

LUXEMBOURG

In recent decades, Luxembourg's economic growth has been buoyed by the strong performance of the financial and the transport, storage and communications sectors. However, uncertainty about the future growth of these sectors means that it must prepare for a transition to a different pattern of growth. Innovation will play a major role by contributing to productivity and helping to develop new and improved products and services.

Investment in R&D has been relatively modest, with gross domestic expenditure on R&D (GERD) at 1.47% of GDP in 2006, below the OECD average of 2.26% and the EU27 average of 1.76%. In response to the imbalance in the contributions of the private and public sectors to R&D and innovation, Luxembourg has increased the ratio of public expenditure on R&D to GDP to 0.26% in 2005 with an ultimate goal of 1%. The University of Luxembourg, created in 2003, will play a key role here.

The workforce has a large share of human resources for science and technology (HRST). In 2005, professionals made up 21% of total employment and technicians 17%. HRST occupations grew at an average annual rate of 4.8% from 1996 to 2005, well above the EU19 average of 2.8%. Public-sector research personnel have also increased substantially in line with the rise in public R&D expenditure.

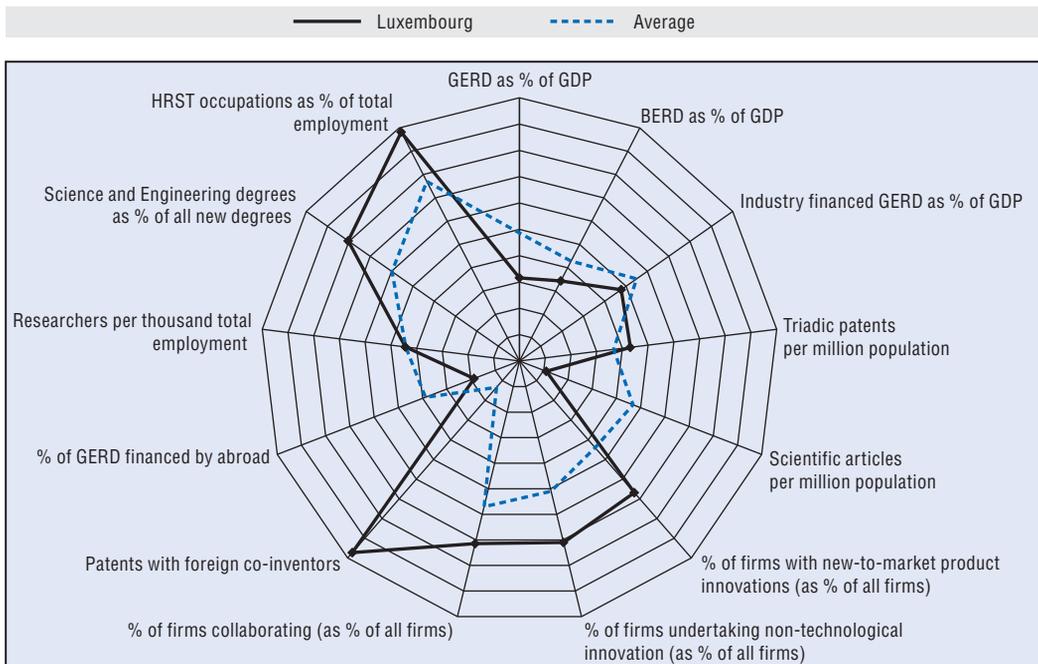
With low levels of government spending on R&D in the past, Luxembourg has lagged other OECD countries with respect

to the number of scientific publications. However, this is changing rapidly; publications per million population almost doubled from 1995 to 2005. Luxembourg performs well in terms of patent applications (but this is in part a statistical effect owing to the number of firms headquartered there), and over 14% of firms collaborate frequently on innovation with partners elsewhere in Europe, allowing them to gain access to a broader pool of resources and knowledge.

Luxembourg's innovation system continues to develop: public institutions are relatively young and optimal governance arrangements are still emerging. Following the *OECD Review of Innovation Policy* (2006), Luxembourg's government established a high-level committee tasked with the development of a national research and innovation policy. Performance contracts are also being introduced for public-sector research institutions, as well as for the National Research Fund.

Given the structure of the economy, a key policy challenge is to deepen understanding of innovative activities and opportunities in the services sector. Other pertinent issues include strengthening links between private and public research, supporting the spread of R&D activities beyond large international firms in traditional sectors, and ensuring that policy instruments support networks and joint projects with international partners.

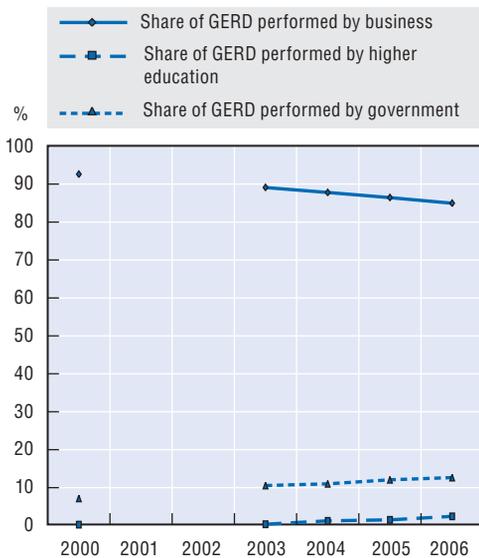
Science and innovation profile of Luxembourg



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Domestic R&D expenditure by sector of performance

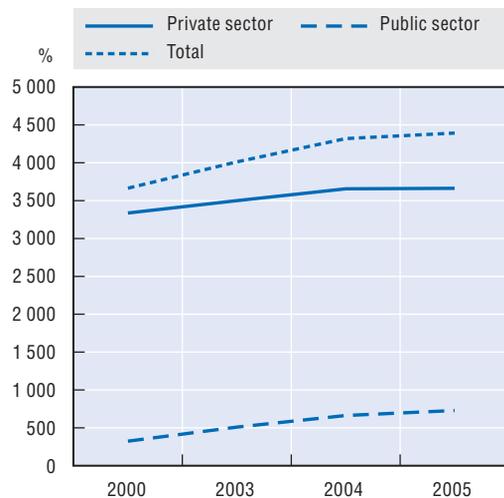
Percentage share



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R&D personnel by sector of performance

Full-time equivalent



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