## C 3 INNOVATION BEHAVIOUR IN THE GERMAN PRIVATE SECTOR

As defined in the OECD Oslo Manual[384], innovations include the introduction of new or significantly improved products (goods and services), processes, as well as marketing and organisational methods. The figures on innovation behaviour in the German private sector, as depicted in C 3 – 1 and C 3 – 5, are based on the annual innovation survey by the Centre for European Economic Research (ZEW) and the Mannheim Innovation Panel (MIP), a survey that has been conducted since 1993. All figures refer to product and process innovations.[385] In the industrial sector, the innovator rate (C 3 – 1) rose again slightly in 2010, after it had fallen heavily during the 2009 crisis. In knowledge-intensive services, participation in innovation activities declined further and thus returned to the level of 2006.

Continuous R&D activities are usually accompanied by an increase in the innovation performance of companies.[386] The proportion of companies with continuous R&D activities (C 3 – 2) increased in 2010 in both the industrial sector and knowledge-intensive services. While the proportion of companies with occasional R&D activities increased in knowledge-intensive services, it decreased in the high technology sector and in other industries.

In 2010, Germany's innovation intensity (C 3 – 3), which represents the share of innovation expenditures in relation to turnover, slightly decreased in the high technology sector – albeit the fact that innovation expenditures had increased significantly. In other industries, innovation intensity also decreased slightly, while it increased in knowledge-intensive services. In 2010, the percentage of revenue generated with new products evolving from innovation activities (C3 – 4) increased in both industry and knowledge-intensive services, thus returning to the level of 2008.

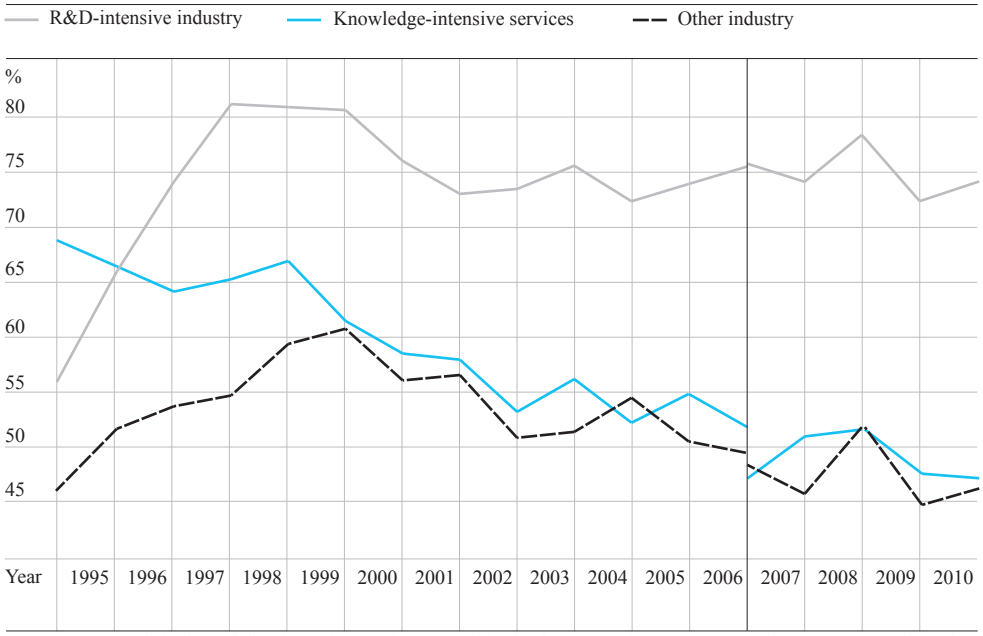
Only forecast figures are presently available for 2011 and 2012. These have been collected via surveys of businesses, conducted in the spring and summer of 2011 (C3–5). According to these figures, innovation expenditures heavily increased in the industrial sector and mildly increased in knowledge-intensive services in 2011. No further increase in innovation expenditure is planned in either of the two sectors for 2012.

