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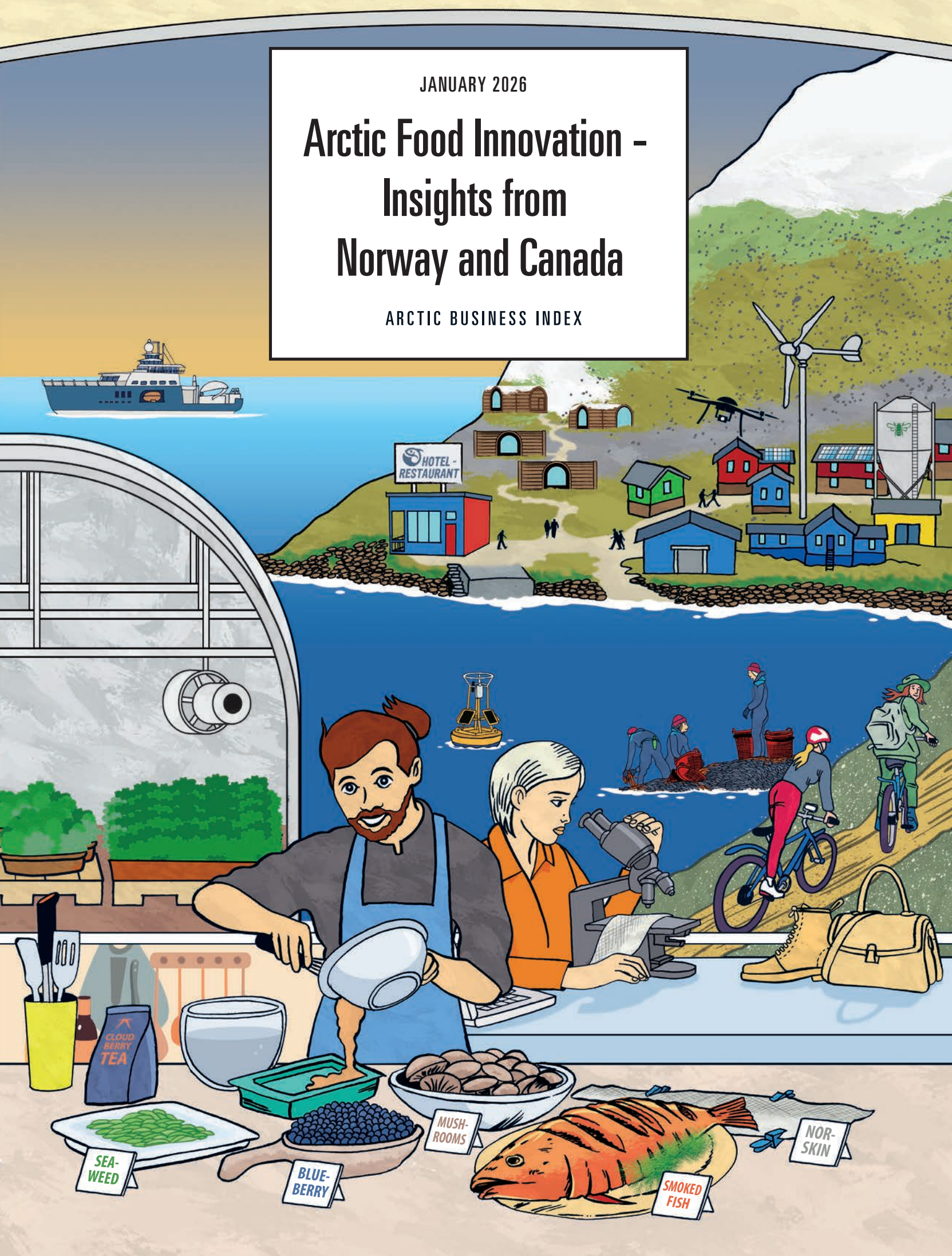
Arctic Food Innovation – Insights from Norway and Canada

ARCTIC BUSINESS INDEX



Arctic Food Innovation: Insights from Norway and Canada

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Front cover illustration and layout

Visionary for Arctic Food Innovation

Disclaimer

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Executive Summary

Norwegian and Canadian Arctic regions have traditionally focused on harvesting and exporting raw food resources, particularly fish and seafood, with most value-added processing, product development, and market positioning taking place outside the Arctic. This resource-based model has provided employment and export revenues, but it has also contributed to the fragmentation of local value chains, which has limited opportunities for innovation, and has weakened linkages between food production, research, and regional development.

However, there is a gradual but notable shift toward local food innovation and value creation in parts of the Arctic. These efforts range from developing value-added processing of marine resources and promoting the circular use of by-products to advancing greenhouse agriculture, aquaponics, food-based health products, and place-based branding such as "Arctic" or "Northern" food.

These initiatives demonstrate the potential for a knowledge-based, sustainable food economy that strengthens local food security, supports Indigenous and community-led initiatives, and retains more value in Arctic regions. This feasibility study contributes to the ongoing transition away from an export-oriented system, exploring recent trends and innovations in this direction as well as potential barriers to a wider uptake.

This project, supported by the governments of Norway and Canada, starts the second phase in developing a pan-Arctic Foods Innovation Cluster (AFIC). The first phase of the AFIC project was implemented under the auspices of the Arctic Council's Sustainable Development Working Group in 2020-2025[1] . The Arctic Foods Innovation Cluster (AFIC) set out to pull together key stakeholders in the Arctic foods value chain for a cluster-based approach to food production and regional economic development.

The study mapped **81 companies** and **30 clusters** active in food sectors in the Arctic areas of Canada and Norway. These actors span aquaculture, fisheries, agriculture, processing, blue biotechnology, tourism gastronomy, and Indigenous food systems. While Arctic food industries are extensive, innovation remains fragmented, and collaboration across borders is limited. A cluster-based approach, connecting existing pan-Arctic organizations, has strong potential to accelerate industry development. Overall, this project was a strategic response to the numerous and complex challenges in achieving sustainable food systems in the Arctic.

Key Findings

The Arctic regions of Norway and Canada exhibit distinct but complementary food innovation landscapes. Canada is characterised by strong community-driven and Indigenous-led initiatives, as well as innovation in cold-climate agriculture, while Norway exhibits advanced cluster structures in aquaculture, blue biotechnology, and marine value chains. These strengths are complementary, creating natural opportunities for knowledge exchange.

Across both countries, companies and clusters highlighted similar structural challenges, directly affecting innovation capacity and economic resilience:

- Limited local processing and infrastructure
- High logistics costs and supply-chain fragility
- Complex regulations for novel foods and Indigenous harvesting
- Gaps in Arctic branding and market access
- Workforce shortages and limited training pathways

[1] https://arctic-council.org/projects/arctic-food-innovation-cluster/

There is clear interest in the idea of an Arctic Food Innovation Cluster (AFIC) across the Arctic. Over 80% of survey respondents expressed interest in future AFIC activities such as networking, R&D partnerships, knowledge sharing, and pilot projects. Stakeholders emphasized that AFIC must connect existing clusters, not duplicate them. Stakeholders identified several priority areas where AFIC can add immediate value:

- Pan-Arctic networking and matchmaking
- Support for applied R&D, product testing, and pilot projects
- Coordination on policy and regulatory issues
- Knowledge sharing on sustainability and circular practices
- Strengthened Arctic food branding and export visibility
- Inclusion of Indigenous knowledge systems and community-led innovation

The need for a coordinated Arctic food innovation platform is clear: challenges are shared, opportunities are complementary, and stakeholders are ready to collaborate. By leveraging existing strengths and fostering cross-border innovation, AFIC can play a central role in building resilient food systems, strengthening local economies, and elevating the global identity of Arctic food.

ArktiskMat 2024. Photo: Kathrine Sørgård

ARCTIC BUSINESS INDEX

CONTENTS

Introduction

Across the Arctic, food systems face persistent and interconnected challenges that limit both economic development and regional food security. Despite growth in commercial food production, the sector continues to be characterised by fragmented supply chains, insufficient infrastructure, limited access to skilled labour, and relatively low levels of product development and market innovation. As a result, much of the value creation remains concentrated outside the Arctic, with regional economies continuing to rely heavily on the export of raw food resources.

At the same time, new technologies, changing consumer behaviours, and growing interest in biobased and place-based food products are creating new momentum for a more innovative and resilient Arctic food economy. Across Norway and Canada, a range of companies, clusters, and community actors are beginning to demonstrate how value-added processing, new production methods, and culturally grounded food initiatives can strengthen local food security and contribute to knowledge-based regional development. The Arctic Foods Innovation Cluster (AFIC) initiative was actualized as a strategic response to strengthen food production and innovation while aligning regional development with Indigenous, cultural, and community priorities across the circumpolar North.

Through a comparative approach involving Arctic regions of Canada and Norway, this feasibility study maps existing clusters and companies, gathers insights from food producers and intermediaries, and explores how AFIC can support sustainable growth across traditional, artisanal, and industrial food sectors. The study does not propose a single Arctic-wide model or an implementation plan; rather, it provides an evidence-based foundation for operationalizing AFIC as a long-term platform for collaboration, innovation, and regional value creation.

What We Mean by Arctic Food Innovation

In this report, food innovation is understood in a broad and inclusive manner that reflects the diversity of Arctic contexts, cultures, and industries. Food innovation in the Arctic is not limited to technological solutions or commercial product development but also includes community-driven, culturally grounded, and resource-efficient approaches to producing, processing, and distributing food. Specifically, food innovation in this study includes[2]:

- New methods of food production, preservation, or distribution adapted to Arctic conditions, such as hydroponics, aquaponics, controlled-environment agriculture, and locally operated cold-chain solutions.
- Food-based innovations that promote sustainability and circularity, including the development of biomaterials, nutraceuticals, and the use of marine or terrestrial byproducts to create new value chains.
- Distinctive branding and storytelling approaches, where Arctic ingredients, landscapes, or cultural traditions form the basis for unique product identities and market positioning.
- Innovative organizational forms, such as communityowned enterprises, Indigenous-led value chains, cooperatives, and social enterprises that prioritize local livelihood creation, food sovereignty, and social value creation.

This broad definition ensures that the study captures both commercial and non-commercial forms of innovation, as well as traditional and experimental knowledge practices that contribute to resilience and adaptability in Arctic food systems.

Approach and Method

To better understand the current landscape of Arctic food innovation and assess the feasibility of AFIC cooperation, this study employed a mixed-method approach. Data collection and analysis were carried out in 2025 and covered the Arctic regions of Norway and Canada. The methods included:

- **Targeted surveys** distributed to food companies and to clusters, networks, and supporting organizations in both countries. In total, responses were received from 15 companies and 11 cluster or network organizations.
- **Semi-structured interviews** with selected industry actors and cluster managers to deepen qualitative insights, validate survey findings, and explore region-specific priorities and constraints. Results of the five interviews are presented and analysed in the report.
- **Mapping and classification of innovation** actors across Arctic regions of Norway and Canada, identifying in total 81 companies and 30 clusters or network organizations.
- **Consideration of previous AFIC results and relevant Arctic Council documents**, ensuring that new findings are interpreted in connection with long-term objectives and existing commitments.

