

EUROPEAN TREND CHART ON INNOVATION

Theme-specific Country Report: FINLAND

Covering period to March 2002

**EUROPEAN COMMISSION DIRECTORATE GENERAL ENTERPRISES
“INNOVATION AND SME” PROGRAMME**

The European Trend Chart on Innovation

Innovation is a priority for all Member States and for the European Commission. Throughout Europe, hundreds of policy measures and support schemes aiming at innovation have been implemented or are under preparation. The diversity of these measures and schemes reflects the diversity of the framework conditions, cultural preferences and political priorities in the Member States. The "First Action Plan for Innovation in Europe", launched by the European Commission in 1996, provided for the first time a common analytical and political framework for innovation policy in Europe.

Building upon the Action Plan, the "Trend Chart on Innovation in Europe" is a practical tool for innovation policy makers and scheme managers in Europe. Run by the "Innovation" directorate of DG Enterprises, it pursues the collection, regular updating and analysis of information on innovation policies at national and Community level, with a focus on innovation finance; the set up and development of innovative businesses; the protection of intellectual property rights and the transfer of technology between research and industry.

The Trend Chart serves the "open policy co-ordination approach" laid down by the Lisbon Council in March 2000. It supports policy makers and scheme managers in Europe with summarised information and statistics on innovation policies, performances and trends in the European Union. It is also a European forum for the benchmarking and exchange of "good practices" in the area of innovation policy.

The "Trend Chart" products

The Trend Chart on Innovation has been running since January 2000. It tracks innovation policy developments in all EU Member States, plus Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Liechtenstein, Lithuania, Norway, Poland, Romania, Slovak Republic and Slovenia. The Trend Chart web site (www.cordis.lu/trendchart) will provide access to the following services and publications as they become available:

- a database of policy measures across Europe;
- a "who is who?" of agencies and government departments involved in innovation;
- a series of country reports;
- a series of six-monthly trend reports;
- a number of benchmarking reports on specific themes;
- statistical reports such as the European Innovation Scoreboard;
- the six-monthly newsletters of the Trend Chart;
- the annual reports of the Trend Chart;
- and other publications.

The present report was prepared by Juha Oksanen and Pirjo Niskanen from the VTT Technology Studies. The information contained in this report has not been validated in detail by the Member States or by the European Commission.

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Executive Summary

During the last half a year, new services and activities have been developed to generate new knowledge on the premises of innovation and to enhance the diffusion of information and knowledge on innovation activities. On the one hand, these services aim at increasing co-operation between decision-makers and actors in the innovation field. On the other hand, the new services are intended to facilitate finding relevant information more efficiently.

An example of activities generating knowledge on innovation is the ProACT research programme (FI_16) set by the Ministry of Trade and Industry and Tekes, The National Technology Agency. The programme started in winter 2002. The programme budget is over € 8 million for next 4 years. The programme has provisionally been divided into: 1) the innovation system and actors in it; 2) innovation, innovation processes and mechanisms; 3) technology, research and society; 4) technology foresight; and 5) impact of technology policy and technology research. This research is expected to focus on major changes and phenomena, such as the changes and development needs in the innovation system, innovation process renewal in businesses, the development needs of the research system in the internationalising research field, and the challenges facing productivity and technological competitiveness in the new economy.

An important contribution to knowledge dissemination on innovation was made by Sitra, which published the final report on the transformation of the Finnish innovation system. The study consists of several sub-studies. The final report can be found at <http://www.sitra.fi/pdf/raportti7.pdf>

In order to facilitate the use of public innovation services, two significant new web portals, Research.fi and Yrityssuomi.fi, have been launched. Research.fi contains material and data about different factors in the Finnish innovation system. The information service is designed to cater to the needs of the decision-making, monitoring and evaluation of Finnish science and technology. Links to the most important documents, publications, statistics, etc. are given in all areas. The overall aim of Research.fi is to build up the knowledge base of Finnish science and technology and relative indicators, especially impact indicators.

The service will be developed and extended gradually. The first stage presents summaries of the most important data concerning Finland. In addition to R&D statistics, the service provides information about other areas, such as: centres of excellence, which are an important element of Finnish science and technology policy and research and technology programmes; international scientific co-operation, which plays an important role in the development of Finnish research; and high-tech production, which is Finland's asset in international competition.

Another web portal, the Yrityssuomi.fi (Business Finland) network service, was opened in February 2002. The new service is a significant and concrete step in the collaboration between the public corporate financiers and service organisations, i.e. Finnvera plc, Finpro, the Finnish National Fund for Research and Development (Sitra), Finnish Industry Investment Ltd, the National Technology Agency (Tekes) and the Employment and Economic Development Centres (T&E Centres). This network is aimed at assisting small and medium-sized enterprises, entrepreneurs and would-be entrepreneurs, to find the public services for starting up an enterprise and those related to its growth, development and internationalisation.

The contents of Yritys-Suomi are divided both by theme and by business situation and development stage. A visitor to the web site does not need to know beforehand which organisation provides which service or product, or what kinds of packages are available. Yritys-Suomi is also one of the prime projects of the Finnish Government's Information Society Programme. It is connected with the implementation of the Government's Entrepreneurship Project (FI_14).

The commercialisation of research results emerging from academic research and the protection of intellectual property has recently been the topical issues in Finland's science policy. In late 2001, the Ministry of Trade and Industry and the Ministry of Education together set up a working group for developing new strategies and principles for the commercial exploitation of research results and the protection of intellectual property in university. The working group will complete its work by the end of May 2002.

