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Nordic Innovation Centre



INNOVATION POLICIES FOR THE FUTURE

- Intellectual Property Rights
- Design
- Entrepreneurship
- Foreign ownership
- Innovation in the periphery



INNOVATION POLICIES FOR THE FUTURE

Introduction

The Nordic Innovation Centre has now completed the second round of projects linked to innovation policies in the Nordic countries. Like last year's report, the following is a synthesis report containing short descriptions of the projects and their relevant policy implications.

Our objective in this undertaking is to make a contribution to the development of more effective innovation policies in the Nordic countries by offering valuable insights to those in ministries and organizations who have innovation and enterprise policy measures as their domain.

It is not the purpose of a synthesis report to give a complete description of all the projects and their results and recommendations. This report focuses on those recommendations which NICE considers should be followed-up at both Nordic and national levels with a view to implementation.

From the Nordic Innovation Centre's perspective, the following conclusions are of particular interest:

Foreign-owned multinationals represent Nordic opportunities

There are no clear indications that justify discrimination vis-à-vis foreign owners. Foreign-owned companies in the Nordic countries take part in international networks that might benefit other firms in the national innovation system. They also might provide capital used for innovation purposes on a national level.

Marketing the Nordic countries as innovation-friendly

Given that the framework conditions are favourable to foreign investments in the Nordic countries, arguably the best option for attracting more foreign owners would be to market these countries as innovation friendly and knowledge-intensive markets. An enterprise-friendly innovation policy will also encourage foreigners to invest in these countries. Thus the activities of the national "Invest in" institutions should be strengthened.

Online searching of Intellectual Property Rights (IPRs) should be free and easy: a Nordic portal

A Nordic IPR search portal, would help Nordic SMEs to become more familiar with their IPR landscape. Nordic national patent and trademark offices should also propose IPR surveillance services with a more supportive pricing model, and courses targeting more specific industry sectors or needs.

A Nordic Patent Defence Union and a Nordic IPR Institute

A Nordic Patent Defence Union could be a first step to the launch of a European initiative to prevent intimidation of SMEs by large companies.

Venture capital for SMEs

The design industry faces problems in securing venture capital. Companies need more information on such sources of finance, while potential investors must be made more aware of the profits to be made from design and of how to recognize such opportunities.



Establishing entrepreneurship programmes based on science and technology

While there are several entrepreneurship programmes in business administration, there are few that build on basic studies in science, technology and medicine, where opportunities for creating new high-growth firms tend to be much greater. Such programmes should be promoted in the Nordic countries.

Start-up grants for young entrepreneurs

Many young people leaving school with interesting business ideas find it difficult to obtain financing. The Nordic countries should launch a project giving such individuals the opportunity to develop their ideas over six months with a view to ensuring their viability and shortening the odds on successful start-ups. The grants should be used for development costs and not mainly for academic spin-offs.

Design industry - a potential Nordic growth area

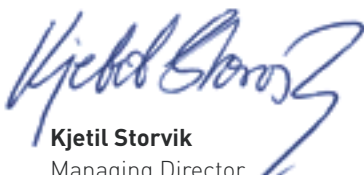
The design industry is a small but important growth industry. The Nordic governments must make more of an effort to exploit the potential of the sector. The ripple effects from the design industry to other commercial activities is formidable. Network collaboration, internationalization strategies and improvements in education are just some of the measures that might be appropriate at national Nordic level.

Innovation in rural areas - a Nordic resource for increased value creation

Innovation in rural areas represents a considerable potential which has not been sufficiently realized. This is the case particularly when products associated with the agri-food and tourism sector are taken into account. The government must take a proactive approach to policies and opportunities involving the innovation system and the periphery.

A vigilant reader will notice that several of the projects identify a lack of involvement from the seed-/venture capital market as an obstacle for further development. The Nordic Innovation Centre has therefore already decided that risk capital issues are to be studied more closely in the next round of projects starting mid 2005.

