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Germany

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GERMANY

Germany's strong innovation profile has remained stable since the 2008 STI Outlook. Science and technology occupations are well represented in total employment, and medium and high-technology manufacturing exports have been robust for a number of years.

Gross expenditure on R&D (GERD) rose from 2.5% to 2.6% of GDP from 2007 to 2008. In constant terms, GERD has grown by an average 1.8% a year since 2000, and in 2008, GERD per capita was USD 935 in purchasing power parity (PPP), exceeding the OECD average by USD 149. Business expenditure on R&D (BERD) was 1.9% of GDP in 2008; 91% of BERD was funded by industry and a small 4.5% by government. In the same year, venture capital investment was 0.09% of GDP.

In terms of innovation outcomes, triadic patents were an above-average 73 per million population in 2007, and at 12.1%, Germany had the third highest share of triadic patent families, after the United States and Japan. In 2008, it had 820 scientific articles per million population, or slightly above the average, and accounted for a high 4% of world scientific publications. During 2004-06 a comparatively high 19% of firms introduced new-to-market product innovations and a very high 69% introduced non-technological innovations.

Innovation linkages in Germany show that during 2004-06, 10.5% of firms collaborated on innovation activities, that a relatively low 4% of GERD was financed from abroad in 2007, and that during 2005-07 an

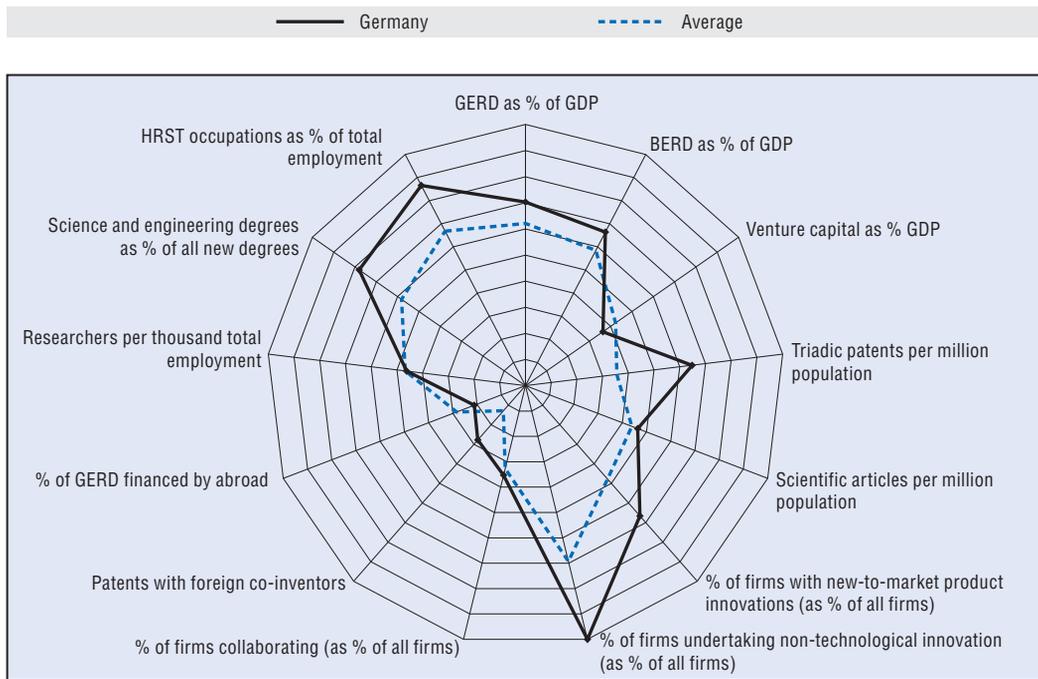
above-average 16.7% of patent applications were with foreign co-inventors.

On balance, Germany performs well on indicators of human resources in science and technology (HRST). The number of researchers has grown strongly in recent years, but its 7.5 researchers per thousand employment remain at around the average level. However, a relatively high 28% of new degrees were awarded in science and engineering in 2007 and a large share of students obtained doctorates in these disciplines. HRST occupations represented a solid 36% of total employment.

The economy grew at an average annual rate of 1.2% between 2001 and 2008. However, real GDP contracted sharply by 5% in 2009, although the unemployment rate increased only modestly to 7.5%. Germany's labour productivity increased by 1.2% annually between 2001 and 2008, but recorded no growth in 2008. GDP per capita is 75% relative to the United States.

Germany's most important policy document, the federal government's 2006 High-Tech Strategy, has recently been updated by the High-Tech Strategy 2020. The revised strategy focuses on health and nutrition, climate and energy, security and communication in addition to mobility as main global and societal challenges. It also identifies key technologies for emerging lead markets. In the same vein, the Excellence Initiative, which seeks to promote cutting-edge research at German universities, has been extended until 2017, with a 30% increase in funding volume.

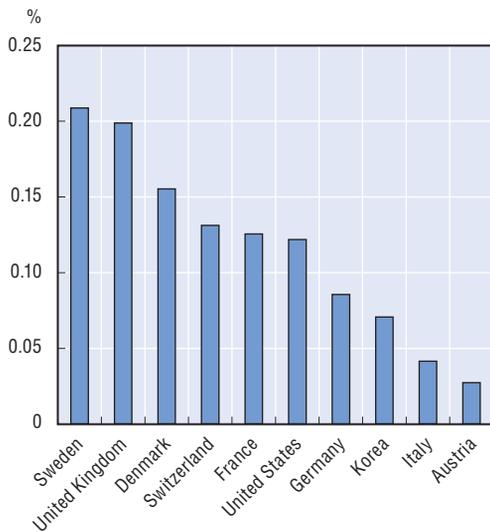
Science and innovation profile of Germany



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Venture capital investment

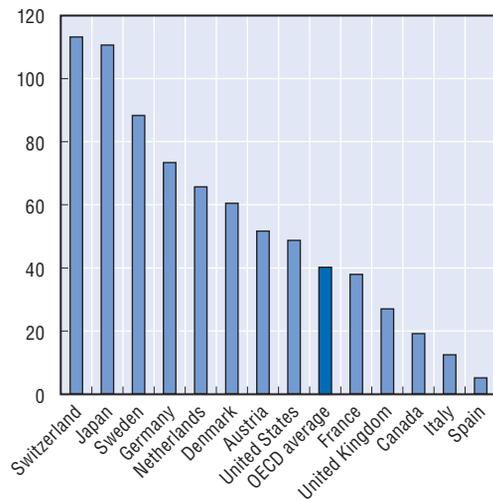
As a percentage of GDP, 2008



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Triadic patents

Per million population, 2008



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