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Monitoring industrial
research:

**ANALYSIS of the 2007 EU
Industrial R&D Investment
SCOREBOARD**

Joint Research Centre
Directorate General Research



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Acknowledgments

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Table of Contents

Executive summary	7
Introduction	17
Top R&D-investing companies	21
R&D distribution by industrial sector	35
R&D distribution by region	49
R&D and firm performance	61
Annex 1 – Background information	75
Annex 2 - Methodological notes	77
Annex 3 - List of EU1000 and non-EU1000 companies	85

Foreword

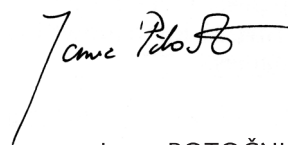
The EU Industrial R&D Investment Scoreboard was first issued in 2004 and has successfully established itself as a key source of information to improve the understanding of the scale and dynamics of corporate R&D investment. Each issue of the *Scoreboard* attracts considerable attention from policy makers, business and the media.

The *Scoreboard* provides individual businesses with a benchmark against their competitors and is a source of data for researchers. The data is used to analyse trends and developments in private R&D investment. In this year's analysis, the *Scoreboard* data are combined with data from other sources to investigate the empirical relationship between R&D and productivity.

In the policy domain, stimulating corporate spending on R&D is high on the Lisbon Agenda. The analysis of the *Scoreboard* gives insight into why individual firms invest in R&D, providing policy-makers with guidance on how to influence private R&D investment decisions. This is part of a wider effort to monitor the situation on research and innovation in the EU.

This year's *Scoreboard* shows that corporate R&D investment continues to grow robustly worldwide. Compared with the previous *Scoreboard*, R&D growth has increased and is particularly strong for companies from emerging economies and from the US. It has also increased for EU companies, but they are underrepresented in the high R&D-intensive sectors which have shown the strongest growth in recent years.

The analysis of the *Scoreboard* shows that the low spending on R&D in the EU compared to other economies, as a percentage of sales, is not the result of under-investment by individual companies. This suggests to policy-makers that benchmarking within sectors at a global level may be as useful for policymaking as comparisons of R&D intensities between countries. A closer analysis of R&D investment and stock market performance of the *Scoreboard* companies in a number of high R&D intensive sectors will be undertaken in the next *Scoreboard*.



Janez POTOČNIK

Executive summary

This report offers an analysis of the European Commission's 2007 Industrial R&D Investment Scoreboard¹ (the *Scoreboard*). It contains information on the 1000 EU companies² and 1000 non-EU companies which made the biggest investments in Research and Development (R&D) in the period. Together, these 2000 companies invested €372 billion in R&D in their latest financial year. This corresponds to approximately 80% of global business expenditure on R&D³.

The report analyses the main trends in recent years, investigates the differences between EU companies and their competitors in terms of R&D intensity and R&D growth and provides results of an analysis of the relationship between R&D and productivity.

R&D growth

In the year since the previous *Scoreboard*, corporate investment in R&D by all 2000 *Scoreboard* companies grew by 10.0%. The EU companies in the *Scoreboard* increased their R&D investment by 7.4%, an improvement compared to last year's 5.3% growth. However, the non-EU companies stepped up their R&D by 11.1%, up from a growth of 7.7% in the previous year.

As shown in Figure 1, strong R&D growth was observed all over the world, especially for the US companies. Companies based in emerging economies also increased their R&D investments substantially.

This confirms a trend observed over the past five years: R&D investment growth has been consistently strong among US companies and those in emerging economies. Companies from Taiwan, South Korea, China and India have increased their R&D investment at rates well above the *Scoreboard* average. Compared to these growth rates, the R&D investment growth of EU *Scoreboard* companies has been relatively low in the last two years, although it has been higher than for Japanese *Scoreboard* companies.

The fourth edition covers 2000 firms ...

... representing approximately 80% of world business R&D expenditure.

Worldwide R&D investment accelerated over the past year ...

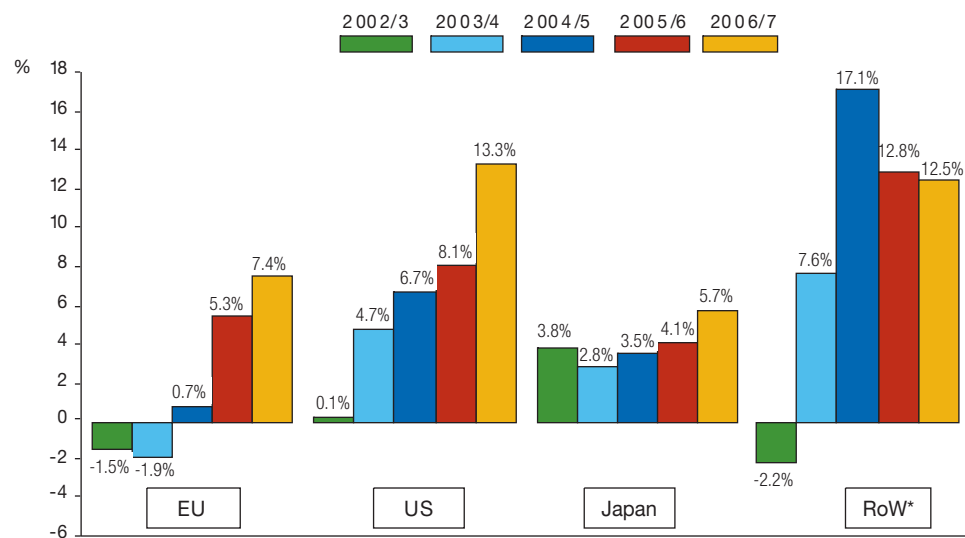
... but still less strongly among EU companies than their non-EU counterparts.

¹ The EU Industrial R&D Investment Scoreboard is published annually by the European Commission (JRC-IPTS/DG RTD) as part of its Industrial Research Investment Monitoring (IRIM) activity. Company data were collected by Company Reporting Ltd.

² The term "EU company" refers here to companies whose ultimate parent has its registered office in a Member State of the EU. Likewise, the ultimate parent of a "non-EU company" is located outside the EU (see the glossary and definitions in Annex 2, where the handling of parent companies and subsidiaries is further explained).

³ Official figures on global business expenditure on R&D for 2007 are not yet available. The figure here is extrapolated from Eurostat BERD figures and growth rates (for the relations between *Scoreboard* and BERD figures see the methodological notes in the Annex 2).

Figure 1. R&D investment growth of the Scoreboard companies by world region.



* RoW = The group of Scoreboard companies not based in the EU, US or Japan. It covers companies from Switzerland, South Korea, China, Canada, Brazil, India, Taiwan and a further 14 countries.

Note: In this figure, only companies of similar R&D size are considered, i.e. those EU (391), the US (563), Japanese (237) and RoW (200) companies, with R&D investment above a common threshold (€23 million in the latest year).

Source: The EU Industrial R&D Investment Scoreboards (of 2004, 2005, 2006, 2007) European Commission, JRC/DG RTD.

High R&D intensity sectors account for the largest share of R&D investment growth ...

... particularly among the US Scoreboard firms ...

... whose share of R&D investment is much larger than the EU's ...

... explaining most of the difference in R&D growth between the EU and the US.

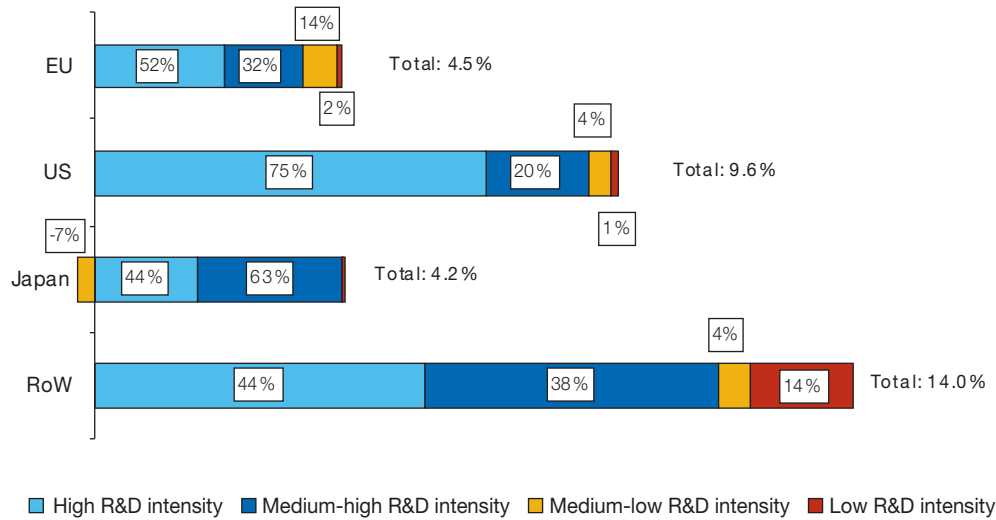
Different growth patterns are also observed at sector level. High R&D intensity sectors show the fastest R&D growth, with double-digit R&D growth in sectors such as pharmaceuticals & biotechnology, technology hardware & equipment and software & computer services.

Figure 2 illustrates the role of sector groups for R&D growth in different parts of the world over the last three years. With the exception of Japanese companies, the largest contribution to the R&D growth of Scoreboard companies is made by the high R&D intensity sectors. This was particularly outstanding in the case of US Scoreboard companies, where those sectors contributed three quarters of the R&D growth. Among EU Scoreboard companies, around half of R&D investment growth came from high R&D intensity sectors.

It is also important to remark the different weight of the sectors within each economy. As shown in Figure 3, the high and medium-high R&D intensity sectors in every region together account for more than 80% of the total R&D investment. Again, the US Scoreboard companies present an exceptional case, with over two thirds of their R&D investment coming from high R&D intensity sectors. For the EU Scoreboard companies, only one third of R&D investment came from those sectors and more than half from medium-high R&D intensity sectors.