It is my hope that the synthesis attempted in this report will inspire further study of the individual underlying reports. For downloads www.nordicinnovation.net



Kjetil Storvik
Managing Director
The Nordic Innovation Centre

PROJECTS

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Creating Opportunities for Young Entrepreneurs - Nordic examples and experiences

International studies show the importance of education in creating and increasing interest among young people in entrepreneurial behaviour. This project aim to document activities related to entrepreneurial education in the Nordic countries, focusing on good practice and formulating concrete suggestions for development, including methods for correlating resources and results and for evaluating changes in attitude and behaviour.

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Intellectual Property Rights and Nordic SMEs - a study of IPR practices in the IT and biotech sectors

The aim of this project is to encourage Nordic SMEs to develop their use of IPRs as a competitive strategy by disseminating good IPR practice among Nordic SMEs in two very different industrial sectors (biotech and IT) and by formulating recommendations as to how SMEs can make better use of the IPR system.

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The Future in Design - the competitiveness and industrial dynamics of the Nordic design industry

The project study the competitiveness of the rapidly expanding Nordic design industry. As every business involves some element of "design", the study focus on specialized firms: those that sell design services to other firms (B2B) and those that sell consumer products which are valued mainly for their design (B2C).



The Innovation System and the Periphery (ISP)

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The ISP project focuses on the role of innovation and the nature of innovation processes in selected industries in peripheral areas/regions of the Nordic countries with the aim of exploring how the innovation capabilities of companies can be enhanced through innovation and regional policies and the strengthening of innovation systems. Emphasis is on three industry sectors: tourism, agri-food production, and manufacturing.

Foreign Takeovers in the Nordic countries (FOTON)

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The FOTON project sought to establish whether there were any major differences between nationally owned companies and local firms taken over by foreign multinationals as regards capabilities for innovation and the interaction with other companies and institutions. The point is not to label foreign acquisitions as good or bad, but to determine to what extent such activities influence learning and innovation in the relevant companies and the national economy as a whole.

Entrepreneurial learning & academic spin-offs

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This project provide insights into entrepreneurial learning and academic spin-offs aiming to provide Nordic policy makers, university administrators and spin-off managers with a complementary perspective and suggestions for improvement.

Creating Opportunities for Young Entrepreneurs

- Nordic examples and experiences

The following researchers have participated in the project:

Sweden

Prof. Anders Lundström
(project manager)
and Carina Holmgren
Swedish Foundation
for Small Business Research
(FSF)

Denmark

Hanne Shapiro
Technological Institute

Finland

Prof. Vesa Routamaa
Katri Mäki-Tarkka
University of Vaasa

Iceland

Karl Fridriksson
IceTec

Norway

Ass. Prof. Beate Rotefoss
Maiken Johnsen
Kunnskapsparken Bodø/Bodø
Graduate Business School

Background

Recent studies of entrepreneurship policy confirm the importance of education in entrepreneurship for young people, both to encourage interest in such activities and to teach entrepreneurial behaviour. There is a need in many countries to create a more entrepreneurial society, to increase the supply of new young entrepreneurs and to promote public understanding of the needs of entrepreneurs.

This is especially important in the Nordic countries because:

- most of the Nordic countries lack sufficient entrepreneurial activity;
- there are demands for restructuring to increase the importance of the private sector;
- meeting the need for more entrepreneurs will require changing attitudes among young people;
- to date there have been too few strategic initiatives in this area in the Nordic countries.

Scope

The task was to structure and evaluate experiences of current activities in the Nordic countries, to identify examples of good practice and to analyse the potential benefits and limitations of different measures in the light of existing theory. The aim was to present concrete suggestions for developing this field, for relating the necessary resources to intended results, and for assessing changes in attitude and behaviour. Knowledge gained from the project and the resulting proposals should make a significant contribution to the development of a more comprehensive approach to this issue in the Nordic countries.

Policy implications

Define the young entrepreneurship policy area

All governments should designate the promotion of entrepreneurship among young people as a priority. Whether measures are aimed exclusively at young people or are more general in character, it is important to focus on this area.

