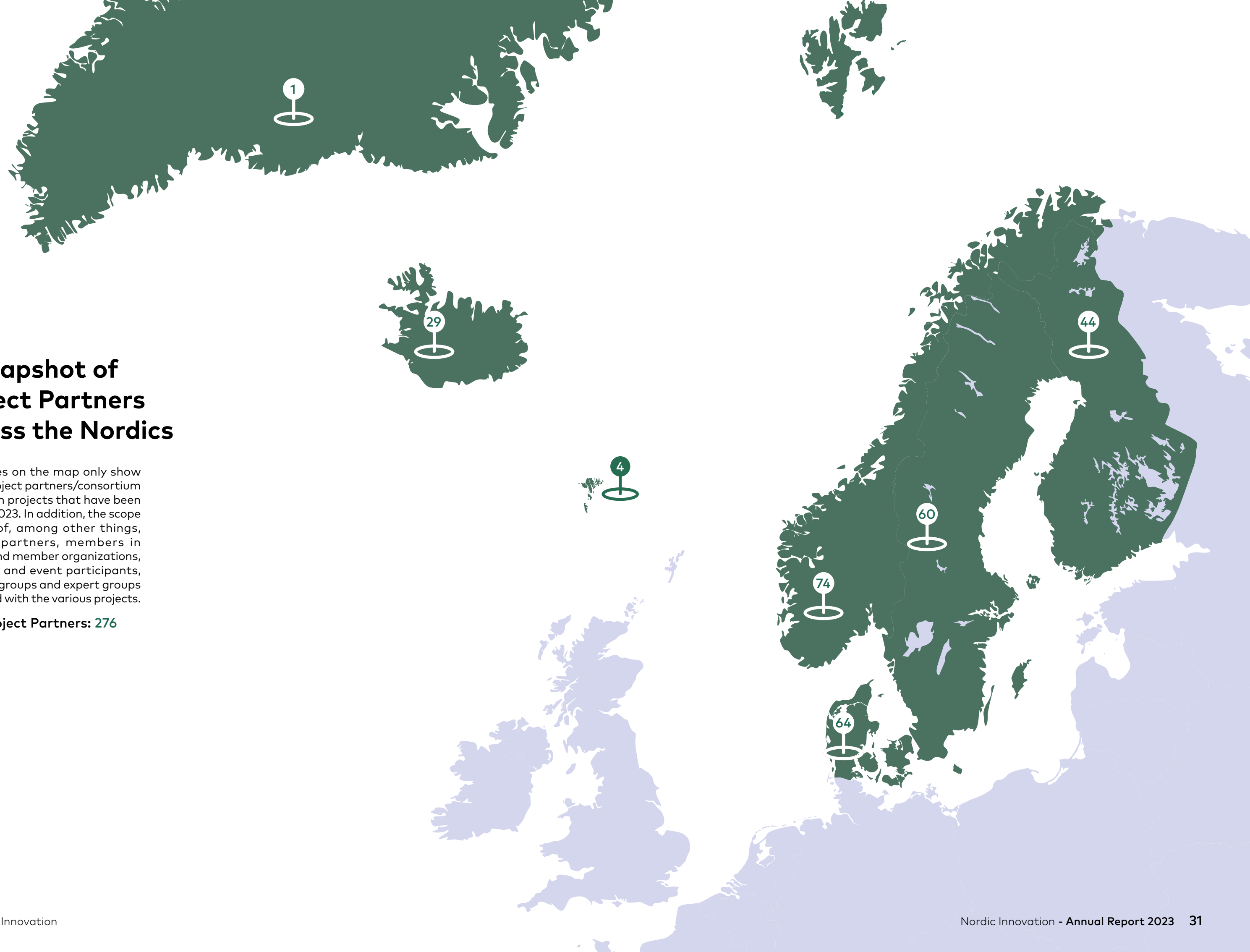
Looking ahead, Ziska hopes to delve deeper into the mental health aspect of physical activity. With increasing numbers of children struggling with feelings of exclusion and loneliness, he believes it is crucial to address these issues proactively to see if there is perhaps a connection between children’s physical and mental health.

One thing is certain, he firmly believes that collaboration, innovation and exploration lead to improvement, also in the local community. “If municipalities continue to innovate and be explorative, I think we can do great things and make a lot of progress.”

A Snapshot of Project Partners Across the Nordics

The figures on the map only show formal project partners/consortium partners in projects that have been active in 2023. In addition, the scope consists of, among other things, industry partners, members in clusters and member organizations, workshop and event participants, reference groups and expert groups associated with the various projects.

Total Project Partners: 276



Can Nordic collaboration redefine the carbon and resource-intensive construction industry? Helle Redder Mømsen is sure the answer is “yes”.

