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Finland

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FINLAND

Finland has consistently ranked at the forefront of innovation investment and performance, and innovation policy is at the heart of public policy. Finland ranks second in the OECD in terms of R&D intensity (at 3.45% of GDP) and aims at 4% of GDP by 2010. Business R&D stood at 2.44% of GDP in 2007 and the intensity of higher education R&D has doubled over the past 15 years. Equally, Finland leads the OECD in number of researchers in the labour force, with close to 5% average annual growth in numbers from 1997 to 2006.

This strong investment in R&D is reflected in robust scientific and technological performance: Finland ranks fourth among OECD countries in terms of scientific articles and above average in number of triadic patents per capita. Finnish companies, especially large firms, also rank high in new-to-market product innovations and obtain a substantial share of their turnover from these advances.

Finland's strong performance in both innovation inputs and outputs has been matched by strong economic performance. Since the mid-1990s, it has systematically outperformed OECD and EU15 average performance in labour productivity growth rates, and GDP per capita continues to converge towards the best OECD performers. Yet Finland's investment in R&D and innovation has not yet been converted, to the expected extent, into new innovations, jobs and exports.

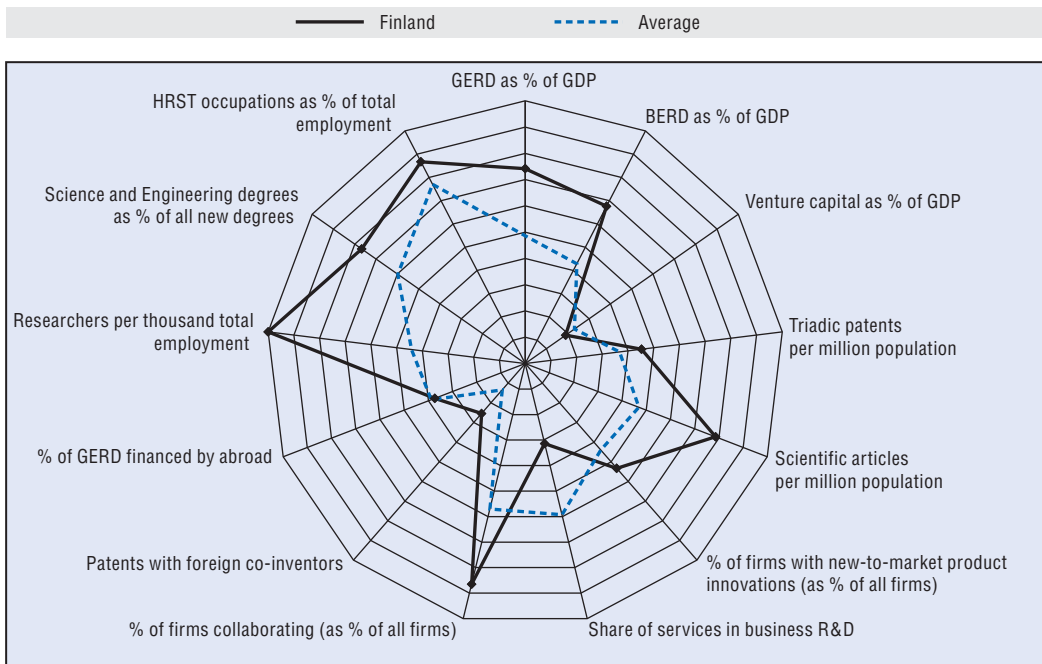
The structural characteristics of the economy are significant in this respect. R&D investment is concentrated in certain manufacturing sectors, especially electronics, and is dominated by a handful of large domestic multinational companies. For instance, Nokia alone accounts for almost

half of overall business R&D. At the same time, the shares of the two traditional pillars of Finnish industry, the wood processing and the metal industries, have decreased and account for no more than 16% of industrial research expenditure. The situation is similar in the paper and pulp industry, traditionally another core industry. In addition, there are few R&D-oriented start-ups, partly owing to a lack of risk capital. The Finnish system also remains relatively isolated, as evidenced by the small number of patents involving foreign co-inventors and the small percentage of business R&D funded from abroad.