[2] Engel, J. and Itxaso del-Palacio, 2009. Global networks of clusters of innovation: Accelerating the innovation process, Business Horizons, Volume 52(5):493-503

Figure 1.1 Arctic Canada and Northern Norway, the geographic areas included in the report

Of the 81 identified companies, 58 are in Norway and 23 in Canada. In the Canadian Arctic, companies are distributed across the three northern territories: Nunavut (12), Yukon (8), Northwest Territories (4). In Norway, actors are concentrated in Northern Norway including counties: Nordland (22), Troms (22), Finnmark (8). When it comes to food clusters, 11 were identified in the Canadian Arctic and 19 in Northern Norway. The map below highlights the Canadian Arctic and Northern Norway, broadly indicating where the studied clusters and companies are located. The inclusion of other Arctic regions (shown in lighter color on the map) and their respective countries in the studies of food innovations is planned for the next phases of our work.

AFIC as a Framework and Structure of the Report

The Arctic Foods Innovation Cluster (AFIC) forms the conceptual and strategic foundation of this study. As an initiative developed under the Arctic Council – Sustainable Development Working Group (2020–2025), AFIC aims to strengthen collaboration among Arctic food producers, Indigenous organizations, research institutions, and regional development bodies. This feasibility study represents a transition from concept development toward practical exploration of how AFIC could function in different Arctic contexts.

This report is structured to guide the reader from the broader rationale for Arctic food innovation toward concrete findings. It is organized into the following sections. Section 2 presents a landscape analysis of Arctic food innovation, focusing on clusters and companies in Norway and Canada. Section 3 presents insights from the cluster surveys. Section 4 presents insights from the company surveys and five illustrative business cases to highlight different innovation pathways and challenges within Arctic food systems. The final section synthesizes the findings and presents a Call to Action addressing future pathways for Arctic food innovation and the potential role of AFIC.

The Landscape of Arctic Food Innovation

This section describes the current landscape of Arctic food innovation by presenting an overview of relevant clusters and companies operating across northern parts of Norway and Canada. The aim is to elucidate the organizational structures, thematic focus areas, and collaborative environments that shape food innovation in Arctic regions today. By mapping both established cluster organizations and more informal regional networks, the chapter provides context for the subsequent analysis of capacities, challenges, and opportunities for further collaboration through an Arctic Foods Innovation Cluster (AFIC).

In this study, we identified **30 Arctic food innovation clusters** operating across Norway and Canada, reflecting both formal cluster organizations and recognized regional networks active in food-related innovation. This mapping builds on earlier work under the Arctic as a Food Producing Region project[3] and contributes an updated baseline of the current ecosystem. A complete list of identified clusters including location and thematic classification is provided in the Annex.

Mapping Arctic Food Innovation Clusters

Food innovation clusters are regional organisation that seek to connect producers, processors, researchers, entrepreneurs, public agencies, and community actors with the aim of accelerating innovation across the food system. Rather than operating as single institutions, clusters operate as collaborative ecosystems where shared infrastructure, collective learning, and cross-sector partnerships enable the development of new products, technologies, and sustainable practices.

Innovation Clusters can be understood as interconnected firms and institutions working within a common industry or thematic area. They involve the creation of dynamic and collaborative relationships around shared goals, innovative ideas, knowledge exchange, and both public and private investment. Through these interactions, clusters foster environments that promote synergy, experimentation, and innovation beyond the capacity of individual actors [4].

In the Arctic regions, clusters can play an especially important role in addressing structural and geographic challenges. Long distances, small and dispersed populations, limited infrastructure, and demanding climatic conditions can restrict access to markets, technology, and specialized knowledge. Cluster organisations help mitigate these constraints by enabling local enterprises and organizations to pool resources, share risks, and connect to wider innovation systems. Beyond economic and technological functions, clusters also contribute to social and cultural resilience by creating stable arenas for collaboration, trust-building, and knowledge exchange among local actors.

Norway–Canada Comparative Landscape

Across the circumpolar North, Norway and Canada have developed Arctic food innovation clusters in different but complementary ways. In Norway, 19 clusters were identified, many of which are closely linked to strong research institutions, technology providers, and industry partnerships, particularly within seafood, aquaculture, and marine biotechnology. These clusters tend to emphasize technological innovation, commercialization, and export-oriented value chains.

[3] Clark, L. F., Mineev, A., & Natcher, D. (2025). Fostering innovation in Arctic food industries. Canadian Food Studies / La Revue canadienne des études sur l'alimentation, 12(2), 122–132. https://doi.org/10.15353/cfs-rcea.v12i2.725

[4] Engel, J. and Itxaso del-Palacio, 2009. Global networks of clusters of innovation: Accelerating the innovation process, Business Horizons, Volume 52(5):493-503

Working in a hydroponic farm, Canada. Photo: Growcer media kit

In Canada, **11 clusters** and networks were identified, with a stronger emphasis on community-led food systems, food security, Indigenous food sovereignty, and policy advocacy. While some Canadian clusters also engage in commercial innovation, their activities more frequently focus on strengthening local and regional food systems, addressing access and affordability, and supporting culturally grounded food practices.

Figure 2.1 shows the distribution of thematic focus areas across clusters in Norway and Canada. The comparison highlights a clear pattern: Norwegian clusters are more strongly oriented toward technological development and industry-driven innovation, while Canadian clusters place greater emphasis on food security, Indigenous and traditional food systems, and community resilience. These differences reflect broader institutional, geographic, and policy contexts, but also suggest opportunities for learning and complementarity across Arctic regions.

The thematic areas represented by the clusters are further detailed in Table 2.1 below.

Food Innovation Cluster Profiles for **ARCTIC CANADA** and **NORTHERN NORWAY**

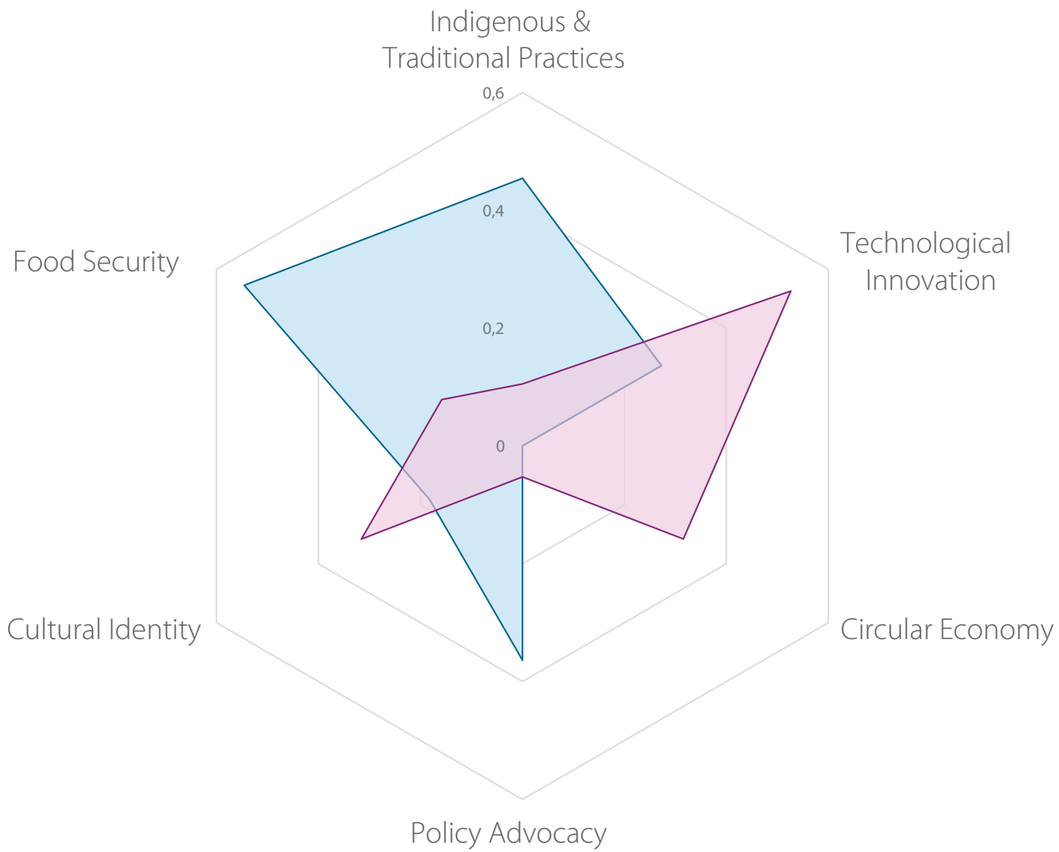


Figure 2.1 Cluster Profiles in Northern Norway and Arctic Canada

Table 2.1. Thematic Areas of the Clusters

Circular Economy	focuses on reducing waste and maximizing resource reuse through sustainable, regenerative, and closed-loop production systems
Technological Innovation	applies new technologies or scientific methods to improve production efficiency, monitoring, and sustainability in food systems
Food Security	aims to ensure consistent access to safe, nutritious, and culturally appropriate food within Arctic and northern communities
Policy Advocacy	engages in influencing policies, governance, and regulations to support sustainable food systems and equitable resource management
Cultural Identity	promotes regional food heritage, culinary traditions, and local identity as part of community and economic resilience
Indigenous & Traditional Practices	integrates Indigenous knowledge, traditional harvesting, and land-based practices into contemporary approaches to food innovation and governance

Taken together, these thematic areas illustrate that Arctic food innovation extends well beyond technological development alone. Cluster profiles often combine economic, social, cultural, and environmental objectives, underscoring the multifaceted nature of food systems in Arctic contexts.

Food Innovation Companies

In addition to clusters, the study identified 81 companies actively contributing to Arctic food innovation across northern parts of Norway and Canada. These companies include primary producers, food processors, technology developers, research bodies, and community-led organizations. Together, they form the industrial backbone of Arctic food innovation, shaping emerging value chains, contributing to regional economies, and supporting community resilience.

The geographic and sectoral distribution of companies reflects well-established national strengths and regional priorities. In Norway, companies are predominantly connected to the marine economy, with a strong focus on aquaculture, seafood production, and biotechnology. This aligns with Norway's long-standing leadership in marine resource management, industrial aquaculture, and research-intensive food systems.