Policy measures should address issues of motivation, skills and opportunity

Allowing for different interests in the various countries, an holistic policy focusing on measures involving motivation, skills and opportunity is essential. A strategic approach requires a clear formulation of objectives and of how these objectives are to be achieved.

Strategy for young people leaving school at different levels

There is a need for a specific strategy aimed at individuals leaving the school system at different levels. Many may lack opportunities for gaining relevant work experience; others who might have learned about entrepreneurship in school will also need services and support. More projects and programmes are required in this area.

Entrepreneurship education

Entrepreneurship education has developed rapidly in the Nordic countries over the past decade. All have now adopted strategic approaches, even if the length and depth of their experiences vary widely. However, the proportion of students participating in this type of education remains small, and there is still a lack of teacher training and a need for society as a whole to be more involved.

Annual entrepreneurial week

An entrepreneurial week for young entrepreneurs and researchers has been organized for the past ten years in Sweden and has now been introduced in Norway. Other Nordic countries should follow suit, including if possible award schemes in both categories.

Start-up grants for young entrepreneurs

Many young people leaving school with interesting business ideas find it difficult to obtain financing. The Nordic countries should launch a project giving such individuals the opportunity to develop their ideas over six months with a view to ensuring their viability and shortening the odds on successful start-ups. The grants should be used for development costs and not mainly for academic spin-offs.

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Intellectual Property Rights and Nordic SMEs

– a study of IPR practices in the IT and biotech sectors

The following researchers have participated in the project:

Norway

Axel Moulin
(project leader)
Haakon Thue Lie
Leogriff
Elizabeth Dahl Sandbu
Ploughman & Vingtoft

Finland

Tom Laine
Sukseet Works

Iceland

Karl Fridriksson
IceTec

Sweden

Lars Gustafsson
Rubus Patent
Bowman Heiden
(team leader)
Jens Bördin
Patrik Dehlfors
Tomas Faxheden
Masoud Homayoun
Erik Lundberg
Roberta Meija
Caroline Pamp
Karen Williams
Johan Öberg

Center for Intellectual
Property studies

Background

Making efficient use of the intellectual property rights (IPR) system is a challenge for small and medium-sized enterprises (SMEs). Studies in Europe show that many SMEs fail to utilize IPRs because they feel the process is too expensive or the return too low. The latest EU Innobarometer opinion poll found that while relatively few (20%) innovative firms have applied for patents or registered a trademark to protect their invention, over 40% of SMEs assigned the category “successful, innovative” have done so. The Innobarometer survey also found that the larger the SME, the more IPR aware it is likely to be.

Many businesses are thus missing the opportunities that well managed IPRs support: more intensive development, increased sales, strong partnerships and licensing revenues. This issue should be addressed at Nordic level.

Scope

The general purpose of this project was to encourage and assist Nordic SMEs to improve their use of IPR in order to enhance their competitiveness. The goals are to disseminate good IPR practice observed among Nordic SMEs in two very different industrial sectors (biotech and IT); and more specifically, to identify supportive online tools and services, to investigate IPR proficiency in research and support institutions and evaluate their effect on SMEs, to screen Nordic legal and financial systems for incentives to a more intensive use of IPR, and finally to come up with recommendations to help SMEs make a better use of the IPR system.

Policy implications

Essential in higher education

The biotech industry is somewhat unusual in that it shows a high level of proficiency with regard to patents and IPRs, generally acquired by “hands-on” experience. Knowledge of IPRs in the IT sector, by comparison is still too fragmented; and this is also the case for many other industrial sectors. This is not surprising: most graduates have never studied anything about IPRs, and there are only about four Nordic higher education institutions teaching IPR management. All graduates need education, theoretical and practical, in IPRs.

Accessible online searching: a Nordic portal

The first step in any project involving IPR is to investigate whether the object of concern is unique. With the exception of Denmark, such research tends to be a tedious and time-consuming and sometimes expensive process in the Nordic countries. A Nordic IPR search portal, modelled on Danish lines, would help Nordic SMEs to become more familiar with their IPR landscape. Such a portal should also include news and updates, a help-desk and an interactive handbook.

