

## IRELAND

**Hot STI issues**

- Prioritising fourteen research areas over the next five years.
- Dealing with the effects of budgetary constraints on public investment in innovation.
- Increasing efforts to host R&D operations of foreign-owned firms.
- Boosting innovative entrepreneurship.

**General features of the STI system:** As a service-based economy Ireland had a period of substantial economic growth based in part on an FDI-oriented development strategy. In the wake of the global financial crisis it suffered a severe recession and has adopted austerity measures to address its public debt. Investment in innovation is likely to remain under pressure in the years ahead. BERD represents 1.18% of GDP, roughly at the OECD median in 2010 (Panel 1<sup>(d)</sup>). Most BERD (70%) is carried out by foreign affiliates (Panel 2). Ireland has a relatively large number of top R&D investors (1<sup>(e)</sup>), and is at the top of the mid-range of OECD countries in terms of the relative number of young innovative companies (1<sup>(i)</sup>). Venture capital is well developed (1<sup>(h)</sup>) and the ease of entrepreneurship index is well above the OECD median (1<sup>(j)</sup>). With 34% of PCT patent applications produced with international collaboration, Ireland stands well above the OECD median (1<sup>(r)</sup>). In terms of industry financing of public R&D, it performs relatively poorly as compared to the OECD average (1<sup>(o)</sup>). Graduates in science and engineering (1<sup>(u)</sup>) and the quality of education in sciences (1<sup>(t)</sup>) lie in the mid-range of OECD countries. ICT infrastructures also correspond to the OECD median (1<sup>(k)(l)(m)(n)</sup>).

**Recent developments in STI expenditures:** GERD stood at USD 3.2 billion in 2010. At 1.77% of GDP, this is below the OECD average. The target of the Strategy for Science, Technology and Innovation (SSTI) was to reach research intensity of 2.5% of GDP by 2013 but this has been advanced to 2020. Budgetary constraints are likely to place severe pressure on investment in research in the years ahead. GBAORD declined in constant prices from USD 948 million in 2009 to USD 853 million in 2011.

**Overall STI strategy:** Goals of SSTI 2006-13 include promoting innovation by improving the human capital base (especially in science and engineering), strengthening the research capability and capacity of the enterprise sector and increasing the contribution of research to development in the agriculture, health, environment and marine sectors. The National Recovery Plan 2011-14 also considers R&D an investment priority.

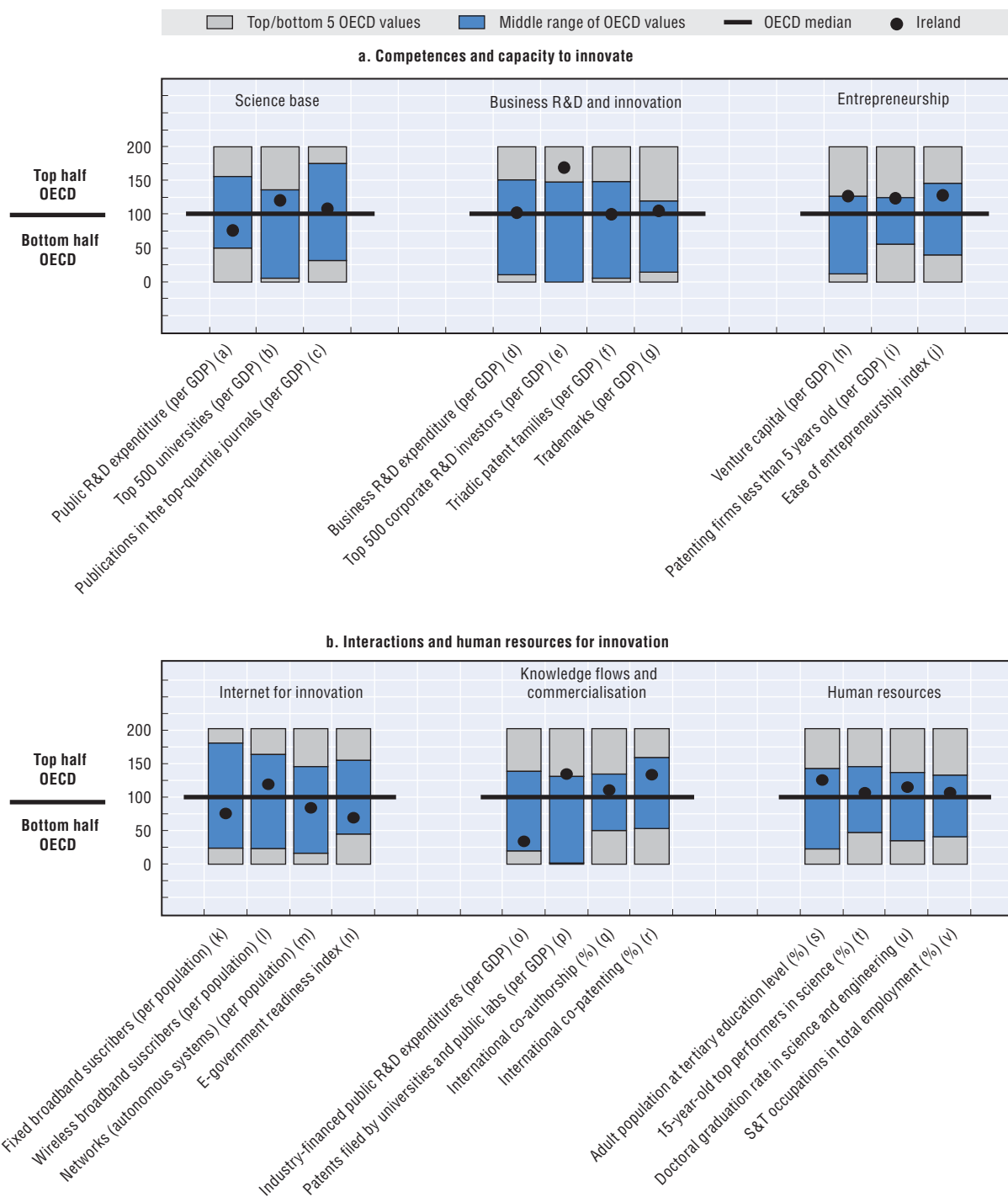
**STI policy governance:** In response to financing constraints, the government established in February 2010 a single funding stream that includes STI budgets of different agencies involved in implementing relevant policies. Consolidating spending allows for closer governance.

