

# ServINNo

Service innovation in  
the Nordic countries:  
Key Factors for  
Policy Design

## Mapping Innovation Policy in Services Country Report - Denmark\*

October, 2007

**Danish Centre for Studies in  
Research and Research Policy (CFA)**

**Prepared by:  
Carter Bloch and Kaare Aagaard**

---

\* This paper is part of the ServINNo project – Service Innovation in the Nordic Countries: Key Factors for Policy Design (<http://www.cfa.au.dk/SERVINNO/Servinno.htm>). Funding from the Nordic Innovation Centre (NICE) is gratefully acknowledged.

# 1. Introduction: an overview of the Danish innovation policy system and institutions

## 1.1. Overview<sup>1</sup>

The public part of the national Danish research and innovation system has for many years been criticized of being too fragmented and uncoordinated. Even though a number of initiatives were taken to strengthen the function and coordination of the system (in particular after 1993, when the first Danish Ministry of Science and Technology was founded), the dissatisfaction among central stakeholders remained throughout the last decade and led to a number of recent initiatives.

Accordingly, it has until recently been argued repeatedly that the system was too fragmented to act as a framework for a coherent and efficient use of research and innovation resources. There was also an impression that the Danish innovation system suffered from a low level of interaction between trade and business on the one side and knowledge institutions e.g. universities, public sector research institutions and technological service institutes on the other.

However, in July 2000, a Danish Research Commission was established to review the relevant legislation with a view to enhancing the efficiency of the entire research system. The results of this appraisal were presented in September 2001 (the Commission's report has been published online<sup>2</sup>). Based on the Commission's recommendations the Parliament and the government embarked on a reform of the entire public research and innovation system in 2002, when a new Act on Technology and Innovation was passed.

As a consequence the Danish innovation system has been restructured considerably in the last few years. To strengthen the coordination and the overall function of the research and innovation system, responsibility for both research and innovation has for the first time been given to a single ministry. Innovation related policies and measures were transferred from the Ministry of Economic and Business Affairs to the new Ministry of Science, Technology and Innovation. At the same time, some of the competences of the former Ministry of Trade and Industry regarding trade and business services and innovation related policies were placed with the Ministry of Science, Technology and Innovation. Similarly, the administration of the university sector was transferred from the Ministry of Education to the new ministry.

### **The Ministry of Science, Technology and Innovation**

In effect, this reorganization moved practically all innovation related policies within the purview of the Ministry of Science, Technology and Innovation. Responsibilities for universities were moved there from the Ministry of Education and most responsibilities for innovation and high-tech business development were transferred from the Ministry of Trade and Industry. This gave the new Ministry an overarching responsibility from academic education and research to innovation and information technology.

Furthermore, a new body, the **Council for Technology and Innovation**, was set up to assist in the implementation of the new legislation. The council advises the Minister of Technology, Science and Innovation and is authorized to make decisions on a number of specific appropriation matters. The council, whose members are appointed by the minister, is composed in such a way that it includes competencies that are deemed essential for a viable innovation system.

---

<sup>1</sup> Parts of this paper draw on Siune and Aagaard (2006a,b).

<sup>2</sup> <http://www.videnskabsministeriet.dk/fsk/publ/2001/danishresearchcommission/report.pdf>

The research funding and advisory system has also been reformed in order to ensure an optimal use of research resources. The reform is an attempt to simplify the organizational structure of the system and to strengthen the management. The intention was to open up competition for research resources that are not allocated as basic appropriations to institutions, and to ensure that a larger part of appropriations are channeled through the advisory and funding system. Whether the reform has led to an actual simplification of the structure is, however, debatable.