The lower share and lower R&D growth in high R&D intensive sectors of EU companies explain why their overall R&D growth is lower than for their non-EU counterparts, especially when comparing against those based in the US.

Figure 2. Contribution to R&D growth of Scoreboard companies by world region and sector group (CAGR⁴ 3 years).



Note 1: Sectors are split into four groups according to the R&D intensity of the sector worldwide:

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.

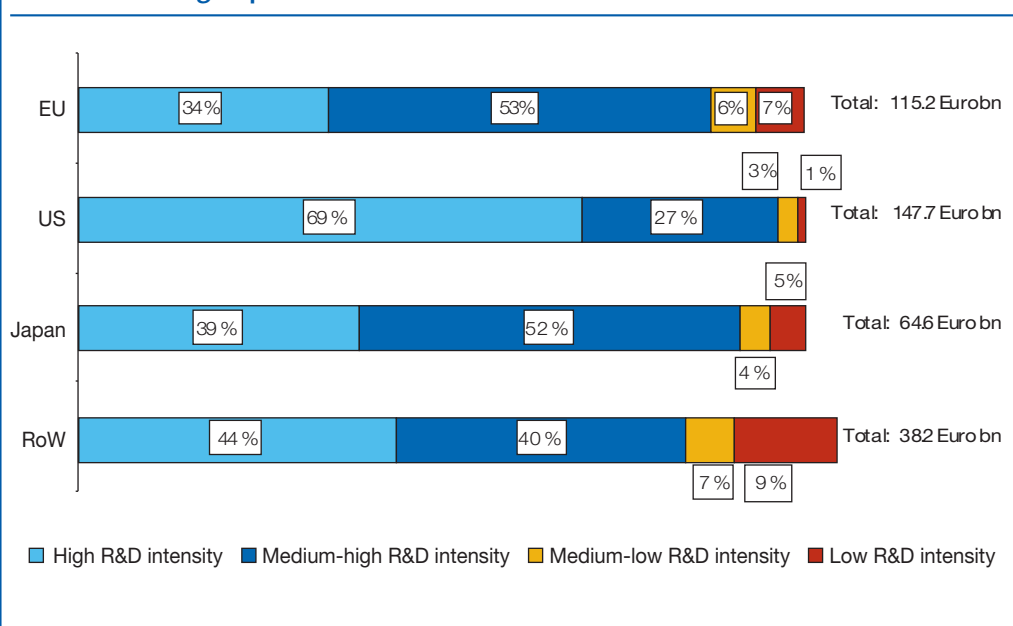
Low R&D intensity sectors (less than 1%) include e.g. Oil & gas producers; Industrial metals; Construction & materials; Food & drug retailers; Transportation; Mining; Tobacco; Multi-utilities.

Note 2: In this figure, only companies of similar R&D size are considered, i.e. those EU (391), the US (563), Japanese (237) and RoW (200) companies, with R&D investment above a common threshold (€23 million in 2006/7).

Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

⁴ CAGR is the Compound Average Growth Rate (see the methodological notes in the Annex 2)

Figure 3. Composition of R&D investment of Scoreboard companies by world region and sector group.



Note 1: Split of sectors as in Figure 2.

Note 2: In this figure, only companies of similar R&D size are considered, i.e. those EU (391), the US (563), Japanese (237) and RoW (200) companies, with R&D investment above a common threshold (€23 million in 2006/7).

Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

Within the EU, companies with headquarters in Germany, France and the UK accounted for 72% of R&D investment and 86% of R&D growth over the past three years⁵.

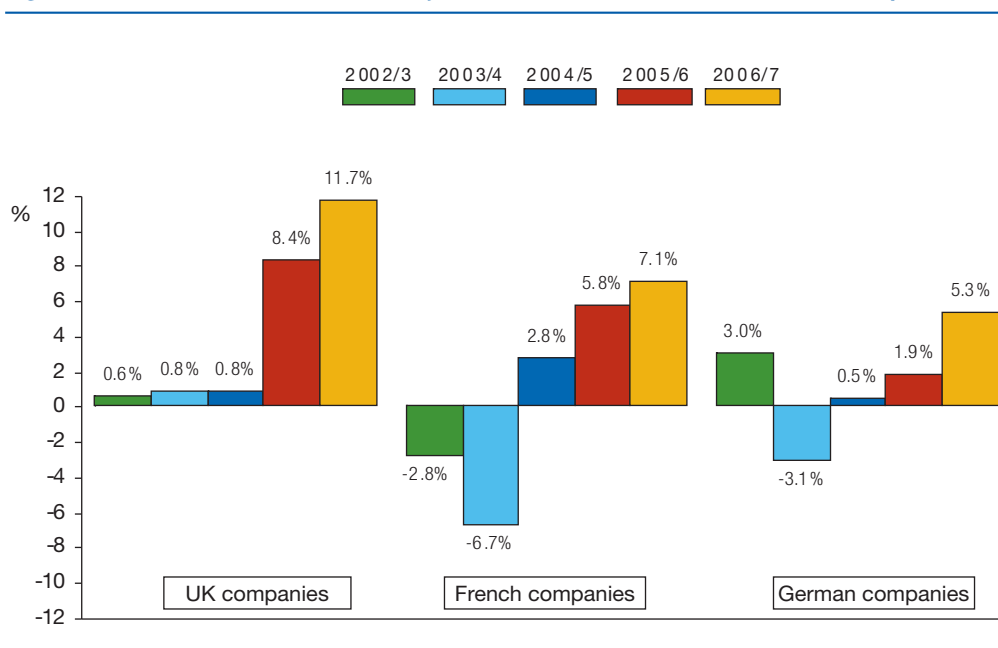
The growth patterns in these three Member States are illustrated in Figure 4. Although the R&D growth of companies based in Germany increased compared to previous years, it remained much lower than that of companies based in the UK and France. In fact, over the past three years, most of the gap in R&D growth between the EU *Scoreboard* companies and their non-EU counterparts could be attributed to slower R&D growth of companies based in Germany.

German Scoreboard companies are recovering growth in R&D investment ...

... but are still holding back the EU's average R&D growth.

⁵ The *Scoreboard* allocates all of a company's R&D investment to the place of its registered office, no matter where it is actually spent (see the methodological notes in the Annex 2).

Figure 4. Growth of R&D investment by UK, French and German Scoreboard companies (%)



Note: Between them, the German, French and UK companies account for nearly three quarters of total R&D by EU Scoreboard companies.

Source: The EU Industrial R&D Investment Scoreboards (of 2004, 2005, 2006, 2007) European Commission, JRC/DG RTD.

R&D intensity

Continuing the trend seen in previous years, the overall R&D intensity⁶ of the *Scoreboard* companies is still falling slowly as sales continue to grow faster than R&D investment (see Figure 5).

Compared to the previous year, R&D intensity increased only for US companies, albeit slightly, due to higher growth of R&D investment than sales. The R&D intensity of Japanese companies fell less than that of EU ones.

Overall, the R&D intensity of the EU group is lower than that of the non-EU group and particularly when compared against the US *Scoreboard* companies⁷.

However, sector by sector, the R&D intensity of the EU companies is similar or in some cases higher than that of US companies, especially in the medium-high R&D intensity sectors (see Figure 6).

This suggests that, sector by sector, individual companies strike a balance in R&D investment set by global competition: not too low to risk losing competitive strength, not too high to lose out on cost efficiency.

Worldwide corporate R&D intensity is still falling as a result of rapidly rising sales.

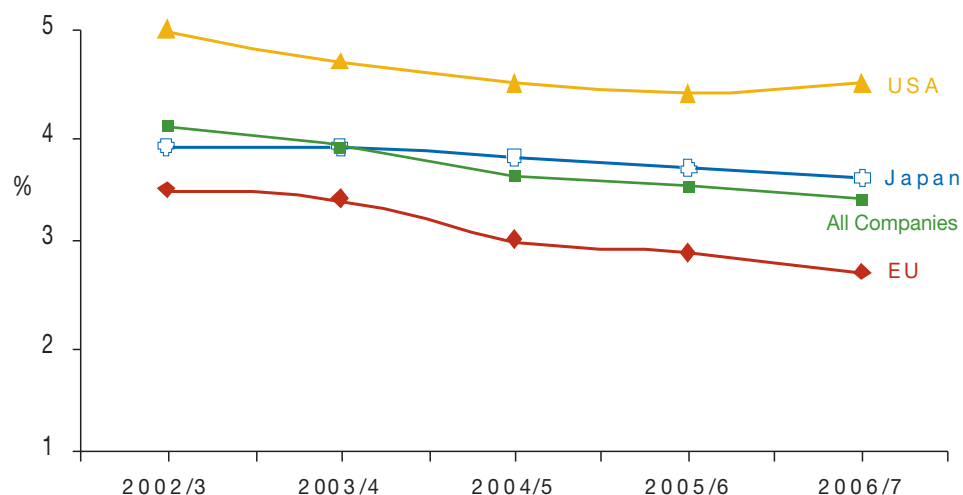
Overall, the R&D intensity of EU companies falls short of that of US companies...

... but this does not apply to all sector groups.

⁶ In the *Scoreboard*, R&D intensity is the ratio of R&D investment over net sales (see the methodological notes in the Annex 2).

⁷ For comparison, only companies of similar R&D size are considered, i.e. the top EU (391), the US (563), Japanese (237) and RoW (200) companies, with R&D investment above a common threshold (€23 million in the latest year).

