Highlights from the OECD Science, Technology and Industry Scoreboard 2017 - The Digital Transformation: Israel

Science, innovation and the digital revolution

- **Israel** has the highest ratio of R&D expenditures to GDP (4.5%) in the OECD [Scoreboard fig. 4.1.1]; 75% is expenditure in experimental development [fig. 2.1.2]. Funds from abroad underpin a considerable part of business R&D; over 50% [fig. 3.5.1] in **Israel** where 65% of business R&D is performed by foreign-controlled affiliates [fig. 3.5.2 - see below]. Information industries account for 56% of total business R&D [fig. 4.4.1]. The median investment in R&D by top global R&D corporations in the ICT sector is the highest in **Israel**, with USD 33 million per IP5 patent family (patents filed at the five top IP offices) [fig. 4.2.1].
- While 32% of IP5 patents in **Israel** are ICT-related [fig. 4.3.1], just below the OECD average, **Israel** has one of the highest shares of ICT-related trademarks, 45% [fig. 4.3.2 - see below].
- **Israel** has the highest level of investment in venture capital in the OECD at 0.4% of GDP [fig.4.7.1], and a large share of R&D (9.3%) performed by younger firms, i.e. established less than five years ago [fig. 1.18].
- Based on an analysis of patent data highlighting today's top 20 cutting-edge ICT technologies, **Israel** is particularly active in the development of computer security and image analysis technologies [fig. 1.5].
- The development of AI technologies is fairly concentrated - 5 economies: Japan, Korea, the United States, China and Chinese Taipei, account for over 80% of the inventions patented in the five top IP offices (IP5). **Israel** accounted for 0.9%, a similar share to Sweden and Finland [fig. 1.7].

Growth, jobs and the digital transformation

- Between 2010 and 2015, **Israel** experienced the third-largest net employment gains in the OECD, a 16% increase corresponding to half a million jobs [fig. 1.34].
- In 2015, the level of labour productivity in **Israel**'s information industries was more than double that in the rest of the business sector – the second highest level after Ireland [fig. 1.45].
- About 60% of workers in **Israel** received firm-based training in 2015 [fig. 1.40], with a slightly larger share of women employees receiving on-the-job training than men [fig. 1.43].
- **Israel**, together with Germany, Austria and Estonia, had a middle range ICT-task intensity of jobs in 2015. Workers in jobs with an ICT task intensity 10% higher than the country average, earn hourly wages that are about 1% higher, the lowest returns to ICT-task intensive jobs in the OECD [fig. 2.6.2 - see below].
- Women in **Israel** earn about 9% less than men, even after individual and job-related characteristics are taken into consideration, and about 4% less when skills differences are also taken into account [fig. 1.41].

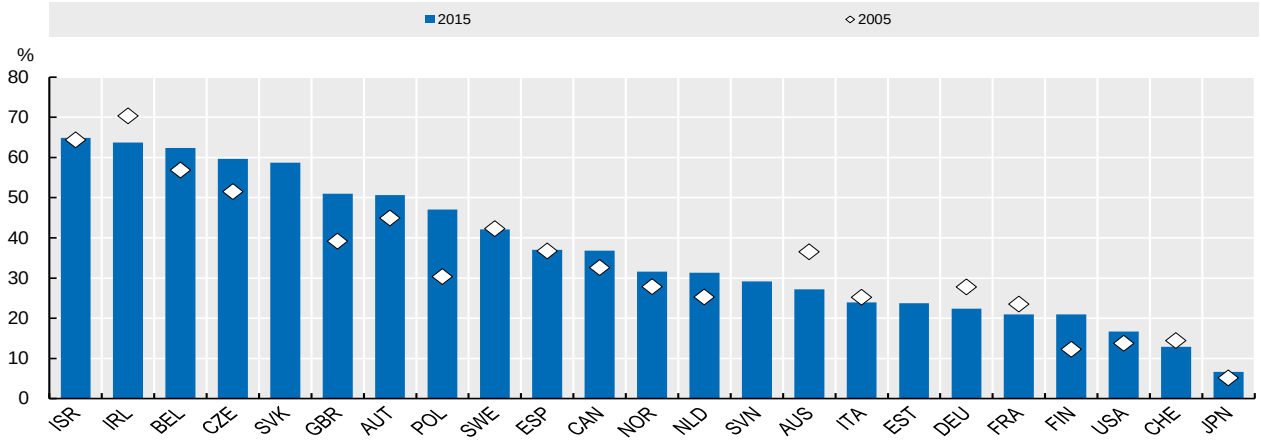
Innovation today - Taking action

- 10% of domestic scientific documents in **Israel** were in the world's top-10% most cited in 2015, slightly down from 11% in 2005 [fig. 3.1.1].

