European Commission

EU R&D SCOREBOARD

The 2012 EU Industrial R&D Investment Scoreboard

Joint Research Centre
Directorate-General for Research and Innovation

Acknowledgements

The 2012 EU Industrial R&D Investment Scoreboard has been published within the context of the Industrial Research and Innovation Monitoring and Analysis (IRIMA) activities that are jointly carried out by the European Commission's Joint Research Centre (JRC) - Institute for Prospective Technological Studies (IPTS) and the Directorate General for Research and Innovation, Directorate C.
IRIMA activities aim to improve the understanding of industrial R&D and Innovation in the EU and to identify medium and long-term policy implications.
The project was coordinated under the leadership of Xabier Goenaga Beldarraín (Head of JRC-IPTS Knowledge for Growth - KfG Unit) and Pierre Vigier (Head of DG RTD.C6 Economic Analysis and Indicators). This document was produced by Héctor Hernández, Alexander Tübke and Fernando Hervás Soriano (KfG Unit) as the main authors. Antonio Vezzani, Jan Christensen and Carmen Ramírez Martín from the KfG Unit and Stéphane Vankalck and María Herminia Andrade from DG RTD.C made contributions to the Scoreboard.
Michael Tubbs from Innovomantex Ltd. greatly contributed to this work.
Data have been collected by Bureau van Dijk Electronic Publishing GmbH under supervision by Mark Schwerzel, Petra Steiner, Annelies Lenaerts and Roberto Herrero Lorenzo.
Comments and inputs can be sent by email to: JRC-IPTS-IRI@ec.europa.eu
More information on Industrial Research and Innovation (IRIMA) is available at: http://iri.jrc.ec.europa.eu/ and http://ec.europa.eu/invest-in-research/index_en.htm

European Commission
Joint Research Centre
Institute for Prospective Technological Studies

Contact information
Héctor Hérnandez
Address: Joint Research Centre, IPTS, Edificio Expo, Calle Inca Garcilaso 3, E-41092 Seville, Spain
E-mail: forename.surname@ec.europa.eu
Tel.: +34 95 448 8292
Fax: +34 95 448 8326

http://ipts.jrc.ec.europa.eu/
http://www.jrc.ec.europa.eu/

This publication is a Technical Report by the Joint Research Centre of the European Commission.

JRC(forthcoming)

EUR (forthcoming) EN

ISBN (forthcoming) (pdf)
ISBN (forthcoming) (print)

ISSN (forthcoming) (print)
ISSN (forthcoming) online)

doi: (forthcoming)

Luxembourg: Publications Office of the European Union, 2012
printed in Spain

The 2012 EU Industrial R&D Investment SCOREBOARD

Table of Contents

Summary

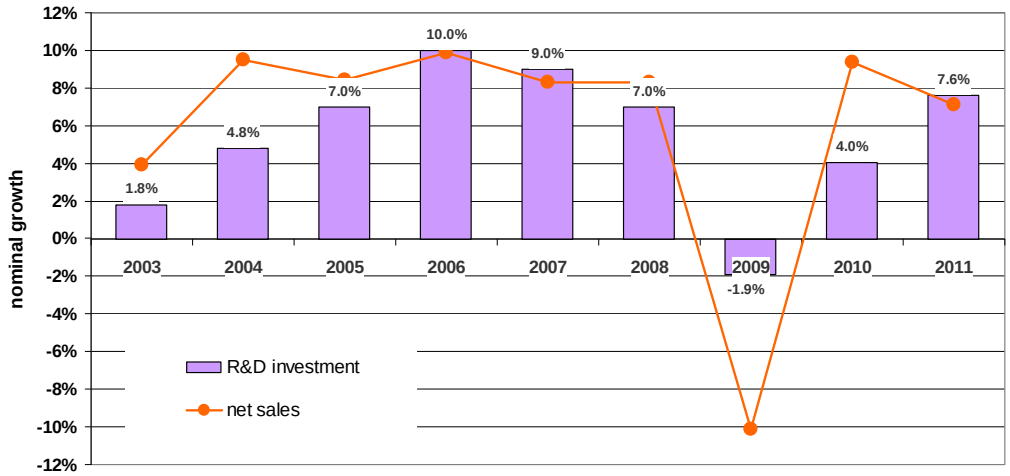
The 2012 "EU Industrial R&D Scoreboard" (the *Scoreboard*) contains economic and financial data of the world's top 1500 companies ranked by their investments in research and development (R&D). The sample consists of 405 companies based in the EU and 1095 companies based elsewhere. The *Scoreboard* data are drawn from the latest available company accounts, i.e. the fiscal year 2011[1].

Key messages

Performance of the world's top R&D investors regained pre-crisis levels in 2011

The 2011 overall growth figures for R&D investment (7.6%), sales (7.1%) and profits (9.7%) confirm the upward trend which started in 2010, following the 2008-2009 economic and financial world crisis (which led to a sharp drop of R&D and sales growth in 2009, see figure S.1). The 2011 figures do not capture the worsening of the general economic context in some regions during 2012.

Figure S1. One-year R&D investment and net sales growth of the *Scoreboard* companies



Note: The different Scoreboards are not directly comparable because of changes in the sample composition.

Source: The EU Industrial R&D Investment Scoreboards (of 2004-2012) European Commission, JRC/DG RTD.

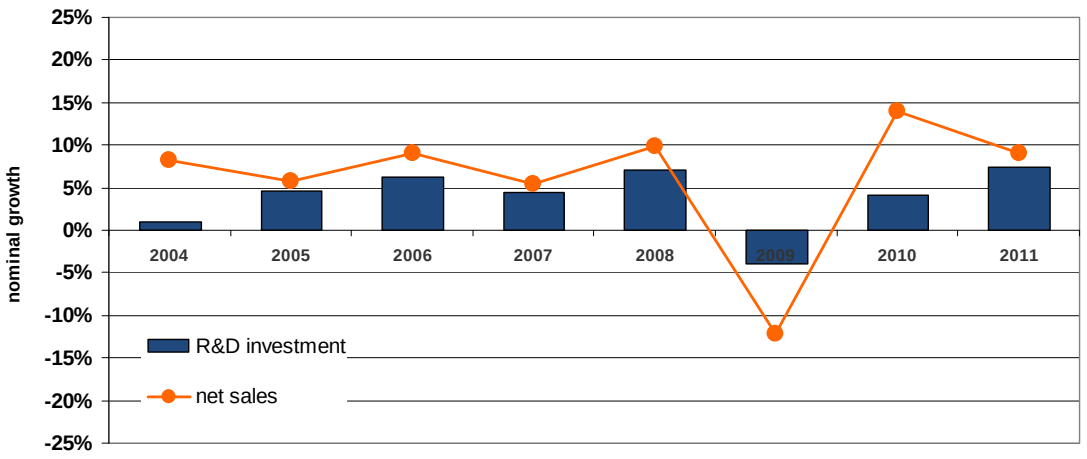
[1] However, due to differences in accounting practices, the sampling period includes a range of dates from 2010 to early 2012 (see annex 2 on methodological notes).

EU based companies increased R&D investments by 8.9%, above world average, similar than that of US companies, despite lagging behind in sales and profits growth.

EU based companies have substantially increased their total R&D investments (8.9% compared to 6.1% last year), on a par with the figures of their US based counterparts (9.0% compared to 10.0% last year). However US based companies continue to perform better than those based in the EU in terms of sales growth (12.3% versus 4.9% for EU firms) and profits growth (12.4% versus 3.5% for EU firms).

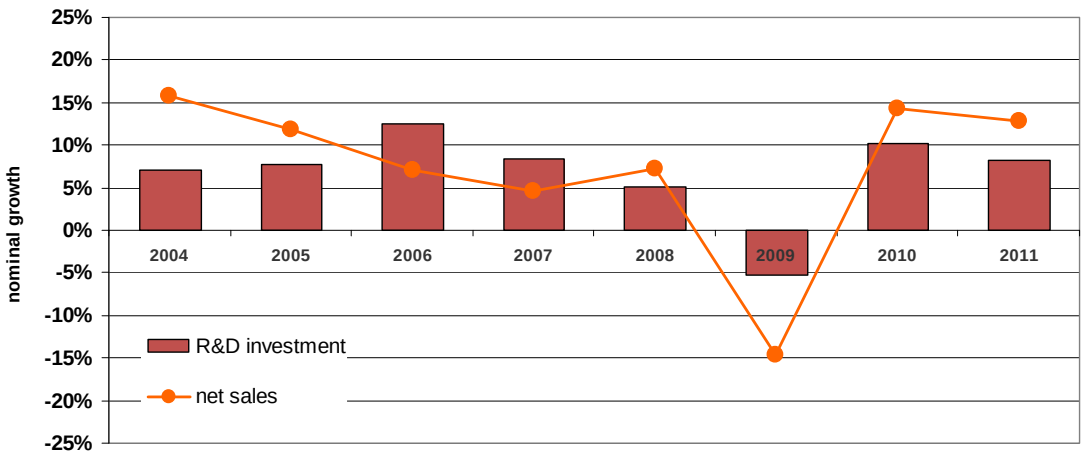
Companies based in other countries excluding Japan also show strong R&D investment growth of 11.3%. However, Japan continues to show much lower increases in R&D investments (1.7%) and in net sales (2.1%), which probably reflect the impact of the 2011 earthquake and other specific unfavorable economic circumstances, such as a strong yen.

Figure S.2. One-year R&D investment and net sales growth by EU companies



Note: for 248 EU out of the 1500 companies with R&D and net sales data for the whole period
Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

Figure S.3. One-year R&D investment and net sales growth by US companies



Note: for 358 US out of the 1500 companies with R&D and net sales data for the whole period
Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

Toyota Motor leads the R&D rankings in 2011, with Volkswagen climbing to third place from sixth last year. Companies in the ICT sector continue to show the largest R&D increases in the top ranks.

Japanese company Toyota Motor appears at the top of the ranking in the 2012 *Scoreboard* (the same as two years before). The top R&D investor based in the EU is Volkswagen, at number three in the world ranking and the only EU company in the top 10 (US has 5 companies, Switzerland 2 and South Korea 1). Pharma companies Roche, Pfizer and Merck (within the top 5 in 2010) slip down in the ranking but remain among the top 10. Most companies showing very large R&D increases among the top 100 are in the ICT sector (Huawei 48.5%, LG 47.8%, Google 37.2%, Apple 36.3%, STMicroelectronics 34.0%). But other companies in the top 100 showing R&D investment increases of 20% or above are from the Automobiles and Parts sectors, such as BMW (21.6%), Aisin Seiki (20.2%) and Delphi (87.8%), as well as the Industrial Engineering sector such as Caterpillar (20.6%) and the Electronics industry such as Mitsubishi Electric (27.0%).

As in 2010, R&D growth figures of the EU *Scoreboard* sample are to a large extent driven by the automobiles sector, with BMW (21.6%) and Renault (19.4%) leading the increases.

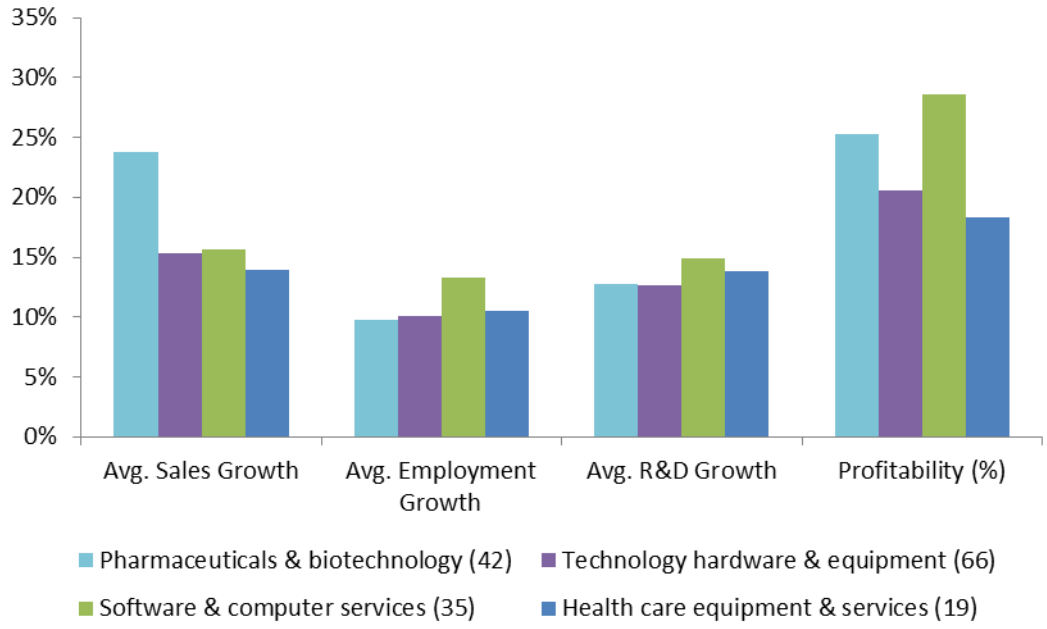
The high growth of R&D investment for EU based companies is driven by the very good performance of Germany (9.5%), which accounts for one third of the total R&D invested by EU *Scoreboard* companies. The UK and France are the other two countries home to a large proportion of companies and R&D investments. The UK showed an even higher R&D growth than Germany at 13.1% while, France also showed good growth at 7.6%. The sector showing the largest R&D investment increases in the EU is the Automobiles & Parts industry (16.2% versus 13.4% for its US counterpart). Other sectors with substantial weight in Europe, such as Pharma and Aerospace, also show R&D growth

rates above those of their US counterparts (5.8% versus 2.4% and 6% versus 1.1% respectively).

Companies showing high performance over the last decade (at least doubling sales) operate in the ICT and health related sectors, all of high R&D intensity.

An analysis of the main financial indicators over the last ten years of a sample of more than 900 top R&D investors shows that high-performance companies (in terms of sales, employment and R&D growth, as well as profitability) are concentrated in the ICT (semiconductors, software, telecom) and health (pharma, biotech, healthcare equipment) sectors. The highest average net sales growth between 2002 and 2011 corresponds to high performers operating in the pharma and biotech sector, but it is in the software & computer services sector where high performers show the highest levels of profitability (close to 30%).

Figure S.3: High-tech industries' performance indicators



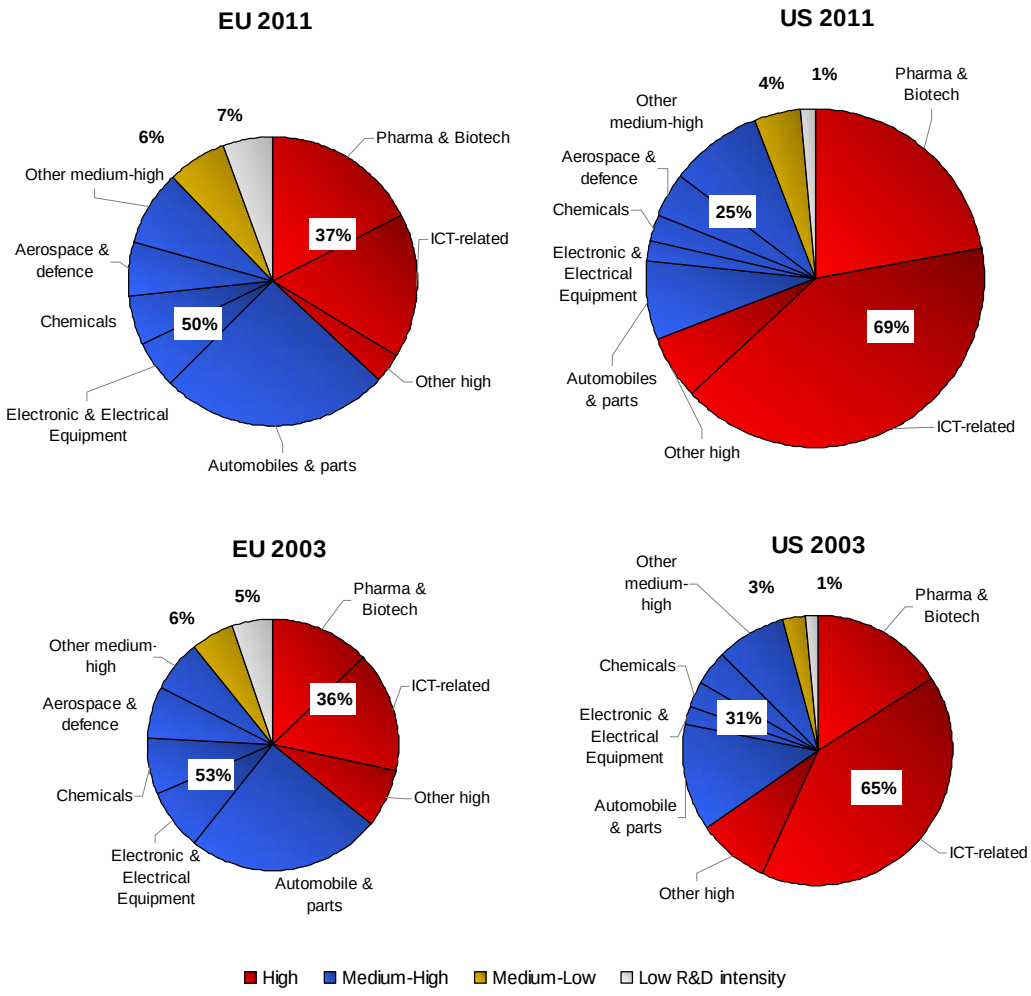
Source: The 2012EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.
Note: The figure reports averages of firms' annual growth rates in the respective sectors. Numbers in brackets refer to the number of firms in the respective sectors.

The US is strengthening its relative specialisation in these high R&D intensive sectors that account for the largest amounts of R&D and the largest numbers of high performers. No significant shift of structure towards these high R&D intensive sectors is observed in the EU-based *Scoreboard* companies over the last decade.

As shown in previous *Scoreboard* editions and as confirmed in this trend analysis of the last decade, health (pharma, biotech and medical equipment) and ICT are sectors in which US companies clearly outperform EU companies (in terms of the number of companies, R&D investment and net sales). Both company data sources and official territorial statistics

confirm that the origin of the EU-US R&D intensity gap comes from the different industrial specialisation patterns of these regions, with the US dominating in the high-tech sectors. The evidence shows that these specialisation differences are being reinforced over the years. This suggests that the business environment for the creation and growth of these high R&D intensity/high value added companies needs to be markedly improved.

Figure S.4 R&D investment by main world region and sector group



For a sample of 255 EU and 376 US companies for which R&D investment data is available for all years 2003-11. The area of the pies approximately corresponds to the respective total R&D investment amount.

Sectors are split into four groups according to the R&D intensity of the sector worldwide:

High R&D intensity sectors (R&D intensity above 5%) include e.g. Pharmaceuticals & biotechnology; Health care equipment & services; Technology hardware & equipment; Software & computer services.

Medium-high R&D intensity sectors (between 2% and 5%) include e.g. Electronics & electrical equipment; Automobiles & parts; Aerospace & defence; Industrial engineering & machinery; Chemicals; Personal goods; Household goods; General industrials; Support services.

Medium-low R&D intensity sectors (between 1% and 2%) include e.g. Food producers; Beverages; Travel & leisure; Media; Oil equipment; Electricity; Fixed line telecommunications.

Low R&D intensity sectors (less than 1%) include e.g. Oil & gas producers; Industrial metals; Construction & materials; Food & drug retailers; Transportation; Mining; Tobacco; Multi-utilities.

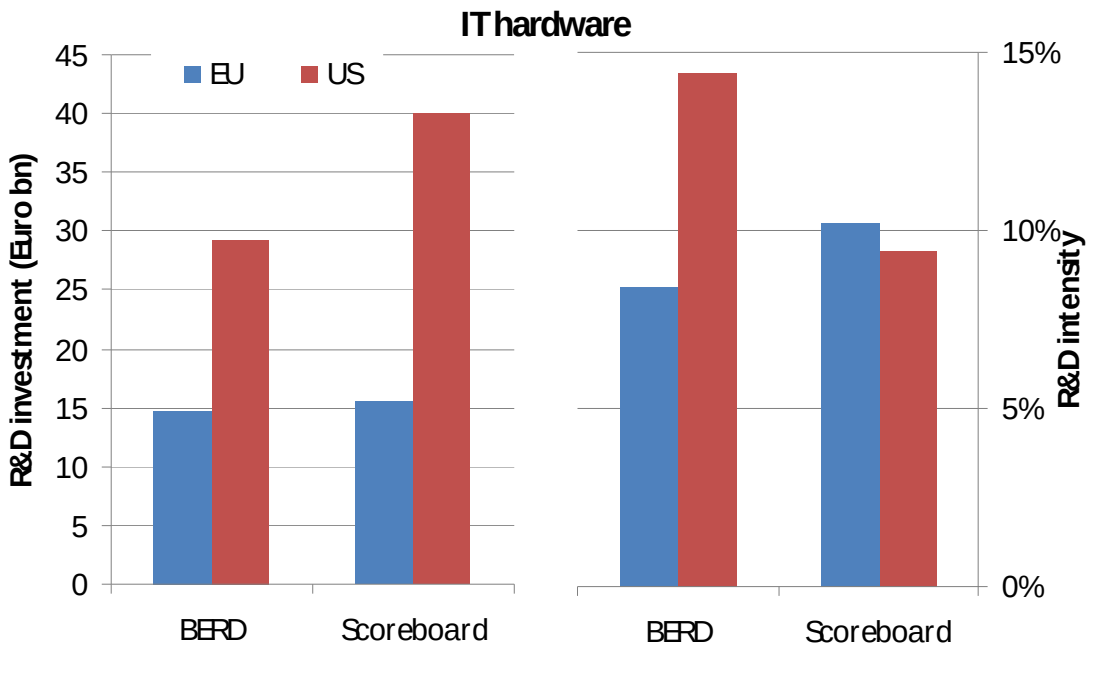
Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

Different delocalisation patterns of production and R&D in the two sectors accounting for most of the EU-US R&D intensity gap (ICT and health) raise different policy issues

A closer look at the origin of the R&D intensity gap in the main sectors concerned, namely, ICT and health, points to the importance played by the cross-border activities of individual companies (both in R&D and production/sales). Companies delocalise production and research facilities in different proportions which lead to substantial changes of the R&D intensity of source and destination countries and vary significantly from sector to sector. An important part of the EU-US R&D-intensity gap is due to a balance in favour of the US of the inward-outward research and production activities of subsidiaries of the multinational *Scoreboard* companies.

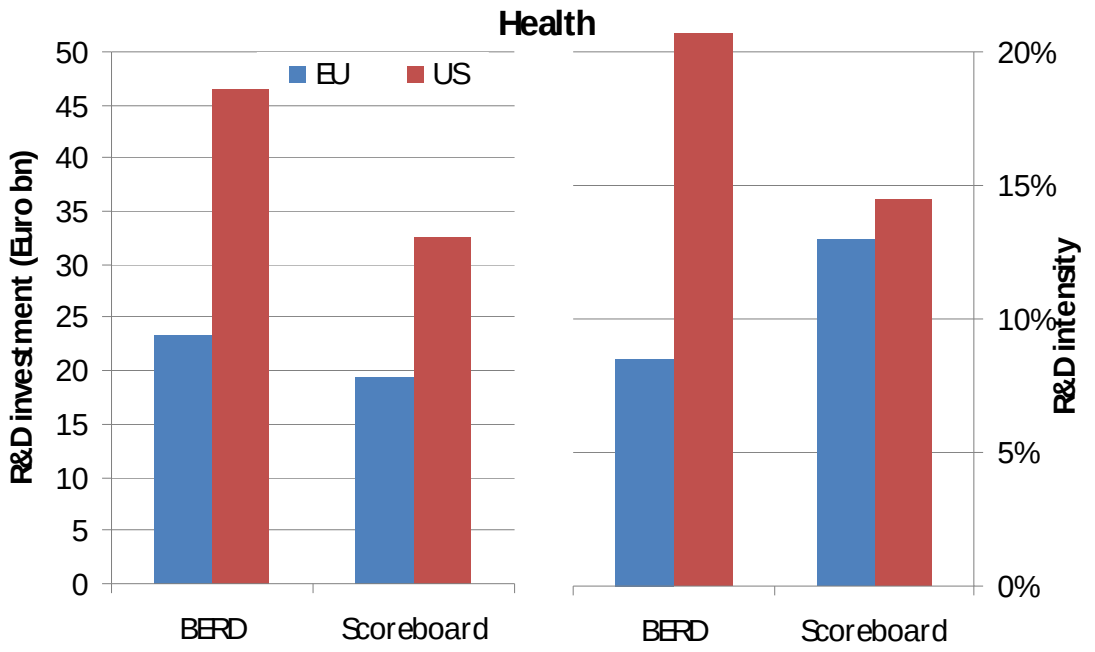
However further analysis is needed in order to look into the specificities of each sector. As shown in Figures S.5 and S.6 the situation in terms of R&D inflows and outflows in the US and in the EU for the IT-Hardware sector differs substantially from that observed in the Pharma. The evidence suggests that, while the US attracts considerable R&D from foreign companies in the Pharma and retains the great majority from their ICT companies, the EU needs to further increase its attractiveness as location for R&D FDI in both sectors.

Figure S.5 BERD vs. *Scoreboard* R&D investment and intensity in IT hardware



Source: The 2012 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

Figure S.6 BERD vs. *Scoreboard* R&D investment and intensity in health

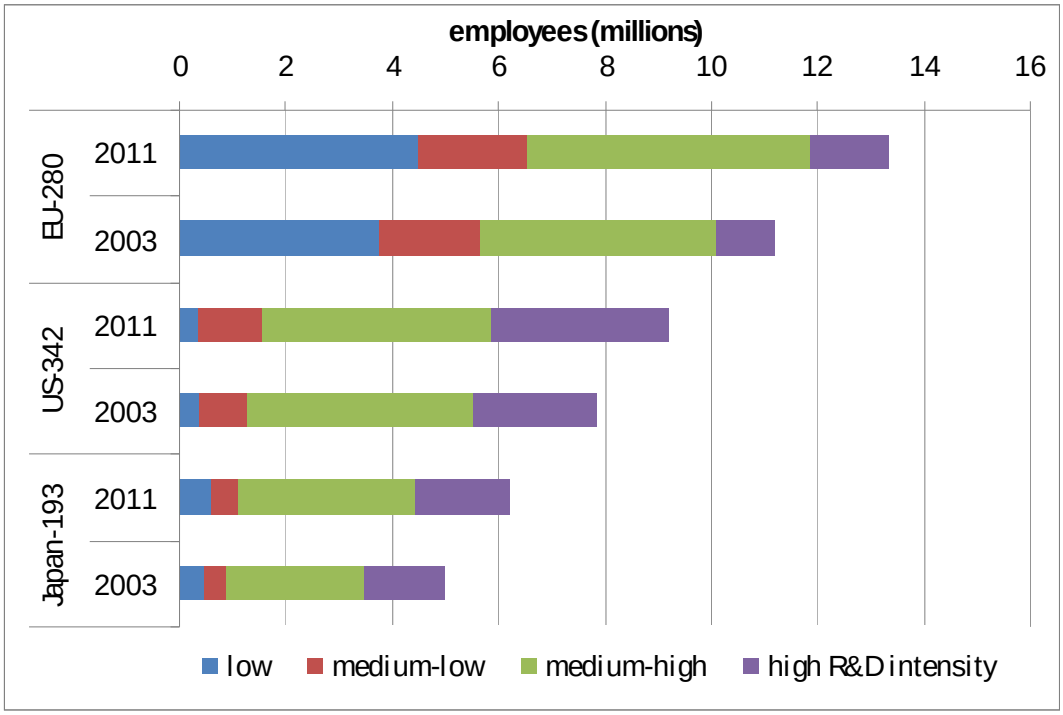


Source: The 2012 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

Overall employment figures of *Scoreboard* companies increased by 22.3% during the period 2003-2011, led by increases in high R&D-intensive sectors (36.1%).

The distribution of this overall positive trend of employment varies for the different sectors and regions as shown in figure S.7. The figures refer to a set of companies that reported number of employees over the whole period 2003-2011. While in the EU and the US samples, employment growth was stronger in high-tech sectors (38% and 30% respectively), the evolution in the medium-high and low R&D intensive sectors differs substantially: In the EU both the medium-high and the low ones increased employment (20% and 19%); in the US the medium-high remained almost unchanged (0.8%) and the low R&D intensive one decreased sharply (-18.4%). The decline of the US car industry is the main responsible for the former (mostly due to Ford Motor and General Motors that account for 40% of the total employees by the US companies in that sector).

Figure S.7. Employment trends by the *Scoreboard* companies for main world regions.



Note: For 815 out of the top EU, US and Japanese companies in the 2012 Scoreboard that reported employment data for the whole period 2003-11.

Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

Introduction

In 2012, we started implementing changes in the "EU Industrial R&D Investment Scoreboard" (the *Scoreboard*)[2] aiming to enhance its capacity to monitor and analyse worldwide trends of industrial R&D. For background information on the *Scoreboard* please see Annex 1.

The scope of the *Scoreboard* will be improved progressively, increasing the geographic and time coverage and the number of companies. The target is to cover the world's top 2500 R&D investors so that further faster growing middle-sized companies can be captured, particularly those in key sectors such as health and the ICT-related industries.

Thus far, the total R&D investment of companies included in the *Scoreboard* is equivalent to almost 90% of the total expenditure on R&D by businesses worldwide[3].

In this year's edition, the *Scoreboard* includes the **1500 companies investing the largest sums in R&D in the world** while maintaining an EU focus by complementing this coverage including the **top 1000 R&D investing companies based in the EU**[4].

The *Scoreboard* collects key information to enable the R&D and economic performance of companies to be assessed. The main indicators, namely R&D investment, net sales, capital expenditures, operating profits and number of employees are collected following the same methodologies, definitions and assumptions applied in previous years. This ensures comparability so that the companies' economic and financial data can be analysed over a longer period of time.

Data are now being collected by a new provider (Bureau van Dijk Electronic Publishing GmbH). The approach for collecting the *Scoreboard* data is basically the same as the one followed in previous editions. Please see the main methodological limitations summarised in Box 1 and the detailed methodological notes in annex 2.

The capacity of data collection is further improved by gathering information about the ownership structure of the parent companies and the main indicators for their subsidiaries. This will allow a better characterisation of companies, in particular regarding the sectoral and geographic distribution of their research and production activities and the related patterns of growth and employment.

Companies' behaviour and performance can be analysed over longer time periods using our history database that contains information on the top R&D companies for the last 10 years. This will enable benchmarking analyses of companies to be carried out across sectors and countries, for example to identify companies showing outstanding economic or innovation results and to analyse the main factors underlying such successful dynamics.

In this year's edition of the *Scoreboard*, companies' R&D rankings are based on information taken from the companies' latest published accounts. For most companies these correspond to calendar year 2011, but a significant proportion have financial years ending on 31 March 2012. There are few companies included with financial years ending as late as end June 2012 and a few for which only accounts to end 2010 were available.

This report concentrates on the analysis of the world's top 1500 companies that all invested more than about €35 million in R&D in 2011. The sample comprises companies based in the EU (405), the US (503), Japan (296) and other countries (296) including Switzerland, Taiwan, South Korea, China, India, Canada, Norway, Australia and a further 20 countries. A sample consisting of the top 1000 R&D investing

[2] The EU Industrial R&D Investment Scoreboard is published annually by the European Commission (JRC-IPTS/DG RTD) as part of its Industrial Research and Innovation Monitoring and Analysis activity (IRIMA). Company data were collected.

[3] According to latest figures reported by Eurostat, i.e. BERD financed by the business enterprise sector in 2008 compared with R&D figures in the 2009 Scoreboard.

[4] In this report, the term EU company refers to companies whose ultimate parent has its registered office in a Member State of the EU. Likewise, non-EU company applies when the ultimate parent company is located outside the EU (see also the glossary and definitions in Annex 2 as well as the handling of parent companies and subsidiaries).

companies based in the EU is analysed separately in chapter 6; these all have R&D investment exceeding €3.8 million.

The characteristics of the sample of 1500 companies used for most of the analysis are summarised in Table 1.

The sector and country composition of the EU 1000 sample is found in annex 3.

In this reporting period, companies continued to face adverse market conditions due to the persistent effects of the global economic and financial crisis. These included difficulties in accessing finance because of the effects of the crisis on banks and reduced demand in countries struggling to reduce their debt burden. Nevertheless, this year's *Scoreboard* shows companies, investments in R&D continuing to grow at a significant pace. However, as shown throughout the report, companies' patterns of investment and performance vary greatly across industrial sectors and between countries.

Report structure

Chapter 1 presents the overall worldwide trends of industrial R&D. It provides an overview of main indicators of the top 1500 companies ranked by level of R&D investment and the main changes that took place over the last year. The performance of companies over the period 2003-2011 is compared, looking at how the different world regions are recovering from the financial crisis.

The performance of individual companies among the top R&D investors is provided in chapter 2. The list of the world top 100 R&D companies is examined highlighting those companies showing remarkable R&D and economic results and improvement in the R&D ranking over the last 10 years.

Chapter 3 presents an analysis of companies in the middle and low part of the R&D ranking using the *Scoreboard* history data. The objective is to identify companies that have shown outstanding trajectories in terms of sales and employment growth over the last ten years.

Chapters 4 and 5 analyse the main indicators of the company data aggregated by world regions and industrial sectors respectively, with comparisons between the EU companies and their main competitors.

Chapter 6 discusses the trends on R&D and economic performance of the companies included in the extended sample consisting of the top 1000 R&D investors based in Member States of the EU.

Finally, chapter 7 presents an analysis of the difference of business R&D intensity between the EU and the US using national statistics and *Scoreboard* company data. The objective is to show industrial sectors accounting for the largest part of the EU-US R&D intensity difference and to underline the importance of taking into account companies' cross-border activities.

Annex 1 provides background and methodological information about how the *Scoreboard* is prepared. The methodological approach of the *Scoreboard*, its scope and the limitations are described in Annex 2 and the listing of companies ranked by their level of R&D investment provided in Annex 3.

The complete data set is freely accessible online at: http://iri.jrc.ec.europa.eu/.

Our website is going to be adapted to allow a user-friendly and interactive access to the individual company data or groups of companies aggregated by industrial sector and country.

Table 1. Profile of the 2012 *Scoreboard* .	
Sample of 1500 companies with R&D investment above €34.9 million	
405 companies based in the EU	
Companies by country	DE 108; UK 81; FR 58; SE 26; NL 24; IT 22; DK 21; FI 14; ES 14; BE 12; EI 8; AU 7; PO 4; LU 4; SI 1; CZ 1;
The most numerous sectors	Pharmaceuticals & Biotechnology 36; Industrial Engineering 35; Software & Computer Services 29; Automobiles & Parts 28; Electronic & Electrical Equipment 24; Chemicals 20; Aerospace & Defence 16
1095 companies based in non-EU countries	
Companies by country	US 503; Japan 296; China 56; Taiwan 47; Switzerland 40; South Korea 35; Cayman Islands 22; India 15; Australia 12, Canada 11, Brazil 7 and further 19 countries.
The most numerous sectors	Technology Hardware & Equipment 194; Pharmaceuticals & Biotechnology 119; Electronic & Electrical Equipment 96; Software & Computer Services 92; Industrial Engineering 79; Automobiles & Parts 72; Chemicals 72; Aerospace & Defence 28

Source: The 2012 EU Industrial R&D Investment Scoreboard. European Commission, JRC/DG RTD.

Box 1. Methodological caveats

The methodological limitations of the *Scoreboard* are basically the same as in previous editions. Users of the data should take into account these limitations, especially when performing comparative analyses (full description of methodology is found in Annex 2):

A typical problem arises when comparing data from different currency areas. The *Scoreboard* data are nominal and expressed in Euros with all foreign currencies converted at the exchange rate of the year-end closing date (31.12.2011). The variation in the exchange rates from the previous year directly affects the ranking of companies, favouring those based in countries whose currency has appreciated with respect to the other currencies. In this reporting period, exchange rates of the Euro against main currencies changed less than in past years. The Euro has depreciated against the US dollar, Japanese Yen and pound sterling by 3.5%, 7.5% and 2.3% respectively.

The growth rate of the different indicators for companies operating in markets with different currencies is affected in a different manner. In fact, companies' consolidated accounts have to include the benefits and/or losses due to the appreciation and/or depreciation of their investments abroad. The result is an 'apparent' rate of growth of the given indicator that understates or overstates the actual rate of change. For example, this year the R&D growth rate of companies based in the Euro area with R&D investments in Japan is partly overstated because the 'benefits' of their overseas investments due to the depreciation of the Euro against the Japanese yen (from ¥108.8 to ¥100.6). Conversely, the R&D growth rate of Japanese companies is partly understated due to the 'losses' of their investments in the Euro area. Similar effects of understating or overstating figures would happen for other indicators, mainly for net sales.

The different editions of the *Scoreboard* are not directly comparable because of the year-on-year change in the composition of the sample of companies, i.e. due to newcomers and leavers. Every *Scoreboard* comprises data of several financial years allowing analysis of trends for the same sample of companies.

In most cases, the companies' accounts do not include information on the place where R&D is actually performed; consequently the approach taken in the *Scoreboard* is to attribute each company's total R&D investment to the country in which the company has its registered office. This should be borne in mind when interpreting the *Scoreboard*'s country classification and analyses.

Growth in R&D can either be organic, the outcome of acquisitions or a combination of the two. Consequently, mergers and acquisitions may sometimes underlie sudden changes in specific companies' R&D growth rates and/or positions in the rankings.

Other important factors to take into account include the difference in the various countries' (or sectors') business cycles which may have a significant impact on companies' investment decisions, and the initial adoption or stricter application of the International Financial Reporting Standards (IFRS)[5].

[5] Since 2005, the European Union requires all listed companies in the EU to prepare their consolidated financial statements according to IFRS (see: EC Regulation No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002R1606:EN:HTML).

1. Overall trends in corporate R&D

This chapter provides an overview of changes in the main indicators of the 1500 companies that invested more than €35 millions in R&D in 2011. Questions addressed include how companies are recovering from the financial crisis in terms of R&D, net sales and profits and how companies' behaviour compares across world regions.

In last year's *Scoreboard*, companies showed significant signs of recovery after the negative results of previous years due to the global economic and financial crisis that began in 2008.

This edition shows that companies continued to increase their R&D investments at a significant pace in 2011. This is especially important considering that in this period companies continued to face adverse market conditions and uncertainties due to the persistent effects of the crisis, in particular regarding the access to financing and reduction of demand in many countries.

On the other hand, as shown throughout this report, companies' patterns of investment and economic results greatly differ by type of company, industry and country.

Indicators' change over the last year

The main economic and financial indicators for the year 2011 for the set of 1500 companies are summarised in Table 1.1.

Following the signs of recovery shown in the previous edition, this year's *Scoreboard* shows a continuation of the up-ward trend in worldwide R&D investment. In 2011, the 1500 *Scoreboard* companies invested €510.7 billion in R&D, 7.6% more than in 2010, compared with an increase of 4.0% in the year before. Three out of four companies showed positive R&D growth in 2011.

However, the recovery was much less pronounced in Japan which suffered from several country-specific problems. The major one was the Japanese earthquake and associated nuclear power station disaster. But the Thai floods which affected many Japanese owned factories and the strong Yen also impacted Japanese companies. It is noticeable that 52% of the 25 Japanese companies in the top 100 had reduced sales in 2011 compared to only 18.7% of the non-Japanese companies. For this reason the EU/US comparison will be the main focus in later chapters.

The net sales of the 1500 companies increased at similar rate than R&D, 7.1%, less than the net sales increase of 9.6% in 2010. Operating profits increased by 9.7% compared with the 46% increase in the previous year.

Companies' investment in fixed capital recovered significantly (11.3%) after two consecutive years of decline (1.2% the previous year and 7.8% in the year before). The capital expenditure as percentage of net sales increased slightly from 6.5% in 2010 to 6.6% in 2011.

Table 1.1. Overall performance of the 1500 companies in the 2012 *Scoreboard.*	
Factor	***World-1500***
R&D investment, € bn *One-year change, %* *CAGR[6] 3yr, %*	510.7 7.6 3.1
Net Sales, € bn *One-year change, %* *CAGR 3yr, %*	15712.7 7.1 2.3
R&D intensity, %	3.3
Operating profits, € bn *One-year change , %* *Profitability, %*	1698.9 9.7 10.8
Capex[7], € bn Capex / net sales, % *One-year change , %*	893.1 6.6 11.3
Note: Calculation of growth rates and ratios include only companies for which data are fully available. *Source: The 2012 EU Industrial R&D Investment Scoreboard. European Commission, JRC/DG RTD.*	

Long-term performance of companies by world region

The annual growth rates of R&D investment and net sales and profitability of companies based in the EU, the US and Japan is provided respectively in figures 1.1, 1.2 and 1.3 for the period 2003-2011. These figures are based on our history database comprising R&D and economic indicators over the whole 2003-2011 period for 1017 companies (EU 248, US 358 and Japan 241).

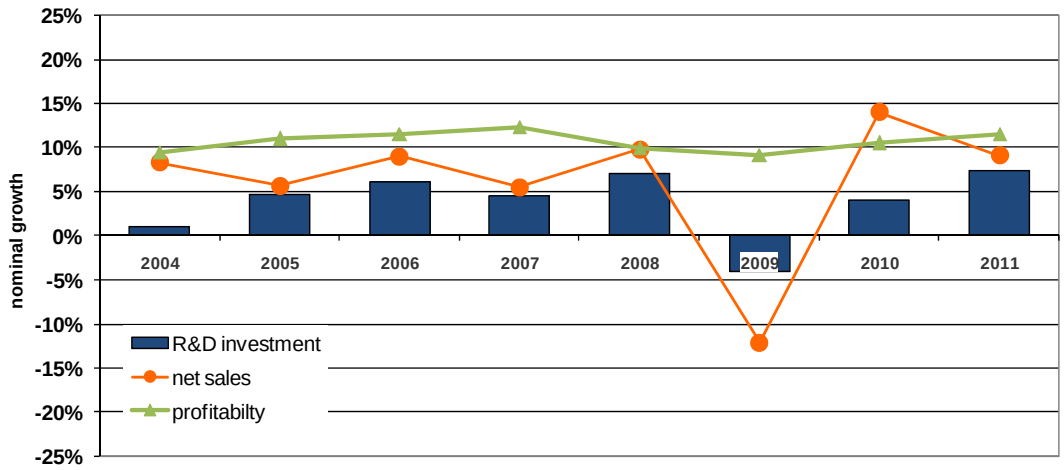
The trends observed in these figures show the behaviour of these companies including the effects of the crisis that began in 2008. The following points are observed:

- In terms of R&D growth, companies based in the EU and the US seem to have recovered to the levels prior to the crisis, whereas Japanese companies lag behind, probably because of special adverse factors such as the earthquake.
- The growth rate of net sales for companies based in the EU and the US was hit hard by the crisis in 2008-2009 but recovered strongly in 2010-2011 with the US companies outperforming the EU ones over the last year. Net sales of companies from Japan were somewhat less affected by the crisis in 2008-2009 but show a slow recovery in the past two years.

