PATENTS C 6

In 2011, most of the countries managed to recover further from the international financial and economic crisis. In terms of transnational patent applications, the United States did not regain the maximum value recorded in 2006 (cf. C 6–1). Yet, a slight increase in US patent applications can be observed for the period 2010 to 2012. Judging by the number of patents filed, Japan in particularly managed to swiftly catch up with the values recorded prior to the crisis. Although Germany recorded but a slight increase, it continues to be one of the world's leading countries in transnational patent applications, just after the United States and Japan.

Ever since the late 1990s, China and Korea have been recording the highest growth rates, leaving countries such as France and Great Britain behind. Sweden and Switzerland follow at a somewhat greater distance behind Great Britain.

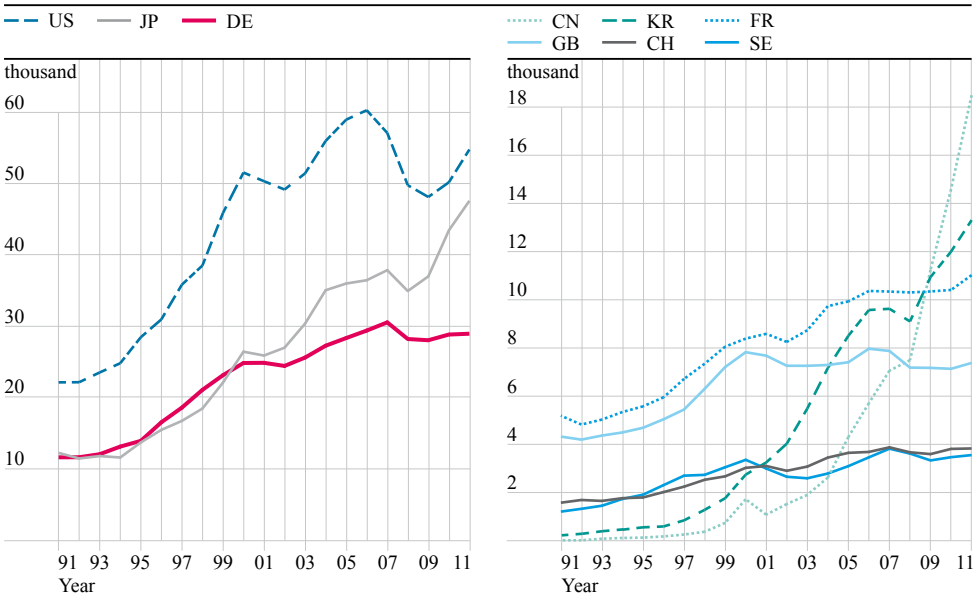
While the United States are leading in terms of the absolute number of patent applications, they do not maintain a leading position with regard to patent intensity (patent applications per 1 million of the working population). The US are ranked in the middle field, together with such countries as France and Great Britain (cf. C 6–2), while the top positions are occupied by smaller countries such as Switzerland and Sweden. The larger countries ranked in the upper third are Japan, Germany and Korea. Patents are an important tool to secure market shares in international trade in technology.[493] A high patent intensity therefore reflects both a strong international orientation and a pronounced export focus of the relevant economy.

Further conclusions on a country’s technological performance can be derived from patent activities in the field of high technology. This sector includes industries that invest more than 2.5 percent of their revenue in R&D (R&D intensity). High technology comprises the area of high-value technology (R&D intensity between 2.5 and 9 percent) and the area of cutting-edge technology (R&D intensity > 9 percent). The patent statistics for Germany show a strong specialisation in high-value technology (cf. C 6–3). Thanks to the automotive, mechanical engineering and chemical industry, the production of high-value technology represents a traditional domain of German industry. Japan is the only country that displays a higher degree of specialisation than Germany.

In contrast, China, Korea and the United States display a strong focus on cutting-edge technologies. Germany continues to be poorly positioned in this area and remains far behind Japan and the European countries of France and Great Britain (C 6–4).

C 6–1 **Development of numbers in transnational patent applications over time for selected countries**

DATA DOWNLOAD



Transnational patent applications comprise applications in the form of patent families that include at least one application filed with the World Intellectual Property Organization (WIPO), via the Patent Cooperation Treaty (PCT) procedure, or an application filed with the European Patent Office.

Source: EPA (PATSTAT), calculations by Fraunhofer ISI. December 2013.

C 6–2 **Transnational patent applications in the field of high technology: absolute number, intensity and growth rates in 2011**

DATA DOWNLOAD

	absolute	intensity	intensity high technology	total growth in % (2001 = 100)	growth in high technology in % (2001 = 100)
Total	**228,142**	–	–	**144**	**151**
CH	3,834	878	470	123	122
FI	1,929	780	481	106	94
SE	3,560	769	522	119	127
JP	47,683	758	492	184	188
DE	29,035	731	412	116	113
KR	13,312	549	367	409	440
NL	3,924	469	245	95	79
FR	11,028	428	253	128	136
US	54,887	392	259	109	111
EU-28	72,965	334	190	120	119
GB	7,384	254	151	96	98
IT	5,275	230	117	121	128
CA	3,643	210	137	133	134
CN	18,496	24	17	1,701	2,098

The high technology industry sector comprises industries that invest more than 2.5 percent of their revenue in research and development. “Intensity” refers to the number of patents per one million gainfully employed persons.

