C 8 PRODUCTION, VALUE ADDED AND EMPLOYMENT

As in previous years, Germany showed a comparative advantage in trade in R&D-intensive goods in 2012.[494] A country's comparative advantage is determined by the RCA indicator, which measures a product group's export/import ratio relative to the export/import ratio of the manufacturing sector as a whole. A closer analysis reveals, however, that Germany has a positive comparative advantage only in terms of trade in high-value technology; trade in cutting-edge technology displays a negative comparative advantage. Further countries with a negative RCA indicator in the area of cutting-edge technology in 2012 were Sweden, Japan and China. Positive values were recorded in France, Great Britain, Switzerland, the United States and Korea (C 8 – 1).

The share of research and knowledge-intensive industries in a country's value added reflects their importance and allows conclusions to be drawn on the country's technological performance. Overall, this share increased in nearly all the surveyed countries between 2000 and 2011 (C 8 – 2), which suggests a growing relevance of research and knowledge-intensive industries. In most of the countries, the increase was mainly attributable to knowledge-intensive services. Only Switzerland, Germany and Korea recorded an increase in the share of R&D-intensive industries in value added.

While the gross value added had experienced a decline in various industrial sectors during the crisis year of 2009, value added in Germany increased again in 2010 and 2011 and even exceeded the levels recorded prior to the crisis (C 8 – 3). Between 2010 and 2011, the highest increase in added value could be observed in the knowledge-intensive manufacturing sector (4.9 percent) and in the non-knowledge-intensive manufacturing sector (7.4 percent).

A similar trend could be observed in the development of employment covered by social security (C 8 – 4). Following a slight decline in 2009, the number of employees increased from 2010. Between 2010 and 2011, employment in knowledge-intensive services and in the knowledge-intensive manufacturing sector recorded the highest increase, with 3.1 percent and 2.7 percent respectively.

Comparative advantages (Revealed Comparative Advantage, RCA) of selected countries in foreign trade in research-intensive goods

C 8–1

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A positive RCA value means that the export-import relation for this product group is higher than it is for manufactured industrial goods as a whole.

Year	DE	FR	GB	SE	CH	US[1]	JP	KR	CN[2]
R&D-intensive goods									
2000	11	7	14	0	10	13	47	0	–41
2005	10	7	14	–1	18	17	42	17	–29
2010	12	6	11	–6	22	1	33	19	–27
2011	15	5	9	–5	22	–1	36	15	–27
2012	15	7	10	–11	21	–2	35	17	–28
High-value technology									
2000	27	5	10	–7	26	–13	86	5	–17
2005	27	6	4	–2	24	–5	75	11	0
2010	30	–2	15	–3	21	–10	61	7	–16
2011	31	–4	11	–3	19	–9	64	13	–20
2012	29	–3	13	–6	17	–12	68	16	–13
Cutting-edge technology									
2000	–27	11	19	13	–30	47	–10	–5	–66
2005	–34	8	33	1	4	55	–14	24	–53
2010	–35	20	1	–11	25	22	–22	33	–35
2011	–30	20	6	–9	29	12	–21	18	–33
2012	–23	21	2	–25	31	15	–29	18	–41

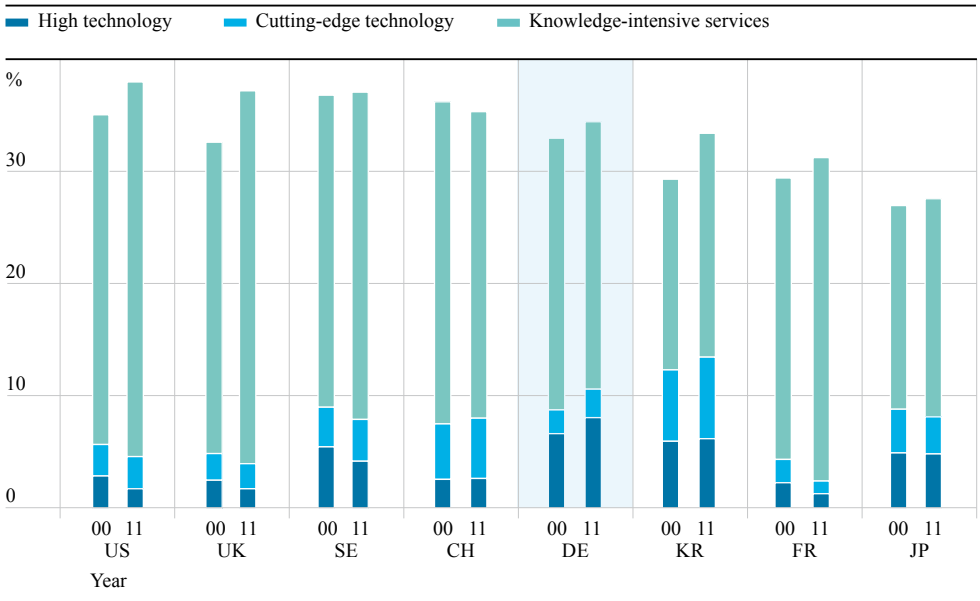
[1] Figures for the USA revised from 2009 based on national data. [2] incl. Hong Kong.
Source: COMTRADE database. Calculations and estimates by NIW.