[6] Compound annual growth rate.
[7] Fixed capital investment

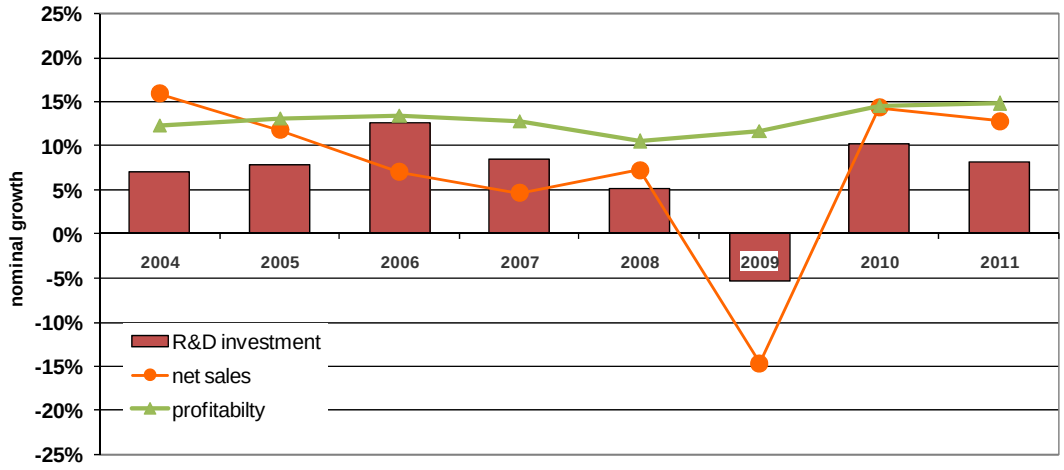
- Performance in terms of profitability show that US companies recover more rapidly from the crisis and have higher levels of profitability than EU and Japanese companies.

Figure 1.1. One-year R&D investment and net sales growth by the EU companies.



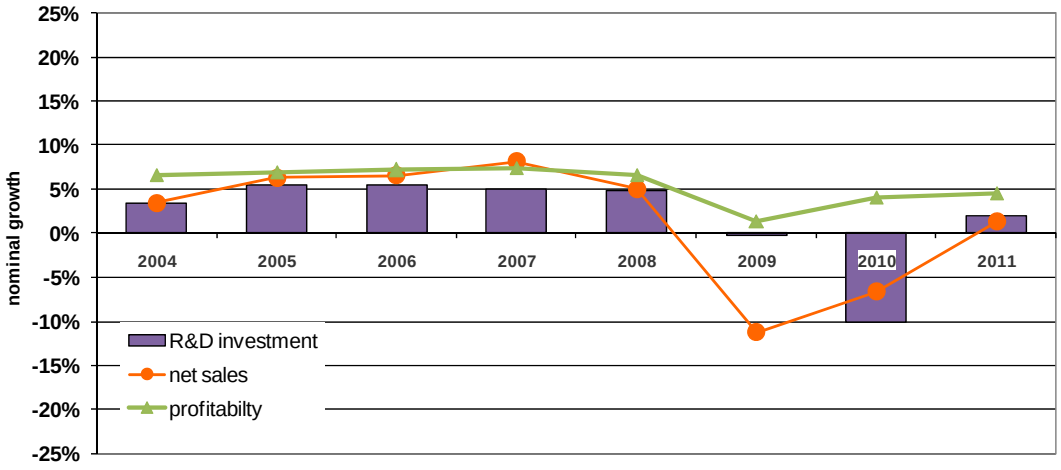
Note: for 248 EU out of the 1500 companies with R&D and net sales data for the whole period
Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

Figure 1.2. One-year R&D investment and net sales growth by the US companies.



Note: for 358 US out of the 1500 companies with R&D and net sales data for the whole period
Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

Figure 1.3. One-year R&D investment and net sales growth by the Japanese companies.



Note: for 241Japanese out of the 1500 companies with R&D and net sales data for the whole period
Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

2. Top R&D investing companies

This chapter describes the performance of individual companies, with a focus on the results of the top 100 R&D investors. These companies are analysed, highlighting those presenting important changes from the previous year and those showing the best performance in terms of R&D and economic growth.

The group of top 100 R&D investors includes major industrial players in key sectors such as IT hardware & software, pharmaceuticals and automobiles & parts. Sector-specific market trends explain to a large extent changes observed in the *Scoreboard* indicators for these companies. Examples of such driving factors for those sectors are described in Box 2.1

This year's R&D ranking of the top 50 companies is presented in figure 2.1 and table 2.1 shows changes in the top 50 ranking since the first *Scoreboard* in 2004.

Key findings

- The top R&D investor is the Japanese company Toyota Motor, which was in 4th place last year and in 1st place in the year before. Volkswagen in the 3rd place remains the leading EU firm in terms of R&D investments. Five of the other companies in the top-ten are from the US, plus two from Switzerland and one from South Korea.
- Results of the top 100 companies, accounting for 57.2 % of the total R&D investment by the 1500 companies, confirm the strong recovery of industrial R&D investment. Of these 100 companies, 75 increased R&D investment (vs 68 in 2010), including 43 companies with double-digit R&D growth; 71 companies reported an increase in sales (vs 70 in 2009), including 34 companies with double-digit sales growth.
- The top 100 group includes 29 EU companies of which 22 have increased R&D (3 by over 20%), 34 US companies of which 27 increased R&D (7 by over 20%), 25 from Japan of which 13 increased R&D (2 over 20%) and 12 from other countries of which 8 increased R&D (3 over 20%). The companies showing the largest increase in R&D are Vale, Brazil (96.6 %), AstraZeneca, UK (72.8 %), Petroleo Brasiliero (67.9 %) and Huawei,China (48.4 %); those showing the largest decrease in R&D are NEC, Japan (-41.3 %), Eisai, Japan (-30.1 %), Nestle, Switzerland (-23.0 %) and Hyundai Motor, South Korea (-14.3 %).
- Among the top 100 group, 21 companies have at least doubled their net sales over the past 10 years. These companies are mainly from high R&D-intensive sectors (14) and are mostly based in the US (13) and in the EU (5). In this group of high-performance companies, 12 of them have grown R&D since 2004 so to reach the group of top 100 R&D investors (8 US companies and 2 EU companies).

General trends

In the 2012 *Scoreboard* 110 companies have an R&D investment of more than € 1 bn (33 from the EU) while 51 have R&D exceeding € 2 bn (15 from the EU).

The top 10 companies each invested more than € 5 bn in R&D and account for 13.5 % of the total R&D investment by the 1500 *Scoreboard* companies, a similar proportion to last year, and somewhat less than in 2004[8] (16%).

[8] The 2004 Scoreboard contained fewer companies, however.

This year, the top R&D investor is the Japanese company Toyota Motor (€ 7.75 bn) which was fourth in last year's edition but number one in 2010's. The largest EU firm in terms of R&D investment is Volkswagen (€ 7.20 bn) now in world's 3rd position. There are five US companies in the top ten: Microsoft (€ 7.58 bn), Pfizer (€ 6.81 bn), General Motors (€ 6.28 bn) and Merck US (€ 6.09 bn). The other companies in the top ten are Novartis (€ 7.0 bn) from Switzerland, Samsung Electronics (€ 6.86 bn) from South Korea and Roche (€ 6.78 bn) from Switzerland.

The top 100 companies invested € 291.59 billion, accounting for 57.2% of the total R&D investment by the 1500 *Scoreboard* companies. The EU has 29 companies among the top 100 R&D investors, the same it had in the 2011 *Scoreboard*. The US has 34 companies, one fewer than it had last year (Biogen Idec). Japan has 25 companies, the same as in last year's Scoreboard.

Seventy-five companies in the top 100 have shown positive R&D investment growth. Among them, 43 companies had double-digit R&D growth, and of these, 26 companies also showed double-digit growth in net sales.

Most of the top 100 companies showing the largest R&D increases are in the ICT sectors, e.g. Huawei (48.4%), LG (47.8%), Google (37.2 %), Apple (36.3%) and STMicroelectronics (34.5 %). Companies from the Automobiles & parts sector also achieved remarkable results, e.g. BMW (21.6%), Aisin Seiki (20.2 %), Delphi (87.9%), Renault (19.4%).

Other companies among the top 100 group have shown double-digit R&D and net sales growth, e.g. Vale and Petroleo Brasileiro from Brazil; Intel, Monsanto and Caterpillar and Qualcomm from the US.

Twenty-four companies in the top 100 have decreases R&D investments. Among these, four companies decreased R&D investments and net sales by more than 10 %: NEC and Eisai from Japan (-41.3 % and -30.1 % respectively), Nestle from Switzerland (-23.0 %) and Hyundai Motor from South Korea (-14.3 %).

The R&D intensity of companies in the top 100 has increased slightly due to higher rate of increase for R&D (8.1 %) than for net sales (5.7 %). The EU companies in the top 100 have a higher average R&D intensity (7.0 %) than that of non-EU companies (6.3 %).

The EU companies in the top 100 are mainly from the Automobile & Parts (11), Pharmaceuticals & Biotechnology (7) and ICT-related sectors (6), whereas the non-EU companies are mainly from ICT-related sectors (28), Pharmaceuticals & Biotechnology (15), and Automobile & Parts sectors (8).

Box 2.1. Specific market conditions for key industries

In many cases sector-specific factors explain why certain companies are going up while others are falling down or struggling to stay where they are. Examples where the top 50 R&D investors are involved are as follows:

Smartphone market. Mobile phones were originally an EU-led market with Nokia and Ericsson leading the way and Nokia for many years having the largest global market share. Research in Motion (RIM) with its email capable Blackberry was probably the first company to produce something resembling a smartphone that sold in large numbers. The big change has been that these three companies have all lost ground to new players, namely Apple and Google/Samsung. What seems to have happened is that hardware has ceased to be the key factor and software (Android vs. iOS) has become the key differentiator. Google and Apple are better at software. Note that several of the top 50 risers are software companies – Oracle, Google, Microsoft and part of Qualcomm. The latest global market share figures for smartphone operating systems are Google/Android 75%, Apple/iOS 14.9%, RIM/Blackberry 4.3%, Nokia/Symbian 2.3%, Microsoft 2%, Linux the rest (according to the analyst firm IDC, results for the third quarter of 2012).

The other side of the coin is that some of the more traditional electronics, computing, telecoms companies are finding life more difficult – Sony, Ericsson, Nokia, Toshiba, NTT, HP, Alcatel-Lucent, Fujitsu being examples. Intel is trying to compete with ARM on low power processors for mobiles and smartphones since it sees smartphones and tablets growing much faster than its traditional PC market. HP's PC operations are suffering for the same reason.

Pharma market. The top 50 big pharmaceutical companies are suffering from the problem of blockbuster drugs coming off patent while at the same time it is getting harder for their R&D departments to come up with new blockbusters. This had led to three trends;

- A lot of M&A activity with many of the top 50 risers from 2004-12 rising because of major acquisitions – Pfizer is a classic example (and has also suffered from Lipitor, the world's best selling drug, coming off patent in late 2011).
- The growing importance of generic drugs – at least one Big Pharma company Novartis - foresaw the growing importance of this and has built a large generics arm, Sandoz, the second largest generics company in the world.
- The growing importance of biotech companies, which Big Pharma has been using to refresh its pipelines both by acquisition and in-licensing of biotech's later stage drugs. The US has developed the world's largest biotech sector but there are a number of excellent EU biotech companies too.

Car market. Automotive R&D is driven by stricter standards on vehicle emissions and fuel consumption; product differentiation to meet customer satisfaction and cost reduction due to tougher worldwide competition including the emergence and growth of new Asian manufacturers. Consolidation has been necessary to preserve industry profitability, i.e. an automotive company to succeed needs to be large to cope with high model development and launch costs and to get keen supplier prices or to be a smaller niche specialist in higher priced cars. Companies in this sector have been hit hard by the economic crisis in terms of sales, market capitalisation and particularly operating profit. However, under this pressure, automakers seem more reluctant to reduce R&D investment levels than capital. Indeed, in this year's *Scoreboard* top players in this industry show a substantial increase of R&D. Automotive suppliers like Robert Bosch, Continental and Johnson Matthey also show double digit increases in R&D.

R&D changes driven by Mergers and Acquisitions (M&As)

The growth in R&D investment may either be organic or driven by M&As, or it may be a combination of the two. M&As (or demergers) may take place within or between regions/sectors and can significantly impact the ranking of companies in the *Scoreboard*. While acquisitions are not systematically captured in this report, some examples that had a significant effect on companies in the top positions are provided in table 3 below. On the other hand, it is also important to remark companies that showed significant R&D growth in 2011 without being involved in recent mergers and acquisitions. This is the case of Huawei, LG, BMW and AstraZeneca.

Table 2.1. Merger and acquisition activity involving *Scoreboard* companies.

Company (R&D in 2011, € m)	*World rank*	*Recent operations*
Toyota (€ 7.75 bn)	1	Acquired Kanto Auto Works and Toyota Auto Body
Microsoft (€ 7.58 bn)	2	Acquired Skype; Videosurf; Twisted Pixel and Prodiance
Volkswagen(€ 7.20 bn)	3	Acquired MAN SE; Porsche Holding Salzburg's automobile trading business
Novartis (€ 7.0 bn)	4	Took majority stake in Zhejiang Tianyuan Biotech and gained full control of Alcon
Samsung Electronics (€ 6.86 bn)	5	Acquired Grandis and Samsung Gwangju Electronics and cut stake in Samsung Techwin
Pfizer (€ 6.81 bn)	6	Acquired Excaliard Pharmaceuticals, King Pharmaceuticals, Icagen and Ferrosan's customer health care business
Roche (€ 6.78 bn)	7	Acquired Anadys Pharmaceuticals
Panasonic (€ 5.17 bn)	13	Acquired the business of Starling Advanced Communications, Sanyo Electric and Panasonic Electric Works. Sold Xiangnan Energy to Hunan Corun New Energy Panasonic
Sanofi (€4.79 bn)	16	Acquired Genzyme, completed acquisition of BMP Sunston and sold dermatology business to Valeant
Google (€ 3.99 bn)	26	Completed acquisition of ITA Software. Acquired eBook Technologies SayNow, BeatThatQuote.com, zynamics, Pushlife, ITA Software, Talkbin, Brandenburg solarpark, PostRank, Clever Sense, Apture Katango, SocialGrapple, DailyDeal, Zagat, The DealMap, PittPatt, Punchd Labs and SageTV. Google acquired Motorola Mobility in May 2012, primarily for its patent portfolio.

Source: The 2012 EU Industrial R&D Investment Scoreboard.
European Commission, JRC/DG RTD.

Long-term performance of top R&D companies

This section analyses the behaviour of the top companies over the last 10 years based on our history database containing company data for the period 2002-2011. Results of companies showing outstanding R&D and economic results are underlined.

Ranking of top 50

Table 4 shows the evolution of the R&D rankings of the top 50 companies since the first *Scoreboard* in 2004) and most important changes are highlighted. It is important to note, as stated in the previous section and in past reports, that the growth of companies is often accompanied by mergers and acquisitions.

There are 15 EU companies (18 in 2004) and 35 non-EU companies (32 in 2004). In the EU group, four companies left the top 50 (Philips, Istituto Finanziario Industriale, Renault and BAE Systems) and one company joined the top 50 (Boehringer Ingelheim). In the non-EU group, seven companies left the top 50 (Matsushita Electric, NEC, Motorola, Nortel Networks, Wyeth, Delphi and Sun Microsystems) and ten companies joined the top 50 (Panasonic, Oracle, Boeing, Google, Abbott Laboratories, Takeda Pharmaceuticals, Denso, Hewlett-Packard, LG and Qualcomm).

The EU companies that improved by at least 10 ranks are Boehringer Ingelheim (now ranked 46th) and Sanofi (now 16th). The latter was created after 2004 and is an example of R&D growth driven by M&As.

There are 15 non-EU companies that gained more than 10 ranks. They include Google, up more than 200 places (now 26th), Panasonic, up 134 (now 13th), Qualcomm, up 87 (now 50th), Huawei, up more than 50 (now 41st), Oracle, up 40 (now 27th).

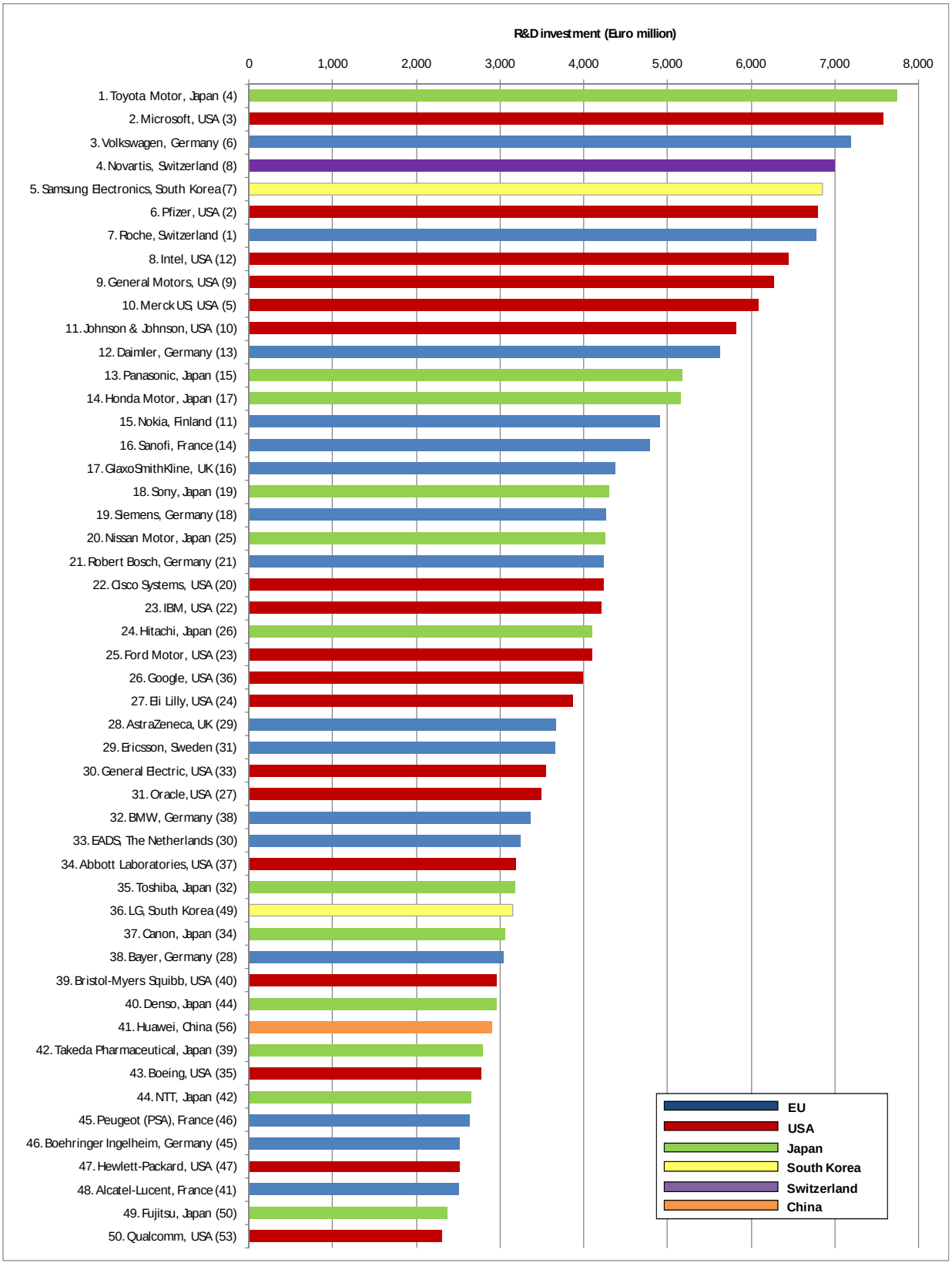
Companies which dropped ten or more ranks but remained within the top 50 are, among others, Siemens (now 19th), IBM (now 23rd), Ford Motor (now 25th), Ericsson (now 29th), NTT (now 44th), Hewlett-Packard (now 47th), and Fujitsu (now 49th).

High-performance companies among the top 100

Twenty one companies have at least doubled their net sales over the past ten years (see Chapter 3 on high-performance companies). Among these companies, 13 are based in the US, 5 in the EU and 3 in the rest of the world. Most of these companies (14) operate in high R&D intensive sectors.

Twelve out of these twenty one companies entered the list of the top 100 R&D investors in the period, rising from lower rankings in 2003. The largest proportion of these companies are based in the US, 8 out of 12 companies, with the remaining 4 companies based two each in the EU and the rest of the world (see table 2.3).

Figure 2.1. The world's top 50 companies by their total R&D investment in the 2012 Scoreboard



Note: The number in brackets after the names of the companies indicates the rankings in the 2004 Scoreboard.
Source: The 2012 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

Table 2.2. R&D ranking of the top 50 companies in the 2004 and 2012 *Scoreboards*.

Rank in 2011	Company	Rank change 2004-2012
1	Toyota Motor	up 4
2	Microsoft	up 11
3	Volkswagen	up 5
4	Novartis	up 16
5	Samsung Electronics	up 28
6	Pfizer	down 4
7	Roche	up 11
8	Intel	up 6
9	General Motors	down 3
10	Merck US	up 19
11	Johnson & Johnson	up 1
12	Daimler	down 9
13	Panasonic	up 134
14	Honda Motor	up 2
15	Nokia	down 5
16	Sanofi	up 39
17	GlaxoSmithKline	down 6
18	Sony	down 3
19	Siemens	down 15
20	Nissan Motor	up 14
21	Robert Bosch	up 5
22	Cisco Systems	up 9
23	IBM	down 14
24	Hitachi	nil
25	Ford Motor	down 24
26	Google	up > 200
27	Eli Lilly	up 14
28	AstraZeneca	down 3
29	Ericsson	down 12
30	General Electric	up 7
31	Oracle	up 40
32	BMW	down 4
33	EADS	up 2
34	Abbott Laboratories	up 18
35	Toshiba	down 5
36	LG	up 74
37	Canon	up 2
38	Bayer	down 6
39	Bristol-Myers Squibb	up 3
40	Denso	up 12
41	Huawei	up > 50
42	Takeda Pharmaceutical	up 30
43	Boeing	up 14
44	NTT	down 23
45	Peugeot (PSA)	down 7
46	Boehringer Ingelheim	up 16
47	Hewlett-Packard	down 24
48	Alcatel-Lucent	down 1
49	Fujitsu	down 13
50	Qualcomm	up 87

Note : Companies in "blue" went up more than 20 ranks and companies in "red" lost more than 10 ranks.

Source: The EU Industrial R&D Investment Scoreboards 2012 and 2004. European Commission, JRC/DG RTD.

Table 2.3. Companies among the top 100 R&D investors achieving high performance over the past ten years*.

Company	*Country*	*Sector*
Google	USA	Internet/software
Celgene	USA	Biotechnology
Apple	USA	Computer hardware
Amazon.com	USA	General retailers
Vale	Brazil	Mining
Broadcom	USA	Semiconductors
ZTE	China	Telecommunications equipment
Qualcomm	USA	Telecommunications equipment
Monsanto	USA	Food producers
Continental	Germany	Automobiles & parts
Novo Nordisk	Denmark	Pharmaceuticals
Caterpillar	USA	Commercial vehicles & trucks

** These companies increased net sales by more than 100 % from 2003 to 2011 and increased R&D becoming part of the group of top 100 R&D investors.*

Source: The 2012 EU Industrial R&D Investment Scoreboard. European Commission, JRC/DG RTD.

3. High-performance companies

This chapter analyses a sample of Scoreboard companies that have shown good performance over the last decade. These "high-performers" have been identified on the basis of their net sales growth (all have at least doubled net sales over this period) and their R&D intensity (companies with at least 2% of their net sales invested in R&D have been selected). The sample of these companies is analysed by region and by sector. A rank of the top-50 performing companies based on their net sales growth is also presented. Only companies with positive recent net sales growth, positive employment growth, and with positive profitability are included.

Key Findings

- One out of four companies among the top 1500 R&D performers has more than doubled sales in the last decade, keeping at least the intensity of their R&D investments (measured as a proportion of net sales) above 2%. The sample of these "high-performers" is concentrated on high-tech sectors (accounting for two thirds). The sales increases reflect both acquisitions and organic growth and it has not been possible from the information available to identify the relative proportions of these two types of growth.
- The US has larger numbers than the EU of these high-performing companies operating in high-tech sectors. The US has 38% of companies in the entire sample but 59% of the high performers; the EU has 38% of the entire sample but 30% of the high performers. US based companies outnumber EU based ones in Semiconductors, Biotechnology, Telecommunication equipment, and Health Care equipment & Services.
- High-performing companies operating within the Pharmaceutical and Biotechnology and Software & Computer Services sectors show particularly remarkable results. Companies within the Pharmaceutical and Biotechnology sector show the highest average sales growth. Software & Computer services companies have the highest R&D and employment growth, and the highest profitability.
- Among the top 50 high-performers, Technology hardware & equipment and Pharmaceuticals and Biotechnology sectors are the most predominant ones, accounting for more than half of the total. Of these 50 companies, 33 are from the US, only 8 are from the EU with the remaining 9 based in other parts of the world.

High performing companies

The identification of "high- performers" among the R&D top investors of the Scoreboard has been made on the basis of a sample of companies for which data is available for the whole period 2002-2011.

The basic dataset consists of 1156 companies. However, in order to make the EU sample comparable with non-EU companies, the analysis only includes EU companies with R&D levels comparable to those of the non-EU companies.

Therefore, all companies included had an average R&D investment over the last 10 years of at least €30m; this leave us with a sample of 922 companies.

For the purpose of this analysis, "high-performers" have been defined as companies that at least have doubled net sales over the period (this corresponds to an average annual growth of around 8%). Companies that invest less than 2% of their net sales on R&D have been excluded. This identification exercise has resulted in a list of 242 companies (around 25% of the sample). Additional criteria have been applied to select the top 50 from these 242.

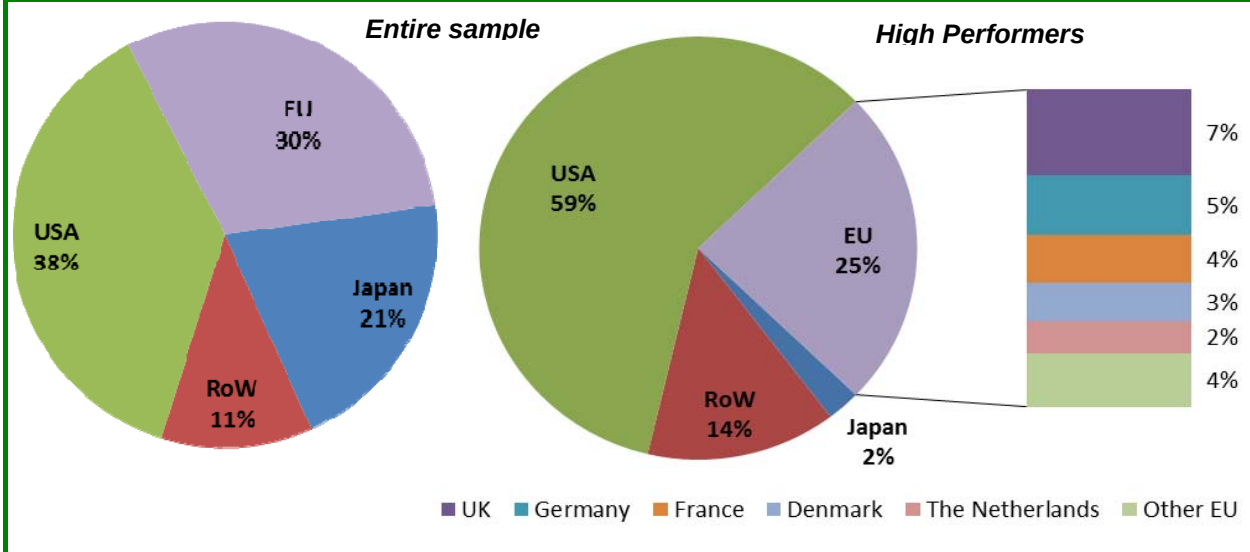
Geographical distribution

Figure 3.1 compares the geographical distribution of companies in the entire sample (left) with the distribution of high-performers (right).

It follows from the figure that Japan accounts for 21% of the companies of the entire sample, but only few of those are high-performers. In fact, they only account for 2% of the world's high-performing companies. Conversely, for the US the relation is quite the opposite. In fact, US companies represent 59% of the high-performing companies, whereas they account for just 38% of the entire sample. For the EU and the Rest of the World (RoW) the proportion of the high-performers is closer to that of the entire sample with the EU being somewhat lower and RoW somewhat higher.

The country shares of EU companies are reported in the right hand bar of figure 3.1. For instance, UK companies account for 7% of the high-performers around the world.

Figure 3.1. ***Geographical distribution of the scoreboard companies and its high-performers***



Source: The 2012 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

Sector distribution

Figure 3.2 presents how the sample of high performing companies is distributed among three macro sectors which group different industries according to their R&D intensity: High R&D intensity sectors, Medium-High R&D intensity sectors, and a combined category which includes Medium-Low and Low R&D intensity sectors (a precise definition of the sectors is given in box 5.1). For comparison, on the left hand side of the figure the distribution for the entire sample is reported.

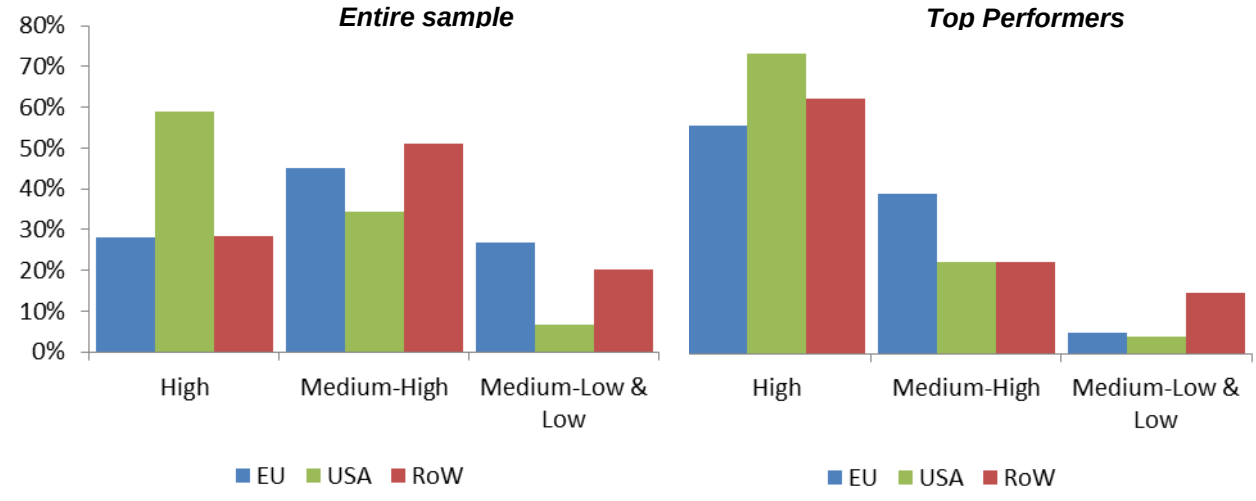
Since Japan only account for 2% of global high-performers, meaning 6 companies, it is included in the category Rest of the World in the following analysis of sector distribution.

The EU and RoW have relatively fewer companies in the High R&D intensity sectors compared to the US (left side), but the proportion of top performers is more similar (right side) among the different geographical regions. This is due to the fact that a relatively bigger proportion of High R&D intensity companies in the EU and the RoW are high-performers.

In all the tree regions the High R&D intensity sector is the one with the largest share of high-performing companies.

EU and RoW show a higher concentration in the Medium-High R&D sectors compared to US. Whereas the EU has similar proportion of high-performers, a relatively low proportion of companies operating in the Medium R&D sectors in the RoW countries are high-performers.

Figure 3.2: High-performers' sectoral distribution (R&D intensity sector)

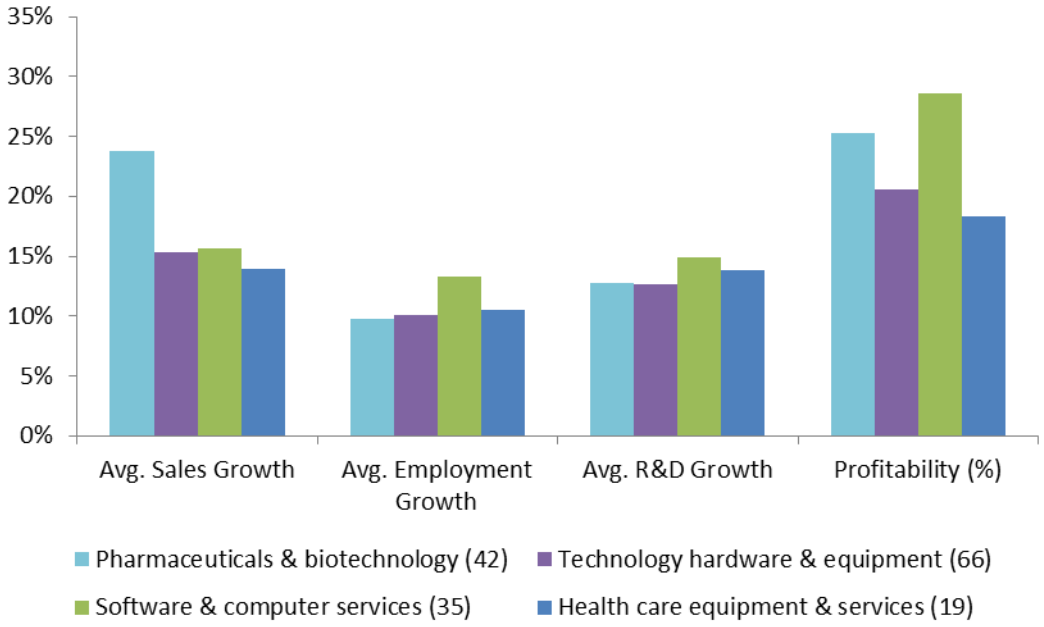


Source: The 2012EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

Figure 3.3 takes a closer look at the High R&D intensive sectors, where a larger proportion of firms is showing good net sales growth over the last ten years. Companies are grouped according to the 3-digit ICB classification and apart from the average annual

growth rates for sales, other performance indicators are shown: employment growth, R&D spending growth and the profitability of different industries.

Figure 3.3: High-tech industries' performance indicators (ICB 3-digit)



Note: The figure reports averages of annual growth rates over firms in the respective sectors. Numbers in brackets refer to the number of firms in the respective sectors.

Source: The 2012 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

Companies operating within the Pharmaceutical & Biotechnology and Software & Computer Services sectors show particularly remarkable results.

Firms within the Pharmaceutical and Biotechnology sector show the highest average sales growth (23.7%). It should be noted, however, that this sector has probably had the highest proportion of M&A activity over the period. This sector also has a very high return on sales, only outperformed by Software & Computer Services firms (25.3% against 28.6%). Software & Computer Services companies combine the highest return on sales with the highest growth of both employment and R&D.

Table 3.1: Sectoral and regional distribution of high-performers

ICB 3-digit classification	ICB 4-digit classification	EU	US	ROW	Total
High R&D intensity Sectors					
Technology hardware & equipment	Semiconductors	5 (56%)	26 (48%)	8 (40%)	39 (47%)
Technology hardware & equipment	Telecommunications equipment	3 (38%)	13 (57%)	4 (57%)	20 (53%)
Technology hardware & equipment	Computer hardware	2 (67%)	5 (33%)		7 (23%)
Pharmaceuticals & biotechnology	Pharmaceuticals	7 (41%)	12 (63%)	5 (28%)	24 (44%)
Pharmaceuticals & biotechnology	Biotechnology	3 (60%)	14 (78%)	1 (50%)	18 (72%)
Software & computer services	Software	8 (57%)	18 (51%)	3 (100%)	29 (56%)
Software & computer services	Computer services	2 (33%)	1 (17%)		3 (21%)
Software & computer services	Internet		3 (100%)		3 (100%)
Health care equipment & services	Health care equipment & services	3 (25%)	13 (62%)	3 (50%)	19 (49%)
Leisure goods	Leisure goods			1 (13%)	1 (5%)
Medium-High R&D intensity Sectors					
Electronic & electrical equipment	Electronic equipment	3 (38%)	8 (50%)	3 (11%)	14 (27%)
Electronic & electrical equipment	Electrical components & equipment	3 (30%)	2 (50%)	2 (18%)	7 (28%)
Aerospace & defence	Aerospace & defence	5 (42%)	6 (35%)	1 (25%)	12 (36%)
Industrial engineering	Commercial vehicles & trucks	1 (33%)	4 (57%)		5 (33%)
Industrial engineering	Industrial machinery	3 (10%)	1 (10%)		4 (7%)
Automobiles & parts	Automobiles & parts	4 (17%)	2 (12%)	2 (8%)	8 (12%)
Household goods & home construction	Household goods & home construction	1 (14%)	3 (38%)		4 (21%)
Chemicals	Chemicals	1 (6%)	3 (16%)		4 (6%)
Support services	Support services	1 (33%)	1 (25%)		2 (22%)
Personal goods	Personal goods	1 (20%)		1 (25%)	2 (15%)
Travel & leisure	Travel & leisure		1 (25%)		1 (13%)
General industrials	General industrials		1 (13%)		1 (3%)
Medium-Low R&D intensity sectors					
Oil equipment, services & distribution	Oil equipment, services & distribution		2 (50%)	1 (100%)	3 (43%)
Food producers	Food producers	1 (13%)	1 (20%)	1 (20%)	3 (17%)
General retailers	General retailers		2 (100%)		2 (67%)
Media	Media		1 (50%)		1 (14%)
Alternative energy	Alternative energy	1 (100%)			1 (100%)
Low R&D intensity sectors					
Construction & materials	Construction & materials			2 (17%)	2 (9%)
Banks	Banks	1 (13%)		1 (100%)	2 (22%)
Mining	Mining			1 (100%)	1 (33%)
Total		**59 (25%)**	**143 (42%)**	**40 (16%)**	**242 (29%)**

Note: share of top performing firms over the total number of firms operating in the same sector are reported in brackets. Total row shares are calculated considering only sectors with high-performing firms.

Source: The 2012 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

The Semiconductor sector is the one with the most high-performing companies, of which most are based in the USA, with 26 companies compared to 5 in the EU and a total of 39 for all regions. The Biotechnology sector has 14 out of 18 companies from the US and is by far the one with the highest share of high-performing companies (72%).

In the subsequent sectors of the table, ordered by the number of companies in each sector, the US also has the lion's share of the high-performing companies. Overall, for these sectors about 40% of US companies are high-performers, whereas EU and Row have lower shares of high-performers within these sectors (25% and 16% respectively).

For Technology Hardware & Equipment, Pharmaceuticals & Biotechnology, Software & Computer Services, and Health Care Equipment & Services sectors the differences between the EU and the US are also big, with the US having more high performing companies in absolute terms, with 105 compared to 33 for the EU.

However, in relative terms, the EU has a higher share of high performing companies in the Semiconductor and Software sectors.

For EU companies with R&D spending below €30m, not included in the above analysis, the proportion of high performing companies is almost the same as that amongst the EU higher R&D spenders. This also holds for the sectoral distribution.

Top 50 high performers

Among the high performers, a ranking of the top 50 has been created.

The companies are ranked on the basis of average net sales growth over the last decade. Moreover, only companies with positive recent net sales growth and positive employment growth are included. They must also have positive profitability in the last year with available data, 2011. Table 3.2 reports the top 50 companies.

There are several companies in the list that have made large acquisitions. Examples include Sanofi-Aventis and Teva Pharmaceutical Industries. But all meet the criteria for inclusion and many of the companies listed have achieved all or the majority of their sales growth organically.

Among the top 50 performers 15 operate in the Technology hardware & equipment sector, which consists of the Computer hardware, Semiconductors, and the Telecommunications equipment subsectors. 13 firms operate in the Pharmaceuticals & Biotechnology sector. These two sectors represent more than half of top performing companies.

Another highly represented group of companies operates within the Software subsector with 7 companies.

Within top 50 high performers 9 firms have an R&D investment of more than 1 billion which place them in the top 100 global R&D investors, (see chapter 2).

Finally, 33 companies are from the US, only 8 are from the EU and the remaining 9 are based in other parts of the world (with two each from Switzerland and Taiwan).

.