Specific IPR early assistance for SMEs

The high cost of IPR surveillance (business intelligence through the analysis of IPR registrations) are a stumbling block for SMEs. The courses and seminars available from patent offices are mostly general in content and fail to address the SMEs' particular needs. Nordic national Patent and Trademark Offices should propose IPR surveillance services with a more supportive pricing model, and courses targeting more specific industry sectors or requirements.

A Nordic Patent Defence Union

Several studies indicate that one of the main reasons SMEs do not trust the IPR system is that they feel they lack the resources to enforce their rights legally should this become necessary. At the EU level, a compulsory Patent Litigation Insurance scheme is under discussion. One alternative solution may be a Patent Defence Union: a voluntary association of SMEs accepting mutual compulsory arbitration and defending their IPRs together. Formation of a Nordic Patent Defence Union could be a first step towards a European initiative to prevent intimidation of SMEs by large companies. Such a Union would need financial support through the first years. The designation of an arbitration authority is pending.

An IPR manager in every innovation-supporting organization

Science parks, incubators and innovation-supporting agencies sometimes have very limited competence in IPRs. Because all concerned must often make critical decisions before any product has been defined, on-site IPR competence is crucial. Innovation-supporting organizations should all have internal (or insourced) IPR competence if they are to manage their projects in the most beneficial way. Additionally, because these organizations are generally small, and limited in terms of experience as well size, IPR resource personnel should be connected through a Nordic network.

A Nordic IPR Institute.

A Nordic Patent Institute, a centralized authority with a Patent Cooperation Treaty (PCT) function, would enhance the quality and efficiency of search and examination in the field of patents. The establishment of such body has been the subject of exhaustive study by the Nordic national patent and trademark offices. With the reduced role of these agencies as the European Patent Office has grown in importance, this initiative would help retain in Nordic countries the patenting competence vital to maintaining a high-quality regional IPR environment.

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The Future in Design

– the competitiveness and industrial dynamics of the Nordic design industry

The following researchers have participated in the project:

Sweden

Dominic Power
(project leader)
Joel Lindström
Johan Jansson
Uppsala University

Finland

Antti Ainamo
Markku Salimäki
Helsinki School of Economics

Sweden

Daniel Hallencreutz
Intersecta AB

Iceland

Halldór Gíslason
Iceland Academy of Arts
Margrét Sigrún Sigurdardóttir
Agust Einarsson
Halldór Engilbertsson
Nicholas O’Keefe
University of Iceland

Norway

Nils Solum
NIFU-STEP
Marit Hubak
SINTEF

Denmark

Mark Lorenzen
Tina Brandt Husman
Copenhagen Business School

Background

Many companies now see design as a means of improving efficiency as well as gaining a competitive edge in the marketplace; an important aspect of product development, and even an area of artistic endeavour in its own right. However, although Nordic design has been virtually a global brand for many years, very little has been said about the industrial organization and dynamics of design in the Nordic countries. Most recently, design has become not just the preserve of high profile artistic or marketing entrepreneurs, but the core product around which an industrial system of companies, institutions and business practices has developed. The subject of this project is the rapidly expanding professional design industry and how we can better understand – and support – its industrial functioning, innovation system and competitiveness.

Scope

The aim of this research project was to study the commercial competitiveness of the Nordic design industry. Because every business involves some degree of ‘design’ the study focused on specialized design firms: those that sell design services to other firms (B2B); and those that sell to consumers products which are valued mainly for their design (B2C). Over 20,000 firms in the Nordic countries fit this definition. While this is a relatively small figure, it represents a rapid growth in numbers both of design firms and of those employed in design activities. Rising revenues and turnovers also indicate that the market for Nordic design, at home and abroad is expanding.

Policy implications

Venture capital for SMEs

Design is a small but important growth industry in which meeting the needs of SMEs is crucial.

The sector faces problems in securing venture capital: companies need more information on such sources of finance, while potential investors must be made more aware of the profits to be made from design and of how to recognize such opportunities.

