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WIPO/IP/HEL/00/14
ORIGINAL: English
DATE: October 2000

NATIONAL BOARD OF PATENTS AND
REGISTRATION OF FINLAND

WORLD INTELLECTUAL
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FORUM ON CREATIVITY AND INVENTIONS – A BETTER FUTURE FOR HUMANITY IN THE 21ST CENTURY

organized by
the World Intellectual Property Organization (WIPO)
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in cooperation with
the Ministry of Trade and Industry of Finland,
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the Finnish Inventors' National Federation (KEKE)

Finlandia Hall
Helsinki, October 5 to 7, 2000

CONDITIONS FOR SUCCESSFUL ECONOMIC AND SOCIAL USE OF INVENTIONS AND INNOVATIONS

FINANCING DEVELOPMENT OF INVENTIONS AND INNOVATIONS TO THE PRODUCT AND THE MARKET STAGE

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Introduction

Finland has lately been used in many contexts as an example of a country that has been able to meet the challenges of fast technological change and globalization, especially the development in industrial structures during the 1990s has been remarkable. High-tech industries based mostly on information and communication technologies (ICT) have grown extremely fast and become the third pillar of the economy. At the same time Finland - traditionally known for its forest and metal industries - has become one of the most high-tech specialized countries in the world. Whether one looks at patent statistics, R&D statistics or various studies on competitiveness between nations, Finland has succeeded in generating the knowledge base and commercializing research results.

Systematic and Long-term Technology Policy

One of the major reasons behind this change has been a long-term systematic technology policy. There has been an exceptionally favorable climate for technology and innovation in Finland from the early 1980s. National investments in R&D have grown from 1.5% to more than 3% of GDP in 15 years. During the 1990s the growth in R&D investments were dominated by ICT industry. Today, one third of all industrial investments are made in R&D.

The Finnish innovation system has lately been analyzed in many contexts. All studies seem to indicate that Finland today provides a good global innovation environment. According to OECD, Finland is selected as best practice in policy formulation and implementation, managing the science base, facilitating growth in new demand and promoting new technology based firms.

One of the main requirements for innovation is sufficient and patient funding. The public sector has a role in facilitating innovation which means providing funding for the most risky and long-term R&D. But funding alone, however, is not sufficient. Public funding for business R&D in Finland is actually less than the OECD average and especially low for larger companies. Long term patient money must be provided with expertise. In the case of government, this can not mean getting involved in the company. It means providing platforms and incentives for companies and research organizations to learn and work together in a way which favors innovation.

Networking is important in today's business and it is important in R&D. Companies network on many levels with customers, suppliers, consultants, universities and research institutes, even with competitors. For a country where still as late as the 1970s, universities were encouraged not to colaborate with industry, indutry linkages with universities and especially with research institutes are today extremely developed. One major incentive for cooperation is public money for R&D provided by Tekes. Networking is one of the main objectives set for Tekes funding and today 90% of funding is for collaborative projects.

National Technology Agency, Tekes

National Technology Agency, Tekes, is the main organization in Finland responsible for technology policy implementation. Other main public organizations in the Finnish innovation system are the Science and Technology Policy Council giving recommendations to the government on issues related to science and technology and the Academy of Finland providing universities with funding for basic research. Sitra provides, e.g. seed capital for start-up companies, Finnvera funds business development and regional employment and

economic development (TE-) centres, acting as one-stop-shops around the country serving mainly local and small and medium-sized enterprises (SMEs).

Tekes is a government agency providing public funding for enterprises, universities and research institutes on a competitive basis. Funding is provided for R&D projects and programmes as grants and loans. The purpose of funding is to correct market failures and systemic failures, improve competitiveness, and facilitate economic growth and to expand welfare of the society through R&D and innovation. The main objective is to ensure renewal of the economy both through new and existing enterprises.

Same as networks in business and R&D, linkages are perceived even more important than actors in an innovation system. Tekes acts as an important node between regional, national and international innovation environments. People at regional TE-centres and offices overseas in Europe, USA and Japan, link Tekes to regional, national and global networks.

The role of Tekes can be seen as threefold. The main task for Tekes is to provide funding for knowledge infrastucture. Second, Tekes stimulates and catalyses technology development and adaptation. Tekes also has an important role as an expert body in designing technology policy.

High Quality Innovation Services for Start-up Companies

One of the main policy objectives is to provide enterprises with sufficient high quality innovation services. For Tekes this means the need to intensify cooperation between public and private funding organizations and other innovation service providers. Funding and business services are especially important for start-ups and small technology based firms.

Venture capital markets have developed extremely fast in Finland during the 1990s. Today, venture capital is available for companies in growth phases and there are signs of increasing venture capital also in the seed phase in particular in high-tech sectors.

Tekes provides several instruments for start-up and small companies. Tekes provides funding for and tools for regional technology and science parks to actively search for new business ideas at universities and research institutes. This scheme (TULI) has now been running for a number of years with encouraging results. Both within the TULI-scheme and outside, Tekes provides funding for start-ups and small companies to help them formulate strategies and improve their business plans. Currently Tekes is studying the feasibility of developing new pre-seed funding instruments. Existing small companies benefit from technology clinics, which are designed to enhance technology transfer from universities and research institutes to SMEs.

Providing platforms is one very important aspect in helping cooperation and networking. Technology programmes are the most important instruments for networking. Programmes account for almost half of Tekes funding and their share have been increasing. Technology programmes represent strategic choices in technologies and sectors. Programmes have become the main forum of interaction between enterprises, universities, research institutes and lately also policy makers and other public actors. This is strengthening the already strong consensus building culture, which has been the foundation on which common understanding and commitment is built.

Conclusions

Today, Finland has a very effective innovation system. In a fast changing world, the only way to ensure competitiveness and renewal capacity in the long term is to invest sufficiently on knowledge and skills. I am convinced that the strategy Finland has chosen is the correct one.

It seems that intellectual property rights are rising in a dominant position affecting the mechanisms of the innovation environment. It is very important to recognize these sensible affects and to have successful means to benefit from them.

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