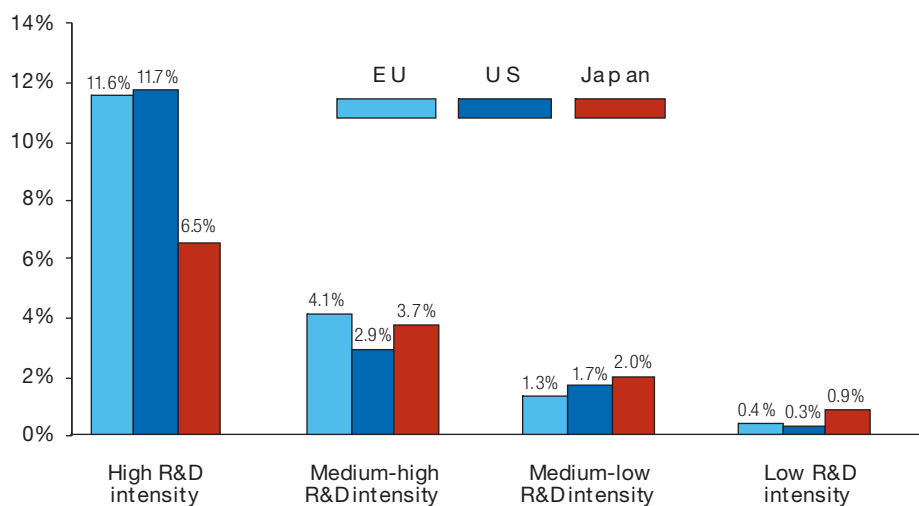
Figure 5. R&D intensity of Scoreboard companies by world region.



Note: In this figure, only companies of similar R&D size are considered, i.e. the top EU (391), the US (563), and Japanese (237) companies, with R&D investment above a common threshold (€23 million in the latest year).

Source: The 2007 EU Industrial R&D Investment Scoreboard; European Commission, JRC/DG RTD.

Figure 6. R&D intensity of Scoreboard companies by group of sectors and world region.



Note 1: Split of sectors as in Figure 2.

Note 2: In this figure, only companies of similar R&D size are considered, i.e. the top EU (391), the US (563), Japanese (237) and RoW (200) companies, with R&D investment above a common threshold (€23 million in the latest year).

Source: The 2007 EU Industrial R&D Investment Scoreboard; European Commission, JRC/DG RTD.

It is interesting to further examine the difference between the R&D intensity of the EU *Scoreboard* companies and their non-EU counterparts. From a policy point of view, it is important to determine to what extent the overall gap in R&D intensity is due to the differences in sectoral composition rather than to R&D under-investment by individual EU companies.

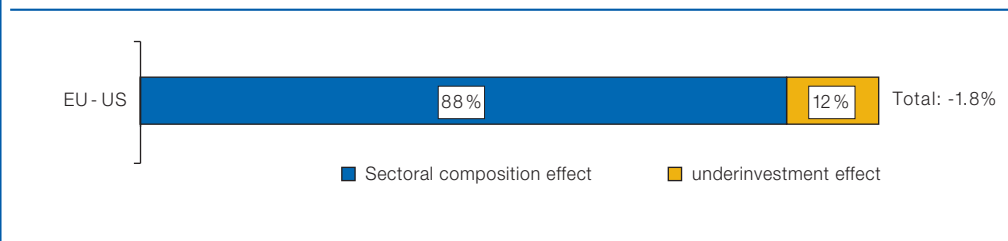
We addressed this question with the *Scoreboard* data, aggregate by sector, to analyse the EU-US overall gap in business R&D intensity. For this calculation, we split the business R&D intensity difference between the EU and the US into two elements:

- one representing the sectoral composition effect, reflecting the differences in sector shares in total net sales and
- the other one representing the underinvestment effect⁸, reflecting the differences in R&D intensities by sector.

We carried out this calculation using the *Scoreboard* sector aggregation (36 industries) with the 2007 dataset. As shown in Figure 7, by far the largest part of the EU-US business R&D intensity gap is attributed to the sectoral composition effect (approximately seven times larger than the underinvestment effect).

The EU-US business R&D intensity gap is due to differences in the sectoral composition of output ...

Figure 7. Breakdown of EU-US gap in business R&D intensity into sectoral composition and underinvestment effects.



Note: In this figure, only companies of similar R&D size are considered, i.e. the top EU (391) and the US (563) with R&D investment above a common threshold (€23 million in the latest year).

Source: JRC-IPTS calculations.

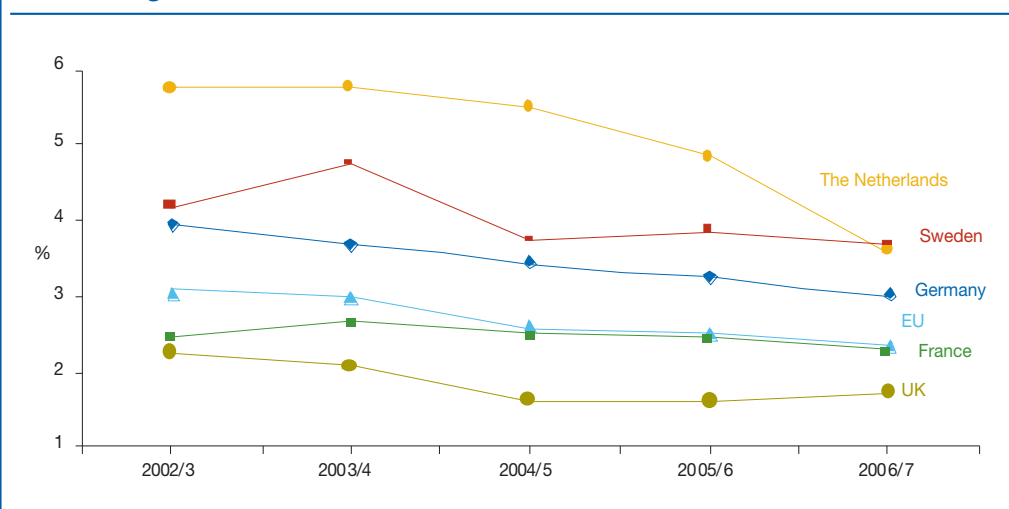
The policy relevance of this finding is related to the fact that the underinvestment effect can be addressed by short to medium-term policies, whereas the sectoral composition can only be changed in the long run. Our calculation of a relatively small underinvestment effect suggests that closing the EU-US business R&D intensity gap will require a substantial change of the sectoral composition of European industry.

... rather than to R&D under-investment by individual companies.

⁸ The recent literature on the breakdown of the EU R&D intensity gap labels the underinvestment effect as the “intrinsic effect”. The calculations, based on official statistics (BERD data), seem to indicate that EU-15 companies spend less on R&D than their non-EU counterparts in the same sector, in proportion to value added. However, the results of the breakdown are very sensitive to the geographical aggregation and sectoral classification that are used.

Within the EU, the R&D intensity of *Scoreboard* companies grouped by Member States also generally followed a downward trend, although with different levels of R&D intensity. The UK was an exception. This is illustrated in Figure 8, which shows the variation in R&D intensity in the five Member States with highest R&D investment by the *Scoreboard* companies, together with the EU aggregate.

Figure 8. R&D intensity of Scoreboard companies in the 5 EU Member States with highest R&D investment.



Source: *The EU Industrial R&D Investment Scoreboards (of 2004, 2005, 2006, 2007)*
European Commission, JRC/DG RTD

What is the relationship between R&D and productivity?

The relationship between R&D and business performance has been studied extensively, with results that are not clear-cut. One of the reasons is that it is particularly difficult to disentangle the effects of R&D from other factors affecting company performance, such as firms' market power, demand evolution, price setting, advertisement and marketing strategies, etc. In addition, it is not clear which measures of company performance are most appropriate (e.g. profits, sales, capitalisation, market shares or productivity).

Taking into account these caveats and building on previous literature, labour productivity⁹ has been used as an intermediate indicator of business performance in this study. For the investigation of the relationship between R&D and labour productivity an extended set of data of *Scoreboard*¹⁰ companies has been used.

The productivity impact of R&D activities is larger in the R&D intensive sectors.

⁹ Defined as the ratio of value-added over number of employees.

¹⁰ Data have been complemented with the UK's R&D and Valued Added *Scoreboards*, containing data on 532 EU companies over the period 2000-2005.

Consistent with previous literature, econometric analyses show a positive correlation between R&D and productivity, i.e., the incremental impact on productivity of an increase in the R&D stock is significant in all sectors, but larger in the R&D intensive sectors. This means that, if raising long-term company competitiveness through productivity improvement was the main objective, policies should target in particular R&D intensive sectors.

Similar analyses show also a positive correlation between fixed capital stock and productivity, but this effect is larger for the low and medium R&D-intensity sectors. In particular, productivity evolution in low R&D intensity sectors shows a greater reliance on technological change embodied in fixed capital formation than on R&D investment alone.

Further work

The results presented in the report demonstrate that the *Scoreboard* provides many opportunities for further analyses, which may offer insights into the dynamics and economics of corporate R&D. Future editions will develop along the following lines:

- Obtaining a deeper understanding of the relationship between R&D and business performance, for example, as measured by sales, profits or market valuation.
- Assessing the dynamics of R&D intensive firms in relation to the “age” of the *Scoreboard* companies, i.e. the years that have passed since the company was first created.
- Analysing the R&D patterns of companies from emerging economies such as China and India.

Productivity increases in low R&D intensity sectors rely more on fixed capital formation.

The **2007 EU Industrial R&D Investment Scoreboard**¹¹ (The *Scoreboard*), released in early October 2007, presents information on 2000 companies from around the world reporting major investments in R&D. The set of companies it covers comprises the top 1000 R&D investors whose registered offices are in the EU and the top 1000 registered elsewhere. The companies are broken down by sector of activity, and to give a fuller picture, the data presented include R&D investments, and other economic and financial data from the last four financial years.

This report offers an analysis of the current state of R&D investment by major firms and how it has developed based on the data in the 2007 *Scoreboard* and previous editions.

The number of firms covered in the Scoreboard increased during the first three editions from 500 in 2004 to 1000 in 2006. The present 2007 edition of the *Scoreboard* is therefore the first one containing the same number of firms as the previous year, thus enabling full year-on-year comparisons.

The company data are analysed from various perspectives to highlight the main characteristics, emerging trends and the links with some of the main factors influencing business at the level of individual firms, industries and world regions.

