

# **Key factors of European competitiveness: A Finnish perspective**

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## **Finland's National Innovation Strategy at the Crossroad: The challenge of a Fugitive Success**

By hard work and determination, the Finns have been able to make their country one of the successful countries in the world. One of the significant achievements is a Nordic-type affluent society with free general education, social and health-care services available to everybody, small income disparities, little poverty and the wide participation of women in working life. Finnish values, such as an appreciation of education and work and technology optimism have also supported country's recent accomplishments. Finland's innovation system has been recognized to be well functioning if contribution to R&D and the share of high technology in industrial production and exports are used as indicators.

The Finnish Economy can be characterized as highly open, specialized, and networked. Networking and cooperation in society in general, as well as in the business sector and between industry and universities in particular, have proved to be important in developing new technologies in Finland. There is a widely shared support for the belief that new knowledge, innovation and technical change are the most important factors in economic growth and competitiveness. Hence the policy issue has been to foster technological advance and harness it to producing product and process innovations that are competitive on the global market. There has been also evidence that public R&D policies can have a positive contribution to overall R&D input and productivity.

### **Finland's paradox: do high rankings matter?**

A number of indicators have placed recently Finland among the top performers. There are substantial strengths with regard to competitive activity, the following of which can be mentioned:

- The external balance of the economy and public finances are in good shape so far.
- The growth of the economy has been among the fastest in the world since the middle of the 1990s.
- Finland uses about 3.5 per cent out of GDP for research and development; this is third highest figure in the world after Sweden and Israel.
- Labour productivity has increased rapidly in industry, particularly in the electro technical industry, surpassing the level of the US.
- With regard to achieving the objectives of the Lisbon strategy, Finland is among the three best countries.
- In comparisons of competitiveness conducted by the World Economic Forum (WEF) Finland has been ranked among top countries for the last number of years (the latest WEF ranking: 6).
- The WEF Environmental Sustainability Index ranks Finland in first place
- Richard Florida's Creativity Index ranks Finland in position 2 after Sweden

- Among the younger people, the proportion of people with a higher education degree is one of the highest in the world.
- The share of researchers and R&D staff among the employed is higher in Finland than in the other EU countries, the United States and Japan.
- Finland is one of the least corrupted countries in the world.

Yet there are major challenges at sight. Finland does not attract immigrants or investments enough. Industry is looking at expanding markets and is moving the focus of production abroad to an increasing extent. Service industry has not advanced as expected particularly in terms of exporting activities. The Finns' standard of living and the preconditions for a good life have been improving for decades.

It is reasonable to talk about *Finland's paradox*, given that a very competitive and skilful nation does not attract investments, is actually not in the pole position in the race for a high standard of living and is not able to eliminate a relatively high unemployment. Finland's paradox gives a darkening forecast for its competitive ability and for the prospect of it becoming wealthy. Another list of the major challenges calls for special attention:

- Measured by GDP per capita, Finland is in position 15 in the world.
- The rate of employment in Finland is not high (71 per cent in 2008) and unemployment still relatively high (6 per cent in 2008) after a long positive economic cycle
- The R&D intensity in service sector and labour productivity within most service sectors are relatively weak. The overall development of the service sector lags behind industry not only in terms of R&D but in productivity, exports and internationalization. Productivity is only close to the global peak in a few service branches, such as telecommunications and the banking and finance sector.
- The share of GDP represented by direct investments coming to Finland is noticeably below the EU average
- The entrepreneurial activity is not high enough. This is particularly the case among the highest educated people
- The high R&D investment ratio is partly due to one single company, Nokia Corporation (number one investor in Europe and 5<sup>th</sup> in the world) spending €5.28 bn in this area. With handful of other internationally oriented companies, Nokia accounts for a major part of all annual R&D investments

In a simplified way, the challenges to Finland's competence can be presented using Figure 1, where the vertical axis shows the level of competence in relation to international level and the horizontal axis shows the three central areas of competence, including R&D, production, as well as commercialization and marketing. Finland must achieve the top level in all three areas of competence. The strongest area so far is R&D, although the trend in industry investments has been levelled off recently.

#### **Four decades of development: from catching up economy to leadership group**

It is clear that a well functioning national innovation system can not be developed overnight, but calls for longer time period. Finland was lagging behind the rest of Europe in industrial development after World War II. It took decades to catch-up its western neighbours; the country was actually a catching-up economy to the 1970s. The phases of development are labelled as follows: the building phase of the 1960s and 1970s, the

technology phase in the 1980s and the era of the national innovation system from the 1990s on.

A new era initiated by the Science and Technology Council (chaired always by the Prime Minister in the office) began to form at the turn of the 1990s, embracing the "national innovation system" and "knowledge and know-how" as central elements. This emphasized four viewpoints: creation and utilization of knowledge and know-how, the R&D system at the core with education playing an important role, the influence of the general atmosphere and environment on the development and take-up of new technologies, and the ability to cooperate both nationally and internationally. The concrete target was to increase R&D expenditures rapidly.

