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

Science, innovation and the digital revolution

- Among G20 economies, **France** had the second-highest penetration of Machine to Machine subscriptions (the number of M2M SIM cards per inhabitant) in June 2017, just behind the United States and ahead of the United Kingdom, China and Germany [Scoreboard fig. 1.3 - see below].
- **France** accounted for 3.5% of the world's top 10% of most-cited scientific publications in 2016, behind the United States, China, United Kingdom, Germany and Italy [fig. 1.11].
- **France** accounted for 2.1% of AI-related patent applications during 2010-15, down from 2.8% in 2000-05 [fig. 1.7].
- The development of AI technologies is fairly concentrated. R&D corporations based in Japan, Korea, Chinese Taipei and China account for about 70% of all AI-related inventions belonging to the world's 2000 top corporate R&D investors and their affiliates, and US-based companies for 18%. **French** firms accounted for 2.2% of all AI-related inventions from 2012 to 2014 [fig. 1.25 - see below].

Growth, jobs and the digital transformation

- From 2010 to 2016, **France** had a net employment gain of just under 1 million jobs, with net gains in business services and in public services, and net losses in manufacturing and construction [fig. 1.34].
- In 2014, just over 32% of jobs in the business sector in **France** were sustained by foreign demand, up from 30% in 2004 [fig. 1.38].
- Women in **France** earn about 14% less than men, even after individual and job-related characteristics are taken into consideration, and about 10% less when skill differences are also taken into account [fig. 1.41].
- About 43% of women and 43% of men in **France** are engaged in training, amongst the lowest of OECD countries covered in the OECD Survey of Adult Skills [fig. 1.43].
- In **France** women represented about 31% of all tertiary graduates in natural sciences, engineering and ICT fields in 2015. This share was mainly driven by graduates in science and engineering (29.2%) rather than ICT (2%) [fig. 1.59].
- **France** was the sixth-most important hub for IT manufacturing in 1995, but was no longer among the top-10 IT manufacturing hubs in 2011. It was the 5th most important hub in ICT services in 1995, but fell to 10th place in 2011 [fig. 1.56].
- Almost 86% of individual in **France** used the Internet in 2016, up from 46.9% in 2006 [fig. 1.57]. 97% of 16-24 year olds used the Internet in 2016, and 68.5% of 55-74 year olds [fig. 1.58].

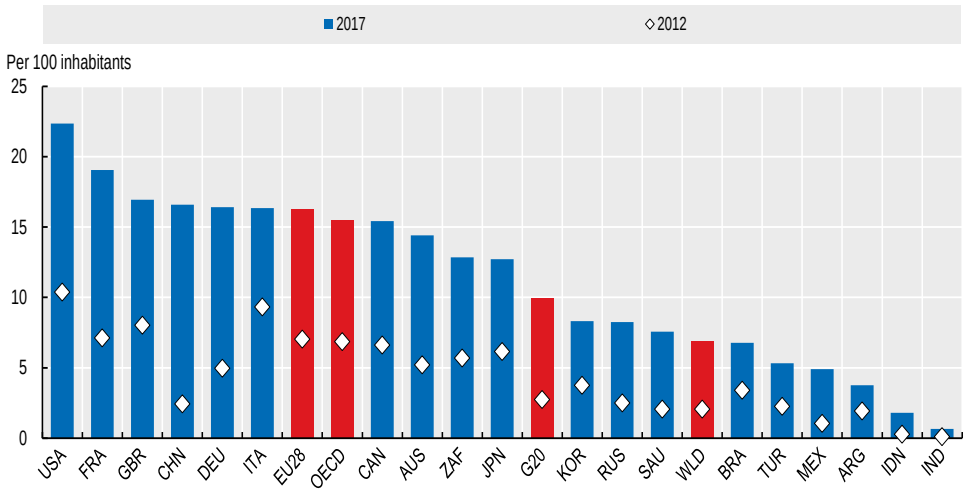
Innovation today - Taking action

- **France** is among the OECD countries where government budgets for R&D have declined since 2008, falling 22% from 2008 to 2016 [fig. 1.62]. Defence-related R&D fell by 80% from 2006 to 2016.