Building a Greener Future in the Nordics

At the heart of our urban landscapes lies an industry that silently contributes to a significant portion of global pollution – the construction sector. As one of the most resource-intensive industries, it holds immense potential for change.

As such, Helle Redder Mømsen, leader of the Secretariat for the Nordic Sustainable Construction, is on an important mission: to minimize the Nordic construction sector’s negative impacts on the climate and environment. This mission can be traced back to 2019, when the Nordic ministers for housing and construction united to support the Nordic vision to become the most sustainable and integrated region in the world.

“We saw that all the Nordic countries were about to create their own regulations and resolutions on how to transform the construction sector,” she explains. “The purpose of the collaboration was to ensure that the Nordic countries can support the vision through knowledge acceleration, collaboration and innovation.”

In close collaboration, the Nordic countries established five work packages: Nordic Harmonization of Life Cycle Assessment; Circular Business Models and Procurement; Sustainable Construction Materials and Architecture; Emission-free Construction Sites; Competences for Reuse in Construction and the Program Secretariat.

“Coming together through these five work packages, we saw a collective interest in accelerating our knowledge on how best to support the sector in a green transition and align our regulations as much as feasible across the Nordics,” she explains.

Throughout 2023, each of the work packages has had a high activity level; several reports have been published, key stakeholders from the sector participated at the annual Nordic Climate Forum for Construction, where key takeaways contributed to discussions at COP28. And these are just a few of the year’s highlights.

Redder Mømsen says that the work packages have helped to make the Nordic construction community much stronger. “Creating networks

where knowledge and inspiration are exchanged easily across borders has enormous innovation potential. For example, there are some wildly exciting opportunities in how we can sustainably use the buildings we have already built, while ensuring that it does not become too expensive to live well and healthily in them.”

According to Redder Mømsen, 2024 will, to a large extent, be about positioning the Nordics on the sustainability agenda across the EU.

“The knowledge and experiences the Nordics have developed, both together and with input from the EU, can be very useful in some of the European processes taking place in 2024. We hope that 2024 can be a year when the Nordic experience becomes useful at a European level,” she says.

Looking back at 2023, she has no doubt that the program has been effective. “I see that the funds received from Nordic Innovation and the Nordic Council of Ministers have given the Nordic countries a clearer and stronger direction.”



Anders Vestergaard, Harri Hakaste, Jóannes N. Dalsgaard, Anders Vestergaard and Helle Redder Mømsen, Danish Authority of Social Services and Housing



Helle Redder Mømsen, Danish Authority of Social Services and Housing

A Front Runner in Stavanger

Circular Business Models and Procurement is a collaborative project that aims to share knowledge across borders.

Several local construction projects across the Nordics have continuously shared their insights and experiences with respect to circularity – with the emphasis on reuse, innovation, energy efficiency, fossil-free construction sites, and Life Cycle Analysis.

The project manager from Stavanger, Zakarias Chibssa, representing Norway, has shared insights from two particular projects, one of which is Stavanger’s Poppeltunet development. “The kindergarten here is a plus-energy building and will be the first emissions-free construction site in Stavanger. It involves integrated energy production on the roof, in windows and an exterior noise abatement barrier,” Chibssa says.

The team also shared insights from the renovation of the City Hall building, Rådhusprosjektet. The project has succeeded in extensively reusing materials and interiors, despite Norway having strict regulations on material reuse.

“Guarantee issues arise when reusing certain building components. The regulations are stricter in Norway than in Denmark. Yet Norway still has come a little further in developing a greener construction sector than our Nordic neighbors, despite the obstacles,” he says.

Chibssa found the experience of exchanging knowledge with other countries rewarding. “We have definitely become wiser together and inspired each other. We are now developing a final report that will likely be released soon,” he said.



Nordic Battery Collaboration holding a panel discussion at the Future Battery Forum in Berlin.

In 2023, the Nordic Battery Thursdays platform featured a series of webinars on topics relevant for the battery industry. These webinars, combined with regional visits, events and seminars, organized by the Nordic Battery Collaboration, all helped to strengthen engagement in the Nordic battery sector.

Nordic Battery Thursdays webinars prove very popular

Two years ago, the mineral program established a partnership with the Nordic Battery Collaboration. This is a collaboration between Innovation Norway, Business Sweden and Business Finland. The Nordic Battery Collaboration has adopted the following ambitious vision: By 2026, the Nordic region has attained a leading position in Europe as a sustainable competitive and innovative battery ecosystem.

"When we started this project, the aim was to take a position, bring together what is happening in the Nordics, and support activities that continue over time," explains Jessica Olsson from Business Sweden.