Equity capital is the most important form of financing for companies' innovation activities. According to data from the European Commission's BACH database[387], the capital ratios of small and medium-sized industrial companies in Germany (C 3 – 6) have increased steadily over the last decade. Yet, when compared internationally, German enterprises are not ranked in the top group.
For growth-oriented start-up businesses, the most important form of financing is venture capital. Figures from the European Private Equity & Venture Capital Association (EVCA)[388] demonstrate that the volume of venture capital investments (C 3 – 7) in Germany increased again in 2010, after a dramatic slump in the crisis year of 2009. Still, the level of 2008 has not been achieved yet. When compared on an international scale, it can also be observed that the German venture capital market, despite its recovery in 2010, is still characterised by a very low investment ratio (C 3 – 8). The lack of venture capital continues to be an obstacle for the growth of young businesses in Germany.

More than any other country, Germany contributes to the work of the International Organization for Standardization (ISO). Through its involvement in various ISO committees (C 3 – 9), Germany is able to exert a decisive influence on the global technological infrastructure. This leads to competitive advantages for German companies.[389]

**Innovator rate in Germany's industry and knowledge-intensive services** C 3–1
(figures in percent)

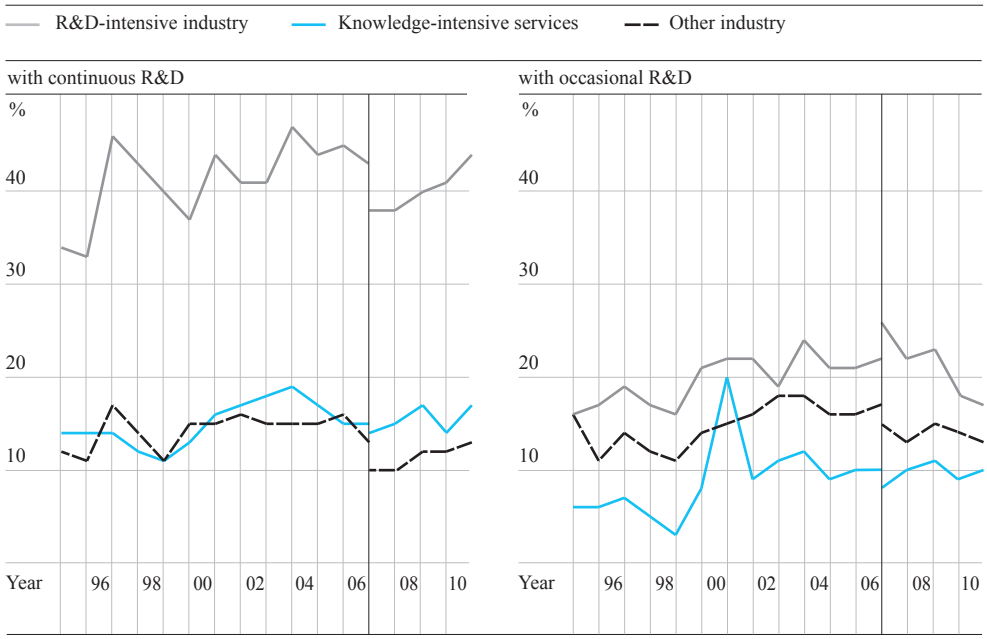
Innovator rate: share of companies that, within a three-year period, have launched at least one new product on the market or introduced at least one new process.




1995 not surveyed for knowledge-intensive services. Break in the time series in 2006. Figures for 2010 are provisional.
Source: Mannheim Innovation Panel (MIP). Calculations by ZEW.