Table 3.2: Top 50 high-performing companies over the period 2002-2011

Rank	Company	Sector	Country	Annual Sales Growth 2011/2002, (%)	Annual Employment Growth 2011/2002 (%)	Annual R&D Growth 2011/2002 (%)	R&D 2011 €m	Profitability 2011 (%)
1	Alexion Pharmaceuticals	Biotechnology	US	75.5	19.5	7.4	106	31.2
2	Cubist Pharmaceuticals	Biotechnology	US	64.4	11.4	14.9	143	19.0
3	Google	Internet	US	48.6		47.5	3989	32.0
4	Gameloft	Software	France	40.8	50.1	51.5	87	12.8
5	Celgene	Biotechnology	US	40.1	23.8	34.1	1131	26.9
6	HTC	Telecommunications equipment	Taiwan	37.5		33.8	407	14.9
7	Nuance Communications	Software	US	35.2	36.8	25.5	139	7.4
8	Apple	Computer hardware	US	34.6	20.1	18.4	1877	31.2
9	Gilead Sciences	Biotechnology	US	32.1	13.7	25.5	929	45.8
10	IMMSI	Automobiles & parts	Italy	31.8	6.2	6.3	69	5.2
11	Salix Pharmaceuticals	Pharmaceuticals	US	29.0	15.4	17.5	81	26.4
12	Red Hat	Software	US	28.2	23.3	25.5	159	17.6
13	F5 Networks	Telecommunications equipment	US	27.7		23.9	107	30.4
14	Biogen Idec	Biotechnology	US	27.7	8.5	25.3	943	34.3
15	Amazon.com	General retailers	US	27.6	21.7	24.5	1637	1.8
16	Pou Chen	Personal goods	Taiwan	25.9		24.1	141	7.4
17	Bruker	Health care equipment & services	US	25.6	21.7	20.3	133	9.8
18	Medicines	Pharmaceuticals	US	25.0	10.7	11.4	85	12.0
19	Juniper Networks	Telecommunications equipment	US	23.8	21.5	21.5	794	14.8
20	SanDisk	Semiconductors	US	23.0	20.8	22.0	357	27.0
21	Hologic	Health care equipment & services	US	23.0	23.8	25.4	90	21.0
22	ANSYS	Software	US	22.5	15.2	18.1	83	38.4
23	eBay	General retailers	US	22.4	18.7	27.1	1118	20.4
24	Garmin	Leisure goods	Switzerland	21.8	19.7	26.9	231	20.4
25	Finisar	Telecommunications equipment	US	21.4	17.2	9.1	113	4.1

26	Sun Pharmaceutical Industries	Pharmaceuticals	India	21.0		16.4	42	31.9
27	Pace	Telecommunications equipment	UK	20.7	4.4	14.9	131	3.3
28	Vale	Mining	Brazil	20.6	19.1	30.4	1190	48.6
29	Broadcom	Semiconductors	US	20.3	15.1	11.8	1533	12.9
30	Cree	Semiconductors	US	20.3	19.3	15.2	111	3.4
31	ResMed	Health care equipment & services	US	20.0	10.9	20.1	85	21.2
32	FLIR Systems	Aerospace & defence	US	19.9	22.1	18.4	114	20.3
33	Axis	Computer hardware	Sweden	19.7	12.0	15.5	54	17.2
34	Teva Pharmaceutical Industries	Pharmaceuticals	Israel	19.0	17.2	17.6	835	17.0
35	Dialog Semiconductor	Semiconductors	UK	18.9	6.8	8.8	67	11.7
36	Dr Reddy's Laboratories	Pharmaceuticals	India	18.7	9.7	17.3	84	20.1
37	Western Digital	Computer hardware	US	18.4	25.8	23.6	850	16.4
38	Imagination Technologies	Semiconductors	UK	18.2	14.3	15.3	71	18.4
39	Weatherford International	Oil equipment, services & distribution	Switzerland	17.9	15.2	11.4	189	10.2
40	Mylan	Pharmaceuticals	US	17.8	21.8	13.3	228	17.3
41	Endo Pharmaceuticals	Pharmaceuticals	US	17.4	28.8	13.1	141	21.6
42	Sanofi-Aventis	Pharmaceuticals	France	17.4	14.5	15.4	4795	17.1
43	ZTE	Telecommunications equipment	China	17.3		19.9	1130	6.3
44	Eclipsys	Software	US	17.1	11.6	7.4	127	9.5
45	Roper Industries	Electronic equipment	US	16.7	10.4	15.2	94	23.6
46	Symantec	Software	US	16.5	16.9	16.9	749	16.9
47	Brocade Communications	Telecommunications equipment	US	16.3	15.3	11.0	274	8.3
48	Ixia	Computer services	US	16.3	18.5	13.7	58	10.8
49	Citrix Systems	Software	US	16.2	15.9	20.7	299	18.9
50	Serco	Support services	UK	15.7	11.9	0.0	105	5.9

Source: The 2012 EU Industrial R&D Investment Scoreboard; European Commission, JRC/DG RTD.

4. R&D distribution by region

This chapter compares the overall R&D performance of the *Scoreboard* companies according to the location of their registered offices in the main world regions and within the EU.

It is important to note that Japanese companies suffered in 2011/12 from the effects of the Japanese earthquake, the associated nuclear disaster, the Thai floods and a strong Yen. This combination of adverse factors is country-specific and regional comparisons this year are therefore best restricted to US vs. EU.

Key findings

- EU companies increased R&D investment and net sales by the significant figures of 8.9 % and 4.9 % respectively. The US companies reported a similar increase in R&D (9.0%) but a much higher increase in net sales (12.3 %). Japanese companies increased R&D by only 1.6% and net sales by 2.1%.
- Companies outside of the EU, US and Japan (the other countries, OC group) also increased significantly R&D and net sales, by 11.3 % and 9.4 % respectively, but much less than last year especially in terms of sales (21.8% in 2010). Swiss companies, the largest country by R&D in this group, increased R&D only by a modest 1.4%. The largest increases in R&D investment were reported by companies based in India (35.1 %), and China (28.1 %). Companies form South Korea and Taiwan increased R&D by 8.3% and 2.5% respectively.

General trends

The *Scoreboard*'s 1500 companies are grouped into four main sets: the top 405 companies from the EU, 503 companies from the US, 296 from Japan and 296 companies from other countries (OC). 'Other countries' includes companies from Switzerland, Taiwan, South Korea, China, India, Canada, Norway, Australia and further 20 countries.

Figure 4.1 and table 4.1 summarise the companies' indicators aggregated by main world region. Table 4.2 shows the main indicators for countries included in the OC group.

The R&D investment and net sales growth rates for EU companies improved significantly in 2011, increasing by 8.9 % and 4.9 % respectively. The group of US companies increased R&D investment by 9.0 % but increased much more net sales by 12.3 %.

Japanese companies underperformed against the EU and US ones both in terms of R&D and net sales, increasing R&D investments and net sales only by 1.6% and 2.1% respectively. However, as mentioned above, Japanese companies faced specific adverse factors in this reporting period.

Companies outside of the EU, US and Japan (the OC group) increased R&D and net sales, by 11.3 % and 9.4 % respectively, but much less than last year especially in terms of sales (21.8% in 2010). Swiss companies, the largest country by R&D in this group, increased R&D only by a modest 1.4%. The largest increases in R&D investment were reported by companies based in India

(35.1 %) and China (28.1 %) although the total R&D for these two countries is still modest. Companies form South Korea and Taiwan increased R&D only by 8.3% and 2.5%.

EU companies' share of total *Scoreboard* R&D investment dropped by 0.7 percentage points (from 29.0% to 28.3%, compared with 30.6% in 2009). The share held by the US companies decreased slightly by 0.2 percentage points and companies from other countries (OC) and Japanese ones increased their share by 0.7 and 0.2 respectively.

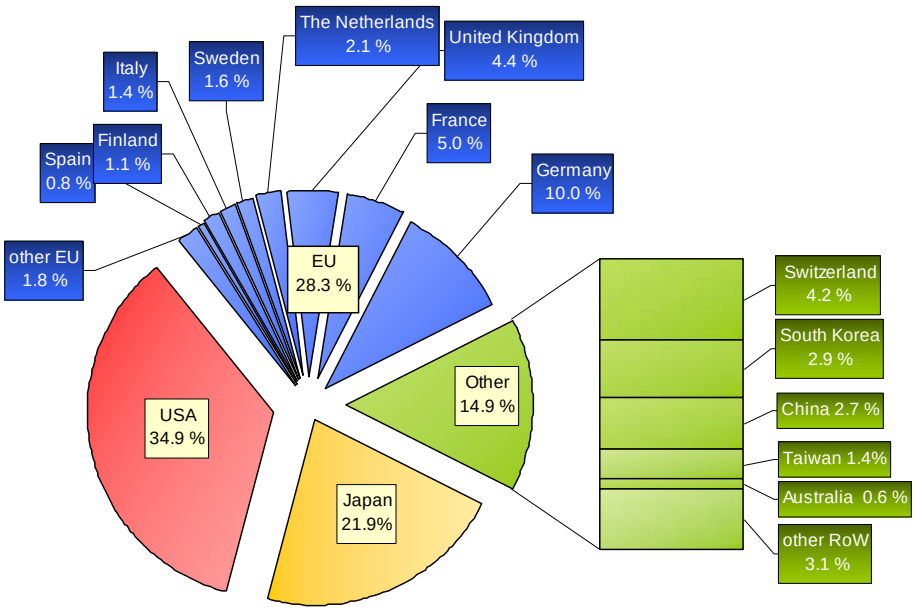
The average R&D intensity of EU and OC companies increased slightly due to the higher increase of R&D investments than net sales (compared with the previous *Scoreboard*). The opposite happens for the US companies whereas those based in Japan kept similar average R&D intensity.

Companies' fixed capital expenditures greatly differed across countries. US companies increased substantially their fixed capital expenditures at 29.4 % whereas EU companies decreased it by 0.8%. Companies from the OC group did better than the total *Scoreboard*'s average, at 15.6%, and Japanese companies below the total average at 4.8%.

Companies in most regions increased profits but at a more moderate rate compared with the strong increase of last year, due to the initial recovery from the crisis effects. Profitability (operating profits as percentage of net sales) remained similar than last year for EU and US companies (10.1% and 14.3 % respectively) and increased slightly for Japanese and OC companies (4.7% and 13.6% respectively).

We will see in the next chapter that many of the differences in R&D intensity and profitability between regions and countries are related to differences in sector mix. The US is by far the strongest region in the group of high R&D intensity sectors including pharmaceuticals, health, software, and technology hardware whereas the EU and Japan are stronger in medium intensity sectors like automotive.

Figure 4.1. R&D investment by the top 1500 companies, by main world regions (% of total €511bn)



Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

Table 4.1. Overall performance of companies in the 2012 *Scoreboard.*				
Factor	***EU***	***USA***	***Japan***	***Other countries (OC)***
No. of companies	405	503	296	296
R&D in 2011, € bn	144.6	178.4	111.5	76.2
World R&D share, %	28.3	34.9	21.8	14.9
Change from previous year, %	8.9	9.0	1.7	11.4
CAGR 3yr, %	3.4	4.8	-2.7	8.9
Net Sales, € bn	5478.5	3979.8	2973.1	3281.3
Change from previous year, %	4.9	12.3	2.1	9.4
CAGR 3yr, %	2.6	3.5	-5.3	8.8
R&D intensity, %	2.6	4.5	3.8	2.3
Operating Profit, € bn	545.2	568.7	138.6	446.4
Change from previous year, %	3.5	12.4	12.9	13.8
Profitability[9]	10.1	14.3	4.7	13.6
Capex, € bn	236.5	209.9	173.6	273.0
Capex intensity	6.3	5.3	5.9	9.2
Change from previous year, %	-0.9	29.4	4.8	15.6

Source: The 2012 EU Industrial R&D Investment Scoreboard. European Commission, JRC/DG RTD.

Table 4.2. Overall performance of companies based in the other countries (OC) group.

Factor	Switzerland	South Korea	China	Taiwan	total OC group
No. of companies	40	35	56	47	296
R&D in 2011, € bn	21.5	15.0	13.9	7.4	76.2
World R&D share	4.2	2.9	2.7	1.4	14.9
Change from previous year, %	1.4	8.3	28.1	2.5	11.3
CAGR 3yr, %	1.9	13.7	32.9	7.1	8.9
R&D intensity	6.9	3.1	1.4	2.5	2.3
Profitability	15.8	8.2	7.9	2.5	13.6

Source: The 2012 EU Industrial R&D Investment Scoreboard. European Commission, JRC/DG RTD.

Employment trends by the *Scoreboard* companies

The companies listed in this year's *Scoreboard* employed 45.04 million people in 2011, 2.3% more than the previous year. The distribution of employees by region was 16.93 million in EU-384 companies, 10.20 million in US-498 companies, 7.67 million in Japan-295 companies and 10.22 million in 226 companies from other countries (1403 companies out of the 1500 reported number of employees.

Trends on employment over the long-term are presented in the figure 4.2 for the main world regions. The figures refer to a set of companies that reported number of employees over the whole period 2003-2011 and are breakdown into groups of industrial sector of characteristic R&D intensity (see definition in next chapter, Box 5.1).

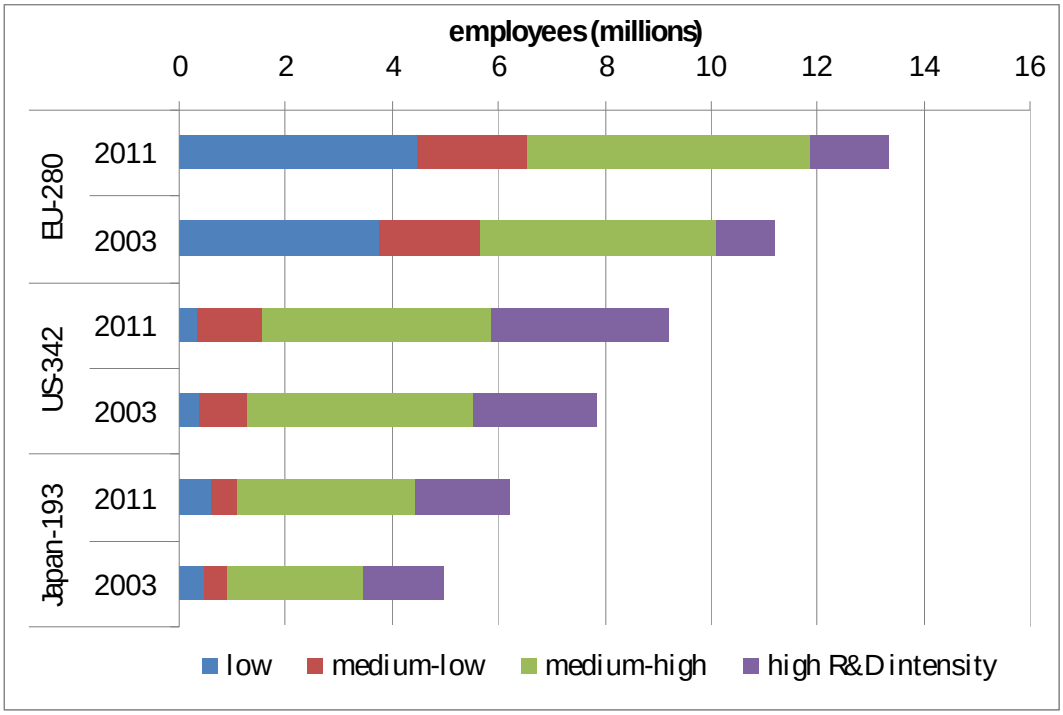
The following points can be observed:

- The overall worldwide employment increased by 22.3% led by increases in high R&D-intensive sectors (36.1%) and medium-low ones (23.7%).
- For the EU-280 companies, the overall employment growth was 19.5%, increasing by 38.4% in high R&D-intensive sectors and by similar rates for medium-high and low sectors (19.9% and 19.3% respectively).
- For the US companies, the overall employment growth (16.8%) greatly varies by sector group: strong increase for medium and high R&D-intensive sectors (30.1% and 29.5% respectively) and sharp decrease in low and medium-high R&D- intensive sectors (-18.4% and 0.8% respectively).

- For the Japanese companies, the overall employment increase of 25.2% corresponded to an increase by 26.3% in low R&D-intensive sectors and by 18.4% in medium-high ones.

It is important to keep in mind that data reported by the *Scoreboard* companies do not inform about the actual geographic distribution of the number of employees. A detailed geographic analysis should take into account the location of subsidiaries of the parent *Scoreboard* companies as well as the location of other production activities involved in the value-chains, which is beyond the scope of this year's *Scoreboard* report.

Figure 4.2. Employment trends by the *Scoreboard* companies for main world regions.



Note: For 815 out of the top EU, US and Japanese companies in the 2012 Scoreboard that reported employment data for the whole period 2003-11.

Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

5. R&D distribution by industrial sector

This chapter presents the main R&D trends among *Scoreboard* companies aggregated by industrial sectors[10]. It comprises the ranking of sectors by their level of R&D investment, R&D intensities, rates of R&D growth and the comparison of such trends across world regions.

Key findings

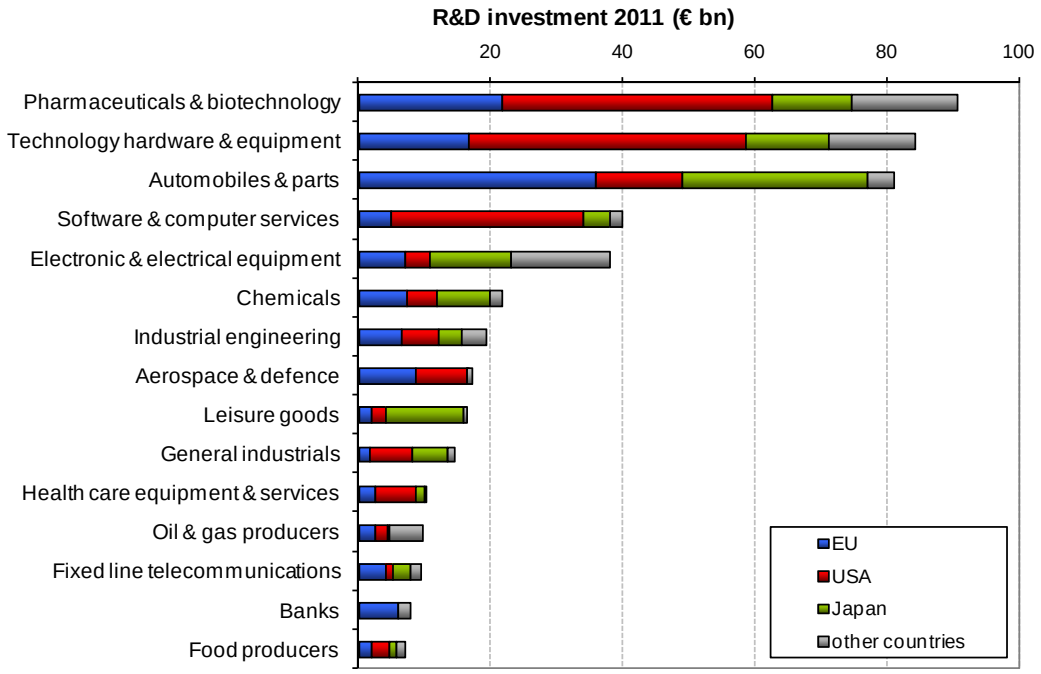
- Four out of the top five sectors by level of R&D investment increased R&D above the world's 7.6% average, mainly Automobile & Parts (13.1%) and Software and Computer Services (10.9%). The top R&D investing sector, Pharmaceuticals and Biotechnology achieved a modest 1.5% increase of R&D. Banks and Industrial Engineering sectors showed the highest R&D increase (21.8% and 16.5% respectively).
- Trends observed in the *Scoreboard* over the last 10 years show a characteristic sector specialisation by region. Companies based in the EU specialise in medium-high R&D intensive sectors. Automobiles & Parts and Industrial Engineering account for almost 60% of the R&D invested by the EU's medium-high R&D intensity group. Those based in the US specialise in high R&D intensive sectors. Pharmaceuticals & Biotechnology, Technology Hardware & Equipment and Software & Computer Services account for 93% of the R&D invested by the US's high R&D intensity group.

5.1. General R&D trends

Figure 5.1 shows the R&D rankings of the main industrial sectors including the relative R&D share by main world region. The specialisation of the main world regions, represented by the share of sectors within the regions' total R&D investment, is given in figure 5.2.

- R&D investment in the *Scoreboard* remains highly concentrated in certain sectors: Out of 38 industrial sectors, the top three –Pharmaceuticals & Biotechnology, Technology Hardware & Equipment and Automobiles & Parts– account for 50.1% of the total R&D investment by the *Scoreboard* companies; the top 6 and top 15 sectors constitute, respectively, 69.5% and 91.3% of the total R&D in the *Scoreboard*. Similar concentration of R&D by industrial sector has been observed over the last 10 years.
- The ranking of the top 15 sectors has changed as follows: The Industrial Engineering sector took over the 7th position from the Aerospace & Defence sector (now 8th), the Oil & Gas Producers sector took the 11th position from the Fixed Line Telecommunications sector (now 12th).
- The Pharmaceuticals & Biotechnology sector keeps the first position in the R&D ranking, decreasing its R&D share of the total R&D investment which is now 17.7%. It is followed by the Technology Hardware & Equipment sector with a share of 16.8% (similar to last year's 16.6%) and the Automobile & Parts sector with 15.8%, slightly higher than the 15.0% of last year.

Figure 5.1. R&D ranking of industrial sectors and share of main world regions for the world's top 1500 companies

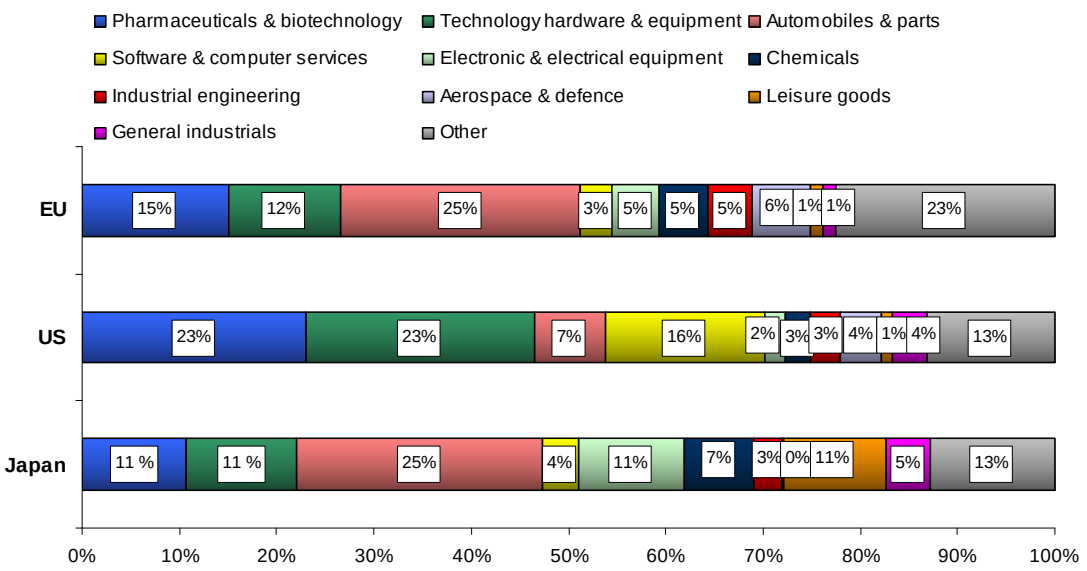


Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

- By region, companies changed their share of R&D investment in the top 6 sectors as follows: The EU companies increased their share in Automobiles & Parts but decreased its share in Pharmaceuticals & Biotechnology. The US companies increased their share in Industrial Engineering and General Industrials sectors and decreased it in Pharmaceuticals & Biotechnology and Aerospace & Defence sectors. The Japanese companies kept practically unchanged their share in the main sectors.
- As observed in previous *Scoreboards,* despite the changes due to the economic crisis, the R&D specialisation is very different in the four regional groups of companies. The contribution to the total *Scoreboard* R&D by the EU companies is 50.3% to Aerospace & Defence, 44.1% to Automobiles & Parts and 33.7% in the Industrial Engineering sectors; the US contributes 73.2% to Software and Computer Services, 49.8% to Technology Hardware & Equipment and 43.2% to Pharmaceuticals; Japan contributes 36.2% to Chemicals and 34.8% to Automobiles & Parts; and the OC companies contribute 39.3% to the Electronic & Electric Equipment sector.
- The 6 most R&D intensive sectors (Pharmaceuticals & Biotechnology, Software & Computer Services, Hardware Technology & Equipment, , Leisure Goods, Health Care Equipment & Services and Electronic & Electrical Equipment), all with an average R&D intensity of over 5%, contribute with

69.5% to the total R&D for the US, 61.1% for the OC group, 48.3 % for Japan and 37.7% for the EU companies.

Figure 5.2. R&D shares of sectors of the main world regions



Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

R&D growth by industrial sector

The actual contribution of an industrial sector to the overall R&D growth of a region depends on its rate of R&D change and the sector's share of total R&D of the region. Figures 5.1 and 5.2 show the shares of the main industrial sectors and table 5.1 shows their ranking by R&D annual growth rate worldwide for the *Scoreboard* companies based in the EU, US and Japan.

The following points are observed for the top 15 sectors accounting for 91.3% of the total R&D investment of the *Scoreboard* companies:

- Worldwide, the Banks sector shows the highest one-year growth rate (21.8%), followed by Industrial Engineering (16.5%), Automobiles & Parts (13.1%) and Software & Computer Services (10.9%).

- Among the companies based in the EU, the Banks sector shows the highest one-year growth rate (19.5%), followed by Automobiles & Parts (16.2%) and Industrial Engineering (15.6%). Sectors showing the lowest one-year R&D growth are Fixed Line Telecom (-2.4%) and General Industrials (0.3%).
- Among the companies based in the US, the Industrial Engineering sector shows the highest one-year growth rate (20.1%) followed by Food Producers (17.5%) and Electronic & Electrical Equipment (16.6%). Sectors showing the lowest one-year R&D growth are Fixed Line Telecom (-5.6%) and Leisure Goods (-2.0%).
- For Japanese companies, the highest one-year growth rate is shown by Automobiles & Parts (9.9%) and Industrial Engineering (7.9%). The poorest performance was shown by the General Industrials (-12.5%) and Pharmaceuticals & Biotechnology ((-7.6%).

Apart from the top 15 industries, there were important R&D changes in the other sectors as well:

- The alternative energy sector continued to increase considerably the R&D investment (22.5%)
- Other sectors showing considerable R&D growth are Support Services sector (40.5%) and Industrial Transportation sector (30.7%). Sector reducing significantly R&D are Industrial Metals & Mining (-9.3%) and Media sectors (-9.2%).

Table 5.1. Ranking of top 15 industrial sectors by overall one-year R&D growth for the EU, US and Japanese companies in the 2012 *Scoreboard*.

Rank	Sector	Overall one-year R&D growth (%)	EU R&D change (%)		US R&D change (%)		Japan R&D change (%)	
			1 year	3 years	1 year	3 years	1 year	3 years
1	Banks	21.8	19.5	19.8				
2	Industrial engineering	16.5	15.6	6.0	20.1	7.7	7.9	0.6
3	Automobiles & parts	13.1	16.2	4.1	13.4	-3.3	9.9	-4.0
4	Software & computer services	10.9	7.8	5.0	11.6	6.2	0.0	-12.6
5	Oil & gas producers	10.4	0.0	0.1	13.6	2.3	3.5	12.5
6	Electronic & electrical equipment	10.0	5.4	4.6	16.6	6.2	3.0	-1.0
7	Technology hardware & equipment	8.3	6.2	-1.5	10.9	3.8	1.1	-4.6
8	Health care equipment & services	7.0	6.8	4.2	6.3	5.5	6.6	1.3
9	Leisure goods	4.0	4.3	3.0	-2.0	-6.0	4.6	-2.9
10	Chemicals	4.0	0.5	1.0	10.0	7.0	3.4	1.9
11	Food producers	4.0	8.7	4.2	17.5	11.2	4.3	5.8
12	Aerospace & defence	3.9	6.1	4.8	1.1	-1.5	10.5	-4.4
13	General industrials	1.5	0.3	4.3	13.4	9.1	-12.5	-6.9
14	Pharmaceuticals & biotechnology	1.5	5.4	2.3	2.1	6.9	-7.6	2.6
15	Fixed line telecommunications	-2.1	-2.4	-4.5	-5.6	12.9	-3.7	-0.4
	top 15 industries	7.5	8.8	3.2	8.6	4.5	2.4	-2.6
	Rest of 23	8.6	9.2	5.8	15.4	8.8	-6.4	-3.6
	All 38 industries	7.6	8.9	3.4	9.0	4.8	1.6	-2.7

Source: The 2012 EU Industrial R&D Investment Scoreboard.

European Commission, JRC/DG RTD

R&D intensity by sector

Table 5.2 provides the list of industrial sectors ranked by worldwide R&D intensity of the main industrial sectors for the 1500 *Scoreboard* companies grouped by main world region.

The following points are observed:

- Some industrial sectors increased their R&D intensity as sales increased more than R&D investment in 2011, in particular the Electronic & Electrical Equipment sector (from 4.2% to 5.1%) and the Automobiles & Parts sector (from 4.1% to 4.3%). The remaining sectors maintained practically unchanged their R&D intensity.
- Six sectors have R&D intensity of more than 5.0%: Pharmaceuticals & Biotechnology, IT sectors (Software & Computer Services and Technology Hardware & Equipment), Leisure Goods, Health Care Equipment & Services and Electronic & Electrical Equipment). The sector with the lowest R&D intensity is Oil & Gas Producers (0.3%).
- Among the top 15 sectors, the R&D intensity of EU companies is larger than that of the US and Japan in 3 sectors (Technology Hardware & Equipment, Industrial Engineering, General Industrials and Automobiles & Parts). Japanese companies show higher R&D intensity than the EU and the US in sectors such as Pharmaceuticals & Biotechnology, Electronic & Electrical Equipment and Chemicals. The R&D intensity of US companies is higher than that of the EU and Japan in Leisure Goods and Health Care Equipment & Services.
- As observed in previous *Scoreboards*, the overall lower average of R&D intensity of the EU companies is due to their large share of low R&D-intensive sectors as compared to a similar group of non-EU companies. Conversely, the high average R&D intensity of the US companies is due to their considerable weight in high R&D-intensive sectors (see Figures 5.1 and 5.2)

Table 5.2. Ranking of industrial sectors by overall R&D intensity for the EU, US and Japanese companies in the 2012 *Scoreboard.*

Rank	Sector	Overall sector R&D intensity, %	EU sector R&D intensity, %	US sector R&D intensity, %	Japan sector R&D intensity, %
1	Pharmaceuticals & biotechnology	15.1	14.7	15.3	16.3
2	Software & computer services	9.5	10.6	10.6	5.0
3	Technology hardware & equipment	7.9	14.2	8.2	6.1
4	Leisure goods	6.7	7.1	7.7	6.6
5	Health care equipment & services	5.9	3.6	7.3	6.6
6	Electronic & electrical equipment	5.1	4.9	5.0	5.9
7	Automobiles & parts	4.2	4.9	3.8	4.6
8	Aerospace & defence	4.1	6.0	3.1	6.6
9	Chemicals	3.1	3.0	2.9	4.0
10	Industrial engineering	3.1	3.5	3.0	3.0
11	General industrials	2.7	4.2	3.3	2.6
12	Banks	2.2	2.0		
13	Fixed line telecommunications	1.7	1.5	1.1	2.5
14	Food producers	1.6	2.0	1.3	1.8
15	Oil & gas producers	0.3	0.3	0.2	0.2
	Top 15 industries	3.9	3.6	4.9	4.5
	Rest of 23	1.1	0.8	2.1	1.2
	All 38 industries	3.2	2.6	4.5	3.8

Source: The 2012 EU Industrial R&D Investment Scoreboard. European Commission, JRC/DG RTD

Growth of net sales and profitability by industrial sector

The table 5.3 shows the ranking of the top 15 industrial sectors by overall one-year growth of net sales for the companies based in the EU, the US and Japan. It also includes the sector profitability for these regions.

The following points are observed:

- Worldwide, the Oil & Gas Producers sector shows the highest one-year growth rate of net sales (23.4%), followed by Industrial Engineering (14.3%), Chemicals (11.9%), Automobiles & Parts (8.1%) and Software & Computer Services (6.7%).
- Among the companies based in the EU, the 5 sectors mentioned above also show the highest one-year growth rate of sales, in particular the Oil & Gas Producers sector (19.9%) and the Automobiles & Parts sector (14.3%). Sectors showing the lowest one-year sales growth are General Industrials (-32.7%) and Banks (-15.8%). The highest profitability of EU companies is shown in Pharmaceuticals & Biotechnology (23.3%) and Software & Computer Services (18.9%)
- Among the companies based in the US, the Oil & Gas Producers sector shows the highest sales one-year growth rate (26.2%) followed by Industrial Engineering (23.4%) and Technology Hardware & Equipment (11.7%). Sectors showing the lowest one-year R&D growth are General Industrials (-1.7%) and Fixed Line Telecom (-1.5%). The US-based companies have highest profitability in Pharmaceuticals & Biotechnology and Software & Computer Services (both 24.1%).
- For Japanese companies, the highest one-year growth rate is shown by Chemicals (14.2%), Oil & Gas Producers (13.6%) and Industrial Engineering sector (11.8%). The poorest performance is shown by the Leisure Goods (-6.0%) and Software & Computer Services (-3.5%) sectors. The profitability of companies based in Japan is generally lower than their counterparts in the EU and the US.
- The US shows higher profitability than the EU in the four key high R&D intensity sectors (pharma, technology hardware, software and health) and in all the medium-high R&D intensity sectors listed except automotive. Japanese sectors tend to have lower profitability than EU ones.

Table 5.3. Ranking of top 15 industrial sectors by overall one-year sales growth for the EU, US and Japanese companies in the 2012 *Scoreboard.*

Rank	Sector	World-wide	EU		US		Japan	
		Sales growth, 1y (%)	Sales growth, 1y (%)	Profit.* (%)	Sales growth, 1y (%)	Profit.* (%)	Sales growth, 1y (%)	Profit.* (%)
1	Oil & gas producers	23.4	19.9	11.5	26.2	15.2	13.6	2.6
2	Industrial engineering	14.3	9.8	9.4	23.4	11.7	11.8	9.6
3	Chemicals	11.9	9.8	10.2	10.3	10.7	14.2	5.5
4	Automobiles & parts	8.1	14.3	6.5	11.4	5.2	3.7	3.5
5	Software & computer services	6.7	7.2	18.9	8.9	24.1	-3.5	2.8
6	Pharmaceuticals & biotechnology	4.1	2.3	23.3	6.3	24.1	-0.1	14.4
7	Technology hardware & equipment	3.1	-0.6	4.7	11.7	17.0	0.2	4.8
8	Health care equipment & services	2.6	-4.0	16.3	7.4	19.1	4.7	7.2
9	Fixed line telecommunications	1.4	-0.8	16.6	1.5	8.1	3.2	11.7
10	Aerospace & defence	1.1	0.7	5.1	0.9	10.9	7.8	5.7
11	Food producers	0.5	2.4	12.3	10.1	9.6	2.0	3.8
12	General industrials	-1.4	-32.7	6.9	-1.7	13.6	2.1	4.4
13	Electronic & electrical equipment	-3.5	5.1	10.0	10.9	13.5	1.8	4.5
14	Leisure goods	-5.6	-7.7	2.2	7.4	5.4	-6.0	0.3
15	Banks	-13.5	-15.8	4.4				
	Top15 industries	8.0	6.9	10.1	12.0	14.6	3.8	4.7
	Rest of 23	4.4	1.6	9.6	14.3	12.7	-2.9	4.6
	All 38 industries	7.1	4.9	10.0	12.3	14.3	2.1	4.7

** Profitability: operating profits as percentage of net sales.*

Source: The 2012 EU Industrial R&D Investment Scoreboard. European Commission, JRC/DG RTD

Indicators' changes by region and sector groups

Interesting results emerge looking at the distribution of R&D investment of the *Scoreboard* companies across regions and sectors using an aggregation of the 38 industrial sectors into four groups of high-, medium-high-, medium-low- and low- R&D intensity (see Box 5.1).

Box 5.1. Grouping of industrial sectors according to R&D intensity (R&D as % of net sales)

High R&D intensity sectors (intensity above 5%) include e.g. Pharmaceuticals & biotechnology; Health care equipment & services; Technology hardware & equipment; Software & computer services.

Medium-high R&D intensity sectors (between 2% and 5%) include e.g. Electronics & electrical equipment; Automobiles & parts; Aerospace & defence; Industrial engineering & machinery; Chemicals; Personal goods; Household goods; General industrials; Support services.

Medium-low R&D intensity sectors (between 1% and 2%) include e.g. Food producers; Beverages; Travel & leisure; Media; Oil equipment; Electricity; Fixed line telecommunications.

Low R&D intensity sectors (less than 1%) include e.g. Oil & gas producers; Industrial metals; Construction & materials; Food & drug retailers; Transportation; Mining; Tobacco; Multi-utilities.

The worldwide and domestic distribution of the R&D investment by the 1500 *Scoreboard* companies shows clear differences by world region, illustrating respectively the weight of the region in the world and its specialisation (See Table 5.4):

- Companies based in the EU specialise in medium-high R&D intensive sectors (49.4% of total R&D of the EU companies) and contribute 34.9% of the total R&D of that sector group. Two sectors, Automobiles & parts and Industrial Engineering, account for almost 60% of the total R&D investment of the EU's medium-high R&D intensity group.
- Those based in the US specialise in high R&D intensive sectors (67.4% of total R&D of the US companies) and contribute 49.9 % of the total R&D of that sector group. Three sectors, Pharmaceuticals & Biotechnology, Technology

Hardware & Equipment and Software & Computer Services, account for 93% of the total R&D investment of the US's high R&D intensity group.

- Japanese companies specialise in medium-high R&D intensive sectors (53.2%) while contributing 29.0% of the total R&D of that sector group. Two sectors, Automobiles & Parts and Electronics & Electric Equipment, account for 68% of the Japan's medium-high R&D intensity group.

Table 5.4. World and domestic R&D distribution of the 1500 *Scoreboard* companies by sector groups for the main regions.

Sector / Region	High Share, %		Medium-high Share, %		Medium-low Share, %		Low Share, %		Total
	world	domestic	world	domestic	world	domestic	world	domestic	domestic
EU	**19.7**	32.8	**34.9**	49.4	**34.6**	7.1	**43.5**	10.7	100
US	**49.9**	67.4	**22.7**	26	**31.2**	5.2	**7.1**	1.4	100
Japan	**17.3**	37.4	**29**	53.2	**18.8**	5	**14**	4.5	100
Other countries	**13.1**	41.5	**13.4**	36.1	**15.3**	6	**35.4**	16.4	100
Total world	**100**		**100**		**100**		**100**		

Note : Sector groups as defined in Box 5.1.

Source: The 2012 EU Industrial R&D Investment Scoreboard. European Commission, JRC/DG RTD

6. The top 1000 R&D investors in the EU

This chapter discusses R&D and economic trends of companies based in Members States of the EU. This specific analysis is based on an extended sample of companies representing the top 1000 R&D investors in the EU, i.e. the 405 EU companies included in the world top 1500 sample and 595 additional companies based in the EU (see composition of this sample in Annex 3).

Main questions addressed are first, about the one-year changes in R&D and economic indicators of companies based in the top 10 Member States of the EU by level of R&D investment. The second question addressed regards the long-term trends of companies' results, namely the rate of growth of R&D and net sales and profitability, and the effects of the financial crisis for companies from the top three Member States of the EU.

Key findings

- Companies based in Germany, the top R&D investor continued to increase substantially R&D, at 9.4 % compared with 8.1% in the previous year. UK companies increased R&D well above the EU's average, at 11.2% and France by 7.3%.
- Countries whose companies significantly increased R&D investments are Sweden (14.8%), Spain (14.7%) and Ireland (13.3%). Companies that showed the lowest R&D growth are from Denmark (-3.9%) and from Finland (1.7%). Almost all these countries have their total R&D dominated by that of a few companies, e.g. Nokia accounting for nearly 80% of Finland's R&D in the *Scoreboard*.
- The analysis of 10 years trends of R&D and economic results of companies based in Germany, the UK and France show the effects of the crisis in 2008-2009 and the strong recovery over 2010-2011.

Trends of companies in the top 10 Member States of the EU

This section analyses the main trends of EU companies for the extended sample of 1000 companies with headquarters in Member States of the EU. Companies based in the 10 top Member States account for 97.2% of the total R&D investment in the EU (see table 6.1).

Companies based in the three top R&D investing countries (accounting for 68.3% of the total R&D by the 1000 EU companies) increased significantly their R&D investments. Germany, the top R&D investor continued to increase substantially R&D, at 9.4 % compared with 8.1% increase in the previous year. UK companies increased R&D well above the EU's average, at 11.2% and France by 7.3%.

Countries whose companies increased R&D investments above the EU's average are Sweden (14.8%), Spain (14.7 %) and Ireland (13.3%). Companies that showed the lowest R&D growth are from Denmark (-3.9%) and from Finland (1.7%).

It is important to remind that in many countries, the aggregate country indicators depend to a large extent on the figures of a very few firms. This is due, either to the country's small number of companies in the *Scoreboard* or to the concentration of R&D in a few large firms. For example:

- The R&D growth of Novo Nordisk (-5.1%) and DONG Energy (-11.6%), accounting for 40% of the R&D of companies based in Denmark, contributed together to a significant part of the R&D growth of that country.
- Three companies based in Ireland contributed 68% of that country's R&D investment: Seagate Technology (15.0%), Covidien (23.9%) and Accenture (31.2%).
- Similar cases occur in Finland where Nokia's R&D investment accounts for almost 80% of the total R&D and in Spain where Banco Santander, Telefonica and Amadeus account for 70 % of the total R&D by the Spanish companies in the *Scoreboard*.

Table 6.1. R&D trends of companies based in the top 10 EU Member States

Country	No. of companies	R&D Share within EU (%)	One year Growth (%)	CAGR 3 yr* (%)
Germany	234	34.5	9.4	4.9
France	126	17.5	7.3	1.6
UK	248	16.2	11.2	2.3
The Netherlands	52	7.4	5.4	2.2
Sweden	85	5.9	14.8	2.2
Italy	50	5.0	5.1	2.6
Finland	46	4.1	1.7	-1.7
Spain	21	2.6	14.7	20.3
Denmark	35	2.1	-3.9	4.4
Ireland	14	1.7	13.3	2.3
Total EU-10	911	97.2	8.6	3.3

For the sample of 1000 EU companies.

* It is important to note that 3-years cagr includes one year going into the crisis and two years coming out

Source: The 2012EU Industrial R&D Investment Scoreboard; European Commission, JRC/DG RTD.

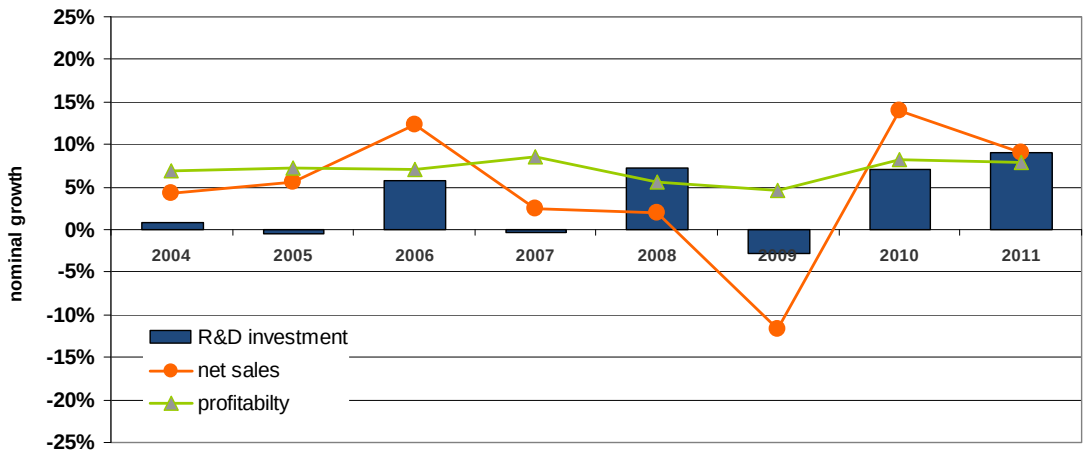
Long-term performance of companies based in the 3 top EU Member States

The annual growth rates of R&D investment and net sales and profitability of companies based in Germany, France and the UK is provided respectively in figures 6.1, 6.2 and 6.3 for the period 2003-2011. These figures are based on our history database comprising R&D and economic indicators over the whole 2003-2011 period from the EU 1000 dataset, including 107 from Germany, 63 from France and 96 from the UK.

