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# Colombia

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## COLOMBIA

Colombia has achieved high economic growth during the past decade and shown resilience during the global financial crisis, although it faces still the challenges to boost productivity growth and diversify the economy. In this context, the government has established the following STI hot issues in its National Innovation Strategy (2010-14).

***Hot issue 1: Innovation to contribute to addressing social challenges (including inclusiveness).*** Following the guidelines set out by the national STI strategic plan, several public bodies prioritise the allocation of resources in regions, sectors and knowledge areas considered strategic for social as well as economic development. In 2012, the Administrative Department of Science, Technology and Innovation (Colciencias) created the Ideas for Change programme to support innovative solutions that address societal and environmental challenges at low cost. In 2012, the programme focused on access to water in remote Colombian regions, funding 11 projects for USD 754 000 (COP 948.6 million). The programme currently focuses on the generation of clean and renewable energy in regions that are not connected to the central electrical grid.

In addition, Colciencias carried out in 2012 and 2013 a call for a dialogue on encouraging the development of research from an intercultural perspective. This should create opportunities for generating relevant knowledge in academic, ethnic, territorial and social communities, promote traditional community knowledge, recover the role of knowledge in constructing a social identity and diversify options for socio-economic development.

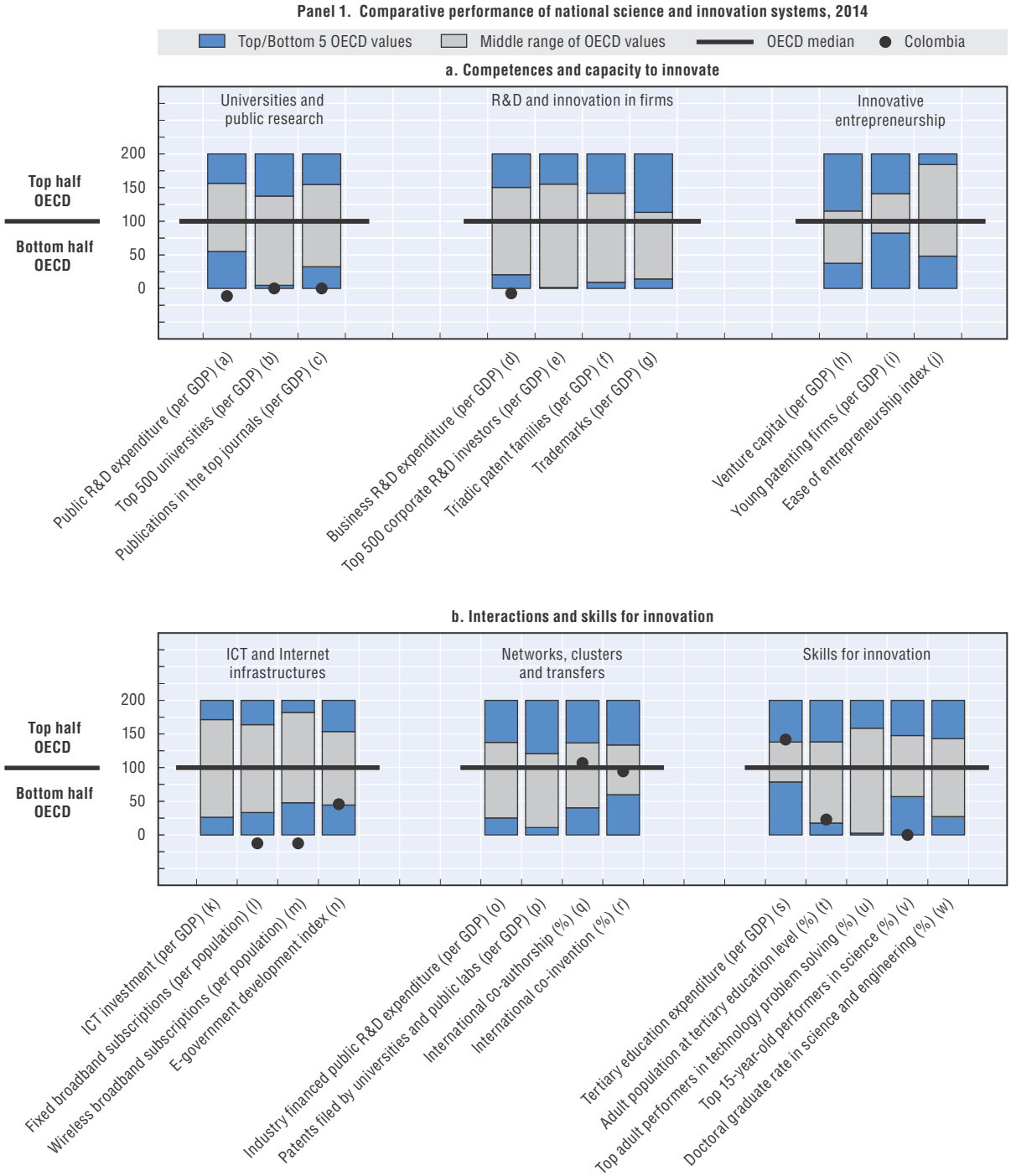
Moreover, Colombia is integrating its socially focused STI efforts in the design of a social innovation policy, the aim of which is to create a favourable environment for developing social innovation.