- 11.3% of domestic scientific documents in **France** were in the world's top-10% most cited, below the European Union (11.9%), and also lagging the United States (13.9%) and the United Kingdom (13.6%) [fig. 1.12].
- **France** has a high rate of support for business R&D relative to countries with a similar business R&D-to-GDP ratio, at 0.39% of GDP in 2015, the highest in the OECD [fig. 1.71 - see below].
- In 2012-15, in **France**, 10.5% of patents were invented by women, compared to 10% in the United States and 7% in the EU [fig. 1.61].
- Data on the international mobility of scientific authors for 2002 to 2016 shows that **France** has lost more authors than it has attracted. Over the past 15 years, almost 8 000 more scientific authors left **France** than entered [fig. 1.69 - see below].

Figure 1.3 M2M SIM card penetration, OECD, World and G20 countries, June 2017

Per 100 inhabitants

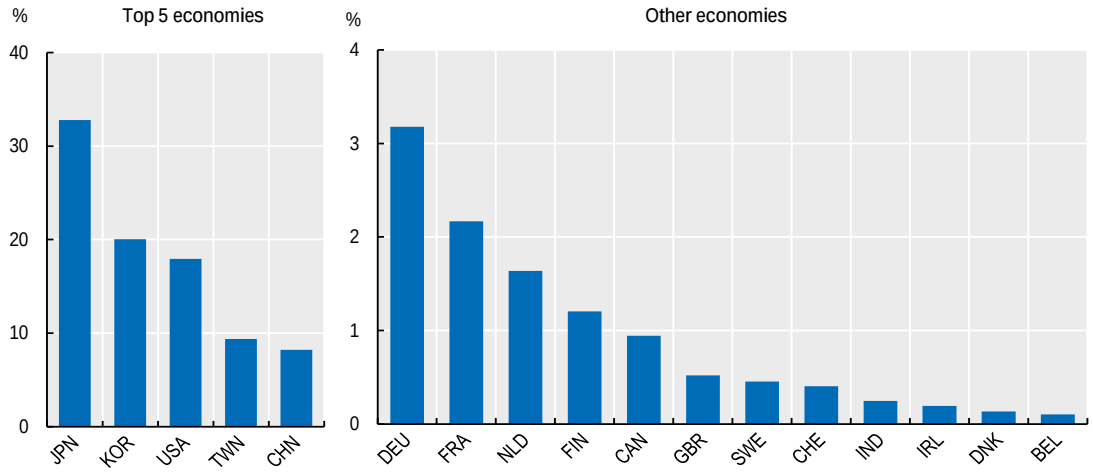


StatLink : http://dx.doi.org/10.1787/888933616902

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 1.25 Artificial intelligence patents by top R&D companies, by headquarters' location, 2012-14

Share of economies in total AI-related IP5 patent families owned by top 2 000 R&D companies



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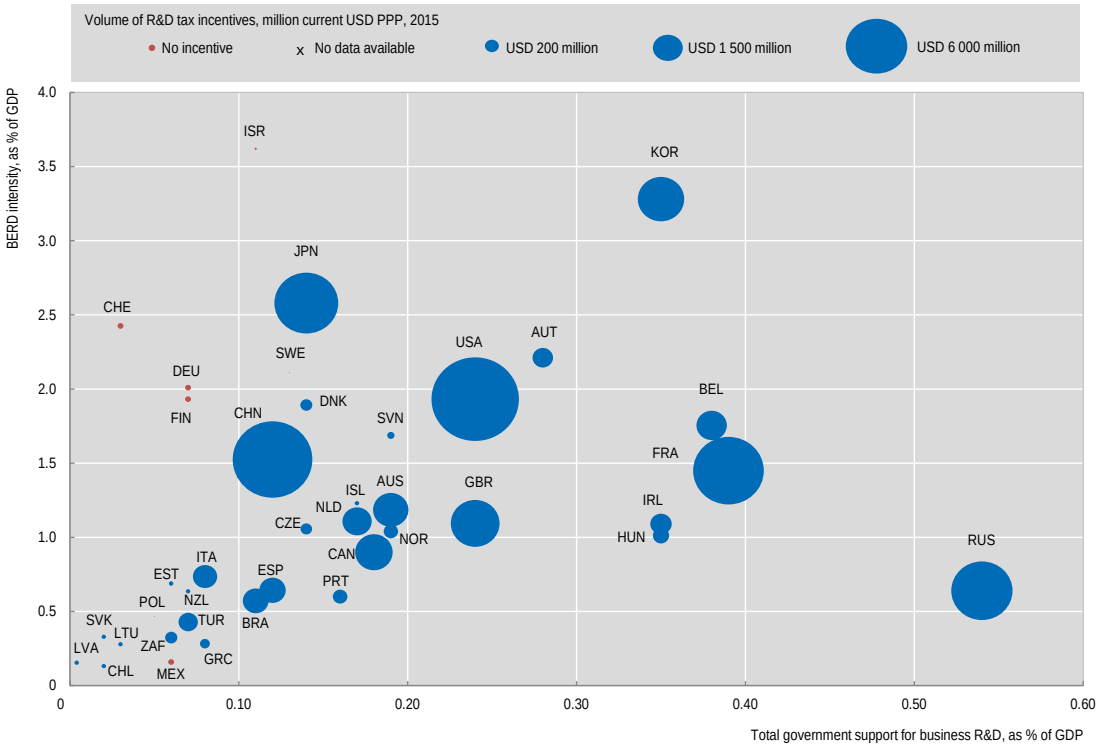
Source: OECD Science, Technology and Industry Scoreboard 2017: The Digital Transformation, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2017-en.