In Canada, a larger share of companies is linked to land-based resources and community-oriented innovation. Many operate at smaller scales and are closely connected to food security initiatives, traditional harvesting systems, and local or Indigenous-led food enterprises. This pattern reflects the importance of community food systems and local production in northern Canadian regions, where access, affordability, and cultural relevance of food are central concerns.

Figures 2.2 and 2.3 show how companies are distributed across the key sectors in Norway and Canada. Further definitions of the sectors are described in the following table.

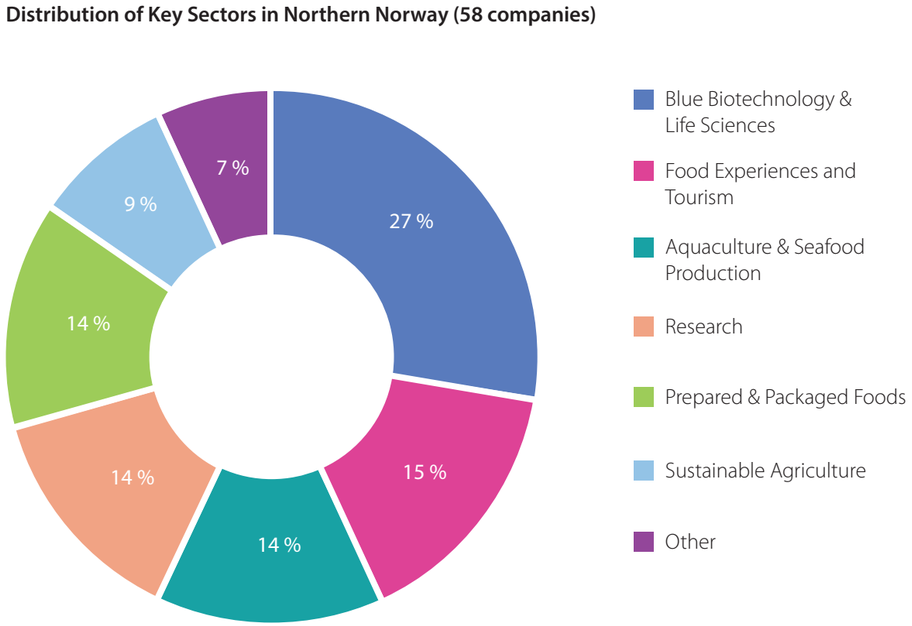


Figure 2.2 Key Sectors of Food Innovation Companies in Northern Norway

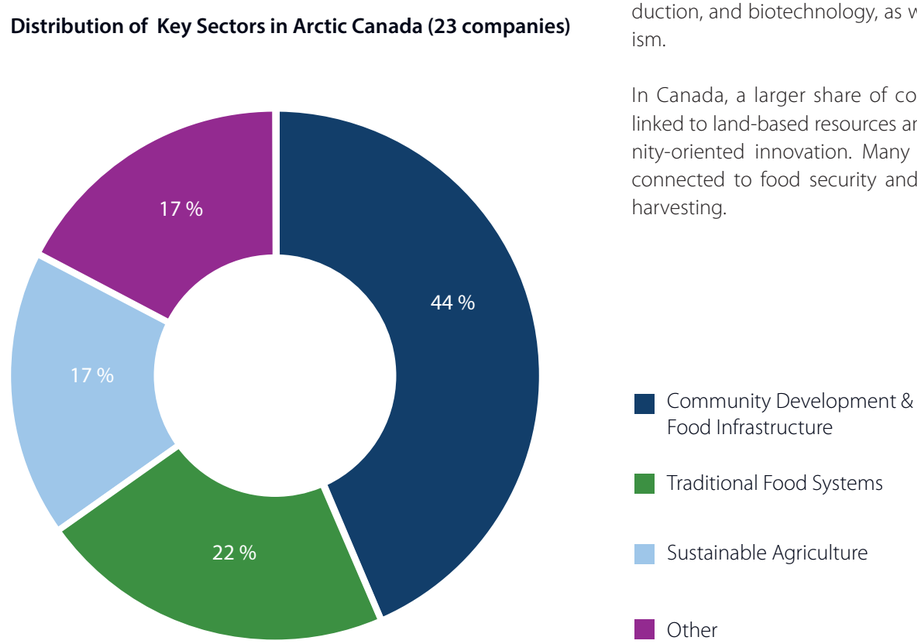


Figure 2.3 Key Sectors of Food Innovation Companies in Arctic Canada

In Norway, companies are predominantly connected to the marine economy, with a strong focus on aquaculture, seafood production, and biotechnology, as well as tourism.

In Canada, a larger share of companies is linked to land-based resources and community-oriented innovation. Many are closely connected to food security and traditional harvesting.

The Arctic Young Chef winner Runar Helgeland from Norway. Photo: Gutti Winther

Table 2.2 Key Sector Definitions

Aquaculture & Seafood Production	Cultivation, harvesting, and processing of fish, shellfish, and marine species
Blue Biotechnology & Life Sciences	Use of marine and Arctic biological resources for health, nutrition, and industrial applications
Sustainable Agriculture	Land-based food production using ecological, regenerative, or circular methods
Food Experience and Tourism	Gastronomy, hospitality, and tourism offerings built around Arctic ingredients and culinary identity
Traditional Food Systems	Foodways rooted in Indigenous knowledge, local sovereignty, and cultural practices
Community Development & Food Infrastructure	Organizations developing logistics, governance, capacity-building, and infrastructure for northern food systems
Research	Institutions and technologies that support, connect, or enable Arctic food innovation
Prepared & Packaged Foods	Production of ready-to-eat, preserved, or retail food products

Both countries display comparable levels of activity in sustainable agriculture and prepared or packaged foods, suggesting shared and emerging opportunities across Arctic value chains. At the same time, Norway shows limited representation in community development and traditional food systems, while Canada has lower representation in research-intensive sectors such as aquaculture technology, blue biotechnology, food experiences and tourism, and larger-scale prepared food production.

These differences underscore both structural constraints and potential areas for complementary development through collaboration and knowledge exchange.

Norskin materials, testing out a much larger type of salmon skin. Photo: Norskin

Winner dish made of lambneck and lambhearts (Arctic Young Chef 2024). Photo: Karl Pettersson

Insights from the Clusters Survey

Cluster Characteristics

The survey results show that most responding Arctic food innovation clusters were established around a decade ago, indicating that formalized cluster structures have matured significantly since the early 2010s. This timing aligns with increased policy attention to sustainable food systems, regional development, and innovation in northern regions.

Cluster size varies considerably, ranging from approximately 20 members to large, well-established clusters with more than 110 participating organizations. This variation suggests that Arctic food innovation ecosystems range from tight, specialized networks to broad, multi-sector clusters with extensive regional reach.

For example, LofotenMat SA (Norway), with more than 110 members across agriculture, seafood, food processing, and tourism, exemplifies a broad regional cluster that integrates food production with culinary experiences and destination branding. The Yukon Agricultural Association (Canada), with around 20 active members, represents a smaller but tightly connected network spanning agriculture, aquaculture, food processing, research, and education highlighting how Arctic innovation ecosystems may prioritize resilience and cross-sector collaboration over scale.

When asked to identify the activity areas represented within their clusters, most respondents described multi-sectoral rather than single focus. The following areas are present in nearly all responding clusters:

· Aquaculture and seafood
· Food processing
· Research & Development
· Education and training

Frequently represented (over half):

· Agriculture and land-based food systems
· Tourism and food-experience sectors

More selectively represented sectors (present in roughly half or fewer):

· Health and nutraceuticals
· Biotech-related food development

Overall, this composition demonstrates that Arctic food innovation is not confined to primary production. Instead, it spans the full value chain, from research and raw material extraction to processing, gastronomy, tourism, and emerging high-value niches such as functional foods and biotechnology.

What Makes the Regions Unique in Arctic Food Innovation

A central survey question asked respondents to describe what makes their region distinctive in the context of Arctic food innovation. Across responses from both Norway and Canada, six recurring themes emerged.

Table 3.1. Recurring themes among the Norwegian and Canadian Arctic clusters

Theme	Description	Examples
Marine Resource	Cold-water fisheries and full utilization	Cod, crab, salmon, by-products
Cultural Heritage	Indigenous and regional food traditions	Stockfish, fermented foods, berries
Sustainability	Circular and regenerative practices	Waste reduction, seasonal systems
Collaboration	Cross-sector innovation networks	Food–tourism–research linkages
Research Capacity	Biotech and life science strengths	Marine bioprospecting, nutraceuticals
Harsh Conditions	Climate-driven adaptation	Season extension, food security

Taken together, the themes highlight that what makes Arctic regions distinctive in food innovation is not a single resource, technology, or sector, but rather the way natural conditions, cultural heritage, and practical necessity interact. Across regions, innovation emerges from working with constraints rather than against them whether fragile ecosystems, harsh climates, remoteness, or limited infrastructure. Marine and terrestrial resources are approached with a strong ethic of full utilization, reinforcing circular practices that are both environmentally and economically grounded.

At the same time, deep-rooted food traditions and Indigenous knowledge systems provide continuity, legitimacy, and identity, shaping how innovation is understood and applied. Sustainability is not treated as an external requirement, but as an embedded principle tied to survival, stewardship, and long-term resilience.

Collaboration across sectors further amplifies these strengths, enabling regions to combine traditional practices with scientific research and new technologies. In this sense, Arctic food innovation is less about increasing production volumes and more about adaptive, place-based development that balances continuity with gradual transformation.

Opportunities for Collaboration Across the Arctic and Internationally

Survey respondents expressed a strong interest in expanded collaboration both within the Arctic region and globally. Many highlighted the potential for cross-border knowledge exchange, shared learning on climate adaptation, and cooperative projects aimed at strengthening regional food security. Practical opportunities include joint efforts in vertical export development, distribution networks, and improving market access for Arctic products. Several respondents emphasized that challenges such as cold climates, remote logistics, and seasonal production are shared across the Arctic, making collaboration both natural and strategic.

Beyond regional cooperation, respondents also pointed to significant opportunities internationally. These include shared branding around Arctic food, collaborations with global culinary and food-tech partners, and partnerships in sustainability and circular economy initiatives. Respondents from the blue bioeconomy, for example Biotech North (Norway), stressed the importance of aligning regionally, nationally, and internationally to build competitiveness in life sciences, bioeconomy, and marine biotechnology.

Many respondents also expressed a desire for joint R&D initiatives, coordinated infrastructure development (e.g., processing facilities and logistics hubs), and storytelling collaborations that elevate Arctic cuisine, Indigenous foodways, and northern sustainability values.

Types of Support Provided to Members

Across the survey, clusters reported offering a broad and comprehensive range of support services, demonstrating that Arctic food networks are highly engaged in capacity building. The most frequently offered supports include networking and matchmaking, training and education, and business development or advisory services. These services play a central role in facilitating collaboration, strengthening entrepreneurship, and helping members navigate regulatory, logistical, or technical challenges. Nearly all respondents provide some form of professional development, indicating that talent development and skill-building are core priorities.