***Hot Issue 2: Improving the governance of innovation system and policy.*** Colombia's innovation system is coordinated by the National Planning Department (DNP) and Colciencias which is an agency that encompasses the roles of science ministry, research council and innovation agency. These two bodies were responsible for Colombia's National Innovation Strategy for 2010-14. In response to the growing importance of innovation in the national development strategy, in 2012 the government created iNNpulsa Colombia, within the National Development Bank (Bancóldex) to promote high-growth innovative companies and to support competitiveness by a more integrated business support system and by interacting with other actors in Colombia's innovation and entrepreneurship ecosystems. Colciencias has adopted a new business model, using online tools to enhance transparency and effectiveness in managing calls for grants.

**Key figures, 2013**

| Economic and environmental performance | COL | OECD | Gross domestic expenditure on R&D | COL | OECD |
|---|---|---|---|---|---|
| **Labour productivity** | | | **GERD** | | |
| GDP per hour worked, USD PPP, 2013 | n.a. | 47.7 | Million USD PPP, 2011 | 857 | 1 107 398 |
| (annual growth rate, 2008-13) | n.a. | (+0.8) | As a % of total OECD, 2011 | 0.1 | 100 |
| **Green productivity** | | | **GERD intensity and growth** | | |
| GDP per unit of $CO_2$ emitted, USD, 2011 | 6.3 | 3.0 | As a % of GDP, 2011 | 0.18 | 2.40 |
| (annual growth rate, 2007-11) | (+1.2) | (+1.8) | (annual growth rate, 2007-11) | (+5.5) | (+2.0) |
| **Green demand** | | | **GERD publicly financed** | | |
| NNI per unit of $CO_2$ emitted, USD, 2011 | 7.8 | 3.0 | As a % of GDP, 2011 | 0.10 | 0.77 |
| (annual growth rate, 2007-11) | (+1.0) | (+1.6) | (annual growth rate, 2007-11) | (+3.4) | (+2.8) |

Figure 9.9. **Science and innovation in Colombia**




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

StatLink http://dx.doi.org/10.1787/888933152090

***Hot Issue 3: Strengthening public R&D capacity and infrastructure.*** Colombia's publicly funded GERD is only 0.08% of GDP (2011), well below the OECD median (Panel 1[a]) and that of other Latin American countries for instance Argentina (0.57%) and Chile (0.14%). Colombia's STI strategic plan for 2010-14 sets the goal to increase GERD to 0.5% of GDP. The government has allocated 10% of the royalties from the exploitation of non-renewable resources to an STI fund. Between 2012 and 2020, the fund aims to disburse up to USD 636 million (COP 800 billion) per year for S&T projects (including R&D activities). With regard to education, the Ministry of National Education aims to promote international exchange programmes and accreditations to Colombia's HEIs. By positioning Colombia's HEIs in an international context, the Ministry aims to improve the quality of higher education, increase international knowledge transfer and raise the mobility of researchers.