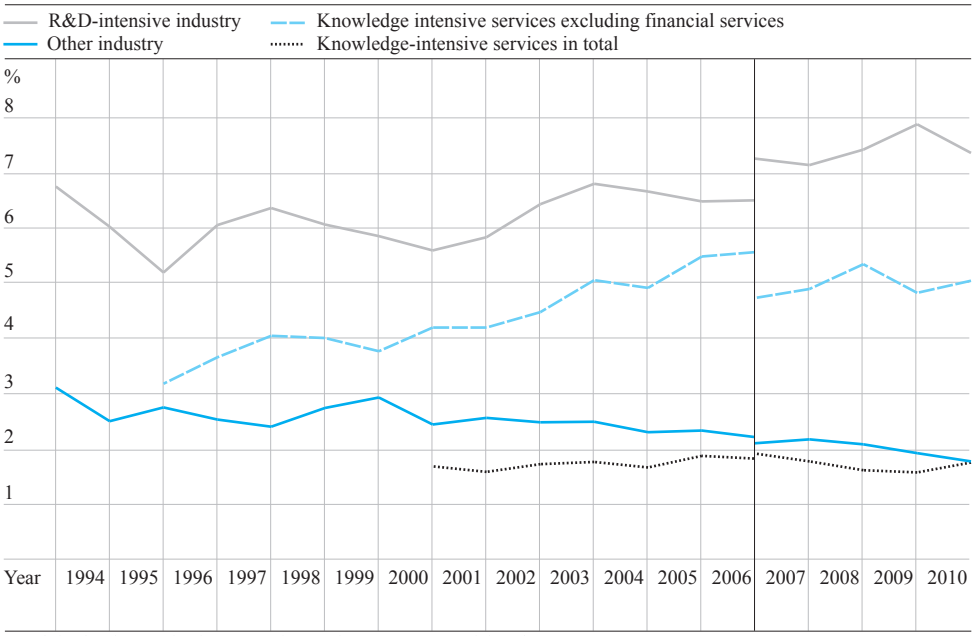
**Companies with continuous or occasional R&D activities** C 3–2
(figures in percent)

Share of companies with continuous or occasional R&D activities: innovation-active companies that have, over the previous three-year period, pursued R&D either continuously or occasionally.




1995 not surveyed for knowledge-intensive services. Break in the time series in 2006. Figures for 2010 are provisional.
Source: Mannheim Innovation Panel (MIP). Calculations by ZEW.

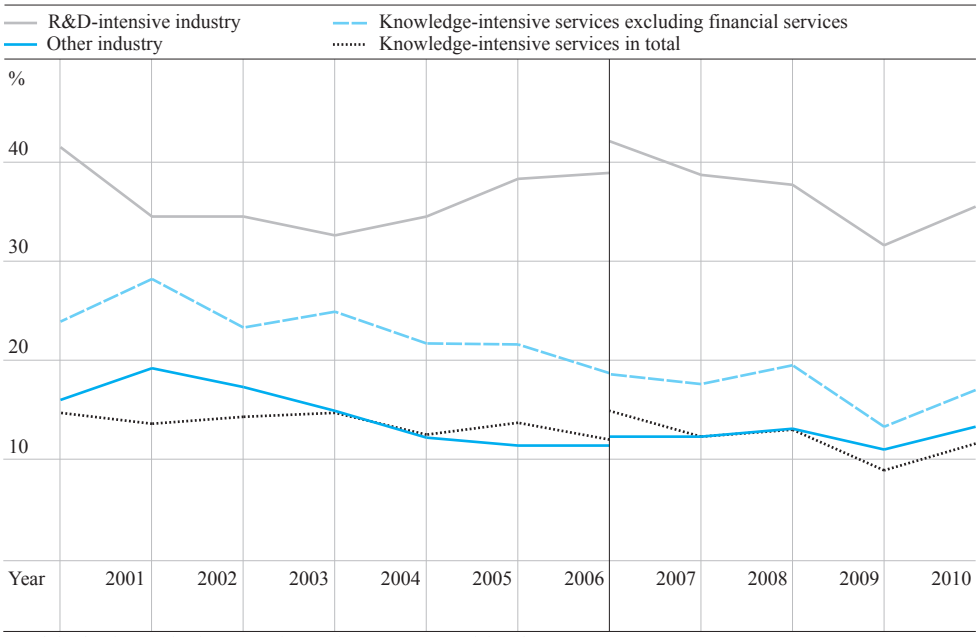
C 3–3 **Innovation intensity in Germany's industry and knowledge-intensive services** (figures in percent)




Break in the time series in 2006. Figures for 2010 are provisional.
Source: Mannheim Innovation Panel (MIP). Calculations by ZEW.