The Ministry of Science, Technology and Innovation is currently being restructured. It was initially divided into two departments: Research, Innovation and Education, and Information and Communications technology. The Department for Research, Innovation and Education was subdivided into three Centers: the Centre for Education and Research Institutions, the Centre for Research and Innovation and the Centre for Analysis and Policies. With effect from May 2006, this structure has been changed. In practice this means that some functions (and personnel) are to be moved to separate directorates under direct ministerial control. The three new directorates are:

- IT and Telestyrelsen (Directorate for ICT)
- Forsknings og Innovationsstyrelse (Directorate for Research and Innovation)
- Universitets- og bygningsstyrelse (Directorate for Universities and Infrastructure)

The main objective of the reorganization was to improve goal-setting and prioritization of resources by creating a simpler organization. According to the Ministry, the new structure benefits from:

- a small department with a central policy centre
- a stronger integration of research and innovation
- a stronger ICT department
- a stronger administrative platform in the universities department

Below the ministerial level, there is a system of research advisory and funding councils ([www.forsk.dk](http://www.forsk.dk)). The main advisory council, the Danish **Council for Research Policy (Danmarks Forskningspolitiske Råd)**, was established pursuant to a new Act on research advice on 1 January 2004. The Council replaces the former Danish Council for Research Policy (*Danmarks Forskningsråd*) and advises the Minister for Science, Technology and Innovation on matters concerning research policy. The parliament and other ministers may also ask for the Council's advice. Advice may be given upon request or at the Council's own initiative. The tasks of the council include giving general advice on Danish and international research policy for the benefit of society, including advice on:

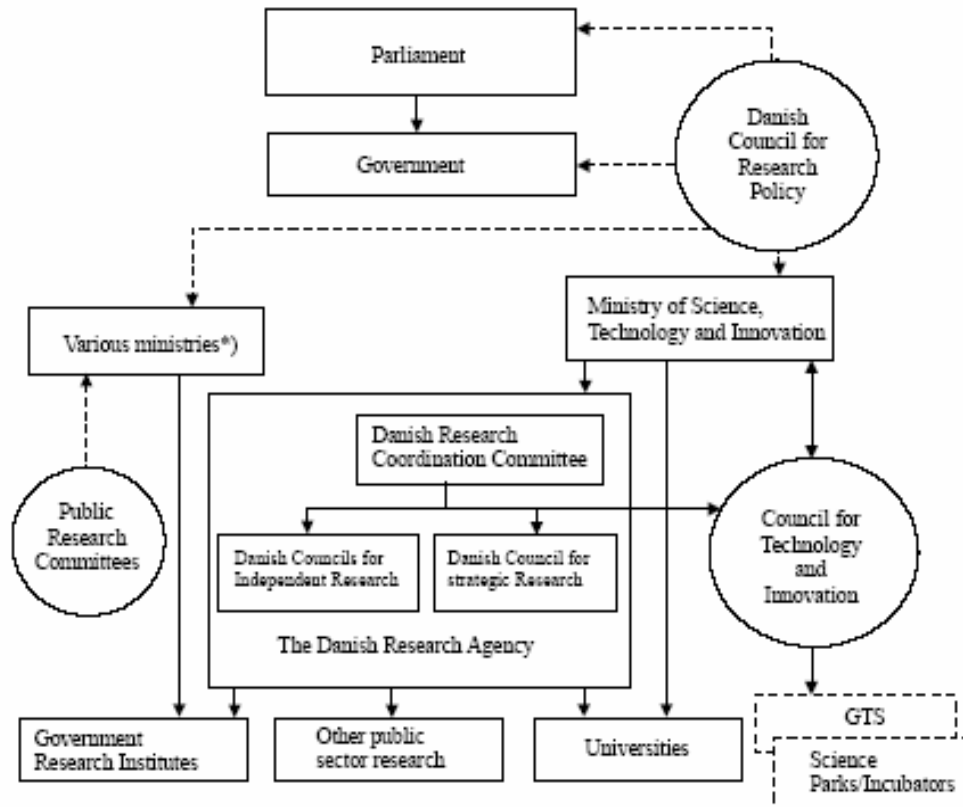
- The framework of research
- Appropriations for research
- Major national and international research initiatives
- The development of national research strategies
- Denmark's role and position in international research cooperation
- Training and recruitment of researchers

In the latest reform, the funding aspects of the research advisory system have been divided into two subsystems. The **Council for Independent Research (Det Frie Forskningsråd)** is the umbrella for five research councils and will support research projects based on the researchers' own research initiatives. It will also encourage Danish research to be as broad and of as high a quality as possible by carrying out open competitions based on independent assessments.

