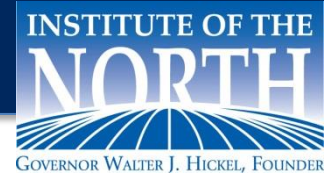


# Finland Policy Tour

## Review of Lessons Learned



### Key takeaways

- 1) Differentiation between “Finland is Arctic” and “Lapland is the Arctic.”
- 2) Government investment in R&D third highest in world at 3.5/4.5% - clear commitment to people, knowledge, experience, know-how that is fundamental, exportable asset
- 3) 50% of R&D is applied, working in close collaboration with industry – able to move from research to technology to economic development very effectively
- 4) Broader perspective of Finland as an island has led to consensus around vision and policy objectives focused on competitive advantages
- 5) Ice management and navigation – 100 years of experience and having built/designed 60% of the world’s icebreakers – is a clear value proposition for taking advantage of Arctic opportunity
- 6) Transportation priority is to secure safe and economic marine operations
- 7) Belief in and commitment to leveraging technology in pursuit of a sustainable approach to Arctic
- 8) Strategic cooperation with Russia, longstanding relationship with Scandinavia, and inclusion in EU are all important international relations goals
- 9) The Barents-Euro Arctic Region is a major investment area (100 billion euros within 10 years – gas, mining, tourism, energy, transportation, and infrastructure)

### Economy

Finland is facing increasingly difficult fiscal challenges as they balance a decrease in GDP with a Scandinavian commitment to social welfare. The previously strong economy – with Nokia, manufacturing and forest products industry driving GDP growth – has been hit by the global recession and downturn which has resulted in declining GDP and increased debt. The main concern of government is how to continue delivering on promises of social welfare system that Scandinavia is known for, while making some hard decisions about how to trim 10-15% of their 65 billion euro budget. Included in their deliberations on this topic are streamlining or reforming local government and decreasing the provision of services currently in place.

Finland and the EU are recovering from the recession, but unemployment and strained government services remain. Russia’s GDP growth during the recession helped Finland, but the forecast for the future is bleak. The image of Finland as a thriving economy has deteriorated relative to other EU countries – a key indicator is that Finnish exports have been lagging behind world trade and have not rebounded since the recession. Additionally, Finland has lost 50,000 jobs in last decade within tech and pulp/paper sector, which are hard to replace – the gaming sector (Angry Birds), for instance, only adds 2,500.

In Lapland, high north investment potential – 144 billion euros – is driven by trends that include postponed investment during financial crisis, structural changes to energy demand, recovery of raw material prices, new transport routes, increasing significance of the Arctic Council, formation of the Arctic Economic Council, and “buzzwords” of sustainability, arctic protection, and social license.

## **Arctic Strategy**

The answer, to some extent, for revitalizing Finland's economic outlook is future Arctic developments. Politically the government can see the nation's participation in the Arctic as part of a broader competition in which Arctic states have to position themselves, not only between Arctic states but also with respect to other states that provide similar services. More broadly, however, the nation is looking for cooperative solutions including between Arctic and non-Arctic states.

Finland's value proposition in the Arctic is that it has a well-educated (education approach is to raise the lowest common denominator) and affordable workforce, and is well-positioned between Europe and Asia. The Arctic is part of Finnish identity, whereby Finns contribute expertise, demonstrate a model of (social-cultural) sustainable development, and promote cooperation. From the start, this was approached by identifying areas of Finnish expertise based on the question, "What can we offer the Arctic?"

Finland's Arctic strategy was first developed in 2010 as an extension of its foreign policy, and by 2012 it had begun the process anew to respond to domestic interests and needs. Part of the discussion leading into developing the newer strategy was the understanding that Finland is an Arctic nation, not just Lapland an Arctic jurisdiction. There has been widespread acceptance of this approach from across Finland, including from the north.

The vision for the strategy, developed with cabinet-level participation and an Arctic Advisory Board that included the public and private sector, was to "reconcile limitations imposed and business opportunities provided by the Arctic environment." The process of developing the strategy, then, included providing an up-to-date analysis of the current situation; an articulation of government vision, policies and priorities; and definition of goals and actions - nearly one hundred actions are given, with follow-up mechanisms to assure implementation.

## **Research & Development**

Finland's extensive and in-depth Arctic expertise is a result of its commitment to an advanced education system. Finland invests quite heavily in developing expertise and research related to northern areas. A diverse amount of Arctic research is carried out both at higher education institutions and research institutes, which utilize the expertise possessed by many Finnish companies.

Instead of tax incentives or breaks, the government has chosen to do co-investment in R&D and especially applied research, which has to be weighed against other fiscal priorities. The focus of Finland's applied research investments are in technologies for business, because they see applied research investment transformed into GDP growth. Universities and companies are able to take advantage of shared physical and intellectual space, which results in increased data and knowledge sharing. At the same time, funding comes from three sources – private sector contracts, competitive grants, and government investment. Together, companies and research facilities are looking out 20 to 30 years trying to anticipate future development, and matching research competencies with company needs.

