

EXECUTIVE SUMMARY

Regaining momentum in science, technology and innovation

As the recent economic slowdown gives way to prospects of stronger economic growth across the OECD region, renewed attention is being directed to ways of tapping into science, technology and innovation to achieve economic and societal objectives. The continued transition to more knowledge-based economies, coupled with growing competition from non-OECD countries, has increased the reliance of OECD countries on the creation, diffusion and exploitation of scientific and technological knowledge, as well as other intellectual assets, as a means of enhancing growth and productivity. High-technology industries account for a growing share of OECD-wide value added and international trade and can be expected to play a significant role in the economic recovery.

In recent years, weak economic conditions limited investments in science and technology. Global investments in R&D, for example, grew at a rate of less than 1% between 2001 and 2002, compared to 4.6% annually between 1994 and 2001. As a result, R&D spending slipped from 2.28% to 2.26% of GDP across the OECD, driven by declines in the United States, which was hard hit by the economic downturn. R&D intensity also declined in several Eastern European countries that are continuing to restructure their economies, but it increased in the EU25 as a whole, as well as in Japan and the Asia-Pacific region.

Recognising the importance of innovation to economic growth and performance, most OECD governments aimed to shield public R&D investments from spending cutbacks and, in many cases, were able to increase them modestly. Although they remain far below levels of the early 1990s, OECD-wide government expenditures for R&D rose from 0.63% to 0.68% of GDP between 2000 and 2002 as budget appropriations grew, most notably in the United States, followed by Japan and the EU. Reflecting growing concerns about national security, much of the US increase related to defence R&D, although health-related R&D expenditures also increased.

Driving recent reductions in OECD-wide R&D intensity were steep cutbacks in R&D in the US business sector. Industry-financed R&D declined from 1.88% to 1.65% of GDP in the United States between 2000 and 2003, while R&D performed by the business sector declined from 2.04% to 1.81% of GDP. Japan, in contrast, saw a

Science, technology and innovation are central to improved economic performance.

Recent investments in science, technology and innovation have been constrained by slow economic growth.

Government R&D expenditures grew modestly...

... while business R&D spending declined, due to cut-backs in the United States.

steep increase in business-performed R&D – from 2.12% to 2.32% of GDP between 2000 and 2002 – and modest gains were posted in the EU. Venture capital investments also plummeted, from USD 106 billion to USD 18 billion in the United States between 2000 and 2003, and from EUR 19.6 billion to EUR 9.8 billion in the EU between 2000 and 2002. While improved economic prospects promise a turn-around in business R&D and venture capital, rates of growth may be limited by lingering uncertainties about the pace of the recovery.

Science and innovation are receiving greater policy attention...

Prospects of stronger economic growth across the OECD region provide new opportunities to enhance support for science, technology and innovation. Many OECD countries have introduced new or revised national plans for science, technology and innovation policy, and a growing number of countries have established targets for increased R&D spending. Virtually all countries are seeking ways to enhance the quality and efficiency of public research, stimulate business investments in R&D and strengthen linkages between the public and private sectors. Public/private partnerships (P/PPs) have emerged as a key element of innovation policy and are attracting a growing share of financing. Human resources for science and technology have also re-emerged as a primary concern among policy makers, especially as relates to the availability of sufficient supplies of skilled workers (including scientists and engineers) to sustain innovation-led economic growth and restructuring.

... but policy must adapt to the growing role of the service sector and increased globalisation of science and technology.

More so than before, science, technology and innovation policies need to adapt to the needs of the service sector and increased globalisation. Services account for a growing share of R&D in OECD countries – 23% of total business R&D in 2000 compared to 15% in 1991 – and the ability of service sector firms to innovate will greatly influence overall growth, productivity and employment patterns. Nevertheless, they remain less innovative than manufacturing firms overall. At the same time, science, technology and innovation are becoming increasingly global. The combined R&D expenditures of China, Israel and Russia were equivalent to 15% of those of OECD countries in 2001, up from 6.4% in 1995. Within many OECD countries, the share of R&D performed by foreign affiliates of multinational enterprises (MNEs) has also increased. Policy makers need to ensure that OECD economies remain strong in the face of growing competition and benefit from the expansion of MNE networks.

Governments are strengthening science, technology and innovation systems

Government R&D budgets are poised to grow, especially for ICT, biotechnology and nanotechnology.

Despite financial constraints, many OECD governments are committed to increasing R&D spending. Several countries, as well as the European Union, have established explicit targets for boosting R&D expenditures, by both the public and private sectors. Public money is increasingly aimed at scientific and technological fields believed to have great economic and societal value, in particular, ICT, biotechnology and nanotechnology. Several countries, including