Innovation intensity: companies' innovation expenditures in relation to total revenue.

C 3–4 **Proportion of revenue generated with new products in Germany's industry and knowledge-intensive services** (figures in percent)

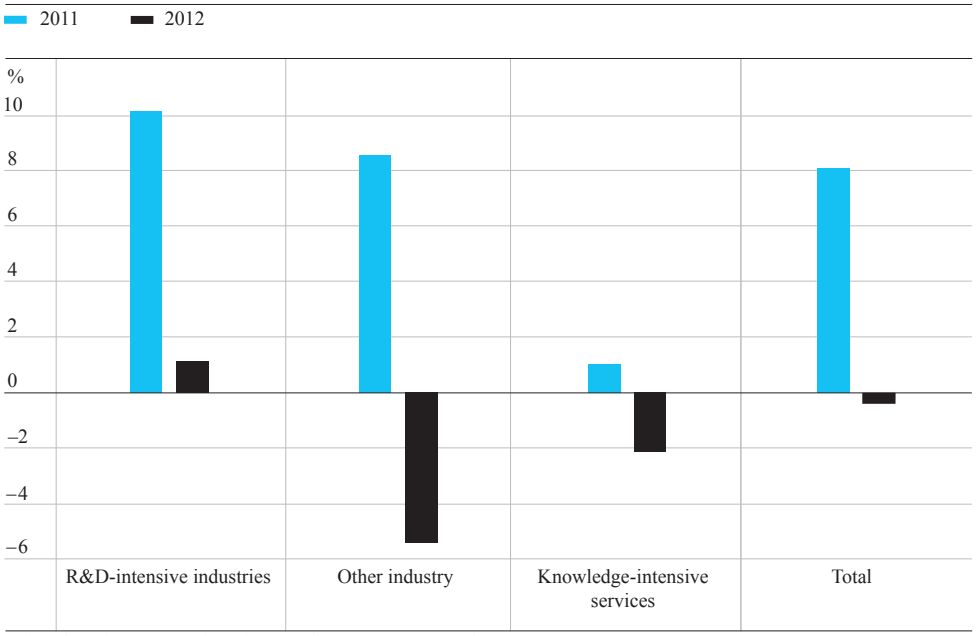



Break in the time series in 2006. Figures for 2010 are provisional.
Source: Mannheim Innovation Panel (MIP). Calculations by ZEW.

Proportion of revenue generated with new products: revenue from new or significantly improved products, newly introduced by innovating companies in the past three years, in relation to total revenue.

**Planned changes in innovation expenditures in Germany's industry and knowledge-intensive services** (figures in percent) C 3–5

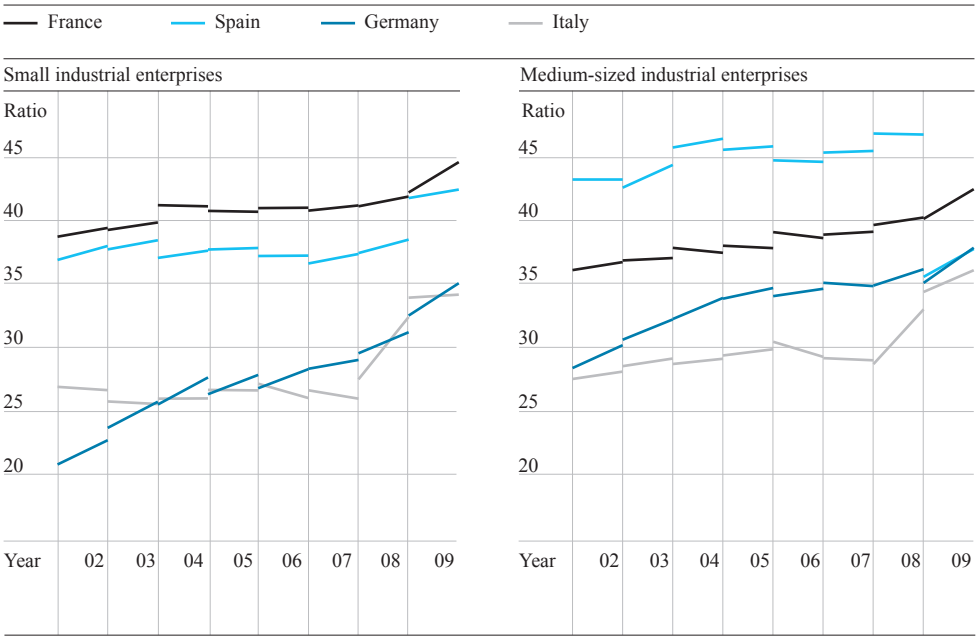
Planned innovation expenditures: data, obtained from the companies' planning figures, regarding changes in innovation-related expenditures compared with the previous year.