A significant number of clusters also offer more specialized support such as access to funding, research and innovation support, and in some cases physical infrastructure including labs, test kitchens, or processing equipment. This reflects a strong orientation toward innovation and product development within Arctic food systems. Some clusters, particularly those oriented toward culinary professionals, do not have formal "members," but still operate as platforms for professional exchange, showcasing that support structures vary widely across the ecosystem. Overall, the breadth of support options illustrates a maturing innovation landscape with both business-oriented and community-oriented service models.

Key Challenges Facing Arctic Food Innovation

Among all respondents, the most frequently cited challenges relate to access to funding and investment, logistics and transportation, and regulatory or policy barriers. These structural constraints shape nearly every stage of Arctic food production from obtaining raw materials to entering national and international markets.

Transportation difficulties are particularly acute: long distances, small volumes, high freight costs, and limited infrastructure all make Arctic food supply chains more fragile and expensive compared to southern regions. Many clusters also

described regulatory complexity, especially when navigating food safety, harvesting rights, cross-border movements, or Indigenous food-sharing practices as formidable barriers to development.

A second dominant theme was the shortage of skilled labour, capacity limitations in innovation (R&D, technology), and inadequate infrastructure such as labs, processing facilities, test kitchens, or cold storage. Several clusters emphasized that climate and environmental constraints - short growing seasons, volatile weather, limited daylight, fragility of soil health, and warming waters - further complicate innovation efforts. Respondents also highlighted market access and visibility issues: Arctic products are often premium, niche, and under-recognized outside the region. One respondent uniquely pointed to invisible cultural barriers, noting that historic colonial dynamics and a long-standing "south-facing" orientation have hindered region-to-region collaboration within the North, affecting both logistics and shared innovation.

ArktiskMat: a meeting place for young and established chefs and food professionals in the Arctic. Photo: Kathrine Sørgård

Areas Where Additional Support Is Needed

Respondents pointed to several priority areas where additional support could significantly accelerate Arctic food innovation. A recurring theme was the need to improve market access and visibility, especially through better government procurement pathways, international branding efforts, and stronger distribution systems that reduce dependence on southern supply chains. Many emphasized that public-sector purchasing - particularly in northern territories - could play a much larger role in stimulating local production. Others identified the need for greater innovation capacity, including R&D funding, specialized infrastructure, and mechanisms for mobilizing companies into collaborative projects.

Several respondents highlighted the importance of addressing regulatory barriers, especially those affecting Indigenous rights to sell wild or traditional foods that limit small-scale producers. Others stressed the necessity of capacity-building in remote communities, particularly in Indigenous and rural Arctic regions, where infrastructure is sparse and operational costs are extremely high. One cluster emphasized the need for a regional Arctic food innovation and inspiration centre, arguing that the North lacks the "shared cultural and knowledge platform" that agricultural regions have built over centuries. This perspective underscores the urgency of protecting, documenting, and revitalizing Arctic and Subarctic food traditions tied to hunting, fishing, and foraging traditions.

Interest in Participating in AFIC Activities

Interest in joining AFIC activities is very high across survey respondents. Nearly all clusters expressed willingness to participate in knowledge-sharing events, networking activities, and co-innovation or pilot projects, indicating a strong appetite for structured collaboration. Many also expressed interests in contributing to policy input or position papers, suggesting that other cluster representatives view AFIC as a potential collective voice capable of influencing national and circumpolar food innovation policy.

Most respondents also want to learn more about the AFIC initiative, which indicates both curiosity and the need for clearer communication about AFIC's role, structure, and potential benefits. Even networks that do not have formal "members" expressed interest in AFIC's convening function. The consistently high degree of interest suggests that AFIC fills an important gap: a pan-Arctic coordinating mechanism capable of connecting diverse, geographically dispersed food innovation actors.

When asked about topics or challenges AFIC should address in the future, respondents proposed a wide range of priorities. Key themes included food security, cold-climate agriculture, circular economy solutions, and innovation related to climate adaptation. Many highlighted the importance of addressing logistics challenges, learning from regional best practices, and increasing the visibility of Arctic food systems. Government procurement again emerged as a major opportunity for building more resilient local food economies.

Another strong theme was the desire for joint branding and storytelling to position the Arctic as a unified global food region. Clusters emphasized that shared narratives around sustainability, Indigenous knowledge, cultural authenticity, and Arctic resilience could unlock new international markets. Several respondents also advocated for the creation of a collective Arctic/Subarctic knowledge and innovation centre, a long-term infrastructure for documenting traditions, supporting new product development, and fostering cross-regional inspiration.

Additional priorities included non-invasive ocean resource evaluation, cold-climate circular economy models, and dissemination of existing northern research. Overall, the responses reflect a clear demand for coordinated, transnational platforms that can build shared capacity and visibility across the Arctic.

Implications for Cluster Development

The findings suggest several implications for future cluster development and coordination:

- Strong marine innovation capacity provides a solid foundation for blue-sector cluster specialization.
- Community-led and culturally grounded food systems highlight opportunities for clusters focused on food sovereignty and local entrepreneurship.
- Shared growth areas such as sustainable agriculture, prepared and packaged foods, and food-related tourism offer promising entry points for cross-regional collaboration and scalable Arctic value chains.

Insights from the companies and industry examples

A total of 15 companies and organizations from Norway and Canada participated in the survey. Together, they represent a diverse cross-section of the Arctic food innovation ecosystem, spanning research and development institutions, marine and land-based food producers, processing and preservation businesses, circular economy actors, restaurants and hospitality, technology providers, and community-led and non-profit initiatives. Geographically, respondents are distributed across Northern Norway, including Tromsø, Bodø, Steigen, Alta, Napp, Longyearbyen, and national R&D hubs, as well as Arctic and sub-Arctic regions of Canada, particularly Nunavut and Yukon. This diversity reflects the breadth of actors involved in Arctic food innovation, from early-stage experimentation to applied research and market-facing activities.

The participating companies are engaged in a wide range of food innovation activities. Marine-based products dominate, reflecting the importance of fisheries, aquaculture, and marine byproducts in Arctic food systems. At the same time, land-based production - such as cold-climate agriculture and locally adapted protein and crop systems - plays an important role, particularly in community-led and food-security-oriented initiatives. Many companies also work on preservation and processing technologies, drawing on traditional methods such as fermentation and curing alongside modern approaches aimed at extending shelf life and reducing waste.

Circular and zero-waste innovation is a prominent cross-cutting theme. Several respondents focus on valorising byproducts, reusing organic waste streams, or developing functional foods and nutraceuticals derived from Arctic bioresources. Others contribute through technology development and applied R&D infrastructure, supporting testing, diagnostics, and product development for Arctic conditions. Overall, the company sample illustrates an innovation landscape characterized by resource efficiency, adaptation to harsh environments, and strong links between food, health, and sustainability.

Table 4.1. Key patterns emerging across companies

Key pattern	Description
Strong innovation willingness but fragmented support	Start-ups, R&D institutions, and community initiatives demonstrate high engagement, but often operate without shared platforms or coordinated support structures.
Untapped potential in circularity, byproduct use, and Arctic species	Many companies innovate independently in these areas, but lack joint research, scaling, and commercialization frameworks.
Need for cross-regional learning and shared infrastructure	Respondents see clear value in shared pilot facilities, product development centres, regulatory navigation support, and Arctic-focused branding and export initiatives.
Growing appetite for an Arctic-wide food identity	Storytelling, "Arctic purity," Indigenous knowledge, and sustainability are repeatedly highlighted as key competitive differentiators.

Sustainability Practices: Strong Commitment, Diverse Approaches

Across the surveyed companies, sustainability is not treated as a standalone objective but as a practical response to Arctic realities. Limited logistics, fragile ecosystems, and high operating costs mean that efficiency, circularity, and local sourcing are often necessary conditions for survival rather than optional values. At the same time, many companies frame sustainability as a competitive advantage, linked to notions of Arctic 'purity', place-based identity, and responsible resource use.

Circular and zero-waste approaches are particularly prominent. Several companies rely on byproducts or underutilized resources as core inputs, such as shrimp shells, organic waste streams, or sea urchins previously considered invasive. These practices reduce dependency on external supply chains while creating new value from materials that would otherwise be discarded. In this context, circularity is not peripheral but a defining feature of Arctic food innovation and a strategy for resilience.

Local resource utilization and adaptation to Arctic conditions also shape innovation pathways. Companies consistently anchor their activities in surrounding ecosystems, whether by addressing overabundant wildlife populations, using cold-adapted livestock, or relying on hunting, foraging, and preservation techniques to manage extreme remoteness. Such approaches link innovation closely to stewardship, traditional practices, and strong place-based identities.

Several companies combine food production with environmental monitoring and ecosystem restoration. For example, ECOFANG and Marine Spark X contribute to kelp-forest recovery alongside sea urchin utilization, Aqqiumavvik integrates goose harvesting with population monitoring and ecological research, and Akvaplan-niva conducts applied R&D on environmental impacts and sustainable feed resources. These activities often go beyond regulatory requirements, indicating that biodiversity considerations are embedded in daily operations rather than treated as external compliance tasks.

Insight: Environmental stewardship is integrated into business models, not layered on top of them.

Social impact and community development are also central, particularly in northern Canada and highly remote regions such as Svalbard. Several companies explicitly aim to address food insecurity, support local employment, and strengthen regional value chains. Economic viability and community well-being are frequently pursued in parallel, reflecting the dual commercial and social missions common in Arctic food systems.

Insight: Many Arctic food innovators operate at the intersection of enterprise and community resilience.

Despite strong innovation capacity, companies consistently report structural barriers that constrain growth. Access to funding especially for early-stage ventures, non-traditional sectors, and applied research emerged as the most common challenge. Respondents noted that existing funding frameworks tend to favour established industries such as salmon aquaculture and tourism, leaving blue-green innovations, circular models, and functional foods under-supported.

Insight: Current funding mechanisms do not align well with emerging Arctic food innovation models.

Regulatory barriers were another recurring concern. Several companies operate in areas that fall between existing regulatory categories, such as sea urchin harvesting, functional foods, or Indigenous food-sharing practices. Regulations designed for conventional agriculture or fisheries often fail to reflect new production models, scientific advances, or culturally grounded food systems.

Insight: Arctic food innovation frequently sits "between categories" in regulatory systems.

Logistics and high operating costs further shape business models. Long distances, small volumes, limited infrastructure, and high construction and rental costs restrict scaling and market access. For many companies, logistics are not just a cost factor but a fundamental constraint that determines what kinds of innovation are feasible. Skilled labour shortages particularly in remote areas compound these challenges, especially in specialized fields such as aquaculture R&D, biotechnology, and functional foods[5] development.