Colciencias has been strengthening the capacity and public infrastructure for R&D through strategic actions such as support for the standardisation and accreditation of testing and calibration laboratories, and the strengthening of research centres. Between 2010 and 2012, Colciencias supported 90 standardisation and accreditation projects with USD 14.5 million (COP 16 500 million) and between 2010 and 2013, it supported 74 projects targeted at strengthening research centres, with USD 51.8 million (COP 59 030 million).

## *Highlights of the Colombian STI system*

***New sources of growth:*** The Ministry of Information and Communication Technologies (MinCIT) has devoted USD 281 million (COP 320 billion) during 2010-13 in two programmes: *Vive Digital* and APPS.co. The former supports projects promoting regional innovation and technological development through ICTs, while the latter fosters the creation of ICT companies that aim to develop mobile applications, software and Internet content.

***Innovation in firms:*** At 0.05% of GDP, BERD is not only below all of the OECD countries (Panel 1[d]), but also that of other Latin American countries such as Argentina (0.16%). To address this situation, the government uses three main mechanisms to support business R&D investments. First, at the guidance of Colciencias and other relevant government bodies, Bancóldex provides preferential credits at below market interest rates for innovation projects. Secondly, a tax incentive scheme offers tax exemptions of up to 175% of R&D investments made during the taxable period. Thirdly, a variety of government agencies provide subsidies for firms' STI activities. iNNpulsa provides non-refundable grants of up to USD 278 000 (COP 350 million) per beneficiary. Colciencias recently expanded its Innovation Management programme to further support the development of innovative capabilities in Colombian firms. In 2013, it allocated around USD 19 million (COP 21.4 billion) to fund knowledge-intensive business services from international entities specialising in business innovation.

***Innovative entrepreneurship:*** With a budget of USD 138 million (COP 174 billion) for 2012-13, iNNpulsa Colombia seeks to promote business growth and to build an innovation culture in the Colombian society. 70% of Colciencias' Innovation Management programme, with a budget of USD 20 million (COP 22.4 billion) in 2013, was directed to micro and SMEs, while Colombia's business environment has improved in recent years.

***ICT and Internet infrastructures:*** While the numbers of fixed and wireless broadband subscriptions remain well below the OECD level (Panel 1[l, m]), much progress has been made in this area in recent years. MinCIT is on its way to meet the target of quadrupling connections across all regions between 2010 and 2014. In addition, a broadband infrastructure is being deployed throughout the country. Under this initiative, the number of connected municipalities grew from about 200 in 2010 to 777 by mid-2013.

***Technology transfer and commercialisation:*** Colciencias organises regional Innovation Business Conferences, aiming to strengthen technology transfer and university-industry linkages. Colciencias also allocates up to USD 510 000 (COP 550 million) per year since 2009 to support collaborative projects between companies and universities or research centres.

***Clusters and smart specialisation:*** Since 2005, Colciencias organised 25 regional Innovation Business Conferences in 9 regions. Furthermore, the Regional Innovation Alliances (also coordinated by Colciencias) initiative aims to foster public-private partnerships within regions. In collaboration with the DNP and several ministries, iNNpulsa designed Competitive Routes, a regional programme that designs roadmaps to support productivity growth and cluster formation in key sectors (e.g. ceramics, tourism, coffee, leather and agribusiness). This programme has covered 18 of Colombia's 32 administrative divisions.