Another topical issue in the university sector is the regional development of higher education. A working group set up by the Ministry of Education emphasises connecting the development of higher education to the economic and industrial structure and its phase in the region.

The international competitiveness of the Finnish economy and new challenges for business environment policy are emerging issues within national innovation policy. For instance, the Ministry of Trade and Industry publication "Business Environment Policy in the New Economy" focuses on these challenges. The Ministry of Trade and Industry is going to evaluate Finland's innovation environment in 2002-2003.

Evaluation has an established role in innovation policy making. The major policy actors, such as Tekes and the Academy of Finland, regularly evaluate their programmes. In addition, the ministries have commissioned a number of evaluations. The on-going efforts cover, among other things, the mid-term evaluation of the Centre of Expertise Programme, sectoral research grants within the Ministry of Agriculture and Forestry, and evaluation of the national well-being cluster programme.

The transfer of knowledge and know-how to Candidate Countries in the field of innovation policy has taken place mainly through the consultancy of Finnish technology policy experts. Collaboration with Estonia has been the most active in this field. For example, Finnish experts have been involved in the development of a national technology agency of Estonia.

1. Introduction

This report covers recent developments in innovation policy for Finland. It departs from previous formats in order to focus on a number of highly relevant innovation policy issues and topics. These are:

- National progress towards the objectives in the Commission Communication *Innovation in a Knowledge-driven economy* COM(2000) 567 final”
- “Innovation policy in Candidate Countries: state of play and priorities for Community action”
- “Increasing the impact of life-long learning schemes on innovation”
- “Transnational learning in national policy evaluations”

In order to place these in context, and to provide continuity from developments in innovation policy from the previous reporting period (May – September 2001), the first section provides a brief overview of the current state-of-play in innovation policy and the recent innovation policy developments at a national level for the period October 2001 to March 2002.

1.1. Innovation policy developments

There have been no drastic changes in economic or political conditions since autumn 2001. Uncertainty in the global economy has been reflected in Finland's high tech export and import figures. The export of high technology products increased remarkably at the end of 1990s, but in the year 2001 the increase was cut off.

The growth of R&D expenditure continued in 2001. It is estimated to be EUR 5.0 billion, which is 3.6 per cent of GDP compared to 3.4 per cent in 2000. The share of the private sector from the total R&D expenditure was estimated to be 72 per cent (Statistics Finland).

Regionally, R&D expenditure is concentrated in three areas. Sub-regional units of Helsinki, Tampere and Oulu comprise almost 70 per cent of the total R&D expenditure. The Helsinki area alone accounted for 44 per cent of the whole country's R&D expenditure in 2000.

The strong foothold of strategic approach in technology policy making has been illustrated by the newly published technology strategies both at national and regional level. Tekes, the National Technology Agency, published the main results of their technology strategy work in March 2002. The strategy summarises Tekes' view that technology and know-how choices are as important for Finland. In line with the preparation of Tekes' technology strategy, several regional technology strategy processes are carried out around country.

A four-year foresight development and co-ordination project was started by the Ministry of Trade and Industry in summer 2001. The plan for the implementation of technology foresight activities was finalised in January 2002. According to the plan, the co-operation and co-ordination between the Ministry of Trade and Industry, Tekes and VTT is to be strengthened. In addition, a new secretariat with regard to technology foresight was established at the Ministry of Trade and Industry in autumn 2001. The secretariat is supported by a foresight expert group. Technology foresight is considered to be a crucial focus area in national innovation policy.

1.2. Recent policy events / policy debates

The main subjects in recent public debate, from an innovation policy viewpoint, have been linked to the international competitiveness of the Finnish economy. Recently, Finland's competitiveness has been ranked very highly in several international reviews. How this favourable situation could also be maintained in the future was the subject of lively discussion during the winter. Different national actors, such as the Ministry of Finance and Tekes, the National Technology Agency, have published reviews on the issue.

The public funding of R&D is part of the debate about competitiveness. Both public actors (Tekes and the Ministry of Trade and Industry, perhaps most visible) and other stakeholders, such as TT - the Confederation of Finnish Industry and Employers, have pointed out that public investment in research and development activities has been at the same level for a couple of years. At the same time, industry has continued to increase their investments in R&D activities. This development has led to a situation in which the public share of R&D funding has diminished. The current situation has been compared to the 1990s, when the public funding of R&D (in real terms and as percentage of BNP) was rising steadily, even in the severe depression at the beginning of the decade.

In February 2002, Tekes published a document "Tomorrow's competitiveness is decided today" (English summary will be published in June 2002: www.tekes.fi/eng), in which the public funding of R&D remained the main theme. The document pays attention to the importance of technology and its development for economic growth. According to the document, public funding is seen as essential for the continuous good performance of technology development. Currently, public R&D support for the private sector lags behind when compared to the major OECD countries. The tax reductions for R&D activities used in other countries further weaken Finland's situation in international comparison. In view of Tekes, this development does not favour the country's economic welfare and does not encourage companies to locate their activities in Finland.

At the turn of the year, there was a lively debate on the potential impacts of national taxation, especially on personal income tax. The debate was kicked off by prominent CEOs of Finnish businesses. Their expressed concern was that high income tax might have harmful impacts on the mobility of professionals and on companies' decisions on where to locate their activities (both plants and headquarters). According to comments, there is a threat that Finnish professionals move permanently abroad because of more favourable economic incentives there. Commentators also suspected that Finnish taxation makes it difficult to recruit experts to Finland from abroad, in sectors where there is a global shortage of skilled workforce. Even the potential negative effects of foreign investments in Finland were mentioned in the tax debate. The discussion on taxation has, however, calmed down after it became clear that key decision-makers are not in favour of tax cuts – at least for now.