Finland was actually the first country to adopt the concept of a national innovation system as a basic element of science and technology policy. That reflected the idea to go beyond political rhetoric and look at the innovation process and policies from a broad perspective spanning from education and science to innovative activities of firms and commercialization of technological innovations. Cluster-based industrial policies also fit well in this line of policy thinking. Towards the end of the 1990s commercialization of the results of R&D received increasing emphasis. The 1990s was an important period, since it speeded up the process of structural change that had started 10 – 15 years earlier. Rapid structural transformation also enhanced the system thinking among policy makers –there was a need to get a comprehensive picture of the restructuring and its possible outcomes. The economy was able to take advantage of the booming global ICT market and increasing capital flows.

Finland is a part of so called Baltic Sea Region. This region has, in recent years, outperformed European peer regions on key performance measures. The region continues to be dominated by the Nordic countries before such upcoming economies as the Baltic States (Estonia, Latvia and Lithuania), Poland, northern Germany and south-western Russia. Higher education and particularly tertiary education is strength for the region as a whole and the prevalence of science and engineering graduates and researchers is generally high. Nordic countries and Germany invest more in R&D than their eastern rim counterparts, especially when a look at the private sector is taken. While key strengths are said to be a strong physical infrastructure, a skilled labour force, low levels of corruption, strong clusters, demanding regulations, a strong science system, and companies competing on innovation and uniqueness, these truer for the developed Nordic states and for German regions, but not for the Baltic states, Poland and southwest Russia, although the fastest economic growth has taken place in this latter group of countries.

A "differentia specifica" of the Finnish innovation model has been the *early adoption of systems view in industrial and innovation policies*. This perspective can be described as an acknowledgement of the importance of interdependencies among research organizations, universities, firms, and industries due to increasing importance of knowledge as a competitive asset. The systemic approach to policymaking is based on the notion that various stages of innovation process often are simultaneous rather than sequential, and the funding and services are demanded accordingly.

This has made Finland to belong to the group of "innovation leaders" from its earlier "catching-up" position by the mid of the first decade of the new millennium according to complex and policy-relevant innovation measurement tool currently available.

There are also various shared challenges rising among the top ranked "innovation leaders" such as Nordic countries. These include the aging of population (particularly in Finland), a shift of economic power from Europe to other macro regions, increasing competition over talent not only with European core regions but other parts of the globe as well. Another factor that affects especially some of the partner regions is the increasing concentration of economic activities within countries to capital regions and other strong growth poles. For example, there is an estimate that out of all know-how inputs some 47 per cent are concentrated in the greater Helsinki area in Finland.

### **Preparing for the future: Finland's new innovation policy in 2008**

*But* Finland can not just rest on its laurels, because developing countries such as China and India are rapidly catching up with developed countries in terms of their R&D investment and innovation activities. Despite of a large number of indicators placing Finland among the top performers, there are upcoming serious problems. The number of unemployed people is still relatively high (5.9 per cent, September 2008), the labour force is decreasing and the dependency ratio is weakening.

It is already mentioned earlier that aging is becoming a major problem. Finland attracts neither immigrants nor investments. A downward trend is currently in sight. This trend has been called 'a fugitive success' and it calls for taking new strategic choices in the near future. Most recent international rankings also indicate that there is tendency to move downwards rather than constantly occupy the highest positions. Thus, there is a risk that successful decades such as the 1990s and early 2000s become rather the glory of the past rather than a springboard to new accomplishments.

Thus, Finland unveiled recently (June 2008) a new innovation strategy. The position of a pioneer requires renewal. The current devoting of 3.4 per cent of gross domestic product on R&D is estimated not to be enough, but the new target for the period up to 2011 is 4 per cent. Simultaneously a new broader definition of innovation emphasizing 'the soft side' of innovation (such as design, branding, business concepts, production and workplace innovation) was introduced. Other important strands of this proposal approved in August by the government and later by the Finnish Parliament an international dimension to innovation; demand as well as user orientation of innovation and support of innovative individuals and communities.

This document mentions a number of drivers of change such as globalization, sustainable development and new technologies making the economy and society face immense pressures for change. As a solution the new innovation policy states two strategic goals: *innovation-based development of productivity* and *pioneering in innovation activity*. These high goals constitute a major challenge for a small country with limited resources. To attain the above mentioned strategic goals, the innovation environment must be able to create novelty and make choices. Further, this innovation strategy *have to be* focused on new topic and measures requiring a distinct change, *and in order to implement it, the pertinent measures have to be taken*.