Companies also report difficulties in developing markets for novel products. New categories such as sea-urchin-based supplements, byproduct-derived ingredients, or functional mushrooms face limited consumer awareness and weak brand infrastructure, making entry into national and international markets challenging without coordinated support.

When asked what would most effectively support Arctic food innovation, companies emphasized the need for more adaptive policies and targeted instruments. These include modernized and sector-specific regulations, more accessible and flexible early-stage funding, incentives for circular and resource-efficient production, and investments in logistics, processing facilities, and cold-chain infrastructure. Several respondents stressed that without such alignment, innovation will continue to occur despite existing frameworks rather than because of them.

[5] Functional foods offer health benefits beyond basic nutrition, like disease prevention or improved function, through naturally occurring compounds or added ingredients.

Industry Examples

Left: Chesnutts mushroom. Right: Preparing wood chips for mushrooms cultivation. Photos: Tromsopp

Tromsopp - a local sustainable mushroom farm

Tromsopp (Troms mushrooms) is a local and sustainable mushroom farm based in Tromsø (Norway) that combines culinary innovation with environmental responsibility. They grow a selection of high-end edible and medicinal mushrooms – including shiitake, lion's mane and oyster mushrooms - both fresh and dried, with a strict focus on quality and taste.

As part of their sustainability strategy, Tromsopp also handles spent mushroom substrate, the residual product from mushroom production, which has a wide range of applications: from fertilizer and water purification to bioremediation, industrial enzymes, medical compounds and building materials. Tromsopp has a strong collaborative network with local farmers.

Over the past three years, Tromsopp has established methods and technology for growing mushrooms on local leftovers and introduced mushrooms to the local restaurant scene. Growth in the tourism and catering industry in Tromsø has driven up demand for local and fresh food produce. Tromsø is well suited for growing mushrooms because there is enough hardwood along with relatively inexpensive energy and water.

Tromsopp is looking for investors who want to become an active part of the company, to scale up production and realize the potential of mushrooms in the local community and beyond!

AquaPredict: Seeing Inside the Fish

AquaPredict was established in March 2023 in Northern Norway with a simple but radical idea: improving fish welfare by finally looking inside the fish. Founded by Kjetil Korsnes, an associate professor at Nord University, the company emerged from long-standing concerns about fish health in aquaculture - particularly in salmon farming, where high mortality rates, welfare issues, and growing public scrutiny continue to challenge the industry.

Unlike human medicine, fish health management has historically relied on external observation. According to the founders, there has been "almost no data from inside the fish," such as blood biomarkers, despite their potential to reveal early signs of stress, disease, or mortality risk. AquaPredict set out to change this by developing point-of-care (POC) blood-testing technology that can be used directly on-site. Combined with machine learning models, the system analyzes complex biomarker data and delivers clear, actionable insights within minutes.

What makes the solution distinctive is its emphasis on usability. The technology is designed to be easy to operate, fast, and cost-effective, translating complex biological signals into practical information for daily decision-making. As the team describes it, the results may feel "almost magical," but they emphasize that there is no black box involved - mathematics, data, and carefully designed models.

Turning this technological breakthrough into a viable business, however, proved equally challenging. Like many Arctic and aquaculture startups, AquaPredict encountered what the founders describe as the "Valley of Death" - the gap between innovation and commercialization. While preventive technologies can reduce mortality and long-term costs, the current system offers limited incentives to adopt them. "The industry profits from current practices," and mortality costs often remain under-acknowledged, making change slow.

A turning point came when AquaPredict joined Arctic Accelerator and later participated in an incubation program. This helped the team shift from a purely technological mindset toward a commercial one. In 2024, the company secured 2.3 million NOK (228.447,36 USD) from 17 angel investors and began generating revenue, reaching approximately one million NOK in its first year. Despite this progress, the company has not yet broken-even and is now seeking additional support, including a start-up loan from Innovation Norway.

Beyond funding, market adoption remains a key challenge. AquaPredict estimates that it needs to engage roughly 30% of the market to effectively raise awareness of fish mortality, its hidden costs, and the value of preventive health monitoring. Educating end users - farm operators, veterinarians, and managers - is as important as refining the technology itself.

The founders also describe frustration with parts of the public innovation system. They report receiving negative feedback from both the Research Council and EU-level programs, which questioned whether the technology was even feasible. Still, AquaPredict remains confident. The company holds a patent, considers itself ahead of competitors, and continues to refine its models through real-world use.

As one founder put it, they are working "very hard" in an early phase that is both exciting and exhausting. AquaPredict's story illustrates how Arctic food and aquaculture innovation is often less about inventing new solutions than about convincing systems financial, regulatory, and cultural that change is necessary

Illustration: AquaPredict

Northern Coalition: Profitable Fisheries and the Limits of Local Food Systems

In the Eastern Arctic of Canada, commercial fisheries operate at a large industrial scale, yet their connection to local food systems remains limited. Alastair O'Rielly represents a fisheries organization composed of six of these fishing companies operating in the Canadian Eastern Arctic. These companies fish primarily Greenland halibut (turbot) and northern shrimp using large vessels, typically between 65 and 80 meters in length.

According to Alastair, these fisheries have operated for several decades, with organizational roots dating back to the late 1970s and early 1980s. He explains that the companies are community-based and Indigenous-owned, and that they are financially successful and profitable. The revenues generated are not only reinvested into fisheries-related activities, but also into other forms of infrastructure in the North, including transportation systems, hotels, and technology-related investments.

"All the funds, profits that they generate are reinvested into other areas that are needed in the North," he explains.

Despite operating in Arctic waters, the fish itself does not enter Arctic food systems. The fishing vessels operate far from Arctic communities and must return south to off-load their catch. There are no port or dock facilities in the Eastern Arctic

capable of supporting high volume commercial operations. As a result, vessels typically depart from Newfoundland or Nova Scotia, fish for 30 to 35 days, and return south to offload catch, refuel, and resupply.

Because of this operating model, the benefits flowing to northern communities are largely financial rather than material. Employment opportunities linked directly to fishing operations are limited, and there is no access to the catch for local food purposes. "In that respect, we don't contribute anything to food security in the Eastern Arctic," Alastair notes.

Food access in the Eastern Arctic is shaped by distance, seasonality, and infrastructure constraints. Most communities rely on an annual summer sealift to bring in shelf-stable and frozen foods that must last through long winter months. Fresh food that is not harvested locally is primarily flown in, at very high cost. Flights from southern hubs such as Montreal or Ottawa can take more than three hours, significantly increasing the price of perishable foods while having a deleterious effect on product quality and local consumer acceptability.

Energy supply presents an additional challenge. Alastair explains that most communities rely on oil-fired generators, making electricity expensive and limiting the feasibility of energy-intensive food production solutions such as greenhouses. While wind and solar energy offer potential, especially given strong seasonal wind resources and long summer daylight, he emphasizes that current solutions are not yet economically viable. "Technologically, we're kind of getting there, but not financially, not economically," he says.

Geography further complicates innovation efforts. Communities along the Baffin coast are separated by hundreds of kilometres, many with populations of less than 1,000 people. Small and dispersed populations like this one limit economies of scale and make regional distribution of food or shared infrastructure difficult.

At the same time, he highlights that the enterprises he represents operate under governance models that are community-owned and professionally managed, with decision-making structures shaped by Inuit participation. Benefits are directed toward communities rather than individual entrepreneurs, reflecting a model of collective ownership and long-term reinvestment where profits from commercial activities can be reinvested into community services.

This industry example illustrates the reality of food systems in Canada's Arctic regions, where economic success and local food access are constrained by infrastructure, energy, logistics, and geography, which together influence the opportunities for innovation. This example also demonstrates the need for regionally specific solutions that reflect the realities of local food production.

Northern shrimp Pandalus borealis in natural habitat. Photo: iStock, Mediterranean

From quotas to communities: building a Nunavut-centered fisheries system

Historically, commercial fishing quotas in Nunavut were fragmented and largely harvested by third parties. Although allocations existed, they provided limited local benefits beyond royalties. In response, the Government of Nunavut developed a community-centered fisheries system that integrates governance reform, Inuit ownership, training, research, and food security objectives. This approach has evolved into a distinctive example of Arctic food innovation - one grounded not only in technology but in governance, ownership, and community accountability.

In 1993, the Government of Nunavut and northern stakeholders began consolidating quotas. Central to this effort was the Commercial Fisheries Access and Allocation Policy, developed through the Nunavut Wildlife Management Board. This policy is unique in Canada because it fundamentally changed how fisheries access is managed. At the time, there was nothing comparable in Canada, though a somewhat similar model existed in Alaska - the Community Development Quotas - which influenced Nunavut's approach.

One of the policy's key innovations is that companies cannot simply receive quota allocations and then sell or lease them to third parties while retaining the financial benefits. Instead, companies must demonstrate how they use their quotas to generate tangible benefits. This includes providing clear evidence of community benefits, sustainable fishing practices, and reinvestment in areas such as training and capacity building. Performance is reviewed annually, with comprehensive reassessments every five years, and failure to meet commitments can result in the loss of quota.

Today, all major fishing organizations operate in the Qikiqtaaluk region, home to thirteen small communities, including Iqaluit. This new model led to the creation of the Baffin Fisheries Coalition and expanded the role of Qikiqtaaluk Corporation, which already held shrimp quotas. Other examples include Pangnirtung Fisheries Limited (also known as Cumberland Sound Fisheries) and the Arctic Fisheries Alliance. All these entities are 100% Inuit-owned and collectively owned by the communities they represent. Together, these organizations achieved approximately 40% Inuit employment in 2018, with plans to reach an average of 71% over the next five years.[6] Communities are not just beneficiaries - they are owners and decision-makers, and revenues are reinvested in local priorities such as training, scholarships, and community projects. Based on NFA (2020), an average of CA $2.8 million per year was directed toward community initiatives between 2018 and 2020.

A critical innovation supporting this model has been investment in people. The creation of the Nunavut Fisheries and Marine Training Consortium enabled Inuit to obtain Transport Canada certification locally. Before this initiative, there was no fisheries-specific training in Northern Canada. Since its establishment, the consortium has trained more than 1,200 Inuit across 250 programs, supported by approximately $65 million in cumulative training investment. Today, roughly half of the crew on many offshore vessels are Inuit, with a long-term goal of advancing Inuit into senior vessel positions and reducing reliance on southern labor.

Innovation has also extended to knowledge and food systems. To date, most investment and activity have focused on offshore fisheries. Faced with limited federal research on nearshore resources, Qikiqtaaluk Corporation invested directly in inshore research capacity. Custom-built research vessels now work with communities to identify local marine resources that could support small-scale commercial fisheries, create jobs close to home, and strengthen food sovereignty by supplying fish for local consumption.