The other principal issues debated concern the European Research Area, the launch of the EU's sixth Framework Programme and the regional dimension in R&D and innovation policy. In general, most Finnish S&T actors are in favour of opening up national research and technology programmes to applicants from other EU countries. However, there are mixed opinions on the funding expenses of foreign partners. With regard to EU's Framework Programme, launching integrated research projects has evoked wide debate. Policy makers are concerned about Finland's capability to take an administrative lead role in large-scale projects.

In the context of regional development, R&D and innovation are seen as crucial factors for regional viability.

2. Progress towards the Commission Communication objectives

In 2000, the European Commission issued a Communication on “Innovation in a knowledge-driven economy”, COM(2000) 567 final. Within this document, five objectives were presented, aimed at strengthening the Member States’ capacity to overcome obstacles to a more innovation-enhancing environment. Under each objective, Member States were tasked with a specific list of actions (see below).

Objective 1: Coherence of innovation policies

- National and regional innovation policies should take account of “**best practices**” and adapt them to their specific environment
- Ensure that **co-ordination mechanisms** are in place between national and regional levels, and between the different departments responsible for matters relevant to innovation, so as to guarantee a coherent approach to innovation policy
- Implement **periodic target-setting, monitoring, evaluation and peer review** of regional and national programmes for enhancing innovation and of the bodies which implement them

Objective 2: A regulatory framework conducive to innovation

- **Adapt the rules for the diffusion of research results from publicly-funded research** (licensing, access to foreground knowledge, etc.) to encourage the exploitation and transfer of results so as to foster innovation
- Put in place **fiscal measures**, in accordance with Articles 87 and 88 of the Treaty, to encourage private investment in research and innovation and the employment of researchers by the private sector

Objective 3: Encourage the creation and growth of innovative enterprises

- Pursue efforts to create a **legal, fiscal and financial environment favourable to the creation and development of start-ups**
- Foster, at regional level, the **creation or reinforcement of adequate support services and structures such as incubators, etc.**
- Set up **education and training schemes in entrepreneurship and innovation management** where these do not exist, in higher-education establishments and business schools, and disseminate good practice in this area

Objective 4: Improve key interfaces in the innovation system

- Stimulate and co-ordinate **regional initiatives and regional actors** to devise and implement integrated research and innovation programmes at regional level
- Facilitate the implementation of **lifelong learning** programmes to improve the general assimilation of new technologies and remedy shortages of skills
- Encourage **universities to give particular attention**, in addition to the traditional missions of education and research, **to promoting the diffusion of knowledge and technologies**
- Encourage **large public research facilities** to benchmark their activities in technology transfer and partnerships with enterprises

Objective 5: A society open to innovation

- Encourage comprehensive “**stakeholder**” **debates on innovation** involving scientists, industry, consumers and public authorities
- Stimulate public demand for innovation by **dynamic purchasing policies in public administrations**

2.1. Impact of the Communication

The Communication is well known by the innovation policy makers in Finland. It has been used as a background material, alongside other relevant information sources, in preparation for decision-making. It is, however, not possible to identify a clear impact or specific examples of the use of the Communication in the development of national innovation policy.

2.2. Policy developments since the Communication’s publication

The following table summarises the perceived developments of national policy actions since the publication of the Communication in September 2000. The trend assessment is highly subjective and any national policy actions cannot be assumed to be linked to the Communication, except in cases where specific reference to it has been made.

Commission Communication on Innovation, 2000 Priority actions table: Finland

Priority actions	Trend*
Objective 1: Coherence of innovation policies	
1.1. Best practice in innovation policies	stable
1.2. Innovation policy coordination mechanisms	stable
1.3. Monitoring and evaluation of innovation support	stable/incr.
Objective 2: A regulatory framework conducive to innovation	
2.1. Diffusion of results from publicly funded research	increasing
2.2. Fiscal measures to encourage innovation	stable
Objective 3: Encourage the creation and growth of innovative enterprises	
3.1. Favouring the creation and development of start-ups	increasing
3.2. Innovation support structures and services	increasing
3.3. Training in entrepreneurship and innovation management	increasing
Objective 4: Improving key interfaces	
4.1. Innovation at the regional level	increasing
4.2. Lifelong learning	stable
4.3. New missions for universities	increasing
4.4. Technology transfer by large public research facilities	stable
Objective 5: A society open to innovation	
5.1. Stakeholder debates on innovation	stable
5.2. Public administration purchasing policies	stable

* stable / increasing / decreasing

2.3. Indications of progress

The following sections provide indications of progress with regard to these actions.

There has not been any significant changes in Finland's innovation policy. Most recently, innovation at regional level and diffusion of results from publicly funded research have been emphasised more than other issues.

Objective 1: Coherence of innovation policies

Action 1.1: Best practice in innovation policies

Benchmarking and looking for "best practices" are an integrated part of policy making in the field of innovation. One of most recent examples is the creation of regional technology strategies. Several regional technology strategy processes were given impetus by Tekes.

Action 1.2: Innovation policy co-ordination mechanisms

In international comparison, the higher-level co-ordination of innovation policy in Finland is well functioning. The Science and Technology Policy Council of Finland has a visible role in the co-ordination of innovation policy activities at national level. This Committee is led by the Prime Minister and has members from both government and key stakeholder organisations. In addition, the key innovation policy agencies, Tekes and the Academy of Finland, have close ties and co-ordinate their activities continuously.