**Key figures**

<b>Labour productivity, GDP per hour worked in USD, 2010</b>	<b>63.6</b>	<b>GERD, as % of GDP, 2010</b>	<b>1.77</b>
(annual growth rate, 2005-10)	(+2.6)	(annual growth rate, 2005-10)	(+7.2)
<b>Environmental productivity, GDP per unit of CO<sub>2</sub> emitted in USD, 2009</b>	<b>4.55</b>	<b>GERD publicly financed, as % of GDP, 2010</b>	<b>0.58</b>
(annual growth rate, 2005-09)	(+2.6)	(annual growth rate, 2005-10)	(+6.7)

Figure 10.22. Science and innovation in Ireland

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:** Ireland has an above-median share of top universities (1<sup>(b)</sup>) and a good level of publications (1<sup>(c)</sup>). However, public R&D expenditures are below the OECD median (1<sup>(a)</sup>). The National Strategy for Higher Education of January 2011 aims to improve scale and critical mass by developing regional clusters of collaborating institutions and promoting consolidation and mergers of institutions.

**Knowledge flows and commercialisation:** The Innovation Partnership Scheme, funded by Enterprise Ireland with a budget of USD 12 million in 2012, provides financial support for industry-university collaborative research projects with direct industrial and commercial applications. The Innovation Voucher Initiative, with USD 5 million for 2012, aims to support links between public knowledge providers and small businesses. Another effort is the Technology Centres Programme, with USD 24 million in 2012, which supports collaboration by funding industry-led technology centres at which researchers from research institutions conduct market-focused R&D. Also, a new National Intellectual Property Protocol is being developed to replace the existing national codes of practice on managing and commercialising intellectual property from public and public-private collaborative research.

**Globalisation:** The innovation system is well integrated in the international S&T system. Ireland has an attractive tax system for foreign multinationals, and IDA Ireland, the Investment Promotion Agency, supports their engagement in R&D. Ireland has some 142 international agreements, partnerships and similar activities with Europe and to a lesser extent with the United States. Also, the EU Framework Programme's National Support Network encourages Irish firms' participation in FP7 calls that emphasise cross-country collaborative research projects; it offers advice on project proposals and help in searching for partners.

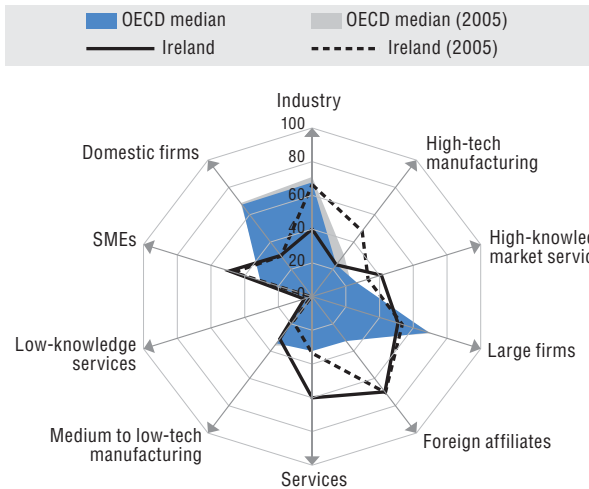
**Human resources:** Ireland has increased the emphasis on science and mathematics in elementary and secondary school curricula. This