The trends observed in these figures show the behaviour of these companies including the effects of the crisis that began in 2008. The following points are observed:

- In terms of R&D growth, companies based in Germany, France and the UK seem to have recovered the levels prior to the crisis.
- The growth rate of net sales for companies based in Germany and the UK have recovered strongly in 2010-2011 and outperform their French counterparts.
- Sector composition of the country samples reflect to a large extent the differences observed in terms of profitability.

Figure 6.1 One-year R&D investment and net sales growth by the German companies

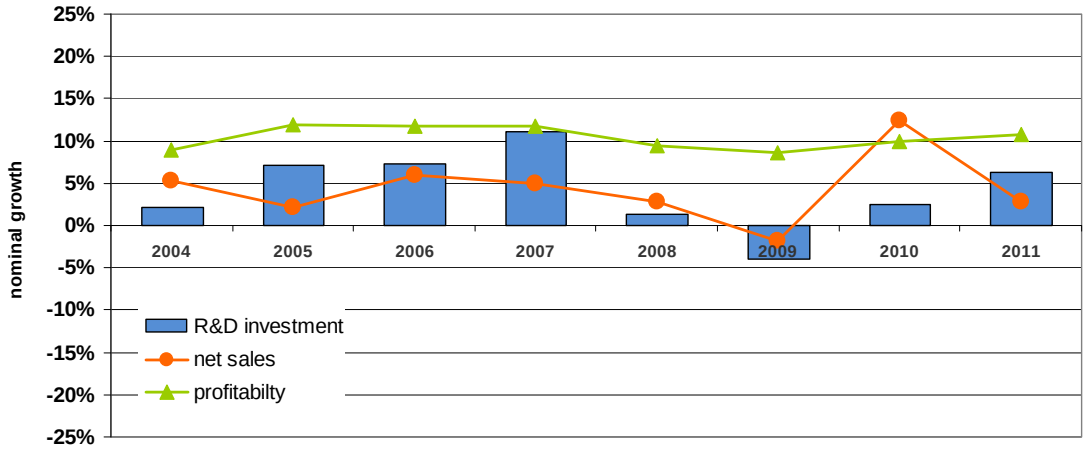


Note: for 107 German out of the EU1000 companies with R&D and net sales data for the whole period

Source: The 2012 EU Industrial R&D Investment Scoreboard

European Commission, JRC/DG RTD.

Figure 6.2 One-year R&D investment and net sales growth by the French companies

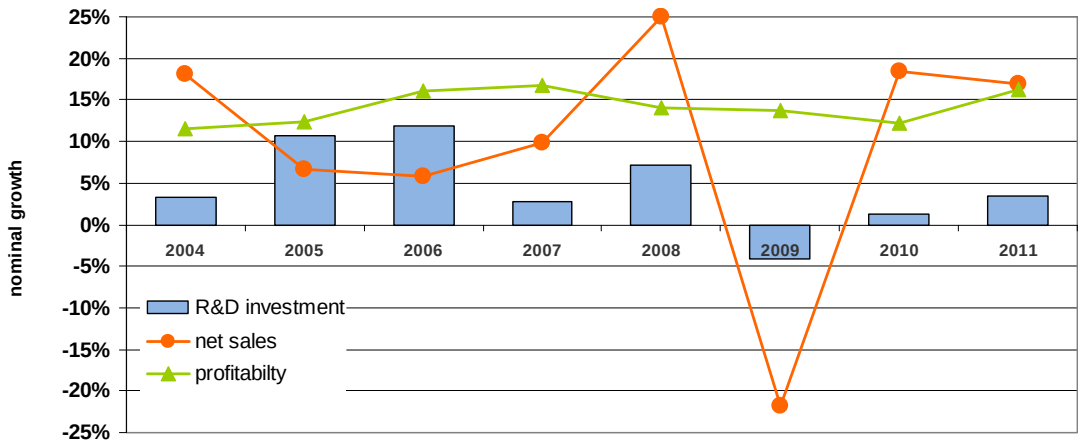


Note: for 63 French out of the EU1000 companies with R&D and net sales data for the whole period

Source: The 2012 EU Industrial R&D Investment Scoreboard

European Commission, JRC/DG RTD.

Figure 6.3 One-year R&D investment and net sales growth by the UK companies



Note: for 96 UK out of the EU1000 companies with R&D and net sales data for the whole period.

Source: The 2012 EU Industrial R&D Investment Scoreboard

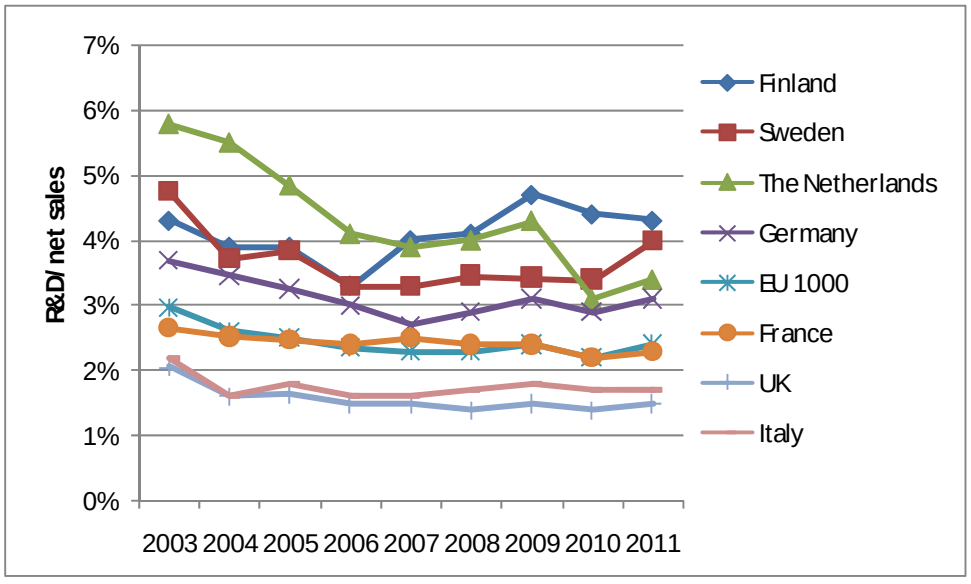
European Commission, JRC/DG RTD.

R&D intensity trends by companies based in selected Member States

In 2011, the average R&D intensity of the EU-1000 companies increased slightly because of the higher increase of R&D investments than net sales. This breaks a trend of decreasing R&D intensity observed since 2003 (see Figure 6.4).

It is important to remark that a few large but low R&D intensity companies have a big effect on some country average R&D intensities. One example is Shell and BP for the UK. In the 2009 *Scoreboard* these companies contributed about 43% of the UK's *Scoreboard* company sales, so practically halving the average R&D intensity UK companies would have had if they had been left out.

Figure 6.4. Trends in R&D intensities for EU Scoreboard companies in selected Member States



For the EU1000 companies in each of the nine Scoreboards 2004-2012

Source: The 2012 EU Industrial R&D Investment Scoreboard

European Commission, JRC/DG RTD.

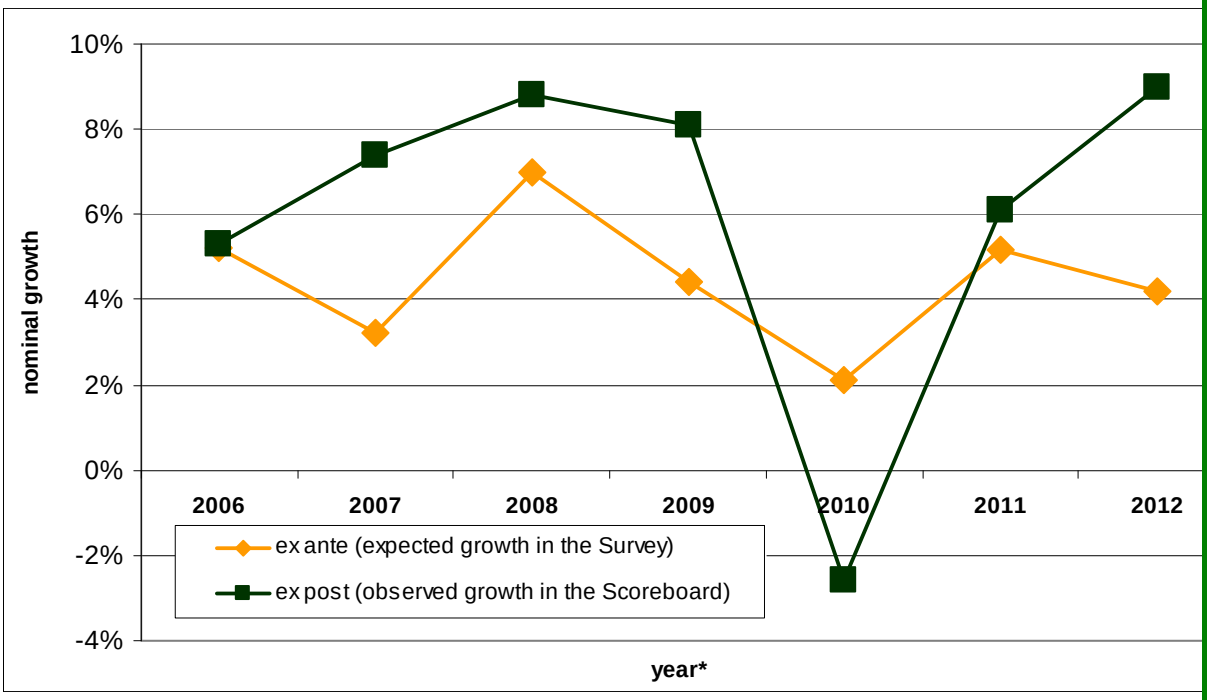
Survey on R&D investment by EU companies

The annual publication of the *Scoreboard* is complemented by a series of surveys on R&D Investment Business Trends[11] for the set of 1000 companies based in the EU, regarding their ex-ante expectations for future R&D investments and qualitative statements about their R&D behaviour.

The R&D investment growth expectations collected from these surveys are compared to the development of R&D investment in Figure 6.5.

For most years, trend expectations from past surveys have been consistent with the actual trends observed later in the *Scoreboard*, and the trends anticipated in the survey since 2007 have been statistically significant.[12]

Figure 6.5 Expected (survey) vs. observed (Scoreboard) R&D growth



Note: * Survey annual growth expectations are for the next three years following the exercise, while the *Scoreboards* refer to the latest audited accounts. The figure refers to 162 out of the 187 companies in the 2012 survey sample, weighted by R&D investment.

Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

7. EU-US R&D intensity gap: The role of companies' cross border activities

Company data from the Scoreboard has shown that one of the main reasons for the R&D intensity gap between the US and the EU comes from the different industrial composition of the EU and US Scoreboard samples. This evidence shed new light to the picture provided by the official statistics on business R&D (BERD), collected on the basis of a territorial logic that points to a lower R&D intensity of some sectors in Europe compared to the US.

For the time being, both territorial official statistics and company data from the Scoreboard fail to show the full picture, as companies' cross-border activities (production and sales on one hand and R&D investments on the other) are only partially included. This chapter illustrates how important these cross-border activities are for a complete analysis of the EU-US R&D gap. For this reason this chapter looks at company and territorial data in a complementary way, focusing on the high-tech sectors that account for most of the R&D gap: pharma, ICT manufacturing and medical precision and optical instruments. These 'sectors' are defined since data for them can be relatively easily extracted from both Scoreboard and national statistics.

Key findings

- National intramural statistics and the Scoreboard data offer two different perspectives on EU industry that convey different but complementary policy implications. The *Scoreboard* shows that, individually, EU-based companies players similar R&D intensity performance to their US counterparts because of the constraints imposed by global competition. However, according to the national statistics, industrial activities located within the boundaries of the EU are much less R&D-intensive than those located within the boundaries of the US, especially in key high tech sectors.

- The most important cause of this apparent discrepancy can be explained by the industrial activities of foreign-controlled companies. In line with the increasing globalisation of the economy, cross-border industrial activities of multinational companies account for a large share of the domestic industry, especially in high tech manufacturing sectors.

- Companies delocalise production and research facilities in different proportions which lead to substantial changes of the R&D intensity of source and destination countries and vary significantly from sector to sector. For example, in the ICT manufacturing industry, production of US companies is much larger abroad than at home but their R&D activities abroad are less than 3% of the total sector so over 97% of their R&D is carried out in the US. In the pharmaceuticals sector the situation is very different, a large proportion of research (22.4%) and production (67%) in the US is performed by foreign-controlled companies. This partly reflects the fact that the US is by far the largest high-tech healthcare market in the world.

- The analysis of the two data sources suggest that the key issue for the EU is to increase the attractiveness of the EU business environment for both production but particularly research activities. This should encourage more foreign companies to locate R&D and also production in the EU and give an incentive to EU companies to maintain a higher share of their R&D in the EU. From a research policy viewpoint, the aim is to keep in-house and develop core competencies in key industrial sectors such as health, ICT and knowledge-intensive services sectors. From the industrial viewpoint, this should also help to maximize the EU's share of value-added production and the related benefits in terms of highly skilled employment. Certain EU countries are already bringing in policies such as R&D tax credits and patent boxes to encourage more R&D and high value added production and these initiatives need to be monitored closely so that the most successful of them can be extended to more EU countries.

7.1. Evidence from the 2012 *Scoreboard*

As discussed in chapter 5, and in previous *Scoreboard* editions, company indicators in high R&D intensity sectors show contrasting differences between companies based in the EU and the US. In particular two broad sector groups are concerned: 1) health-related sectors including Pharmaceuticals & Biotechnology and Health Care Equipment and Services and 2) ICT-related sectors including Technology Hardware & Equipment and Software & Computer Services.

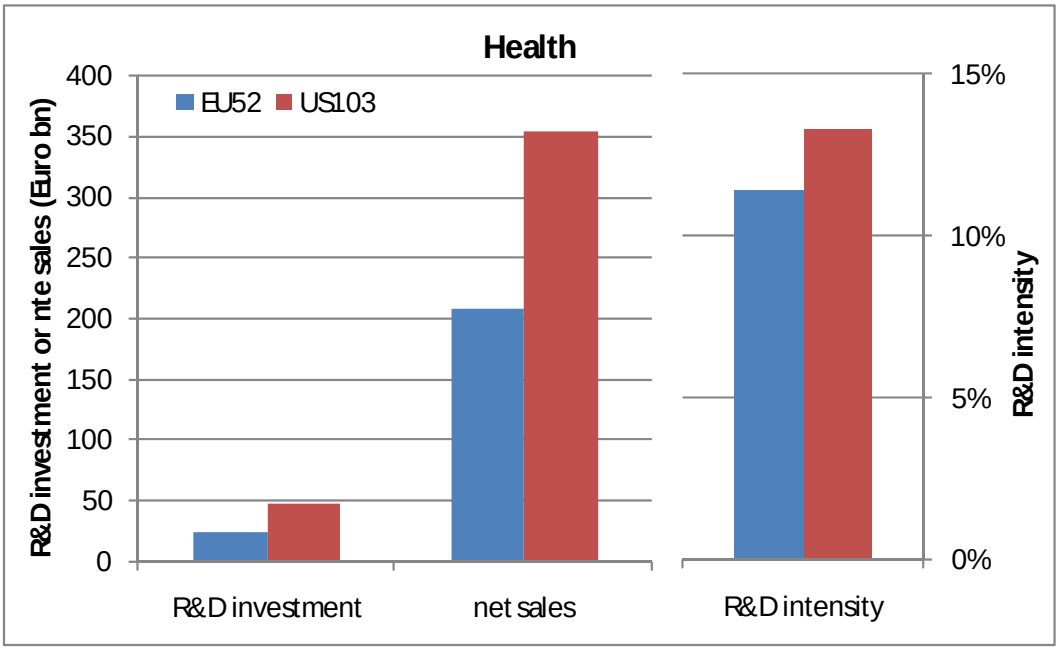
Figures 7.1 and 7.2 show the levels of R&D investment, net sales and R&D intensity for the EU and US companies operating in health and ICT related sectors.

The following points can be observed:

- The US has twice as many companies as the EU in health and 3.5 times more companies in ICT.
- In terms of R&D, the US companies outperform the EU ones in similar proportions (as by number of companies) investing 2 times more in health and 3.3 times more in ICT.
- In terms of net sales, the EU shows average sales per company slightly higher than that of the US but much lower in ICT.
- As a result of the R&D investment and net sales figures, the average R&D intensity of the EU companies is higher in ICT and somewhat lower in health.

The above figures clearly indicate a strong structural difference between the two samples of companies and specific differences by sector. These issues are discussed in the following sections in more detail and from different perspectives.

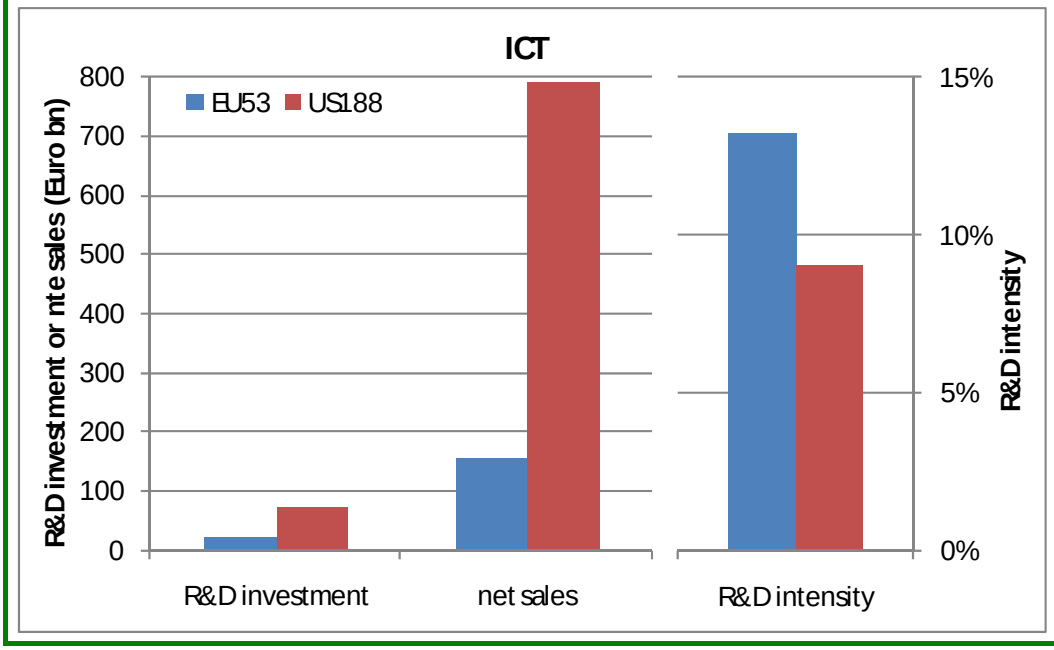
Figure 7.1 Comparison of EU & US companies in health-related sectors



Note: Health-related sectors include the Pharmaceuticals & Biotechnology and the Health Care Equipment & Services sectors.

Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

Figure 7.2 Comparison of EU & US companies in ICT-related sectors



7.2 R&D and production data from national statistics and the *Scoreboard*

This analysis is performed with figures from 2006 on business R&D and production (national statistics) or net sales (*Scoreboard*). The data sources are the OECD STAN and ANBERD databases for the intramural national statistics and the 2007 *Scoreboard*. Data for the EU comprise the 9 largest countries in terms of R&D for which data are fully available: Germany, France, UK, Netherlands, Italy, Sweden, Finland, Belgium and Spain. These countries account for 90% of the total business R&D of the EU (national statistics) and for 96% of the total R&D of the EU in the *Scoreboard*.

In order to have the most comparable data from the two data sources, an equivalent sector classification has been applied consisting of four manufacturing sectors (high-, medium-high-, medium-low- and low- tech) and one services sector. In addition the high tech manufacturing sector is further broken-down in the following sectors: pharmaceuticals (ISIC 2423), ICT manufacturing ISIC 30+32), medical precision and optical instruments (ISIC 33) and airspace & spacecraft (ISIC 353).

Table 7.1 shows the main production and R&D data from the national statistics for the US and the EU. Table 7.2 shows the equivalent R&D and net sales data from the *Scoreboard* for the US and EU companies.

Table 7.1 National intramural data on production and R&D for the US and the EU

	US				EU			
Industrial sector	**Production**	**R&D**	**R&D intensity**	**Share**	**Production**	**R&D**	**R&D intensity**	**Share**
	(€ bn)	(€ bn)	(%)	(%)	(€ bn)	(€ bn)	(%)	(%)
High tech manufacturing	537.3	88.0	16.4	3.2	561.0	47.1	8.4	3.4
Pharmaceuticals	*130.7*	*29.5*	*22.5*	*0.8*	*155.0*	*16.8*	*10.8*	*0.9*
ICT manufacturing	*202.9*	*29.2*	*14.4*	*1.2*	*177.4*	*14.8*	*8.4*	*1.1*
Medical, precision and optical instruments	*94.2*	*17.0*	*18.0*	*0.6*	*119.8*	*6.5*	*5.4*	*0.7*
Aircraft and spacecraft	*109.5*	*12.4*	*11.3*	*0.7*	*108.8*	*9.0*	*8.2*	*0.7*
Medium-high tech manufacturing	1057.1	30.7	2.9	6.3	1769.7	43.0	2.4	10.8
Medium-low tech manufacturing	1082.8	5.2	0.5	6.5	1461.6	7.3	0.5	9.0
Low tech manufacturing	1285.2	7.0	0.5	7.7	1497.4	4.3	0.3	9.2
Services	12738.8	55.5	0.4	76.3	11036.5	19.5	0.2	67.6
Total	**16701.1**	**186.4**	**1.1**	**100.0**	**16326.2**	**121.2**	**0.7**	**100.0**

Source: OECD STAN and ANBERD databases (extracted on July 2012)

Notes: Non-euro currencies converted to Euros at the 31.12.2006 exchange rate

Table 7.2 Data from the 2007*Scoreboard* on R&D and net sales for US and EU companies

	US					EU				
Industrial sector	**Number of companies**	**Sales**	**R&D**	**R&D intensity**	**Share**	**Number of companies**	**Sales**	**R&D**	**R&D intensity**	**Share**
		(€billion)	(€billion)	(%)	(%)		(€billion)	(€billion)	(%)	(%)
High tech manufacturing	246	845.0	79.2	9.4	25.8	102	419.1	44.2	10.5	9.9
Pharmaceuticals	*37*	*185.0*	*29.0*	*15.7*	*5.6*	*30*	*122.6*	*18.4*	*15.0*	*2.9*
ICT manufacturing	*166*	*424.6*	*40.1*	*9.4*	*12.9*	*44*	*153.3*	*15.6*	*10.2*	*3.6*
Medical, precision and optical instruments	*26*	*41.0*	*3.7*	*8.9*	*1.3*	*12*	*26.4*	*1.0*	*3.9*	*0.6*
Aircraft and spacecraft	*17*	*194.4*	*6.5*	*3.3*	*5.9*	*16*	*116.8*	*9.1*	*7.8*	*2.7*
Medium-high tech manufacturing	87	761.6	22.6	3.0	23.2	100	1074.7	44.5	4.1	25.3
Medium-low tech manufacturing	16	102.7	1.0	1.0	3.1	19	244.7	2.8	1.1	5.8
Low tech manufacturing	54	885.6	9.1	1.0	27.0	61	1434.7	8.3	0.6	33.7
Services	160	684.4	35.8	5.2	20.9	118	1081.0	15.7	1.5	25.4
Total	**563**	**3279.1**	**147.7**	**4.5**	**100.0**	**400**	**4254.2**	**115.4**	**2.7**	**100.0**

Source: The 2007 EU Industrial R&D Investment Scoreboard.

Comparison EU/US national intramural data (Table 7.1)

- The EU has similar level of production than the US in high tech manufacturing sectors but much lower R&D intensity due to its lower level of R&D expenditures in most high tech sectors, e.g. less than half the R&D of the US in ICT manufacturing and medical, precision and optical instruments.

- A similar result is observed in the services sectors. However, the available information does not allow investigating further the specific services sectors involved.

- In medium-high tech manufacturing sectors, the EU outperforms the US with a much larger R&D expenditure.

- In medium-low tech and low tech manufacturing sectors the EU/US differences are much less significant than those of the other sectors.

Comparison EU/US *Scoreboard* data (Table 7.2)

- The size of the high tech manufacturing sector of the EU sample is much smaller than the US one in terms of net sales and R&D investment (also in number of companies). However, the average R&D intensity of the EU companies is similar or higher than the US ones in most high tech sectors, except in medical, precision and optical instruments where the average R&D intensity of the US companies is more than double than that of the EU ones.

- In the services sectors, the R&D investment of the EU sample is also smaller than the US one but sales are larger. As a result, the average R&D intensity of the EU companies is much lower than that of the US ones.

- The EU sample of companies in medium-high tech manufacturing does better than the US one in terms of size (R&D investment, net sales) and R&D intensity.

- The EU/US differences are much less significant in medium-low tech and low tech manufacturing sectors compared with the rest of sectors.

National intramural statistics versus *Scoreboard* data

According to the conceptual differences between national statistics and *Scoreboard* data (see Box 7.1), the comparison of the two dataset should reflect a partial coverage of R&D by the *Scoreboard* and a much less coverage of the *Scoreboard* in terms of production/sales activities. As shown in Tables 7.1 and 7.2, this is particularly true for the services sectors that are not well covered in the *Scoreboard*, especially in terms of companies' production/sales. However, there are some cases, where figures from tables 7.1 and 7.2 do not follow such a pattern:

- Net sales of the 246 US companies in the *Scoreboard* in high tech manufacturing sectors (€845billion) are much larger than the whole US production in these sectors according to the national statistics (€537.3billion).

- R&D investment of the 100 EU companies in medium-high tech manufacturing sectors (€44.5billion) are slightly higher the whole EU R&D expenditure in these sectors according to the national statistics (€43billion).

- R&D investment of the 61 EU companies in low tech manufacturing sectors (€8.3billion) is slightly higher than the whole EU R&D expenditure in these sectors according to the national statistics (€4.3billion).

Box 7.1 Differences between national intramural statistics and *Scoreboard* data.

The national intramural data are a statistically representative collection of production and R&D activities performed within a country/region (including the inward activities of foreign-affiliated companies). The Scoreboard captures industrial activities of companies regardless of their location. It is an unbalanced partial sample, covering well the industrial R&D (more than 85% of the worldwide business R&D) but much less representative in terms of industrial production activities.

There are other differences between the two datasets regard methodological aspects, mainly the way of collecting the data (questionnaire-based in the case of national statistics and data taken from companies' audited accounts for the Scoreboard), the sector classification of activities (allocated to a single industrial sector in the Scoreboard and to the various sectors involved in the national statistics) and the definition of variables in the Scoreboard, e.g. companies' net sales and R&D investment, instead of production and R&D expenditure in the national statistics.

7.3. Nature of the R&D intensity gap between the US and the EU

The analysis of the EU-US intensity gap in terms of its “structural factors” (resulting from differences in the sectoral composition of the industry) and “intrinsic factors” (derived from differences in the R&D intensities, sector by sector) has been the subject of several studies (see Box 7.2). This discussion has attracted the attention of policy makers as different approaches are needed to tackle problems of under-investment at company and sector level than to take measures to address problems of industrial structure.

The split of the EU-US R&D intensity gap in to structural and intrinsic factors for the national intramural statistic data is shown in Figure 7.1. The gap for the high tech manufacturing sector is further breakdown in Figure 7.2

Box 7.2 Decomposition of the R&D intensity difference between two regions

The difference in R&D intensity between world regions or countries can be expressed in two terms: one representing the sectoral composition effect (i.e. due to structural differences) and the other representing underinvestment in R&D (i.e. due to intrinsic differences in R&D intensities, sector by sector). The following formula can be applied:

$$RDI_X - RDI_Y = \sum_i RDI_{Y,i}(P_{X,i} - P_{Y,i}) + \sum_i P_{X,i}(RDI_{X,i} - RDI_{Y,i})$$

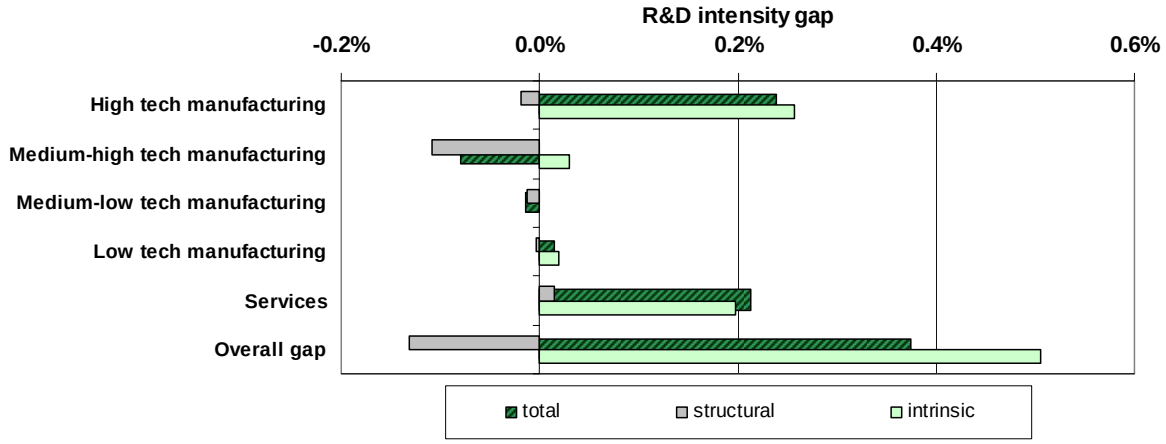
where:

- *X* and *Y* refer to the world regions/countries for which the comparison is performed;
- *RDI* = R&D intensity
- *P* is the share of sector *i* (in terms of production/turnover) within the given world region/country (*X* or *Y*)

The first term on the right side of the formula is the sectoral composition effect, taking into account the different shares of the various sectors within the compared world regions/countries. If this term is negative, it means that the share of the R&D-intensive sectors within the total economy of region/country *Y* is larger than in region/country *X*.

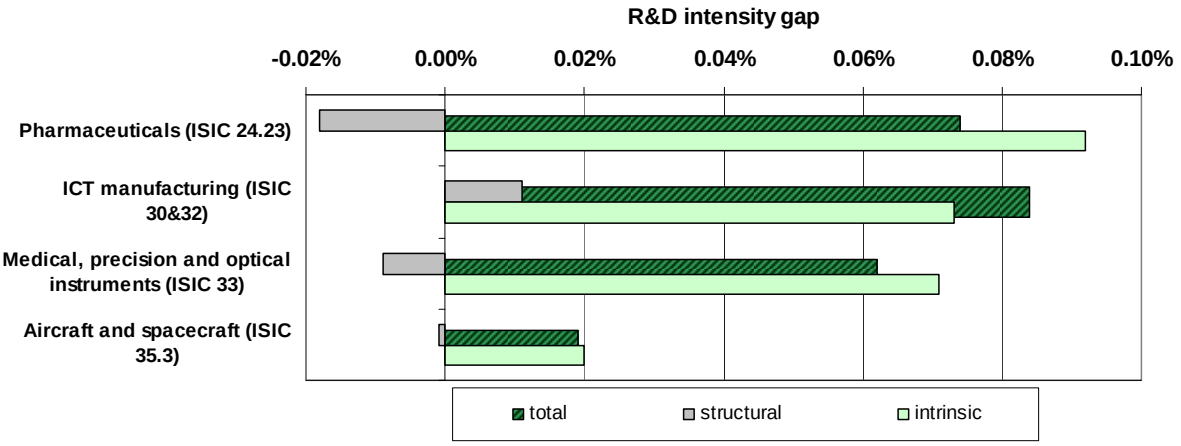
The second term on the right side of the formula is the underinvestment effect, accounting for the differences in R&D intensity sector by sector. If this term is negative, it means that the R&D intensities of sectors with high share within the total economy of region/country *X* are lower than in region/country *Y*.

Figure 7.3 Difference of R&D intensity between the US and the EU separate into structural and intrinsic factors (data from table 7.1).



Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

Figure 7.4 Difference of R&D intensity between the US and the EU separate into structural and intrinsic factors for high tech manufacturing sectors (data from table 7.1).



Source: The 2012 EU Industrial R&D Investment Scoreboard
European Commission, JRC/DG RTD.

The results in figure 7.3 show that practically the whole R&D intensity gap of the EU against the US is due to the high tech manufacturing and services sectors and the main reason of the gap in both cases is the lower R&D intensity of the EU sectors (intrinsic factors). In medium-high tech manufacturing, the EU shows a significant surplus against the US in terms of structural factors and a small gap in terms of intrinsic factors.

The closer look into high tech manufacturing sectors in figure 7.4 shows that ICT manufacturing and pharmaceuticals contribute to most of the gap and also mainly due to much lower R&D intensities in the EU (intrinsic factors).

It would be interesting to repeat the decomposition exercise with the *Scoreboard* data; however, it would not be fully meaningful because of the lack of *Scoreboard* representativeness in terms of industrial structure. Nevertheless, the *Scoreboard* data shown in Table 7.2 are self explanatory with regard to the nature of the EU-US R&D gap. The *Scoreboard* data clearly indicate that most of the R&D intensity gap is due to structural differences in high tech manufacturing and services sectors and that the EU companies outperform the US ones in medium-high tech manufacturing sectors in terms of both structural and intrinsic factors.

7.4. Inward and outward activities of foreign-controlled companies

As mentioned above, for a given country, the national statistics include the inward industrial activities of foreign-affiliated companies whereas the *Scoreboard* includes the companies' R&D and sales activities abroad. This main difference explains, to a large extent, the apparent discrepancies found in the analysis of the nature of the EU-US R&D intensity gap. In fact, the activities of foreign-controlled companies are of considerable magnitude,

especially in the case of high tech manufacturing sectors that account for the largest part of the gap.

Inward and outward activities of foreign-controlled companies are not yet fully available[13] but a few examples in key sectors can serve to illustrate the points above.

Table 7.3 summarizes the inward activities of foreign-controlled companies in the US and the outward activities of US companies abroad for the main sectors concerned with the EU-US R&D intensity gap.

Table 7.3 Activities of foreign affiliates in the US

Industrial sector	Inward* (%)	Outward* (%)
Whole manufacturing sector		
Production	21.3	36.2
R&D	14.5	13.6
Pharmaceuticals		
Production	67	77.6
R&D	22.4	14.6
Office, accounting & computing machinery		
Production	9.1	173
R&D	0	2.8

* Percentage of the total intramural activity performed within the US

Source: OECD globalization database on the activity of multinationals.

The example of table 7.3 shows two main points:

- Companies delocalize production and research facilities in different and considerable proportions which may lead to substantial changes of the R&D intensity of both source and destination countries. The intramural R&D intensity of the US in the pharmaceuticals sector is increased by both the positive inward-outward balance of R&D activities and the negative inward-outward balance of production activities. In the office, accounting and computing machinery sector, the US R&D intensity is increased due to the very large proportion of production activities abroad by US companies.

- Off shoring of activities vary significantly from sector to sector. In the ICT manufacturing industry, production of US companies is much larger abroad than at home but their R&D activities abroad are marginal. In the pharmaceuticals sector the situation is completely different, a large proportion of research and production in the US is performed by foreign-controlled companies and also US companies have significant production and R&D abroad. These figures also explain why the net sales of the US *Scoreboard* companies in high tech

manufacturing sectors, especially in ICT manufacturing sectors, are much larger than the whole US production in these sectors.

Unfortunately equivalent figures of table 7.3 for the whole EU are not fully available to make an EU-US comparison[14]. However, data from some EU countries confirm the relevance of companies' inward and outward activities in pharmaceutical and ICT sectors that should likely affect the comparison of R&D intensities between the EU and the US.

Annex 1 - Background information

The *Scoreboard* is part of the European Commission's monitoring activities to improve the understanding of trends in R&D investment by the private sector and the factors affecting it. It was created in response to the Commission's Research Investment Action Plan[15], which aims to help close the gap between the EU's R&D investment and that of other developed economies.

The annual publication of the *Scoreboard* is intended to raise awareness of the importance of R&D for businesses and to encourage firms to disclose information about their R&D investments and other intangible assets.

The data for the *Scoreboard* are taken from companies' publicly available audited accounts. As in more than 99% of cases these accounts do not include information on the place where R&D is actually performed, the company's whole R&D investment in the *Scoreboard* is attributed to the country in which it has its registered office[16]. This should be borne in mind when interpreting the *Scoreboard*'s country classifications and analyses.

The *Scoreboard*'s approach is, therefore, fundamentally different[17] from that of statistical offices or the OECD when preparing Business Enterprise Expenditure on R&D (BERD) data, which are specific to a given territory. The *Scoreboard* data are primarily of interest to those concerned with benchmarking company commitments and performance (e.g. companies, investors and policymakers), while BERD data are primarily used by economists, governments and international organisations interested in the R&D performance of territorial units defined by political boundaries. The two approaches are therefore complementary. The methodological approach of the *Scoreboard*, its scope and limitations are further detailed in Annex 2 below.

Scope and target audience

The *Scoreboard* is a benchmarking tool which provides reliable up-to-date information on R&D investment and other economic and financial data, with a unique EU-focus. The 1500 companies listed in this year's *Scoreboard* account for about 90%[18] of worldwide business enterprise expenditure on R&D (BERD). The data in the *Scoreboard* are published as a four-year time-series to allow further trend analyses to be carried out, for instance, to examine links between R&D and business performance.

The *Scoreboard* is aimed at three main audiences.

- **Companies** can use the *Scoreboard* to benchmark their R&D investments and so find where they stand in the EU and in the global industrial R&D landscape. This information could be of value in shaping business or R&D strategy.
- **Investors and financial analysts** can use the *Scoreboard* to assess investment opportunities and risks.
- **Policy-makers, government and business organisations** can use R&D investment information as an input to policy formulation or other R&D-related actions.

Furthermore, the *Scoreboard* dataset has been made freely accessible so as to encourage further economic and financial analyses and research by any interested parties.

Annex 2 - Methodological notes

The data for the ranking of the 2012 EU Industrial R&D Scoreboard (the *Scoreboard*) have been collected from companies' annual reports and accounts by Bureau van Dijk Electronic Publishing GmbH (BvD). The source documents, annual reports & accounts, are public domain documents and so the *Scoreboard* is capable of independent replication. In order to ensure consistency with our previous *Scoreboards*, BvD data for the years prior to 2011 have been checked with the corresponding data of the previous *Scoreboards* adjusted for the corresponding exchange rates of the annual reports. In case of conflict, historic data from the nearest *Scoreboard* have been taken (e.g. data for 2010 from the 2011 *Scoreboard*, etc.).

Main characteristics of the data

The data correspond to companies' latest published accounts, intended to be their 2011 fiscal year accounts, although due to different accounting practices throughout the world, they also include accounts ending on a range of dates between late 2010 and early 2012. Furthermore, the accounts of some companies are publicly available more promptly than others. Therefore, the current set represents a heterogeneous set of timed data.

In order to maximise completeness and avoid double counting, the consolidated group accounts of the ultimate parent company are used. Companies which are subsidiaries of any other company are not listed separately. Where consolidated group accounts of the ultimate parent company are not available, subsidiaries are included.

In case of a demerger, the full history of the continuing entity is included. The history of the demerged company can only go back as far as the date of the demerger to avoid double counting of figures.

In case of an acquisition or merger, pro forma figures for the year of acquisition are used along with pro-forma comparative figures if available.

The R&D investment included in the *Scoreboard* is the cash investment which is funded by the companies themselves. It excludes R&D undertaken under contract for customers such as governments or other companies. It also excludes the companies' share of any associated company or joint venture R&D investment when disclosed. Where part or all of R&D costs have been capitalised, the additions to the appropriate intangible assets are included to calculate the cash investment and any amortisation eliminated.

Companies are allocated to the country of their registered office. In some cases this is different from the operational or R&D headquarters. This means that the results are independent of the actual location of the R&D activity.

Companies are in industry sectors according to the NACE Rev. 2[19] and the ICB (Industry Classification Benchmark).

Limitations

The *Scoreboard* relies on disclosure of R&D investment in published annual reports and accounts. Therefore, companies which do not disclose figures for R&D investment or which disclose only figures which are not material enough are not included in the *Scoreboard*. Due to different national accounting standards and disclosure practice, companies of some countries are less likely than others to disclose R&D investment consistently.

In some countries, R&D costs are very often integrated with other operational costs and can therefore not be identified separately. For example, companies from many Southern European countries or the new Member States are under-represented in the *Scoreboard*. On the other side, UK companies are over-represented in the *Scoreboard*.

For listed companies, country representation will improve with IFRS adoption.

The R&D investment disclosed in some companies' accounts follows the US practice of including engineering costs relating to product improvement. Where these engineering costs have been disclosed separately, they have been excluded from the *Scoreboard*. However, the incidence of non-disclosure is uncertain and the impact of this practice is a possible overstatement of some overseas R&D investment figures in comparison with the EU.

Where R&D income can be clearly identified as a result of customer contracts it is deducted from the R&D expense stated in the annual report, so that the R&D investment included in the *Scoreboard* excludes R&D undertaken under contract for customers such as governments or other companies. However, the disclosure practise differs and R&D income from customer contracts cannot always be clearly identified. This means a possible overstatement of some R&D investment figures in the *Scoreboard* for companies with directly R&D related income where this is not disclosed in the annual report.

In implementing the definition of R&D, companies exhibit variability arising from a number of sources: i) different interpretations of the R&D definition. Some companies view a process as an R&D process while other companies may view the same process as an engineering or other process; ii) different companies' information systems for measuring the costs associated with R&D processes; iii) different countries' fiscal treatment of costs.

Interpretation

There are some fundamental aspects of the *Scoreboard* which affect their interpretation.

The focus of the *Scoreboard* on R&D investment as reported in group accounts means that the results can be independent of the location of the R&D activity. The *Scoreboard* indicates the level of R&D funded by companies, not all of which is carried out in the country in which the company is registered. This enables inputs such as R&D and Capex investment to be related to outputs such as Sales, Profit, productivity ratios and market capitalisation.

The data used for the *Scoreboard* are different from data provided by statistical offices, e.g. BERD data. The *Scoreboard* refers to all R&D financed by a particular company from its own funds, regardless of where that R&D activity is performed. BERD refers to all R&D activities performed by businesses within a particular sector and territory, regardless of the location of the business's headquarters, and regardless of the

sources of finance.

Further, the *Scoreboard* collects data from audited financial accounts and reports. BERD typically takes a stratified sample, covering all large companies and a representative sample of smaller companies. Additional differences concern the definition of R&D intensity (BERD uses the percentage of value added, while the *Scoreboard* measures it as the R&D/Sales ratio) and the sectoral classification they use (BERD follows NACE, the European statistical classification of economic sectors, while the *Scoreboard* classifies companies' economic activities according to the ICB classification).

Sudden changes in R&D figures may arise because a change in company accounting standards. For example, the first time adoption of IFRS[20], may lead to information discontinuities due to the different treatment of R&D, i.e. R&D capitalisation criteria are stricter and, where the criteria are met, the amounts must be capitalised.