- Experimental estimates of international mobility of scientific authors (based on bibliometric data) reveal that during the period 2002 to 2016, **Israel** experienced a net outflow of scientific authors, with nearly 2 000 more authors leaving affiliation in Israel than joining [fig. 1.69 - see below].
- 21% of the working age population in **Israel** is foreign-born. 52% of the foreign-born population is highly skilled, as compared to 34% of the native-born population [fig. 3.3.3].
- During the period 2012-15, over 11% of IP5 patent applications with inventors from **Israel** involved women inventors from Israel, higher than comparative shares for the United States (10%) and the EU (7%). In biotechnology, women inventors were involved in 40% of total inventions [fig. 1.61].
- In 2015, 34% of students in **Israel** had started using the Internet by the age of 6, the highest percentage in OECD [fig. 6.2.1]. While on average 80% of individuals use the Internet in Israel, only 40% of those with low or no education are users, a share similar to Turkey or Mexico [fig. 6.3.2].

Figure 3.5.2 Business R&D expenditures by foreign-controlled affiliates, selected countries, 2005 and 2015 or latest available year

As a percentage of business enterprise expenditure on R&D

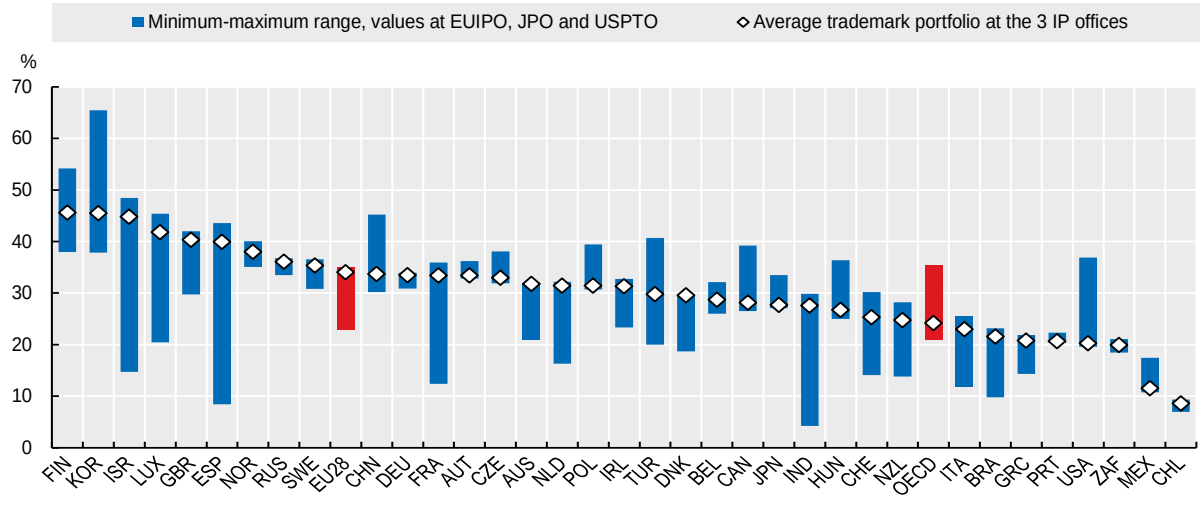


StatLink http://dx.doi.org/10.1787/888933618973

Source: OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2017-en.

Figure 4.3.2 ICT-related trademarks, 2012-15

As a percentage of total trademarks, EUIPO, JPO and USPTO



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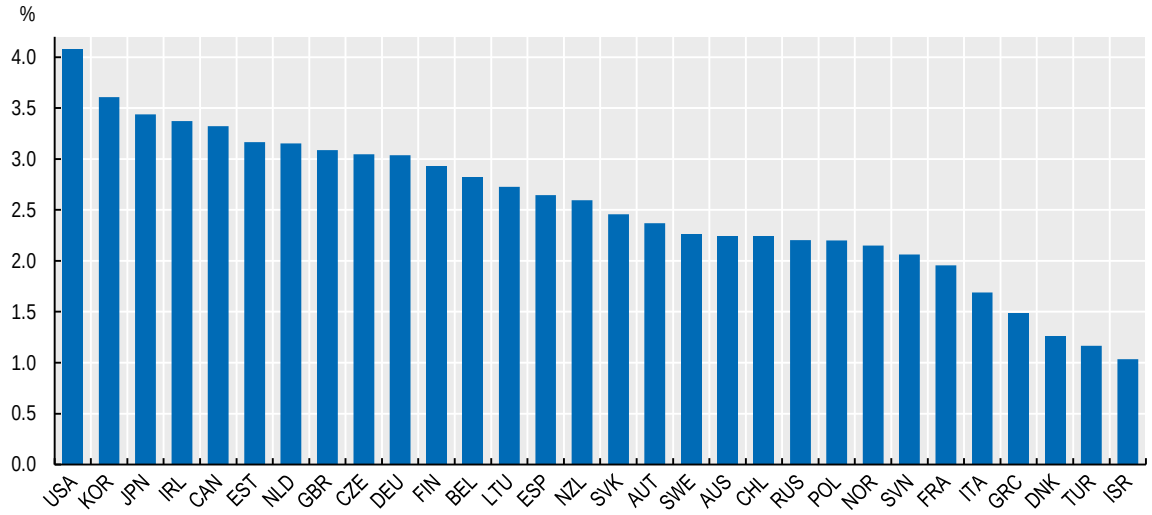
Source: OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2017-en.