The other subsystem of the funding structure is made up of the **Council for Strategic Research (Det strategiske forskningsråd)**, which will support research based on politically defined programs. It will also give advice on research and technical subjects to applicants

and others within its scope of activities. The Council has an obligation to contribute to an increased co-operation between public and private research.

### Schematic presentation of the Danish innovation policy system



The **GTS (Authorized Technological Service) Institutes**, a policy initiative of the Ministry of Science, Technology and Innovation, construct and develop commercially oriented knowledge and technology, and make it available – on market terms - to the Danish authorities and business sector. A particular obligation of the institutes is the development and accessibility of technological knowledge to the SMEs. The Danish network of GTS Institutes consists of seven institutes. The institutes uphold a staff of approx. 3,000 employees and have an annual turnover of more than EUR 300 million (2004). The public grants to the GTS Institutes constitute approx. 11% of the turnover.

#### Ministry of Economics and Business Affairs

While the Ministry of Science, Technology and Innovation has the main responsibility for innovation policy, the Ministry of Economics and Business Affairs is also active in a number of policy areas concerning innovation.

The main unit within this ministry concerning innovation policy is the **National Agency of Enterprise and Construction (EBST)**. Among the areas they are concerned with are:

- Entrepreneurship
- Public-Private cooperation
- User-driven innovation
- Regional innovation
- Design
- Standards

- Trade regulations

**Business Development Finance (VækstFonden)** supports Danish companies by helping to finance R&D, internationalization and skills development projects. This support is organized through an institution operating under the legal form of a private venture capital company. With a capital base of 300 million Vækstfonden is one of the largest Danish VC players. Vækstfonden is a state backed investment company, which provide funding to fast-growing Danish companies and act as a fund-of-funds investor in the private equity sector in the Nordic region. The fund invests in early stage ventures mainly focusing on Life Science/Med Tech and High Tech, and provide mezzanine financing to a broad range of industries. It is part of the strategic objectives to work actively to facilitate access to international venture capital and drive the development of an internationally competitive private equity environment in Denmark.

The **Danish National Research Foundation (*Danmarks Grundforskningsfond*)** which has the status of an independent fund, is another important institution in the Danish innovation system. It funds larger research activities based on researchers' own ideas, and contributes to the development of Centers of Excellence. The Foundation has a capital of DKK 2 billion (approximately EUR 270 million). Originally it was expected that only the income from the capital should be used to fund the Foundation's activities. However, a later revision of the relevant legislation enabled the Foundation to use of the capital itself. At present, 33 centers are funded. In addition a Foundation for High-Tech Development was established recently to give the Foundation a cash injection of DKK 2 billion (EUR 269 million) on average per year over the next 12 years. The proceeds from the Foundation will be allocated to strategic high-tech projects in which Danish research and industry have strong qualifications. To be eligible, projects must have an element of interaction between public knowledge institutions and companies.

The **Innovation Council**, which was founded in October 2003 at the initiative of the House of Monday Morning ([www.innovationsraadet.dk](http://www.innovationsraadet.dk)), is based on cooperation between private companies, ministries and public institutions (such as the Ministry of Economics and Business Affairs, the Ministry of Science Technology and Innovation, the Danish Ministry of Education, Danfoss, FUUU, Novozymes and the Danish Bankers Association). The House of Monday Morning and FORA, the analysis unit of the Ministry of Economics and Business Affairs, are responsible for running the Innovation Council secretariat. The Innovation Council aims to discuss and encourage innovation in the Danish economy. It is made up of an international network of 100 people from companies, public sector institutions and institutions for education and research. Their task is to identify and map Denmark's opportunities and objectives within the global knowledge society.

#### **Danish Commerce and Services (now part of Danish Business)**

Danish Business (Dansk Erhverv) is an umbrella industry interest organization that represents a large number of service sectors. They are both active in policy discussions and have proposed a number of proposals for how policy should promote both innovation in general and service innovation in particular.

#### **Regional organizations**

Denmark recently underwent a Municipality Reform in 2007, where the number of municipalities was greatly consolidated and 13 counties were reduced to 5 larger regions.