Co-ordination between national and regional levels is also functioning fairly well. Nevertheless, co-ordination is not an unproblematic issue. Problems particularly appear in the administration of EU Structural Funds between national and regional levels and between different administrative sectors. Co-ordination is striven for, but not reached to the extent desired.

Many of the programmes with regional importance are governed at national level. For example, technology programmes and research programmes are co-ordinated nationally. Another example is the national Centre of Expertise Programme, which supports regional specialisation and co-operation between different Centres.

There are also more invisible ways of co-ordinating innovation policy activities between national and regional levels, as well as between administrative sectors. The fact that many key policy makers are participating in various working groups dealing with innovation policy issues ensures information flow between different actors. This, in turn, provides for the matching of activities in different organisations.

Action 1.3: Monitoring and evaluation of innovation support

Finland has a lively policy evaluation culture and benchmarking has also been used intensively for several years. Public innovation support measures, as well as public bodies responsible for their implementation, are under extensive review and evaluation. Already from the beginning of the 1990s, the Science and Technology Policy Council, a body assisting the Government and its ministries in questions relating to science and technology, actively promoted the diffusion of evaluation activities into different areas of the country's public R&D system.

The ministries involved in innovation policy making have commissioned a considerable number of evaluations in recent years. Evaluation of public appropriation for research (FI_07) and various evaluations of national cluster programmes belong to this category. In the field of innovation policy, it is Tekes, the National Technology Agency, which commissions most

evaluations. At the end of 1980s, Tekes made a decision to evaluate all its technology programmes. Since then, over 60 Tekes technology programmes have been evaluated by experts.

Currently, there are number of evaluations either on going or under preparation. Nationally one of the most important is the mid-term evaluation of the Centre of Expertise Programme, which is commissioned by the Ministry of Interior. The evaluation was started at the end of 2001 and will be concluded by September 2002. The evaluation results will be utilised in the revision of the Centre of Expertise Programme for the remaining programme period until 2006.

The Ministry of Education has commissioned an evaluation of the impact of the National Finance Programme for Biotechnology. This on-going evaluation includes a survey of the sector's development needs and plans for the future, as well as an evaluation of its operational performance.

A forthcoming evaluation commissioned by the Ministry of Trade and Industry focuses on "Finland's innovation environment". The evaluation aims to examine how Finland's innovation environment supports the creation of innovations in companies.

Objective 2: A regulatory framework conducive to innovation

Action 2.1: Diffusion of results from publicly funded research

In Finland, in contrast to other EU-countries, intellectual property rights (IPR) legislation allows university researchers the right to exploit the results themselves, as opposed to the university. University administration has become increasingly interested in the way research produces commercially viable research results and IPR. University administration is also interested in gaining access to increased funding through the commercialisation of research.

In autumn 2001, The Ministry of Education and Ministry of Trade and Industry set up a working group for developing new strategies and principles for the commercial exploitation of research results and the protection of intellectual property in university. The working group will present its recommendations by the end May 2002.

Action 2.2: Fiscal measures to encourage innovation

Tax incentives are not a typical measure used in innovation policy in Finland. The benefits of tax incentives/tax concessions are not seen as efficient way to encourage innovation in a country, where R&D volume is already high. Instead it is seen beneficial to support leading edge R&D and innovation activities.

Objective 3: Encourage the creation and growth of innovative enterprises

Action 3.1: Favouring the creation and development of start-ups

The government's Entrepreneurship project, started at the beginning of 2000, has been carried further. The projects include various measures, which set out to increase the establishment of new firms and to increase the growth and competitiveness of existing enterprises. The focus of the project is on different phases in the life cycle of a company. Measures are directed at those stages that are most crucial in terms of the firms' success.

LIKSA, a new funding scheme operated jointly by Sitra and Tekes, was started in spring 2001 (FI_13). The scheme supports technology start-ups to obtain knowledge and services related to the commercialisation of technology and developing their business plans. At the same time, the INTRO service was launched, which complements the LIKSA scheme. The INTRO service takes care of the efficient presentation of start-up enterprises so that they can find both institutional and private investors who will be prepared to provide simple, straightforward funding in the future.

Together the LIKSA and INTRO initiatives aim to bridge the gap between start-up companies and the venture capital financing market. The objectives are: 1) to encourage the birth and to accelerate the early stage growth of new technology based companies; 2) to increase the commercialisation of technology and knowledge from universities and research institutions; 3) to encourage private capital investments for technology based companies in their earliest stages.

LIKSA and INTRO are closely related to the Tekes TULI-programme (FI_06), which has been modified before starting a new programme period from April 2002. The main goal of the TULI-programme is to promote new, technology based businesses coming from applied research in Finland. The focus of the scheme is in the R&D activities in universities and research institutes. In practical terms, the aim is to transfer the commercial potential of research projects towards commercialisation and new ventures.

Action 3.2: Innovation support structures and services

In October 2001, The Ministry of Trade and Industry published a report that presents the Ministry's view on promoting the competitiveness of business activities in the policy areas that will play a central role in years to come. The report "Business Environment Policy in the New Economy" is a tool of the Ministry. Its objective is to support the handling of the central issues of business environment policy at the Ministry, as well as the implementation of the report's policy outlines in decision-making. The report was also intended to provide material for discussion with the other administrative branches and stakeholders about business environment policy.