***Skills for innovation:*** The Colombian government prioritises increases in the number of researchers. In particular, two programmes promote the education of PhDs and their employments in the economy. Colciencias' Doctoral Training Support Programme funds graduate studies both domestically and abroad. It aims to double the current number of 7 000 PhDs by awarding 1 000 scholarships per year during the next four years. The programme will allocate USD 678 million (COP 752 billion) during 2011-14, targeting researchers in the business sector, academics and those who work in strategic technology areas. Colciencias will also launch in 2014 the Brain Repatriation Programme that aims to attract 500 diaspora doctorate holders of Colombian origin in the next four years. This initiative provides subsidies to companies and universities so that they can offer internationally competitive salaries.

## STI country profiles reader's guide

The country profiles (CPs) in the 2014 *OECD STI Outlook* (STIO) are designed to provide a concise overview of science, technology and innovation (STI) policy and performance in OECD members and selected non-OECD economies. Each country profile is based on information gathered from the country's response to the OECD STIO policy questionnaires 2012 and 2014, as well as various additional OECD and non-OECD sources.

Headings in the country profiles are linked to the STIO policy profiles, which examine the main global STI policy trends across countries. Issues featuring in both the policy and country profiles are: *i)* innovation policy governance; *ii)* new sources of growth; *iii)* new challenges; *iv)* universities and public research; *v)* innovation in firms; *vi)* innovative entrepreneurship; *vii)* technology transfer and commercialisation; *viii)* clusters and smart specialisation; *ix)* globalisation; and *x)* skills for innovation.

The table of key figures presents indicators on the country's economic performance (labour productivity), environmental performance (green productivity and demand), the size of its R&D system as measured by gross domestic expenditure on R&D (GERD), the degree of public commitment to S&T as measured by the share of GERD that is publicly financed, and the changes in these indicators over the past five years. In the text, all amounts are given both in USD in purchasing power parities (PPP) of the relevant year (if available) and in national currencies.

Panel 1 contains a double figure that sheds light on the strengths and weaknesses of the country's STI performance. It uses indicators on the country's national innovation system and performance with respect to: universities and public research, business R&D and innovation, innovative entrepreneurship, information and communication technology (ICT) and Internet infrastructure, networks, clusters and transfers, and skills for innovation. The dot for each indicator positions the country relative to the OECD median and to the top and bottom five OECD countries. Non-OECD countries are also compared to the OECD benchmarks, and may fall out of the range indicated in the figure (e.g. below the lowest OECD country). All indicators are normalised (by GDP and population cohorts) to take account of the size of the economy and the relevant population cohorts, and are presented as indices (OECD median = 100) for benchmarking purposes.

Panel 2 shows the structural composition of business expenditure on R&D (BERD) in terms of performance of the main industry sectors, firm size and firms' national affiliation. It reflects the country's industry structure and its business innovation efforts. Panel 3 presents the country's revealed technological advantage (RTA), as measured by international patent applications filed under the Patent Cooperation Treaty (PCT) in three key technology fields (bio- and nano-technology, ICTs, and environment-related technologies). It also shows the number of patents filed by universities and public research institutions in these fields.

Panel 4 gives an overview of the country's policy mix for public R&D, i.e. the orientation and funding modes of public research. It also illustrates changes in the policy mix for R&D over the past five years. Finally, Panel 5, a new feature in STIO 2014, reflects the balance and relative importance of various government measures to support business R&D and innovation. It is based on the country's self-assessment in its reply to the OECD STIO 2014 policy questionnaire.

Further details on the methodology, data sources and descriptions of indicators used in the country profile are provided in Annex 9.A. Data, metadata as well as the original sources and databases of the indicators used in the STIO 2014 are accessible at the statistical portal IPP.Stat (cut-off date: 8 July 2014).

