

9. Innovation for future economic growth: Patents

The space sector has often been considered one of the main frontrunners of technological development. This was evident at the beginning of the space age (1950s) which yielded pioneering space systems. Analysis of patents provides some insight into innovative activities concerning the electrical and mechanical machinery and equipment required for space-based systems (satellites, launchers) as well as the downstream applications, such as telecommunications navigation systems. The number of space-related patents has almost quadrupled in fifteen years when looking at the applications filed under the Patent Co-operation Treaty (PCT) (Figure 9.1). The downturn after 2002 is due to a large degree to time-lag effects described in the “Methodological notes”. The narrow classification B64G: “Cosmonautics; vehicles or equipment thereof” shows a slower increase in the number of patents, meaning that other categories dealing with downstream products and services have gained in importance (Figure 3.6b and 9.2). The countries’ share in space-related patents over the 2000-08 period shows the United States and Europe leading, followed by Korea and Japan (Figure 9.3). Finally, in terms of revealed technological advantage, eight countries demonstrate a level of specialisation in space technologies patenting. The Russian Federation, France, Israel and the United States show a large amount of patenting in space activities, compared to other economic sectors (Figure 9.4).

Methodological notes

Not all innovations are subjected to patenting processes. In the field of space technology under-representation of innovative activity within patent systems may be more marked since much dual-use space research and development is subject to secrecy. Space-related patents were identified using a combination of codes from the International Patent Classification (IPC) and key words searches in the patent title. The classification B64G: “Cosmonautics; vehicles or equipment thereof” was used as a starting point. It covers a large array of space-related systems and applications (including satellites; launchers; components; radio or other wave systems for navigation or tracking; simulators). In this analysis no adjustments have been made for inventions filed at both European Patent Office (EPO) and the United States Patent and Trademark Office (USPTO), although the results also

include space-related patent applications filed under the Patent Co-operation Treaty (PCT). The PCT offers applicants the possibility to seek patent rights in a large number of countries by filing a single international application with a single patent office (receiving office). Data on the number of PCT patent applications are more internationally comparable because they avoid home country advantages and cover inventions that are potentially worth patenting in more than one country. A methodological issue concerns the visible downturn of patent applications after 2001. This is mainly due to delays in updating patent databases and also the time-lag at the USPTO between the application of a patent and its granting. Thus, the downturn should not be misconstrued as a recession in terms of space-related patenting activities. Finally, the “revealed technological advantage” (RTA) index is defined as a country’s share in patents in a particular field of technology, divided by the country’s share in all patents. The index is equal to zero when the country holds no patents in a given sector, is equal to 1 when the country’s share in the sector is equal to its share in all fields (i.e. no specialisation), and grows when a positive specialisation is found.

Source

OECD (2010), *OECD Patent Database*, August.

Further reading

OECD (2009), *OECD Patent Statistics Manual*, OECD Publishing, Paris.

OECD work on patent statistics, www.oecd.org/sti/ipr-statistics.

Notes

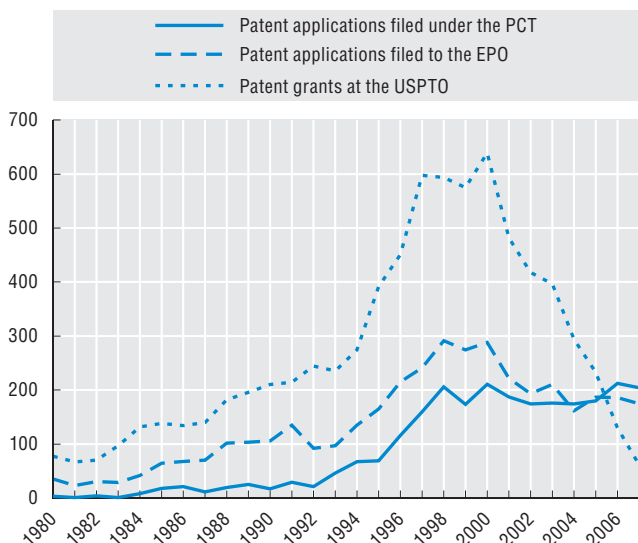
9.2: Partial information on EPO and PCT patents is available for priority year 2008. Partial information on USPTO patent grants on the whole period.

9.4: Partial information is available for priority year 2008. Only countries/economies with more than 1 000 PCT patents over the 2000-08 period (all sectors included) are included in the figure.

Information on data for Israel: <http://dx.doi.org/10.1787/8888932315602>.