included Project Maths, with USD 9 million in 2009-10, which trained secondary school maths teachers. At university level, the Undergraduate Research Experience and Knowledge Award (UREKA) programme seeks to involve students in research to attract them to careers in science and engineering. The Discover Science and Engineering programme, working with the education and research systems, strives to promote awareness and increase student uptake in schools and colleges. Science-related events organised as part of the Dublin – City of Science 2012 programme also aim to boost the popularity of science. The National Strategy for Higher Education published in 2011 promotes increased emphasis on generic skills, and in particular on creativity and entrepreneurship as essential for innovation and economic growth. All higher education institutions are encouraged to introduce such educational initiatives at both undergraduate and postgraduate levels.

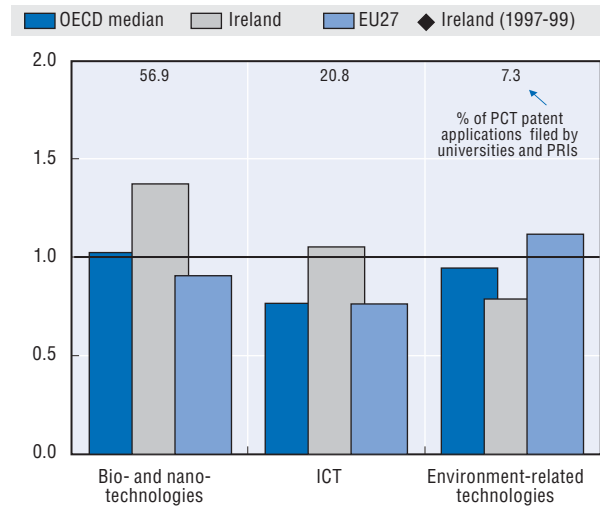
**Emerging technology fields:** The Irish Research Prioritisation Exercise aimed to identify areas of opportunity with the greatest potential to deliver economic returns, with a view to determining the government's public investment priorities. The priority areas include smart grids, health applications and medical devices, innovation in services and business processes, marine renewable energy and digital platforms, content and applications.

**Green innovation:** The report of the High Level Action Group on Green Enterprise (2009) made recommendations on how best to foster the green economy in Ireland and create a growing sector able to create up to 80 000 jobs. The recommendations emphasised a need to support sectors with high potential (such as water and waste management, recovery and recycling, and renewable energy technologies), to build up needed research capacity, and to use policy tools such as finance and green procurement. Implementation is continuing under the Actions Plan for Jobs 2012.

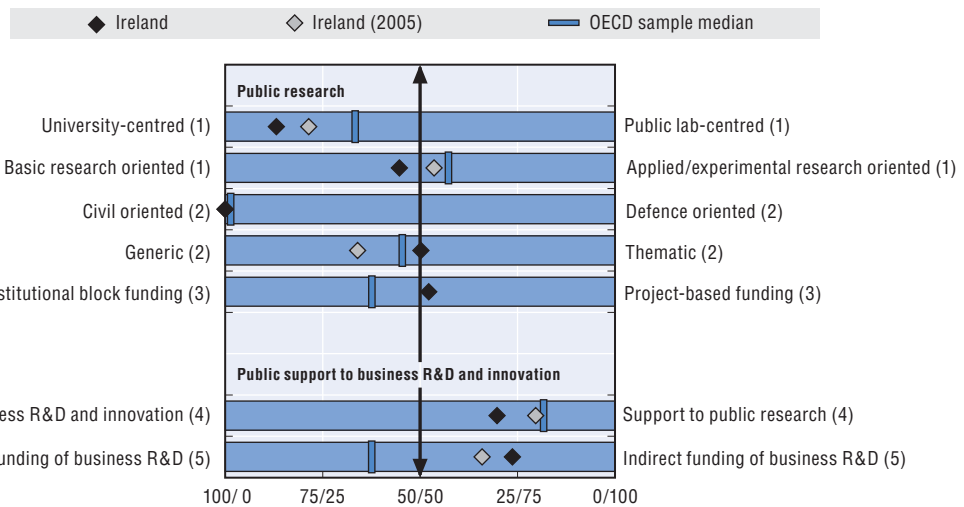
**Panel 2. Structural composition of BERD, 2009**  
As a % of total BERD



**Panel 3. Revealed technology advantage in selected fields, 2007-09**  
Index based on PCT patent applications



**Panel 4. Overview of national innovation policy mix, 2010**



- Balance as a percentage of the sum of HERD and GOVERD.
- Balance as a percentage of total GBAORD.
- Balance as a percentage of total funding to national performers.
- Balance as a percentage of the sum of HERD and GOVERD funded by government and higher education and components of (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.

StatLink <http://dx.doi.org/10.1787/888932690548>