In order to facilitate the use of public innovation services, two significant new web portals, Research.fi and Yrityssuomi.fi, have been launched. Research.fi contains material and data about different factors in the Finnish innovation system. The information service is designed to cater to the needs of the decision-making, monitoring and evaluation of Finnish science and technology. Links to the most important documents, publications, statistics, etc. are given in all areas. The overall aim of Research.fi is to build up the knowledge base of Finnish science and technology and relative indicators, especially impact indicators.

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Action 3.3: Training in entrepreneurship and innovation management

A new review concerning Finland's competitiveness and its development requirements was revealed by the Ministry of Finance at the end of 2001. The document lists the main strengths and weaknesses of entrepreneurship in Finland. General conditions are pro-entrepreneurship: public opinion favours entrepreneurship, and competition legislation and control mechanism are working quite well. Whereas weaknesses are related to the low number of enterprises compared to other OECD countries. In addition, there is a low drive to expand activities among enterprises.

The Global Entrepreneurship Monitor (GEM) report on Finland was published in November 2001. The results show that, in terms of Total Entrepreneurial Activity, Finland ranks 15th among the 29 GEM 2001 countries. This means that the overall ranking for Finland has remained stable compared to the previous year, 2000. According to the report, the Finnish public atmosphere towards entrepreneurship is positive: people think there are many opportunities for creating new businesses and they believe they have the skills and competencies to start new businesses. However, motivation to start new businesses is low among the population.

At the beginning of 2000, the Ministry of Trade and Industry launched an Entrepreneurship Project (FI_14), which is included in the Government's programme. It sets out to increase the establishment of new firms and to increase the growth and competitiveness of existing enterprises.

The Entrepreneurship Project is implemented in co-operation with various administrative sectors. Nine ministries and the Association of Finnish Local and Regional Authorities participate in the project. The Employment and Economic Development Centres, the entrepreneurs, the organisations of the sector and other partners also play a key role.

The Government's Entrepreneurship Project examines the life cycle of a company from the entrepreneur's viewpoint. Measures are directed at those life cycle stages that are most critical in terms of the company's success. The project has been divided into the following five life-cycle stages: (1) well-functioning markets, (2) entrepreneurship as a rewarding career option,

(3) becoming an entrepreneur, (4) the first critical years of the enterprise and (5) the growth and development of the enterprise.

The ongoing implementation of the project means that concrete measures will be consecutively initiated and implemented to promote entrepreneurship and business activities. A project plan has been drawn up in co-operation between the different administrative sectors. It includes more than 100 versatile measures. Among other things, measures are applied to reduce administrative burdens, to open up public service production to competition, to provide attitudinal training and new financing and training products for entrepreneurs as well as to launch pilot and development projects. A number of these measures have already been implemented, some are currently in progress, and the rest will be carried out towards the end of the project period.

Regional inputs are also emphasised in the project. Finland's 15 Employment and Economic Development Centres play a key role in implementing the project. The centres have, among other things, prepared entrepreneurship projects of their own for their operating areas. The experiences gained will be distributed and information on good practices will be spread throughout the country.

Objective 4: Improving key interfaces

Action 4.1: Innovation at the regional level

The second period of the Centre of Expertise Programme is carried further (FI_05). The programme aims to enhance regional competitiveness and to increase the number of high-tech products, companies and jobs. To achieve this goal, the programme will be used to implement projects reflecting the needs of industry, to encourage industry, research and training sectors to co-operate, to ensure the rapid transfer of the latest knowledge and know-how to companies and to exploit local creativity and innovation. At the moment, the mid-term evaluation of the programme is on its way and will be concluded by September 2002 (cf. Action 1.3 above).

A Ministry of Education working group evaluated the regional coverage and need for the development of teaching in higher education, as well as research and development activities, and drew up an action plan for the regional development of higher education reaching to 2006. The working group emphasises connecting the development to the economic and industrial structure and its phase in the region. It classified the provinces into three groups on the basis of skills, innovation, and population variables – innovative growth regions, neutral regions, and less developed regions – and suggested development activities for each. The working group separately examined the development of higher education institutions in the Helsinki metropolitan area.

Regional technology strategy processes have been launched in several regions around the country in 2001. Regional technology strategies are intended to be continuous processes, not time-limited projects. Strategy processes have been implemented concurrently with the updating of national technology strategy, which was led by Tekes. The leading idea behind the regional strategy work is to start an open and critical discussion between regional actors about how to utilise technology in regional development in co-operation with industry and actors responsible for regional development. The aim is to find a common view about the technologies into which invest regionally.

Action 4.2: Lifelong learning

In the knowledge-driven economy, “lifelong learning” is critical for innovation. Lifelong learning is a typical multi-stakeholder issue influenced by a large number of different, but inter-linked, policies.

A lot of attention has been paid to the principle of lifelong learning during the last years - especially within education policy. Main reasons for that are growing qualification and competence requirements, differences in educational backgrounds of the younger and older citizens, the ageing workforce and the growing number of retired persons. The principle is explicitly referred to the current government programme, which states that "the future of Finland and the Finns is strongly bound up with knowledge and expertise as well as the ability to utilise this know-how and expertise to create new innovations. Raising the level of expertise of the whole nation will support Finland's development as an advanced country and will at the same time enhance Finland's competitiveness. In accordance with the principle of lifelong learning, identical educational opportunity is the right of each citizen irrespective of place of residence, age, mother tongue or financial status." (Programme of Prime Minister Paavo Lipponen's second government, April 1999).