#### **Research institutes**

There are a number of Danish research institutes active in service sector research and either directly or indirectly involved in policy discussions for service innovation. Among these are:

- Center for Service Studies, Roskilde University Center

- Department of Manufacturing Engineering and Management and Department of Communication, Optics and Materials, Denmark's Technical University
- Department of Business Studies, Aalborg University
- The Danish Centre for Studies in Research and Research Policy, University of Aarhus
- Department of Management and Institute for Marketing and Statistics, Aarhus School of Business
- Department of Industrial Economics and Strategy and Center for Innovation and Entrepreneurship, Copenhagen Business School

## 2. Policy

### 2.1. Recent innovation policy strategies

Following the election of early 2005, the Danish government moved innovation policy and the coordination of the innovation system to an even more prominent position on its policy agenda. The Prime Minister established a high profile Ministerial Committee on the challenges of globalization, which deals explicitly with a number of key innovation policy areas<sup>3</sup>. The group was chaired by the Prime Minister and included the Minister for Economic and Business Affairs as deputy chairman, the Minister of Education, the Minister of Finance and the Minister of Science, Technology and Innovation. In addition to this group, a so-called Globalization Council was established, consisting of the same ministers mentioned above and of representatives of central stakeholder groups; e.g. industry, trade unions and knowledge institutions. This council contributed significantly to the government's vision and strategy of developing Denmark into a leading, growth-, knowledge- and entrepreneurial society, which was presented in April 2006. The Globalization Council seems to have institutionalized a new way of formulating innovation policy in Denmark, which systematically involves a large group of key stakeholders in a very structured way.

A number of ambitious overall innovation policy objectives were presented following the early election in 2005 and the launch of the Globalization Council. The final Globalisation Strategy (Fremgang, fornyelse og tryghed, Statsministeriet, 2006) was presented in March 2006. The plan has four key points:

- Denmark as a leading knowledge society: The objective is for public and private sector enterprises to jointly boost efforts in the area of research and development so that Denmark's R&D total expenditure exceeds three per cent of gross domestic product by 2010.
- Denmark as a leading entrepreneurial society: The objective is for Denmark to become one of the societies in the world where most growth enterprises are launched by 2015,
- World-class education: The objective is for pupils in primary and lower secondary schools to be among the best in the world in reading, mathematics and science. The government also intends to raise the share of young people completing post-secondary education to a minimum of 85 percent by 2010 and to 95 percent by 2015. Furthermore, the government aims to raise the rate of students obtaining a degree in higher education to at least 45 percent by 2010 and to 50 per cent by 2015.
- The most competitive society in the world: the objective is for Denmark to be the world's most competitive society by 2015.

---

<sup>3</sup> See <http://www.statsministeriet.dk/Index/dokumenter.asp?o=160&n=1&d=2293&s=1>

The Council for Technology and Innovation under the Ministry of Science, Technology and Innovation has recently presented a new strategy plan, "Innovation Denmark 2007-2010"<sup>4</sup>. The plan both sets a number of concrete goals in terms of innovative performance along with expansions to existing programs and new initiatives. The main 'policy tools' in use are:

- Support of innovation projects involving the participation of both businesses and public research
- Network and support centers
- Increases to the Business PhD program, where PhD students spend part of their study at a company.
- New measures designed to promote the commercialization of public research.

## **2.2. Policies and measures – how do they address service related innovations?**

### **2.2.1. The general picture**

Pretty much all actors of the Danish innovation system are targeted by the various policy instruments affecting innovation directly or indirectly. The instruments target all types of research institutions - including universities and sector research institutions and they target private enterprises as well as different types of linking organizations between the public and the private sphere. Furthermore, the instruments are not only targeting the institutional level but also the individual level with incentives for individual researchers as well as managers etc.

However, the general picture is that the newest instruments in the Danish innovation policy mix have their main focus on science based sectors and 'high technology research' in fields such as nanotechnology, information-technology and biotechnology, while other modes of innovation relevant for small and medium sized enterprises in low tech branches and services have received much less attention. The recent Globalization Strategy, for instance, is to a large degree focused on R&D for large, high tech, companies and not to the same degree on low and medium tech companies dominating the Danish innovation system. Hence, there is little direct focus on service firms in innovation strategies.