As announced in the previous publication, it is also intended to present in this report the results of complementary research based on the experience of the *Scoreboard* in combination with other sources of information on business R&D. The objective is to address issues such as the role of R&D for companies' performance and the behaviour of samples of companies of specific interest. The first issue is discussed in this report and results are presented for the specific case of the link of R&D and labour productivity. The second issue has been explored by means of specific analyses on the dynamics of *Scoreboard* mid-size companies from high R&D intensity sectors. It is planned to scale-up such pilot studies to confirm the relevant findings for the companies and sectors involved and the related implications for policy makers. Results of these studies will be published in future editions of this report.

Moreover, additional research is aimed at addressing the limitations of the *Scoreboard*, namely to improve the representativeness of the EU and non-EU samples of companies, to identify the location of execution of the R&D investment and eventually the related technological trends. This is a continuous work, which results will be presented also in future publications. Regarding the quality of the sample of companies, past experience has shown that the current methodology constitutes a reliable tool for screening and detecting companies which invest in R&D, thus leading to a highly reliable dataset. Further, the data availability is improving steadily, for example, as a result of increasing willingness of companies to disclose R&D data and to the implementation of international standards for financial reporting¹².

Structure of the report

Main findings of the analysis are presented in the executive summary, including overall levels of R&D, assessment of the performance of the EU *Scoreboard* companies and discussion of main changes that took place in the preceding years.

¹¹ The *Scoreboard* is available on-line from <http://iri.jrc.es/>

¹² Such standards (IFRS) are compulsory for listed companies in the EU since 2005.

Chapter 1 focuses on the performance of individual companies among the top R&D investing companies, in particular those expanding their R&D activities. The analysis comprises the trends in R&D intensities and comparison of companies based in the EU against their counterparts outside the EU.

Chapter 2 highlights the main R&D trends among *Scoreboard* companies aggregated by industrial sectors. Questions addressed include the ranking of sectors by level of R&D investment, R&D growth rates and R&D intensities.

Chapter 3 examines aggregate data grouped by country and main world region, in order to compare the EU *Scoreboard* companies against its main competitors and to provide a profile of the companies based in the EU's Member States.

Chapter 4 presents evidence of the role of R&D investment on business performance, with particular attention to the link between R&D and firms' productivity.

The Annex 1 provides background information and methodological details about how the *Scoreboard* is prepared.

The full methodological approach of the *Scoreboard*, its scope and the limitations are described in Annex 2.

The Annex 3 lists the EU 1000 and non-EU 1000 companies ranked by their level of R&D investment. The complete dataset is presented in the enclosed CD and it is freely accessible online at: <http://iri.jrc.es/>.

Methodological caveats

Some of the most important methodological limitations are summarised in the box below (see full explanation in Annex 2). For example, this year, the R&D growth rate of the EU group is partly understated because the performance of their overseas investment was devalued by the appreciation of the Euro against the other currencies in the latest reporting year. Conversely, the R&D growth rate of the non-EU group is overstated by the performance of their overseas investments in the EU.

Box 1: Methodological Caveats

When using the *Scoreboard* for comparative analyses, a number of factors potentially affecting the interpretation of the figures should be borne in mind. Annex 2 gives a more detailed account of the methodological approach; however, the following points should be noted here:

- All the figures in the *Scoreboard* are nominal amounts and are expressed in euros with all foreign currencies being converted at the exchange rate prevailing on 31 December 2006. Financial indicators consolidated from companies' activities in different currency areas are influenced by fluctuations in exchange rates. This has an impact on firms' relative positions in the world rankings based on these indicators. Moreover, the ratios between indicators or the growth rate of an indicator may be under- or over-estimated. For example, the Euro appreciated significantly against the USA dollar over the period with which we are concerned, rising from \$1.18 to \$1.32. This means that *Scoreboard* figures underestimate the R&D growth rate of EU companies with operations in the USA and overestimate the growth rate of USA companies which also operate in the EU.
- EU and non-EU groups include companies with different volumes of R&D investment. This year, the R&D investment threshold for the EU group is €3.29 million and that for the non-EU group €23.09 million. In order to compare EU and non-EU companies on a similar basis, it is preferable to consider only EU companies with R&D above the non-EU threshold. This yields a group of 391 EU companies, representing approximately 95% of total R&D investment by the EU group. Using the non-EU threshold yields a sample of the world's top 1391 R&D investors that can be used as a basis for comparisons.
- Other important influencing factors are the differences in the various countries' (or sectors') business cycles and the potential impact of mergers and acquisitions. The latter factor may explain sudden changes in growth rates and rankings of specific companies, while the former may have a significant impact on companies' investment decisions.

Chapter 1 – Top R&D-investing companies

This chapter focuses on micro-data, such as research investment and a number of related indicators, from those individual *Scoreboard* companies which invest the largest sums in R&D worldwide. It sets out to answer the following questions: Who are the top 50 R&D investors in the world and how much do they invest?; Who invests most on R&D in the EU and outside the EU in the 2006/2007 financial year?; Which companies increased their R&D investment most?; Which companies had the highest R&D intensities?

1.1. The world's top 50 R&D investors

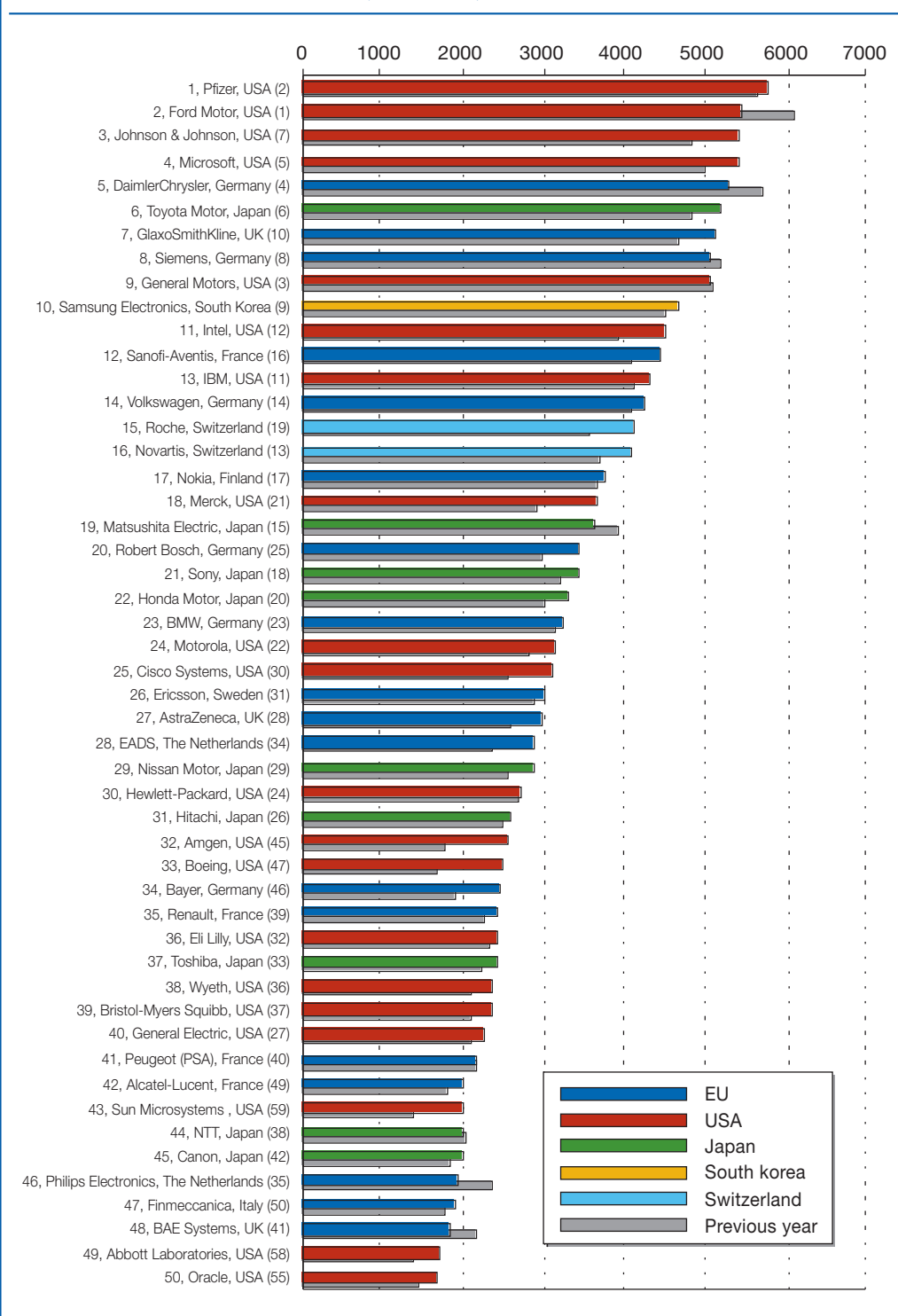
The top 50 world *Scoreboard* companies invested a total of €168 billion in the 2006/2007 financial year, thus accounting for 45.2% of total worldwide R&D investment by the top 1391 *Scoreboard* companies (i.e. the set of companies with R&D investments over the €23.09 million threshold).

These companies registered net sales of €2,420 billion worldwide, thus accounting for 22.5% of the top 1391 *Scoreboard* companies' total net sales. The average R&D intensity of the group of top 50 firms was 6.9% (0.2 % up on the figure for the previous year).

The year-on-year growth rate of overall R&D investment by the top 50 companies was 7.3% while in the case of their net sales the annual growth rate was 6.0%, both being higher than the similar growth rates in the 2006 *Scoreboard*.

Figure 1.1 shows the overall world ranking of the top 50 R&D investors in the 2007 *Scoreboard*.

Figure 1.1 Ranking of the world top 50 R&D companies by their total R&D investment in the 2007 Scoreboard (€ million) .



Notes: The numbers in brackets after the names of the companies indicate their rankings in last year's Scoreboard.

Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

This year, the top four R&D investors are US companies: Pfizer (€5.8 bn), Ford Motor (€5.5 bn), Johnson & Johnson and Microsoft (€5.4 bn each). The latter two companies made a remarkable jump in the Scoreboard ranking, each climbing 9 positions in just 3 years (in 2003, Johnson & Johnson was ranked in 12th position worldwide and Microsoft 13th).