Values based on companies' planning data from spring and summer 2011.
Source: Mannheim Innovation Panel (MIP). Calculations by ZEW.

**Equity ratios of small and medium-sized industrial enterprises**[390] C 3–6

Equity ratio: a company's equity in relation to its total balance sheet.




Source: BACH-ESD. *Banque de France*. Own depiction.

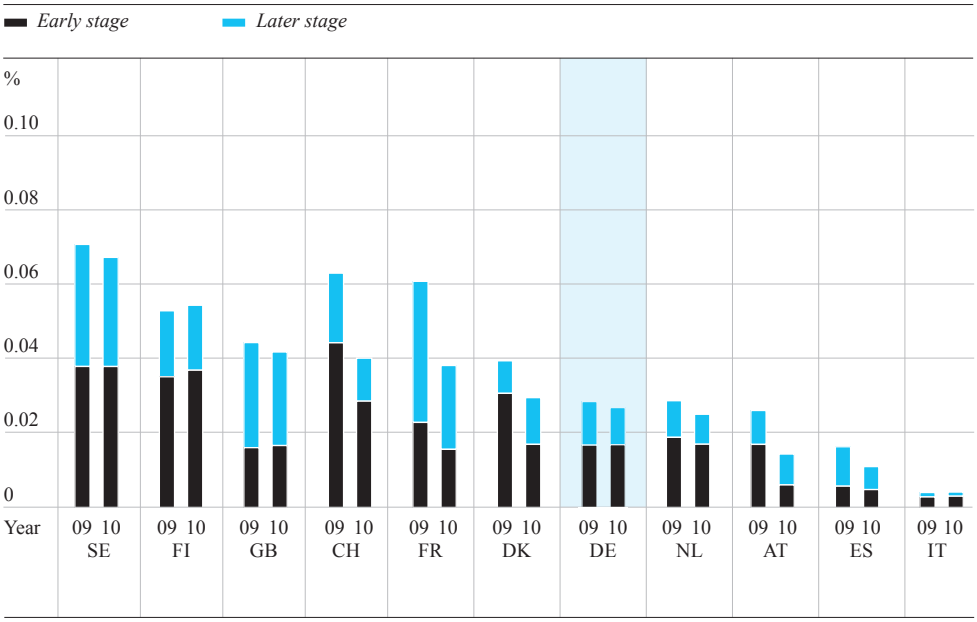
C 3–7 **Venture capital investments**
(investments according to portfolio companies' registered office)

Venture capital: temporally limited equity participation in young, innovative, unlisted companies.