## Abbreviations used in the country profiles

BERD: Business expenditure on research and development

EU: European Union

FDI: Foreign direct investment

GDP: Gross domestic product

GERD: Gross expenditure on research and development

HEIs: Higher education institutions

IPRs: Intellectual property rights

MNEs: Multinational enterprises

PRIs: Public research institutes

R&D: Research and development

S&E: Science and engineering

SSS: Smart specialisation strategy (also known as 3S)

STI: Science, technology and innovation

S&T: Science and technology

3S: See SSS

STEM: Science, technology, engineering and mathematics

USD: United States dollars
(converted using the purchasing power parities of the relevant year)

VC: Venture capital

## Synthetic table

Table 9.1. **Comparative performance of national science and innovation systems, 2014**

Country relative position: in the top 5 OECD or above (★), in the middle range on par or above OECD median (▲), in the middle range below OECD median (Δ) and in the bottom 5 OECD or below (○)

| | | Competences and capacity to innovate | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Universities and public research | | | R&D and innovation in firms | | | | Innovative entrepreneurship | | |
| | | Public R&D expenditure (per GDP) | Top 500 universities (per GDP) | Publications in the top-quartile journals (per GDP) | Business R&D expenditure (per GDP) | Top 500 corporate R&D investors (per GDP) | Triadic patent families (per GDP) | Trademarks (per GDP) | Venture capital (per GDP) | Young patenting firms (per GDP) | Ease of entrepreneur-ship index |
| | | PUB_XGDP | UNI500_GDP | PUB25_GDP | BE_XGDP | CORPRD500_GDP | PTRIAD_GDP | TRDMRK_GDP | VC_XGDP | PTYG_GDP | EASE_I |
| | | (a) | (b) | (c ) | (d) | (e) | (f) | (g) | (h) | (i) | (j) |
| Argentina | ARG | Δ | Δ | ○ | ○ | ○ | ○ | ○ | | | |
| Australia | AUS | ▲ | ▲ | ▲ | ▲ | Δ | Δ | ▲ | Δ | | ▲ |
| Austria | AUT | ▲ | ★ | ▲ | ▲ | ▲ | ▲ | Δ | Δ | ★ | ▲ |
| Belgium | BEL | Δ | ▲ | ▲ | ▲ | Δ | ▲ | Δ | ▲ | Δ | Δ |
| Brazil | BRA | | Δ | ○ | | Δ | ○ | ○ | | | Δ |
| Canada | CAN | ▲ | ▲ | ▲ | Δ | Δ | ▲ | ★ | ★ | ○ | ▲ |
| Chile | CHL | ○ | Δ | ○ | ○ | ○ | ○ | Δ | | | Δ |
| China | CHN | Δ | Δ | ○ | ▲ | Δ | Δ | ○ | | | ○ |