"And after two years of work, we see that our joint endeavors are strengthening cooperation in the Nordics. We are also succeeding in showcasing the Nordic ecosystem, establishing a network and promoting investment," says Benedicte Fasmer Waaler from Innovation Norway.

The objective is to work towards the overall vision by strengthening collaboration between the Nordic battery ecosystems, securing a complete and sustainable value chain, as well as positioning the Nordic battery industry in key markets.

"All our activities in 2023 entailed a strong engagement with the Nordic

battery industry, and the team has developed in size, communication methods, tools and processes," says Håkan Lind, Senior Innovation Adviser at Nordic Innovation.

In collaboration with the Nordic battery team, the program has reached out to the wider Nordic business community. The regional visit to Arendal brought together 120 Nordic companies and organizations for the two-day conference, while the Nordic Battery Thursdays platform received 1,232 registrations from companies in 53 countries.

Significant actions in the Nordic Battery Collaboration in 2023 included establishing a presence in

international markets (Japan, US and Germany), starting up a Nordic talent attraction/retentionscheme, and launching a series of visits within the Nordic region itself (in Salo/Turku, Finland and Arendal, Norway). In addition to this, the Nordic Battery Thursdays platform expanded its operations, with the addition of further topics/webinars. This proved to be a popular move, with 1,232 companies from 53 countries registering to attend.



Kaj Lax, SGU, Kari Aslaksen Aasly, NGU and Håkan Lind, Nordic Innovation, visiting Løkken gruve.

Bringing Nordic actors in the metals and mining sector together to share knowledge and news, and establish useful networks.

Creating a Nordic raw materials forum

The Sustainable Minerals program aims to position the Nordics as frontrunners within global sustainable mineral production.

In 2023, Nordic Innovation entered a new collaboration with Svemin – the Swedish Association of Mines, Mineral and Metal Producers, the Norwegian Mineral Industry, and the Finnish Mining Association. The new project will establish an annual conference – the Nordic Forum on Raw Materials.

The project will also develop a series of seminars and a podcast to speed up knowledge sharing and keep the discussions alive.

The keywords are: knowledge, network, and news!

Could the Nordic region be positioned at the forefront of the bioindustrial design revolution?

Building materials from the ocean



Prototype chair and lamp made of compostable bioplastic.

The project started with a pre-call at the end of 2022, which led to a challenge call early in 2023. The challenge call sought to establish innovative solutions through cooperation across Nordic borders and value chains. Innovative solutions could, for example, be business models, products, methods, or other concrete initiatives that met the challenge. Proposals could include the testing of new solutions, although basic research was outside the scope of this challenge call.

Nordic Innovation wanted to speed up the transition to a more sustainable, innovative, and interconnected



ocean economy. The overarching objective of the challenge call was to promote sustainable growth, innovation and entrepreneurship, as well as the global competitiveness of the Nordic ocean biomass industry.

"The Kelpwood & Bioplastic project has the potential to fundamentally reshape the way we use supposedly overabundant marine biomass in the Nordics – all while pioneering an approach to design that combines sustainability with high-end form," says Emil Gejrot, Innovation Adviser, Nordic Innovation.

Sweden's leading design studio

The Ocean Biomass call resulted in a contract with Interesting Times Gang as the main partner for the Kelpwood and Bioplastic project. Interesting Times Gang is Sweden's leading design studio in the fields of circularity and biomaterials. They are an interdisciplinary studio of designers, material developers and creative technologists, who specialize in the creation and crafting of aesthetic, functional products and environments, produced from circular and regenerative materials.

"Partnering with one of Sweden's leading design studios to demonstrate the potential of ocean biomass as a viable alternative to traditional materials, and to help position the Nordic Region at the forefront of the bioindustrial design revolution," says Gejrot.

From lampshades to furniture

The project will make use of two ocean biomasses, Nordic Sugar Kelp (*Saccharina Latissima*) and Pacific Oysters (*Magallana Gigas*), which will be converted into two different materials for a number of beautiful products and interior design applications. These biomaterials will have the potential to become viable alternatives to plastics and particleboards.

"We hope to achieve the vision of a Nordic home designed, built and filled with objects made from biodegradable multipurpose materials," states Gejrot.

The biomaterials can be used in everything from non-load bearing interior walls, cabinet doors and shelves, to lampshades, kitchen organizers, cutlery drawers and more sustainable furniture.

"The Kelpwood & Bioplastic project has the potential to fundamentally reshape the way we use supposedly

overabundant marine biomass in the Nordics – all while pioneering an approach to design that combines sustainability with high-end form." Emil Gejrot, Innovation Adviser, Nordic Innovation

Bioplastic from Sugar Kelp and Oyster Shells

Kelp fibers and crushed Oyster shells will be compounded, separately and potentially even together, with polyhydroxyalkanoates (PHA) to develop a beautiful, compostable bioplastic. PHA is a biodegradable and compostable polyester produced naturally by microorganisms, such as bacteria, in response to nutrient imbalances.