For many highly diversified companies, the R&D investment disclosed in their accounts relates only to part of their activities, whereas sales and profits are in respect of all their activities. Unless such groups disclose their R&D investment additional to the other information in segmental analyses, it is not possible to relate the R&D more closely to the results of the individual activities which give rise to it. The impact of this is that some statistics for these groups, e.g. R&D as a percentage of sales, are possibly underestimated and so comparisons with non-diversified groups are limited.

At the aggregate level, the growth statistics reflect the growth of the set of companies in the current year set. Companies which may have existed in the base year but which are not represented in the current year set are not part of the *Scoreboard* (a company may continue to be represented in the current year set if it has been acquired by or merged with another).

For companies outside the Euro area, all currency amounts have been translated at the Euro exchange rates ruling at 31 December 2011 as shown in Table A3.1.The exchange rate conversion also applies to the historical data. The result is that over time the *Scoreboard* reflects the domestic currency results of the companies rather than economic estimates of current purchasing parity results. The original domestic currency data can be derived simply by reversing the translations at the rates above. Users can then apply their own preferred current purchasing parity transformation models.

Table A3.1. Euro exchange rates applied to *Scoreboard* data of companies based in different currency areas (as of 31 Dec 2011).		
Country	**As of 31 Dec 2010**	**As of 31 Dec 2011**
Australia	***$ 1.3087***	**$ 1.2740**
Brazil	***2.2177 Brazilian real***	**2.4051 Brazilian real**
Canada	***$ 1.333***	**$ 1.3210**
China	***8.84 Renminbi***	**8.1526 Renminbi**
Czech Republic	***25.0889 Koruna***	**25.7998 Koruna**
Croatia	***7.3819 Kuna***	**7.5370 Kuna**
Denmark	***7.4518 Danish Kronor***	**7.4344 Danish Kronor**
Hungary	***278.337 Forint***	**314.158 Forint**
India	***59.9846 Indian Rupee***	**68.9178 Indian Rupee**
Israel	***4.75 Shekel***	**4.9439 Shekel**
Japan	***108.8013 Yen***	**100.6036 Yen**
Mexico	***16.55 Mexican Peso***	**18.10 Mexican Peso**
Norway	***7.797 Norwegian Kronor***	**7.750 Norwegian Kronor**
Poland	***3.9634 Zloty***	**4.4218 Zloty**
Russia	***40.952 Rouble***	**41.666 Rouble**
South Korea	***1522.46 Won***	**1492.54 Won**
Sweden	***9.0186 Swedish Kronor***	**8.9119 Swedish Kronor**
Switzerland	***1.2504 Swiss Franc***	**1.2174 Swiss Franc**
Turkey	***2.0646 Turkish lira***	**2.450 Turkish lira**
UK	***£ 0.8568***	**£ 0.8368**
USA	***$ 1.3415***	**$ 1.2939**
Taiwan	***$ 39.1131***	**$ 39.1696**

Glossary of definitions

1. **Research and Development (R&D) investment** in the *Scoreboard* is the cash investment funded by the companies themselves. It excludes R&D undertaken under contract for customers such as governments or other companies. It also excludes the companies' share of any associated company or joint venture R&D investment. Being that disclosed in the annual report and accounts, it is subject to the accounting definitions of R&D. For example, a definition is set out in International Accounting Standard (IAS) 38 “Intangible assets” and is based on the OECD “Frascati” manual. **Research** is defined as original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding. Expenditure on research is recognised as an expense when it is incurred. **Development** is the application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems or services before the start of commercial production or use. Development costs are capitalised when they meet certain criteria and when it can be demonstrated that the asset will generate probable future economic benefits. Where part or all of R&D costs have been capitalised, the additions to the appropriate intangible assets are included to calculate the cash investment and any amortisation eliminated.

2. **Net sales** follow the usual accounting definition of sales, excluding sales taxes and shares of sales of joint ventures & associates. For banks, sales are defined as the “Total (operating) income” plus any insurance income. For insurance companies, sales are defined as “Gross premiums written” plus any banking income.

3. **R&D intensity** is the ratio between R&D investment and net sales of a given company or group of companies. At the aggregate level, R&D intensity is calculated only by those companies for which data exist for both R&D and net sales in the specified year. The calculation of R&D intensity in the *Scoreboard* is different from than in official statistics, e.g. BERD, where R&D intensity is based on value added instead of net sales.

4. **Operating profit** is calculated as profit (or loss) before taxation, plus net interest cost (or minus net interest income) minus government grants, less gains (or plus losses) arising from the sale/disposal of businesses or fixed assets.

5. **One-year growth** is simple growth over the previous year, expressed as a percentage: 1 yr growth = 100*((C/B)-1); where C = current year amount, and B = previous year amount. 1yr growth is calculated only if data exist for both the current and previous year. At the aggregate level, 1yr growth is calculated only by aggregating those companies for which data exist for both the current and previous year.

6. **Three-year growth** is the compound annual growth over the previous three years, expressed as a percentage: 3 yr growth = 100*(((C/B)^(1/t))-1); where C = current year amount, B = base year amount (where base year = current year - 3), and t = number of time periods (= 3). 3yr growth is calculated only if data exist for the current and base years. At the aggregate level, 3yr growth is calculated only by aggregating those companies for which data exist for the current and base years.

7. **Capital expenditure (Capex)** is expenditure used by a company to acquire or upgrade physical assets such as equipment, property, industrial buildings. In accounts capital expenditure is added to an asset account (i.e. capitalised), thus increasing the asset's base. It is disclosed in accounts as additions to tangible fixed assets.

8. **Number of employees** is the total consolidated average employees or year end employees if average not stated.

Annex 3 – Composition of the top 1000 EU sample

The analysis of chapter 6 applies an extended sample of 1000 companies based in the EU. It consists of 405 companies included in the world R&D ranking of top 1500 companies and additional 595 companies also ranked by level of R&D investment. The composition by country and industry of the EU 1000 sample is presented in the table A3.1 below.

Table A3.1 Distribution of the sample of 1000 companies based in the EU by country and industry

Industries	EU Country codes																			
(4-digit ICB)	AU	BE	CZ	DK	FI	FR	DE	EL	EI	IT	LU	MT	PL	PO	SI	ES	SV	NL	UK	Total
Automobiles & parts	2				1	7	20			7							1		4	42
Pharmaceuticals		1		2	1	10	6		3	5				1	1	3	5	2	14	54
Telecommunications equipment		1		1	2	3	1									1	2	1	8	20
Aerospace & defence		1				6	2			2						1	1	1	11	25
Chemicals	3	5		1	4	4	11				1						2	3	9	43
Banks		2		2			6		1	2	1		1	2		1	3	2	5	28
Electrical components & equipment	1			1	1	5	5		1	2							2		9	27
Industrial machinery	4	2		3	7	7	30		1	4						2	9		10	79
Software	2	1		1	4	13	14			1							7	3	24	70
Fixed line telecommunications	1	1		1		1	1			1			1	1		1	2	1	2	14
Semiconductors	1	1				1	5										1	4	4	17
Health care equipment & services		2		2		2	14		2	1							6		5	34
Oil & gas producers	1			1	1	1				1						1			3	9
Commercial vehicles & trucks	1				1	2	5			2	1					1	2	1		16
Food producers				1	4	3	2		2		1					1		5	5	24
Leisure goods				2	1	2	1											2	1	9
Support services	1					3	22		1		1						7	2	22	59
General industrials	1			1	1		10			1						1	1	1	4	21
Media						5				1							1		6	13
Construction & materials	1	3		2	2	7	6		2	3					1	3	2	8	2	42
Electronic equipment	1	4			4	2	11			4							1	5	9	41
Electricity		1	1		2	2	1			2				1		2	1		2	15

Personal goods	1					5	6			3	2						1	1	1	20
Household goods & home construction					1	2	4			3						1	1		8	20
General retailers						1	6			1							1	1	7	17
Biotechnology	1	5		9	1	8	7										4	1	13	49
Computer hardware						1	1		1								3		3	9
Computer services				1	1	8	5			1				1		2			16	35
Industrial metals & mining	2	1			2	1	5				2						2	1	1	17
Alternative energy		1		2			6				1								1	11
Gas, water & multiutilities	1					2	3												2	8
Food & drug retailers		1				1	1										1	2	4	10
Industrial transportation			1	1		3	1			2							2	1	1	12
Travel & leisure	1				1	1	3	1		1		1					2		6	17
Mobile telecommunications					1		1												2	4
Other financials						2	4				1						3		5	15
Oil equipment, services & distribution						2					2							1	1	6
Tobacco																	1		1	2
Nonlife insurance	1						3												2	6
Forestry & paper					3	1											4		1	9
Life insurance						1												1	2	4
Mining																	2		4	6
Beverages		1		1														1	2	5
Real Estate Investment & Services		1					4										2	1	4	12
Electronic office equipment						1														1
Internet							1												2	3
Total	27	35	2	35	46	126	234	1	14	50	13	1	2	6	2	21	85	52	248	1000

Source: The 2012 EU Industrial R&D Investment Scoreboard

European Commission, JRC/DG RTD.

Annex 4 - Main indicators of the top 1500 R&D investors

The following tables provide the list of top R&D investors ranked by the level of R&D investment, including companies' net sales, R&D intensity and operating profits.

The full dataset of the 2012 EU industrial R&D investment *Scoreboard* is freely available in the JRC/IPTS website http://iri.jrc.ec.europa.eu/.

The data for the EU and the non-EU groups are presented in single tables comprising rankings by companies, industrial sectors and countries. Each listing includes the following company data of the latest four financial years:

- Company identification (name, country of registration, sector of declared activity according to ICB classifications.
- R&D investment
- Net Sales
- Capital expenditure
- Operating profit or loss
- Total number of employees

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
1	Toyota Motor	Japan	Automobiles & parts	7754.5	7.6	184798.1	-1.9	4.2
2	Microsoft	USA	Software & computer services	7582.5	8.5	56977.4	5.4	13.3
3	Volkswagen	Germany	Automobiles & parts	7203.0	15.1	159337.0	25.6	4.5
4	Novartis	Switzerland	Pharmaceuticals & biotechnology	7001.3	12.1	45263.2	15.7	15.5
5	Samsung Electronics	South Korea	Electronic & electrical equipment	6857.8	8.8	110716.1	6.9	6.2
6	Pfizer	USA	Pharmaceuticals & biotechnology	6805.8	-6.4	52109.9	-0.6	13.1
7	Roche	Switzerland	Pharmaceuticals & biotechnology	6782.3	-8.0	34935.1	-10.4	19.4
8	Intel	USA	Technology hardware & equipment	6453.4	27.0	41733.5	23.8	15.5
9	General Motors	USA	Automobiles & parts	6278.7	16.7	116141.9	10.8	5.4
10	Merck US	USA	Pharmaceuticals & biotechnology	6090.1	-8.3	37133.5	4.5	16.4
11	Johnson & Johnson	USA	Pharmaceuticals & biotechnology	5833.5	10.3	50258.9	5.6	11.6
12	Daimler	Germany	Automobiles & parts	5629.0	16.0	106540.0	9.0	5.3
13	Panasonic	Japan	Leisure goods	5173.1	9.1	78023.7	5.8	6.6
14	Honda Motor	Japan	Automobiles & parts	5169.1	12.2	79036.8	-7.3	6.5
15	Nokia	Finland	Technology hardware & equipment	4910.0	-0.6	38659.0	-8.9	12.7
16	Sanofi-Aventis	France	Pharmaceuticals & biotechnology	4795.0	9.2	33389.0	3.2	14.4
17	GlaxoSmithKline	UK	Pharmaceuticals & biotechnology	4377.0	-2.4	32725.1	-3.5	13.4
18	Sony	Japan	Leisure goods	4310.5	0.4	64569.3	-10.0	6.7
19	Siemens	Germany	Electronic & electrical equipment	4278.0	0.9	73515.0	-3.2	5.8
20	Nissan Motor	Japan	Automobiles & parts	4256.3	11.1	93564.5	25.2	4.5
21	Robert Bosch	Germany	Automobiles & parts	4242.0	10.9	51494.0	9.0	8.2
22	Cisco Systems	USA	Technology hardware & equipment	4241.4	4.1	35598.6	15.0	11.9
23	IBM	USA	Software & computer services	4219.0	7.4	82630.8	7.1	5.1
24	Hitachi	Japan	Technology hardware & equipment	4102.0	10.8	96118.7	7.8	4.3
25	Ford Motor	USA	Automobiles & parts	4096.1	6.0	105312.6	5.7	3.9
26	Google	USA	Software & computer services	3989.5	37.2	29295.2	29.3	13.6
27	Eli Lilly	USA	Pharmaceuticals & biotechnology	3880.4	2.8	18770.0	5.2	20.7
28	AstraZeneca	UK	Pharmaceuticals & biotechnology	3668.0	10.4	25961.0	1.0	14.1
29	Ericsson	Sweden	Technology hardware & equipment	3656.9	19.6	25462.4	11.6	14.4
30	General Electric	USA	General industrials	3555.9	16.8	109928.9	-4.4	3.2
31	Oracle	USA	Software & computer services	3495.6	0.1	28689.2	4.2	12.2
32	BMW	Germany	Automobiles & parts	3373.0	21.6	68821.0	17.9	4.9
33	EADS	The Netherlands	Aerospace & defence	3249.0	5.4	49128.0	7.4	6.6
34	Abbott Laboratories	USA	Pharmaceuticals & biotechnology	3191.4	10.9	30026.5	10.5	10.6
35	Toshiba	Japan	General industrials	3180.8	-1.0	60661.8	-4.4	5.2
36	LG	South Korea	Electronic & electrical equipment	3153.7	47.8	6749.6	-90.0	46.7
37	Canon	Japan	Technology hardware	3060.8	-2.5	35375.6	-4.0	8.7

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
			& equipment					
38	Bayer	Germany	Chemicals	3045.0	-5.2	36528.0	4.1	8.3
39	Bristol-Myers Squibb	USA	Pharmaceuticals & biotechnology	2967.0	7.7	16418.6	9.0	18.1
40	Denso	Japan	Automobiles & parts	2966.9	10.5	31370.0	6.0	9.5
41	Huawei	China	Technology hardware & equipment	2906.5	48.5	15659.3	-31.3	18.6
42	Takeda Pharmaceutical	Japan	Pharmaceuticals & biotechnology	2803.1	-4.9	15005.0	3.0	18.7
43	Boeing	USA	Aerospace & defence	2771.5	-4.8	53122.3	6.9	5.2
44	NTT	Japan	Fixed line telecommunications	2663.6	-3.7	104486.5	3.2	2.5
45	Peugeot (PSA)	France	Automobiles & parts	2634.0	9.7	59912.0	6.9	4.4
46	Boehringer Ingelheim	Germany	Pharmaceuticals & biotechnology	2516.0	2.6	13171.0	4.6	19.1
47	Hewlett-Packard	USA	Technology hardware & equipment	2514.9	10.0	98342.2	1.2	2.6
48	Alcatel-Lucent	France	Technology hardware & equipment	2514.0	-1.8	15327.0	-2.9	16.4
49	Fujitsu	Japan	Software & computer services	2370.3	6.0	44426.1	-4.5	5.3
50	Qualcomm	USA	Technology hardware & equipment	2314.7	17.5	11559.6	36.1	20.0
51	Amgen	USA	Pharmaceuticals & biotechnology	2177.1	-2.7	11820.9	1.6	18.4
52	Fiat	Italy	Automobiles & parts	2175.0	12.3	59559.0	4.1	3.7
53	Renault	France	Automobiles & parts	2064.0	19.4	42628.0	11.7	4.8
54	EMC	USA	Technology hardware & equipment	2032.2	15.0	15463.0	17.6	13.1
55	Volvo	Sweden	Industrial engineering	1965.2	7.9	34825.8	17.2	5.6
56	Finmeccanica	Italy	Aerospace & defence	1960.0	-0.4	17318.0	1.9	11.3
57	SAP	Germany	Software & computer services	1939.0	12.1	14233.0	14.2	13.6
58	Astellas Pharma	Japan	Pharmaceuticals & biotechnology	1887.8	-12.6	9639.7	1.6	19.6
59	Apple	USA	Technology hardware & equipment	1877.3	36.3	83661.0	66.0	2.2
60	Daiichi Sankyo	Japan	Pharmaceuticals & biotechnology	1840.2	-4.8	9334.3	-3.0	19.7
61	Renesas	Japan	Electronic & electrical equipment	1814.7	-9.9	8781.8	-22.4	20.7
62	Caterpillar	USA	Industrial engineering	1775.3	20.6	46478.1	41.2	3.8
63	Philips	The Netherlands	Leisure goods	1768.0	4.2	22579.0	-11.2	7.8
64	FUJIFILM	Japan	Electronic & electrical equipment	1724.0	-1.0	21830.3	0.7	7.9
65	STMicroelectronics	The Netherlands	Technology hardware & equipment	1693.3	4.0	7523.8	-5.9	22.5
66	Continental	Germany	Automobiles & parts	1693.0	11.0	30504.9	17.1	5.5
67	Amazon.com	USA	General retailers	1636.9	8.8	37156.7	40.6	4.4
68	PetroChina	China	Oil & gas producers	1622.0	11.7	245787.8	36.7	0.7
69	BASF	Germany	Chemicals	1622.0	7.6	73497.0	15.1	2.2
70	NEC	Japan	Software & computer services	1610.6	-8.2	30198.7	-2.5	5.3
71	United Technologies	USA	Aerospace & defence	1590.5	17.9	44972.6	7.1	3.5
72	Otsuka	Japan	Pharmaceuticals & biotechnology	1583.4	-3.2	11481.2	5.9	13.8
73	Procter & Gamble	USA	Household goods & home construction	1568.1	4.1	64672.7	5.0	2.4
74	Mitsubishi Electric	Japan	Electronic & electrical equipment	1551.2	27.0	36191.3	8.6	4.3

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
75	Sharp	Japan	Electronic & electrical equipment	1539.3	-7.0	24421.3	-10.9	6.3
76	Broadcom	USA	Technology hardware & equipment	1532.6	12.5	5710.6	8.4	26.8
77	Merck DE	Germany	Pharmaceuticals & biotechnology	1517.1	8.6	10276.4	15.1	14.8
78	DuPont	USA	Chemicals	1511.7	18.5	29338.4	20.5	5.2
79	Delphi	UK	Automobiles & parts	1433.9	87.9	12397.4	17.6	11.6
80	Banco Santander	Spain	Banks	1420.0	6.1	45297.0	7.7	3.1
81	Honeywell	USA	General industrials	1390.4	22.7	28231.7	9.5	4.9
82	Hyundai Motor	South Korea	Automobiles & parts	1386.7	-14.3	52202.3	-30.8	2.7
83	Mitsubishi Chemical	Japan	Chemicals	1377.7	1.3	31902.4	27.6	4.3
84	Texas Instruments	USA	Technology hardware & equipment	1325.5	9.2	10615.2	-1.7	12.5
85	Dow Chemical	USA	Chemicals	1272.1	-0.8	46359.8	11.8	2.7
86	Royal Bank of Scotland	UK	Banks	1254.7	41.5	28789.1	-27.6	4.4
87	Nestle	Switzerland	Food producers	1248.5	-23.0	68703.7	-23.8	1.8
88	Eisai	Japan	Pharmaceuticals & biotechnology	1244.4	-30.1	6443.6	-19.3	19.3
89	Sumitomo Chemical	Japan	Chemicals	1215.8	4.3	19370.0	20.2	6.3
90	Novo Nordisk	Denmark	Pharmaceuticals & biotechnology	1209.9	-5.1	8924.4	9.2	13.6
91	Aisin Seiki	Japan	Automobiles & parts	1207.7	20.2	22912.9	12.2	5.3
92	Research In Motion	Canada	Technology hardware & equipment	1204.9	15.4	14247.6	-7.4	8.5
93	Vale	Brazil	Mining	1190.0	96.6	45590.8	46.0	2.6
94	Ricoh	Japan	Technology hardware & equipment	1183.6	8.4	18928.4	-5.6	6.3
95	Monsanto	USA	Food producers	1172.4	25.9	10445.9	28.7	11.2
96	Medtronic	USA	Health care equipment & services	1165.5	0.0	12507.9	1.6	9.3
97	Petroleo Brasiliero	Brazil	Oil & gas producers	1149.6	67.9	101524.2	22.6	1.1
98	Celgene	USA	Pharmaceuticals & biotechnology	1130.5	30.8	3742.2	33.5	30.2
99	ZTE	China	Technology hardware & equipment	1129.8	16.2	10579.8	22.8	10.7
100	Advanced Micro Devices	USA	Technology hardware & equipment	1123.0	3.4	5076.1	1.1	22.1
101	eBay	USA	General retailers	1118.1	31.3	9005.1	27.3	12.4
102	ABB	Switzerland	Industrial engineering	1116.8	28.7	29360.8	20.3	3.8
103	Suzuki Motor	Japan	Automobiles & parts	1092.3	1.0	24981.5	1.8	4.4
104	Telefonica	Spain	Fixed line telecommunications	1089.0	20.9	62837.0	3.5	1.7
105	Porsche	Germany	Automobiles & parts	1046.0	13.2			
106	Hon Hai Precision Industry	Taiwan	Electronic & electrical equipment	1042.7	5.3	88139.7	15.2	1.2
107	China Railway Construction	China	Construction & materials	1039.2	-9.8	54148.3	-3.3	1.9
108	Unilever	The Netherlands	Food producers	1009.0	8.7	46467.0	5.0	2.2
109	Seagate Technology	Ireland	Technology hardware & equipment	1006.0	15.0			
110	Vivendi	France	Media	998.0	-10.2	28813.0	-0.2	3.5
111	Deere	USA	Industrial engineering	947.7	16.5	23123.2	15.1	4.1
112	Biogen Idec	USA	Pharmaceuticals & biotechnology	942.6	-2.3	3901.9	7.0	24.2
113	Gilead Sciences	USA	Pharmaceuticals & biotechnology	929.3	13.5	6480.7	5.5	14.3
114	Yahoo!	USA	Software & computer	925.2	0.4	3852.1	-21.2	24.0

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
			services					
115	AT&T	USA	Fixed line telecommunications	925.1	-6.5	88690.0	1.3	1.0
116	Mazda Motor	Japan	Automobiles & parts	912.0	7.7	20217.0	-6.0	4.5
117	Electronic Arts	USA	Leisure goods	903.5	1.4	3201.9	15.4	28.2
118	HSBC	UK	Banks	872.6	17.6	52822.5	-14.6	1.7
119	Syngenta	Switzerland	Chemicals	871.0	9.2	10254.3	14.0	8.5
120	Royal Dutch Shell	UK	Oil & gas producers	869.5	10.4	363375.1	27.7	0.2
121	Applied Materials	USA	Technology hardware & equipment	864.1	-2.2	8128.1	10.1	10.6
122	Taiwan Semiconductor	Taiwan	Technology hardware & equipment	863.6	13.9	10902.5	1.8	7.9
123	Sumitomo Electric	Japan	Electronic & electrical equipment	861.0	19.9	20478.4	12.2	4.2
124	Telstra	Australia	Fixed line telecommunications	857.1	12.3	19804.9	1.3	4.3
125	Western Digital	USA	Technology hardware & equipment	850.1	80.0	9643.7	26.7	8.8
126	Schneider	France	Electronic & electrical equipment	838.0	18.9	22387.0	14.3	3.7
127	Bridgestone	Japan	Automobiles & parts	835.1	-1.3	30074.6	5.7	2.8
128	Teva Pharmaceutical Industries	Israel	Pharmaceuticals & biotechnology	834.7	15.8	14152.6	13.6	5.9
129	Schlumberger	USA	Oil equipment, services & distribution	829.3	16.8	30558.8	44.1	2.7
130	BT	UK	Fixed line telecommunications	825.7	-16.1	22580.3	-5.9	3.7
131	France Telecom	France	Fixed line telecommunications	819.0	-3.1	45277.0	-3.2	1.8
132	Tokyo Electron	Japan	Technology hardware & equipment	810.5	56.1	6295.5	51.3	12.9
133	Exxon Mobil	USA	Oil & gas producers	806.9	3.2	360946.7	26.2	0.2
134	3M	USA	General industrials	800.7	12.7	22885.1	11.1	3.5
135	Motorola	USA	Technology hardware & equipment	799.9	-59.1	6339.7	-64.1	12.6
136	Juniper Networks	USA	Technology hardware & equipment	793.6	11.9	3438.2	8.7	23.1
137	Danaher	USA	Electronic & electrical equipment	787.2	25.8	12435.7	21.9	6.3
138	Marvell Technology	Bermuda	Technology hardware & equipment	782.9	12.9	2622.3	-6.1	29.9
139	ALSTOM	France	Industrial engineering	780.0	11.0	19934.0	-4.7	3.9
140	UCB	Belgium	Pharmaceuticals & biotechnology	780.0	11.3	2876.0	-10.6	27.1
141	Total	France	Oil & gas producers	776.0	8.5	166550.0	4.6	0.5
142	Nvidia	USA	Technology hardware & equipment	770.2	17.4	3089.8	12.8	24.9
143	Symantec	USA	Software & computer services	748.9	12.4	5201.3	8.7	14.4
144	Fiat Industrial	Italy	General retailers	742.0	13.8	24289.0	13.8	3.1
145	ZF	Germany	Automobiles & parts	732.0	17.9	15509.0	20.2	4.7
146	Baxter International	USA	Health care equipment & services	731.1	3.4	10737.3	8.2	6.8
147	SAFRAN	France	Aerospace & defence	723.0	33.9	11658.0	5.7	6.2
148	Konica Minolta	Japan	Technology hardware & equipment	721.2	6.0	7635.9	-4.5	9.4
149	L'Oreal	France	Personal goods	720.5	8.4	20343.1	4.3	3.5
150	SAIC Motor	China	Automobiles & parts	702.3	44.2	50942.8	18.6	1.4
151	Allergan	USA	Pharmaceuticals & biotechnology	697.6	12.2	4132.5	8.7	16.9

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
152	Boston Scientific	USA	Health care equipment & services	691.7	-4.7	5890.7	-2.4	11.7
153	Nikon	Japan	Leisure goods	683.2	14.1	9135.2	17.0	7.5
154	Dell	USA	Technology hardware & equipment	661.6	29.5	47972.0	0.9	1.4
155	Asahi Kasei	Japan	Chemicals	659.0	5.4	15644.4	9.8	4.2
156	China Railway	China	Construction & materials	655.6	156.0	54241.4	-2.9	1.2
157	Yamaha Motor	Japan	Automobiles & parts	646.5	17.9	12690.3	-1.3	5.1
158	Gazprom	Russia	Oil & gas producers	643.0	10.9	111378.9	29.0	0.6
159	NetApp	USA	Technology hardware & equipment	640.1	27.7	4817.4	21.7	13.3
160	Thales	France	Aerospace & defence	629.2	-4.0	13028.4	-0.7	4.8
161	Rolls-Royce	UK	Aerospace & defence	621.4	2.8	13292.2	0.4	4.7
162	Valeo	France	Automobiles & parts	617.0	10.8	10868.0	12.8	5.7
163	Freescale	Bermuda	Electronic & electrical equipment	616.0	1.9	3533.5	2.6	17.4
164	Forest Laboratories	USA	Pharmaceuticals & biotechnology	615.9	11.3	3514.8	3.9	17.5
165	Micron Technology	USA	Technology hardware & equipment	611.3	26.8	6363.7	-2.9	9.6
166	Telecom Italia	Italy	Fixed line telecommunications	611.0	-12.5	29957.0	8.7	2.0
167	Olympus	Japan	Health care equipment & services	610.1	-0.8	8438.1	-3.9	7.2
168	China Petroleum & Chemicals	China	Oil & gas producers	596.4	0.6	278902.5	18.8	0.2
169	Michelin	France	Automobiles & parts	592.0	8.6	20719.0	15.8	2.9
170	ASML Holding	The Netherlands	Technology hardware & equipment	590.3	12.8	5651.0	25.4	10.4
171	Isuzu Motors	Japan	Industrial engineering	584.8	0.3	13922.5	-1.1	4.2
172	Kirin	Japan	Beverages	578.7	4.6	20602.0	-4.9	2.8
173	Hynix Semiconductor	South Korea	Technology hardware & equipment	575.2	6.0	6975.6	-13.9	8.2
174	Adobe Systems	USA	Software & computer services	570.4	8.5	3258.6	11.0	17.5
175	Shire	UK	Pharmaceuticals & biotechnology	563.8	10.3	3295.0	22.8	17.1
176	Zygna	USA	Support services	561.9	386.2	881.1	90.8	63.8
177	Intuit	USA	Software & computer services	556.5	14.5	3208.1	19.0	17.3
178	Komatsu	Japan	Industrial engineering	545.4	18.1	19706.9	38.5	2.8
179	St Jude Medical	USA	Health care equipment & services	544.9	11.7	4337.0	8.7	12.6
180	Mondelez	USA	Food producers	542.5	20.4	42016.4	10.5	1.3
181	MediaTek	Taiwan	Technology hardware & equipment	540.8	-9.1	2217.3	-23.5	24.4
182	Shionogi	Japan	Pharmaceuticals & biotechnology	533.0	3.5	2657.8	-4.0	20.1
183	Nintendo	Japan	Leisure goods	523.8	15.9	6440.3	-54.8	8.1
184	TDK	Japan	Electronic & electrical equipment	522.6	-2.5	8101.1	0.8	6.5
185	Seiko Epson	Japan	Technology hardware & equipment	518.1	-24.3	8730.9	-10.9	5.9
186	Electricite de France	France	Electricity	518.0	6.6	65307.0	-9.9	0.8
187	Japan Tobacco	Japan	Tobacco	511.7	3.7	20224.6	-66.8	2.5
188	Toray Industries	Japan	Chemicals	511.6	11.4	15797.3	16.9	3.2
189	Agilent Technologies	USA	Electronic & electrical equipment	501.6	6.0	5112.5	21.5	9.8
190	Infineon Technologies	Germany	Technology hardware & equipment	499.0	4.4	3997.0	-13.4	12.5

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
191	BP	UK	Oil & gas producers	491.5	-18.5	290221.0	26.4	0.2
192	Mitsubishi Heavy	Japan	General industrials	486.8	-62.1	28051.7	-4.0	1.7
193	Chevron	USA	Oil & gas producers	484.6	19.2	188863.9	23.3	0.3
194	Raytheon	USA	Aerospace & defence	483.0	0.0	19210.9	-1.3	2.5
195	Tyco Electronics	Switzerland	Electronic & electrical equipment	482.3	6.7	11061.1	18.6	4.4
196	Cummins	USA	Industrial engineering	479.9	54.5	13948.5	36.5	3.4
197	Kao	Japan	Personal goods	479.0	7.3	12093.0	2.7	4.0
198	Fuji Heavy Industries	Japan	Automobiles & parts	478.5	29.5	15086.3	6.2	3.2
199	Deutsche Bank	Germany	Banks	476.0	50.6	33351.0	9.1	1.4
200	Thomson Reuters	Canada	Media	475.3	13.1	10670.8	9.5	4.5
201	Xerox	USA	Technology hardware & equipment	473.8	-6.1	17486.7	4.6	2.7
202	NXP Semiconductors	The Netherlands	Technology hardware & equipment	467.6	6.5	3241.4	-4.8	14.4
203	Australia & New Zealand Banking	Australia	Banks	463.9	14.1	12929.1	10.9	3.6
204	Automatic Data Processing	USA	Support services	463.6	16.7	7861.4	13.7	5.9
205	Asahi Glass	Japan	Construction & materials	461.8	17.9	12078.8	-5.7	3.8
206	Kyocera	Japan	Electronic & electrical equipment	453.0	-8.7	11842.2	10.9	3.8
207	Lockheed Martin	USA	Aerospace & defence	452.1	-8.3	35937.1	-0.8	1.3
208	Liebherr-International	Switzerland	Industrial engineering	449.6	24.4	8723.8	15.0	5.2
209	Barclays	UK	Banks	448.1	326.1	35350.4	-8.1	1.3
210	Whirlpool	USA	Household goods & home construction	446.7	12.0	14426.2	1.6	3.1
211	LSI	USA	Technology hardware & equipment	445.2	-14.0	1579.7	-20.5	28.2
212	Ono Pharmaceutical	Japan	Pharmaceuticals & biotechnology	441.3	12.8	1449.6	7.2	30.4
213	Commonwealth Bank of Australia	Australia	Banks	441.1	16.6	15283.8	5.0	2.9
214	Lloyds Banking	UK	Banks	440.9	146.9	24819.6	-51.1	1.8
215	Autodesk	USA	Software & computer services	437.8	14.2	1712.3	13.5	25.6
216	Corning	USA	Technology hardware & equipment	435.1	-6.6	6097.8	19.0	7.1
217	AREVA	France	Electricity	434.0	-16.5	8872.0	-20.2	4.9
218	Saint-Gobain	France	Construction & materials	430.0	5.9	42116.0	5.0	1.0
219	Emerson Electric	USA	Electronic & electrical equipment	428.9	17.3	18720.1	10.8	2.3
220	Covidien	Ireland	Health care equipment & services	428.2	23.9	8543.0	12.6	5.0
221	Maxim Integrated Products	USA	Technology hardware & equipment	426.9	5.2	1857.6	-2.8	23.0
222	Dongfeng Motor	China	Automobiles & parts	424.3	32.0	16122.3	7.4	2.6
223	Vertex Pharmaceuticals	USA	Pharmaceuticals & biotechnology	420.4	5.7	1090.2	883.9	38.6
224	Northrop Grumman	USA	Aerospace & defence	419.7	-9.9	20412.7	-24.0	2.1
225	Omron	Japan	Electronic & electrical equipment	418.5	11.3	6160.0	18.1	6.8
226	Regeneron Pharmaceuticals	USA	Pharmaceuticals & biotechnology	409.2	266.8	344.6	-2.9	118.8
227	Murata Manufacturing	Japan	Technology hardware & equipment	407.5	-1.6	5814.0	10.2	7.0
228	HTC	Taiwan	Technology hardware & equipment	407.4	23.3	11890.8	67.1	3.4

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
229	PepsiCo	USA	Beverages	405.8	7.6	51398.1	15.0	0.8
230	Textron	USA	Aerospace & defence	405.8	30.3	8714.0	7.1	4.7
231	Navistar International	USA	Industrial engineering	404.1	12.7	10787.5	14.9	3.7
232	Kawasaki Heavy Industries	Japan	General industrials	397.2	5.0	12964.9	11.2	3.1
233	Henkel	Germany	Household goods & home construction	396.0	0.8	15605.0	3.4	2.5
234	Rohm	Japan	Technology hardware & equipment	395.4	5.6	3029.5	-9.2	13.1
235	Johnson Controls	USA	Automobiles & parts	394.2	25.0	31558.1	19.0	1.2
236	Vestas Wind Systems	Denmark	Alternative energy	393.0	9.8	5836.0	-15.7	6.7
237	Analog Devices	USA	Technology hardware & equipment	390.7	2.7	2313.4	8.4	16.9
238	Brother Industries	Japan	Technology hardware & equipment	390.1	12.9	4946.1	11.5	7.9
239	Accenture	Ireland	Support services	388.9	31.2	17848.1	0.0	2.2
240	Avaya	USA	Technology hardware & equipment	388.7	23.6	4287.0	9.6	9.1
241	Synopsys	USA	Software & computer services	382.5	9.5	1186.8	11.2	32.2
242	DSM	The Netherlands	Chemicals	381.0	-7.1	9193.0	1.6	4.1
243	National Australia Bank	Australia	Banks	377.5	100.0	12922.8	-0.6	2.9
244	McKesson	USA	Food & drug retailers	376.4	3.4	94855.9	9.5	0.4
245	Actelion	Switzerland	Pharmaceuticals & biotechnology	375.9	-5.5	1475.3	-6.9	25.5
246	Hella	Germany	Automobiles & parts	373.7	15.8	3549.5	8.1	10.5
247	Korea Electric Power	South Korea	Electricity	371.4	-17.3	29210.2	10.6	1.3
248	Becton Dickinson	USA	Health care equipment & services	368.3	-9.4	5861.4	0.6	6.3
249	Vodafone	UK	Mobile telecommunications	363.3	5.9	55464.4	1.2	0.7
250	CSR China	China	Industrial engineering	363.2	21.2	9753.4	24.0	3.7
251	CA	USA	Software & computer services	359.4	-27.5	3720.5	8.7	9.7
252	Stryker	USA	Health care equipment & services	357.1	17.3	6420.1	13.5	5.6
253	SanDisk	USA	Technology hardware & equipment	356.6	9.2	4376.0	17.3	8.1
254	Shin-Etsu Chemical	Japan	Chemicals	355.3	6.4	10418.8	14.3	3.4
255	Carl Zeiss	Germany	Health care equipment & services	354.5	24.0	4237.1	42.1	8.4
256	Evonik Industries	Germany	General industrials	349.0	5.4	51.0	-99.7	684.3
257	Mitsubishi Motors	Japan	Automobiles & parts	348.0	55.7	17971.9	25.1	1.9
258	Lenovo	Hong Kong	Technology hardware & equipment	347.7	48.3	22856.8	37.0	1.5
259	Amadeus	Spain	Software & computer services	347.5	6.7	2759.1	6.4	12.6
260	Ajinomoto	Japan	Food producers	346.4	-2.2	11906.2	2.3	2.9
261	Pioneer	Japan	Electronic & electrical equipment	344.0	-3.8	4343.1	-0.5	7.9
262	PPG Industries	USA	Chemicals	343.9	12.9	11504.0	10.9	3.0
263	Autoliv	USA	Automobiles & parts	341.2	22.2	6362.5	14.8	5.4
264	JFE	Japan	Industrial metals & mining	340.5	-5.1	31488.2	11.4	1.1
265	Kla-Tencor	USA	Technology hardware & equipment	338.9	33.1	2451.5	74.2	13.8
266	Xilinx	USA	Technology hardware	336.4	10.9	1731.8	-5.4	19.4

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
			& equipment					
267	Akzo Nobel	The Netherlands	Chemicals	336.0	7.0	15697.0	1.8	2.1
268	Lam Research	USA	Technology hardware & equipment	335.9	35.4	2059.8	24.9	16.3
269	SunGard Data Systems	USA	Software & computer services	334.6	12.5	3402.9	-14.9	9.8
270	Mitsui Chemicals	Japan	Chemicals	329.9	-13.0	14459.0	20.4	2.3
271	BAT	UK	Tobacco	329.8	52.5	18400.5	3.5	1.8
272	Tencent	Cayman Islands	Software & computer services	329.3	59.3	3495.3	45.0	9.4
273	Dassault Systemes	France	Software & computer services	329.3	2.2	1783.0	14.0	18.5
274	Daikin Industries	Japan	Construction & materials	328.0	16.9	12118.9	19.1	2.7
275	KDDI	Japan	Mobile telecommunications	326.7	6.1	35521.4	3.8	0.9
276	BYD	China	Electronic & electrical equipment	326.3	89.5	5680.6	-0.8	5.7
277	Toyota Boshoku	Japan	Automobiles & parts	323.6	0.3	9589.1	-2.0	3.4
278	MAHLE	Germany	Automobiles & parts	322.8	4.1	6002.2	14.1	5.4
279	Reed Elsevier	UK	Media	322.6	17.4	7171.9	-0.9	4.5
280	Eaton	USA	General industrials	322.3	-1.9	12403.6	17.0	2.6
281	Sandvik	Sweden	Industrial engineering	322.0	15.5	10557.0	13.8	3.1
282	Fuji Electric	Japan	Electronic & electrical equipment	320.7	32.8	6996.0	1.8	4.6
283	Sega Sammy	Japan	Travel & leisure	319.4	-22.6	3932.9	2.9	8.1
284	Philip Morris International	USA	Tobacco	319.2	5.6	59004.6	12.7	0.5
285	Teijin	Japan	Chemicals	316.7	-4.5	8496.0	11.6	3.7
286	Dai Nippon Printing	Japan	Media	315.1	-6.3	14988.1	-4.8	2.1
287	Cadence Design Systems	USA	Software & computer services	312.8	6.1	888.7	22.9	35.2
288	Kobe Steel	Japan	Industrial metals & mining	312.6	11.3	18542.7	11.6	1.7
289	Tesco	UK	Food & drug retailers	311.9	7.4	77118.6	5.9	0.4
290	Givaudan	Switzerland	Chemicals	311.3	-7.1	3215.8	-7.6	9.7
291	Halliburton	USA	Oil equipment, services & distribution	309.9	9.6	19189.3	38.1	1.6
292	UBIsoft Entertainment	France	Software & computer services	306.5	-5.2	1061.3	2.2	28.9
293	Advantest	Japan	Technology hardware & equipment	301.3	69.4	1402.6	165.1	21.5
294	Facebook	USA	Software & computer services	299.9	169.4	2868.1	88.0	10.5
295	Citrix Systems	USA	Software & computer services	299.1	6.2	1705.2	17.7	17.5
296	Nidec	Japan	Electronic & electrical equipment	298.8	21.6	6785.1	16.1	4.4
297	IHI	Japan	Industrial engineering	298.7	17.9	12150.4	-1.6	2.5
298	HBIS	China	Industrial metals & mining	298.5		15392.3	28.2	1.9
299	BSH Bosch und Siemens Hausgerate	Germany	Household goods & home construction	297.0	4.9	9654.0	6.4	3.1
300	Expedia	USA	Travel & leisure	294.5	33.7	2665.6	3.0	11.0
301	Ciena	USA	Technology hardware & equipment	293.6	15.9	1346.3	40.9	21.8
302	DNB	Norway	Banks	293.1	35.9	5410.0	6.4	5.4
303	Life Technologies	USA	Pharmaceuticals & biotechnology	292.1	0.7	2918.1	5.2	10.0