Shares of R&D-intensive industries and knowledge-intensive services in value added (figures in percent)

C 8–2

DATA DOWNLOAD

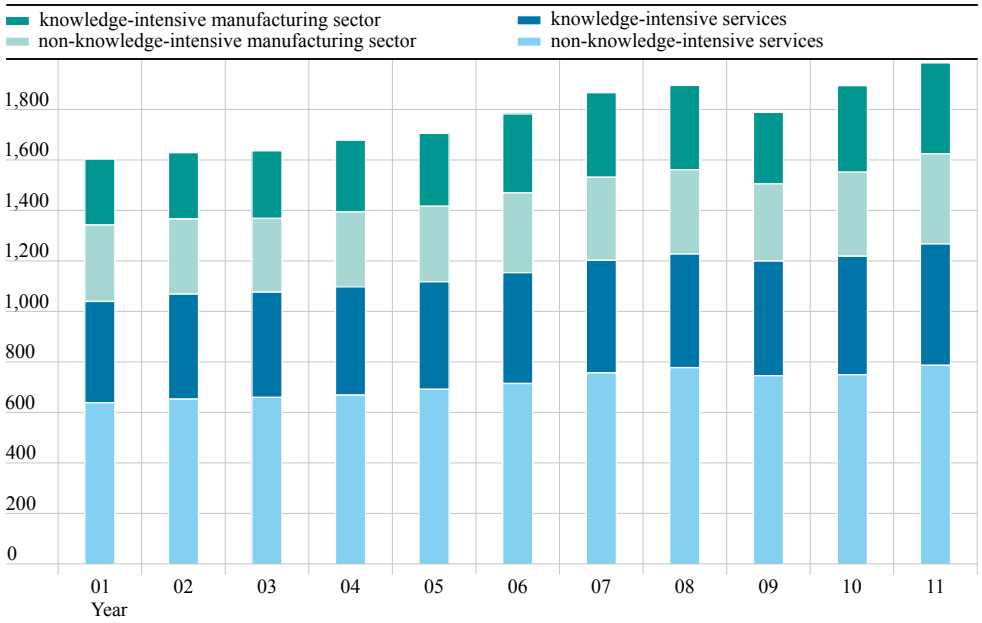
The share of R&D intensive industries and knowledge-intensive services in value added has increased over the last decade in nearly all of the countries surveyed.



Source: OECD STAN (2013), Eurostat (2013), EUKLEMS (2013, 2007), BEA (2013), BOK (2013), Statistics Bureau - Ministry of Internal Affairs and Communications Japan (2013). Calculations and estimates by DIW Berlin.

C 8–3 **Development of gross value added in various industry sectors in Germany**
(in billion EUR)

DATA DOWNLOAD

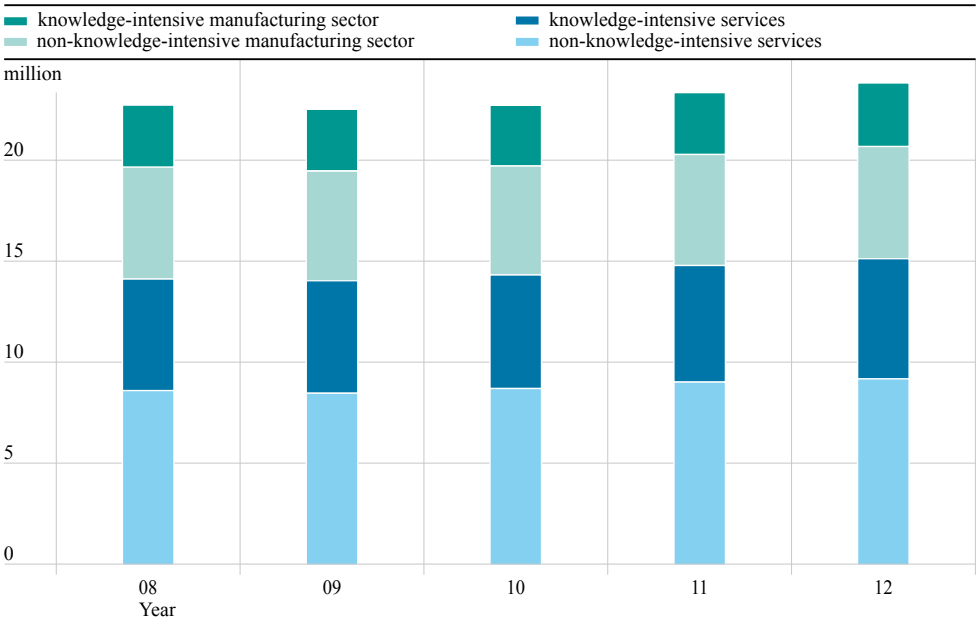


Between 2001 and 2011, gross value added in the knowledge-intensive and non-knowledge-intensive manufacturing sector increased by 37.6 and 18.0 percent, respectively. In knowledge-intensive and non-knowledge-intensive services it increased by 19.9 and 23.1 percent, respectively.

Not including agriculture and forestry, fisheries, public administration and services, real estate and housing, education, private households, etc.
Source: *Statistisches Bundesamt, Fachserie 18, Reihe 1.4.* Calculations by NIW.

C 8–4 **Employment trends in various industry sectors in Germany**

DATA DOWNLOAD



Between 2008 and 2012, employment in the knowledge-intensive and non-knowledge-intensive manufacturing sector increased by 2.1 and 0.2 percent, respectively. In knowledge-intensive and non-knowledge-intensive services, it increased by 7.7 and 6.7 percent, respectively.

Source: *Bundesagentur für Arbeit.* Calculations by NIW.