The result is a versatile polymer that can be tailored to have different physical and chemical properties depending on the specific application. It can be processed into various forms, including films, fibers, filaments and injection-molded products, making it a suitable substitute for traditional petroleum-based plastics in a wide range of industries.

Kelpwood from Sugar Kelp and timber waste

Particle board, commonly known as chipboard or low-density fiberboard, is an

engineered wood product pressed and extruded from wood chips and synthetic resin or other binders. Particle board is less expensive, denser, and more uniform than traditional wood and plywood. Kelp contains a high volume of natural glues that have evolved over millions of years in order to help these hardy plants stick to rocks and bind them to uneven organic surfaces.

By combining kelp with waste streams such as sawdust from OBOS' factories, applying heat and hydraulic pressure, the kelp acts as an adhesive. The result is a stiff and rigid particle board material. These sheets are 100-percent bio-based, compostable and devoid of any chemicals. They could potentially be utilized as a construction material, for furniture and interior design products, and to create acoustic wall panels.

"With an abundance of renewable raw materials, this initiative aims to demonstrate the potential of ocean biomass as a viable alternative to traditional materials, and to help position the Nordic Region at the forefront of the bioindustrial design revolution," concludes Gejrot.

"This project has the potential to fundamentally reshape the way we use supposedly overabundant marine biomass."

- Emil Gejrot



Using seaweed in cattle feed can contribute to reducing greenhouse gas emissions.

From Seaweed to Cattle Feed

As a result of the Ocean Biomass call, Nordic Innovation signed a contract with Lava Seaweed as the main partner for the CircleFeed project. The project demonstrates proof-of-concept for an innovative seaweed-based feed mix that will reduce both the total carbon footprint of feed protein production and enteric methane emissions from dairy cattle.

The goal is to reduce the greenhouse gas emissions of the total supply chain related to dairy cattle by more than 30 percent.

Iceland has unique access to cold, lava-filtrated arctic seawater and to sustainable geothermal heat and energy. This is the inspiration behind the company Lava Seaweed, a joint venture between Icelandic investors and the Faroes-based Ocean Rainforest. They have long experience in the offshore cultivation of kelp species in the North Atlantic and recently also in the Northeast Pacific Ocean.



Ólavur Gregersen, Ocean Rainforest. Foto: Ocean Rainforest

“This is a great opportunity to use sustainable natural resources in Iceland to help solve some of the world’s major food production and environmental challenges by reducing the carbon footprint of dairy protein products”
- Sigurdur (Siggi) Petursson, CEO and co-founder of Lava Seaweed

Seaweed-based feed to be tested in dairy cows The CircleFeed project is co-funded by Nordic Innovation and is backed by a strong Nordic-based consortium, spanning the entire value chain, comprising cross-disciplinary research and industry partners.

One partner in the project is the Icelandic energy company HS Orka and its innovative resource park. CircleFeed will study the feasibility of using access to borehole seawater, geothermal heat and green energy for land-based farming of red seaweed species. This includes utilizing the organic waste streams

from the fish farming activities in the resource park as a nutrient source for seaweed farming.

Feed mixtures will be tested in dairy cows and artificial cow stomachs at Aarhus University in Denmark. Major Danish cattle feed producer DLG will offer user feedback to further inform product development and market strategies.

The whole supply chain will undergo a life cycle assessment performed by the Royal Institute of Technology (KTH) in Sweden, and Sjókovin in the Faroe Islands, to establish the techno-economic feasibility of a scaled production to supply the organic dairy cattle market in Europe and North America.

By means of unique natural resources for the farming of seaweed on land in Iceland, the Nordic CircleFeed project aims to reduce greenhouse gas emissions from dairy cattle production by more than 30 percent.

Research facilities evacuated due to volcanic activity

In October a pilot land farming research facility was completed in Grinavik. However, with the Grindavík volcano activity in November, they had to evacuate and find another location and to get additional permits in place. A new site has been rented by the harbor area in Reykjavík. Palmaria seaweed cultivation has, as from middle of December been started at the new location.

“The volcanic activity close to Grindavik has temporarily had effect on our Circle Feed project but we have managed to adapt in new location and our future aim is to setup again larger scale land farming in HS Orka Resource park close to Reykjanes.”, says Sigurdur (Siggi) Petursson, CEO and co-founder of Lava Seaweed.

The “multi-use at sea” concept is still in its early stages and has a significant need for innovation to be developed and become a reality.