Figure 1.71 Business R&D intensity and government support to business R&D, 2015

As a percentage of GDP

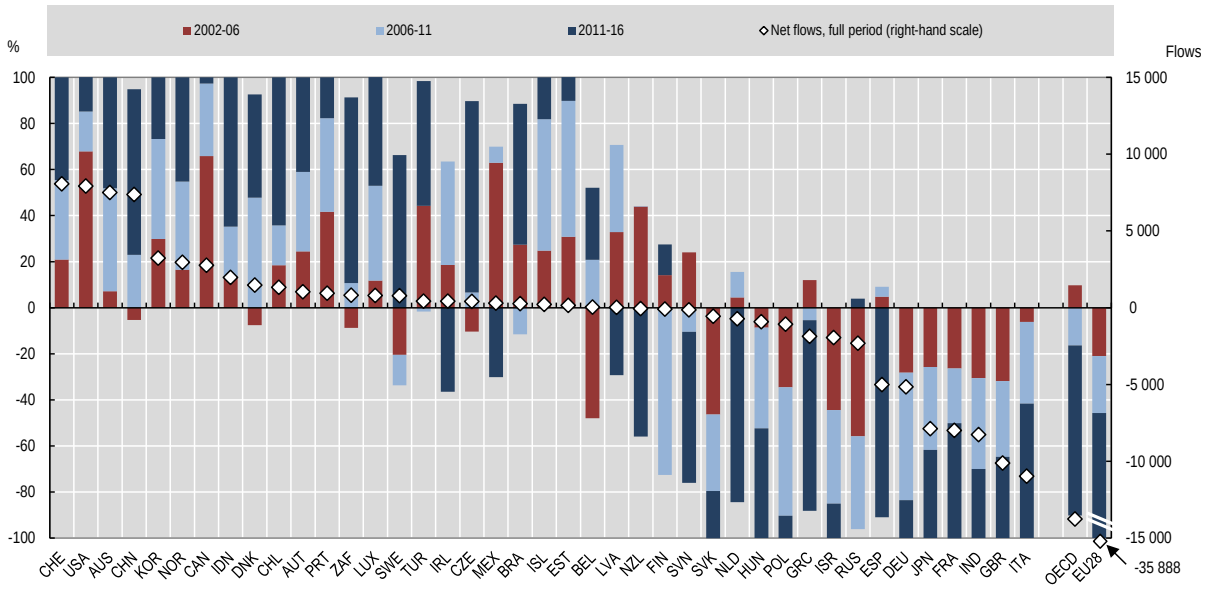


StatLink http://dx.doi.org/10.1787/888933618194

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

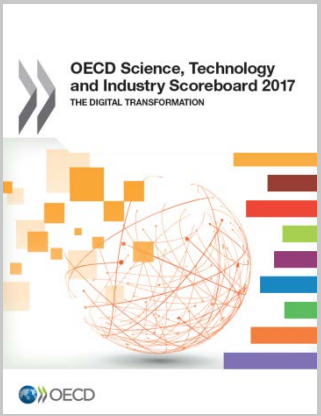
Difference between annual fractional inflows and outflows, as a percentage of total flows



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