The Development Plan for Education and University Research for years 1999-2004 identifies lifelong learning as one of the main principles underlying the development of education. Lifelong learning is considered to be a process covering all ages, forms of learning, and learning environments approaching the renewal of occupational and production structures. In addition, lifelong learning is seen to enrich individual's life in a more personal, less career-oriented sense.

The development plan's aims are geared to improving the following in terms of lifelong learning: the basic educational level of young people in the transition from school to working life; the basic educational level of the middle-aged; learning ability at all ages; learning opportunities available to senior citizens; formal recognition of skills and knowledge obtained outside education institutions; educational information and counselling; the criteria for funding education institutions; and the enhancement of teaching skills.

Another government plan paying attention to the principle of lifelong learning is the National Strategy for Education, Training and Research in the Information Society. The original strategy published in 1995 contained the opinions and proposals of an expert committee set up by the Ministry of Education on the level of education and how research can be raised by applying information technology, thus promoting national competitiveness and employment. It also promotes the availability and use of information and assessment of needs and means for giving citizens basic skills in using information and communication technologies. The aims of the strategy were implemented through the information society programme (1995-99) of the Ministry of Education. Around € 167 million of earmarked budget funding was used to this end.

The new national strategy for education, training and research in the information society for the years 2000–04 was published by the Ministry of Education in December 1999. A goal set in the strategy is that, by the year 2004, Finland will be one of the leading knowledge and interactive societies. Success is seen to be based on citizens' equal opportunities to study and develop their knowledge and extensively utilise information resources and educational services. According to the strategy new demands for knowledge require the rapid and

extensive application of the principle of lifelong learning to the entire educational system in order to motivate and teach the population to manage, analyse, evaluate and refine the increasing flow of information and thus utilise the opportunities offered by technology. The growing competence requirements of the information society will be met by developing systematically the prerequisites of lifelong learning.

The idea of lifelong learning is also connected to the National Programme on Ageing Workers, which has been implemented between 1998-2002. The programme is based on foreseen changes in the structure of demography and labour force in the coming years in Finland. The share of the labour force aged 24 - 49 years will reduce considerably while the number of those aged 50 - 60 will grow substantially. One of the aims of the programme has been to develop adult education so that it would better meet the needs of the population aged 45 and over. The National Programme on Ageing Workers has been implemented by The Ministry of Social Affairs and Health, together with the Ministry of Labour and the Ministry of Education.

In the field of innovation policy the implementation of lifelong learning is integrated in most of Tekes' technology programmes. Elements of lifelong learning can also be found in a new research programme "Life as Learning", which is scheduled to run during 2002-2006. The programme is jointly carried out by the Academy of Finland, the National Board of Education, the Ministry of Education, the National Technology Agency (Tekes) and the Finnish Work Environment Fund. The programme aims to create a wide range of co-operation projects leading to applicable and utilisable research in various sub-fields of learning. It attempts, among other things, to find a way of managing the challenges of lifelong and life-wide learning in order to avoid a new kind of exclusion and to anticipate future learning needs from the point of view of society, culture and the individual.

Action 4.3: New missions for universities

The regional impact of universities and other higher education institutes is gaining more attention in Finland. The regional aspects of higher education have been discussed thoroughly by policy makers. It has drawn up an action plan for the regional development of higher education reaching to 2006. Special emphasis has been given connecting the development to the economic and industrial structure and its phase in the region.

Universities are increasingly taking part in the commercial utilisation of research results. The pronounced role of universities as a source of economic growth and innovation sets new demands for the protection of intellectual property rights. These changes pose new challenges for academic research and university education. The Ministry of Trade and Industry together with the Ministry of Education have set up a working group to tackle questions emerging from the new mission.

Action 4.4: Technology transfer by large public research facilities

At the beginning of the 1990s, the Science and Technology Policy Council of Finland, a committee advising the government in science and technology policy, suggested that all public research institutes and universities should be evaluated. By the end of the decade, the first evaluation round of the large public research facilities was completed. During the last few years, evaluative interest has been shifting from individual measures and institutions to a more comprehensive systemic level: to working on a broader innovation support infrastructure.

Recently, VTT Technical Research Centre of Finland, which is the largest governmental research institute in the Nordic countries, evaluated the impacts of its R&D activities. According to the study, the majority of VTT's partners were satisfied with collaboration and estimated that VTT's research work had improved their competitiveness.

Objective 5: A society open to innovation

Action 5.1: Stakeholder debates on innovation

The need for promoting better awareness of inventive and innovation activity has been recognised on a general level in recent evaluations. One concrete measure aimed at raising the awareness of R&D and innovation among the public is the organisation of various competitions and prizes for successful new and fast-growing firms, inventors, or innovators. The most significant is the INNOSUOMI initiative. The basic mission of INNOSUOMI is to promote an innovative culture, to promote innovations and the creation of new companies, and to improve co-operation between entrepreneurs, funding organisations and the public sector. The INNOSUOMI prize is awarded annually in recognition of exceptional innovation and entrepreneurship. The President of the Republic is the patron of the award, giving it high visibility and prestige (<http://www.innosuomi.fi>).

Action 5.2: Public administration purchasing policies

The Macro Pilot project, under the Well-Being Cluster programme, is an example of an activity that aims at stimulating public demand for innovation. The goals of the project have been to develop client centred, seamless and effective services in social and health care services sector by using and developing new technological solutions and devices. The Macro Pilot project intends to break down traditional barriers between administrative areas as well as to change the way of thinking from organisationally-based to client-based.