There are three EU companies in the top 10 of the R&D rankings: DaimlerChrysler, the top EU R&D investor, with an investment of €5.2 bn, followed by GlaxoSmithKline, with €5.1 bn and Siemens, with €5 bn. Whereas DaimlerChrysler was the top worldwide R&D investor two years ago, in this edition of the *Scoreboard* it has dropped to the fifth position among worldwide R&D investors.

Despite differences in annual growth rates and in relative positions in the world top 50, this group of companies is relatively stable, with only a few entries and exits compared to the previous year.

A large proportion of the R&D investors listed in the world top 50 are pharmaceuticals companies (13 firms out of 50), such as this year's world leader, Pfizer, or Johnson & Johnson, GlaxoSmithKline, Sanofi-Avantis, Roche, Novartis.

Other sectors with companies in the world top 50 are: automobiles & parts (11 companies, including Ford, Daimler Chrysler, Toyota Motor, General Motors, Volkswagen, Robert Bosch); technology hardware & equipment (11 companies), aerospace & defence (4 companies); software & computer services, leisure goods and electrical & electronic equipment (3 companies).

The EU is home to 18 of the companies in the top 50 R&D investors, the same number as in the previous *Scoreboard*.

The USA has 20 companies, two more than last year (three new entries, Sun Microsystems, Abbott Laboratories and Oracle and one exit, Delphi).

There is one company less from Japan this time¹³ (leaving a total of 9 this year), while South Korea lost one of the two it had in last year's *Scoreboard*. The two Swiss pharmaceuticals companies (Roche and Novartis) maintained their high positions in the top 50 of R&D investors worldwide.

The proportion of EU and US Japanese companies in total R&D investment by top 50 *Scoreboard* companies increased in 2006/2007, whereas Japanese companies now account for a smaller share. The proportion of total net sales by top 50 firms accounted for by the EU companies increased significantly from 30.7% to 34.1%, close to the US firms' share. The share of both US and Japanese firms dropped slightly. However, this is largely due to the appreciation of the Euro against the US dollar.

Many pharmaceutical companies showed a strong increase in R&D investment, e.g. Merck (+24.3%), AstraZeneca (+15.5%), Roche (+15.5%), Johnson & Johnson (+12.9%), Novartis (+10.7%), and GlaxoSmithKline (+10%). On the opposite side, carmakers lost ground in the top 50 as a result of the low growth rate of their R&D investment. The exception is Toyota Motors, the only car manufacturer with strong growth (7.6 %) among the four biggest carmakers.

¹³ NEC (Japan) would hold 42nd position, but it is not included for methodological reasons (see Annex 2).

Many companies in the top 50 reported double digit growth in R&D investments (6 from the EU group and 15 from the non-EU group). In the EU, these companies include Bayer (mainly as a result of the acquisition of Schering), with €2.46 bn (+30%) and Alcatel-Lucent with €1.98 (+11%). The non-EU group includes mostly US companies, for example Amgen with €2.55 bn (+45%), nearly doubling its R&D investment in the past 3 years, Boeing with €2.47 bn (+48%) and the two new entries, Sun Microsystems with €1.97 bn (+45%) and Abbott Laboratories with €1.71 bn (+24%).

1.2. Top 25 firms in the EU and outside the EU

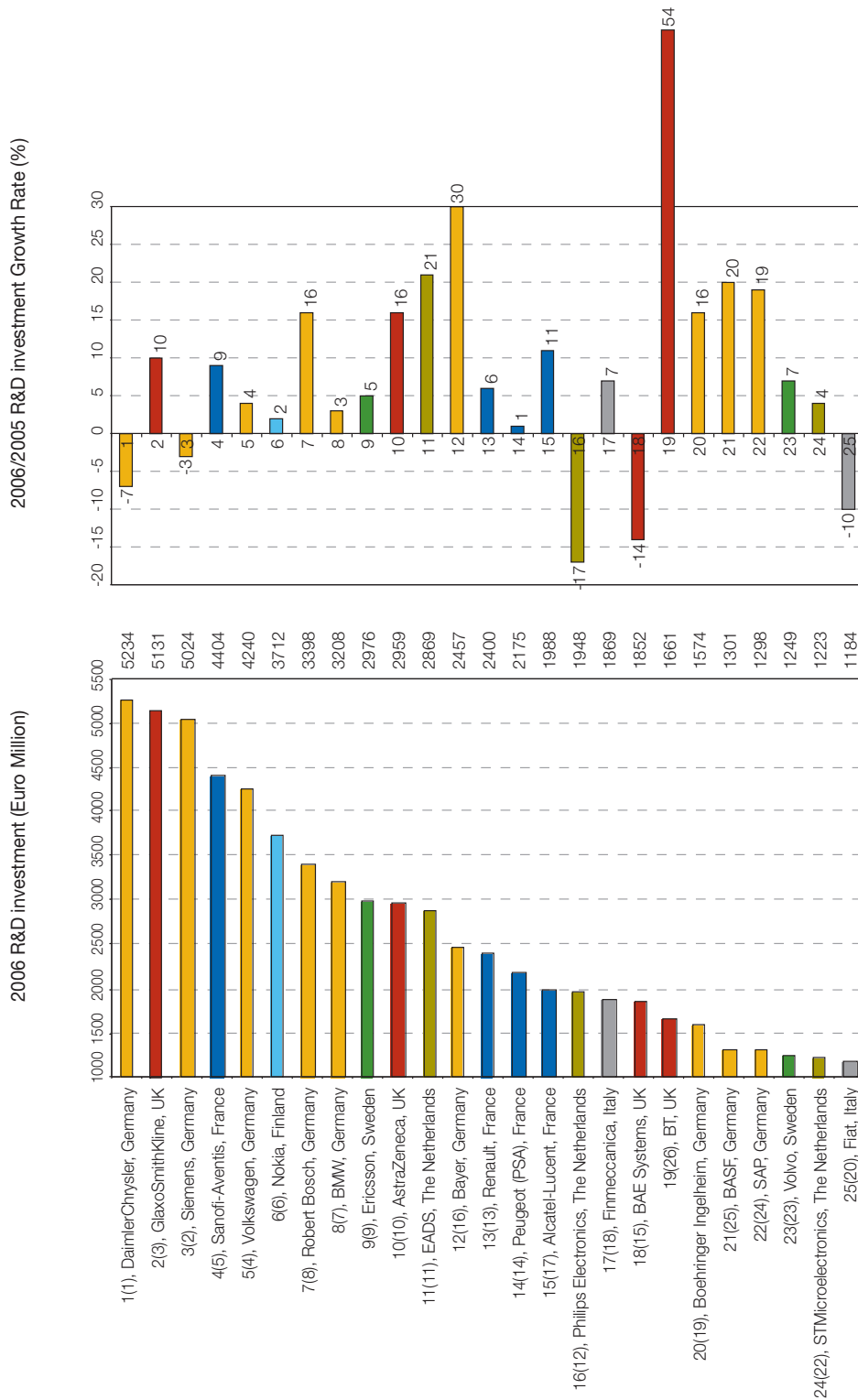
Figure 1.2 shows the list of top 25 EU R&D investors, including their rank in the previous year, their R&D investment and annual growth rate (on the right-hand side of the Figure).

The companies in the EU top 25 mainly operate in automobiles & parts (7), pharmaceuticals (4), technology hardware & equipment (4, out of which 3 are the big telecoms equipment manufacturers, Nokia, Eriksson and Alcatel-Lucent) and aerospace & defence (3).

Nine firms out of the top 25 are based in Germany, while the UK and France account for four each. The Netherlands (with three firms), Sweden, Italy and Finland are also represented on this list.

The proportion of total EU R&D investment by *Scoreboard* companies accounted for by the top 25 firms dropped by 1 percentage point to 55.6%. The average growth rate of the entire group was 5.8%, lower than the 7.4% for the entire EU population of *Scoreboard* firms, explaining the reduction in the degree of R&D concentration. The overall performance of the group was negatively influenced by the significant reductions in R&D spending by DaimlerChrysler (-7.4 %), Siemens (-2.5 %), Philips Electronics (-16.6 %, due to the demerger of its semiconductors division), BAE Systems (-13.9 %) and Fiat (-10.2 %). However, 14 firms among the EU's top 25 increased their R&D investment this year by more than 5%.

Figure 1.2 Ranking of EU top 25 companies by R&D investment (million €) in 2006/2007



Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

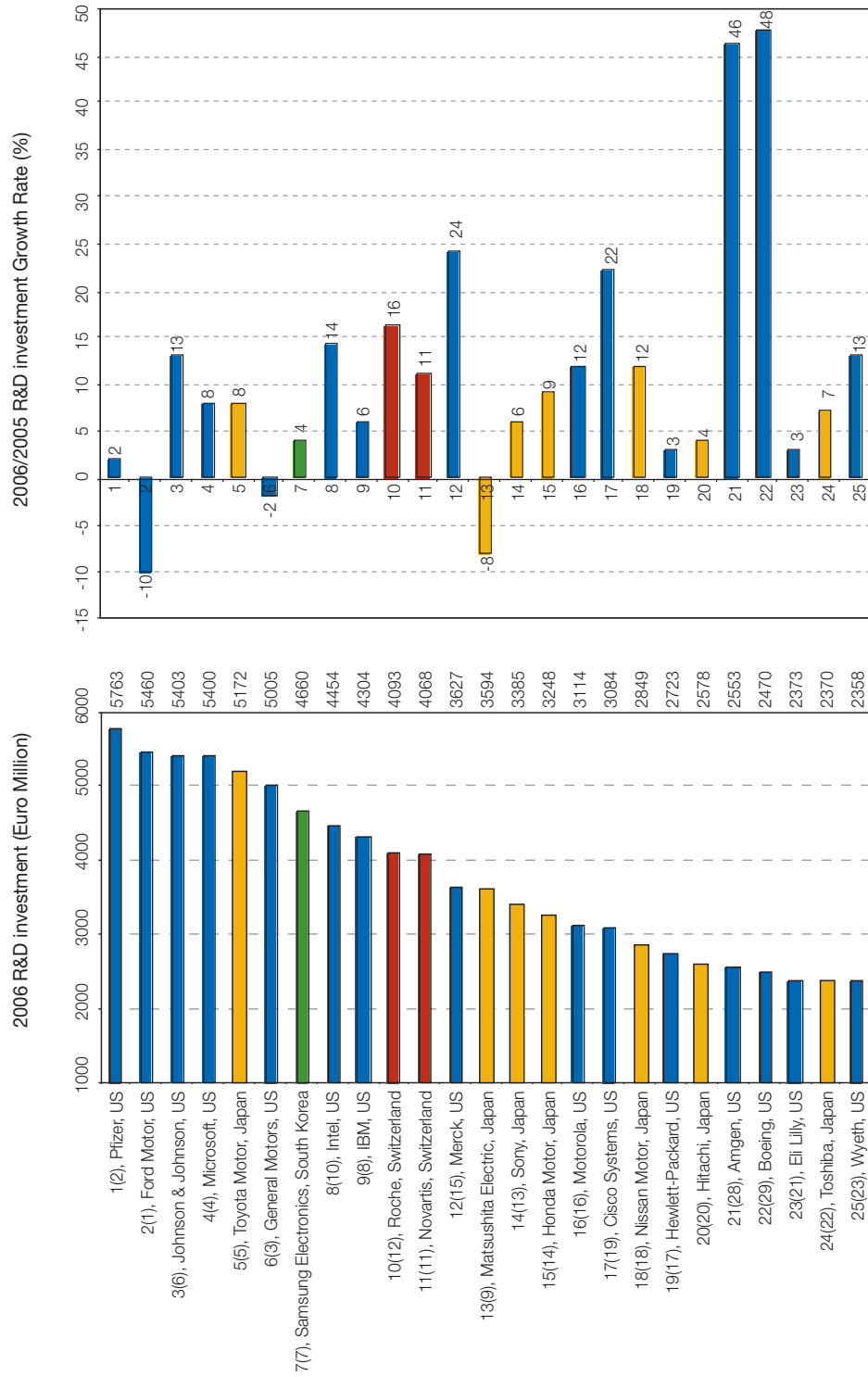
Figure 1.3 shows the list of top 25 non-EU R&D investors.

These companies show a different sector pattern than those in the EU, with 8 firms in pharmaceuticals & biotechnology and 5 in technology hardware & equipment. Carmakers are less strongly represented than in the EU (5 firms), while software & computer services account for three firms on the list and leisure goods for two.

As in the case of EU top 25 R&D investors, the share of the top 25 firms in total R&D investment by non-EU *Scoreboard* companies decreased to 37.6% this year, a drop of more than 1 percentage point. The concentration is smaller at top for non-EU firms than for the EU ones. The average growth rate of the top 25 group was 8.1 %, which is lower than the 11.2 % for the entire non-EU group of *Scoreboard* firms.

There is still a high sectoral concentration of R&D investment in all regions, both in terms of numbers of firms and of R&D volumes.

Figure 1.3. Non-EU top 25 companies ranked by R&D investment in 2006/7 (million €)



Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

1.3. R&D growth among top Scoreboard companies

Table 1.1. lists the top 50 companies with the highest growth rates over the past three years (2003-2006) from among the world *Scoreboard* R&D investors with net sales of over €500 million and R&D investment of over €50 million¹⁴.

Table 1.1. The top 50 Scoreboard Companies by growth rate of R&D over 2003-2006

Company	Country	Sector name ICB	CAGR 3yrs (%)	World Rank in 2006/2007
Onex	Canada	General industrials	122.4	243
RAG	Germany	General industrials	90.7	207
Mittal Steel	The Netherlands	Industrial metals	90.0	648
Take-Two Interactive Software	USA	Software	89.7	287
CSR	UK	Semiconductors	87.5	593
Hexagon	Sweden	Industrial machinery	85.5	523
Gazprom	Russia	Oil & gas producers	84.2	172
Google	USA	Internet	74.9	80
Tata Motors	India	Automobiles & parts	73.8	400
Benq	Taiwan	Computer hardware	63.0	191
Nidec	Japan	Computer hardware	62.4	315
Vale Do Rio Doce	Brazil	Mining	60.4	181
Yahoo!	USA	Internet	60.2	106
Abraxis Bioscience	USA	Pharmaceuticals	59.1	676
Tatung	Taiwan	Electrical components & equip.	57.9	422
Hexion Specialty Chemicals	USA	Chemicals	56.5	828
Forest Laboratories	USA	Pharmaceuticals	56.3	100
Research In Motion	Canada	Telecommunications equipment	55.6	326
Pou Chen	Taiwan	Personal goods	55.3	507
SanDisk	USA	Semiconductors	53.9	267
Petroleo Brasileiro	Brazil	Oil & gas producers	53.5	132
Lenovo	Hong Kong	Computer hardware	52.4	333
Allergan	USA	Pharmaceuticals	51.4	93
Symantec	USA	Software	50.9	105
BT	UK	Fixed line telecommunications	49.6	52
Sanofi-Aventis	France	Pharmaceuticals	49.6	12
Asustek Computer	Taiwan	Computer hardware	49.6	325
eBay	USA	General retailers	48.7	157
King Pharmaceuticals	USA	Pharmaceuticals	48.2	486
Vestas Wind Systems	Denmark	Electrical components & equip.	47.2	563
Biogen Idec	USA	Biotechnology	45.5	135
Marvell Technology	Bermuda	Semiconductors	44.9	140

¹⁴ Only companies over these thresholds were taken into account in order to eliminate outliers' effects.

Company	Country	Sector name ICB	CAGR 3yrs (%)	World Rank in 2006/2007
Dyson James	UK	Household goods	44.4	826
Qualcomm	USA	Telecommunications equipment	43.2	68
UTStarcom	USA	Telecommunications equipment	43.2	311
Semiconductor Manufacturing	China	Semiconductors	43.2	657
Network Appliance	USA	Computer hardware	43.0	214
MedImmune	USA	Biotechnology	42.1	192
AT&T	USA	Fixed line telecommunications	41.9	341
High Tech Computer	Taiwan	Electronic equipment	41.6	671
Fidelity National Information	USA	Support services	40.2	606
Palm	USA	Computer hardware	40.1	374
Amazon.com	USA	General retailers	39.8	116
Juniper Networks	USA	Telecommunications equipment	39.7	182
LG Chem	South Korea	Chemicals	38.8	338
Chi Mei Optoelectronic	Taiwan	Electrical components & equip.	38.8	431
Actelion	Switzerland	Biotechnology	38.8	413
Thq	USA	Leisure goods	38.1	642
Modine Manufacturing	USA	Automobiles & parts	38.0	735
Garmin	Cayman Islands	Leisure goods	37.4	578

Source: *The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

The list of the top 50 companies with fastest R&D investment growth is dominated by US companies (23), but also includes 8 EU firms and 6 Taiwanese firms.

Fourteen companies out of those with a high R&D growth rate during the last 4 years are from the technology hardware & equipment sector, 8 from pharmaceuticals & biotechnology, 4 from software & computer services and the other 4 from electronics & electrical equipment.

The weaker presence of EU and Japanese companies in this ranking, as compared to US firms, and the comparatively large presence of firms based in Taiwan could be partly explained by each region's sector mix.

Several companies in table 2.1 underwent a merger or an acquisition during the period (2003-2006), which explains the high compound annual growth rates. However, there are companies, such as those operating on the Internet (Yahoo, Google) or in biotechnology (MedImmune, Actelion), which have strongly increased their R&D investment in recent years as a result of their research-oriented growth strategy.

Table 1.2 presents the 10 companies out of the world top 50 R&D investors that had the highest growth rates in the 2006/2007 financial year and the number of positions gained by these companies in the past year.

Table 1.2. The 10 companies with fastest R&D growth among the worldwide top 50 R&D investors in the 2006/2007 financial year.

Company	Region	Sector	R&D AGR (%)	Number positions upward
Boeing	US	Aerospace & defence	47.7	14
Amgen	US	Pharmaceuticals & biotechnology	45.5	13
Sun Microsystems	US	Technology hardware & equipment	45.5	15
Bayer, Germany	EU	Chemicals	30.3	12
Merck	US	Pharmaceuticals & biotechnology	24.3	3
Abbott Laboratories	US	Pharmaceuticals & biotechnology	23.8	8
Cisco Systems	US	Telecommunications equipment	22.4	5
EADS, The Netherlands	EU	Aerospace & defence	21.2	6
NEC	Japan	Technology hardware & equipment	16.4	2
Robert Bosch, Germany	EU	Automobiles & parts	15.9	5

Note: R&D AGR is the annual growth rate of firm's R&D; number of positions upward is the number of positions the company has moved upwards relative to last year's edition of the Scoreboard.

Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

More non-EU companies in the top 50 showed double-digit growth in R&D investment (15) than EU ones (5).

In contrast to the last edition of the *Scoreboard*, there are only 3 EU firms in the top 10 from the world top 50 fastest growing R&D investors, as against 6 US companies and 1 Japanese company.

However, there is a larger number of EU firms with an R&D growth rate of more than 50% than there was in the previous *Scoreboard* (148 compared to only 79 in the non-EU group, out of which 42 were from the US). Many of these firms are new entries in the EU *Scoreboard* list and operate in high R&D-intensive sectors.

1.4. R&D Intensities for top R&D investors

The average R&D intensities for the groups of top 25 EU and non-EU firms are much higher than the average R&D intensity of all the *Scoreboard* companies. In the EU, the average R&D intensity of the top 25 was 6.6% in 2006/7, while in the non-EU, it was even higher, at 7.2%.