Networking and clustering

Governments should support professional networking and clustering initiatives, and industry associations that help bring small firms together. The aim is to encourage such companies to share experiences with a view to collaboration on more comprehensive product packages.

There are often big differences between the worlds of the client and the designer: forums, courses and contact brokers can help bridge the gaps. International, regional and national trade fairs offer important sales and networking opportunities for design firms; support for their involvement should be recognized as a real investment by export authorities and other trade bodies.

Internationalizing design education

There has been a rapid expansion in the numbers of students enrolled in design courses and an appreciable increase in the quality of graduates. However, third-level design education needs to be internationalized to a far greater extent than is the case today. Appropriate measures might include making better use of exchange programmes and study abroad, increasing the intake of overseas students, encouraging more foreign language training, using more foreign external examiners, extending visiting academic initiatives and similar programmes, and benchmarking international best practice – also comprising business and management skills – in design education.

Business opportunities in design

The industrial sector as a whole needs to be more aware of the business benefits of employing professional designers. In addition, in-house design competencies should be more readily exploited, and fully integrated into management and strategic planning. Design firms need recognize the importance of making the business case for their products and services, and to hone their business skills accordingly. Scandinavian Design is a well established and robust international brand that could be better exploited. The public sector should take the design dimension much more into account when making purchasing decisions.

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The Innovation System and the Periphery (ISP)

The following researchers have participated in the project:

Denmark

Hanne Tanvig
Klaus Lindegaard
Jens F. L. Sørensen
Monica Stoye
Marit Vatn Jensen
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Finland

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Kristiina Niemi
Chydenius Institute

Iceland

Elín Aradóttir
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Norway

Morten Fraas
Trond Einar Pedersen
Åge Mariussen
NIFU-STEP Centre for
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Sweden

Lars Olof Persson
Katarina Larsen
Åsa Pettersson
Royal Institute
of Technology (KTH),
Department of Infrastructure

Background

General discussion of innovation policy and research has tended to focus on densely populated, technologically advanced regions and/or on major university centres. The basic assumption behind the ISP project is the need to increase our knowledge of innovation systems in peripheral regions and to focus more on the design and implementation of innovation policy and innovation facilitation practice in a rural context.

This project built on the premise that there is a need to understand innovation in a broad sense while also formulating and implementing innovation policy in more detail: in every industry sector, in the treatment of small and large companies, and in rural and urban districts.

Scope

The ISP project focused on the role of innovation and the nature of innovation processes in selected industries in chosen peripheral areas/regions of the Nordic countries, exploring how the innovation capabilities of companies in selected industries might be enhanced through innovation and regional policy measures, and by strengthening innovation systems. There are four key research themes: innovation activity, the knowledge and competence base, cooperation and networks, and innovation conditions. Emphasis is on three industry sectors: tourism, agri-food production and manufacturing.

Policy implications

Facing up to the issue

In spite of some apparent disadvantages associated with peripheral areas, innovation is achievable – and is occurring – in the Nordic periphery. It is important that policy makers display a positive attitude towards innovation in peripheral regions in order to encourage rural communities. The examples found by the ISP project should help foster such an attitude, motivating policy makers to take a proactive approach.

Rural ways of life and innovative products

The study shows that traditional practical knowledge (e.g. knowledge of cultural and natural/environmental aspects of rural communities) has often been the source of innovative products that appeal to a broad market. This is especially the case in the agri-food and tourism sectors. The findings of the ISP project therefore indicate that the rural way of life can be a basis for innovation. Decision makers should formulate innovation policy measures accordingly.

More visibility for policies and support schemes

Many companies demonstrated limited awareness and a lack of familiarity –and in some cases, confidence – in relation to the entire system of innovation

facilitation. Policies and official support schemes should be made more visible and accessible to end-users, particularly at local level.

Sectoral isolation

In some Nordic regions, certain industry sectors are quite isolated from other aspects of economic life. This especially applies to the agri-food sector. Future innovations in farming and food processing could benefit from closer relations and collaboration with other sectors, e.g. tourism. There is a need, in short, for greater emphasis on cross-sectoral thinking and interaction in policy making.

