PORTUGAL

Hot STI issues

- Strengthening the commercial impact of public research and evaluating its performance on a regular basis.
- Increasing the level of human capital, including in relation to industry needs.
- Strengthening industrial innovation and entrepreneurship.

General features of the STI system: Boosting the country's economic potential for growth and competitiveness is a crucial target for Portugal, whose performance was weak even before the onset of the sovereign debt crisis in the euro zone. This primarily stems from an economic structure characterised by enterprises with low productivity and non-tradable services. In spite of its structural weaknesses, the Portuguese innovation system has improved significantly in recent years. Nevertheless, despite a significant increase in BERD since 2005 to 0.72% of GDP in 2010, indicators for business R&D and innovation still fall short of the OECD median (Panel 1[(d)(f)(g)]). Efforts to make the business environment more conducive to innovation include competition reform and easier new firm entry through entrepreneurship. Portugal shows good performance in terms of patents filed by universities and PRIs over 2005-09 (1[(p)]), while the share of public R&D expenditures financed by industry in GDP was at the bottom of the OECD in 2009 (1[(o)]). Although human capital remains a major bottleneck for restarting productivity growth, with only 15% of the adult population tertiary-qualified in 2010 (1[(s)]), S&E doctoral graduates in 2009 are above the OECD median (1[(u)]). Thanks to an effective proactive policy for developing ICT technologies, Portugal is a success in terms of wireless broadband penetration as of June 2011 (1[(l)]).

Recent changes in STI expenditures: In 2010, Portuguese GERD reached 1.59% of GDP, below the OECD and EU27 averages. GERD had nonetheless expanded by 15.9% annually since 2005. However, the economic crisis has resulted in a decline in R&D investment: from 2009 in private co-financing, and from 2011 in public funds.

Overall STI strategy: The national reform programme, Portugal 2020, adopted in 2011, mainly addresses business R&D and innovation. The new government has targeted entrepreneurship and innovation as priorities. A Strategic Plan on Entrepreneurship and Innovation (+E+I) was approved in 2011 to improve Portugal's overall competitiveness. Actions include the diffusion of an entrepreneurship culture and related skills and competences, the promotion of domestic and international knowledge flows, and the development of dedicated financial instruments.

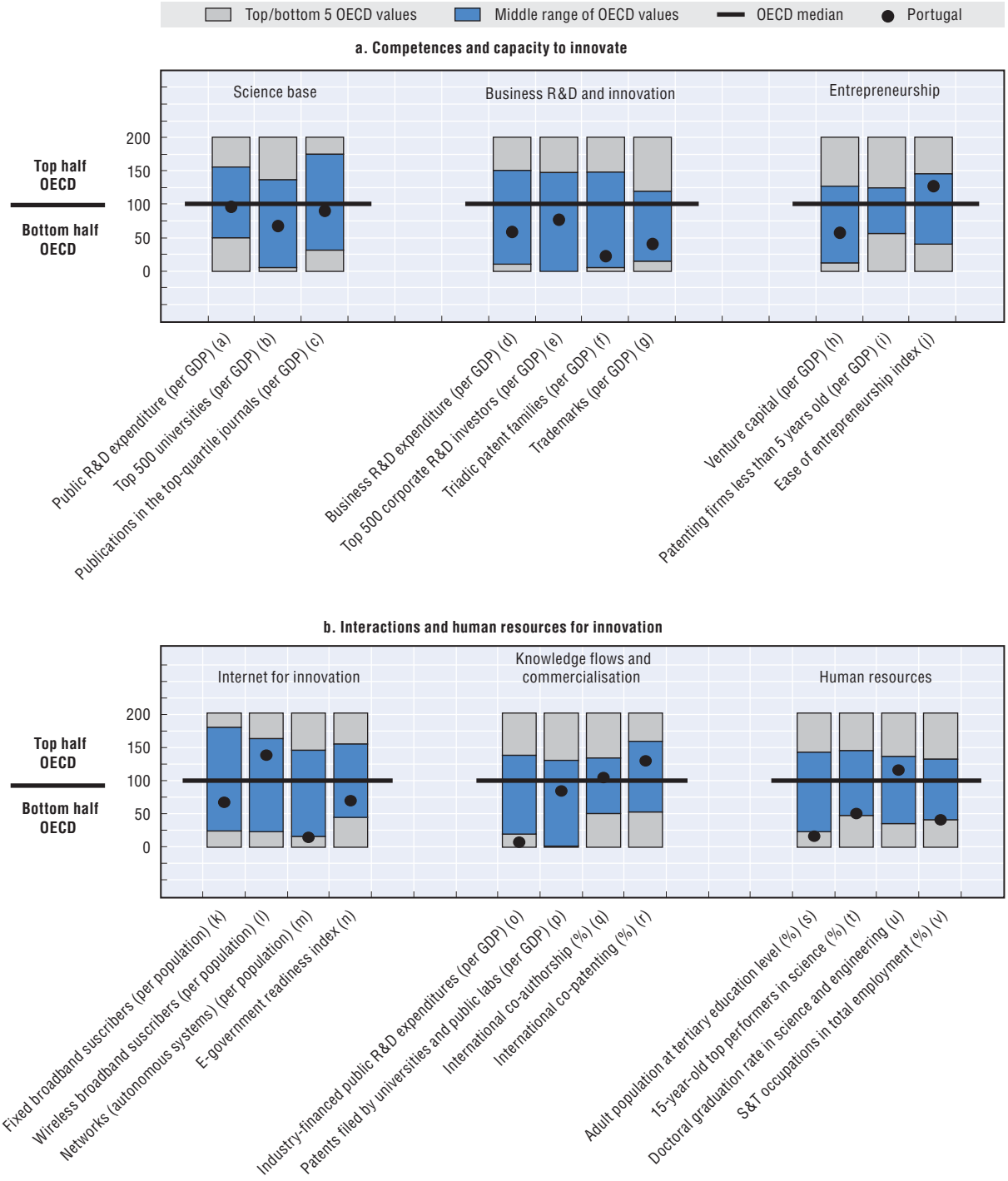
STI policy governance: Following the appointment of a new government in 2011, several ministries were merged, resulting in the establishment of a Ministry for the Economy and Employment and a Ministry for Education and Science with STI policy competences. A more significant change is the emphasis on co-ordination for the development of more comprehensive STI strategies, notably through the establishment of a new Science and Technology National Council in 2011, chaired by the Prime Minister.