| Colombia | COL | ○ | ○ | ○ | ○ | | | | | | |
| Costa Rica | CRI | ○ | ○ | ○ | ○ | ○ | | | | | |
| Czech Republic | CZE | ▲ | Δ | Δ | Δ | Δ | Δ | Δ | ○ | | Δ |
| Denmark | DNK | ★ | ▲ | ★ | ▲ | ★ | ▲ | ▲ | ▲ | | ▲ |
| Estonia | EST | ▲ | | ▲ | ▲ | ○ | Δ | Δ | ▲ | | ▲ |
| Finland | FIN | ★ | ★ | ▲ | ★ | ★ | ★ | ▲ | ★ | ★ | ▲ |
| France | FRA | ▲ | Δ | Δ | ▲ | ▲ | ▲ | ▲ | ▲ | Δ | ▲ |
| Germany | DEU | ★ | ▲ | Δ | ▲ | ▲ | ★ | ▲ | ▲ | ★ | ▲ |
| Greece | GRC | ○ | Δ | Δ | ○ | Δ | ○ | ○ | ○ | | Δ |
| Hungary | HUN | ○ | Δ | Δ | Δ | Δ | Δ | ○ | Δ | | Δ |
| Iceland | ISL | ★ | ○ | ★ | ▲ | ▲ | Δ | ★ | | | Δ |
| India | IND | Δ | ○ | ○ | ○ | ○ | Δ | ○ | | | ○ |
| Indonesia | IDN | | ○ | ○ | ○ | | ○ | ○ | | | Δ |
| Ireland | IRL | Δ | ▲ | ▲ | Δ | ▲ | ▲ | ▲ | ★ | ○ | Δ |
| Israel | ISR | Δ | ★ | ▲ | ★ | ▲ | ▲ | ▲ | ★ | | ○ |
| Italy | ITA | Δ | Δ | Δ | Δ | Δ | Δ | Δ | ○ | ▲ | ★ |
| Japan | JPN | ▲ | Δ | ○ | ★ | ▲ | ★ | Δ | Δ | ○ | ▲ |
| Korea | KOR | ▲ | Δ | Δ | ★ | ▲ | ▲ | ▲ | ▲ | | Δ |
| Latvia | LVA | Δ | ○ | ○ | ○ | | Δ | | | | |
| Lithuania | LTU | Δ | ○ | ○ | ○ | | Δ | | | | |
| Luxembourg | LUX | ○ | ○ | Δ | Δ | ★ | ▲ | ★ | Δ | | Δ |
| Malaysia | MYS | Δ | Δ | ○ | Δ | Δ | | | | | |
| Mexico | MEX | ○ | ○ | ○ | ○ | ○ | ○ | Δ | | | ○ |
| Netherlands | NLD | ▲ | ▲ | ★ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ★ |
| New Zealand | NZL | Δ | ★ | ▲ | Δ | Δ | Δ | ★ | Δ | | ★ |
| Norway | NOR | ▲ | ▲ | Δ | Δ | ▲ | Δ | Δ | Δ | ▲ | Δ |
| Poland | POL | Δ | Δ | Δ | ○ | ○ | Δ | ○ | ○ | | ○ |
| Portugal | PRT | Δ | ▲ | ▲ | Δ | Δ | Δ | Δ | Δ | | ▲ |
| Russian Federation | RUS | Δ | ○ | ○ | Δ | Δ | ○ | ○ | Δ | | Δ |
| Slovak Republic | SVK | Δ | ○ | ○ | ○ | ○ | ○ | ○ | | | ★ |
| Slovenia | SVN | Δ | ▲ | ▲ | ▲ | Δ | Δ | Δ | Δ | | Δ |
| South Africa | ZAF | ○ | Δ | ○ | Δ | Δ | Δ | Δ | Δ | | ○ |
| Spain | ESP | Δ | Δ | Δ | Δ | Δ | Δ | Δ | ○ | ○ | ○ |
| Sweden | SWE | ★ | ★ | ★ | ★ | ★ | ★ | ▲ | ▲ | ★ | Δ |
| Switzerland | CHE | ▲ | ▲ | ★ | ▲ | ★ | ★ | ★ | ▲ | ★ | ▲ |
| Turkey | TUR | Δ | ○ | ○ | Δ | Δ | ○ | ○ | | | ○ |
| United Kingdom | GBR | Δ | ▲ | ▲ | Δ | ▲ | ▲ | ▲ | ▲ | Δ | ▲ |
| United States | USA | ▲ | Δ | Δ | ▲ | ▲ | ▲ | ▲ | ★ | ○ | ★ |
| EU28 | EU28 | ▲ | ▲ | ★ | ▲ | Δ | ▲ | Δ | ▲ | ▲ | |