It has been argued that this strategy fails to take the uniqueness of the Danish innovation system sufficiently into consideration. One explanation of this tendency may be found in some important changes in the organization of innovation policy following the 2001 election. The Ministry of Research and Information Technology got the dominating responsibility for innovation while the Ministry of Industry that had so far been leading in that area, became more focused on creating good general conditions for private firms and promoting 'entrepreneurship' and supporting start-up firms. As a consequence, the majority of current measures are focused on making research more relevant and accessible to industry.

As has been described above, innovation policies of the Ministry of Science, Technology and Innovation are research oriented, with primary focus on new knowledge creation, knowledge transfer, in particular through Industry-Science cooperation, and commercialization of public research. These types of policy measures are relevant for certain groups of knowledge intensive service firms, most notably within ICT services, but generally cannot be considered to target innovation in the majority of service firms. There are, however, some exceptions in which programs have had a somewhat broader impact on service firms. One exception to this is efforts to promote the use and implementation of ICTs in businesses, which is relevant for the far majority of service firms. Another concerns promoting the transfer of knowledge

---

<sup>4</sup> See <http://www.innovationdanmark.nu/>



intensive skills, through the placement of PhD students or other highly educated personnel in businesses.

Hence, the general impression is that the Ministry of Science, Technology and Innovation has had very little focus on service firms in its innovation policy plans. However, their most recent policy plans indicate that this may change in the near future. The recent strategy plan, Innovation Denmark 2007-2010, acknowledges the importance service innovation and the relative neglect of service firms in innovation policymaking. As a first step, the Council for Technology and Innovation has commissioned an analysis of the main needs of service firms in order to strengthen competitiveness and productivity, which will be followed up by discussions with business organizations on what concrete policies can be developed and implemented to support innovation in service firms. The Council also plans to hold a conference on service innovation policy in the fall of 2007.

Policy proposals from the lobby organization Danish Business<sup>5</sup> also emphasize the importance of user-driven innovation. Among the other areas highlighted by Danish Business are service exports, regulations and opening up the public sector. They argue that export and internationalization strategies should place greater priority on the needs of service firms. An additional focus area is difficulties for service firms in accessing capital markets. Danish Business proposes changes to tax rules, credit market regulations and accounting rules, in particular concerning the valuation of intangible assets, with the aim of improving service firms' access to external financing. Yet another policy area concerns public services. Danish Business argues both for greater privatization and outsourcing of public services in order to stimulate growth in the private service sector and as a tool to promote the development of innovative solutions within services.

Given that most Danish innovation policies do not explicitly target specific sectors, it is difficult to assess the extent to which policy programs are used by or impact service firms. Some general statistics from the Danish Fourth Community Innovation Survey (CIS4) for 2002-2004 may help provide some additional information on this. The table below shows basic statistics for innovation cooperation and public funding for manufacturing firm with innovation activity<sup>6</sup>.

**Shares of innovation active firms that have received public funding or have engaged in cooperation for their innovation activities (in percent)**

Sector	Funding sources			Cooperation		
	Regional	National	EU	All types (private and public)	Public research	GTS institutes
<b>Services</b>	2.5	4.9	3.3	50.2	18.2	3.5
<b>Manufacturing</b>	1.9	12.2	7.9	39.8	15.8	5.0

Source: Danish CIS4 data, own calculations.

The share of innovative firms that have received funding from national sources is more than twice as high in manufacturing compared to services. The pattern is similar for EU funding. Interestingly, this pattern changes when looking at the regional and local level, where a higher share of service firms have received funding for their innovation projects.

Much Danish innovation policy has focused on promoting Industry-Science relations, which might be expected to be of greatest relevance for (in particular high tech) manufacturing

<sup>5</sup> E.g. Dansk Handel and Service (2005, 2006).

<sup>6</sup> This includes both firms that have implemented a new product or process and those that have ongoing innovation projects.



firms. However, little support for this is found in the data shown here, where 18 percent of innovative service firms have cooperation with public research compared to 16 percent in manufacturing. The share of manufacturing firms with cooperation with GTS institutes is slightly higher than in services, though the data here indicates that GTS institutes are also utilized by service firms.