Key figures

Labour productivity, GDP per hour worked in USD, 2010	**32.0**	**GERD, as % of GDP, 2010**	**1.59**
(annual growth rate, 2005-10)	(+1.6)	(annual growth rate, 2005-10)	(+15.9)
Environmental productivity, GDP per unit of CO_2 emitted in USD, 2009	**5.00**	**GERD publicly financed, as % of GDP, 2009**	**0.79**
(annual growth rate, 2005-09)	(+4.2)	(annual growth rate, 2005-09)	(+16.2)

Figure 10.33. **Science and innovation in Portugal**

Panel 1. Comparative performance of national science and innovation systems, 2011



Note: Normalised index of performance relative to the median values in the OECD area (Index median = 100).

Science base: Public R&D expenditure still accounted for 0.70% of GDP in 2010 (1[(a)]) and articles in scientific journals per GDP were slightly below the OECD median (1[(c)]). Portugal's science base is small but investments in the main PRIs and HEIs have been driving growth in R&D. Between 2005 and 2011, HERD as a share of GDP increased annually by 16.4%. In 2010, the higher education and government sectors accounted for approximately 44% of total Portuguese GERD. Scope for meeting the government's R&D target of 3.0% of GDP in the National Reform Programme 2020, appears limited, given fiscal consolidation.

Business R&D and innovation: In the current STI strategy, the business sector plays a central role in innovation. Public support to business R&D and innovation is mostly indirect (Panel 4), a trend reinforced by the 2009 Initiative for Investment and Employment which expanded the fiscal credit scheme SIFIDE. Still, raising the innovative capacity of the business sector will also require continued efforts to close the education gap.

Entrepreneurship: As a consequence of the economic crisis, a major issue for the government is to improve the efficiency of public expenditures. Entrepreneurship was defined as a priority and may help to increase the return on R&D investments. A dedicated strategy for the development of an entrepreneurial society, +E+I, was announced in December 2011. The EU/IMF financial assistance programme contributes to this objective by recommending the reduction of existing administrative burdens on business. The simplification of administrative procedures has continued under Simplex and Simplex Autàrquico, and licensing for some services was abolished in 2011.

ICT and scientific infrastructures: The Digital Agenda strategy promotes the development and use of new-generation networks to improve the quality of services for citizens and companies through public procurement initiatives. Its priority action lines include education, health-related services and smart mobility.

