



**From:**  
**OECD Science, Technology and Industry Outlook  
2010**

**Access the complete publication at:**  
[http://dx.doi.org/10.1787/sti\\_outlook-2010-en](http://dx.doi.org/10.1787/sti_outlook-2010-en)

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## Estonia

**Please cite this chapter as:**

OECD (2010), "Estonia", in *OECD Science, Technology and Industry Outlook 2010*, OECD Publishing.  
[http://dx.doi.org/10.1787/sti\\_outlook-2010-16-en](http://dx.doi.org/10.1787/sti_outlook-2010-16-en)

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## ESTONIA

Estonia has one of the higher per capita income levels in central Europe. Successive governments have carried out significant reforms. The economy benefits from strong electronics and telecommunications sectors and has strong trade ties with Finland, Germany and Sweden. The services sector has grown rapidly to account for 75% of GDP.

Estonia's economic growth outperformed most of the rest of Europe in the early 2000s, with robust average annual growth in GDP of 8.2% from 2001 to 2007. It slowed markedly and fell into recession in mid-2008. GDP contracted by nearly 15% in 2009, among the world's highest rates; unemployment rose from 5.7% in 2008 to more than 14% in 2009. Labour productivity grew by 6% during 2001-07, but declined by 2.3% in 2008. Relative to the United States, GDP per capita was 44% in that year.

Estonia's innovation profile reveals a few strong areas. In the decade to 2008, business R&D grew at a high annual rate of 27.5%, and the government's R&D budget grew by more than 10% a year. In 2006, gross expenditure on R&D (GERD) was 1.1% of GDP and business expenditure on R&D (BERD) was 0.5% of GDP. Health R&D is a strong growth area and has expanded by an average annual 36.3% since 2000.

In 2008, Estonia's 4.5 triadic patents per million population were low, but still higher than in a few OECD countries and some prominent BRIICS economies. Other innovation outcomes performed around or above average. In that year, the 668 scientific articles per million population were just below the OECD average, but

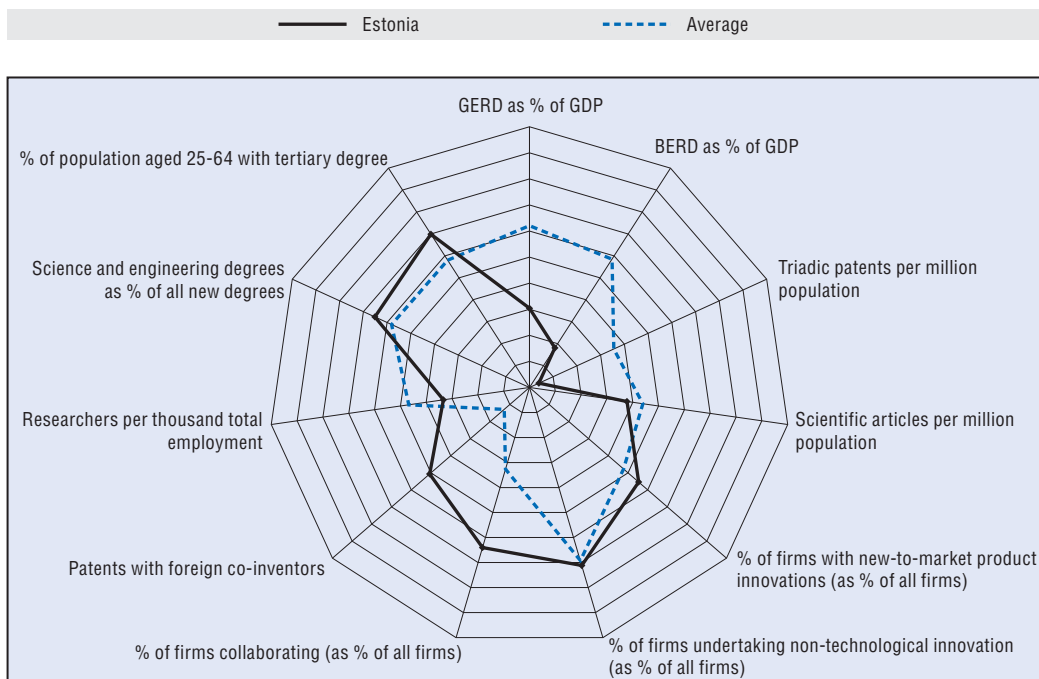
had increased by a robust 8.3% a year since 1998. Around 16% of firms introduced new-to-market product innovations during 2004-06, and almost 50% undertook non-technological innovation.