The government is aware of this situation and launched an Innovation Strategy in 2008 to maintain and strengthen its leading position. The strategy will orchestrate innovation policy across sectors, and will promote not only the so-called high-technology sectors but also innovative solutions and applications throughout the economy and society. Moreover, it will seek to improve co-operation and co-ordination between the regions and the national government.

The innovation infrastructure will be complemented by Strategic Centres of Excellence in Science, Technology and Innovation in areas that are crucial for the economy. Moreover, structural changes in higher education institutions aim at strengthening their quality, effectiveness and internationalisation. The *University Act* will provide universities with more autonomy and financial power, and their management and decision-making systems will undergo reform by 2009. Reforms to improve research careers, research infrastructures and sectoral research are already under way.

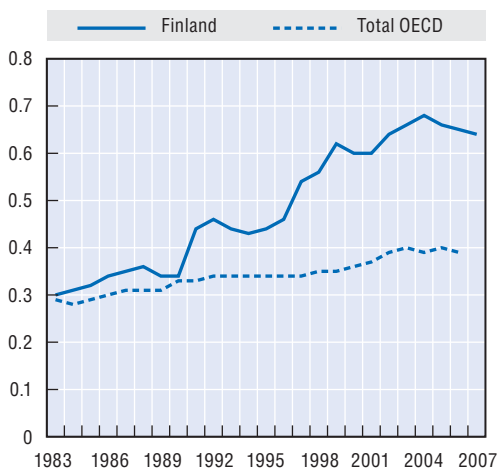
Science and innovation profile of Finland



StatLink <http://dx.doi.org/10.1787/452403238023>

Higher education expenditure on R&D, 1983-2007

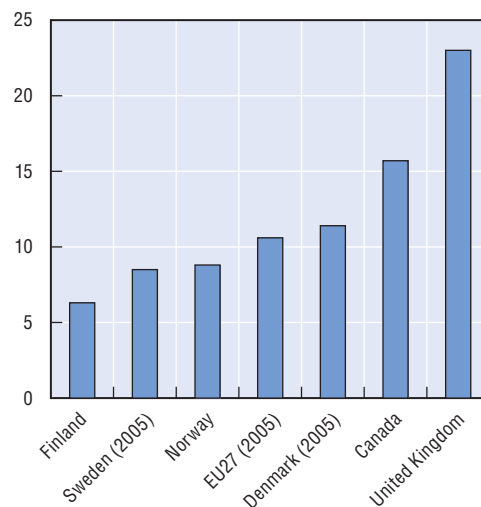
As a percentage of GDP



StatLink <http://dx.doi.org/10.1787/452413840677>

Funds from abroad, 2006

As a percentage of business enterprise R&D



StatLink <http://dx.doi.org/10.1787/452437420381>

Chapter 3

Science and Innovation: Country Notes

This chapter complements Chapters 1 and 2 by providing an individual profile of the science and innovation performance of each OECD country, as well as observers to the OECD Committee on Science and Technology Policy (Brazil, Chile, China, Israel, Russia and South Africa), in relation to their national context and current policy issues. The graphs enable countries to see some of their relative strengths and weaknesses as compared to other countries' performance.

The common indicators in the first (radar) graphs were selected on the basis of current policy issues. They focus on research and innovation inputs, scientific and innovation outputs, linkages and networks, including international linkages, and human resources. A standard set of indicators is used; however, when data are not available, alternative indicators may be applied. The annex provides a full list and description of the indicators, methodological notes and data sources.

For each indicator in the radar graph, the country with the maximum value is set at 100, taking into account all OECD and non-OECD countries with available data. The average is calculated by taking into account all OECD countries with available data (non-OECD countries are excluded from the average). The annex provides further details.

The radar graphs are accompanied by country-specific figures that further illustrate national characteristics and underpin policy-specific comments. The selection of comparator countries in these graphs aims to highlight the general position of the focal country and, in some instances, data on other countries may also be shown.

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