Table 1.3 shows the top 10 by R&D intensity in each of the two main *Scoreboard* groups: EU and non-EU R&D investors, using the same exclusion criterion as presented above (net sales of more than €500 million and R&D investments of more than €50 million). As all non-EU companies are US-registered firms, the table shows a comparison between EU and US firms.

Table 1.3. Top 10 EU and non-EU Scoreboard Companies by R&D intensity

Top 10 EU Companies				
No	Company name (Sector) (Country)	R&D intensity	CAGR 3yrs	Rank in EU group
1	UCB (P) (Belgium)	24.4	31.6%	35
2	Dassault Systemes (S) (France)	24.3	9.2%	69
3	UBIsoft Entertainment (S) (France)	23.9	21.3%	123
4	Lundbeck (P) (Denmark)	21.2	2.3%	73
5	Ipsen (P) (France)	17.8	7.2%	100
6	Shire (P) (UK)	16.8	6.3%	80
7	STMicroelectronics (T) (The Netherlands)	16.4	11.6%	24
8	Italtel (T) (Italy)	16.4	3.6%	166
9	Novo Nordisk (P) (Denmark)	16.3	14.6%	30
10	Finmeccanica (A) (Italy)	16.1	15.1%	17
Total R&D investment €5.7bn				
Top 10 Non-EU Companies				
No	Company name (Sector) (Country)	R&D intensity	CAGR 3yrs	Rank in non-EU group
1	MedImmune (P) (USA)	35.2	42.1%	133
2	Allergan (P) (USA)	34.5	51.4%	63
3	Synopsys (S) (USA)	34.2	9.0%	153
4	Electronic Arts (L) (USA)	33.7	26.8%	64
5	Cadence Design Systems (S) (USA)	32.6	10.3%	122
6	Broadcom (T) (USA)	30.5	19.6%	61
7	Forest Laboratories (P) (USA)	29.6	56.3%	68
8	Marvell Technology (T) (Bermuda)	29.4	44.9%	95
9	Mentor Graphics (S) (USA)	28.7	7.1%	239
10	Agere Systems (T) (USA)	28.3	-1.6%	135
Total R&D investment €5.2bn				

Note 1: The sector of operation and the country of registration are shown in brackets; the codes used for the sectors are: T – technology hardware & equipment, S – software & computer services, P – pharmaceuticals & biotechnology, L – leisure goods, A – aerospace & defence.

Note 2: Only companies with net sales above €500 million and R&D investments of more than €50 million are considered.

Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

The R&D investment by the ten EU companies was significantly higher than the US total.

Of all the *Scoreboard* firms with net sales of more than €500 million and R&D investments of more than €50 million, only 42 showed R&D intensities of more than 20%. Out of these R&D intensive firms, 33 are US firms and only 4 are EU-based firms, proving that there is a weak presence of EU companies in the world rankings by R&D intensity.

Moreover, out of the four EU companies with an R&D intensity of over 20%, one had a moderate compound aggregate growth rate over the last 4 years (Lundbeck), while UCB has

bolstered its position by a series of acquisitions in recent years. However, on average, the highly R&D-intensive companies also show high R&D investment growth rates.

Firms on both lists operate strictly in five sectors, but the vast majority are in pharmaceuticals & biotechnology, technology hardware & equipment and software & computer services.

1.5. Dynamism of Scoreboard companies

Entries and exits

Most of the new entries and exits to and from the *Scoreboard* are companies in R&D-intensive sectors, such as pharmaceuticals & biotechnology, software & computer services, electrical & electronic equipment. However, they also include some firms in banking & financial services, general industrials, general retailers, chemicals and aerospace & defence.

In the EU group, entries and exits involved 13.8% of companies. New entries are due to the good performance of newcomers (71 companies) and the improvement of the data collection process (61 companies). Companies that left the *Scoreboard*, including 25 companies involved in mergers and acquisitions (M&As), were in the chemicals, health-care, pharmaceuticals and, most of all, software sectors. The sectors that increased their representation on the *Scoreboard* were aerospace, banks and other financials, general retailers, travel & leisure. Among the 71 newcomers on the EU list, UK companies accounted for the largest share, followed by companies from Sweden, Germany and France.

In the case of the non-EU group, entries and exits involved 9.3% of companies. 57 newcomers and 36 companies that should have been in the *Scoreboard* list in the previous year replaced 62 firms with weaker R&D performance and 31 that left the list due to M&As. US firms showed the greatest *Scoreboard* mobility and largest number of mergers or acquisitions.

Growth of EU vs. non-EU Scoreboard firms

Table 1.4 shows the share of companies increasing or decreasing their R&D investments in the 2006/2007 financial year, allowing comparisons between EU and non-EU firms in terms of R&D growth.

Table 1.4. Patterns of R&D growth for the 2007 Scoreboard.

	Share of companies increasing and decreasing R&D investment in 2006/2007 (%)			
	Increase > 5 %	Increase 0-5 %	Total Increases	Total Decreases
EU Top 50	64	20	84	16
Non-EU Top 50	71	14	86	14
EU Top 1000	60.2	10.7	70.9	29.1
Non-EU Top 1000	64.2	14.7	78.8	21.2

Source: *The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

The number of companies increasing their R&D investment in the 2006/2007 financial year was 8 percentage points higher in the non-EU group than in the EU one, except for the top 50 groups where the proportions were similar in both cases.

In the case of the EU group, a pattern of decreasing R&D growth with the rank of the company may be observed, indicating that the concentration of R&D in big firms is likely to continue. This is also due to the large number of firms from low R&D-intensive sectors at the bottom of the EU group with R&D growth rates below those of R&D-intensive firms.

Companies in the non-EU group show a similar pattern of decreasing R&D growth from upper to middle and to bottom layers. The best performing group remains the top 50 with only 7 companies showing a decline in R&D. Therefore, the concentration of R&D in large firms is also expected to remain.

Chapter 2 – R&D Distribution by industrial sector

This chapter highlights the main R&D trends among *Scoreboard* companies aggregated by industrial sectors. For comparative purposes, the sample comprising the world's top 1391 companies is considered¹⁵. The chapter provides aggregate information by sector addressing the following questions:

- a) Which sectors account for the highest proportions of the *Scoreboard*'s total R&D investment?
- b) In which sectors do *Scoreboard* companies have the highest and the lowest R&D investment growth rates?
- c) What differences exist between sectors in terms of trends in companies' R&D investments and R&D intensities?
- d) What is behind the lower overall R&D intensity of the EU group?

2.1. Aggregate world R&D investment by sector

2.1.1. The sectors in which *Scoreboard* companies invest the most in R&D

During the 2006/2007 financial year, the top 1391 worldwide *Scoreboard* companies spent €366 billion on R&D, 9.8% more than in the previous year. Their net sales grew on average by 9.9 % between 2004 and 2005, reaching an overall volume of €10,705 bn. The average R&D intensity for these major R&D investors was 3.41%, once again lower than in the previous year (3.57%), due to faster growth in sales than in R&D investment.

Table 2.1 shows the proportions of *Scoreboard* companies' worldwide R&D investment in each of the 15 sectors¹⁶ with the biggest R&D investment. It also presents the proportions of overall net sales accounted for by these sectors and their average R&D intensities.

The pharmaceuticals & biotechnology sector has overtaken the technology hardware & equipment sector to become the world's top R&D investing sector.

¹⁵ The top 391 EU and 1000 non-EU companies, as explained in Box 1 - Methodological Caveats, in Chapter 1.

¹⁶ *Scoreboard* companies' sectors of economic activity according to the new ICB 3-digit classification.

Table 2.1. The largest sectors by aggregate R&D investment from the world top 1391 Scoreboard companies, in the 2006/2007 financial year.

Rank	Sector name ICB (No. of companies in Top 1391)	Share of R&D investment	Share of net Sales	R&D intensity
1	Pharmaceuticals & Biotechnology (164)	19.3%	4.2%	15.9%
2	Technology hardware & equipment (227)	17.6%	7.0%	8.6%
3	Automobiles & parts (80)	16.6%	14.0%	4.1%
4	Electronic & Electrical Equipment (121)	7.4%	5.7%	4.4%
5	Software & Computer Services (133)	7.3%	2.5%	9.8%
6	Chemicals (98)	4.7%	5.2%	3.1%
7	Aerospace & defence (39)	4.4%	3.1%	4.8%
8	Leisure goods (28)	3.9%	2.0%	6.5%
9	Industrial Engineering (85)	2.5%	3.3%	2.7%
10	General industrials (40)	2.4%	4.0%	2.1%
11	Fixed line telecommunications (18)	2.0%	4.2%	1.6%
12	Health care equipment & services (57)	1.8%	0.9%	6.8%
13	Oil & gas producers (19)	1.3%	15.9%	0.3%
14	Household goods (29)	1.1%	1.7%	2.2%
15	Food producers (31)	1.1%	2.3%	1.6%
	Total of the 15 sectors	93.4%	75.9%	4.2%
	Remainder of 21 sectors	6.6%	24.1%	0.9%
	TOTAL world 1391 companies (Million Euro)	365619	10704702	3.4%

Note: The 1391 companies are spread across 36 sectors.

Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

The same three sectors as in the previous year account for more than 53% of this year's *Scoreboard's* R&D investment. The *Scoreboard* companies listed in each of these sectors invest on R&D sums ranging from €60 to €71 billion.

There is a high degree of concentration of activity in certain sectors among *Scoreboard* companies. The aggregate proportion of the total accounted for by the top 15 sectors by R&D investment decreased by only 0.5% compared with the previous year.

There is only one sector in which *Scoreboard* companies have an aggregate R&D intensity of over 10%: pharmaceuticals & biotechnology (15.9%, with 1 percentage point more than in the previous year). Software & computer services (9.8%), technology hardware & equipment (8.6%), health care equipment & services (6.8%) and leisure goods (6.5%) show average R&D intensities in the range of 5% to 10%.

On the opposite side, companies operating in sectors such as oil & gas; gas, water & multi-utilities; food & drug retailers; or mining, show R&D intensities of less than 1% (mainly due to their very high net sales).