The average ratio of exports and imports to GDP increased by more than 160% in the decade to 2007 in this open economy. The share of high-technology manufactured exports is still relatively low. Almost one out of five firms collaborated on innovation activities during 2004-06, an indication of strong innovation linkages. During 2005-07 31% of patents were developed with foreign co-inventors, well above the average.

Indicators on human resources in science and technology (HRST) vary. In 2007, Estonia's 23.4% of science and engineering degrees among all new degrees exceeded the OECD average (20.9%). Business researchers increased by almost 15% during 1998-2007, among the highest growth rates in researcher numbers, although with 5.4 researchers per thousand employment in 2006 this was below the OECD average of 7.5.

Estonian innovation policy started formally in 2000 with Knowledge-Based Estonia 2002-06 which drew on Finland's experience. This has developed into the current policy document, Knowledge-Based Estonia: Estonian Research and Development and Innovation Strategy 2007-2013. Central to its innovation policy is the need to increase value added in manufacturing and services and to enhance the export capability of its small domestic market.

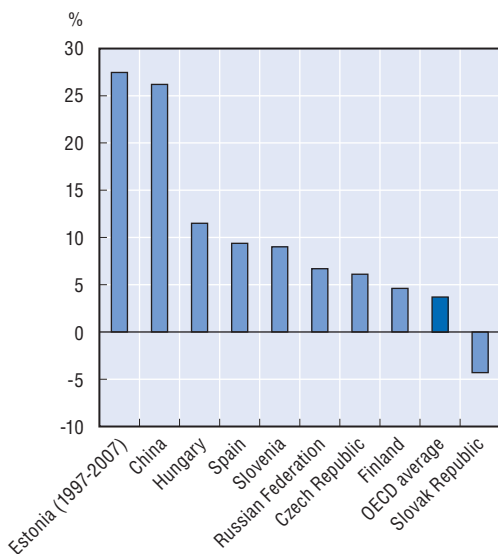
### Science and innovation profile of Estonia



StatLink <http://dx.doi.org/10.1787/888932333576>

#### Growth in business R&D

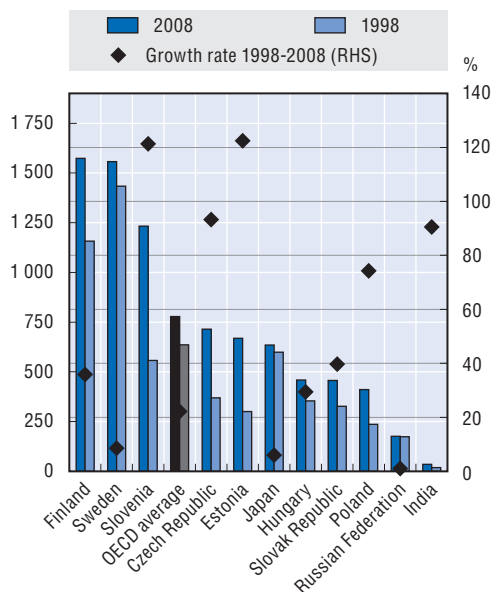
Compound annual growth rate, 1998-2008



StatLink <http://dx.doi.org/10.1787/888932333595>

#### Scientific articles published, 1998 and 2008

Per million population, selected countries



StatLink <http://dx.doi.org/10.1787/888932333614>