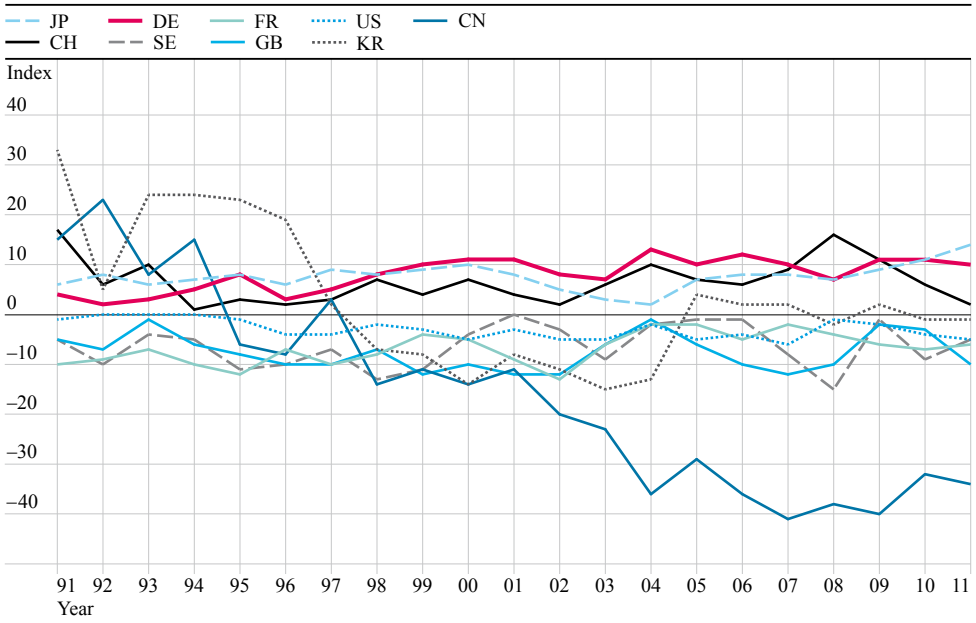
Source: EPA (PATSTAT). OECD (MSTI). Calculations by Fraunhofer ISI. December 2013.

Development of the high-value technology specialisation index over time, for selected countries

C 6–3

The specialisation index is calculated on the basis of all transnational patent applications worldwide. Positive or negative values indicate if the surveyed country's level of activity in a given field is disproportionately high or disproportionately low in comparison to the global average.

DATA DOWNLOAD



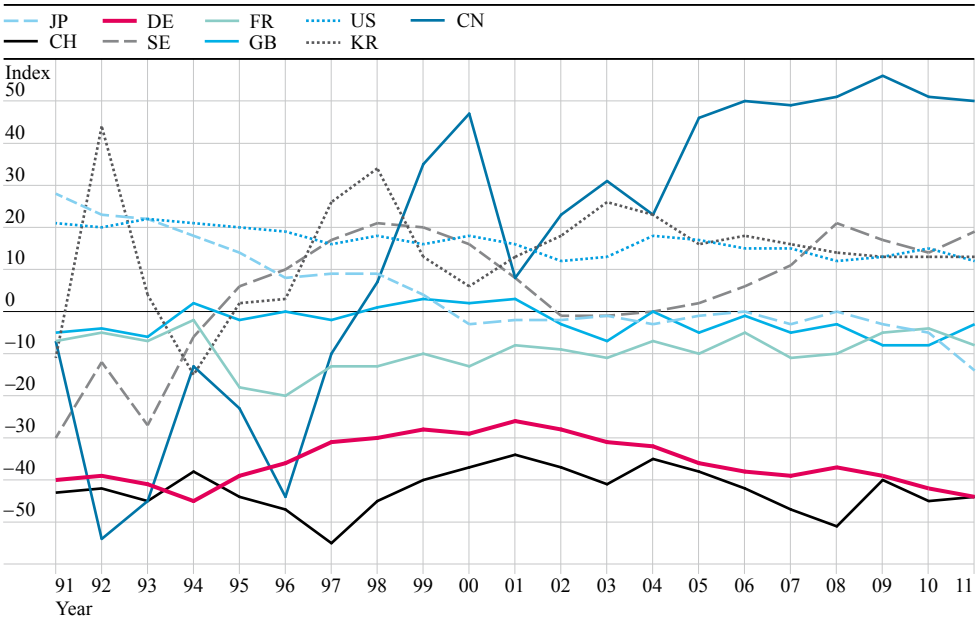
Source: Questel (EPPATENT, WOPATENT). EPA (PATSTAT). Calculations by Fraunhofer ISI. December 2013.

Development of the cutting-edge technology specialisation index over time, for selected countries

C 6–4

The specialisation index is calculated on the basis of all transnational patent applications worldwide. Positive or negative values indicate if the surveyed country's level of activity in a given field is disproportionately high or disproportionately low in comparison to the global average.

DATA DOWNLOAD



Source: Questel (EPPATENT, WOPATENT). EPA (PATSTAT). Calculations by Fraunhofer ISI. December 2013.