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Denmark

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DENMARK

From the second half of the 1990s, innovation activity picked up, and Denmark is now one of the better-performing members of the OECD on many innovation indicators. However, productivity improvements have slowed and the gap in GDP per capita relative to the best performers remains.

In 2006, Denmark's gross domestic expenditure on R&D (GERD) was 2.43% of GDP, above the OECD average of 2.26%. Business performed 67% of R&D (and funded 60% in 2005). Denmark aims to achieve research spending of 3% of GNP in 2010, with one-third financed by government. The interaction between government and industry in science and innovation differs depending on the indicator – cross-funding of R&D is low, but a relatively high 30% of large firms collaborate with higher education institutions. The government has set benchmarks to increase such collaboration.

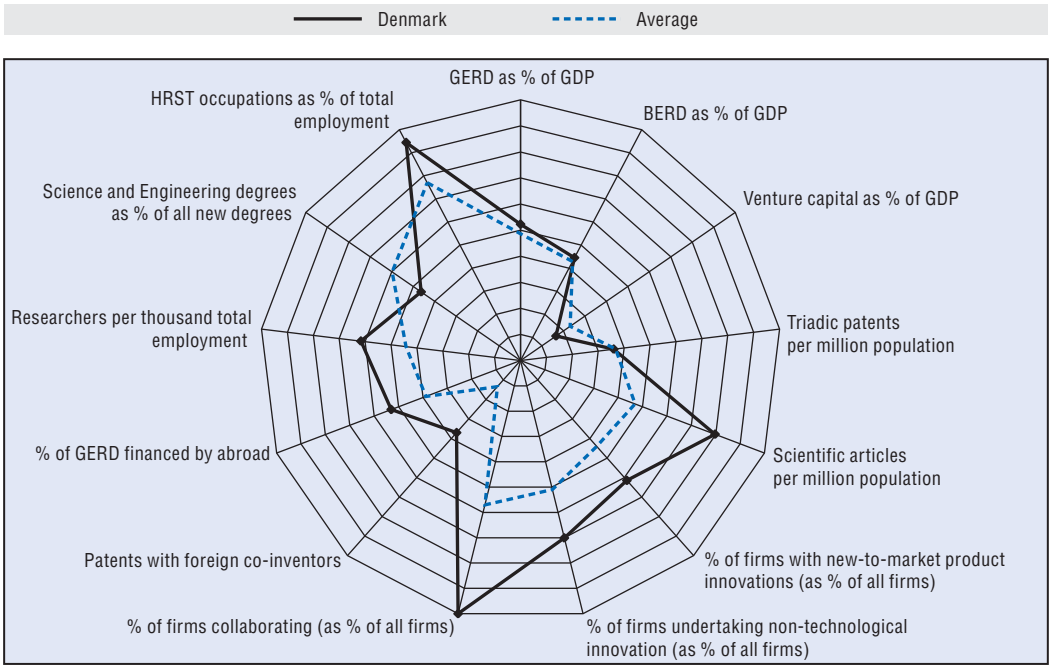
Occupations involving human resources for science and technology account for over 35% of total employment and there are more than ten researchers per 1 000 total employment (the fourth highest rate in the OECD area). However, problems are emerging upstream, as skills formation appears inadequate to meet requirements: proficiency in science among 15-year-olds is relatively low, despite spending on education that is among the highest in the OECD area; a relatively low percentage of students complete secondary studies compared to other Nordic countries; and the number of science and engineering degrees as a share of new degrees is below the OECD average and decreasing.

Innovation indicators present a positive picture of Denmark's performance to date. The number of triadic patent families per million population is just below the OECD average, while the number of scientific articles per million population was the third highest in the OECD area in 2005. Citation data reveal that these are relatively influential. Denmark compares well to other OECD countries with respect to in-house product and, particularly, process innovation, and 70% of large firms have introduced non-technological innovations.

In 2006, the government launched a Globalisation Strategy to prepare Denmark for further globalisation; this encompasses initiatives in the fields of education, research, entrepreneurship and innovation. For example, to encourage international collaboration, the government opened centres of innovation in Silicon Valley and Shanghai in 2007, and will open another in Munich in 2008. It has also implemented reforms in the university sector, including the merger of some universities and research institutions in 2006/07. Further initiatives for this sector aim at instilling quality as a key sustaining principle. In 2007 an action plan to promote and enhance innovation was launched. InnovationDenmark 2007-10 is the country's first comprehensive plan in support of innovation activities.

Current policies seek to create a better framework for private-sector research and more robust linkages across the innovation system. Beyond this, the key challenges lie in the continuation of fundamental reforms: in particular, ensuring that schools and universities turn out people who are well equipped to contribute to a knowledge society.

Science and innovation profile of Denmark



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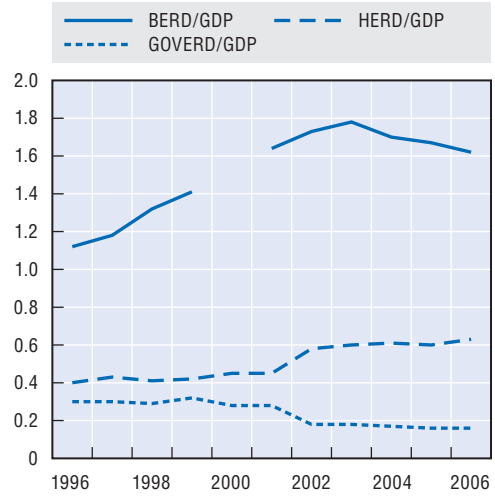
R&D expenditure, 1996-2006

As a percentage of GDP



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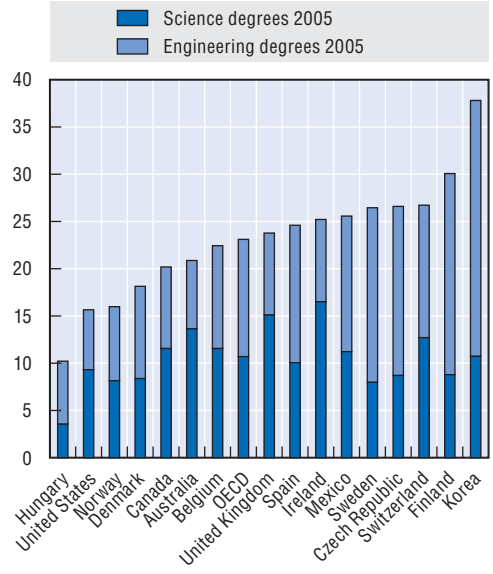
Science and engineering degrees, 2005

As a percentage of all new degrees



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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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