C 6 Patents

In 2012, most countries recovered further from the international financial and economic crisis. In terms of transnational patent applications, the United States returned to the level before the crisis (C 6-1). Japan in particular was quick to return to pre-crisis figures, since its growth rates were higher than those in the USA.[331] Transnational patent applications in Germany were less severely affected by the financial crisis than those in the USA, so the number of applications in Germany has remained comparatively constant over the last few years. Although Germany files fewer applications than the United States or Japan, it is still one of the world's leading nations in transnational patent applications.

The strongest positive dynamics in the last decade, as measured by the growth rates, came from China and Korea, followed by Japan. They have left the major European economies – Germany, the UK and France – a long way behind.

Although the United States is in the lead in terms of the absolute number of applications, it is not among the frontrunners with regard to patent intensity (patent applications per million of the working population; C 6-2). Here, the leaders are smaller countries like Finland, Switzerland and Sweden. The larger countries ranked in the upper third are Japan, Germany and Korea. Patents are an important tool for securing market shares in the context of the international technology trade. A high patent intensity therefore reflects both a strong international orientation and a pronounced export focus on the part of the relevant economy.

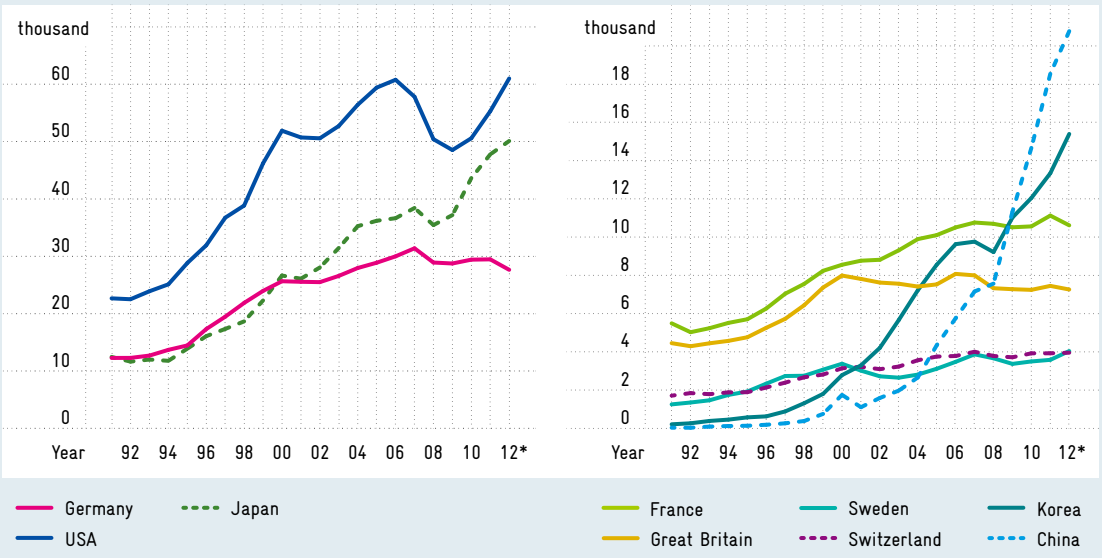
Further conclusions on a country's technological performance can be derived from patent activities in the field of R&D-intensive technologies. This sector is made up of industries that invest more than 3 percent of their revenue in R&D (R&D intensity). R&D-intensive technology comprises the areas of high-value technology (R&D intensity between 3 and 9 percent) and cutting-edge technology (R&D intensity over 9 percent). International comparisons show that Germany is highly specialised in high-value technology (C 6-3) as a result of its traditional strengths in the automotive, mechanical engineering and chemical industries. Only Japan and Switzerland are more specialised in these fields.

By contrast, China, Korea and the United States show a strong focus on cutting-edge technology (C 6-4). Germany is still poorly positioned in this field, behind Japan and the European countries of France and the UK (C 6-4). Switzerland was able to improve its position in the field of cutting-edge technology in 2012 and is now pulling ahead of Germany.

C 6-1
Data
Download

Development of the number of transnational patent applications in selected countries

Transnational patent applications comprise applications in patent families with at least one application to the World Intellectual Property Organisation (WIPO) via the PCT route or one application to the European Patent Office.



* Projection for the 2nd half of 2012. See Neuhäusler et al. (2015) for the actual numbers for 2012
Source: EPA (PATSTAT). Calculations by Fraunhofer ISI. December 2014.