A Sea of Possibilities

Benefits of sharing

Bringing together the right people is what we do. The Centre for the Ocean and the Arctic had a study showing that multi-use at sea can provide several benefits. Mainly increased area effectiveness at sea, and thus less conflicts among industry players, and more area available for other uses, including marine protection or fisheries.

For business operators, co-location can contribute to reduced costs and increased value creation through shared infrastructure, cooperation on services, monitoring, maintenance and emergency preparedness. If the multi-use park includes renewable energy production, it will be able to supply energy to other industries and activities. Close co-location also strengthens the possibility of a circular economy, and operating together can also strengthen cooperation between the actors, which in turn can trigger innovation.

Marine multi-use platforms are defined as when two or more marine business activities take place simultaneously in the same area or on the same physical platform. This may involve sharing the same services, such as operations, surveillance or maintenance, or sharing the same physical platform, such as a wind turbine on top of an aquaculture installation.

Proper planning and holistic thinking

In 2023, Nordic Innovation and The Centre for the Ocean and the Arctic organized a roundtable during the Arendalsuka event in Norway. The aim of the roundtable was to discuss what it takes to establish multi-use sea parks in the Nordics. How do we ensure that the project has a positive impact on nature and how do we ensure profitability?

There was general agreement that, with proper planning and holistic thinking, multi-use at sea can be cost effective and have a positive impact on the climate.

Three things stood out after the discussions:

1. Sharing existing data is crucial. There is a lack of data sharing systems and few incentives to do so.
2. New frameworks, regulations and business models must align with existing environment and climate agreements.
3. The establishment of multi-use at sea should benefit the local population.

A hackathon gets things going

Since multi-use at sea is mainly an idea, a hackathon was initiated.



Håkan Lind and Hack the Ocean participants visiting Matorka, Grindavík, Iceland.

The hackathon invited applicants to submit proposals for practical ways of co-locating marine activities, such as offshore wind, aquaculture, and carbon capture, with a particular focus on conceptual design, business models, and climate impact. The most relevant applicants were invited to a physical event, 'Hack the Ocean 2023', which was held in Reykjavík, Iceland, in October. A total of 13 carefully selected participants from the Nordic region came together and worked in teams and tasked with building models to address the challenge of “How might we design a viable and sustainable multi-use concept at sea that promotes co-existence in the Nordic ocean space.”

The hackathon was led by Iceland Ocean Cluster, with the support

of the Centre for the Ocean and the Arctic. Also contributing and sharing their experiences were HS Orka Resource Park from Iceland, Kalundborg Symbiosis, the Danish Ocean Cluster from Denmark, and the Icelandic energy innovation groups Eimur, Blámi, and Orkidea.

“After a busy year featuring everything from a hackathon to a large-scale funding call, we’re happy to see that more Nordic businesses are becoming aware of multi-use at sea and the tremendous promise the idea holds for sustainable growth in the Nordics.” - Emil Gejrot, Innovation Adviser, Nordic Innovation

New call and the path ahead

In the wake of the roundtable meeting and the hackathon, a call for proposals to encourage cross-sectoral

and co-located activities in Nordic seas was initiated. The call is named; 'Ocean Mission: Co-locate for Economy and Sustainability'.

Going forward, the main activities will be:

- Three new projects that, in various ways, will enable multiple uses in Nordic sea areas.
- A report describing the barriers that hinder companies interested in working with multi-use.
- A high-level conference on co-location in connection with the Swedish presidency of the NMR.

We hope that the project will lead to an increased commitment and understanding of the opportunities offered by multi-use at sea in the Nordic blue business world.

2023 events



Visit at Lava Seaweed, Iceland
Tour around the facilities at Lava Seaweed – our partner from the CircleFeed project.

Artic Circle, Iceland
Nordic Innovation participated in two sessions. One of them with our partner, Nordic Circular Hotspot.



Life Science and Health Tech at Folkemødet
Nordic Innovation organized a debate on the benefits of sharing health data across the Nordics.



Bifrost Summit, Silicon Valley
Advisors from the Green Mobility and AI and Data programs participated alongside Nordic partners.



Nordic Council Session, Stortinget
We showcased innovative solutions to Nordic parliamentarians, including a model of an electric airplane.



Arendalsuka
Nordic Innovation organized 10 events within health, mobility, circular economy, sustainable ocean economy, and diversity and inclusion.



World Circular Economy Forum, Finland
Advisor Peter Munch-Madsen with panelists from the event 'Challenge accepted: circular solutions to green energy's material demands'.



Nordic Circular Summit, Iceland
Co-host of the Nordic Circular Summit. Advisor, Thordur Reynisson took part in the session 'From Nature to Nature'.



Seminar: A Sea of Troubles, Norway
Organized together with the Nordic Youth Council as a part of the Nordic Council Session.