3. Innovation policy and candidate countries

With the ongoing accession process, the Candidate Countries¹ need to increase their innovation performance. A recent DG Enterprise study has found that innovation activity in these countries is, in general, relatively localised and significantly below that of the EU Member States. Increasing importance is accorded to innovation matters, but fully-fledged innovation policies still need to be developed. Such policies must address the specific conditions of often highly polarised economies in which technologically advanced foreign owned firms exist next to technologically weak domestic firms. Several Member States have implemented initiatives that aim to stimulate the transfer of innovation policy best practice to candidate countries. Hence this issue is also of broader interest.

3.1. Transfer of innovation policy schemes

Transfer of knowledge and know-how to the Candidate Countries in the field of innovation policy has taken place mainly through consultancy by Finnish technology policy experts. Collaboration with Estonia has been the most active in this field. For example, Finnish experts have been involved in the development of a national technology agency in Estonia. Finnish experts have also been involved in the development of an Estonian business development centre, which promotes the creation of start-ups. Contacts with the Candidate Countries have also been nurtured by international forum, like TAFTIE - the Association For Technology Implementation in Europe, or EUREKA.

Finland's national strategy for co-operation in the neighbouring areas has offered a general framework and support for collaboration especially with Baltic countries. Co-operation with the neighbouring areas has evolved from a special need to support balanced social development in Estonia, Latvia and Lithuania, and to establish such a new network of co-operation between Finland and areas bordering Finland and Russia. In the 1990s, this co-operation became a significant part of Finland's foreign policy and external economic relations. To enhance stability, prosperity, equality and social harmony, Finland supports administrative reforms and the development of structures of the market economy in its adjacent areas. Co-operation lays a foundation for increasing economic interaction and more active trade.

By means of neighbouring area co-operation, Finland endeavours to influence the targeting of projects in these regions by the European Union, international financing institutions and international organisations. Finland's membership of the European Union and active participation in the development of Union policies and strategies provide substantial additional momentum to the overall development and financing arranged in the neighbouring areas.

Neighbouring area co-operation is financed using appropriations earmarked for the purpose in the state budget and budget-related powers to conclude agreements. Neighbouring area co-operation makes also use of 1) financing obtained from international financing institutions; 2) financing obtained from international organisations; 3) the EU's financing programmes; 4) financing arrangements via Nordic institutions.

¹ These are: Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia and Turkey.

4. Transnational learning in innovation policy

An increasing number of countries try to learn from other countries to improve the design and evaluation of their own national policies and programmes. Benchmarking national performances against foreign “success stories” is recognised as a way to mobilise stakeholders and the forces of change. A recent example with considerable impact has been the “PISA” study of the OECD. In many countries, the scoring delivered by this study has prompted considerable public debate about modern and adequate policies in the area of education and whether successful policies could be “imported” from elsewhere.

Enhancing this kind of transnational policy learning between Member States is the essence of the open co-ordination approach launched by the Lisbon Council in March 2000. It is also the “raison d’être” of the “Trend Chart”.

4.1. General awareness

International examples and transnational policy learning have had a significant standing in innovation policy making in Finland for a long time. Studies and reviews carried out by international organisations, such as OECD, are highly valued among national innovation policy makers. A number of implemented innovation policy measures have been based on international examples.

Alongside recent technological success Finland is increasingly seen as a model country of successful innovation policy. However, this does not mean that transnational policy learning is less important. In addition, today Finnish policy makers are keenly looking for interesting examples abroad. At the moment, international experiences, related to IPR and the commercial utilisation of academic research, have been benchmarked. Other interesting examples include the Technology Foresight Fund in Ireland, Regional Growth Agreements in Sweden and public debate forums in Denmark.

4.2. Collection of information on foreign innovation policies

Various public actors are continuously monitoring innovation policies in other countries. For instance, at the beginning of 2002, Tekes published two reviews that specifically focused on the workings of innovation policies abroad. "Benchmarking innovation systems: Government funding for R&D" and "Government innovation support for commercialisation of research, new R&D performers and R&D networks" are produced in collaboration by Finnish and international experts. Technology counsellors at Tekes offices in the United States, Japan and Belgium also form a valuable information network on the development of innovation policies abroad.

Overall, benchmarking successful international and national models and practices is an integrated part of national innovation policy making. In addition, less successful, but otherwise interesting, examples have been used as learning opportunities.

4.3. International mobility of policy makers

It is a common practice for Finnish policy makers to undertake ad-hoc missions to other countries to study new trends and policy measures. Whereas, more long-term visits through specific exchange programmes for policy makers are rare. Temporary assignments in

international organisations, such as the EU Commission, OECD or World Bank are typical ways to obtain longer-term experiences and practical insights.

4.4. Evaluations and transnational policy learning

For a long time, evaluation has had a steady role in the formulation of innovation policy in Finland. National policies, individual measures and institutions have been subjected to extensive evaluation, especially since the early 1990s. Experts from abroad are commonly involved in evaluation panels. Therefore, foreign examples are thus taken into account in evaluations. This has been important to ensure the objectivity of evaluations and transfer of transnational policy learning.

4.5. Perceived constraints hindering transnational policy learning

The direct transfer of procedures and practices is not unambiguous due to the cultural and historical differences between countries. To be successful, transnational models have to be adapted to local societal environments and constraints.

4.6. Usefulness of the Trend Chart products for transnational policy learning

Innovation policy actors are well aware of the Trend Chart products. The Trend Chart products are seen as one of the sources offering information for policy preparation and decision-making. However, the potential impacts of the Trend Chart for national learning are difficult to point out. The Trend Chart and other information sources are complementing, rather than substituting, each other.