While its overall share of innovation policy measures (in terms of allocations) is much smaller, a number of focus areas in the Ministry of Economics and Business Affairs are important for service firms. Among these are efforts to reduce administrative burdens and promote entrepreneurship more generally, and efforts to reduce barriers to trade in services. The Ministry has also placed considerable focus on the promotion of user-driven innovation. The point of departure is that in many Danish enterprises, innovation results from interaction with customers and suppliers. The Ministry has developed a special program for user-driven innovation and dissemination of knowledge based on market demand in fields where the enterprises locally and regionally have special competences. A number of these measures may potentially be useful in promoting innovation in service firms, though there is no specific focus placed on service firms. In the case of the program for user-driven innovation, it is too early to assess to what extent the program has impacted service firms.

### **2.3. Specific policy measures**

This section describes selected supply- and demand-side measures that either specifically target services related innovation or can be considered potentially relevant for service firms. Existing explicit innovation policies are generally concerned with the supply side, such as financial support for business R&D, support for public research and various services to support service development and business operations.

#### **2.3.1. Supply side measures**

##### **Ministry of Science, Technology and Innovation**

###### **Proof of Concept**

The Proof of Concept measure is a new measure which aims to strengthen technology transfer from public research to private enterprises. A number of stakeholders have emphasized the need to support the transition of commercially promising research results to actual commercialization. The main objectives of the measure are to facilitate the process from research to business, to facilitate the attraction of risk willing investors, and to stimulate cooperation between public research institutions, innovation incubators and other relevant partners. The measure is a pilot project with limited funding, and the experiences made during its implementation will decide whether it will be continued.

**KINO** (Creativity and Innovation, New modes of Production and Entertainment Economy): The Danish Strategic Research Council has initiated a program supporting research in Creativity and Innovation, New modes of Production and Entertainment Economy. With the creation of strategic research centers and with support of smaller strategic research projects is it a main objective to strengthen development and growth in creative, knowledge-service enterprises, service enterprises etc.

**Innovation accelerating research platforms:** As a new measure from the Strategic Research Council, the Innovation accelerating research platforms are attempts to create research-areas where high quality research can be combined with business strength positions. The objective is to secure that research leads to innovation with international

perspective and business-development. Accordingly, the Innovation accelerating research platforms are expected to contribute to interplay between competences and knowledge-areas - internally in the public research-system as well as between the public and the private sector.

#### **New high tech networks:**

This measure is not new in itself, but a number of new networks have recently been approved. The objective of the measure is to create lasting relationships between private enterprises and knowledge institutions. The measure originates from the 2003 Action plan 'Strategy for Public-private Partnership on Innovation' (Nye veje mellem forskning og erhverv - fra tanke til faktura). The Strategy focuses on how to improve co-operation between education, research and trade and business. The goal is to give enterprises, and especially SMEs, faster and easier access to knowledge. In December 2005 the Council of Technology and Innovation decided to fund five new high tech networks. The new networks target energy, health-ICT and user-driven innovation / understanding of the market. Almost EUR 3 million have been allocated to the new networks.

**Innovation Incubators:** The objective is to bridge research environments, innovative entrepreneurs and finance companies in order to develop and transfer research and innovative ideas to commercially sustainable innovative projects and enterprises.

#### **GTS institutes**

GTS-institutes, which have been described above, can both be considered policy institutions and policy measures. Their main function is to assist in the development and transfer of academic technology and knowledge to businesses. They thus function as a support for business R&D and to make academic research more accessible to businesses.

**Business PhD program:** The Business PhD program is a cooperation between businesses and universities where PhD students spend half of their study at a university and the other half working and receiving training at a company. While the program does not specifically or explicitly target service firms, a number of PhD students have been placed in service firms.

#### **Regional Knowledge Pilots**

The knowledge pilots program promotes the placement of knowledge intensive workers in small and medium sized firms that normally would not employ knowledge intensive personnel. The objective is to increase small and medium size firms' access to external knowledge, here under also academic research. Support is given through a subsidy for newly employed knowledge intensive workers. As with the business PhD program, this program does not explicitly target services, but has in practice been utilized by a number of service firms.

#### **Innovation support centers – E-business innovation center**

As part of the Ministry's efforts to promote the use and development of ICTs, the E-business innovation center offers support to businesses for the implementation of ICT solutions.