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
304	Wistron	Taiwan	Technology hardware & equipment	289.4	14.7	16806.7	7.0	1.7
305	Lexmark	USA	Technology hardware & equipment	289.1	1.4	3225.1	-0.6	9.0
306	Intesa Sanpaolo	Italy	Banks	288.0	14.3	16877.0	3.6	1.7
307	General Dynamics	USA	Aerospace & defence	287.5	-26.8	25254.7	0.7	1.1
308	Diehl	Germany	General industrials	287.2	14.2	2929.3	7.5	9.8
309	China Communications Construction	China	Construction & materials	283.8	46.9	36096.0	7.9	0.8
310	Statoil	Norway	Oil & gas producers	283.4	7.4	83298.1	22.6	0.3
311	ON Semiconductor	USA	Technology hardware & equipment	280.2	46.2	2660.4	48.8	10.5
312	Alps Electric	Japan	Electronic & electrical equipment	279.4	-0.1	5235.6	-4.4	5.3
313	CSL	Australia	Pharmaceuticals & biotechnology	278.6	12.1	3479.7	-0.5	8.0
314	Kubota	Japan	General industrials	277.0	10.4	10061.1	8.8	2.8
315	Metallurgical of China	China	General industrials	275.1	25.0	28177.2	11.3	1.0
316	Rockwell Collins	USA	Aerospace & defence	274.4	2.9	3714.4	3.0	7.4
317	Brocade Communications	USA	Technology hardware & equipment	273.9	0.0	1659.7	2.5	16.5
318	BAE Systems	UK	Aerospace & defence	273.6	-15.8	21233.6	-15.8	1.3
319	Dassault Aviation	France	Aerospace & defence	273.4	36.9	3305.3	-21.1	8.3
320	Yokogawa Electric	Japan	Electronic & electrical equipment	273.2	-4.5	3328.0	5.7	8.2
321	Compal Electronics	Taiwan	Electronic & electrical equipment	270.4	7.4	17694.1	-21.9	1.5
322	China CNR	China	Industrial engineering	267.7	21.7	10818.3	43.5	2.5
323	Fresenius	Germany	Health care equipment & services	267.0	9.4	16522.0	3.4	1.6
324	Hospira	USA	Pharmaceuticals & biotechnology	265.6	14.3	3135.6	3.6	8.5
325	Chimei Innolux	Taiwan	Electronic & electrical equipment	264.5	14.1	13021.3	3.4	2.0
326	Thermo Fisher Scientific	USA	Health care equipment & services	263.2	19.6	9062.4	10.9	2.9
327	Goodyear	USA	Automobiles & parts	262.0	-0.9	17595.6	20.9	1.5
328	JX	Japan	Oil & gas producers	259.6	5.1	106639.7	11.3	0.2
329	Infosys	India	Software & computer services	258.8	234.6	4895.1	22.7	5.3
330	Harman International Industries	USA	Leisure goods	256.5	2.9	3372.8	28.4	7.6
331	Delta Electronics (Taiwan)	Taiwan	Electronic & electrical equipment	254.9	12.2	4392.2	0.4	5.8
332	Sekisui Chemical	Japan	Household goods & home construction	254.7	6.7	9597.0	12.5	2.7
333	Toyota Industries	Japan	Automobiles & parts	252.1	30.2	15347.3	12.1	1.6
334	Visteon	USA	Automobiles & parts	252.0	-7.4	6219.2	8.2	4.1
335	Kia Motors	South Korea	Automobiles & parts	251.9	0.0	28981.1	2.1	0.9
336	Baker Hughes	USA	Oil equipment, services & distribution	250.4	-24.5	15326.5	37.6	1.6
337	Parker-Hannifin	USA	Industrial engineering	248.9	8.4	10159.9	6.5	2.4
338	Nitto Denko	Japan	Chemicals	248.6	19.8	6042.4	1.0	4.1
339	ThyssenKrupp	Germany	Industrial metals & mining	248.0	-1.2	43356.0	1.7	0.6
340	Kimberly-Clark	USA	Personal goods	244.2	-0.3	16111.0	5.6	1.5
341	Deutsche Telekom	Germany	Fixed line telecommunications	243.8	-6.9	58653.0	-6.0	0.4

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
342	Terumo	Japan	Health care equipment & services	241.9	38.8	3845.3	22.4	6.3
343	Harris	USA	Technology hardware & equipment	241.1	-4.2	4213.1	4.7	5.7
344	Avago Technologies	Singapore	Technology hardware & equipment	240.4	15.2			
345	United Microelectronics	Taiwan	Technology hardware & equipment	239.8	7.5	2979.2	-7.7	8.1
346	UniCredit	Italy	Banks	239.8	2.8	25651.7	0.1	0.9
347	BMC Software	USA	Software & computer services	239.4	3.1	1678.6	5.2	14.3
348	Altera	USA	Technology hardware & equipment	238.9	16.8	1595.5	5.6	15.0
349	Meiji	Japan	Food producers	236.9	5.0	11030.8	0.3	2.1
350	ArcelorMittal	Luxembourg	Industrial metals & mining	236.5	-5.0	72627.7	20.4	0.3
351	Taisho Pharmaceutical	Japan	Pharmaceuticals & biotechnology	235.5	-15.8	2568.9	0.9	9.2
352	RWE	Germany	Gas, water & multiutilities	235.0	-10.0	49153.0	-3.1	0.5
353	Quanta Computer	Taiwan	Technology hardware & equipment	234.1	1.0	28329.0	-1.3	0.8
354	Calsonic Kansei	Japan	Automobiles & parts	233.3	10.7	7779.3	26.3	3.0
355	Danone	France	Food producers	233.0	11.5	19318.0	13.6	1.2
356	Grunenthal	Germany	Personal goods	233.0	12.6			
357	Tellabs	USA	Technology hardware & equipment	232.3	0.3	993.7	-21.7	23.4
358	Mentor Graphics	USA	Software & computer services	231.4	5.1	784.2	10.9	29.5
359	GDF Suez	France	Gas, water & multiutilities	231.0	4.1	90673.0	7.3	0.3
360	Garmin	Switzerland	Leisure goods	230.8	7.7	2132.0	2.6	10.8
361	Electrolux	Sweden	Household goods & home construction	229.2	2.5	11400.1	-4.4	2.0
362	Watson Pharmaceuticals	USA	Pharmaceuticals & biotechnology	228.0	3.5	3543.1	28.5	6.4
363	Mylan	USA	Pharmaceuticals & biotechnology	227.8	4.5	4719.3	12.0	4.8
364	Sumitomo Metal Industries	Japan	Industrial metals & mining	227.1	9.8	14651.3	14.6	1.6
365	Yamaha	Japan	Leisure goods	226.9	5.0	3546.2	-14.0	6.4
366	Cerner	USA	Software & computer services	224.6	2.0	1702.7	19.1	13.2
367	Hexagon	Sweden	Industrial engineering	223.4	63.0	2169.1	38.8	10.3
368	Elbit Systems	Israel	Aerospace & defence	223.1	23.3	2177.5	5.5	10.2
369	KT	South Korea	Fixed line telecommunications	222.8	-38.2	14755.3	3.2	1.5
370	Paccar	USA	Industrial engineering	222.5	20.7	12640.2	58.9	1.8
371	AU Optronics	Taiwan	Electronic & electrical equipment	220.2	34.3	9693.2	-18.7	2.3
372	Portugal Telecom	Portugal	Fixed line telecommunications	219.0	9.5	6000.7	63.0	3.6
373	Samsung Electro-Mechanics	South Korea	Electronic & electrical equipment	217.1	54.5	4047.4	6.7	5.4
374	Behr	Germany	Automobiles & parts	216.6	3.6	3706.0	10.6	5.8
375	Hyundai Mobis	South Korea	Automobiles & parts	216.2	18.4	17643.6	18.7	1.2
376	Showa Denko	Japan	Chemicals	214.8	4.5	8493.9	7.2	2.5
377	AGCO	USA	Industrial engineering	213.3	25.7	6780.4	27.2	3.1
378	Knorr-Bremse	Germany	Industrial engineering	208.8	19.1	4240.8	14.2	4.9
379	Rheinmetall	Germany	Automobiles & parts	208.0	-2.8	4454.0	11.7	4.7
380	Parametric	USA	Software & computer	207.6	33.2	901.9	15.5	23.0

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
	Technology		services					
381	ConocoPhillips	USA	Oil & gas producers	206.4	16.1	189205.5	29.2	0.1
382	Ipsen	France	Pharmaceuticals & biotechnology	206.3	2.0	1159.8	-0.9	17.8
383	Rosneft	Russia	Oil equipment, services & distribution	205.2	184.6	64860.7	40.6	0.3
384	JVC KENWOOD	Japan	Leisure goods	205.1	-13.2	3190.8	-9.0	6.4
385	BioMerieux	France	Health care equipment & services	204.5	37.1			
386	Fanuc	Japan	Industrial engineering	203.6	31.8	5354.8	20.7	3.8
387	Colgate-Palmolive	USA	Personal goods	202.5	2.3	12933.0	7.5	1.6
388	Legrand	France	Electronic & electrical equipment	201.6	16.2	4250.1	9.2	4.7
389	L'Air Liquide	France	Chemicals	201.5	9.3	14456.9	7.2	1.4
390	Ingersoll-Rand	Ireland	Industrial engineering	198.9	5.5	11393.0	4.2	1.7
391	Chongoing Changan	China	Automobiles & parts	197.6	130.7	3087.9	-20.3	6.4
392	Rockwell Automation	USA	Industrial engineering	196.6	27.9	4637.5	23.5	4.2
393	Asustek Computer	Taiwan	Technology hardware & equipment	196.4	-8.6	9805.6	-10.6	2.0
394	Atlas Copco	Sweden	Industrial engineering	195.4	15.8	9111.7	16.2	2.1
395	Atmel	USA	Technology hardware & equipment	195.1	6.6	1393.5	9.7	14.0
396	Sankyo	Japan	Industrial engineering	193.9	26.6	1727.1	-13.9	11.2
397	Netflix	USA	General retailers	193.7	53.5	2476.7	48.2	7.8
398	OC Oerlikon	Switzerland	General industrials	193.0	2.6	3435.1	16.1	5.6
399	B Braun Melsungen	Germany	Health care equipment & services	192.1	13.9	4609.4	4.2	4.2
400	Sumitomo Rubber Industries	Japan	Automobiles & parts	191.5	3.0	6731.2	12.0	2.8
401	ENI	Italy	Oil & gas producers	191.0	-13.6	109589.0	11.2	0.2
402	Goodrich	USA	Aerospace & defence	190.9	0.0	6240.7	15.9	3.1
403	Edwards Lifesciences	USA	Health care equipment & services	190.4	20.5	1297.3	16.0	14.7
404	JDS Uniphase	USA	Technology hardware & equipment	190.1	40.7	1300.0	23.3	14.6
405	Weatherford International	Switzerland	Oil equipment, services & distribution	189.4	14.2	10039.4	27.1	1.9
406	Indra Sistemas	Spain	Software & computer services	189.3	2.8	2688.5	5.1	7.0
407	NCR	USA	Technology hardware & equipment	188.6	11.4	4206.7	13.0	4.5
408	Furukawa Electric	Japan	General industrials	188.4	9.8	9136.7	13.5	2.1
409	Illinois Tool Works	USA	Industrial engineering	187.8	10.2	13746.5	12.1	1.4
410	Teradata	USA	Software & computer services	187.0	64.6	1825.5	22.0	10.2
411	BorgWarner	USA	Automobiles & parts	186.0	30.1	5498.6	25.9	3.4
412	Zimmer	USA	Health care equipment & services	184.0	8.2	3440.6	5.5	5.3
413	ARM Holdings	UK	Technology hardware & equipment	183.6	12.8	587.7	21.0	31.2
414	CSR UK	UK	Technology hardware & equipment	182.6	18.0	653.2	5.6	28.0
415	SK Telecom	South Korea	Fixed line telecommunications	182.1	0.3	10694.8	3.3	1.7
416	Giant Interactive	Cayman Islands	Software & computer services	181.6	19.4	220.1	41.0	82.5
417	General Mills	USA	Food producers	181.6	0.0	12874.2	11.9	1.4
418	Kaneka	Japan	Chemicals	181.6	11.9	4666.7	13.8	3.9

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
419	Takata	Japan	Automobiles & parts	181.6	13.7	3806.0	-2.1	4.8
420	Sage	UK	Software & computer services	181.4	-4.5	1594.1	-7.0	11.4
421	Zodiac Aerospace	France	Aerospace & defence	181.0	29.7	2734.8	27.2	6.6
422	Kansai Electric Power	Japan	Electricity	180.9	-7.2	27957.1	7.9	0.6
423	Tognum	Germany	Industrial engineering	180.0	16.0	2972.1	15.9	6.1
424	Elan	Ireland	Pharmaceuticals & biotechnology	177.8	-1.3	510.6	-21.6	34.8
425	Namco Bandai	Japan	Leisure goods	177.7	11.0	4516.7	15.2	3.9
426	RSA Insurance	UK	Nonlife insurance	175.7	15.8	9724.2	-0.8	1.8
427	Petroleos de Venezuela	Venezuela	Oil & gas producers	175.4	20.7	96417.0	31.4	0.2
428	Koito Manufacturing	Japan	Automobiles & parts	175.1	1.8	4285.2	5.6	4.1
429	Tokai Rika	Japan	Automobiles & parts	174.9	3.7	3177.9	-2.5	5.5
430	Mitsubishi Gas Chemical	Japan	Chemicals	173.5	7.8	4496.9	17.7	3.9
431	Burelle	France	Automobiles & parts	173.1	44.7	4222.1	29.9	4.1
432	Novozymes	Denmark	Pharmaceuticals & biotechnology	173.1	10.7	1413.7	8.1	12.2
433	PMC-Sierra	USA	Technology hardware & equipment	173.0	19.4	505.7	3.0	34.2
434	Shanghai Electric	China	Industrial engineering	173.0	-6.0	8330.7	7.9	2.1
435	Wacker Chemie	Germany	Chemicals	172.9	4.7	4909.7	3.4	3.5
436	JSR	Japan	Chemicals	172.7	-3.7	3479.9	12.9	5.0
437	GKN	UK	Automobiles & parts	172.1	24.1	6866.0	13.0	2.5
438	Wartsila	Finland	Industrial engineering	172.0	17.0	4209.0	-7.6	4.1
439	Alpine	Japan	Leisure goods	171.6	-11.6	2017.7	0.8	8.5
440	Amdocs	UK	Software & computer services	171.5	6.8	2455.9	6.5	7.0
441	Santen Pharmaceutical	Japan	Pharmaceuticals & biotechnology	171.3	22.0	1137.8	3.5	15.1
442	Invensys	UK	Software & computer services	170.9	-4.7	3033.9	2.1	5.6
443	NTN	Japan	Industrial engineering	170.6	16.9	5404.3	20.1	3.2
444	ZF Lenksysteme	Germany	Automobiles & parts	170.2	21.7	3566.3	18.8	4.8
445	Comverse Technology	USA	Technology hardware & equipment	170.0	-13.1	1232.2	-1.8	13.8
446	International Flavors & Fragrances	USA	Chemicals	169.9	0.5	2154.7	6.3	7.9
447	Pirelli	Italy	Automobiles & parts	169.7	13.1	5654.8	9.9	3.0
448	Baidu	Cayman Islands	Software & computer services	169.1	92.0	1778.6	83.2	9.5
449	Freudenberg	Germany	General industrials	169.0	9.0	6006.5	9.6	2.8
450	Saudi Basic Industries	Saudi Arabia	Chemicals	168.9	25.7	39137.1	25.0	0.4
451	Sany Heavy Industry	China	Industrial engineering	167.3	94.7	5986.6	48.7	2.8
452	Kerry	Ireland	Food producers	167.1	6.8	5302.2	6.9	3.2
453	Linear Technology	USA	Technology hardware & equipment	166.9	8.5	978.9	8.3	17.0
454	Danfoss	Denmark	Industrial engineering	166.8	17.6	4560.5	3.5	3.7
455	SKF	Sweden	Industrial engineering	166.1	21.9	7430.0	8.5	2.2
456	Biomarin Pharmaceutical	USA	Pharmaceuticals & biotechnology	165.7	46.2	341.1	17.3	48.6
457	Toto	Japan	Construction & materials	165.5	27.0	4501.6	7.3	3.7
458	Grundfos	Denmark	Industrial engineering	164.1	13.4	729.6	-72.3	22.5
459	Agfa-Gevaert	Belgium	Electronic & electrical equipment	164.0	4.5	3023.0	2.5	5.4
460	National Instruments	USA	Electronic & electrical	163.2	21.4	791.5	17.3	20.6

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
			equipment					
461	Maxingvest	Germany	General retailers	163.0	7.2	9173.0	-4.4	1.8
462	Voith	Germany	General industrials	162.4	-36.1	5593.6	7.6	2.9
463	Tesla Motors	USA	Automobiles & parts	161.5	124.7	157.8	74.9	102.3
464	Toppan Printing	Japan	Media	161.2	-33.6	15019.7	0.3	1.1
465	Solvay	Belgium	Chemicals	161.0	-14.8	8109.0	14.1	2.0
466	Kuraray	Japan	Chemicals	160.8	5.8	3669.1	10.9	4.4
467	NGK Spark Plug	Japan	Automobiles & parts	160.4	16.0	2831.5	16.8	5.7
468	Ibiden	Japan	Electronic & electrical equipment	160.3	27.2	2991.8	9.8	5.4
469	Red Hat	USA	Software & computer services	159.4	20.5	875.7	24.6	18.2
470	Trumpf	Germany	General industrials	158.0	22.1	1340.0	-19.4	11.8
471	Teradyne	USA	Technology hardware & equipment	157.2	3.2	1104.5	-11.2	14.2
472	Umicore	Belgium	Chemicals	156.8	16.2	14480.9	49.4	1.1
473	East Japan Railway	Japan	Travel & leisure	155.1	-5.4	25180.2	-1.6	0.6
474	Kraft Foods	USA	Food producers	153.0	7.0	14417.7	4.8	1.1
475	Reckitt Benckiser	UK	Household goods & home construction	152.9	6.7	11333.8	12.2	1.3
476	Hasbro	USA	Leisure goods	152.7	-1.8	3312.1	7.1	4.6
477	JS	Japan	Construction & materials	152.6	4.1	12841.8	31.5	1.2
478	Dover	USA	Industrial engineering	152.2	1.8	6144.3	11.3	2.5
479	Illumina	USA	Pharmaceuticals & biotechnology	152.2	10.7	815.8	16.9	18.7
480	SAAB	Sweden	Aerospace & defence	152.0	12.6	2636.7	-3.8	5.8
481	Technicolor	France	Media	152.0	4.8	3450.0	-15.2	4.4
482	Gemalto	The Netherlands	Electronic & electrical equipment	151.7	19.7	2015.4	3.0	7.5
483	Koc	Turkey	General industrials	151.4	52.3	28477.1	35.1	0.5
484	Hilti	Liechtenstein	Construction & materials	151.1	-22.2			
485	Human Genome Sciences	USA	Pharmaceuticals & biotechnology	150.6	79.0	101.2	-16.8	148.8
486	International Game Technology	USA	Travel & leisure	150.5	-2.7	1512.5	-2.0	9.9
487	Tatung	Taiwan	Electronic & electrical equipment	149.8	-11.4	3733.5	-7.4	4.0
488	Idemitsu Kosan	Japan	Oil & gas producers	149.0	0.9	42862.6	17.8	0.3
489	Kellogg	USA	Food producers	148.4	2.7	10200.2	6.5	1.5
490	Semiconductor Manufacturing	Cayman Islands	Technology hardware & equipment	148.0	9.5	1022.9	-14.9	14.5
491	Salesforce.com	USA	Software & computer services	147.8	1.8	1751.7	36.8	8.4
492	Dongfang Electric	China	Industrial engineering	147.3	22.8	5176.8	12.2	2.8
493	Cypress Semiconductor	USA	Technology hardware & equipment	146.8	7.4	769.2	13.4	19.1
494	Hisamitsu Pharmaceutical	Japan	Pharmaceuticals & biotechnology	146.8	6.9	1370.2	0.4	10.7
495	Trimble Navigation	USA	Electronic & electrical equipment	146.2	26.1	1270.6	27.1	11.5
496	Johnson Matthey	UK	Chemicals	146.0	16.9	14366.7	20.4	1.0
497	Shiseido	Japan	Personal goods	145.9	1.5	6785.7	6.0	2.2
498	Hoya	Japan	Leisure goods	145.1	1.9	3586.6	-12.7	4.0
499	Linde	Germany	Chemicals	145.0	54.3	13787.0	7.1	1.1
500	Clariant	Switzerland	Chemicals	144.6	30.4	6053.7	3.5	2.4
501	Almirall	Spain	Pharmaceuticals & biotechnology	144.5	158.0	768.4	-12.9	18.8

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
502	Claas	Germany	Industrial engineering	144.3	18.3	3304.2	33.5	4.4
503	Advanced Semiconductor Engineering	Taiwan	Technology hardware & equipment	144.2	-8.3	4731.5	-1.8	3.0
504	Bio-Rad Laboratories	USA	Health care equipment & services	144.1	8.2	1602.5	7.6	9.0
505	Lanxess	Germany	Chemicals	144.0	24.1	8775.0	23.2	1.6
506	Swatch	Switzerland	Personal goods	143.7	7.4	5556.0	10.7	2.6
507	Reliance Industries	India	Oil & gas producers	143.5	91.2	52026.2	34.9	0.3
508	Intersil	USA	Technology hardware & equipment	143.3	1.2	587.8	-7.5	24.4
509	CR Bard	USA	Health care equipment & services	143.3	0.0	2238.5	6.5	6.4
510	Rabobank	The Netherlands	Banks	143.0	-35.3	12781.0	13.4	1.1
511	Cubist Pharmaceuticals	USA	Pharmaceuticals & biotechnology	142.6	16.9	575.6	17.0	24.8
512	POSCO	South Korea	Industrial metals & mining	142.6	-62.3	46257.9	13.9	0.3
513	Applied Micro Circuits	USA	Technology hardware & equipment	142.3	69.3	178.4	-6.8	79.7
514	ALCOA	USA	Industrial metals & mining	142.2	5.7	19283.6	18.7	0.7
515	British Sky Broadcasting	UK	Media	142.2	12.2	7063.2	10.3	2.0
516	Metro	Germany	General retailers	142.0	389.7	66702.0	-0.8	0.2
517	Mattel	USA	Leisure goods	141.6	5.4	4842.8	7.0	2.9
518	Microchip Technology	USA	Technology hardware & equipment	141.2	7.1	1069.0	-8.5	13.2
519	Polycom	USA	Technology hardware & equipment	141.0	22.5	1156.0	22.8	12.2
520	Endo Pharmaceuticals	USA	Pharmaceuticals & biotechnology	140.9	26.1	1939.4	46.2	7.3
521	Pou Chen	Taiwan	Personal goods	140.8	7.1	5321.0	7.9	2.6
522	Toyo Seikan Kaisha	Japan	General industrials	140.1	1.2	6989.1	-0.5	2.0
523	Dragerwerk	Germany	Health care equipment & services	140.0	-3.8	2255.8	3.6	6.2
524	Bombardier	Canada	Aerospace & defence	140.0	-6.1	14179.6	3.6	1.0
525	Molex	USA	Electronic & electrical equipment	140.0	17.6	2696.6	16.0	5.2
526	Essilor International	France	Health care equipment & services	139.9	-7.3	4189.5	7.7	3.3
527	Tomtom	The Netherlands	Electronic & electrical equipment	139.1	-15.3	1273.2	-16.3	10.9
528	Kyorin	Japan	Pharmaceuticals & biotechnology	138.9	18.3	1026.6	3.5	13.5
529	Mochida Pharmaceutical	Japan	Pharmaceuticals & biotechnology	138.8	19.9	857.2	8.7	16.2
530	Nuance Communications	USA	Software & computer services	138.6	18.0	1019.2	17.9	13.6
531	Fujikura	Japan	Electronic & electrical equipment	138.5	3.3	5062.4	1.1	2.7
532	Incyte	USA	Pharmaceuticals & biotechnology	138.1	44.3	73.0	-44.4	189.2
533	Dainippon Screen Mfg	Japan	Technology hardware & equipment	138.1	19.6	2486.9	52.4	5.6
534	UBE Industries	Japan	General industrials	137.0	5.8	6350.8	16.3	2.2
535	Iberdrola	Spain	Electricity	136.4	4.9	31648.0	4.0	0.4
536	SK	South Korea	Oil equipment, services & distribution	136.3	-5.1	74627.0	22.7	0.2
537	Nissan Chemical	Japan	Chemicals	135.7	8.0	1477.5	-3.7	9.2

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
	Industries							
538	Anheuser-Busch Inbev	Belgium	Beverages	135.3	-4.9	30177.0	7.6	0.4
539	LyondellBasell Industries	The Netherlands	Chemicals	135.3	17.8			
540	Veolia Environnement	France	Gas, water & multiutilities	135.0	-3.2	29647.3	-16.8	0.5
541	Assa Abloy	Sweden	Construction & materials	134.9	18.4	4688.7	13.5	2.9
542	SMC	Japan	Industrial engineering	134.0	2.5	3399.5	54.8	3.9
543	Merz	Germany	Pharmaceuticals & biotechnology	133.7	3.7	837.2	18.8	16.0
544	Federal-Mogul	USA	Automobiles & parts	132.9	10.3	5340.4	11.1	2.5
545	Icahn Enterprises	USA	General industrials	132.9	10.3	7054.6	15.5	1.9
546	ASM International	The Netherlands	Technology hardware & equipment	132.8	68.6	1634.3	33.6	8.1
547	Bruker	USA	Health care equipment & services	132.7	24.8	1267.8	25.7	10.5
548	Arkema	France	Chemicals	132.0	7.3	5900.0	21.2	2.2
549	Varian Medical Systems	USA	Health care equipment & services	131.9	8.9	2006.9	10.2	6.6
550	Vattenfall	Sweden	Electricity	131.4	-37.4	20314.2	-15.2	0.6
551	Pace	UK	Technology hardware & equipment	131.2	-5.0	1784.8	10.8	7.3
552	ING	The Netherlands	Life insurance	131.0	-11.5	16605.0	-69.6	0.8
553	Nippon Kayaku	Japan	Chemicals	130.6	7.0	1462.9	4.4	8.9
554	OKI Electric	Japan	Technology hardware & equipment	130.4	-10.3	4257.1	-3.5	3.1
555	Skyworks Solutions	USA	Technology hardware & equipment	130.3	25.7	1096.6	32.4	11.9
556	Swisscom	Switzerland	Fixed line telecommunications	129.8	6.0	9419.0	-4.3	1.4
557	Sumitomo Bakelite	Japan	Chemicals	129.7	3.9	1842.0	8.5	7.0
558	Vilmorin	France	Food producers	129.6	10.4	1063.8	6.2	12.2
559	Huyau Automotive	China	Travel & leisure	129.3	58.8	6341.9	16.7	2.0
560	Eastman Kodak	USA	Leisure goods	129.1	-48.0	4654.1	-16.2	2.8
561	Smith & Nephew	UK	Health care equipment & services	129.1	10.6	3300.1	7.8	3.9
562	Heidelberger Druckmaschinen	Germany	Industrial engineering	129.0	6.2	2595.7	-1.3	5.0
563	Lafarge	France	Construction & materials	129.0	-15.7	15284.0	-5.5	0.8
564	Cooper Industries	Ireland	Electronic & electrical equipment	128.7	11.2	4180.7	6.8	3.1
565	Mitsumi Electric	Japan	Electronic & electrical equipment	128.4	-3.5	1662.7	-10.8	7.7
566	Quest Software	USA	Software & computer services	128.4	9.4	662.7	11.8	19.4
567	Huntsman	USA	Chemicals	128.3	9.9	8672.2	20.6	1.5
568	Tosoh	Japan	Chemicals	128.1	-6.6	6832.9	9.3	1.9
569	Lite-On Technology	Taiwan	Technology hardware & equipment	127.6	9.7	5884.7	0.4	2.2
570	Allscripts Healthcare Solutions	USA	Software & computer services	127.4	93.7	1116.1	178.1	11.4
571	CareFusion	USA	Health care equipment & services	126.7	5.8	2783.1	4.9	4.6
572	Daicel Chemical Industries	Japan	Chemicals	126.6	12.5	3400.3	6.8	3.7
573	Emulex	USA	Technology hardware & equipment	126.4	28.9	387.8	25.7	32.6

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
574	Seattle Genetics	USA	Pharmaceuticals & biotechnology	126.3	11.6	73.2	-11.8	172.4
575	Rovi	USA	Software & computer services	125.7	70.0	533.9	27.6	23.6
576	Itron	USA	Electronic & electrical equipment	125.6	15.9	1881.2	7.7	6.7
577	Logitech International	Switzerland	Technology hardware & equipment	125.5	3.8	1790.1	-2.0	7.0
578	Getinge	Sweden	Health care equipment & services	124.7	5.2	2452.2	-1.4	5.1
579	Nissan Shatai	Japan	Automobiles & parts	124.3	-7.5	4522.1	-10.1	2.7
580	MTU Aero Engines	Germany	Aerospace & defence	124.2	2.9	2932.1	8.3	4.2
581	Novell	USA	Software & computer services	123.8	0.0	627.4	-5.5	19.7
582	Yakult Honsha	Japan	Food producers	123.4	29.1	3108.1	7.6	4.0
583	Krones	Germany	Industrial engineering	123.1	7.7	2480.3	14.1	5.0
584	Integrated Device Technology	USA	Technology hardware & equipment	122.7	-10.6	407.1	-15.8	30.1
585	BE Aerospace	USA	Aerospace & defence	122.6	40.6	1932.0	26.0	6.3
586	Eastman Chemical	USA	Chemicals	122.1	3.9	5547.6	7.3	2.2
587	Inventec	Taiwan	Technology hardware & equipment	121.6	-13.6	9701.3	0.8	1.3
588	Kudelski	Switzerland	Software & computer services	121.3	-38.0	717.8	-15.6	16.9
589	Commerzbank	Germany	Banks	120.0	-25.9	11815.0	-6.5	1.0
590	TRW Automotive	USA	Automobiles & parts	119.8	17.4	12554.3	12.9	1.0
591	Amylin Pharmaceuticals	USA	Pharmaceuticals & biotechnology	119.0	0.3	502.9	-2.7	23.7
592	IAI	Israel	Aerospace & defence	119.0	12.4	2655.5	9.1	4.5
593	Teknosa	Turkey	General retailers	118.8		731.3	30.5	16.2
594	Nippon Shokubai	Japan	Chemicals	118.7	11.1	3189.1	31.3	3.7
595	Fairchild Semiconductor	USA	Technology hardware & equipment	118.6	27.6	1227.9	-0.7	9.7
596	Sysmex	Japan	Health care equipment & services	118.4	6.0	1339.9	16.0	8.8
597	Metso	Finland	Industrial engineering	118.0	12.4	6646.0	19.7	1.8
598	Jack Henry & Associates	USA	Support services	118.0	102.4	793.8	24.3	14.9
599	RF Micro Devices	USA	Technology hardware & equipment	117.2	7.5	673.4	-17.2	17.4
600	Giesecke & Devrient	Germany	Support services	117.0	-3.5			
601	SNCF	France	Industrial transportation	117.0	41.0	32645.0	6.6	0.4
602	Mitsubishi Materials	Japan	Industrial metals & mining	116.8	7.8	14328.0	28.8	0.8
603	Tokuyama	Japan	Chemicals	116.4	-0.9	2808.0	3.4	4.1
604	Bouygues	France	Construction & materials	116.0	-0.9	32706.0	4.7	0.4
605	Chunghwa Picture Tubes	Taiwan	Electronic & electrical equipment	115.9	-12.4	1569.2	-24.8	7.4
606	adidas	Germany	Personal goods	115.0	12.7	13344.0	11.3	0.9
607	Ruag	Switzerland	Aerospace & defence	115.0	-26.3	1459.6	-1.1	7.9
608	Elekta	Sweden	Health care equipment & services	114.9	86.2	1015.3	22.4	11.3
609	Pitney Bowes	USA	Technology hardware & equipment	114.9	-8.6	3613.3	-13.8	3.2
610	Sanken Electric	Japan	Technology hardware & equipment	114.7	4.3	1310.7	-1.7	8.7
611	Rio Tinto	UK	Mining	114.4	-20.9	46786.5	7.0	0.2
612	Stanley Black & Decker	USA	Household goods & home construction	113.8	12.0	8019.5	23.4	1.4

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
613	FLIR Systems	USA	Aerospace & defence	113.7	26.5	1193.3	11.5	9.5
614	Tyco International	Switzerland	General industrials	113.6	12.2	13412.9	0.1	0.8
615	KWS SAAT	Germany	Food producers	113.5	16.4	855.4	13.4	13.3
616	Triquint Semiconductor	USA	Technology hardware & equipment	113.5	13.7	692.5	2.0	16.4
617	Arris	USA	Technology hardware & equipment	113.2	4.3	841.4	0.1	13.5
618	Finisar	USA	Technology hardware & equipment	112.8	24.5	736.2	0.4	15.3
619	Harley-Davidson	USA	Automobiles & parts	112.4	6.8	4105.2	8.2	2.7
620	TNK-BP	UK	Oil equipment, services & distribution	112.1	88.3	33424.5	33.4	0.3
621	Chubu Electric Power	Japan	Electricity	111.9	-19.0	24356.0	9.5	0.5
622	Deutsche Borse	Germany	Other financials	111.6	12.8	2233.3	3.1	5.0
623	Yue Yuen Industrial	Bermuda	Personal goods	111.0	9.6	5445.1	21.7	2.0
624	Realtek Semiconductor	Taiwan	Technology hardware & equipment	111.0	8.5	559.0	-1.7	19.9
625	Husqvarna	Sweden	Industrial engineering	110.9	54.1	3406.3	-5.8	3.3
626	Cree	USA	Technology hardware & equipment	110.8	76.1	900.1	34.3	12.3
627	Tibco Software	USA	Software & computer services	110.7	14.9	711.2	22.0	15.6
628	LinkedIn	USA	Software & computer services	110.6	100.2	403.6	114.8	27.4
629	Zeon	Japan	Chemicals	110.4	24.1	2613.7	16.4	4.2
630	Kion	Germany	Support services	110.1	9.6	4368.4	23.6	2.5
631	Winbond Electronics	Taiwan	Technology hardware & equipment	109.9	11.3	885.7	-13.1	12.4
632	Deutz	Germany	Industrial engineering	109.8	25.8	1529.0	28.6	7.2
633	Oshkosh	USA	Industrial engineering	109.7	29.9	5861.9	-22.9	1.9
634	Galenica	Switzerland	Pharmaceuticals & biotechnology	109.4	-6.2	2618.1	2.7	4.2
635	Osaka Gas	Japan	Gas, water & multiutilities	109.1	2.9	12875.5	18.1	0.8
636	Macronix International	Taiwan	Technology hardware & equipment	108.8	31.4	720.9	0.7	15.1
637	First Solar	USA	Alternative energy	108.6	48.2	2137.9	7.9	5.1
638	Lantiq	Germany	Electronic & electrical equipment	108.5		330.9		32.8
639	Intuitive Surgical	USA	Health care equipment & services	108.4	20.9	1358.1	24.4	8.0
640	Lukoil	Russia	Oil & gas producers	108.2	-58.3	103292.4	27.3	0.1
641	E.ON	Germany	Gas, water & multiutilities	108.0	22.7	112954.0	19.6	0.1
642	Great Wall Technology	China	Technology hardware & equipment	107.7	9.6	11655.5	-9.4	0.9
643	Toyobo	Japan	Chemicals	107.6	5.1	3475.5	9.7	3.1
644	F5 Networks	USA	Technology hardware & equipment	107.4	17.4	890.2	30.6	12.1
645	Benteler International	Austria	General industrials	106.8	-2.5	20.9	-99.7	511.5
646	Qlogic	USA	Technology hardware & equipment	106.4	0.0	431.7	-6.5	24.6
647	Wm Morrison Supermarkets	UK	Food & drug retailers	106.3	-4.1	21105.8	9.7	0.5
648	Alexion Pharmaceuticals	USA	Pharmaceuticals & biotechnology	106.2	39.7	605.5	44.8	17.5
649	Korber	Germany	General industrials	106.1	12.8	1943.1	15.9	5.5
650	Denki Kagaku Kogyo	Japan	Chemicals	105.8	10.7	3626.7	12.7	2.9

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
651	Symrise	Germany	Chemicals	105.8	-0.5	1583.6	0.7	6.7
652	John Lewis	UK	General retailers	105.6	103.2	9270.9	5.4	1.1
653	Serco	UK	Support services	105.4	3.6	5552.1	7.4	1.9
654	voestalpine	Austria	Industrial metals & mining	105.3	-3.4	12058.2	10.1	0.9
655	DST Systems	USA	Software & computer services	105.0	-16.2	1846.1	2.6	5.7
656	NGK Insulators	Japan	General industrials	104.7	7.6	2464.3	5.3	4.2
657	Funai Electric	Japan	Electronic & electrical equipment	104.7	-21.9	2447.7	-21.8	4.3
658	International Rectifier	USA	Technology hardware & equipment	104.4	36.0	812.0	17.3	12.9
659	Sasol	South Africa	Oil & gas producers	104.4	21.1	13518.9	16.5	0.8
660	CNOOC	Hong Kong	Oil & gas producers	104.3	3.2	29553.8	31.6	0.4
661	Industria de Turbo Propulsores	Spain	Aerospace & defence	103.4	48.0	1145.6	139.1	9.0
662	China Communications	China	Fixed line telecommunications	103.2	63.5	6563.1	17.8	1.6
663	NSK	Japan	Support services	103.2	18.0	7291.0	24.8	1.4
664	PRADA	Italy	Personal goods	103.1	6.1	2523.3	25.1	4.1
665	Alere	USA	Health care equipment & services	102.9	-0.1	1844.4	10.5	5.6
666	Tenneco	USA	Automobiles & parts	102.8	13.7	5568.4	21.4	1.8
667	Old Mutual	UK	Life insurance	102.8	10.3	3894.2	-83.5	2.6
668	Sonova	Switzerland	Health care equipment & services	102.7	20.5	1330.5	0.2	7.7
669	Keyence	Japan	Electronic & electrical equipment	102.2	45.9	1982.2	46.4	5.2
670	Gamesa	Spain	Industrial engineering	102.1	152.9	3026.6	10.6	3.4
671	Tokyo Gas	Japan	Gas, water & multiutilities	101.8	11.0	17444.5	24.0	0.6
672	Isis Pharmaceuticals	USA	Pharmaceuticals & biotechnology	101.3	-9.7	76.6	-8.7	132.3
673	Techtronic Industries	Hong Kong	Electronic & electrical equipment	101.2	12.3	2834.1	8.0	3.6
674	Qiagen	The Netherlands	Pharmaceuticals & biotechnology	101.0	3.6	904.0	7.6	11.2
675	Newell Rubbermaid	USA	Household goods & home construction	100.5	1.0	4532.5	1.8	2.2
676	Schott	Germany	Construction & materials	100.5	2.2	2881.4	1.3	3.5
677	Hamamatsu Photonics	Japan	Electronic & electrical equipment	100.2	5.6	1012.9	12.0	9.9
678	Wincor Nixdorf	Germany	Software & computer services	100.2	-1.2	2328.2	4.0	4.3
679	Horiba	Japan	Electronic & electrical equipment	100.0	6.2	1227.7	4.2	8.1
680	NHK Spring	Japan	Industrial engineering	100.0	2.7	4382.9	-3.4	2.3
681	SMA Solar Technology	Germany	Alternative energy	99.9	40.9	1676.3	-12.7	6.0
682	Kissei Pharmaceutical	Japan	Pharmaceuticals & biotechnology	99.9	-6.9	642.6	4.0	15.5
683	Anritsu	Japan	Electronic & electrical equipment	99.6	6.7	930.6	27.3	10.7
684	Meggitt	UK	Aerospace & defence	99.4	23.3	1739.0	25.2	5.7
685	Betfair	UK	Travel & leisure	99.3	71.8	465.6	-0.9	21.3
686	Nektar Therapeutics	USA	Pharmaceuticals & biotechnology	99.2	18.8	55.2	-55.1	179.6
687	Enel	Italy	Electricity	99.0	11.2	77573.0	7.8	0.1
688	Altria	USA	Tobacco	98.9	-11.1	18394.0	-2.3	0.5
689	Glory	Japan	Industrial engineering	98.8	13.2	1461.2	8.8	6.8

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
690	Arrium	Australia	Industrial metals & mining	98.6	-14.7	6040.0	7.9	1.6
691	Novatek Microelectronics	Taiwan	Electronic & electrical equipment	98.4	9.3	895.3	-3.4	11.0
692	Deutsche Post	Germany	Industrial transportation	98.0	-4.9	52829.0	2.6	0.2
693	Biomet	USA	Health care equipment & services	98.0	19.0	2193.4	5.2	4.5
694	Eberspaecher	Germany	Automobiles & parts	97.7	0.0	1933.8	44.1	5.1
695	DONG Energy	Denmark	Oil & gas producers	97.4	-11.6	7860.5	7.3	1.2
696	Yaskawa Electric	Japan	Electronic & electrical equipment	96.7	14.5	3053.9	36.7	3.2
697	Campbell Soup	USA	Food producers	96.6	1.6	5956.4	0.4	1.6
698	Alibaba.com	Cayman Islands	Software & computer services	96.2	39.7	787.1	15.5	12.2
699	Sumitomo Heavy Industries	Japan	Industrial engineering	96.1	8.3	6206.1	21.0	1.5
700	TS	Japan	Automobiles & parts	95.9	0.2	3037.8	-14.5	3.2
701	NCsoft	South Korea	Software & computer services	95.1	96.0	408.6	-6.3	23.3
702	Exelixis	USA	Pharmaceuticals & biotechnology	95.1	-32.9	221.7	55.0	42.9
703	Webasto	Germany	Automobiles & parts	95.0	-1.7	2305.1	12.6	4.1
704	Riverbed Technology	USA	Technology hardware & equipment	94.8	42.5	561.5	31.6	16.9
705	Informatica	USA	Software & computer services	94.4	15.2	605.7	20.6	15.6
706	Borealis	Austria	Chemicals	94.0	6.8	6498.4	3.7	1.4
707	Smiths	UK	General industrials	93.8	-16.0	3620.7	9.4	2.6
708	Cochlear	Australia	Health care equipment & services	93.7	25.8	611.4	6.0	15.3
709	Nippon Shinyaku	Japan	Pharmaceuticals & biotechnology	93.6	11.6	669.3	7.0	14.0
710	Acciona	Spain	Construction & materials	93.6	6.2	6646.0	6.1	1.4
711	Clorox	USA	Household goods & home construction	93.5	1.7	4226.0	-1.2	2.2
712	Roper Industries	USA	Electronic & electrical equipment	93.5	18.2	2161.8	17.2	4.3
713	SCA	Sweden	Forestry & paper	93.4	15.9	9126.7	-25.5	1.0
714	Kongsberg Gruppen	Norway	Aerospace & defence	93.0	2.0	1951.9	-2.4	4.8
715	Krka	Slovenia	Pharmaceuticals & biotechnology	92.9	2.2	1075.6	6.5	8.6
716	Schindler	Switzerland	Industrial engineering	92.8	3.7	6451.3	-36.7	1.4
717	Disco	Japan	Technology hardware & equipment	92.8	20.2	887.4	44.6	10.5
718	Yokohama Rubber	Japan	Automobiles & parts	92.5	-29.9	4625.3	-0.2	2.0
719	Silicon Laboratories	USA	Technology hardware & equipment	92.4	-3.5	380.0	-0.3	24.3
720	SEI Investments	USA	Other financials	91.6	12.3	718.5	3.2	12.8
721	Kajima	Japan	Construction & materials	91.2	-8.9	14496.1	-10.9	0.6
722	Synaptics	USA	Technology hardware & equipment	91.2	12.3	423.7	-8.4	21.5
723	Oji Paper	Japan	Forestry & paper	90.9	2.6	12061.3	5.8	0.8
724	Spreadtrum Communications	Cayman Islands	Technology hardware & equipment	90.7	99.9	521.1	94.7	17.4
725	Air Products and Chemicals	USA	Chemicals	90.7	29.2	7476.4	7.2	1.2
726	Abengoa	Spain	General industrials	90.6	-2.2	7089.2	27.4	1.3
727	Spectris	UK	Electronic & electrical	90.6	21.5	1321.8	22.7	6.9