5. List of TREND CHART measures

Code	Title	Start/end dates	Action plan area(s)	New/modified/extended etc.
FI_01	SPINNO - Business Development Centre	1990/continuous	I.1, I.4, II.2, II.5, III.3, III.4, III.5	Ongoing
FI_02	FINNVERA Small Loan Programme	1996/continuous	II.5, III.3	Ongoing
FI_03	Matching Service	1996/2001	II.5	Ended
FI_04	Capital loans for R&D in companies	1996/continuous	II.5, III.2, III.3	Ongoing
FI_05	Centre of Expertise Programme	1994/2006	I.1, I.6, II.5, III.3, III.4	Ongoing/second period
FI_06	TULI - programme	1993/continuous	II.5, III.3, III.5	Ongoing, new programme period
FI_07	Programme for additional appropriation for research	1997/1999	I.6, II.5, III.2, III.4	Ended/evaluated 2000
FI_08	Cluster Programmes	1997/2004	I.6, II.5, III.4	Ongoing
FI_09	Improving the use of research results at universities	1999/2001	II.2	Ended
FI_10	Technology transfer from universities and research institutions	1999/2002	II.2, III.4	Ongoing
FI_11	Technology Clinic initiative	1992/continuous	I.4, III.2, III.5	Ongoing
FI_12	Tekes Technology Programmes	1984/continuous	III.2, III.4, III.5	Ongoing
FI_13	PreSeed Finance/LIKSA & INTRO programmes	2001/2003	II.3	New/Ongoing
FI_14	Government's Entrepreneurship Project	2000/2003	IV.4	Ongoing
FI_15	Employment and Economic Development Centres - TE-keskukset	1997/continuous	II.3, II.5	Ongoing
FI_16	ProACT - Research Programme for Advanced Technology Policy	2002/2005	I.4, III.1	New

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7. New Policy documents

Policy Document Summary

Name:

Business Environment Policy in the New Economy

Published:

October 2001

Produced by/primary agency responsible:

The Ministry of Trade and Industry

Presentation of Analysis – main national strengths/weaknesses, problems addressed

For a long time, Finland has been a follower, i.e. dragged behind the technological forefront and the rich countries, but now it has reached this forefront. The big question is whether Finland can keep pace at the forefront. What is required of the business environment policy in order to retain high competitiveness in the future, too?

According to the report, competitiveness is now good and the economy seems to be well equipped to face the fluctuations of the international economy. In this positive development, policy has played a prominent role. It can well be said that the determined technology policy, which was started as early as at the beginning of the 1980s, has made a major contribution to this. At the same time, much has been invested in education and training. During the past decades, the youth have received good schooling.

Many changes in the domestic and international regulatory environment have unquestionably had a major impact on the successful structural development of the Finnish economy. Competition has become tighter for the Finnish market, when bilateral trade ended in the 1980s, when closed markets – especially monetary, telecommunications and energy markets – were opened to competition, when restrictions on foreign ownership were abolished, when competition law was harmonised with the EU legislation and when our membership of the EU (in 1995) made the markets even more open for foreign enterprises. It is obvious that the tightening of competition has rendered the economy more efficient.

The restructuring of the global economy is setting new challenges for all countries. New technology must be applied on a wide scale. This calls for the development of knowledge and skills. The incentives to produce innovation and improve the efficiency of activities must be sufficient. Entrepreneurship must be encouraged with a favourable business environment.

The requirements of sustainable development are becoming more stringent and international regulation will increase. Adaptation to the requirements sometimes enforces painful changes. On the other hand, swift users of the new technology develop new efficient, environment-saving production methods and create new products for the growing “environment market”.

Here in Finland, the ageing population threatens to slow down the development of new skills. Regional migration is dynamic. Urbanisation will accelerate. Regions should be developed wisely, with care taken not to stiffen the restructuring of the economy and to prevent the economy from becoming more efficient.

Meeting the challenges stresses the importance of the policy areas that have, for a long time, occupied a central position in business environment policy – the development of know-how and technology. Their value will not be reduced, if anything, in the business environment policy in the years ahead.

The ageing of manpower further adds to the importance of education and training as reformers of the skills of the adult population. The implications of ageing also underline competition policy measures and, especially, improvement in the efficiency of public service provision.

The need for rapid restructuring lays stress upon measures of enterprise policy, aiming to support entrepreneurship and to modernise the corporate structure.

The ongoing regional change will raise regional business environment policy to an important role within the next few years. The regions should be able to strengthen the competitiveness factors and business environment of their enterprises, taking into account that funding from the EU Structural Funds will be cut down after a few years.

In the implementation of business environment policy, co-operation between the various policy actors has become more and more important. Business environment policy is still an expanding variety of policy sectors in which responsibilities are dispersed into various administrative branches. The development of co-operation will require, for example, good information and analysis of the structural issues of economy. Therefore, all such solutions, on the level of the central government or of the regions that improve this co-operation, are essential in promoting competitiveness.

Indicators – figures used, sources and benchmarks

The report is based on various international and national sources, among them the EU, OECD and IMD (Institute for Management Development).

Objectives, time horizon, relationship to the EU Action Plan (if any)

The document's objective is to support the handling of the central issues of business environment policy at the Ministry of Trade and Industry. The document covers key national trends, especially in the 1990s and onwards, focusing on challenges in the years to come.

Implementation approach

The document is intended to be a tool of the Ministry of Trade and Industry.

Reference/location/URL

<http://www.ktm.fi/eng/1/bene.htm>