#### **Regional ICT-initiative**

The regional ICT-initiative supports projects that promote the use and development of ICTs in businesses, with focus on firms that are located in outlying areas. Funding goes towards the establishment of regional ICT support centers, specific projects and regional efforts to promote the use of ICTs.

#### **IDEA**

IDEA is a network organisation so far consisting of more than 75 institutions, organisations and companies. IDEA is financed by state grants as well as donations from both Danfoss and municipalities / counties. The purpose of IDEA is to promote innovation and

entrepreneurship among students and fully trained from higher educations and to increase growth and bridge building to the surrounding society. This is done by financially supporting projects, development activities and research, by doing development work and experience exchange and by developing courses, educations and networks.

## **Ministry of Economics and Business Affairs**

### **EBST - User-driven innovation**

The National Agency of Enterprise and Construction has launched a program to support user-driven innovation in both businesses and public institutions. Firms and public institutions can apply for support to implement new systematic and scientific methods to analyse customer needs towards the development of new products and services.

### **Vækst Fonden – Need Driven Ventures**

VF is a public venture capital fund under the Ministry of Economics and Business Affairs. Its focus is high tech, mainly within Life Sciences and IT, so the relevance for services is limited. However, a new investment area, Need Driven Ventures, could potentially be of more relevance for services. The idea is to identify 'needs', or potential markets, and then invest in the development of business solutions to those needs. However, it is unclear whether there is in reality any focus on services with this program.

### **Culture and Experience Economy**

The Ministry has launched an initiative to strengthen the experience economy in Denmark and the commercialization of cultural activities. The main areas of the initiative are: improving framework conditions for innovation within cultural activities, tourism, design and architecture; financial and advisory support for sports business ventures; promoting interaction between cultural institutions and businesses; and professionalizing the holding of large events in Denmark.

## **2.3.2. Demand side measures**

Demand side measures are policies that seek to increase innovation by affecting product demand or potential markets. Demand side policies<sup>7</sup> can be placed into three main groups:

- Systemic policies which provide an environment that may strengthen other innovation policy measures by improving relationships among actors – such as promoting clusters.
- Regulations, which in many markets, such as environmental technologies, define the competitive space and can be used to extend it.
- Procurement where the purchaser can specify goods and services with the aim of promoting innovative product development.

## **Ministry of Science, Technology and Innovation**

**Innovation Consortia:** The aim of Innovation Consortia is to strengthen co-operation between companies, public research institutions and technological service to develop new generic technology platforms for the coming 5-10 years product and service development in Denmark. Enterprises must contribute with 50% of the funding. Typically a consortium has a total budget of 2.500.000 - 5.500.000 EURO and lasts 3-4 years.

### **Regional technology centres:**

---

<sup>7</sup> See e.g. Georghiou (2006).

The main objective of this new measure is to strengthen knowledge-based growth and development in outside the larger cities. Regional Technology Centres focus on regional competencies and act as intermediaries between regional research and SMEs. Experiences made with the former Regional Growth Centres initiative (DK 13) will guide the establishment of these centres. The regional Technology Centres aim at strengthening the collaboration between the regional business-environment and relevant knowledge-institutions in relation to research, innovation and technology development. The collaboration is based on business strength positions within a limited geographic area outside Greater Copenhagen. The government has earmarked EUR 8.5 million for 13 Regional Technology Centres for the next four years. Seven of the Centres are new, while the remaining seven Centres build on existing Regional Growth Centres.

## **Ministry of Economics and Business Affairs**

### **Reducing administrative burdens**

The Ministry of Economic and Business Affairs has set a goal of reducing businesses' administrative burdens by 25 percent by 2010 (relative to 2001). The initiative involves a continuous process to reduce administrative requirements in terms of time and cost. The Ministry estimates that costs have on average been reduced by 11 percent since 2001.