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
			equipment					
728	Hologic	USA	Health care equipment & services	90.2	11.9	1382.9	6.5	6.5
729	Bekaert	Belgium	Industrial metals & mining	90.1	13.6	3340.0	2.4	2.7
730	Avid Technology	USA	Media	90.0	-3.1	523.3	-0.2	17.2
731	Chunghwa Telecom	Taiwan	Fixed line telecommunications	90.0	8.5	5552.1	7.4	1.6
732	Cobham	UK	Aerospace & defence	90.0	1.6	2215.8	-2.5	4.1
733	Allison Transmission	USA	Automobiles & parts	90.0	14.7	1671.5	12.3	5.4
734	Mettler-Toledo International	USA	Electronic & electrical equipment	89.8	19.7	1784.8	17.3	5.0
735	Sellafield	UK	General retailers	89.6	-3.8	60.9	2.0	147.1
736	Electronics For Imaging	USA	Technology hardware & equipment	89.6	9.6	457.2	17.4	19.6
737	Rambus	USA	Technology hardware & equipment	89.4	24.8	241.4	-3.4	37.0
738	Woodward Governor	USA	Industrial engineering	89.4	40.1	1322.9	17.5	6.8
739	Shenzen Tonge	China	Construction & materials	89.3		406.2	-1.1	22.0
740	Xyratex	Bermuda	Technology hardware & equipment	89.3	24.7	1119.5	-9.6	8.0
741	Valspar	USA	Construction & materials	89.2	15.1	3055.1	22.5	2.9
742	TPK Holding	Cayman Islands	Electronic & electrical equipment	89.1	121.8	3660.0	140.6	2.4
743	PerkinElmer	USA	Electronic & electrical equipment	89.0	20.7	1484.9	-3.6	6.0
744	Asahi Breweries	Japan	Beverages	88.7	-5.1	14545.6	-1.8	0.6
745	Lion	Japan	Personal goods	88.6	0.0	3256.7	-1.1	2.7
746	CPFL Energia	Brazil	Gas, water & multiutilities	88.6	10.2	5307.1	-1.7	1.7
747	Endress & Hauser	Switzerland	Electronic & electrical equipment	88.5	-10.6	1525.0	13.1	5.8
748	Shimadzu	Japan	Electronic & electrical equipment	88.3	-1.5	2647.7	11.8	3.3
749	Microsemi	USA	Technology hardware & equipment	88.2	106.1	646.0	61.3	13.7
750	Hyosung	South Korea	General industrials	88.2	8.0	7610.6	-2.2	1.2
751	Software	Germany	Software & computer services	88.1	-4.2	1098.3	-1.9	8.0
752	American Axle & Manufacturing	USA	Automobiles & parts	87.8	37.7	1997.8	13.2	4.4
753	Altana	Germany	Chemicals	87.7	7.0	1616.7	5.3	5.4
754	Azbil	Japan	Electronic & electrical equipment	87.7	2.1	2222.5	5.4	3.9
755	Fresenius Medical Care	Germany	Health care equipment & services	87.6	-65.4	9888.8	-40.3	0.9
756	Gameloft	France	Software & computer services	86.8	11.1	164.4	16.6	52.8
757	Infinera	USA	Technology hardware & equipment	86.7	-5.4	312.9	-10.9	27.7
758	Topcon	Japan	Health care equipment & services	86.6	-15.3	982.8	-3.5	8.8
759	Shanghai Zhenhua	China	General industrials	86.3	86.4	2308.2	12.8	3.7
760	Ushio	Japan	Electronic & electrical equipment	86.2	57.0	1492.5	26.1	5.8
761	EMBRAER	Brazil	Aerospace & defence	85.9	72.8	4098.8	10.8	2.1
762	Lear	USA	Automobiles & parts	85.6	36.0	10941.0	18.4	0.8
763	Kyushu Electric Power	Japan	Electricity	85.5	-17.6	14996.6	4.4	0.6

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
764	Nice-Systems	Israel	Software & computer services	85.2	12.1	613.5	15.1	13.9
765	Medicines	USA	Pharmaceuticals & biotechnology	85.2	29.3	374.6	10.8	22.7
766	Obayashi	Japan	Construction & materials	85.1	0.0	12388.1	10.1	0.7
767	Mundipharma Research	UK	Support services	85.0	9.9	106.4	11.3	79.9
768	Ahold	The Netherlands	Food & drug retailers	85.0	84.8	30271.0	2.5	0.3
769	Fujitsu General	Japan	Construction & materials	85.0	10.1	2024.1	11.8	4.2
770	Taisei	Japan	Construction & materials	84.8	4.5	13161.1	-8.2	0.6
771	ResMed	USA	Health care equipment & services	84.8	45.9	1057.7	25.3	8.0
772	Fiberhome Telekommunications Technologies	China	Fixed line telecommunications	84.8	19.9	840.5	23.1	10.1
773	Sohu.com	USA	Software & computer services	84.6	44.8	658.5	39.1	12.9
774	Aruba Networks	USA	Technology hardware & equipment	84.6	30.8	399.4	30.3	21.2
775	VeriFone Systems	USA	Technology hardware & equipment	84.4	41.3	1007.7	30.2	8.4
776	Dr Reddy's Laboratories	India	Pharmaceuticals & biotechnology	84.4	14.5	1361.1	30.7	6.2
777	GEA	Germany	Industrial engineering	84.3	26.5	5416.5	22.6	1.6
778	Takasago International	Japan	Chemicals	84.2	3.1	1130.4	-1.0	7.5
779	Amcor	Australia	Forestry & paper	84.2	0.8	9570.4	-1.8	0.9
780	Leoni	Germany	Electronic & electrical equipment	84.1	13.9	3701.5	25.2	2.3
781	Infinity Pharmaceuticals	USA	Pharmaceuticals & biotechnology	83.9	9.4	71.7	30.1	117.0
782	Galapagos	Belgium	Pharmaceuticals & biotechnology	83.9	2.8	115.3	-18.6	72.8
783	Meidensha	Japan	General industrials	83.8	23.3	1800.9	4.7	4.7
784	Energizer	USA	Household goods & home construction	83.7	11.5	3590.5	9.4	2.3
785	Red Bull Technology	UK	Household goods & home construction	83.6	18.2	257.2	20.8	32.5
786	FMC	USA	Chemicals	83.4	7.4	2610.6	8.4	3.2
787	Onyx Pharmaceuticals	USA	Pharmaceuticals & biotechnology	83.4	-41.9	345.6	37.8	24.1
788	Barco	Belgium	Electronic & electrical equipment	83.3	15.5	1041.2	16.1	8.0
789	ANSYS	USA	Software & computer services	83.2	20.9	534.4	19.2	15.6
790	Shanda Games	Cayman Islands	Leisure goods	83.0	48.9	647.9	17.3	12.8
791	Check Point Software Technologies	Israel	Software & computer services	83.0	1.6	963.7	13.6	8.6
792	OmniVision Technologies	USA	Technology hardware & equipment	83.0	21.3	693.8	-6.1	12.0
793	Misys	UK	Software & computer services	82.8	-8.7	563.6	-39.8	14.7
794	Stora Enso	Finland	Forestry & paper	82.8	3.8	10964.9	6.5	0.8
795	Ingenico	France	Electronic & electrical equipment	82.7	-7.7	1001.1	10.4	8.3
796	Toyo Tire	Japan	Automobiles & parts	82.7	0.0	3187.8	11.5	2.6
797	Kone	Finland	Industrial engineering	82.5	16.4	5225.2	4.8	1.6

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
798	Babcock & Wilcox	USA	Electronic & electrical equipment	82.2	53.8	2281.5	9.8	3.6
799	Moog	USA	Aerospace & defence	82.2	3.7	1801.3	10.2	4.6
800	Orion Oyj	Finland	Pharmaceuticals & biotechnology	82.1	3.7	917.9	8.0	8.9
801	Repsol YPF	Spain	Oil & gas producers	82.0	15.5	60122.0	12.0	0.1
802	Sealed Air	USA	General industrials	81.9	20.5	4076.0	17.5	2.0
803	Perrigo	USA	Pharmaceuticals & biotechnology	81.7	28.2	2452.5	35.5	3.3
804	TiVo	USA	Leisure goods	81.5	29.2	184.1	8.5	44.3
805	Wabco	USA	Automobiles & parts	81.2	22.4	2159.4	28.4	3.8
806	Polaris Industries	USA	Leisure goods	81.0	23.4	2053.4	33.4	3.9
807	Sick	Germany	Electronic & electrical equipment	81.0	21.8	902.7	20.5	9.0
808	Newmarket	USA	Chemicals	81.0	14.9	1661.3	19.6	4.9
809	Sinohydro	China	Construction & materials	80.9		13378.9	11.3	0.6
810	Salix Pharmaceuticals	USA	Pharmaceuticals & biotechnology	80.6	42.3	417.7	60.4	19.3
811	Qisda	Taiwan	Technology hardware & equipment	80.3	-11.4	3115.8	-10.9	2.6
812	Taiyo Yuden	Japan	Technology hardware & equipment	80.2	-4.8	1827.7	-12.6	4.4
813	Warner Chilcott	Ireland	Pharmaceuticals & biotechnology	80.2	-29.2	2108.4	-8.3	3.8
814	William Demant	Denmark	Health care equipment & services	80.2	5.1	1081.6	16.7	7.4
815	Perfect World	Cayman Islands	Software & computer services	80.0	55.5	365.9	20.8	21.8
816	CAE	Canada	Industrial transportation	79.9	57.4	1378.6	11.7	5.8
817	Citizen	Japan	Electronic & electrical equipment	79.7	-5.6	2782.2	10.9	2.9
818	LFB	France	Pharmaceuticals & biotechnology	79.3	4.4	412.9	9.9	19.2
819	Aristocrat Leisure	Australia	Travel & leisure	79.2	-8.1	552.8	3.5	14.3
820	Elster	Germany	Electronic & electrical equipment	79.1	17.0	1444.5	6.2	5.5
821	Nippon Sheet Glass	Japan	Construction & materials	79.1	-34.1	5491.4	-6.1	1.4
822	Nippon Steel	Japan	Industrial metals & mining	79.1	-68.0	26575.5	-1.3	0.3
823	HeidelbergCement	Germany	Construction & materials	78.9	16.7	12901.9	9.7	0.6
824	Salzgitter	Germany	Industrial metals & mining	78.9	0.6	9839.5	18.5	0.8
825	Teledyne Technologies	USA	Aerospace & defence	78.8	66.2	1500.8	18.1	5.2
826	Constellation Software	Canada	Software & computer services	78.6	19.9	597.7	22.0	13.2
827	Aveo Pharmaceuticals	USA	Pharmaceuticals & biotechnology	78.6	17.8	127.4	268.9	61.7
828	Heiwa	Japan	Industrial engineering	78.4	-19.3	945.9	10.8	8.3
829	Ishihara Sangyo Kaisha	Japan	Chemicals	78.4	23.1	1018.1	-2.0	7.7
830	Gen-Probe	USA	Pharmaceuticals & biotechnology	78.0	4.6	445.3	6.1	17.5
831	Georg Fischer	Switzerland	Industrial engineering	78.0	5.6	2988.3	5.5	2.6
832	Great Wall Motor	China	Automobiles & parts	77.9	42.0	3475.3	27.8	2.2
833	Hankook Tire	South Korea	Automobiles & parts	77.8	17.4	4354.1	26.3	1.8
834	Powerchip Technology	Taiwan	Technology hardware & equipment	77.6	1.2	1064.9	-50.8	7.3

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
835	Standard Microsystems	USA	Technology hardware & equipment	77.6	4.1	318.5	0.6	24.4
836	Harmonic	USA	Technology hardware & equipment	77.5	30.0	424.6	29.8	18.3
837	Cymer	USA	Technology hardware & equipment	77.3	12.2	459.2	11.2	16.8
838	MasterCard	USA	Other financials	77.3	15.2	5189.0	25.7	1.5
839	Xylem	USA	Industrial engineering	77.3	35.1	2939.2	18.8	2.6
840	Zumtobel	Austria	Electronic & electrical equipment	77.2	36.7	1280.3	4.1	6.0
841	ADTRAN	USA	Technology hardware & equipment	77.1	10.5	554.3	18.4	13.9
842	PUMA	Germany	Personal goods	77.0	118.1	3009.0	11.2	2.6
843	CSG Systems International	USA	Software & computer services	76.8	27.3	567.8	33.7	13.5
844	Alnylam Pharmaceuticals	USA	Pharmaceuticals & biotechnology	76.7	-5.0	64.0	-17.3	120.0
845	Sunplus Technology	Taiwan	Technology hardware & equipment	76.6	-9.5	236.2	-27.5	32.4
846	Exelis	USA	Electronic & electrical equipment	76.5	-16.8	4512.7	-0.9	1.7
847	Rinnai	Japan	Household goods & home construction	76.2	10.5	2452.6	3.0	3.1
848	Heraeus	Germany	Industrial metals & mining	76.1	15.0	26182.8	18.9	0.3
849	Akamai Technologies	USA	Software & computer services	76.1	79.7	895.4	13.2	8.5
850	Norsk Hydro	Norway	Industrial metals & mining	75.7	-14.1	11798.5	20.7	0.6
851	Vaillant	Germany	Support services	75.7	8.8	2314.0	4.4	3.3
852	Brunswick	USA	Leisure goods	75.7	6.4	2896.7	10.1	2.6
853	Makita	Japan	Household goods & home construction	75.6	12.2	2940.6	20.3	2.6
854	Prysmian	Italy	Electronic & electrical equipment	75.0	63.0	7583.0	65.9	1.0
855	Jiangling Motors	China	Automobiles & parts	75.0	10.3	2054.4	9.4	3.6
856	Experian	UK	Support services	75.0	30.6	3467.8	9.7	2.2
857	Estee Lauder	USA	Personal goods	74.6	21.4	7507.2	24.6	1.0
858	Minebea	Japan	Industrial engineering	74.5	-10.9	2499.5	10.1	3.0
859	Bally Technologies	USA	Travel & leisure	74.3	19.8	679.9	8.3	10.9
860	Celanese	USA	Chemicals	74.2	37.1	5226.8	14.3	1.4
861	Ecolab	USA	Chemicals	74.2	9.1	5254.3	11.6	1.4
862	Sanden	Japan	Automobiles & parts	73.9	36.6	2130.8	10.1	3.5
863	Ctrip.com International	China	Travel & leisure	73.8	32.5	429.1	21.4	17.2
864	Japan Aviation Electronics Industry	Japan	Aerospace & defence	73.8	10.5	1117.3	7.8	6.6
865	Casio Computer	Japan	Leisure goods	73.7	-45.8	2999.7	-29.5	2.5
866	Mannkind	USA	Pharmaceuticals & biotechnology	73.6	-15.2	0.0	-46.2	
867	Tata Steel	India	Industrial metals & mining	73.4	-20.8	19271.4	11.9	0.4
868	Aisan	Japan	Automobiles & parts	73.3	0.9	1490.5	-0.6	4.9
869	Esterline Technologies	USA	Aerospace & defence	73.0	35.5	1327.8	11.3	5.5
870	WMS Industries	USA	Travel & leisure	73.0	-10.8	533.0	-9.9	13.7
871	Buhler	Switzerland	Industrial engineering	72.9	12.4	1750.2	11.7	4.2
872	West Japan Railway	Japan	Travel & leisure	72.5	12.5	12804.8	8.2	0.6
873	Dalian Huarui Heavy	China	Industrial metals & mining	72.3	1.0	1525.7	-6.3	4.7

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
874	Alfa Laval	Sweden	Industrial engineering	71.9	4.2	3215.0	15.9	2.2
875	Fiserv	USA	Support services	71.9	8.1	3351.9	4.9	2.1
876	SAIC	USA	Software & computer services	71.9	69.1	8182.2	-3.1	0.9
877	Mead Johnson Nutrition	USA	Food producers	71.5	17.8	2841.8	17.0	2.5
878	Mellanox Technologies	Israel	Technology hardware & equipment	71.5	62.8	200.4	67.6	35.7
879	Guangzhou Automobile	China	Automobiles & parts	71.5	241.5	1347.3	25.6	5.3
880	Lonza	Switzerland	Chemicals	71.5	-38.3	2211.2	0.4	3.2
881	Avery Dennison	USA	Chemicals	71.4	-3.3	4657.5	-7.5	1.5
882	Tekelec	USA	Technology hardware & equipment	71.4	0.0	327.7	-9.4	21.8
883	Imagination Technologies	UK	Technology hardware & equipment	71.3	33.4	152.4	30.0	46.8
884	CGGVeritas	France	Oil equipment, services & distribution	71.2	24.9	2267.7	3.7	3.1
885	Veeco Instruments	USA	Electronic & electrical equipment	71.0	28.8	756.7	-4.5	9.4
886	Nexans	France	Electronic & electrical equipment	71.0	0.0	6920.0	12.0	1.0
887	Grifols	Spain	Pharmaceuticals & biotechnology	70.8	96.9	1795.6	81.2	3.9
888	Mahindra & Mahindra	India	Automobiles & parts	70.8	-60.3	7551.1	67.9	0.9
889	China National Materials	China	Construction & materials	70.7	14.3	6219.1	14.6	1.1
890	Shimizu	Japan	Construction & materials	70.6	-7.5	13287.3	-15.9	0.5
891	Adeka	Japan	Chemicals	70.6	-3.2	1698.6	-4.1	4.2
892	Tohoku Electric Power	Japan	Electricity	70.5	-20.8	16755.3	1.3	0.4
893	Mindray Medical International	Cayman Islands	Health care equipment & services	70.3	50.8	680.7	25.1	10.3
894	TCL Communication Technology	Cayman Islands	Technology hardware & equipment	70.3	186.4	1060.2	22.4	6.6
895	Sorin	Italy	Health care equipment & services	70.1	-6.6	743.4	-0.4	9.4
896	Belgacom	Belgium	Fixed line telecommunications	70.0	4.5	6361.0	-2.9	1.1
897	FMC Technologies	USA	Oil equipment, services & distribution	69.9	33.1	3940.8	23.6	1.8
898	Amada	Japan	Industrial engineering	69.8	28.7	1845.0	36.5	3.8
899	MSCI	USA	Other financials	69.8	1154.2	696.3	1142.3	10.0
900	Praxair	USA	Chemicals	69.6	13.9	8696.2	11.2	0.8
901	Transmissions And Engineering Services Netherlands	The Netherlands	Industrial engineering	69.5	32.9	3250.0	38.4	2.1
902	Aeroflex	USA	Electronic & electrical equipment	69.4	4.1	520.1	-7.7	13.3
903	Toyo Ink Manufacturing	Japan	Chemicals	69.1	-3.2	2439.7	-0.2	2.8
904	Zebra Technologies	USA	Electronic & electrical equipment	69.1	-12.3	760.1	2.8	9.1
905	KBC	Belgium	Banks	69.0	19.0	7092.0	-15.3	1.0
906	Ashland	USA	Chemicals	68.8	3.5	5025.1	-27.9	1.4
907	Groupe SEB	France	Household goods & home construction	68.7	0.9	3963.3	8.5	1.7

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
908	Amphenol	USA	Electronic & electrical equipment	68.7	14.6	3044.9	10.9	2.3
909	Genmab	Denmark	Pharmaceuticals & biotechnology	68.6	42.8	47.2	-39.7	145.4
910	ACI Worldwide	USA	Software & computer services	68.6	19.8	359.5	11.2	19.1
911	THQ	USA	Leisure goods	68.6	11.8	642.1	24.9	10.7
912	IMMSI	Italy	Automobiles & parts	68.5	8.9	1616.5	0.8	4.2
913	China Telecom	China	Fixed line telecommunications	68.4	3.3	30056.3	11.5	0.2
914	Telenor	Norway	Mobile telecommunications	68.4	-23.7	12711.0	-1.1	0.5
915	Amyris	USA	Chemicals	68.3	56.4	113.6	83.0	60.2
916	Lupin	India	Pharmaceuticals & biotechnology	68.1	-22.9	1009.9	6.2	6.7
917	Vallourec	France	Industrial engineering	68.1	0.0	5295.9	17.9	1.3
918	Rackspace Hosting	USA	Software & computer services	68.1	72.4	792.2	31.3	8.6
919	Spirent Communications	UK	Technology hardware & equipment	68.1	9.9	408.2	9.5	16.7
920	Coretronic	Taiwan	Leisure goods	67.7	0.6	1967.3	-16.5	3.4
921	Hitachi Zosen	Japan	Industrial engineering	67.7	-3.1	3013.4	5.5	2.2
922	MEMC Electronic Materials	USA	Technology hardware & equipment	67.6	57.4	2098.7	21.3	3.2
923	Swedish Road Administration	Sweden	Industrial transportation	67.5	52.0	841.6	-40.1	8.0
924	GN Store Nord	Denmark	Technology hardware & equipment	67.4	10.1	748.4	8.1	9.0
925	Accuray	USA	Health care equipment & services	67.3	109.0	314.7	85.8	21.4
926	Israel	Israel	General industrials	67.2	13.0	8971.3	17.7	0.7
927	NOF	Japan	Food producers	67.2	7.8	1515.1	6.3	4.4
928	Samsung C&T	South Korea	Electronic & electrical equipment	67.1	-5.3	14457.0	-5.7	0.5
929	Dialog Semiconductor	UK	Technology hardware & equipment	67.0	56.7	407.5	77.8	16.4
930	Fuji Machine Manufacturing	Japan	Electronic & electrical equipment	66.7	31.7	857.7	-7.2	7.8
931	Ironwood Pharmaceuticals	USA	Pharmaceuticals & biotechnology	66.5	11.2	50.9	50.2	130.7
932	ConAgra Foods	USA	Food producers	66.5	5.7	10250.1	7.8	0.6
933	Pantech	South Korea	Technology hardware & equipment	66.1	13.1	2000.9	48.9	3.3
934	Frieslandcampina International Holding	The Netherlands	Food producers	66.0	8.2	5042.0	-43.8	1.3
935	Anthera Pharmaceuticals	USA	Pharmaceuticals & biotechnology	65.9	189.5			
936	Avichina Industry & Technology	China	Industrial transportation	65.7	4.9	1688.4	-20.5	3.9
937	Andritz	Austria	Industrial engineering	65.6	24.9	4596.0	29.3	1.4
938	Kaken Pharmaceutical	Japan	Pharmaceuticals & biotechnology	65.6	-16.2	875.1	3.5	7.5
939	Energias de Portugal	Portugal	Electricity	65.5	79.3	15120.9	6.7	0.4
940	Nippon Paint	Japan	Media	65.4	-80.6	2210.1	-86.0	3.0
941	Technip	France	Oil equipment, services & distribution	65.3	15.4	6813.0	12.0	1.0
942	Daiwa House Industry	Japan	Household goods & home construction	65.2	-9.1	18384.7	14.9	0.4
943	Orbotech	Israel	Electronic & electrical equipment	65.1	7.5	436.9	4.5	14.9
944	Roland	Japan	Leisure goods	65.0	-3.9	744.1	-4.4	8.7

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
945	NeuroSearch	Denmark	Pharmaceuticals & biotechnology	64.9	41.1			
946	Cooper-Standard Holdings	USA	Automobiles & parts	64.8	22.0	2205.4	18.2	2.9
947	Central Japan Railway	Japan	Travel & leisure	64.6	-72.6	14999.0	0.3	0.4
948	Daifuku	Japan	Industrial engineering	64.5	6.8	1969.5	28.5	3.3
949	Nippon Paper	Japan	Forestry & paper	64.5	-7.1	10366.1	-4.8	0.6
950	Nippon Electric Glass	Japan	Electronic & electrical equipment	64.3	42.0	3363.2	-13.3	1.9
951	MiTAC International	Taiwan	Electronic & electrical equipment	64.2	-9.1	1182.0	-17.0	5.4
952	Daewoo Shipbuilding & Marine	South Korea	Industrial engineering	64.1	52.8	9329.1	6.7	0.7
953	Wustenrot & Wurttembergische	Germany	Nonlife insurance	64.1	-4.4	1544.4	-71.7	4.2
954	Pall	USA	Industrial engineering	64.1	10.7	2064.8	11.2	3.1
955	Sika	Switzerland	Construction & materials	63.8	4.4	3742.6	3.2	1.7
956	NOK	Japan	Automobiles & parts	63.7	0.4	4924.8	-0.7	1.3
957	Sierra Wireless	Canada	Technology hardware & equipment	63.5	-6.7	446.9	-11.1	14.2
958	Bang & Olufsen	Denmark	Leisure goods	63.4	7.7	404.6	8.9	15.7
959	Federalnaya Setevaya	Russia	Electronic & electrical equipment	63.4	102.6	3350.4	23.2	1.9
960	Marks & Spencer	UK	General retailers	63.2	25.7	11870.6	4.4	0.5
961	IDEXX Laboratories	USA	Health care equipment & services	63.2	7.0	941.9	10.5	6.7
962	Gentex	USA	Automobiles & parts	63.1	27.4	791.2	25.4	8.0
963	Dolby Laboratories	USA	Media	63.0	-22.3	738.5	3.6	8.5
964	Christian Dior	France	Personal goods	63.0	37.0	24628.0	16.6	0.3
965	LVMH	France	Personal goods	63.0	37.0	23659.0	16.4	0.3
966	Phoenix Contact	Germany	Electronic & electrical equipment	62.9	15.8	1363.3	40.6	4.6
967	Waters	USA	Health care equipment & services	62.9	-3.5	1430.7	12.6	4.4
968	Amer Sports	Finland	Leisure goods	62.8	12.5	1880.8	8.1	3.3
969	Hyundai Engineering & Construction	South Korea	Construction & materials	62.7	-50.9	7998.4	6.3	0.8
970	Pinafore	The Netherlands	Automobiles & parts	62.7	-5.6	3548.0	255.7	1.8
971	Yamazaki Baking	Japan	Food producers	62.6	3.6	9275.8	0.5	0.7
972	Nissin Kogyo	Japan	Automobiles & parts	62.5	7.9	1582.1	9.5	3.9
973	Kaspersky Labs	UK	Software & computer services	62.4	7.8	416.3	18.4	15.0
974	Swedish Orphan Biovitrum	Sweden	Pharmaceuticals & biotechnology	62.4	19.2	214.4	0.2	29.1
975	Manitowoc	USA	Industrial engineering	62.3	11.6	2822.4	16.2	2.2
976	GS Yuasa	Japan	Electronic & electrical equipment	62.2	40.8	2838.4	15.5	2.2
977	Nexter	France	Aerospace & defence	62.1	30.8	686.1	-23.6	9.0
978	Advantech	Taiwan	Technology hardware & equipment	61.9	31.2	674.8	14.8	9.2
979	Kcc	South Korea	Chemicals	61.8	-2.1	2261.8	-21.7	2.7
980	Blue Coat Systems	USA	Software & computer services	61.8	-5.9	376.5	-1.8	16.4
981	Fujishoji	Japan	Household goods & home construction	61.5	47.1	427.9	81.5	14.4
982	Progress Software	USA	Software & computer services	61.3	-12.4	412.4	0.8	14.9
983	Tokyo Ohka Kogyo	Japan	Chemicals	61.2	-11.4	795.6	13.4	7.7

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
984	Cargotec	Finland	Industrial engineering	61.2	73.9	3138.7	21.9	1.9
985	LINTEC	Japan	Chemicals	61.2	2.3	1997.8	-5.6	3.1
986	Bucher Industries	Switzerland	Industrial engineering	61.1	1.6	1918.8	14.9	3.2
987	Himax Technologies	Cayman Islands	Technology hardware & equipment	61.1	3.4	489.2	-1.5	12.5
988	ITT	USA	General industrials	61.1	-68.8	1637.7	-81.0	3.7
989	SPX	USA	Electronic & electrical equipment	61.0	13.5	3517.6	-7.0	1.7
990	Secom	Japan	Support services	60.9	3.0	6753.8	1.3	0.9
991	Hager	Germany	Support services	60.9	7.2	1263.4	8.4	4.8
992	Cytec Industries	USA	Chemicals	60.8	8.6	2375.1	-8.2	2.6
993	Nisshinbo	Japan	Personal goods	60.7	16.0	3772.2	16.5	1.6
994	Microstrategy	USA	Software & computer services	60.7	48.9	434.5	23.7	14.0
995	Coherent	USA	Electronic & electrical equipment	60.7	8.5	620.5	32.7	9.8
996	Totvs	Brazil	Software & computer services	60.5	-3.0	531.9	13.3	11.4
997	ADVA	Germany	Technology hardware & equipment	60.5	20.5	310.9	6.6	19.4
998	Pentair	USA	Industrial engineering	60.4	16.4	2671.5	14.1	2.3
999	Diebold	USA	Technology hardware & equipment	60.4	5.2	2191.7	0.4	2.8
1000	Ametek	USA	Electronic & electrical equipment	60.3	37.3	2310.8	21.0	2.6
1001	AOL	USA	Software & computer services	60.3	-9.2	1636.4	-8.2	3.7
1002	Samsung Corning Precision Materials	South Korea	General industrials	60.1	16.1	3095.4	-17.9	1.9
1003	Avon Products	USA	Personal goods	60.1	7.0	8588.0	2.3	0.7
1004	Medicis Pharmaceutical	USA	Pharmaceuticals & biotechnology	59.8	32.7	557.3	3.0	10.7
1005	Kontron	Germany	Technology hardware & equipment	59.7	2.9	589.6	15.7	10.1
1006	Albemarle	USA	Chemicals	59.6	32.0	2217.3	21.4	2.7
1007	Stada Arzneimittel	Germany	Pharmaceuticals & biotechnology	59.5	-0.8	1715.4	5.4	3.5
1008	Rembrandt Holdings	Luxembourg	Support services	59.5	19.5	1329.1	9.6	4.5
1009	Owens Corning	USA	Construction & materials	59.5	1.3	4123.2	6.8	1.4
1010	A123 Systems	USA	Electronic & electrical equipment	59.5	26.7	123.0	63.5	48.3
1011	JDA Software	USA	Software & computer services	59.4	6.6	534.2	12.0	11.1
1012	Chugoku Electric Power	Japan	Electricity	59.4	-7.5	11747.5	13.8	0.5
1013	Seikagaku	Japan	Pharmaceuticals & biotechnology	59.4	-11.2	269.3	-0.1	22.0
1014	Thoratec	USA	Health care equipment & services	59.3	10.8	326.7	-7.9	18.2
1015	Magnachip Semiconductor	USA	Electronic & electrical equipment	59.3	-11.7	597.3	0.3	9.9
1016	Nipro	Japan	Health care equipment & services	59.2	19.7	2108.3	8.2	2.8
1017	Investment Technology	USA	Other financials	59.2	-12.6	430.3	-2.5	13.8
1018	Zeltia	Spain	Pharmaceuticals & biotechnology	59.0	3.0	152.5	-0.7	38.7
1019	Richemont	Switzerland	General retailers	59.0	268.8	8867.0	28.7	0.7
1020	Affymax	USA	Pharmaceuticals & biotechnology	59.0	-18.5	36.9	-57.6	159.9

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
1021	Sulzer	Switzerland	Industrial engineering	58.9	22.6	2938.9	12.4	2.0
1022	Singapore Technologies Engineering	Singapore	Aerospace & defence	58.9	0.9	3559.7	0.1	1.7
1023	China Shipbuilding	China	Industrial engineering	58.8	18.6	6891.3	7.0	0.9
1024	Unisys	USA	Software & computer services	58.8	-3.5	2978.4	-6.3	2.0
1025	Lottomatica	Italy	Travel & leisure	58.8	7.3	2973.7	28.5	2.0
1026	Smithfield Foods	USA	Food producers	58.7	61.5	10120.0	7.3	0.6
1027	Hannstar Display	Taiwan	Leisure goods	58.6	14.6	1152.3	-21.7	5.1
1028	Nordex	Germany	Alternative energy	58.6	83.4	920.8	-5.3	6.4
1029	Pearson	UK	Media	58.6	22.4	7004.6	0.7	0.8
1030	Shutterfly	USA	Software & computer services	58.5	56.5	365.8	53.8	16.0
1031	Showa	Japan	Automobiles & parts	58.5	7.0	2146.8	-7.5	2.7
1032	FEI	USA	Technology hardware & equipment	58.3	13.8	638.7	30.3	9.1
1033	McCormick	USA	Food producers	58.3	14.2	2857.7	10.8	2.0
1034	Tessera Technologies	USA	Technology hardware & equipment	58.1	1.5	196.8	-15.5	29.5
1035	Ixia	USA	Software & computer services	58.0	3.6	238.3	11.4	24.4
1036	Dexia	Belgium	Banks	58.0	-22.7	-4383.0	-182.6	-1.3
1037	BHP Billiton	UK	Mining	58.0	15.4	55820.4	36.8	0.1
1038	Intermune	USA	Pharmaceuticals & biotechnology	57.9	11.1	19.8	-5.0	292.5
1039	Koenig & Bauer	Germany	Industrial engineering	57.9	25.9	1167.2	-1.0	5.0
1040	Vestel Elektronik	Turkey	Leisure goods	57.9	101.3	2847.7	31.9	2.0
1041	Suzuken	Japan	Food & drug retailers	57.7	-9.8	18495.2	7.2	0.3
1042	Sumco	Japan	Technology hardware & equipment	57.7	-24.1	2458.0	13.3	2.3
1043	BIAL	Portugal	Pharmaceuticals & biotechnology	57.5	-3.8			
1044	Basilea Pharmaceutica	Switzerland	Pharmaceuticals & biotechnology	57.5	26.2	54.8	-42.6	105.0
1045	Williams Grand Prix	UK	Travel & leisure	57.5	9.4	127.6	20.1	45.0
1046	Quantum	USA	Technology hardware & equipment	57.5	1.9	504.2	-3.0	11.4
1047	Trelleborg	Sweden	General industrials	57.5	0.2	3265.9	1.1	1.8
1048	Dendreon	USA	Pharmaceuticals & biotechnology	57.4	-2.2			
1049	Netease.com	Cayman Islands	Software & computer services	57.1	46.4	894.3	32.4	6.4
1050	IAC/InterActiveCorp	USA	Software & computer services	57.1	13.5	1591.7	25.8	3.6
1051	NPS Pharmaceuticals	USA	Pharmaceuticals & biotechnology	57.1	21.4	78.6	13.7	72.6
1052	Nippon Soda	Japan	Chemicals	57.1	2.6	1204.4	-8.5	4.7
1053	KPN	The Netherlands	Fixed line telecommunications	57.0	5.6	13022.0	-2.3	0.4
1054	China National Chemical Engineering	China	Construction & materials	57.0		5187.4	33.6	1.1
1055	Impax Laboratories	USA	Pharmaceuticals & biotechnology	57.0	-14.5	396.4	-41.7	14.4
1056	Terex	USA	Industrial engineering	57.0	23.0	5027.1	42.2	1.1
1057	Bobst	Switzerland	Industrial engineering	56.8	-9.4	1043.4	-0.8	5.4
1058	Unit4	The Netherlands	Software & computer services	56.8	27.0	454.6	7.5	12.5
1059	Medivation	USA	Pharmaceuticals &	56.8	2.4	46.7	-3.4	121.6

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
			biotechnology					
1060	Shanghai Mechanical & Electrical Industry	China	Industrial engineering	56.7	13.1	1736.9	9.2	3.3
1061	Scottish and Southern Energy	UK	Electricity	56.5	425.6	37907.4	12.0	0.1
1062	ArvinMeritor	USA	Automobiles & parts	56.4	7.4	3572.1	-5.3	1.6
1063	L-3 Communications	USA	Aerospace & defence	56.4	7.4	11723.5	-3.3	0.5
1064	NYSE Euronext	USA	Other financials	56.4	11.3	3351.9	1.6	1.7
1065	Theravance	USA	Pharmaceuticals & biotechnology	56.2	11.5	18.9	1.2	296.9
1066	Weg	Brazil	Industrial engineering	56.0	33.7	2157.7	18.2	2.6
1067	ACS	Spain	Construction & materials	56.0	19.7	28471.9		0.2
1068	Recordati	Italy	Pharmaceuticals & biotechnology	56.0	-18.7	762.0	4.7	7.3
1069	Sigma-Aldrich	USA	Chemicals	55.6	9.1	1936.0	10.3	2.9
1070	Xinjiang Bayi Iron & Steel	China	Industrial metals & mining	55.6	81.9	3391.5	18.2	1.6
1071	National Federation Of Fisheries Cooperatives	South Korea	Banks	55.6	0.7			
1072	Lattice Semiconductor	USA	Technology hardware & equipment	55.5	19.1	246.1	6.9	22.6
1073	Nihon Kohden	Japan	Health care equipment & services	55.5	26.4	1200.4	12.9	4.6
1074	Coloplast	Denmark	Health care equipment & services	55.4	8.7	1368.3	6.7	4.1
1075	Pacific Biosciences Of California	USA	Pharmaceuticals & biotechnology	55.4	-35.9	26.2	1922.9	211.7
1076	LEGO	Denmark	Leisure goods	55.3	-4.0	2519.6	17.2	2.2
1077	Italcementi	Italy	Construction & materials	55.2	-10.7	4720.5	-1.5	1.2
1078	Aston Martin Holdings	UK	Automobiles & parts	55.2	20.9	605.6	6.9	9.1
1079	China Sinoma International Engineering	China	Construction & materials	55.2	20.8	3041.2	4.7	1.8
1080	Central Glass	Japan	Construction & materials	55.1	-9.1	1665.4	8.4	3.3
1081	Fincantieri	Italy	Industrial engineering	55.1	24.1	2316.6	-11.3	2.4
1082	Digital River	USA	Software & computer services	55.1	17.1	307.7	9.6	17.9
1083	Pilatus Aircraft	Switzerland	Aerospace & defence	55.0	36.7	641.5	13.5	8.6
1084	Electric Power Development	Japan	Electricity	55.0	-7.0	6509.4	12.0	0.8
1085	TeliaSonera	Sweden	Fixed line telecommunications	55.0	-35.3	11709.4	-2.1	0.5
1086	Caixa General de Depositos	Portugal	Banks	54.9	-5.4	3045.3	5.3	1.8
1087	Owens-Illinois	USA	General industrials	54.9	14.5	5686.7	8.8	1.0
1088	Cemex	Mexico	Construction & materials	54.6	80.0	10437.3	6.0	0.5
1089	Telenav	USA	Leisure goods	54.5	22.1	168.9	3.8	32.3
1090	Verisign	USA	Software & computer services	54.5	-8.9	596.6	-16.9	9.1
1091	Aker Solutions	Norway	Oil equipment, services & distribution	54.4	168.8	4706.0	-21.2	1.2
1092	CJ Cheiljedang	South Korea	Food producers	54.4	149.8	4387.1	15.3	1.2
1093	Realnetworks	USA	Software & computer services	54.3	-30.5	259.4	-16.4	20.9

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
1094	Modine Manufacturing	USA	Automobiles & parts	54.3	4.8	1218.9	8.9	4.5
1095	Axis	Sweden	Technology hardware & equipment	54.0	19.8	401.4	22.0	13.4
1096	Dyson James	UK	Household goods & home construction	53.9	5.1	931.4	19.2	5.8
1097	Stanley Electric	Japan	Automobiles & parts	53.9	8.8	2417.5	-2.0	2.2
1098	Plantronics	USA	Technology hardware & equipment	53.8	10.3	551.3	4.4	9.8
1099	Gs Engineering & Construction	South Korea	Construction & materials	53.7	16.0	6074.0	8.8	0.9
1100	Hugo Boss	Germany	Personal goods	53.7	16.9	2058.8	19.0	2.6
1101	Fonterra Co-operative	New Zealand	Food producers	53.6	-8.2	11845.2	18.8	0.5
1102	Rigel Pharmaceuticals	USA	Pharmaceuticals & biotechnology	53.6	-89.2	3.7	-96.2	1460.0
1103	Danske Bank	Denmark	Banks	53.5	-83.9	6056.4	-38.4	0.9
1104	Reynolds American	USA	Tobacco	53.3	-2.8	6601.0	-0.1	0.8
1105	Metall Zug	Switzerland	Household goods & home construction	53.2	14.4	692.0	4.0	7.7
1106	Geron	USA	Pharmaceuticals & biotechnology	53.1	11.4	1.9	-31.6	2818.8
1107	Nichias	Japan	General industrials	53.1	9.6	1434.5	12.7	3.7
1108	Gildemeister	Germany	Industrial engineering	53.0	18.8	1687.7	22.6	3.1
1109	Advanced Digital Broadcast	Switzerland	Technology hardware & equipment	52.9	40.0	308.3	11.9	17.2
1110	W R Grace	USA	Chemicals	52.9	13.6	2482.3	20.1	2.1
1111	Tenaris	Luxembourg	Oil equipment, services & distribution	52.9	10.7	7707.3	29.3	0.7
1112	Danieli	Italy	Industrial engineering	52.9	25.0	2283.7	13.2	2.3
1113	Eizo Nanao	Japan	Technology hardware & equipment	52.8	12.4	592.3	-23.1	8.9
1114	Zeria Pharmaceutical	Japan	Pharmaceuticals & biotechnology	52.8	0.5	528.7	7.5	10.0
1115	Micro-Star International	Taiwan	Technology hardware & equipment	52.7	-15.1	2008.2	-12.2	2.6
1116	Compuware	USA	Software & computer services	52.7	-1.4	780.4	8.7	6.8
1117	Seiko Holdings	Japan	Technology hardware & equipment	52.6	-92.3	2952.8	-69.9	1.8
1118	Ceske drahy	Czech Republic	Industrial transportation	52.6	538.1	431.5	-58.6	12.2
1119	Hirose Electric	Japan	Electronic & electrical equipment	52.6	6.8	942.6	2.5	5.6
1120	Cavium Networks	USA	Technology hardware & equipment	52.5	12.0	200.3	25.5	26.2
1121	Calix	USA	Technology hardware & equipment	52.3	22.2	266.4	20.1	19.6
1122	Aeolus Tyre	China	Automobiles & parts	52.3	49.1	1228.0	25.8	4.3
1123	Kingfa Science & Technology	China	Chemicals	52.2	34.3	1413.1	12.7	3.7
1124	Fagor Electrodomesticos	Spain	Household goods & home construction	52.0	28.8	1277.2	-8.5	4.1
1125	Noritz	Japan	General industrials	52.0	-11.4	1833.2	5.3	2.8
1126	Arques Industries	Germany	Other financials	52.0	65.8	520.6	-48.4	10.0
1127	Oclaro	USA	Technology hardware & equipment	51.8	2.3	297.9	-17.4	17.4
1128	AptarGroup	USA	General industrials	51.8	30.4	1806.3	12.5	2.9
1129	Nabtesco	Japan	Industrial engineering	51.7	38.9	1974.2	57.3	2.6
1130	Sarepta Therapeutics	USA	Pharmaceuticals & biotechnology	51.7	85.9	36.3	59.7	142.3