Extending the knowledge and competence base

Although valuable knowledge and competencies were found across the entire range of ISP cases, it can be argued that improvements in the basic knowledge and competence base of the companies studied could boost their innovation potential and benefit the regions in which they operate. Although general capacity building appears to be the primary need, there is probably also a case for improving the stock of formal advanced knowledge, especially among those firms and industries that have reached a certain level of maturity and sophistication. Policy makers should aim at strengthening the role of educational institutions in peripheral regions.

Entrepreneurial culture

Policy makers should move away from routine discussions on strategies, programmes, services, etc., and consider initiatives that build on more targeted approaches to community economic development, aiming at general capacity building and raising the motivation and self-confidence of potential innovators e.g. therapeutic programmes for encouraging positive or proactive thinking, or constructive identity building at the community or community segment level.

Using networks

The great importance of horizontal networking relationships to innovation processes is a clear and consistent finding from the project. "Firm to firm" relations seem to be a very important part of the systemic aspect of innovation processes, as well as firms' interactions with industry associations, clients and suppliers. The policy mandate should be to facilitate even better use of these existing networks. Policy makers should aim at giving those concerned a stronger role in policy processes, including the design and implementation of policy measures, through specific support programmes and development projects.

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Foreign takeovers in the Nordic countries (FOTON)

The following researchers have participated in the project:

Norway

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Sverre Johan Herstad
Amir Piric
Svein Olav Nås
Johan Hauknes
Marianne Broch
Nils Henrik Solum
NIFU-STEP
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Finland

Juha Oksanen
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Nina Rilla
Bernd Ebersberger
VTT Technical Research Centre
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Iceland

Thorvald Finnbjörnsson
(team leader)
Elva Brá Adalsteinsdóttir
RANNIS

Sweden

Anne-Christine Strandell
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Hans Lööf
Magnus Frostenson
Tommy Borglund
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Hans de Geer
Swedish Institute for Growth
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Denmark

Jørgen Lindgaard Pedersen
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Martin Tølle
DTU Technical University
of Denmark, Department of
Manufacturing Engineering and
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Background

The debate on globalization has led to an increased political interest in the impact of foreign takeovers on national industrial development, employment and innovation.

The FOTON project aims to determine whether there are any major differences between nationally owned companies and local firms taken over by foreign multinationals as regards capabilities for innovation and interaction with other firms and institutions.

In other words, the issue is not whether foreign acquisitions are good or bad for a country in general, but to what extent they influence learning and innovation in the relevant companies and the national economy as a whole. However, given the importance of innovation in economic growth and welfare development, the study should prove relevant to the wider discussion as well.

Scope

FOTON is made up of three modules:

Module 1: a statistical exercise providing an overall picture of foreign industrial ownership in the Nordic countries. The main part of this work, which was based on data from the Community Innovation Survey, made it possible to ascertain the extent of differences between foreign and nationally owned companies as regards innovative capabilities.

Module 2: case studies of Nordic firms that have been taken over by foreign companies. To allow for inter-Nordic comparisons, takeovers within two specific industries were selected: pharmaceuticals and ICT. The main focus of the case studies was on how the takeovers have affected innovation capabilities, not only in the acquired firms but also – through local links – in the surrounding innovation systems.

Module 3: a study of policy developments of importance for foreign direct investments in general.

Policy implications

No clear difference

The main conclusion is that there are no clear differences between domestic companies and affiliates of foreign multinationals as regards innovation activities. Hence foreign companies are not more likely to be innovative than domestic companies.

However, *domestic* multinationals outperform foreign-owned firms in terms of R&D investments in Finland and Sweden. In Norway, domestic multinationals and Anglo-Saxon multinationals show significantly higher R&D intensity than other firms.

Domestic multinationals and the national innovation system

It seems that domestic multinationals are the main beneficiaries of public R&D support; compared with foreign multinationals, they are also more closely embedded in the national innovation system – i.e., more likely to interact with other firms and institutions. This is important, as insufficient involvement in this area weakens the competence flow from the foreign-owned companies to the rest of the economy.