| | 2009 | | | | 2010 | | | |
|---|---|---|---|---|---|---|---|---|
| | Early Stage* | Later Stage* | Total venture capital* | GDP** | Early Stage* | Later Stage* | Total venture capital* | GDP** |
| Denmark | 68,558 | 19,476 | 88,033 | 222,410 | 39,992 | 29,433 | 69,426 | 234,005 |
| *Germany* | *412,280* | *233,102* | *645,381* | *2,374,500* | *418,065* | *290,678* | *708,742* | *2,476,800* |
| Finland | 61,153 | 30,787 | 91,940 | 173,267 | 66,803 | 31,535 | 98,338 | 180,253 |
| France | 306,116 | 534,737 | 840,853 | 1,889,231 | 304,424 | 436,374 | 740,798 | 1,932,802 |
| Great Britain | 373,280 | 398,507 | 771,787 | 1,564,476 | 285,196 | 428,395 | 713,591 | 1,700,145 |
| Italy | 44,576 | 18,313 | 62,889 | 1,526,790 | 48,528 | 17,389 | 65,917 | 1,556,029 |
| Netherlands | 108,398 | 56,295 | 164,694 | 571,145 | 100,752 | 47,463 | 148,215 | 588,414 |
| Austria | 46,949 | 25,095 | 72,045 | 274,818 | 17,630 | 23,800 | 41,430 | 286,197 |
| Sweden | 110,912 | 95,779 | 206,691 | 291,347 | 132,030 | 101,951 | 233,980 | 346,855 |
| Switzerland | 157,638 | 66,551 | 224,189 | 354,735 | 114,543 | 46,198 | 160,741 | 398,878 |
| Spain | 61,005 | 111,272 | 172,277 | 1,047,831 | 51,607 | 65,120 | 116,728 | 1,051,342 |

* In thousand euro. ** at current prices in million euro. The early stage comprises the "seed" and "start-up" phases.
Source: EVCA (2011). Eurostat. Own calculations. Inaccuracies due to figure rounding.

C 3–8 **Proportion of venture capital investments as a percentage of national GDP**
(Investments according to registered office of the portfolio companies; figures in percent)

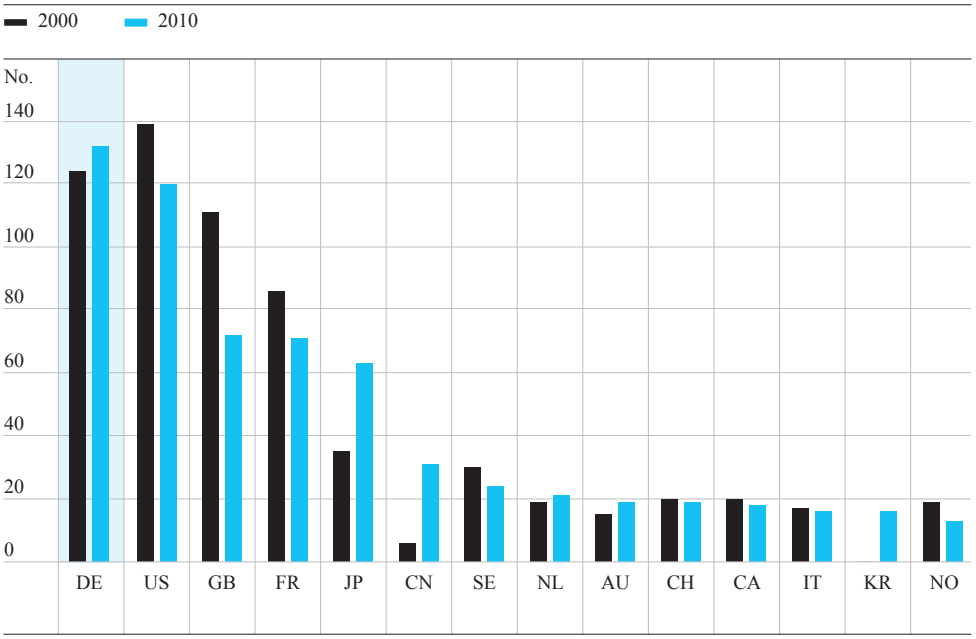



The early stage comprises the "seed" and "start-up" phases.
Source: EVCA (2011). Eurostat. Own calculations.

**Number of assigned secretariats for technical committees and subcommittees of the International Organization for Standardization (ISO)**

C 3–9

Standardisation: harmonisation of important characteristics of products, processes and services.




Source: ISO (2001 and 2011). Own compilation.