## Table 9.1. **Comparative performance of national science and innovation systems, 2014** *(cont.)*

Country relative position: in the top 5 OECD or above (★), in the middle range on par or above OECD median (▲), in the middle range below OECD median (Δ) and in the bottom 5 OECD or below (○)

| | | Interactions and skills for innovation | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ICT and Internet infrastructures | | | | Networks, clusters and transfers | | | | Skills for innovation | | | | |
| | | ICT investment (per GDP) | Fixed broadband subscribers (per population) | Wireless broadband subscribers (per population) | E-government readiness index | Industry financed public R&D expenditure (per GDP) | Patents filed by universities and public labs (per GDP) | International co-authorship (%) | International co-invention (%) | Tertiary education expenditure (per GDP) | Adult population at tertiary education level (%) | Top adult performers in technology problem solving (%) | Top 15 year-old performers in science (%) | Doctoral graduate rate in science and engineering (%) |
| | | ICTINV_XGDP | FBBAND_HAB | WBBAND_HAB | EGOV_I | PUB_BEF_XGDP | PATPRI_XGDP | INTCOA_XSA | COPAT_XPCT | TER_XGDP | ADTERPOP_XT | TOPAD_PST_XAD | TOP15_SCI_XT | PHDR_SCIENG_XCOH |
| | | (k) | (l) | (m) | (n) | (o) | (p) | (q) | (r) | (s) | (t) | (u) | (v) | (w) |
| Argentina | ARG | | ○ | ○ | ○ | ○ | | Δ | ★ | ▲ | ○ | | ○ | ○ |
| Australia | AUS | ▲ | Δ | ★ | ▲ | ▲ | ▲ | Δ | Δ | ▲ | ▲ | ▲ | ★ | ▲ |
| Austria | AUT | ▲ | Δ | ▲ | Δ | ▲ | Δ | ★ | ▲ | Δ | Δ | Δ | Δ | ▲ |
| Belgium | BEL | ▲ | ▲ | Δ | Δ | ▲ | ▲ | ★ | ★ | Δ | ▲ | | ▲ | ▲ |
| Brazil | BRA | | ○ | Δ | ○ | | Δ | ○ | Δ | ○ | ○ | | ○ | ○ |
| Canada | CAN | Δ | ▲ | Δ | ▲ | ▲ | ▲ | Δ | ▲ | ★ | ★ | ▲ | ▲ | ▲ |
| Chile | CHL | | ○ | ○ | Δ | ○ | Δ | ▲ | Δ | ★ | ○ | | ○ | ○ |
| China | CHN | | ○ | ○ | ○ | ▲ | Δ | ○ | ○ | | ○ | | | ○ |
| Colombia | COL | | ○ | ○ | Δ | | | ▲ | Δ | ★ | Δ | | ○ | |
| Costa Rica | CRI | | ○ | ○ | ○ | | | ★ | ★ | | Δ | | ○ | |
| Czech Republic | CZE | Δ | Δ | Δ | ○ | Δ | Δ | Δ | ▲ | Δ | Δ | Δ | Δ | Δ |
| Denmark | DNK | ★ | ★ | ★ | ★ | Δ | ★ | ▲ | ▲ | ▲ | Δ | ★ | Δ | ▲ |
| Estonia | EST | | Δ | ▲ | Δ | Δ | | ▲ | ★ | ▲ | ▲ | ○ | ★ | Δ |
| Finland | FIN | Δ | ▲ | ★ | ▲ | ★ | ▲ | ▲ | Δ | ★ | ▲ | ★ | ★ | ★ |
| France | FRA | Δ | ★ | Δ | ▲ | Δ | ★ | ▲ | Δ | ▲ | Δ | | ▲ | ▲ |
| Germany | DEU | Δ | ▲ | Δ | ▲ | ★ | ▲ | Δ | Δ | Δ | Δ | ▲ | ▲ | ★ |
| Greece | GRC | ○ | Δ | Δ | Δ | Δ | ○ | Δ | ▲ | ▲ | Δ | | ○ | Δ |