No discrimination of foreign owners

The FOTON team argued that there are no clear behavioural patterns which justify discrimination, positive or negative, vis-à-vis foreign owners.

Foreign-owned companies take part in international networks that might benefit other firms in the national innovation system, and may also bring in capital that can be used for innovation. These arguments suggest a policy aimed at attracting foreign investment.

Marketing the Nordic countries as innovation-friendly

Given that the framework conditions are favourable to foreign investments in the Nordic countries, arguably the best option for attracting more foreign owners would be to market these countries as innovation-friendly and knowledge-intensive countries. Foreign investors will normally look for the same favourable framework conditions as domestic companies. An enterprise-friendly innovation policy will also encourage foreigners to invest in these countries. Thus the activities of the national “Invest in” institutions should be strengthened. The Nordic Council of Ministers should consider establishing a new Nordic web portal, leading potential investors to relevant information and potential contacts.

Public understanding of the importance of foreign investments

Public opinion is probably not a strong impediment to foreign investments in the Nordic countries. The governments should nevertheless consider measures aimed at strengthening public understanding of the effects of such investments.

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Entrepreneurial learning & academic spin-offs

The following researchers have participated in the project:

Sweden

Sören Sjölander
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Mats Magnusson
Stefan Sanz-Velasco
Mattias Johansson
Chalmers University
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Finland

Annaleena Parhankangas
Helsinki University of Technology

Iceland

Rögnvaldur J Sæmundsson
Reykjavik University

Denmark

Tomas Hellström
Copenhagen Business School

Background

This report focuses on entrepreneurial learning. Entrepreneurial learning is defined as the process by which entrepreneurs acquire the knowledge needed for identifying, creating and exploiting new innovative business opportunities in the form of a new company, or a new business in an existing company. In the modern economy, the knowledge economy, innovations based on new knowledge have a special and growing importance; and hence the sources of such innovations, the “academy” – typically research universities and research institutes – play a fundamentally important role as engines of economic growth in society.

Scope

The main goal of “Entrepreneurial learning & academic spin-offs” has been to:

- Develop a theory of entrepreneurial learning which provides a framework for understanding what entrepreneurs need to know, as defined by the “business model”, to be able to exploit new innovations, and how they successfully acquire such knowledge
- Provide an analysis of how entrepreneurs in Nordic academic spin-offs learn critical commercialization skills
- Review and analyse entrepreneurship education programmes at Nordic universities
- Survey university policies effecting entrepreneurial learning in the academic context; identify needs and suggestions for new or refined policies aimed at increasing entrepreneurial learning and its output and hence entrepreneurial competence in Nordic university contexts.

Policy implications

Supportive environments

A number of learning behaviours were identified which academic entrepreneurs used for improving their ventures, customer-based business model learning being the most important – and least exhibited. In more supportive environments (Sweden and Finland), external actors were found to be more involved, whereas in less supportive countries (Denmark, Norway and Iceland), such involvement was rare. Academic entrepreneurs in supportive environments were thus found to have access to a richer set of learning behaviours and to perform better.

Experience necessary

Teachers with hands-on experience of entrepreneurial ventures are much needed. It was found that very few academic teachers in entrepreneurship have any experience of developing a real business. Universities may need to focus on entrepreneurial learning in their respective core areas of research, restricting entrepreneurial activities to what they are already good at.

Unconventional support measures such as lab-integrated entrepreneurship education programmes and business plan competitions can encourage learning behaviours leading to necessary business-related knowledge.

Analysis vs. experimentation

Some programmes continue to focus almost exclusively on traditional pedagogical goals, aiming to improve the analytical and management skills rather than focusing on experimental learning. It is argued that this does not meet the needs of the entrepreneurial process.

Entrepreneurship programmes in science

While there are several entrepreneurship programmes in business administration, there are few that build on basic studies in science, technology and medicine, where opportunities for creating new high-growth firms tend to be much greater. A focus on entrepreneurship programmes closely related to science, engineering and medicine should be promoted.