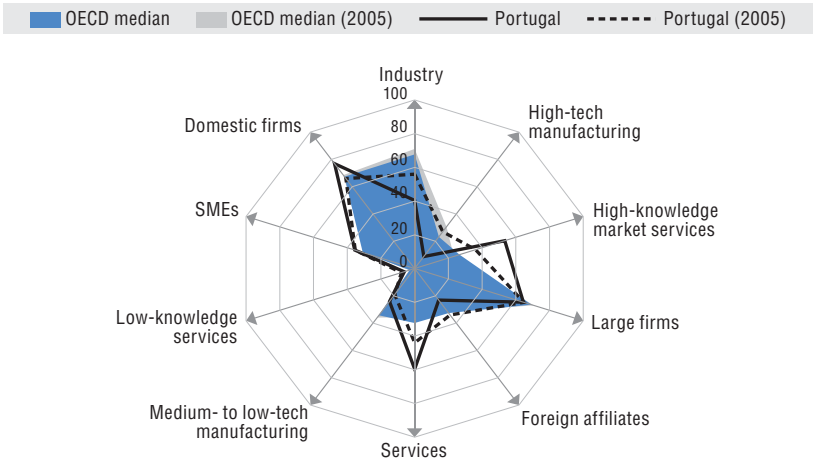
Globalisation: Internationalisation is one of the three priorities set by the new Portuguese government. An export intensity indicator (ratio of exports to turnover) was introduced as a criterion of eligibility for public support to firms to encourage them to enter global markets.

Human resources: The number of researchers in employment grew by more than 17.5% annually between 2005 and 2010 to reach 9.3 researchers per 1 000 employment (FTE) for the first time and raise Portugal closer to the levels of the most developed countries. Moreover, about 46% of researchers were women in 2009 (headcount). The Increased Commitment to Science 2020 programme aims to increase further the number of researchers by making Portugal more attractive, improving the quality of the education system, and diffusing a scientific culture. Instruments include grants, scientific visas or international collaboration programmes. Many measures have been introduced to increase secondary and tertiary education attainment: the Education Programme 2015 seeks to reduce repeat and drop rates. In addition, quality of education is addressed through the 2010 reform of the national teacher performance evaluation and the introduction of new digital teaching tools via the Digital Agenda.

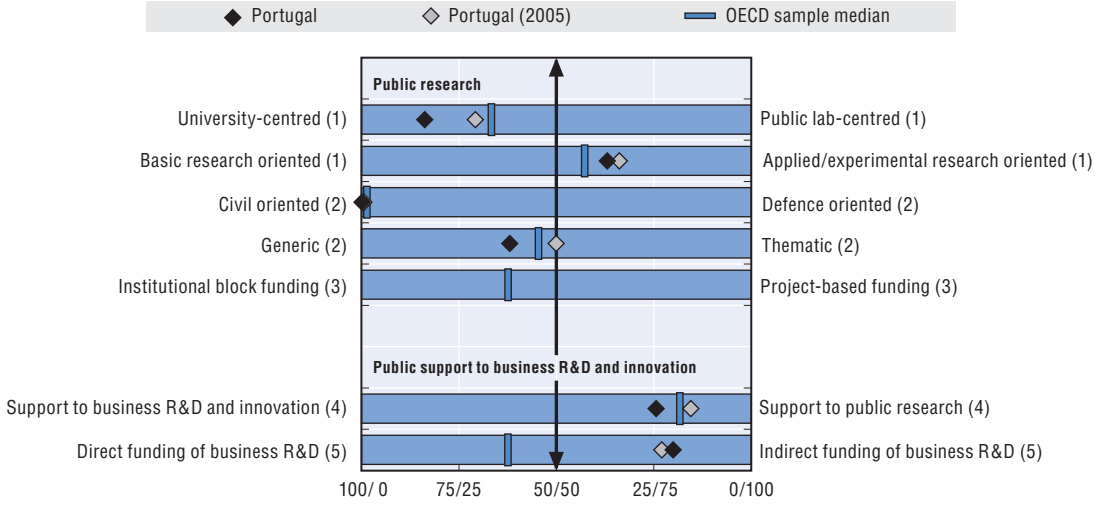
Green innovation: The action line dedicated to "smart mobility" in the Digital Agenda aims to support the development of energy-efficient technologies. It complements the National Action Plan for Energy Efficiency, adopted in 2008, whose measures include the diffusion of electric cars. This focus on energy efficiency is one of the priorities defined by the National Energy Strategy 2020, approved in 2010, to set a new vision for national energy policy with renewable energy as a key pillar.

Panel 2. Structural composition of BERD, 2009

As a % of total BERD



Panel 3. Overview of national innovation policy mix, 2010



1. Balance as a percentage of the sum of HERD and GOVERD.
2. Balance as a percentage of total GBAORD.
3. Balance as a percentage of total funding to national performers.
4. Balance as a percentage of the sum of HERD and GOVERD funded by government and higher education and components of (5).
5. Balance as a percentage of the sum of indirect funding of business R&D and innovation through R&D tax incentives and direct funding of BERD through grants, contracts and loans.

Source: See reader's guide and methodological annex.

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