Figure 2.6.2 Labour market returns to ICT tasks, 2012 or 2015

Percentage change in hourly wages for a 10% increase in ICT task intensity of jobs (at the country mean)

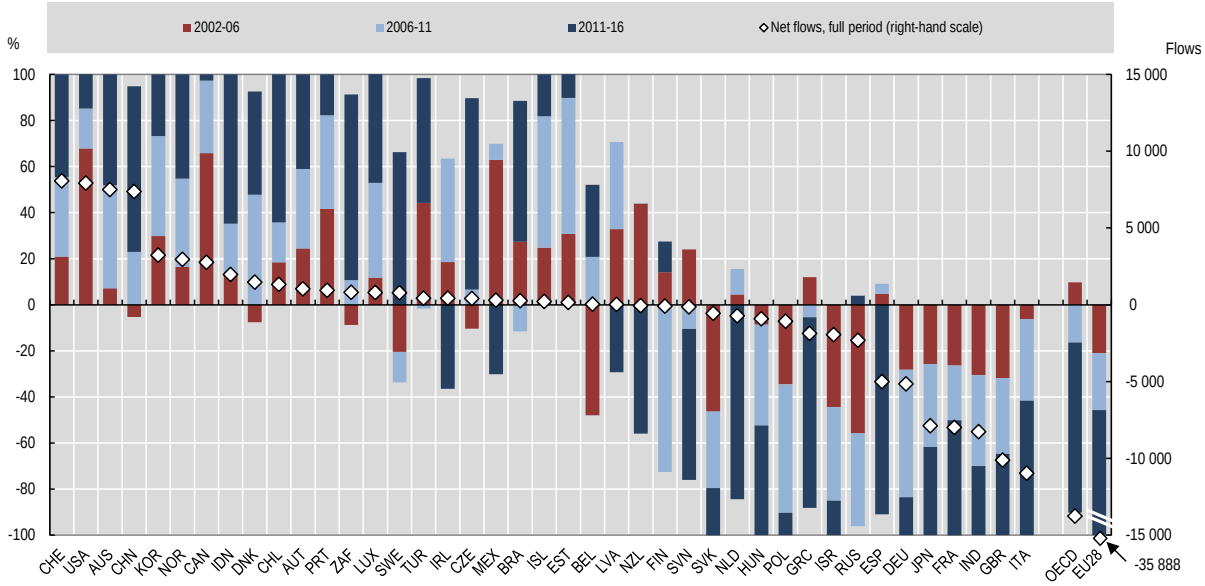


StatLink http://dx.doi.org/10.1787/888933618650

Source: OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2017-en.

Figure 1.69 International net flows of scientific authors, selected economies, 2002-16

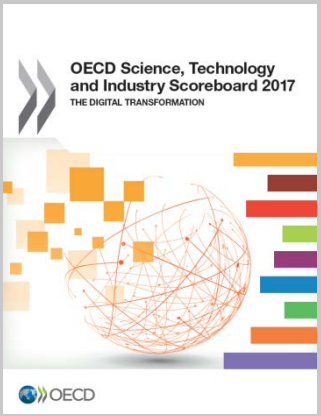
Difference between annual fractional inflows and outflows, as a percentage of total flows



StatLink http://dx.doi.org/10.1787/888933618156

Source: OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2017-en.

The OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation



The 2017 edition of the Scoreboard contains over 200 indicators showing how the digital transformation affects science, innovation, the economy, and the way people work and live.

The aim of the STI Scoreboard is not to "rank" countries or develop composite indicators. Instead, its objective is to provide policy makers and analysts with the means to compare economies with others of a similar size or with a similar structure, and monitor progress towards desired national or supranational policy goals.

It draws on OECD efforts to build data infrastructure to link actors, outcomes and impacts, and highlights the potential and limits of certain metrics, as well as indicating directions for further work.

The charts and underlying data in the STI Scoreboard 2017 are available for download and selected indicators contain additional data expanding the time and country coverage of the print edition. For more resources, including online tools to visualise indicators, see the OECD STI Scoreboard webpage (http://www.oecd.org/sti/scoreboard.htm).

The OECD Directorate for Science, Technology and Innovation

It is part of the DNA of the Directorate for Science, Technology and Innovation (DSTI) to constantly look for ways of better understanding where our economies and societies are today, and where they are going tomorrow. We pride ourselves on tackling topics at the boundaries of our scientific and technological understanding, such as using biotechnology and nanotechnology to alter modes of production, and how digital shifts like "big data," earth observation and digital platforms are changing our world.

Discover DSTI at www.oecd.org/sti and the OECD's Going Digital project at www.oecd.org/going-digital.

Further reading

OECD (2017), *OECD Digital Economy Outlook 2017*, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264276284-en

OECD (2016), *OECD Science, Technology and Innovation Outlook 2016*, OECD Publishing, Paris. http://dx.doi.org/10.1787/sti_in_outlook-2016-en