Future Insight, Norway
Managing Director Svein Berg talked about circular economy, mobility and entrepreneurship.



New Secretary General
Karen Ellemann visited the three institutions at Nordic Center in Oslo.



Vitalis, Sweden
Advisor Rasmus Malmberg participated, together with partners from Deloitte and Earnst and Young.



Slush, Finland
Advisors Ville Mäkinen and Olivia Rekman met with partners and stakeholders within AI and Data.



X-Nordic Travel Contest workshop, Denmark
Advisor Emil Gejrot together with partners from the X-Nordic Travel Contest.

The Year at a Glance



Project Partners

276

Reports

19



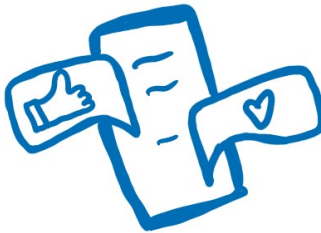
Events

42



Social Media Followers

+24.000



Newsletters

15

Subscribers

+4%

Average opening rate

45%



Events

World Circular Economy Forum

**+12.000,
155 countries**

Nordic Scaleup Summit

130



Nordic Circular Summit

**+2.600,
66 countries**

50 years anniversary celebration

+120



Nordic Circular Summit 2023



Kerectis, winner of Nordic Scaleup Awards 2023 together with Einride, Gelato and IQM that received special recognitions.

Nordic Scalpers Award 2023

At the Nordic Scalpers Summit, held in Stockholm on May 9, 2023, the Icelandic company Kerectis won the Nordic Scalpers Award, while Einride, Gelato and IQM received special recognitions.

According to G. Fertram Sigurjonsson, CEO and Founder of Kerectis, "The scaleup seminar and award are invaluable milestones for the Nordic startup community. Not only do they celebrate the remarkable achievements of companies like Kerectis, but they also motivate entrepreneurs across the region."

Soon after receiving the award last year, Kerectis, became Iceland's first Unicorn when it was acquired by the Denmark-based Coloplast.

"The award was a great recognition for us and empowered our team. I remember walking into the golden room at the Grand Hotel in Stockholm, it gave me a sense of impact and made me realise that we are not a small startup anymore, we are successful. It was a memorable moment," says Sigurjonsson.

The award was presented for the first time in 2022, when 44 companies were nominated. In 2023, however, the number of nominated companies had increased to over 140. -This illustrates the growing interest in scale-ups in general, and in highlighting and celebrating the top scale-up examples from the Nordic region. The companies Einride, Gelato and IQM each received special recognitions for green innovation, impact, and pioneering respectively.

"The award helps to increase awareness and knowledge of scale-ups in the Nordics, and the summit is an important networking platform for ecosystem stakeholders," says Managing Director Svein Berg Nordic Innovation. "With this prize, we want to celebrate founders and leaders of Nordic high-growth companies and show that a modern Nordic scale-up company today concentrates on more than growth."

The Nordic Scalpers Summit was once again organized in collaboration with the Swedish daily business newspaper Dagens Industri. The Nordic Scalpers Awards 2024 will be presented in Stockholm on May 29 this year.

One of the three Nordic scale-up programs established in 2021 has proved very successful. By the end of 2023, the Nordic Scalpers Scaleup Academy was preparing to launch the third round of its mentor program for Nordic scale-ups.

Nordic Scalpers Scaleup Academy

Why is it important to offer a Nordic program for scale-up companies?

"The challenges and opportunities of scaling up a company are the same regardless of which Nordic country you are based in. We all have relatively small domestic markets and need to internationalize early. The better the exchange of knowledge between Nordic countries, the greater the chances that we will produce more companies that scale up with the Nordic region as their base, thereby creating new job opportunities domestically," says Pelle Törnell from Nordic Scaleup Academy.

What kind of feedback have you received from the participating companies, and how has the program been beneficial?

"The feedback from the participating companies has been very positive. The program provides management teams with the structure, processes and new knowledge needed to take the companies to the next level. We see how the management teams become stronger and develop together to tackle bigger challenges.

"We see that the need for support is considerable, but reaching out to management teams with our training is a challenge," says Pelle Törnell.

Nordic Scalpers 2.0 was completed as planned in the summer of 2023. Some activities like Nordic Scalpers Scaleup Academy will continue 2024, partly under the auspices of Nordic Innovation, partly through the independent programs bearing the Nordic Scalpers name.

The main activities of the Nordic Scalpers 2.0 program have been the establishment of three Nordic programs under the Nordic Scalpers umbrella, alumni activities, establishment of ecosystems/community building, analyses, reports and events. The goal for Nordic Innovation is to provide support at the Nordic level to help scale-ups accelerate and manage their next stages of growth through access to competences, connections, customers and capital. It also aims to reinforce Nordic scale-up community building and brand the Nordics globally as a leading scale-up hub.