Together, these elements form a distinct Arctic food innovation: a fisheries system where access to resources is conditional on social outcomes; where training, research, and sustainability are embedded in policy; and where commercial activity is explicitly linked to food security and community well-being. While challenges remain - particularly infrastructure gaps and high logistics costs - Nunavut's experience demonstrates how Arctic food systems can be redesigned to serve communities first, not as an afterthought, but as a core objective. This model stands out globally for reducing economic leakage by aligning Indigenous governance with federal regulation and connecting commercial fisheries to community resilience, offering transferable lessons for other Arctic and remote regions.

[6] Nunavut Fisheries Association (NFA). 2020. Economic Impact of the Nunavut Fisheries Association's Members. Toronto: OMX Data Analytics.

Eagle AI: Using Data to Navigate Changing Arctic Oceans

Eagle AI is a young Norwegian technology company founded in 2023 with a clear and practical ambition: to help fishers locate fish more efficiently by using satellite data, catch data, and machine learning. The company develops predictive models that recommend where fish are most likely to be found - both today and in the near future - allowing vessels to reduce search time, fuel use, and operational risk.

The idea emerged during a university trip to Andøya Space Center, where founder Jakob Brattli Sørensen was introduced to the possibilities of satellite data while working on his master's thesis. Coming from a generational fishing family, Sørensen had firsthand experience with both the opportunities and pressures within the fishing industry. He described a strong motivation to support an industry he knew well, particularly as ocean conditions become more unpredictable.

"I come from a generational fishing family, so I have all my life been fishing and learning how important it is to sustain the people with fish… I wanted to help the industry by developing a system using AI tools."

Eagle AI was initially developed as a solo project. Sørensen spent the first six months building the company alone, before assembling a small team that combined marine biology and software development expertise. Today, the company consists of two full-time employees and additional team members contributing in development, sales, and business development.

The company's core innovation lies in combining large, existing datasets - some dating back to 2011 - with newer machine learning techniques. Eagle AI's model translates complex environmental and catch data into practical recommendations that fishers can use directly in decision-making. The goal is not to replace local knowledge, but to complement it as ocean dynamics change.

"With changing oceans the fish becomes more unpredictable… we want to be a tool to help that."

Establishing the company in Northern Norway proved relatively supportive in its early stages. Sørensen highlighted access to advisors, incubators, and public funding as critical enablers. Within two months of starting the business, Eagle AI secured initial funding, followed by additional support from Innovation Norway. By 2024, the company was operating full-time and had secured a total of approximately 4.3 million NOK through grants, competitions, and soft funding.

At the same time, the journey has been far from smooth. Sørensen described recurring financial pressure, technical delays, and the personal strain of navigating multiple economic crises with limited resources. Convincing fishers to adopt new tools has also been challenging, as many skippers rely on established routines and experience.

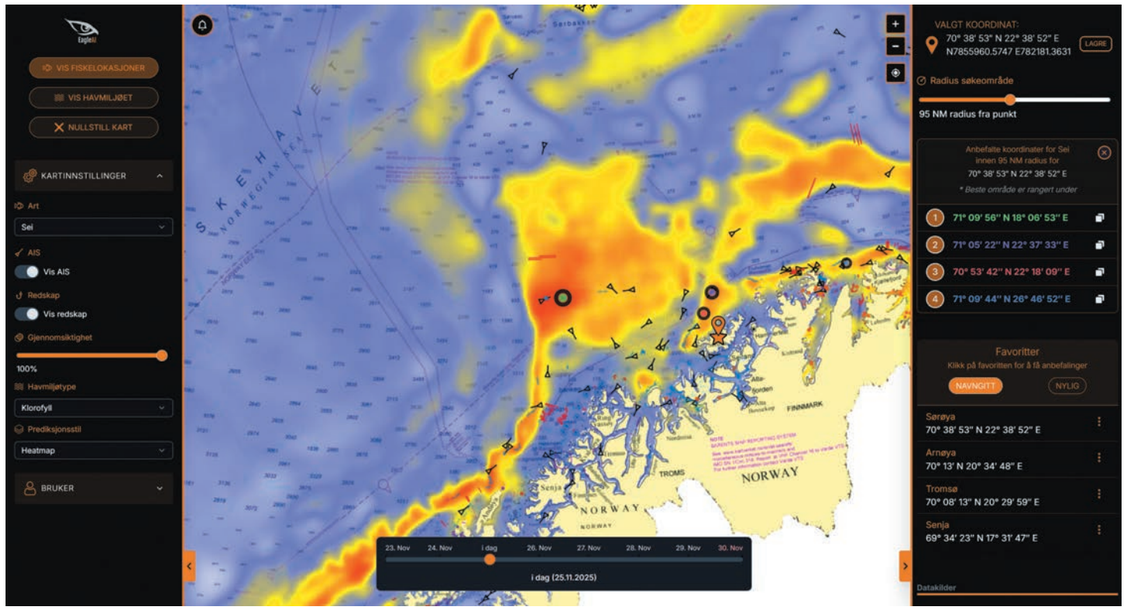
"They are really conservative in their ways and confident in their knowledge."

Despite this, Eagle AI has received encouraging feedback from parts of the fishing industry and is now focused on expanding its user base to demonstrate the value of its predictions at scale. The next phase involves finding business partners, growing the team, and potentially consolidating with complementary companies working closely with fishers.

Throughout the process, Sørensen emphasized the importance of advisory networks - ranging from university contacts to incubators and fellow founders - as a stabilizing force during moments of doubt.

"When I feel like there's a crisis where I would maybe consider stopping, they have always been able to ground me back to thinking about solutions."

Eagle AI's story highlights a distinct strand of Arctic food innovation: data-driven tools developed close to the industry they serve, rooted in local experience, and supported by regional innovation ecosystems. It also illustrates how Arctic innovation increasingly depends not only on new technologies, but on trust, adoption, and the ability to translate complex data into usable knowledge for those working at sea.



Eagle AI - with the help of machine learning and satellite data, we can easier understand the migration pattern of the fish. Software screenshot: Eagle AI

What can we learn from these cases?

Taken together, these cases highlight the diversity and depth of Arctic food innovation, encompassing advanced digital technologies, circular bio-based production, fisheries knowledge systems, and community-driven economic models. Innovation arises both from cutting-edge science - such as AI-enabled diagnostics and satellite-based fisheries intelligence - and from place-based resource use, where local materials, ecological conditions, and cultural practices shape practical solutions.

The cases demonstrate that Arctic innovation is rarely linear: it is iterative, adaptive, and often propelled by individuals or small teams deeply rooted in their environments. Strong connections to local ecosystems, whether marine or terrestrial, combined with pragmatic problem-solving under Arctic constraints, emerge as defining features across all examples.

At the same time, the cases expose persistent structural gaps that hinder scaling and long-term impact. Innovators face challenges related to infrastructure access, regulatory alignment, mid-stage financing, market adoption, and knowledge transfer across regions. While several solutions exist, current systems often depend on personal networks, temporary funding, or exceptional individual persistence.

The two Canadian cases highlight the importance of social innovations in Arctic fisheries, and food systems more broadly. Nunavut's model demonstrates that embedding social conditions into resource access - through governance reform, Inuit ownership, and capacity building - can transform quotas into engines of community development and food security. By contrast, the Northern Coalition illustrates the limits of financial reinvestment when infrastructure and geography prevent integration with local food systems, leaving benefits largely monetary. Together, they reveal that true innovation requires aligning policy, ownership, and human capital with community priorities, while addressing structural barriers like logistics and scale. In short, innovation in remote regions succeeds when it is holistic, combining governance, social accountability, and infrastructure strategies rather than relying solely on technology or profitability.

Crucially, across the cases, support mechanisms exist but operate in silos, by sector, by funding stage, or by geography, resulting in fragmented pathways from innovation to impact. What is lacking is not creativity or competence, but shared platforms, cross-regional learning mechanisms, and supportive policy frameworks that reflect Arctic realities. These lessons underscore the need for a unifying structure - such as AFIC - to connect practices, reduce fragmentation, and transform isolated success stories into a resilient Arctic food innovation ecosystem.

A Call to Action: Building the Future of Arctic Food Innovation

The mapping of clusters, companies, and stakeholder perspectives across Northern Norway and Arctic Canada leads to a clear conclusion: the Arctic food system holds significant and largely untapped potential, but realizing this potential requires coordinated action, shared infrastructure, and a unifying platform. Across both countries, there is strong activity within marine resources, local food systems, Indigenous food practices, and emerging bioeconomy. At the same time, the innovation ecosystem remains fragmented.

Actors across regions face similar structural challenges - logistics and remoteness, regulatory misalignment, high operational costs, early-stage funding gaps, access to skilled labour, and limited visibility in wider markets. Yet there are few mechanisms to address these challenges collectively. This feasibility study argues that an Arctic-wide food innovation cluster can respond to these shared constraints in ways that no single region, institution, or organization can achieve alone.

Importantly, the feasibility study highlights that while both countries demonstrate strong innovation capacity, the Arctic food innovation landscape is uneven in character. In the Canadian Arctic, innovation is often driven at the community level, with a strong presence of Indigenous-led enterprises, social innovation, and initiatives focused on food security, traditional food systems, and cold-climate agriculture. These initiatives are deeply embedded in local governance structures and cultural practices, and they prioritize resilience, community benefit, and long-term sustainability.

In Northern Norway, by contrast, food innovation is more strongly embedded in formalized cluster structures and industry-led ecosystems, particularly within aquaculture, blue biotechnology, and marine value chains. These systems benefit from more developed infrastructure, access to capital, research institutions, and export-oriented market mechanisms, enabling faster scaling and commercialization of new technologies and products.

These differences do not represent a gap to be closed, but rather complementary strengths. Canada's experience with community-based models, Indigenous knowledge integration, and localized food systems offers valuable insights for inclusive and socially grounded innovation. Norway's strengths in cluster organization, technological development, and market integration provide models for scaling, industrial collaboration, and global positioning. Together, they create natural opportunities for cross-Arctic learning, joint experimentation, and mutual capacity-building - opportunities that are difficult to realize without a dedicated cross-border platform.

AFIC is uniquely positioned to bridge these complementary systems, enabling structured knowledge exchange and collaboration that respects regional differences while strengthening the Arctic food innovation ecosystem.

The AFIC can serve as a pan-Arctic connector, bringing together clusters, companies, researchers, Indigenous knowledge holders, funders, and public authorities into a shared innovation arena. Survey respondents and interviewees consistently expressed strong interest in deeper collaboration, particularly in joint R&D, product development adapted to Arctic conditions, sustainability practices, circular business models, and market opportunities for distinctive Arctic ingredients.