The **Danish Ministry of the Environment** has presented an action plan in support of environmental technologies. The plan is based on an analysis carried out by FOR A (Ministry of Economic and Business Affairs' unit of business economic research and analysis), which seeks to identify environmental technology areas where Denmark potentially could create new strongholds, if strategic and binding collaboration involving companies, knowledge institutions and government authorities is carried out. A total of 420 environment companies with 60 000 employees are identified, along with 46 knowledge institutions that focus on environment efficient technologies. The environment cluster is one of Denmark's largest business clusters. The cluster is divided into sub-clusters based on the environmental challenge faced by the company or knowledge institution. A total of eight subareas are identified. The action plan has 9 concrete initiatives. Among them are: Partnerships of Innovation; Strengthened and targeted support of export; Research and technology development and an effort to strengthen the use of environmental efficient technology in EU.

### **2.3.3. Measures to support services internationalization**

Concerning internationalization from a more general perspective, there are a few initiatives being implemented by the Danish government. While there is focus on maintaining competitiveness, issues such as international knowledge flows and promoting the internationalisation of service activities in particular it does not seem to be given a central priority. For example, the globalisation council's strategy on the topic almost solely concerns building competencies and greater understanding of other cultures, with less mention of either international linkages or service internationalisation.

The Ministry of Science, Technology and Innovation however discusses foreign linkages, and a few initiatives are mentioned in press releases<sup>8</sup>. The first concerns creating 'knowledge

---

<sup>8</sup> <http://videnskabsministeriet.dk/site/forside/nyheder/andet-nyt/sander-vil-knytte-baand-til-verdens-videncentre>  
<http://videnskabsministeriet.dk/site/forside/nyheder/pressemeddelelser/2007/lettere-adgang-til-viden-i-udlandet---32-millioner-kroner-sk>  
<http://videnskabsministeriet.dk/site/forside/nyheder/Aktuelle-temaer/videnkontakter-i-udlandet/sander-indgaar-dansk-israelsk-forskningsaftale>

embassies" in selected foreign countries. The main objective of these is to establish better ties between Danish and foreign research institutions. The second is a "GazelleGrowth program" that provides startup financing for small high tech Danish firms that want to enter the US market. The third concerns formal 'research agreements' with other countries (most recently with Israel), though it is unclear what concrete actions these agreements include.

#### **2.3.4. Horizontal policies**

The Danish innovation policy mix has traditionally been viewed as the result of a series of more or less independent decisions. To use the phrase of the methodological report the Danish policy mix has predominantly been seen as an *ex post* "product" rather than *ex ante* "construct". The policy mix has been an "emergent phenomena": not always planned but rather emerging from various, loosely or not at all connected policy decisions of different actors.

However a more coherent approach has been used recently, where the formulation of a future policy mix to a larger degree has been approached as a "construct" with the aim of ending up with a policy mix resulting from an intentional combination of policy instruments with the intention of optimizing the joint effects of interacting instruments. The future Danish policy mix has been partly shaped *ex ante* by policy-makers, while however there has of course been a large degree of path dependency. In other words; previous decisions have framed the possibilities for change.

Before this recent process started, Denmark had no tradition or fixed frequency of policy reviews of the overall innovation policy mix. But the last couple of years, and in particular the last year with the work of the Globalization Council, have seen a number of systematic attempts to review the innovation system as a whole. This process has so far resulted in a number of far reaching recommendations of a new policy mix. However, the future policy mix is not yet fully decided and will depend on the coming political negotiations.

#### **References**

- Dansk Handel and Service (2005) Det internationale servicesamfund – viden og koncepter.
  - Dansk Handel and Service (2006) Det innovative samfund – globale udfordringer for dansk konkurrencekraft.
  - Siune, K. and Aagaard, K. (2006) European Trend Chart on Innovation – Country Report for Denmark 2005, Aarhus, Denmark.
  - Siune, K. and Aagaard, K. (2006) Policy Mix project – Country Review Denmark.
  - Siune, K. and Aagaard, K. (2007) European Trend Chart on Innovation – Country Report for Denmark 2006, Aarhus, Denmark.
  - Georghiou, L. (2006) Effective innovation policies for Europe – the missing demand-side. Paper prepared for the project Globalisation Challenges for Europe and Finland, organized by the Secretariat of the Finnish Economic Council.
  - Rådet for Teknologi og Innovation (2007) Innovation Danmark 2007-2010 – Rådet for Teknologi og Innovations handlingsplan for mere innovation og effektiv vidensspredning. Forsknings- og Innovationsstyrelsen.
-