Venture capital investors

There is insufficient involvement of venture capital investors and conventional university support services, such as incubator services or technology transfer offices. There is a pressing need to improve the expertise of seed/venture capital investors in the Nordic countries and to establish their competence to the satisfaction both of their own investors and of potential entrepreneurs.

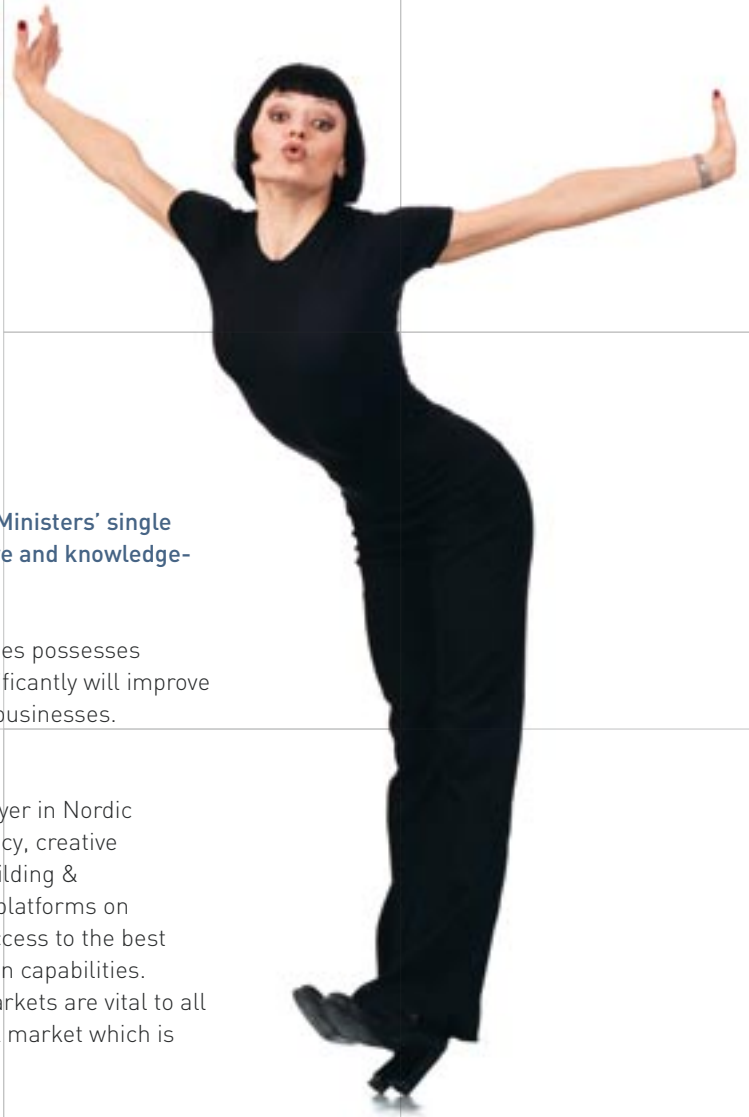
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Nordic Innovation Centre



The Nordic Innovation Centre is the Nordic Council of Ministers' single most important instrument for promoting an innovative and knowledge-intensive Nordic business sector.

Our basic assumption is that each of the Nordic countries possesses knowledge, which through increased co-operation significantly will improve innovation capabilities and competitiveness for Nordic businesses.

Nordic knowledge platforms

Today, the Nordic Innovation Centre is an important player in Nordic knowledge platforms within the areas of innovation policy, creative industries, biotechnology, food safety and innovative building & construction. Establishing common Nordic knowledge platforms on strategically important areas give Nordic businesses access to the best knowledge possible and greatly enhance their innovation capabilities. We believe that building common Nordic knowledge markets are vital to all Nordic business life, enabling us to compete in a global market which is becoming more and more knowledge driven.

Investments

The total project portfolio of the Nordic Innovation Centre consists of approximately 120 ongoing projects and networks. Together with several hundred completed projects of great value to Nordic businesses, these projects involve the Centre in nearly all strategically important Nordic areas.

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