C 6-2
Data
Download

Absolute number, intensity and growth rates of transnational patent applications in the field of R&D-intensive technology in 2012 [1]

The R&D-intensive technology sector comprises industries that invest more than 3 percent of their turnover in research and development. Intensity is calculated as the number of patents per million employees.

	absolute [2]	Intensities [2]	Intensities: R&D-intensive technology	Growth (2002 = 100) [2]	Growth of R&D-intensive technology (2002 = 100)
Total	**244,323**	**–**	**–**	**152**	**159**
Canada	4,092	234	153	145	146
China	20,770	28	21	1,306	1,532
EU-28	72,842	335	193	117	119
Finland	2,385	961	594	145	136
France	10,616	411	253	120	132
Germany	**27,638**	**690**	**391**	**108**	**106**
Great Britain	7,260	247	149	95	100
Italy	5,232	228	117	107	114
Japan	50,091	799	509	179	178
Korea	15,393	624	439	365	396
Netherlands	4,281	508	286	112	103
Sweden	4,042	868	615	149	170
Switzerland	3,956	897	533	128	141
USA	60,990	428	296	121	129

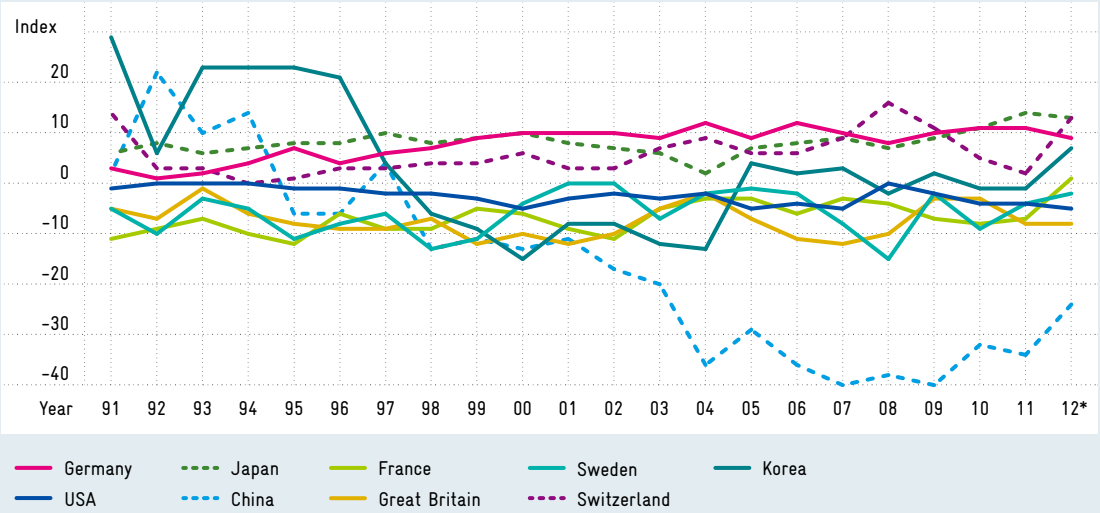
[1] Projection for the 2nd half of 2012. See Neuhäusler et al. (2015) for the actual numbers 2012.
[2] Figures refer to all industries.
Source: EPA (PATSTAT). OECD (MISTI). Calculations by Fraunhofer ISI. December 2014.

C 6-3

Data
Download

Development of the specialisation index in selected countries: high-value technology

The specialisation index is calculated with reference to all global transnational patent applications. Positive or negative values indicate whether the observed country's level of activity in the respective field is higher or lower than the world average.



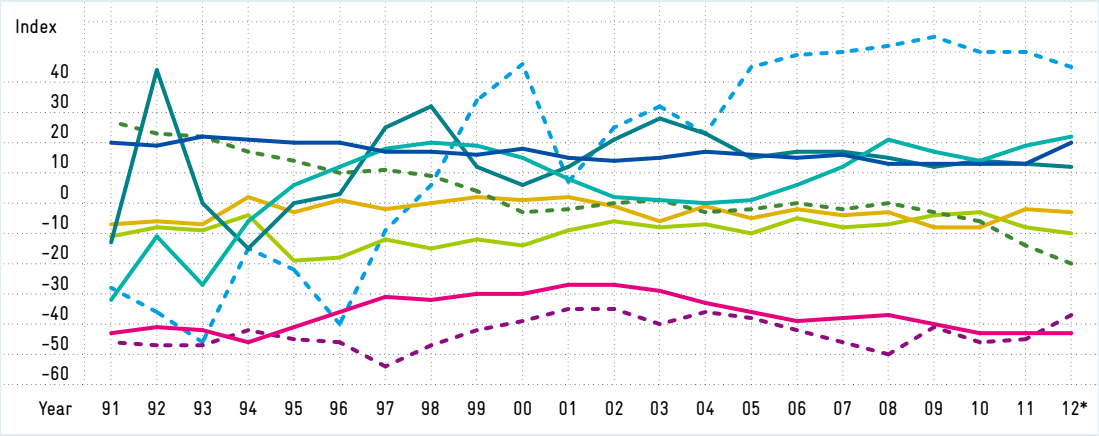
* Projection for the 2nd half of 2012. See Neuhäusler et al. (2015) for the actual numbers 2012.
Source: Questel (EPPATENT, WOPATENT). EPA (PATSTAT). Calculations by Fraunhofer ISI. December 2014.

C 6-4

Data
Download

Development of the specialisation index in selected countries: cutting-edge technology

The specialisation index is calculated with reference to all global transnational patent applications. Positive or negative values indicate whether the observed country's level of activity in the respective field is higher or lower than the world average.



* Projection for the 2nd half of 2012. See Neuhäusler et al. (2015) for the actual numbers 2012.
Source: Questel (EPPATENT, WOPATENT). EPA (PATSTAT). Calculations by Fraunhofer ISI. December 2014.