Presented in a nutshell as follows:

- Innovation activity in a world without borders
- Demand and user orientation

- Innovative individuals and communities Systemic approach.
- To implement this strategy, ten key sets of measures are recommended:
  - The central government's corporate steering will be renewed for the purpose of becoming a worldwide pioneer of systemic reforms.
  - Content-oriented and regional centres of innovation driving renewal will be formed.
  - The financing and service system promoting growth entrepreneurship will be renewed into a clear entity, operating with entrepreneur and investor orientation.
  - New competitive and market incentives activating enterprises and other communities in innovation on a broad basis will be created and exploited.
  - The national ensemble of expert and financing services will be updated to meet the needs of demand- and user-oriented innovation activity.
  - A learning environment motivating innovation on a broad basis will be developed.
  - Finnish research and higher education system will be developed into an internationally competitive development environment for expertise and innovations.
  - Personal taxation and other key factors essentially weakening Finland's attractiveness will be revised to a competitive level.
  - Finnish management training will be developed to meet international top standards.
  - The strategies and operations of parties implementing innovation policy will be adapted so as to be in line with the basic choices of the national innovation strategy.

Two changes in the governmental structure and policy in 2007 and 2008 reflect a rethinking of innovation policy in Finland: a new focus on industrial sectors, or clusters, and second, increased attention to the development of regional capabilities. In 2007 the first *Strategic Centre of Excellence in Science, Technology and Innovation* (STI) was launched for forest industry cluster. It is a consortium aimed at coordinating top-level, longer term research programmes that combine funds and expertise from private enterprises, universities, and research institutes, with public support from major Finnish agencies as well as from the EU under the Seventh Framework Programme. The number of STIs will be increased to eight areas by the end of 2008 to include information and communications, metals, energy and environment, service business, wellbeing and health, real estate and construction and food. STIs are aimed to enhance the national research capacity by creating "internationally visible and attractive research units as well as research, development and innovation clusters and programmes that are globally competitive and significant for the business sector and society."

The Strategic Centres of Excellence engage the same actors as earlier Finnish innovation policies, but the new model diverges in three ways: it identifies a set of strategic sectors (clusters) in advance for research and coordination; it authorizes creation of an administrative unit to coordinate the joint definition to research plans, and it envisions investments in longer term (5-10 years), larger, higher-profile projects than previously possible.

The other significant change is a public recommitment to local and regional level economies and innovation systems – a move toward decentralization. *The Centre of Expertise Programme* (OSKE), which dates to 1994, was renewed in 2007 for a six year period in order "to improve regional competitiveness in line with national and European policies." The 2007 programme created 13 new Clusters of Expertise – or Competence

Clusters – selected through a competitive process to represent the top expertise in their fields, with range from Food Development, Clean Tech, Energy Technology and Health and Wellbeing to Ubiquitous Computing, Nanotechnology, and Tourism and Experience Management.

There is also a strategic action plan presented in the document naming a number of current agents and actors and suggesting how to intensify and partly extend their role in implementing the new strategy. It should be noted, however, that a majority of those in charge belong to the private sector following their own strategies, policies and procedures. The proportion of the state of the national R&D investments accounted some 15 per cent in 2007. Thus, the primary role of the government is to try to build a favourable environment and context where private firms operate according to their best know-how and capabilities. It will be seen, how Finland's new innovation strategy really works or does it just remain "more hopeful than helpful" like so many bona fide written official papers. It is utmost important how Finnish industry will respond to the multiple challenges it faces. Instead of many current forms of instructional lock-in more openness and fluidity is demanded.

The innovation policies, particularly the regional centres of expertise and competence clusters, have the potential to stimulate greater cross-sector, cross-domain experimentation and new collaborations in projects that could redefine the sectors themselves. Much will depend upon the incentives for attendance and the weights of this more open and more decentralized approach, relative to the sector or platform-based Strategic Centres of Excellence model having the tendency to reinforce the existing concentrations of resources.

### **Conclusion: some lessons to be learned**

There are some lessons to be learned. It is presumably an advantage to be a small country such as Finland. It is easier in small countries to adjust more flexibly and create institute and cooperation more conducive to necessary changes. The Finnish experience also suggests that a deep crisis (which occurred in the early 1990s) often precedes considerable and lasting shifts in economic and social structures. It looks that small countries with greater homogeneity and closer interaction among agents can be better equipped to cope with continuous change demands.

The Finnish experience further demonstrates that institutions matter. Innovation policy must have a long-term strategic perspective. Thus, policies should be consistent over the long-term and not managed by short-term cyclical or political considerations.

However, critical evaluation is badly needed. It is likely that there will be failures and unexpected results that should be assessed as well. This requires monitoring the successes and failures of the new institutions and actions in order to catch missteps as early as possible and to prevent the kinds of lock-in that have hampered the previous policy innovations. Knowledge-based society should be also a learning society.

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