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
1131	IMI	UK	Industrial engineering	51.6	3.1	2546.4	11.5	2.0
1132	Cegedim	France	Software & computer services	51.6	29.0	911.5	-1.6	5.7
1133	Active Network	USA	Software & computer services	51.6	9.2	260.8	20.7	19.8
1134	Kansai Paint	Japan	Chemicals	51.6	-6.0	2551.6	15.4	2.0
1135	Dentsply International	USA	Health care equipment & services	51.5	35.0	1961.3	14.3	2.6
1136	Ashok Leyland	India	Industrial engineering	51.5	646.3	1831.4	14.3	2.8
1137	Intermec	USA	Technology hardware & equipment	51.5	-1.0	655.5	24.9	7.9
1138	Silicon Image	USA	Technology hardware & equipment	51.4	20.3	170.8	15.5	30.1
1139	Viropharma	USA	Pharmaceuticals & biotechnology	51.4	67.8	420.7	24.0	12.2
1140	Alliant Techsystems	USA	Aerospace & defence	51.3	2.2	3565.5	-4.7	1.4
1141	Posten Norden	Sweden	Industrial transportation	51.2	130.7	4428.4	-4.2	1.2
1142	ElringKlinger	Germany	Automobiles & parts	51.1	11.7	1032.8	29.8	4.9
1143	Siliconware Precision Industries	Taiwan	Technology hardware & equipment	51.1	30.1	1563.2	-4.1	3.3
1144	Delta Electronics (Thailand)	Thailand	Technology hardware & equipment	51.0	20.2	937.3	8.2	5.4
1145	Telekom Austria	Austria	Fixed line telecommunications	51.0	4.0	4454.6	-4.2	1.1
1146	Hill-Rom	USA	Health care equipment & services	50.9	4.4	1230.2	8.3	4.1
1147	Hong Leong Asia	Singapore	Construction & materials	50.9	0.5	2748.7	-9.4	1.9
1148	Valeant Pharmaceuticals	Canada	Pharmaceuticals & biotechnology	50.8	-3.8	1903.9	108.6	2.7
1149	Karl Storz	Germany	Health care equipment & services	50.7	23.3	1037.1	19.7	4.9
1150	Sina	Cayman Islands	Fixed line telecommunications	50.6	92.5	373.2	19.9	13.6
1151	Kureha	Japan	Chemicals	50.5	-18.6	1276.4	-4.6	4.0
1152	Pegasystems	USA	Software & computer services	50.5	18.3	322.0	23.8	15.7
1153	Transgene	France	Pharmaceuticals & biotechnology	50.4	68.0	5.6	0.0	892.4
1154	Kulicke & Soffa	USA	Technology hardware & equipment	50.3	15.0	641.8	8.9	7.8
1155	Saxa Holdings	Japan	Technology hardware & equipment	50.3	-1.4	387.7	-9.1	13.0
1156	Qihoo 360 Technology	Cayman Islands	Software & computer services	50.3	165.5	129.7	191.1	38.8
1157	Cabot	USA	Chemicals	50.2	-7.1	2397.4	7.2	2.1
1158	Advanced Energy Industries	USA	Electronic & electrical equipment	50.2	11.0	399.4	1.2	12.6
1159	Metaswitch Networks	UK	Software & computer services	50.2	27.1	112.6	8.4	44.6
1160	Zoomlion Heavy Industry Science And Technology	China	Industrial engineering	50.2	47.1	5681.9	43.9	0.9
1161	JGC	Japan	Industrial engineering	50.1	0.9	5538.5	24.5	0.9
1162	Showa Shell Sekiyu	Japan	Oil & gas producers	50.1	7.3	27559.3	18.1	0.2
1163	UPM-Kymmene	Finland	Forestry & paper	50.0	11.1	10068.0	12.8	0.5
1164	ImmunoGen	USA	Pharmaceuticals & biotechnology	50.0	15.1	12.6	-15.3	395.4
1165	Momenta Pharmaceuticals	USA	Pharmaceuticals & biotechnology	50.0	25.0	218.8	142.4	22.8
1166	Faw Car	China	Automobiles & parts	49.9	7.9	3523.6	-13.7	1.4

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
1167	Sonus Networks	USA	Technology hardware & equipment	49.8	2.6	200.7	4.2	24.8
1168	Renishaw	UK	Electronic & electrical equipment	49.7	39.9	396.6	82.8	12.5
1169	Crane	USA	Industrial engineering	49.6	-2.6	1967.6	14.8	2.5
1170	Take-Two Interactive Software	USA	Software & computer services	49.6	-7.8	638.2	-27.4	7.8
1171	Beiqi Fu Tian Vehicle	China	Industrial engineering	49.6	-25.2	6128.5	-3.6	0.8
1172	Mitsui Engineering & Shipbuilding	Japan	Industrial engineering	49.6	-22.5	5686.6	-2.9	0.9
1173	Furuno Electric	Japan	Electronic & electrical equipment	49.6	11.9	768.7	4.9	6.4
1174	Mitsubishi	Japan	General industrials	49.5	9.6	55347.3	6.9	0.1
1175	Biotest	Germany	Pharmaceuticals & biotechnology	49.3	0.9	422.0	-13.2	11.7
1176	Cheng Shin Rubber Industry	Taiwan	Automobiles & parts	49.3	21.4	3062.3	20.0	1.6
1177	Interdigital	USA	Technology hardware & equipment	49.3	-10.8	233.2	-23.5	21.1
1178	Shanghai Tunnel Engineering	China	Construction & materials	49.3		1683.7	-6.6	2.9
1179	Amore Pacific	South Korea	Personal goods	49.2	24.5	2052.3	14.4	2.4
1180	Sophos	UK	Software & computer services	49.2	12.4	273.3	19.5	18.0
1181	Lm Wind Power	Denmark	Alternative energy	49.2	42.9	707.5	-3.6	7.0
1182	Fortinet	USA	Software & computer services	49.2	27.7	335.1	33.5	14.7
1183	Norddeutsche Landesbank Girozentrale	Germany	Banks	49.0	-5.8	2496.0	19.4	2.0
1184	Quintiles	UK	Pharmaceuticals & biotechnology	49.0	10.1	620.1	8.7	7.9
1185	Harvest Natural Resources	USA	Oil & gas producers	49.0	690.5			
1186	Ogel	Germany	Support services	49.0	1.1	412.5	-6.3	11.9
1187	Miraca	Japan	Pharmaceuticals & biotechnology	49.0	8.9	1744.1	5.8	2.8
1188	Allied Nevada Gold	USA	Mining	49.0	89.4	117.5	16.1	41.7
1189	Deltek	USA	Software & computer services	48.9	20.4	263.2	21.8	18.6
1190	Nihon Unisys	Japan	Software & computer services	48.8	15.0	2537.0	-5.8	1.9
1191	Shikoku Electric Power	Japan	Electricity	48.8	-4.4	5888.3	8.6	0.8
1192	Nippon Light Metal	Japan	Industrial metals & mining	48.7	-3.6	4007.6	-12.5	1.2
1193	NKT	Denmark	Electronic & electrical equipment	48.6	0.4	2098.9	8.0	2.3
1194	Aixtron	Germany	Technology hardware & equipment	48.4	15.4	611.0	-22.0	7.9
1195	Bollore	France	Industrial transportation	48.2	-29.9	8490.5	21.1	0.6
1196	Silicon Graphics International	USA	Technology hardware & equipment	48.2	15.3	582.0	19.6	8.3
1197	Morinaga Milk Industry	Japan	Food producers	48.1	-0.7	5750.7	-0.8	0.8
1198	Laird	UK	Electronic & electrical equipment	48.0	-4.7	700.2	3.3	6.9
1199	Komori	Japan	Industrial engineering	48.0	-16.2	718.9	5.3	6.7
1200	Curtiss-Wright	USA	Aerospace & defence	48.0	14.7	1587.5	8.5	3.0
1201	Powerwave	USA	Technology hardware	48.0	-0.6	343.5	-24.9	14.0

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
	Technologies		& equipment					
1202	Nippon Suisan Kaisha	Japan	Food producers	47.8	6.9	5350.2	8.8	0.9
1203	Fair Isaac	USA	Software & computer services	47.8	-16.0	478.9	2.3	10.0
1204	Makino Milling Machine	Japan	Industrial engineering	47.7	0.2	1098.4	16.1	4.3
1205	Shield Bidco	UK	Software & computer services	47.7	44.6	252.8	93.2	18.8
1206	Ulvac	Japan	Electronic & electrical equipment	47.5	-40.3	1219.8	-44.7	3.9
1207	BTG	UK	Pharmaceuticals & biotechnology	47.4	23.7	235.4	76.8	20.2
1208	Somfy	France	Electronic & electrical equipment	47.4	1.8	952.4	11.7	5.0
1209	Hyster-Yale Materials Handling	USA	Automobiles & parts	47.4	26.1	1963.7	41.0	2.4
1210	NACCO Industries	USA	Industrial engineering	47.4	26.1	2574.5	24.0	1.8
1211	centrotherm photovoltaics	Germany	Alternative energy	47.3	11.6	698.5	11.9	6.8
1212	Hanmi Pharm	South Korea	Pharmaceuticals & biotechnology	47.3	111.3	406.8	79.7	11.6
1213	Codexis	USA	Chemicals	47.2	16.5	93.0	16.8	50.7
1214	Affymetrix	USA	Pharmaceuticals & biotechnology	47.2	-10.1	202.0	-15.9	23.3
1215	MKS Instruments	USA	Technology hardware & equipment	47.2	-2.6	635.7	-4.9	7.4
1216	Unicharm	Japan	Personal goods	47.1	-4.4	4260.0	13.6	1.1
1217	Auxilium Pharmaceuticals	USA	Pharmaceuticals & biotechnology	47.0	26.7	204.3	25.0	23.0
1218	F-Secure	Finland	Software & computer services	47.0	39.6	146.0	12.2	32.2
1219	TravelSky Technology	China	Technology hardware & equipment	47.0	16.1	450.4	24.7	10.4
1220	Eramet	France	Industrial metals & mining	47.0	6.8	3603.0	0.8	1.3
1221	Vinci	France	Construction & materials	47.0	17.5	37646.1	10.7	0.1
1222	Oil and Natural Gas	India	Oil equipment, services & distribution	47.0	-9.6			
1223	Cookson	UK	General industrials	47.0	3.2	3377.3	11.0	1.4
1224	Snap-On	USA	Household goods & home construction	46.9	18.8	2205.9	9.0	2.1
1225	Oncotherapy Science	Japan	Pharmaceuticals & biotechnology	46.9	-0.8	61.9	16.1	75.8
1226	Cameron International	USA	Oil equipment, services & distribution	46.8	9.8	5378.3	13.4	0.9
1227	Sartorius	Germany	Electronic & electrical equipment	46.8	6.7	733.1	11.2	6.4
1228	Ariba	USA	Software & computer services	46.7	31.3	343.0	22.9	13.6
1229	Visma	Norway	Software & computer services	46.7	10.1	663.4	24.1	7.0
1230	Bharat Heavy Electricals	India	Industrial engineering	46.6	-11.1	6074.5	14.5	0.8
1231	Marel	Iceland	Industrial engineering	46.5	77.8	668.4	11.3	7.0
1232	Sanyo Chemical Industries	Japan	Chemicals	46.4	-7.6	1402.5	18.4	3.3
1233	Sk Chemicals	South Korea	Oil equipment, services & distribution	46.3	27.3	5948.4	11.6	0.8

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
1234	LG Life Sciences	South Korea	Pharmaceuticals & biotechnology	46.2	4.8	256.0	11.9	18.1
1235	Novatel Wireless	USA	Technology hardware & equipment	46.1	22.0	311.4	18.9	14.8
1236	Donaldson	USA	Industrial engineering	46.1	7.8	1926.9	8.7	2.4
1237	Japan Steel Works	Japan	Industrial metals & mining	46.0	3.1	2201.3	4.0	2.1
1238	Dowa	Japan	Mining	46.0	8.4	3902.8	3.3	1.2
1239	KUKA	Germany	Industrial engineering	45.9	63.6	1435.6	33.1	3.2
1240	Cepheid	USA	Electronic & electrical equipment	45.9	39.7	205.2	28.3	22.4
1241	Latecoere	France	Aerospace & defence	45.8	47.7	575.6	23.9	8.0
1242	Aastra Technologies	Canada	Technology hardware & equipment	45.8	-12.8	524.6	-3.9	8.7
1243	Micros Systems	USA	Technology hardware & equipment	45.8	15.2	856.0	9.9	5.3
1244	Toagosei	Japan	Chemicals	45.8	0.5	1521.5	-0.5	3.0
1245	Rockwood	USA	Chemicals	45.7	19.9	2835.8	15.0	1.6
1246	FLSmidth	Denmark	Industrial engineering	45.6	20.6	2959.0	9.0	1.5
1247	China Motor	Taiwan	Automobiles & parts	45.6	32.5	1143.6	8.5	4.0
1248	Asiainfo-Linkage	USA	Software & computer services	45.5	62.8	371.8	40.1	12.2
1249	Seiren	Japan	Personal goods	45.5	2.4	855.8	-0.3	5.3
1250	Standard Life	UK	Life insurance	45.4	-13.5	3877.5	-82.2	1.2
1251	Tsumura	Japan	Pharmaceuticals & biotechnology	45.4	21.1	949.2	5.0	4.8
1252	Mitel Networks	Canada	Technology hardware & equipment	45.3	8.3	472.8	3.8	9.6
1253	Ultra Electronics	UK	Aerospace & defence	45.2	-4.7	874.4	3.1	5.2
1254	Shinko Electric Industries	Japan	Technology hardware & equipment	45.2	11.3	1251.2	-10.7	3.6
1255	Websense	USA	Software & computer services	45.0	7.2	281.5	9.4	16.0
1256	Ancestry.com	USA	Software & computer services	45.0	37.7	308.9	32.8	14.6
1257	E Ink	Taiwan	Technology hardware & equipment	45.0	12.2	981.0	52.6	4.6
1258	Nufarm	Australia	Chemicals	45.0	48.8	1635.4	-3.9	2.8
1259	Cabot Microelectronics	USA	Technology hardware & equipment	44.9	12.0	344.3	9.1	13.0
1260	Effem Holdings	UK	Food & drug retailers	44.8	50.1	3210.5	9.9	1.4
1261	Nisshin Steel	Japan	Industrial metals & mining	44.7	-10.6	5547.5	26.4	0.8
1262	THK	Japan	Industrial engineering	44.6	3.4	1957.7	3.3	2.3
1263	Lubrizol	UK	Chemicals	44.6	-62.4	122.9	-97.0	36.3
1264	Computershare	Australia	Other financials	44.6	4.1	1393.2	12.7	3.2
1265	China Steel	Taiwan	Industrial metals & mining	44.6	9.1	10237.4	14.5	0.4
1266	Ascom	Switzerland	Technology hardware & equipment	44.5	-4.7	421.4	-10.2	10.6
1267	Ezaki Glico	Japan	Food producers	44.4	-3.5	2883.6	2.1	1.5
1268	Analogic	USA	Electronic & electrical equipment	44.2	15.4	399.2	22.0	11.1
1269	VTech	Bermuda	Technology hardware & equipment	44.2	0.7	1379.2	4.2	3.2
1270	Stats ChipPAC	Singapore	Technology hardware & equipment	44.1	20.1	1318.9	1.7	3.3
1271	Toro	USA	Industrial engineering	44.1	6.9	1456.0	11.5	3.0
1272	Deutsche Bahn	Germany	Travel & leisure	44.0	25.7	37979.0	26.4	0.1
1273	Biocryst	USA	Pharmaceuticals &	44.0	-32.2	15.2	-68.5	289.7

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
	Pharmaceuticals		biotechnology					
1274	Akka Technologies	France	Support services	44.0	34.4	474.1	18.4	9.3
1275	Cipla	India	Pharmaceuticals & biotechnology	43.9	6.3	1018.8	11.0	4.3
1276	First Tractor	China	Industrial engineering	43.9	34.7	1389.5	10.4	3.2
1277	Exedy	Japan	Automobiles & parts	43.9	-4.0	2008.0	2.8	2.2
1278	Arena Pharmaceuticals	USA	Pharmaceuticals & biotechnology	43.9	-24.8	9.8	-23.4	446.2
1279	Neopost	France	Technology hardware & equipment	43.8	-1.4	1002.6	3.8	4.4
1280	Novomatic	Austria	Travel & leisure	43.8	15.6			
1281	Ford Otomotiv	Turkey	Automobiles & parts	43.7	29.7	4263.4	36.5	1.0
1282	Kobayashi Pharmaceutical	Japan	Pharmaceuticals & biotechnology	43.6	7.8	1304.3	0.3	3.3
1283	JEOL	Japan	Industrial engineering	43.6	-0.7	827.3	10.5	5.3
1284	Nissin Food Holdings	Japan	Food producers	43.6	7.4	3785.5	1.5	1.2
1285	Morningstar	USA	Media	43.6	14.5	488.0	13.7	8.9
1286	Demand Media	USA	Software & computer services	43.5	17.5	251.1	28.4	17.3
1287	Octapharma	Switzerland	Pharmaceuticals & biotechnology	43.5	4.4	732.2	-1.2	5.9
1288	Aspen Technology	USA	Software & computer services	43.4	14.9	187.9	46.2	23.1
1289	Sekisui House	Japan	Household goods & home construction	43.4	-6.2	15220.2	2.9	0.3
1290	Sbm Offshore	The Netherlands	Oil equipment, services & distribution	43.4	85.8	2439.8	3.3	1.8
1291	Daido Steel	Japan	Industrial metals & mining	43.4	2.5	4864.2	3.6	0.9
1292	Anacor Pharmaceuticals	USA	Pharmaceuticals & biotechnology	43.4	87.8	15.7	-27.0	276.3
1293	Mando	South Korea	Automobiles & parts	43.3	36.6	3059.8	25.8	1.4
1294	Lexicon Pharmaceuticals	USA	Pharmaceuticals & biotechnology	43.3	-28.6	1.4	-62.3	
1295	Archer Daniels Midland	USA	Food producers	43.3	-6.7	68813.7	10.4	0.1
1296	Nuvoton Technology	Taiwan	Electronic & electrical equipment	43.2	-7.0	187.4	-7.5	23.1
1297	AMAG Pharmaceuticals	USA	Pharmaceuticals & biotechnology	43.2	2.7	47.3	-7.5	91.3
1298	Vishay Intertechnology	USA	Electronic & electrical equipment	43.1	9.5	2004.8	-4.8	2.2
1299	Hershey	USA	Food producers	43.1	6.4	4699.6	7.2	0.9
1300	Morphosys	Germany	Pharmaceuticals & biotechnology	43.1	-18.7	100.8	15.8	42.7
1301	Belden	USA	Industrial metals & mining	43.1	30.8	1531.8	22.6	2.8
1302	Poste Italiane	Italy	Industrial transportation	43.0	27.5	9526.4	-55.9	0.5
1303	Sawai Pharmaceutical	Japan	Pharmaceuticals & biotechnology	42.9	10.6	672.3	5.9	6.4
1304	CompuGROUP Medical	Germany	Software & computer services	42.9	41.7	396.6	27.0	10.8
1305	Xinyu Iron & Steel	China	Industrial metals & mining	42.8		4605.7	9.2	0.9
1306	Mindspeed Technologies	USA	Technology hardware & equipment	42.8	7.8	125.3	-9.0	34.2
1307	Church & Dwight	USA	Household goods & home construction	42.6	2.6	2124.8	6.2	2.0
1308	Logica	UK	Software & computer	42.5	17.1	4685.6	6.1	0.9

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
			services					
1309	Blackboard	USA	Software & computer services	42.5	19.7	345.7	18.7	12.3
1310	Gigabyte Technology	Taiwan	Technology hardware & equipment	42.5	0.0	1160.2	-18.6	3.7
1311	Orkla	Norway	General industrials	42.4	-11.6	7871.7	-5.7	0.5
1312	Guerbet	France	Pharmaceuticals & biotechnology	42.4	26.4	377.8	7.2	11.2
1313	Cadila Healthcare	India	Pharmaceuticals & biotechnology	42.4	46.9	738.6	14.0	5.7
1314	Glenmark Pharmaceuticals	India	Pharmaceuticals & biotechnology	42.3	111.3	583.4	36.3	7.3
1315	KSB	Germany	Industrial engineering	42.3	2.9	2091.0	7.8	2.0
1316	Boliden	Sweden	Mining	42.2	31.9	4524.6	9.8	0.9
1317	Opnext	USA	Technology hardware & equipment	42.2	-12.1	231.7	-16.2	18.2
1318	Pharmacyclics	USA	Pharmaceuticals & biotechnology	42.1	107.8	63.4	895.9	66.5
1319	Pangang	China	Industrial metals & mining	42.1	19.7	6146.6	22.6	0.7
1320	Chr Hansen	Denmark	Pharmaceuticals & biotechnology	42.1	68.4	635.6	10.4	6.6
1321	Kurita Water Industries	Japan	Gas, water & multiutilities	42.1	6.1	1927.1	8.6	2.2
1322	Tsubakimoto Chain	Japan	Industrial engineering	42.1	2.1	1440.9	4.8	2.9
1323	Neste Oil	Finland	Oil & gas producers	42.0	2.4	15420.0	29.7	0.3
1324	China Erzhong Deyang	China	Industrial engineering	42.0		870.6	7.1	4.8
1325	Lonking Holdings	Cayman Islands	Industrial engineering	42.0	41.8	1560.4	5.8	2.7
1326	Hunan Nonferrous Metals	China	Industrial metals & mining	41.8	114.3	3010.8	13.7	1.4
1327	ICAP	UK	Other financials	41.8	49.3	2026.6	-0.3	2.1
1328	AZ Electronic Materials	Luxembourg	Chemicals	41.7	28.6	611.9		6.8
1329	Hanmi Science	South Korea	Pharmaceuticals & biotechnology	41.7	22.9	11.6	-97.3	358.5
1330	Entropic Communications	USA	Technology hardware & equipment	41.7	10.8	186.0	14.5	22.4
1331	Harbin Power Equipment	China	Industrial engineering	41.7	-47.8	3494.3	-1.1	1.2
1332	Simcorp	Denmark	Software & computer services	41.6	-3.2	194.8	5.1	21.4
1333	Shindengen Electric Manufacturing	Japan	Electronic & electrical equipment	41.5	0.3	821.0	-5.5	5.1
1334	Soitec	France	Technology hardware & equipment	41.5	73.3	323.4	15.1	12.8
1335	ATMI	USA	Technology hardware & equipment	41.5	10.4	301.5	6.2	13.8
1336	Sun Pharmaceutical Industries	India	Pharmaceuticals & biotechnology	41.5	27.6	566.1	-8.7	7.3
1337	Sequenom	USA	Health care equipment & services	41.4	23.4	43.2	17.8	95.8
1338	Dong-A Pharmaceutical	South Korea	Pharmaceuticals & biotechnology	41.4	-44.1	708.4	11.4	5.8
1339	Ikanos Communications	USA	Technology hardware & equipment	41.4	-11.9	105.6	-28.7	39.2
1340	Kose	Japan	Personal goods	41.3	0.8	1655.8	-2.7	2.5
1341	DSP	USA	Technology hardware & equipment	41.3	-3.8	149.8	-14.0	27.6
1342	SGL Carbon	Germany	Chemicals	41.3	-0.2	1540.2	11.5	2.7
1343	Sirius Xm Radio	USA	Media	41.3	17.7	2117.7	7.5	2.0

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
1344	Nemetschek	Germany	Software & computer services	41.2	14.5	164.0	9.5	25.1
1345	Braskem	Brazil	Chemicals	41.2	25.8	13794.1	30.1	0.3
1346	Progenics Pharmaceuticals	USA	Pharmaceuticals & biotechnology	41.1	2.5	65.5	966.3	62.7
1347	Vitesse Semiconductor	USA	Technology hardware & equipment	41.1	4.0	102.6	-19.9	40.0
1348	Convergys	USA	Support services	41.0	-14.1	1748.2	-2.1	2.3
1349	Volcano	USA	Health care equipment & services	41.0	34.1	265.5	16.8	15.5
1350	TDC	Denmark	Fixed line telecommunications	41.0	10.1	3538.2	-25.4	1.2
1351	ZyXEL Communications	Taiwan	Technology hardware & equipment	41.0	128.2	435.0	123.9	9.4
1352	Chicony Electronics	Taiwan	Technology hardware & equipment	40.8	14.4	1549.2	0.4	2.6
1353	Rodi Giyim Sanayi	Turkey	Leisure goods	40.7	-27.3	135.9	-94.7	30.0
1354	Rexchip Electronics	Taiwan	Electronic & electrical equipment	40.7	128.6	748.8	-38.7	5.4
1355	Micro Focus International	UK	Software & computer services	40.7	-27.2	336.1	0.5	12.1
1356	Dongbu Hitek	South Korea	Chemicals	40.6	-23.2	370.5	-21.2	11.0
1357	Barry Callebaut	Switzerland	Food producers	40.6	241.3	3741.0	0.7	1.1
1358	Epicor Software	USA	Software & computer services	40.6	6.6	340.3	7.5	11.9
1359	Towa Pharmaceutical	Japan	Pharmaceuticals & biotechnology	40.5	25.0	484.5	5.6	8.4
1360	Tieto	Finland	Software & computer services	40.5	-8.4	1828.1	6.7	2.2
1361	Sakata Seed	Japan	Food producers	40.4	4.0	467.3	-0.4	8.6
1362	Xiamen Jinglong Motor	China	Automobiles & parts	40.4	60.8	2245.3	16.5	1.8
1363	TI Fluid Systems	UK	Automobiles & parts	40.4	188.5	2147.9	14.4	1.9
1364	Kofax	UK	Software & computer services	40.4	60.2	313.6	20.0	12.9
1365	Eniro	Sweden	Media	40.3	-3.5	485.1	-18.8	8.3
1366	Dana	USA	Automobiles & parts	40.2	4.0	5867.5	24.3	0.7
1367	Kolon	South Korea	Chemicals	40.2	93.7	3636.9	6.1	1.1
1368	Green Cross Holdings	South Korea	Pharmaceuticals & biotechnology	40.2	7.7	548.8	-54.3	7.3
1369	Kayaba Industry	Japan	Industrial engineering	40.1	25.4	3352.7	5.3	1.2
1370	Shoretel	USA	Technology hardware & equipment	40.1	14.0	190.6	23.2	21.0
1371	Zhejiang Chint Electrics	China	Electronic & electrical equipment	40.0	52.0	991.6	31.1	4.0
1372	Cheng Uei Precision Industry	Taiwan	Industrial metals & mining	40.0	28.4	2083.0	43.2	1.9
1373	A&D	Japan	Health care equipment & services	39.9	-1.6	307.9	1.0	13.0
1374	Unitika	Japan	Personal goods	39.9	11.0	1736.9	-3.3	2.3
1375	Semtech	USA	Technology hardware & equipment	39.9	-25.9	371.4	5.7	10.7
1376	Csm	The Netherlands	Food producers	39.8	-15.3	3112.6	4.1	1.3
1377	Acme Packet	USA	Technology hardware & equipment	39.8	44.8	237.5	32.9	16.8
1378	Integra Lifesciences	USA	Health care equipment & services	39.8	7.2	602.9	6.6	6.6
1379	Geberit	Switzerland	Construction & materials	39.8	9.5	1534.1	-1.7	2.6
1380	Ultimate Software	USA	Software & computer services	39.7	21.6	208.1	18.2	19.1

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
1381	Dynavax Technologies	USA	Pharmaceuticals & biotechnology	39.7	-4.4	16.7	-9.8	237.4
1382	United Online	USA	Software & computer services	39.5	-20.9	693.8	-2.5	5.7
1383	Aac Technologies Holdings	Cayman Islands	Electronic & electrical equipment	39.4	67.6	498.0	21.2	7.9
1384	Nippon Chemi-Con	Japan	Electronic & electrical equipment	39.4	8.9	997.3	-21.5	4.0
1385	Megmilk Snow Brand	Japan	Food producers	39.4	10.9	5065.7	1.0	0.8
1386	EchoStar	USA	Technology hardware & equipment	39.4	10.6	2134.2	17.5	1.8
1387	COFIDE	Italy	General industrials	39.3	30.2	4522.7	-5.9	0.9
1388	Scotts Miracle-Gro	USA	Chemicals	39.3	7.6	2191.6	-2.1	1.8
1389	Amicus Therapeutics	USA	Pharmaceuticals & biotechnology	39.3	30.3	16.6	2224.7	237.3
1390	Sogefi	Italy	Automobiles & parts	39.3	42.6	1158.4	25.3	3.4
1391	Orbital Sciences	USA	Aerospace & defence	39.3	-58.5	1040.2	4.0	3.8
1392	Riso Kagaku	Japan	Technology hardware & equipment	39.2	-11.6	641.7	-2.3	6.1
1393	Vectura	UK	Pharmaceuticals & biotechnology	39.2	-13.0	39.4	-23.1	99.4
1394	China Cssc Holdings	China	Industrial engineering	39.2	-2.4	3440.4	-4.4	1.1
1395	Yamabiko	Japan	Industrial engineering	39.0	8.8	864.2	4.2	4.5
1396	Guidewire Software	USA	Software & computer services	39.0	45.1	179.4	34.5	21.7
1397	Ceragon Networks	Israel	Technology hardware & equipment	39.0	100.9	344.1	78.2	11.3
1398	Amkor Technology	USA	Technology hardware & equipment	38.9	6.0	2145.7	-5.5	1.8
1399	Lennox International	USA	Construction & materials	38.9	1.6	2553.2	6.7	1.5
1400	De Longhi	Italy	Household goods & home construction	38.8	3.0	1406.2	-12.1	2.8
1401	Advent Software	USA	Software & computer services	38.8	-6.2	252.1	15.1	15.4
1402	Sirona Dental Systems	USA	Health care equipment & services	38.8	8.2	706.3	18.6	5.5
1403	Heartware International	USA	Health care equipment & services	38.8	51.5	64.0	50.0	60.6
1404	Triumph	USA	Aerospace & defence	38.7	-0.7	2633.8	17.3	1.5
1405	Halozyme Therapeutics	USA	Pharmaceuticals & biotechnology	38.7	16.1	43.3	311.7	89.3
1406	Sumitomo Osaka Cement	Japan	Construction & materials	38.6	2.0	2158.3	7.9	1.8
1407	Micrel	USA	Technology hardware & equipment	38.6	8.0	200.2	-12.9	19.3
1408	Gt Advanced Technologies	USA	Electronic & electrical equipment	38.5	110.0	738.6	6.3	5.2
1409	LTX-Credence	USA	Technology hardware & equipment	38.5	1.9	102.1	-39.7	37.7
1410	Lite-On It	Taiwan	Technology hardware & equipment	38.5	-66.9	1564.4	-73.3	2.5
1411	Aska Pharmaceutical	Japan	Pharmaceuticals & biotechnology	38.4	-12.4	404.1	-11.4	9.5
1412	ISEKI	Japan	Industrial engineering	38.4	-0.6	1444.4	-1.7	2.7
1413	Trius Therapeutics	USA	Pharmaceuticals & biotechnology	38.3	112.3	31.7	410.6	120.7
1414	Netscout Systems	USA	Software & computer services	38.2	21.8	238.6	6.2	16.0
1415	Cray	USA	Technology hardware & equipment	38.2	13.4	182.4	-26.1	21.0

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
1416	Kingsoft	Cayman Islands	Software & computer services	38.2	22.6	125.2	5.1	30.5
1417	Hanwha Chemical	South Korea	Chemicals	38.2	11.0	5329.5	10.6	0.7
1418	Extreme Networks	USA	Technology hardware & equipment	38.1	-0.1	249.4	4.3	15.3
1419	Timken	USA	Industrial engineering	38.1	1.9	3995.8	27.5	1.0
1420	Valueclick	USA	Media	38.1	40.6	432.9	30.0	8.8
1421	Ebara	Japan	Industrial engineering	38.1	-23.1	4097.7	-15.2	0.9
1422	Plx Technology	USA	Electronic & electrical equipment	38.1	37.7	89.5	-0.7	42.5
1423	Fortum	Finland	Electricity	38.0	26.7	6161.0	-2.1	0.6
1424	Munich Re	Germany	Nonlife insurance	38.0	-51.3	47996.0	-7.0	0.1
1425	Grammer	Germany	Automobiles & parts	38.0	15.1	1093.5	17.6	3.5
1426	STEC	USA	Technology hardware & equipment	37.9	11.2	238.1	10.0	15.9
1427	Sigma Designs	USA	Technology hardware & equipment	37.9	-36.5	141.1	-36.4	26.9
1428	House Foods	Japan	Food producers	37.8	1.9	2131.2	-1.1	1.8
1429	Cosmo Oil	Japan	Oil & gas producers	37.7	-1.1	30923.7	12.2	0.1
1430	Alpha Networks	Taiwan	Technology hardware & equipment	37.7	-7.6	650.2	-1.5	5.8
1431	Teleflex	USA	Electronic & electrical equipment	37.7	14.3	1181.6	6.7	3.2
1432	Netgear	USA	Fixed line telecommunications	37.6	21.8	912.8	30.9	4.1
1433	Nihon Nohyaku	Japan	Chemicals	37.6	-3.6	402.2	0.1	9.4
1434	Array BioPharma	USA	Pharmaceuticals & biotechnology	37.6	-23.4	65.8	18.4	57.1
1435	Jungheinrich	Germany	Industrial engineering	37.6	3.6	2116.3	16.5	1.8
1436	Sudzucker	Germany	Food producers	37.6	6.5	6991.9	13.5	0.5
1437	Renewable Energy	Norway	Alternative energy	37.5	0.3	1724.5	-3.0	2.2
1438	EnBW Energie Baden-Wurttemberg	Germany	Electricity	37.5	10.9	18789.7	7.3	0.2
1439	Orica	Australia	Chemicals	37.4	6.5	4852.6	-5.5	0.8
1440	China Yuchai	Bermuda	Industrial engineering	37.3	0.7	1894.4	-4.7	2.0
1441	Wintek	Taiwan	Electronic & electrical equipment	37.3	60.7	2374.9	45.6	1.6
1442	Juki	Japan	Industrial engineering	37.2	-30.1	649.6	14.7	5.7
1443	Super Micro Computer	USA	Technology hardware & equipment	37.2	28.7	783.6	7.6	4.7
1444	T Hasegawa	Japan	Personal goods	37.2	-0.9	440.0	-2.0	8.4
1445	Power One	USA	Electronic & electrical equipment	37.2	32.1	785.8	-2.9	4.7
1446	Zhengzhou Yutong Bus	China	Automobiles & parts	37.1	36.2	1983.2	25.4	1.9
1447	Wistron Neweb	Taiwan	Technology hardware & equipment	37.1	-85.3	867.5	-94.5	4.3
1448	Entegris	USA	Technology hardware & equipment	37.1	9.2	579.1	8.8	6.4
1449	Exfo	Canada	Technology hardware & equipment	37.0	26.6	208.5	33.0	17.8
1450	Fuji Oil	Japan	Food producers	37.0	2.8	2352.7	6.2	1.6
1451	Rohto Pharmaceutical	Japan	Pharmaceuticals & biotechnology	37.0	0.5	1196.2	4.2	3.1
1452	Tecan	Switzerland	Household goods & home construction	36.9	22.8	309.6	1.7	11.9
1453	Fosun International	Hong Kong	Industrial metals & mining	36.9	51.1	6969.0	27.3	0.5
1454	Viasat	USA	Technology hardware & equipment	36.9	66.1	667.5	7.7	5.5

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
1455	Blackbaud	USA	Software & computer services	36.8	4.8	280.1	13.3	13.2
1456	Unimicron Technology	Taiwan	Electronic & electrical equipment	36.8	23.1	1688.6	1.7	2.2
1457	Bavarian Nordic	Denmark	Pharmaceuticals & biotechnology	36.6	31.4	70.4	66.7	52.0
1458	Taiheiyo Cement	Japan	Construction & materials	36.6	-20.2	7237.8	-0.1	0.5
1459	Kemira	Finland	Chemicals	36.5	-6.9	2207.2	-2.7	1.7
1460	Agennix	Germany	Pharmaceuticals & biotechnology	36.5	24.3			
1461	Axcelis Technologies	USA	Electronic & electrical equipment	36.5	19.4	246.9	16.1	14.8
1462	Sim Technology	Bermuda	Technology hardware & equipment	36.5	20.6	331.8	-17.4	11.0
1463	RBC Dexia Investor Services	UK	Other financials	36.4	37.6	856.7	10.1	4.2
1464	Hanesbrands	USA	Personal goods	36.4	-0.1	3583.8	7.2	1.0
1465	Renesola	UK	Electronic & electrical equipment	36.4	29.8	761.5	-18.3	4.8
1466	Meadwestvaco	USA	Forestry & paper	36.3	14.6	4683.5	6.4	0.8
1467	LKAB	Sweden	Mining	36.2	55.3	3492.1	9.1	1.0
1468	Nomura Research Institute	Japan	Software & computer services	36.2	2.2	3336.8	2.8	1.1
1469	Pola Orbis	Japan	Personal goods	36.1	-0.6	1657.3	0.8	2.2
1470	Osi Systems	USA	Electronic & electrical equipment	36.1	14.7	612.9	20.9	5.9
1471	Comba Telecom Systems Holdings	Cayman Islands	Technology hardware & equipment	36.0	71.6	632.4	22.4	5.7
1472	Wockhardt	India	Pharmaceuticals & biotechnology	36.0	87.8	669.5	23.0	5.4
1473	Par Pharmaceutical Companies	USA	Pharmaceuticals & biotechnology	36.0	-7.6	685.9	-9.5	5.2
1474	Sino Biopharmaceutical	Cayman Islands	Pharmaceuticals & biotechnology	36.0	57.3	575.5	41.5	6.2
1475	Ldk Solar	Cayman Islands	Electronic & electrical equipment	35.9	330.5	1667.7	-14.0	2.2
1476	Pulse Electronics	USA	Electronic & electrical equipment	35.9	-17.1	285.4	-14.6	12.6
1477	Active Biotech	Sweden	Pharmaceuticals & biotechnology	35.7	207.3	26.3	1965.8	135.8
1478	Wanxiang Qianchao	China	Automobiles & parts	35.7	9.2	933.3	4.0	3.8
1479	Daikoku Denki	Japan	Industrial engineering	35.7	43.3	468.3	36.6	7.6
1480	Wolfson Microelectronics	UK	Technology hardware & equipment	35.6	6.8	121.3	-0.3	29.4
1481	Mercury Computer Systems	USA	Technology hardware & equipment	35.5	3.3	189.3	7.1	18.8
1482	Kikkoman	Japan	Food producers	35.5	1.0	2816.6	-0.1	1.3
1483	Whiting Petroleum	USA	Oil & gas producers	35.4	39.6	1437.6	26.1	2.5
1484	Fidessa	UK	Software & computer services	35.4	12.6	332.5	6.1	10.6
1485	Golden Minerals	USA	Mining	35.3	57.0	1.4	-83.6	
1486	Solazyme	USA	Oil & gas producers	35.3	33.3	30.1	2.6	117.1
1487	Tokyo Seimitsu	Japan	Electronic & electrical equipment	35.2	11.2	574.0	16.2	6.1
1488	Emergent BioSolutions	USA	Pharmaceuticals & biotechnology	35.2	-48.9	211.3	-4.5	16.7
1489	AVEVA	UK	Software & computer services	35.2	5.0	234.1	12.6	15.0
1490	Hoshizaki Electric	Japan	Construction & materials	35.2	2.2	1683.5	0.0	2.1
1491	Greatbatch	USA	Health care	35.2	1.1	439.6	6.6	8.0

World rank	Company	Country	Industry (3-digit ICB)	R&D-2011	R&D 1-year growth	Sales-2011	Sales 1-year growth	R&Dint.
				€ m	(%)	€ m	(%)	(%)
			equipment & services					
1492	Melco Holdings	Japan	Software & computer services	35.1	17.4	1166.6	-5.2	3.0
1493	Rpm International	USA	Construction & materials	35.1	11.0	2919.4	11.7	1.2
1494	TASNEE	Saudi Arabia	Chemicals	35.1	-16.5	4049.5	22.9	0.9
1495	Avg Technologies	The Netherlands	Software & computer services	35.0	49.8	272.4	25.4	12.9
1496	Bank Of Ireland	UK	Banks	35.0		2126.0	-33.4	1.6
1497	Delhaize	Belgium	Food & drug retailers	35.0	-18.6	21119.0	1.3	0.2
1498	Wall Street Systems Sweden	Sweden	Software & computer services	35.0	203.9	77.2	5.5	45.3
1499	Yingli Green Energy Holding	Cayman Islands	Electronic & electrical equipment	35.0	117.2	1802.4	23.1	1.9
1500	ELMOS Semiconductor	Germany	Technology hardware & equipment	34.9	16.7	194.3	5.2	18.0

European Commission
EUR (forthcoming) – Joint Research Centre – Institute for Prospective Technological Studies

Title: EU R&D Scoreboard: The 2012 EU Industrial R&D Investment Scoreboard

Author(s): Héctor Hernández, Alexander Tübke and Fernando Hervás Soriano

Luxembourg: Publications Office of the European Union

2012 – 124 pp. – 21.0 x 29.7 cm

EUR – Scientific and Technical Research series – ISSN (forthcoming) (print), ISSN (forthcoming) (online)

ISBN (forthcoming) (pdf)
ISBN (forthcoming) (print)

doi: (forthcoming)

Abstract

The EU Industrial R&D Investment Scoreboard is published annually by the European Commission (DG Research and Innovation and Joint Research Centre). The 2012 Scoreboard is based on a sample of 1500 companies, the world's top investors in R&D and representing equivalent to almost 90% of the total expenditure on R&D by businesses worldwide. It measures the total value of their global R&D investment financed with their own funds, irrespective of the location where the relevant R&D takes place. Out of the 1500 companies, 405 are based in the EU, 503 in the US, 296 in Japan and 296 in the rest of the world including Switzerland, South Korea, China, India and 23 other countries. Each of the Scoreboard companies invested more than EUR 35 million in R&D in 2011.

LB-NA-(forthcoming)-EN-N

As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new standards, methods and tools, and sharing and transferring its know-how to the Member States and international community.

Key policy areas include: environment and climate change; energy and transport; agriculture and food security; health and consumer protection; information society and digital agenda; safety and security including nuclear; all supported through a cross-cutting and multi-disciplinary approach.

Publications Office

Barcode (forthcoming)