Stakeholders also emphasized the need for stronger and more coordinated policy dialogue. Issues such as regulatory adaptation for novel food products, recognition of Indigenous harvesting practices, approval pathways for emerging biotechnologies, and support for new blue and green value chains were repeatedly highlighted. AFIC can play a critical role in amplifying these perspectives by coordinating a unified policy voice, reducing duplication across initiatives, and strengthening the Arctic's position in national and international innovation and food-system discussions.

To move the ecosystem forward, this study identifies four strategic priorities for AFIC:

1. Strengthen Collaboration and Knowledge Exchange

AFIC should build structured networks that connect companies, researchers, Indigenous communities, and regional clusters across borders. By facilitating joint pilots, innovation matchmaking, and cross-regional learning, AFIC can help ensure that knowledge, technologies, and successful models spread more rapidly throughout the Arctic.

Building on insights from previous AFIC studies, one possible direction is the gradual establishment of a network of regional AFIC clusters linked through a common framework rather than a centralized structure. However, such organizational solutions should not be predefined. They need to be explored and co-developed through dialogue with existing clusters, companies, Indigenous organizations, and regional authorities. Organizing practical, solution-oriented workshops with regional stakeholders can be a first step toward shaping appropriate governance and cooperation models. To ensure AFIC develops as a truly circumpolar business cooperation concept, representatives from other Arctic regions and countries should be included in both the feasibility work and the workshop process.

2. Develop Shared Infrastructure and Innovation Platforms

Access to shared testing facilities, processing infrastructure, cold-chain logistics, and digital collaboration platforms can significantly lower barriers to innovation. Such shared infrastructure would be particularly valuable for early-stage ventures and actors in remote communities, helping to accelerate commercialization, reduce operational risk, and improve market readiness.

Financing such infrastructure may require coordinated public–private commitment. National and regional governments are well positioned to play a catalytic role through targeted investments, co-financing schemes, and alignment of innovation, regional development, and Arctic policy instruments. Public funding can de-risk initial infrastructure development, while industry actors, clusters, and financial institutions can contribute through co-investment, usage-based models, and long-term partnerships. Political leadership is therefore critical, not to manage innovation directly, but to create the enabling conditions that allow shared Arctic infrastructure to emerge and be sustained.

3. Advance Sustainable and Circular Food Systems

The transition toward sustainable and circular Arctic food systems cannot be carried by AFIC alone. However, AFIC can play an important role in highlighting, connecting, and supporting circular innovations; meaningful progress will depend on coordinated action among companies, clusters, research institutions, Indigenous organizations, policymakers, and financial actors. AFIC's contribution lies in convening these stakeholders, sharing practices, and helping to translate emerging innovations into scalable models.

A strong and diverse layer of innovative regional SMEs is essential to enable a broader transition toward circular economy models. This transition also requires long-term efforts to shift mindsets, from conventional, extractive resource use toward circular approaches, regenerative practices, and more sustainable consumption patterns. Public authorities, education systems, industry organizations, and funding bodies all have a role to play in enabling this shift through incentives, skills development, and supportive regulatory frameworks.

4. Strengthen Markets, Branding, and Visibility of Arctic Foods

Effective Arctic branding requires cooperation among producers, clusters, Indigenous organizations, tourism actors, export agencies, cultural institutions, and creative industries. AFIC can serve a coordinating role, helping align narratives, facilitate partnerships, and connect food innovation with broader Arctic identity-building initiatives.

One illustrative example could be the development of a "Made in Arctic" concept under the AFIC umbrella not as a single label, but as a common narrative framework. Such a framework could combine sustainability standards, origin storytelling, and cultural context, while allowing regional expressions to remain distinct. Food producers could link their products to this narrative, while chefs, filmmakers, designers, and other creative professionals translate Arctic food values, resilience, purity, Indigenous knowledge, and innovation, into compelling visual

and cultural content. Documentary filmmakers, photographers, and digital storytellers could play a key role in communicating these stories globally, reinforcing Arctic food not only as a product category, but as part of a living cultural and environmental system. The success of initiatives such as the Young Arctic Chefs Tournament demonstrates how food, culture, and creativity can intersect to elevate Arctic visibility when stakeholders act together.

Overall, this feasibility study shows that AFIC has a clear and compelling value proposition: to accelerate innovation, shorten pathways from idea to market, and strengthen sustainability and resilience across the circumpolar food system. By working in partnership with existing clusters, Indigenous organizations, and regional actors, AFIC can avoid duplication and instead function as an integrative platform that enhances capacity across borders.

The momentum is already present. Companies and clusters are ready to collaborate. The challenges are shared, and the opportunities are substantial. Establishing the Arctic Food Innovation Cluster is therefore both timely and necessary - to ensure that the Arctic becomes not only a food-producing region, but a global leader in sustainable, resilient, and culturally grounded food innovation.

The path forward is clear. The time to act is now.

Arctic Food Innovation table with many different tasty examples. Photo: Kathrine Sørgård

Annex

List of clusters

Name	Country	Business Idea
Agritech Cluster	Norway	Develops and applies climate-adapted, sustainable agricultural technologies to improve productivity, resilience, and sustainability across the agricultural value chain.
Amarok Hunter and Trapper Association	Canada	Supports traditional hunting and trapping practices to strengthen Indigenous knowledge, cultural preservation, and local food security.
Arctic Europe Tourism Cluster/ Northern Norway Tourist Board	Norway	Promotes local food and culinary tourism to create resilient, regenerative experiences that benefit communities, businesses, and visitors.
ArcticHubs for fish farming (Luke)	Norway	Develops solution-oriented tools to balance land use, local livelihoods, and environmental sustainability while respecting community cultures.
Arena Torsk/ Cod Cluster	Norway	Increases value creation in the cod industry by ensuring consistent access to high-quality cod for processing and sale, supporting sustainable production.
Arktisk kje	Norway	Connects 34 goat farmers to produce and market sustainable, local meat and dairy products directly to consumers, enhancing local food systems.
ArktiskMat/ NKMAT North Norwegian Competence Center FOOD	Norway	Builds a network for chefs and food professionals to share knowledge, promote Arctic culinary traditions, and foster innovation in local food culture.
Biotech North	Norway	Provides support, collaboration, and innovation guidance for marine biotechnology and bioresource projects, advancing sustainable marine solutions.
Canada's Ocean Supercluster	Canada	Combines technology and Indigenous knowledge to develop fisheries innovations, including workforce training, monitoring systems, and genomics, improving sustainability and efficiency.
Canadian Centre for Fisheries Innovation (CCFI)	Canada	Facilitates research and development collaboration to enhance sustainability, safety, and profitability in Canada's seafood industry through the Canadian Fisheries Innovation Network (CFIN).
CIFST Food Cluster	Canada	Promotes food quality, safety, and wholesomeness by connecting industry, government, and academia for applied food science solutions.
Circumpolar Agricultural Association	Norway	Advances northern agricultural science, policies, and practices to support sustainable and resilient Arctic food production.
Iqaluit's Qajuqturvik Community Food Centre	Canada	Strengthens community capacity to access culturally appropriate and nutritious food, enhancing local food security.
Kitikmeot Inuit Food System Programs and Knowledge Hub	Canada	Provides education and training in northern crop growing, traditional food harvesting, and nutrition to support sustainable and culturally grounded food systems.
KVANN (Norwegian Seed Savers)	Norway	Conserves Arctic plant diversity through seed saving, cultivation, and education, supporting ecosystem stewardship and biodiversity preservation.
Lofotlam/ LofotenMat SA	Norway	Promotes and markets regional lamb products that reflect local environmental characteristics, supporting local food culture and sustainability.
NCE Aquaculture	Norway	Develops sustainable aquaculture practices and technologies to enhance efficiency, value creation, and environmental stewardship.
NCE Aquatec Cluster	Norway	Designs and implements advanced aquaculture technologies to improve productivity, sustainability, and operational efficiency.
NCE Blue Legasea	Norway	Enhances sustainable use of marine raw materials and promotes circularity along the value chain through technology and collaboration.
NCE Heidner Biocluster	Norway	Supports sustainable food production and bio-based innovations to advance the green bioeconomy and local circular systems.

Name	Country	Business Idea
New Arctic Kitchen	Canada	Develops regional food innovation by valuing and promoting locally produced foods and culinary traditions, enhancing cultural and food security outcomes.
Nofima (partner of Arctic Hubs for fish farming)	Norway	Conducts research and development to improve sustainability, efficiency, and innovation across aquaculture, fisheries, and related food systems.
Nordlandsmat	Norway	Supports small food producers with marketing, distribution, and business development to strengthen local food supply chains.
Norwegian Seaweed Cluster	Norway	Cultivates seaweed and develops food-grade products for B2B markets, supporting circular bioeconomy and sustainable production.
Nunavut Fisheries Association	Canada	Represents and supports Nunavut's fishing industry through advocacy, quota management, and sustainable growth initiatives.
Nunavut Food Security Coalition	Canada	Implements culturally grounded, community-led initiatives to reduce food insecurity and strengthen local food systems in Nunavut.
The Seafood Innovation Cluster AS	Norway	Implements cost-effective, sustainable seafood production initiatives to strengthen the seafood value chain and environmental outcomes.
Vesterålsmat	Norway	Markets high-quality, traceable local food products to enhance regional food identity and support small-scale producers.
Yukon Agricultural Association	Canada	Promotes sustainable agricultural practices, education, and infrastructure development for private and commercial producers in northern regions.
Yukon Food Security Network	Canada	Supports community-led initiatives that strengthen food security and sovereignty through collaboration and culturally appropriate programs.

List of companies

Company	Country	Business Description
Aalan Gård	Norway	Offers authentic Arctic farm experiences featuring cheese production, herb cultivation, and diverse animals for visitors to explore.
Aarja Health	Norway	Develops natural supplements inspired by Arctic plants and Indigenous knowledge to promote vitality, resilience, and seasonal balance.
AKVA group	Norway	Provides global solutions and services that enhance fish performance and aquaculture efficiency.
Akvaplan-niva	Norway	Provides specialized expertise on aquatic ecosystems, climate change impacts, and environmental risks related to aquaculture and energy sectors.
Aqqiumavvik Society	Canada	Promotes Inuit-led food sovereignty initiatives focused on developing and sustaining local food production.
AquaPredict	Norway	Combines biomarker analysis and machine learning to enable real-time fish health monitoring directly on aquaculture farms.
AquaPredict	Norway	Combines biomarker analysis and machine learning to enable real-time fish health monitoring directly on aquaculture farms.
Arctic Bioscience	Norway	Develops marine-based pharmaceuticals and nutraceuticals addressing global health needs with sustainable natural ingredients.
Arctic Fisheries Alliance	Canada	Supports 100% Indigenous-owned fisheries to ensure that benefits from local marine resources remain within communities.
Arctic Food Lab	Norway	Uses Arctic raw materials to craft high-quality, artisanal food and beverage products that celebrate regional heritage.