Ultimately, investment in applied research should result in increased availability, reliability, and bankability of Finnish technologies and products. In the Arctic, research drivers include both changes

and challenges (i.e.; sea ice coverage and melting of permafrost; natural resources and open shipping routes; energy markets – CO2 reduction and need for renewables; environmental sensitivity and political will). Research plays a key role in the area of planning, licensing procedures and evaluation of risks and threats in connection with the various activities. Research areas, then, relative to business potential, rest on Arctic operations and environment, and include:

- Ship-building (especially to meet Russian demand - 300 ice class vessels over 20 years)
- Cold climate wind energy (offshore) – ice mapping and mitigation measures
- Ship structures and ice performance, ship propulsion
- Ice and snow physics and mechanics; materials and coatings for built infrastructure

A notable success is the company Outotec, which exports technology – assets in the form of people and expertise. Clients are big mining or energy companies that are trying to integrate sustainability and reduction of carbon footprint into business models. They also are advising governments and companies about cleaner production in the Arctic and beyond, based on the belief that technology is the bridge to sustainability.

Importantly, the University of Lapland has responded to the strategic focus of the region - Lapland of tourism; well-being; natural resources; industry – with its own strategic focus on the Arctic and Northern research that includes service design; northern well-being and changing work; and sustainable development and equity. Their biggest program within the Social Sciences is social work, where they see Chinese interest as well in trying to deliver services to minority and rural areas.

There is a Lapland University Consortium that can be a stronger actor in the Arctic, provides more options for students and offers better quality and higher volume of programs. There is also participation in the Barents Cross Border University (as well as Oulu and seven Russian universities).

The EU Arctic Centre, located at ULapland, participated in Finland's Arctic Strategy as part of the intergovernmental evaluation and sharing of other Arctic policies and EU work. Ultimately, it provides a roadmap for what Finland wants to achieve (building mental/societal value of "Arcticness" within Finland) and what Finland has to offer. The Centre was initially established for science education and communication – through web and social media; popularized publications – and it has also added Arcticfinland.fi, which is a collection of policy and research, political or policy statements. They also participate in the Barents Mediasphere, which is a collaborative effort between journalists to improve cross-border communication.

### **Leaders in Navigation and Arctic Logistics**

The Finnish Ministry of Transport's priority is to secure safe and economic marine operations through a winter navigation system, for which they need accurate ice condition information (AIS based total coverage); setting ice restrictions and shore coordination; understanding merchant vessel capacity; understanding icebreaking capacity; and understanding human skills.

Of special importance is adequate and updated hydrography and sea-charts (Finnish Transport Authority responsibility). Winter navigation negatively impacts Finland's economy, so it becomes very important.

At the same time, they can share this experience with other northern locations. Ice classification provides good guidelines but operationalizing them needs to include more than that, especially human and technical capacity, as so much is dependent on operator skill. Individual states may need more robust ice navigator classifications, outside IMO; which may happen through the Arctic Council.

Finland has long been a world leader in Arctic shipping and maritime activities. Unsurprisingly, maritime equipment manufacturers represent the highest standard of technology. A number of leading engineering firms in Finland design and develop solutions for maritime logistics, offshore applications and a range of Arctic vessels, including Wärtsilä and Aker Arctic. Finland also possesses special expertise regarding winter navigation and related logistics, ice-breaking, the monitoring and control of sea transports as well as weather and ice information services. The main export markets for Arctic maritime technology include Canada, Norway, Russia, the United States and China. These countries need new equipment and fleets capable of operating offshore oil and gas fields as well as mining under Arctic conditions.

Supporting this is the Finnish Meteorological Institute (FMI) whose mission is to turn research and technology into high quality services. FMI serves the government and private sector with observation areas – 400+ stations – connected to Swedish and Norwegian networks, as well as with Baltic States. It moved recently to the university campus for closer collaboration on atmospheric science, oceanography, global change, air quality, space, and biogeochemistry. The Finnish Ice Service is provided by FMI – ice thickness, movement, forecasts – with a daily ice chart. FMI staff is also on Arctic icebreakers, with interest in industry collaboration.

Additionally, groups such as Aker Arctic provide ship design, fixed structure engineering/planning, field research, and testing, with over 40 years of experience in ice modeling, dating back to the Manhattan. Finnish shipbuilding has evolved from icebreakers to cruise ships now back to icebreakers. Aker Arctic has full scale experience with ships and ice conditions, with the widest correlation database among ice tanks and the ability to simulate ice conditions from anywhere in the world. They can evaluate, also, offshore oil and gas structures. They have influenced the development of the Dual Acting System (DAS), which allows independent operations for resource development. They developed sideways icebreaking for Russian oil spill response vessel and are working with the Finnish Environment Institute on a new brush system for oil spills.

### **Follow Up Actions**

- What considerations are involved in the potential reorganization of local governments?
- What is the mechanism for government support for R& D?
- What was the make-up of the Arctic Advisory Board and how did it function?
- What are Alaska's applied research capabilities? Competitive advantages?
- How does the Governmental Arctic Network compare with Integrated Arctic Management?
- What are collaborative opportunities between the University of Lapland and University of Alaska?
- What impact on UAF would a strategic focus on "Arctic" have?