The Nordic Scalpers 2.0 programs do not receive funding from Nordic Innovation. National innovation organizations will be able to cover or co-finance participation fees for their own companies.

Accelerator partners Stine Lomholt and Marte Sotholtet stand ready to reshape the future of public healthcare.

Healthcare Reimagined



Stine Lomholt, Den Sociale Kapitalfond,

an collaboration between social impact startups and the public sector revolutionize healthcare provision in the Nordics? This is what Stine Lomholt at Den Sociale Kapitalfond and Marte Sotholtet at Impact StartUp Norway are trying to find out through the project and report titled Collaborate to Innovate, supported by Nordic Innovation.

"Nordic Innovation has truly been a preferred partner with our organizations. We feel their genuine interest and engagement in the project and its purpose," says Stine Lomholt.

The duo began their journey while working for their separate start-up programs, situated respectively in Norway and Denmark. They bonded over a shared frustration: the difficulty of fostering innovation in the public sector. They knew they were not alone. "We talked with other members of the umbrella association Impact Startup Nordic, which joined us in our partnership with Nordic Innovation," explains Lomholt.

Their mission was clear: They wanted to understand why it is so challenging to innovate within public sector healthcare and find ways to overcome these barriers. The result is a comprehensive report based on qualitative and quantitative research, including numerous interviews and workshops.

"We found that the biggest barriers were a lack of mutual understanding and shared knowledge between startups and the public sector," says Marte Sotholtet. "The public sector tries to avoid risk, while startups represent a risk. There is also a real time gap between the two. While the public sector tends to need more time, startups find themselves not having any time at all."

As one of the informants in their qualitative interviews put it: "I simply cannot finance the slow pace in the public sector. Why do I have to wait nine months, only to get rejected?"

Despite these challenges, however, both parties agree on the importance of innovation, though their viewpoints might differ. "Startups

see change as a chance to improve, while the public sector might see it as an unwelcome diversion," adds Lomholt.

To bridge this gap, the report suggests seven key areas of focus, including risk-reducing capital, knowledge sharing, leadership and culture, and continuous testing.

Sotholtet emphasizes the role of startups in reducing risk in the public sector: "Startups can contribute to risk reduction by providing products and services that are continuously tested and improved, rather than an all-encompassing solution whose implementation entails significant risk. This test mindset can actually be a risk-reducing factor."

She also emphasizes the difference in risk appetite when comparing public sector entities and startups. "There is an inherent risk when the public sector collaborates with startups. When the risk is mitigated, the potential for innovation is great."

Looking ahead, Lomholt and Sotholtet believe that the key to



Marte Sotholtet, Impact Startup Norway.



innovating public healthcare lies in collaboration and understanding each party's differences. By bringing together different perspectives and experiences, they hope to create a more sustainable and efficient healthcare sector for the future. They have a particular belief in startups' way of attacking problems.

As Sotholtet puts it, "Impact startups and social entrepreneurs are concerned with measuring their impact and understanding how they create real effects. In the public sector – especially when big public tenders are announced – the requirement specifications focus mostly on what technical requirements you should checkbox. I believe they should focus more on the specific needs that must be met. This is where I believe impact startups and social entrepreneurs can help public healthcare to create quality and save costs and time."

The survival of the Nordic welfare system depends on continuous innovation, striving towards a future where no one is left behind.

Inclusive Innovation

"Welfare innovation has not received the attention it deserves. In the Nordics, we have been very comfortable in our welfare systems for a long time, but we are facing major challenges. We cannot afford to simply rest on our laurels anymore. We need innovation," says Hege Louise Guttormsen, Innovation Advisor at Nordic Innovation.

Report points the way Guttormsen works within Diversity and Inclusion, one of Nordic Innovation's special initiatives, which aims at ensuring that the green transition is equal and just. She explains that, among several projects, the Collaborate to Innovate report is a contribution to a more inclusive Nordic region.

"A sustainable and inclusive Nordic welfare system hinges on bridging the gap between innovation and implementation. Only then can we sustainably provide access to essential services for all. The report identifies and discusses the gaps between providers and recipients of welfare innovations, serving as a compass for the necessary steps forward," she states.

Task force for diversity With the objective of fostering a more diverse and gender-equal entrepreneurship landscape, the Nordic Task Force for Diversity is another crucial part of the initiative's work towards a more inclusive future, according to Guttormsen. In 2023 it arranged a panel discussion in Silicon Valley on how to ensure more funding finds its way to women and other under-represented start-up teams.

One of the members of the task force is Maija Kāle, Innovation & Sustainability Advisor at the Nordic Council of Ministers' Office in Latvia. She argues that the task force is an important platform for inspiration, mutual trust and open, sometimes surprising, conversations.