Company	Country	Business Description
Arctic Fresh Group of Companies	Canada	Focuses on creating affordable housing, building supply chain capacity, and promoting sustainable energy solutions.
Arctic Protein Industries AS	Norway	Produces insect-based protein for animal and aquaculture feed, supporting sustainable circular food systems.
Arctic Young Chef / Oregon State University Food Innovation Center	Norway	Celebrates and promotes young culinary talent across the North Atlantic by showcasing innovative uses of local Arctic ingredients and sustainable food traditions within Nordic cuisine.
Aurora Spirit Distillery	Norway	Operates an Arctic distillery and visitor center located at the base of the Lyngen Alps, combining history, culture, and craftsmanship.
Bådin Brewery	Norway	Crafts innovative Arctic beers blending local tradition with modern brewing, recognized nationally and internationally.
Baffin Fisheries	Canada	Harvests sustainable shrimp and turbot from pristine Arctic waters to benefit northern communities.
Bioform	Norway	Produces natural food supplements that are completely free of artificial additives and preservatives.
Biovivo Technologies AS	Norway	Advances research and technology to improve fish health and welfare in aquaculture systems.
Brødrene Karlsen	Norway	Produces organic salmon and wild-caught seafood products while maintaining strict sustainability and quality standards.
Bush Order Provisions Ltd.	Canada	Combines bio-intensive regenerative farming with artisan breadmaking and promotes a circular economy model, reusing byproducts, minimizing energy and waste, and creating local food self-reliance.
CapiPro	Norway	Produces worms fed on kelp and fish waste as sustainable protein for pet food, agriculture, and aquaculture.
Chitinor	Norway	Manufactures and supplies high-quality chitosan materials for industrial and research use.
Drytech AS	Norway	Creates freeze-dried meals for outdoor professionals and adventurers, combining great taste with high energy performance.
Dundrun Seafood	Norway	Exports premium seafood products to international markets with a focus on Arctic species.
Ecofang as	Norway	Specializes in harvesting and processing high-quality sea urchins from cold northern waters.
Eurofins Norway	Norway	Operates as a leading national laboratory for chemical, microbiological, and food-environmental testing.
Fort Simpson Métis Development Corporation	Canada	Supports food security initiatives linking bison farming with local Indigenous-led production and processing.
Graff Brygghus	Norway	Craft brewery producing small-batch beers using Arctic water and local ingredients, showcasing Northern Norway's brewing traditions and sustainable production practices.
Grieg Seafood Finnmark	Norway	Operates sustainable salmon farms in multiple regions with a focus on fish welfare and low environmental impact.
Growers of Organic Food	Canada	Supports northern organic growers through education, advocacy, and community-based infrastructure for cold-climate farming.
Hay river	Canada	Builds and manages modern fish processing facilities to revitalize and sustain local commercial fisheries.
Holmen Lofoten	Norway	Hosts immersive Arctic culinary retreats combining world-class cuisine with stunning landscapes and shared dining experiences.
Hurtigruten	Norway	Supports sustainable Arctic food systems by sourcing local seafood and land-based ingredients, collaborating with Indigenous and coastal communities, and integrating traditional knowledge into culinary experiences.

Company	Country	Business Description
Huset Restaurant	Norway	Operates a cultural dining venue in the Arctic that evolved from a local cafÃ© into a symbol of community and gastronomy.
Ihdzi	Canada	Establishes communal kitchens and networks that support local food production, innovation, and training.
Ilisaqsivik Society	Canada	Promotes Inuit-led food system education and knowledge-sharing for sustainable community nutrition.
Indigenous culinary of associated nations	Canada	Represents Indigenous chefs and culinary experts working to preserve and revitalize traditional foodways.
Institute of Marine Research (IMR)	Norway	Conducts marine and aquaculture research to promote sustainable seafood production from ocean to table.
Kelpinor	Norway	Produces biostimulants from cultivated seaweed to improve soil health and regenerate coastal ecosystems.
Kivalliq Arctic Foods	Canada	Processes Arctic meats and seafood, creating employment and supporting local harvesters and fishers.
Kuraas AS	Norway	Operates modern meat production facilities emphasizing quality, efficiency, and sustainability.
Lerøy	Norway	Manages integrated fishing and aquaculture operations along the Norwegian coastline.
Little Salmon/ Carmacks First Nation	Canada	Promotes social enterprise models for strengthening local food systems in northern communities.
Lofoten Seaweed	Norway	Empowers sustainable coastal communities through innovative seaweed-based foods, combining Arctic traditions with global culinary creativity to bring nutrient-rich ocean ingredients from Lofoten straight to the modern kitchen.

Company	Country	Business Description
Lofotprodukt AS	Norway	Crafts premium seafood products using sustainable fishing and local expertise in Arctic environments.
MABIT	Norway	Acts as regional biotech innovation platform.
Macks Ølbryggeri AS	Norway	Produces craft and industrial beers inspired by Arctic nature, combining over a century of brewing tradition in Northern Norway with sustainable local production and community-based innovation.
Marealis AS	Norway	Transforms marine by-products into bioactive compounds for health and longevity applications.
Marine Spark X	Norway	Develops sustainable dietary supplements derived from green sea urchins.
MicroClean AS	Norway	Innovates antibacterial technology to eliminate pathogens on industrial plastic surfaces.
Myklevik Gård	Norway	Offers Arctic farming experiences where visitors can learn about wild foraging and cultivation in harsh climates.
Nofima	Norway	Conducts R&D supporting aquaculture, fisheries, and food industries with a focus on sustainability.
Nofir	Norway	Collects and recycles discarded fishing gear into reusable raw materials for manufacturing industries.
Nord Matstudio AS	Norway	Creates innovative Arctic-inspired culinary concepts through a food studio that blends Northern Norwegian traditions with modern gastronomy, offering concept development, training, and creative food experiences.
NordNorsk Reiseliv AS	Norway	Norway Offers SÃ¡mi- and Indigenous-led tours combining cultural heritage with outdoor adventure.
Norskin AS	Norway	Norway Produces luxury fabrics using materials sourced from Arctic marine environments.

Company	Country	Business Description
Northern Coalition	Canada	Operates Indigenous-owned fisheries and seafood enterprises supporting regional communities.
Norway Naturals	Norway	Processes Arctic plants into functional foods and supplements for health applications.
Nunavut Fisheries and Marine Training Consortium (NFMTC)	Canada	Provides vocational training for northern residents pursuing careers in the fishing industry.
Olivita	Norway	Develops patented marine-based omega-3 products blended with natural antioxidants for optimal health.
Polar Algae	Norway	Cultivates organic Arctic seaweed for use in fertilizers, biostimulants, and animal feed.
Polar Egg (Knutsford Ventures Inc)	Canada	Produces fresh, high-quality eggs for northern markets.
Polar Quality	Norway	Exports high-quality Arctic salmon worldwide, connecting producers and customers through a fully integrated value chain from hatchery to market, ensuring freshness, traceability, and sustainable sourcing.
Qajuqturvik Community Food Centre (QCFC)	Canada	Operates country food programs that support traditional harvesting and food sharing.
Qikiqtaaluk Corporation	Canada	Develops sustainable seafood harvesting and export strategies to strengthen local economies.
Rå Biopark	Norway	Builds biogas and biochar facilities using waste from agriculture and fisheries to produce renewable energy - indirectly past of the food system.
Salt Lofoten AS	Norway	Provides independent expertise in marine pollution, resource management, and sustainable coastal development.
Saltfjell Sámi Adventure AS	Norway	Offers immersive Sámi cultural and culinary experiences in Bodø, combining traditional reindeer herding, storytelling, and Arctic food heritage to connect visitors with Indigenous knowledge and living traditions.
Sijjakkut	Canada	Offers Inuit-led culinary tourism experiences celebrating hunting, harvesting, and traditional cuisine.
Sjømatfest	Norway	Organizes food festivals promoting sustainable seafood and Arctic culinary culture.
Snowhotel Restaurant	Norway	Redefines Arctic cuisine through modern hospitality and food storytelling.
Sømna Biogass Eiendom AS	Norway	Develops renewable energy plants that convert agricultural waste into biogas in northern regions.
Sunnyside Farm	Canada	Produces affordable, sustainably grown food without synthetic chemicals or GMOs while supporting local producers.
Svalbard Bryggeri	Norway	Crafts Arctic beer using glacier water and regional ingredients, recognized as the northernmost brewery in the world.
Takhini River Ranch Catering	Canada	Offers farm-to-table dining featuring locally sourced meats and regional ingredients that promote community food systems.
Trasti & Trine	Norway	Provides fine dining inspired by Arctic landscapes, using local and sustainable ingredients from land and sea.
Tromsopp AS	Norway	Produces nutrient-rich compost materials made from mushroom substrates for soil improvement.
Tum Tum's Black Gilt Meats	Canada	Fits culinary craftsmanship and local food systems.
Vesterålen Havbruk	Norway	Produces farmed and wild cod sustainably, aiming to optimize use of fish resources and minimize waste.
VAAG Seafood	Norway	Develops advanced seafood quality and traceability technologies to enhance sustainability.
Yukon First Nation Education Directorate	Canada	Operates centralized food processing and delivery systems supporting education, nutrition, and community wellness.
Zooca Calanus AS	Norway	Harnesses the nutritional potential of Arctic zooplankton to produce sustainable marine-based supplements for humans and animals.

ARCTIC BUSINESS INDEX

The main objective of the Arctic Business Index project (previously known as Business Index North) is to increase awareness of opportunities as well as challenges for sustainable economic development in the Arctic. Since 2016, we collect and analyse data, develop analytical reports, online tools, and contribute to informed debate via various dialogue arenas for Arctic stakeholders. The project provides reliable, knowledge-based information about sustainable economic development in the Arctic for decision makers such as international institutional bodies, national and regional authorities, investors, entrepreneurs. This information is also used by educators, media, and students.

In spring 2025, the project was endorsed by the Arctic Council Sustainable Development Working Group with the new project name, Arctic Business Index. Norway and Canada are co-leads of the project.

The Arctic Business Index project is developed through an international network of academic and research institutions, individual experts, organizations, and industry from the Arctic countries.

The project administrator is the High North Centre for Business and Governance at Nord University Business School (Norway).

Project website

Project Linkedin page

Implementing partners

NORD University

High North Center for Business and Governance

University of Saskatchewan

Université Laval

& KPB

Stategic partners

AEC Arctic Economic Council

CHNL Centre for High North Logistics

Icelandic Arctic Cooperation Network

Institute of the North – Governor Walter J. Hickel, Founder

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