| Hungary | HUN | | Δ | ○ | Δ | ▲ | ○ | ▲ | ▲ | ○ | Δ | | Δ | ○ |
| Iceland | ISL | | ▲ | ▲ | Δ | ★ | | ★ | ▲ | ○ | ▲ | | Δ | Δ |
| India | IND | | ○ | ○ | ○ | | Δ | ○ | ▲ | ○ | | | | |
| Indonesia | IDN | | ○ | ○ | ○ | | | ▲ | ★ | ○ | ○ | | ○ | ○ |
| Ireland | IRL | ○ | Δ | ▲ | Δ | ○ | ★ | ▲ | ▲ | ▲ | ▲ | ○ | ▲ | ▲ |
| Israel | ISR | | Δ | Δ | ▲ | ▲ | ★ | Δ | Δ | ▲ | ★ | | Δ | ▲ |
| Italy | ITA | Δ | Δ | Δ | Δ | ○ | Δ | Δ | ○ | ○ | ○ | | Δ | Δ |
| Japan | JPN | ★ | ▲ | ▲ | ▲ | Δ | ▲ | ○ | ○ | ▲ | ★ | ▲ | ★ | Δ |
| Korea | KOR | ▲ | ★ | ★ | ★ | ▲ | ★ | ○ | ○ | ★ | ★ | ○ | ▲ | Δ |
| Latvia | LVA | | Δ | Δ | Δ | ▲ | | Δ | ★ | ▲ | Δ | | ○ | Δ |
| Lithuania | LTU | | Δ | ○ | Δ | ★ | | Δ | Δ | | ▲ | | Δ | |
| Luxembourg | LUX | ○ | ▲ | ▲ | ▲ | Δ | Δ | ★ | ★ | ○ | ▲ | | ▲ | |
| Malaysia | MYS | | ○ | ○ | Δ | | | Δ | Δ | ★ | ○ | | ○ | |
| Mexico | MEX | ○ | ○ | ○ | ○ | ○ | ○ | Δ | ▲ | Δ | ○ | | ○ | ○ |
| Netherlands | NLD | ▲ | ★ | ▲ | ★ | ★ | ▲ | ▲ | Δ | ▲ | Δ | ★ | ▲ | Δ |
| New Zealand | NZL | ★ | ▲ | ▲ | ▲ | ★ | Δ | ▲ | Δ | ▲ | ▲ | | ★ | ▲ |
| Norway | NOR | | ▲ | ▲ | ▲ | ▲ | Δ | ▲ | Δ | ▲ | ▲ | ★ | Δ | ▲ |
| Poland | POL | | ○ | ▲ | ○ | Δ | Δ | ○ | ★ | Δ | Δ | ○ | ▲ | ○ |
| Portugal | PRT | ▲ | Δ | ○ | Δ | ○ | Δ | ▲ | ▲ | Δ | ○ | | ○ | Δ |
| Russian Federation | RUS | | ○ | Δ | Δ | ★ | ○ | ○ | Δ | Δ | ★ | | ○ | ○ |
| Slovak Republic | SVK | ○ | ○ | Δ | ○ | Δ | | Δ | ▲ | ○ | Δ | ○ | Δ | ▲ |
| Slovenia | SVN | Δ | Δ | Δ | Δ | ▲ | Δ | Δ | Δ | Δ | Δ | | ▲ | ▲ |
| South Africa | ZAF | | ○ | ○ | ○ | Δ | Δ | Δ | Δ | ○ | ○ | | | ○ |
| Spain | ESP | Δ | Δ | Δ | Δ | ▲ | ▲ | Δ | Δ | Δ | Δ | | Δ | Δ |
| Sweden | SWE | ★ | ▲ | ★ | ▲ | ▲ | ○ | ▲ | Δ | ▲ | ▲ | ★ | Δ | ★ |
| Switzerland | CHE | ★ | ★ | Δ | ▲ | | ▲ | ★ | ★ | Δ | ▲ | | ▲ | ★ |
| Turkey | TUR | | ○ | ○ | ○ | ▲ | ○ | ○ | ○ | Δ | ○ | | ○ | ○ |
| United Kingdom | GBR | ▲ | ▲ | ▲ | ★ | Δ | ▲ | Δ | ▲ | Δ | ▲ | | ▲ | ★ |
| United States | USA | ▲ | ▲ | ▲ | ★ | Δ | ▲ | ○ | ○ | ★ | ★ | Δ | Δ | Δ |
| EU28 | EU28 | Δ | ▲ | ▲ | | Δ | ▲ | ▲ | ▲ | | Δ | | Δ | ▲ |

*Note:* Non-OECD countries are also compared to OECD countries and may therefore be out of range (e.g. lower than the lowest OECD country). They appear in this table with top five and bottom five OECD values

Israel: "The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law."

*Source:* See references and methodological annex of the OECD STI Outlook 2014 country profiles.

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