"A willingness and ability to talk openly and respectfully are important trust-based, shared Nordic values that empower our work for a more diverse, inclusive and innovative Nordic and Baltic region," says Kāle.

What is innovation? An example from the X-Nordic Travel Contest.

An Innovation Process

Project mission: To create a more sustainable and competitive Nordic tourism industry.

Phase 1.
The aim is to discover challenges faced by the Nordic tourism industry.

Tool: Workshops in 6 Nordic countries with experts from the Tourism industry



Phase 3.
The solutions are tested through:

Tool 1: Matchmaking between existing solutions, start-ups, problem owners and other key actors

Tool 2: Testbeds



Phase 2.
Now we search for solutions to the challenges discovered under phase 1. Consists of 3 steps:

- Step 1.**
A mix of innovation tools is used to find solutions

Tool 1:
Hackathons

Tool 2:
Open Call for Solutions
- Tool 3:**
Mapping of Nordic startups with potential solutions

Tool 4:
Survey targeting startups to bring in their ideas for solutions
- Step 2.**
Design sprints: the project assists companies to develop their solutions further

Step 3.
3-6 solutions are selected for the testing phase



Phase 4.
Finally, the solutions are accelerated through:

- Tool 1:**
Individual accelerator programs
- Tool 2:**
Promotion activities such as events and campaigns across the Nordics
- Tool 3:**
Matchmaking with Nordic tourism actors



The X-Nordic Travel Contest is pushing the boundaries for tourism innovation.

Innovation in Practice

The aim of the X-Nordic Travel Contest is to identify opportunities for strengthening sustainability and competitiveness in the Nordic tourism industry. The project comprises four phases: from identifying challenges to accelerating potential solutions.

Already in the first phase, the project has proved that innovation is an unpredictable process.

“When we started this project in October 2022, we had no idea that AI would play a key role in the hackathons,” says Signe Jungersted, Program Director of the X-Nordic Travel Contest.

“In 2022, we were all discussing the meaning and potential of the metaverse for travel. I don't think anyone had foreseen that we would be in Iceland running a hackathon on AI in tourism only 12 months later. I didn't see that coming. But that's where an agile innovation process can really show its value – adapting to new ideas and topics as the process unfolds,” she continues.

Tinder-inspired calls The main idea behind the innovation process is to start within the tourism industry when identifying challenges and then open up and invite other industries into the solution phase.

“We wanted to investigate the challenges facing the Nordic tourism industry, and then explore if some of the solutions exist within the industry but perhaps also within other industries. So, we have ended up with a mix of activities – from hackathons

to open calls. In the coming phases we will then zoom in on the solutions. Are they suitable, scalable, adaptable?” says Signe Jungersted.

Inviting solutions from students and companies that are not necessarily dealing with the challenges on an everyday basis has brought new perspectives into the process and pushed the project in new directions. The project has also worked creatively to reach an audience outside the immediate tourism community.

“Right now, we are running a Tinder-inspired Call for Solutions, framing the different challenges and asking startups and companies ‘if they are a match?’. We hope this will also catch the attention of some companies that perhaps wouldn't otherwise see themselves as solution providers to the tourism industry. We try to push the boundaries of the tourism industry, and who considers themselves a part of the industry.”

X-Nordic Travel Contest is funded under the Tourism in the Nordics special initiative. The project activities started in 2023 and will continue in 2024.



Nordic Innovation House in Silicon Valley invited Nordic companies to explore new opportunities in the US.

Nordic opportunities in Silicon Valley

Nordic Innovation House in Silicon Valley organized Bifrost Summit on March 6–9, 2023. The aim was to help Nordic entrepreneurs gain insights and network in Silicon Valley. The event included a high-level conference day, focused side events and benchmarking workshops.

As part of the summit, Nordic Innovation House developed a fast-track package for Nordic companies, including a preparation program, one-on-one meetings and company promotion. Six Nordic companies within mobility and AI were selected for the fast-track package.

“Bifrost has been a game-changer for Spense, providing us with a significant boost in both the short

and long term. The connections made with potential customers, partners and investors were invaluable,” says Jonas Lisgård, founder and CEO at Spense.

Nordic growth in global hotspots
From Silicon Valley to Singapore, the aim of the Nordic Innovation Houses is to provide Nordic companies with expertise and networks to help them go global. The Nordic Innovation Houses are run by the Nordic Trade Promotion Organizations (Vinnova in Silicon Valley) and co-funded by Nordic Innovation.

There are currently four Innovation Houses located in Silicon Valley, Hong Kong, Singapore and Tokyo.



Anna-Maija Sunnanmark at Bifrost Summit 2023.



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