9.1 Evolution of space-related patents (1980-2007)

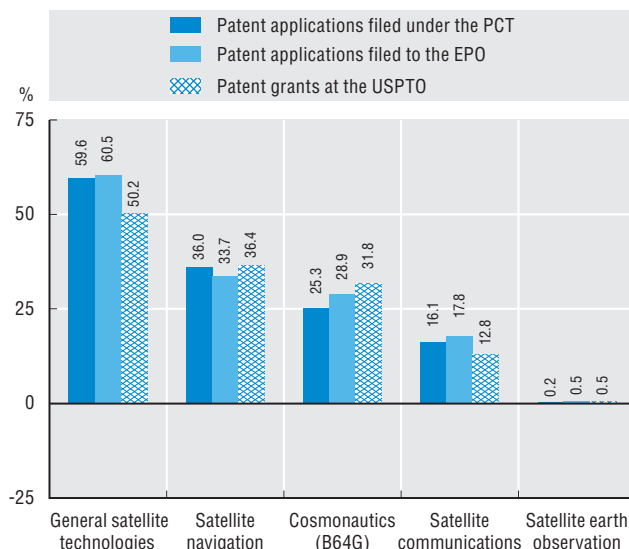
Number of patents filed by patent offices and priority date



StatLink <http://dx.doi.org/10.1787/888932400342>

9.2 Breakdown of space-related patents by main domains (2000-08)

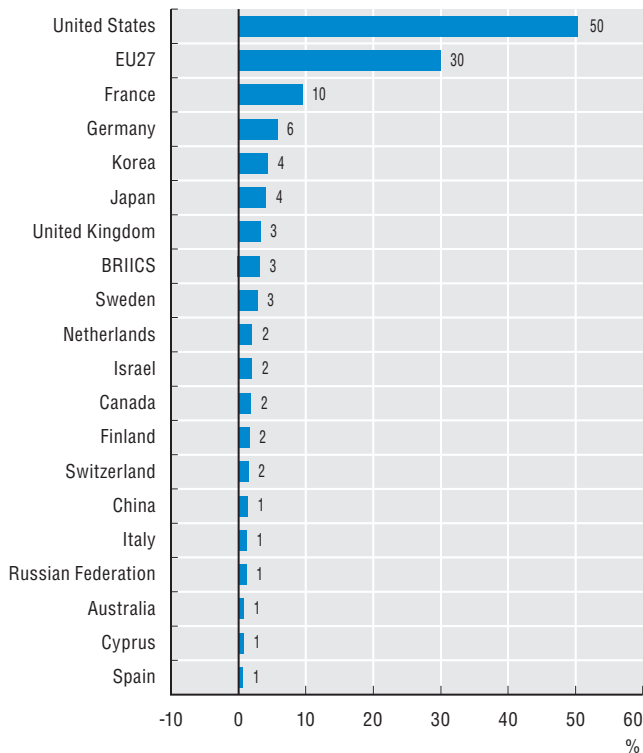
Number of patents by priority date (as a share of the total space-related patents over the period)



StatLink <http://dx.doi.org/10.1787/888932400380>

9.3 Country share in space-related patents (2000-08)

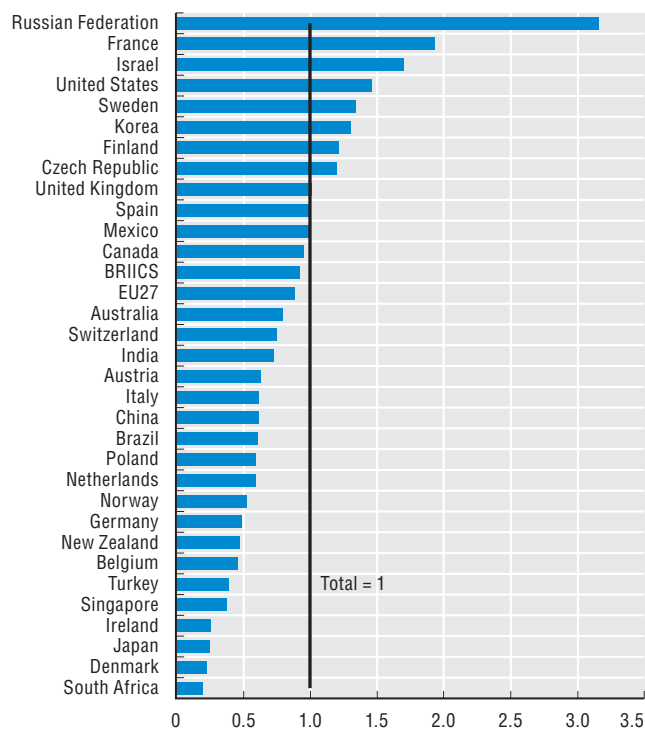
Patent applications filed under the Patent Co-operation Treaty by priority date and applicant's country



StatLink <http://dx.doi.org/10.1787/888932400399>

9.4 Revealed technological advantage in space related technologies

Patent applications filed under the Patent Co-operation Treaty by priority date and inventor's country



StatLink <http://dx.doi.org/10.1787/888932400418>

This figure is available online at: <http://dx.doi.org/10.1787/888932400361>.



From:
The Space Economy at a Glance 2011

Access the complete publication at:
<https://doi.org/10.1787/9789264111790-en>

Please cite this chapter as:

OECD (2011), "Innovation for future economic growth: Patents", in *The Space Economy at a Glance 2011*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264113565-14-en>

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