The spread in the average R&D investment per company is very wide, ranging from €53 million (industrial transportation) to €800 million (automobiles & parts)¹⁷.

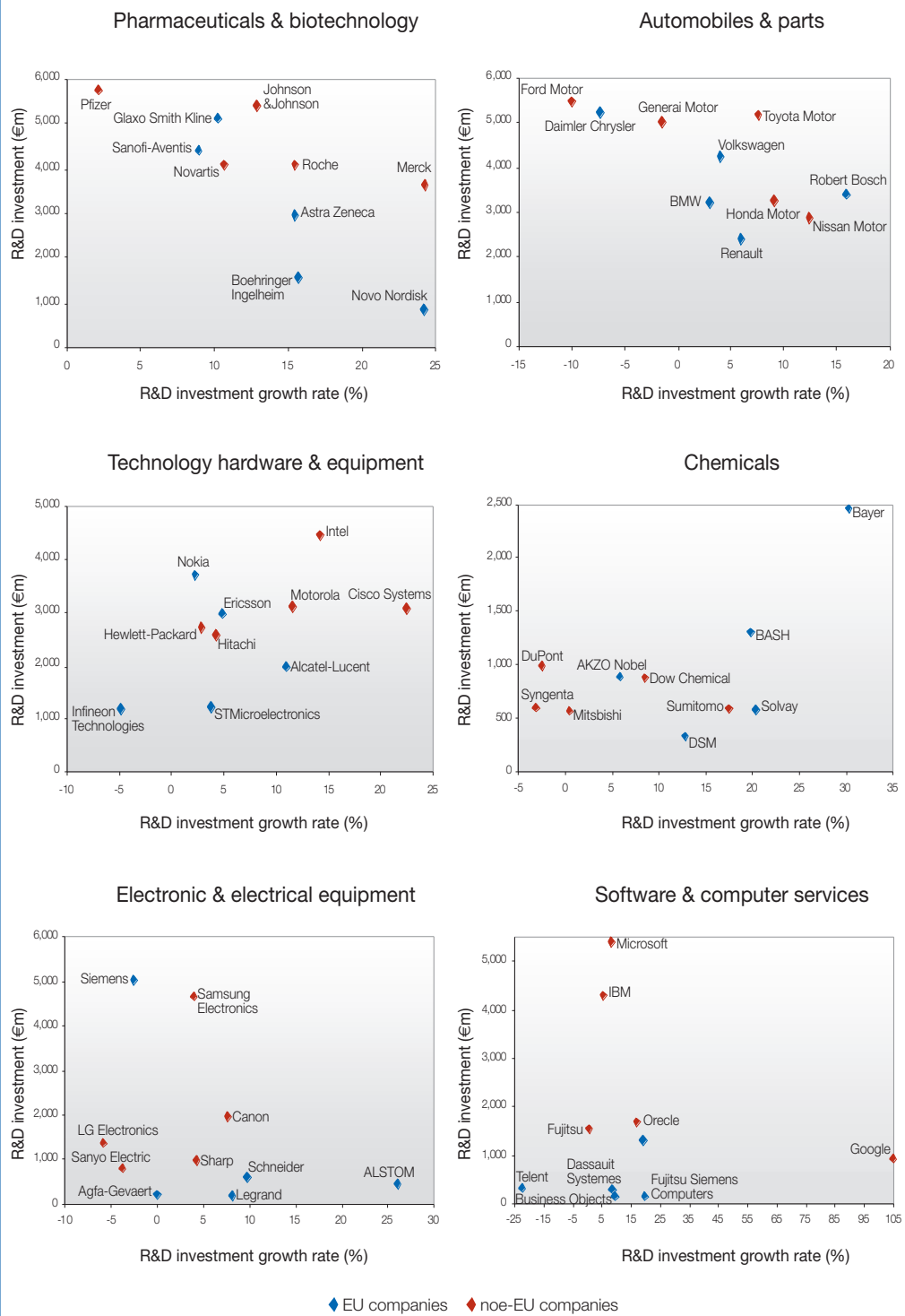
¹⁷ In terms of sales, the size difference is even larger, as the 79 companies in automobiles & parts are on average eleven times bigger than the 63 companies in health care equipment & services.

Figure 3.1 shows the R&D investment and annual growth rate for the top five companies in each of the six largest sectors by R&D, for both the EU and the non-EU groups of *Scoreboard's* companies¹⁸.

- The top *Scoreboard* companies operating in pharmaceuticals & biotechnology showed very high growth rates in 2006/2007 (two-digit rates for 8 out of 10). This trend, observed over the last 4 years, reflects increased competition in search for new drugs. For example, Johnson & Johnson and Merck have gained positions in the *Scoreboard* ranking, from 12th to 3rd and 29th to 18th respectively. This is also the sector with the largest number of mergers and acquisitions in the last reporting period.
- The pace of R&D investment for most car manufacturers has decreased in the latest year. It was particularly bad for US carmakers and good for the big three Japanese manufacturers (Toyota, Honda and Nissan). Toyota in particular continued investing strongly in R&D and, if the trend is maintained, is likely to become the first R&D investor in the sector and one of the largest of the *Scoreboard*.
- In IT-related sectors, non-EU companies dominate the world market, reporting significantly larger R&D investments among the top 5 *Scoreboard* companies in software & computer services and technology hardware & equipment.
 - All top 5 firms in software & computer services and 4 out of 5 in technology hardware & equipment are US companies.
 - In technology hardware & equipment, the big three from outside the EU (Intel, Motorola and Cisco Systems) had significantly higher growth rates in 2006/2007 than their EU competitors.
 - Once again, outstanding performance was achieved by Internet companies, particularly by Google, which entered the top 5 of US software & computer services providers, after more than doubling its R&D investment.
 - In software services, despite the general weakness of the sector compared to the US, the growth of SAP, based in Germany, surpassed that of all the world's other big R&D investors in the software sector.
- The chemical sector showed a strong recovery in R&D investment, compared with the negative growth of the past year. However, the results of some of the top chemical companies are distorted by merger and acquisition activity in the sector, for example, Bayer's acquisition of Schering. The EU has the largest two R&D investors (Bayer and BASF) in the world chemicals market and 3 firms in the world top 5.
- In the electronic & electrical equipment sector, Samsung Electronics showed an impressive performance in the last 4 years, doubling the R&D investment from €2.3 bn to €4.6 bn and improving in the *Scoreboard* ranking from the 33rd to the 10th position.

¹⁸ Most of these multinational companies operate worldwide in several sectors. Companies' trends are useful indications but pair-to-pair comparisons may be less meaningful.

Figure 2.1. Top 5 EU and non-EU Companies in the Six Largest Sectors by R&D. R&D investment vs. R&D growth in 2006/2007.



Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

Table 2.2 lists the proportion of total R&D investment in each sector accounted for by the top five firms. Those sectors account for 73% of the total R&D investment of the *Scoreboard* companies and only 39% of total net sales.

Table 2.2. R&D and proportion of total sector R&D investment for top 5 EU and non-EU Companies in the Six Largest Sectors.

Sector	EU		Non-EU	
	Investment in R&D (€ bn)	Share of Top 5 (%)	Investment in R&D (€ bn)	Share of Top 5 (%)
Pharmaceuticals & biotechnology	14.9	21	23.0	33
Technology hardware & equipment	11.1	17	16.0	25
Automobiles & parts	18.5	30	21.7	36
Electronic & electrical equipment	6.4	24	9.8	36
Software & computer services	2.1	8	13.8	52
Chemicals	5.5	32	3.6	21

Notes: Total sector R&D investment is calculated from all 1391 Scoreboard firms above the threshold used to create a subset allowing EU/non-EU comparisons.

Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

- R&D is highly concentrated in a small number of companies within each sector. Only 10 companies – 5 from each group - out of the total number of comparable 1391 *Scoreboard* firms account for big shares of total R&D investment.
 - There is a particularly high level of concentration in automobiles & parts (66%), electronic & electrical equipment (60%), software & computer services (60%), pharmaceuticals & biotechnology (54%) and chemicals (53%). However, in pharmaceuticals & biotechnology, electronic & electrical equipment it has decreased slightly since last year while in technology hardware & equipment and in chemicals it has increased significantly. In the latter two sectors, acquisitions contributed to increased concentration (e.g. Bayer acquired Schering, and BASF acquired Engelhard, both in chemicals).
 - In all 6 sectors, the share of EU top 5 R&D investors remained stable or increased compared to the previous year, but this was mainly due to the appreciation of the euro and, in the case of chemicals, to acquisitions. With the exception of technology hardware & equipment, the share of the total accounted for by non-EU firms decreased relative to the previous period.
- The EU *Scoreboard* companies have the largest proportion of R&D investment in the automobiles & parts and the chemicals sectors.
- The share of top 5 EU R&D investors operating in chemicals is higher than the equivalent for non-EU firms, which is a sign of the strength of the EU chemicals sector, given the difference in size between the economies of the EU and the rest of the world.
- In 4 out of the 6 biggest sectors growth rates among the top 5 companies were generally higher among non-EU firms than EU ones. The exceptions were the firms in the chemicals and automobiles & parts sectors.

Looking at all *Scoreboard* companies in all sectors, the EU firms also displayed a relative specialisation in aerospace & defence compared to the companies from the non-EU areas.

2.1.2. The sectors and their average R&D growth rates

Overall performance in the 2006/2007 financial year was even better than in the previous year, with aggregate annual growth at a rate of almost 10% for the group of top 1391 *Scoreboard* firms.

Table 2.3 lists the sectors ranked by their average annual R&D growth rate in 200/7 based on the R&D investments of all the *Scoreboard* companies operating in the sectors concerned. It also shows the average compound annual growth rate over the last three years (CAGR 3 yrs) in each sector.

- 15 sectors show double digit R&D growth, including 8 sectors from the group of the largest R&D investing sectors (two of them having the largest share in overall world R&D: pharmaceuticals & biotechnology and technology hardware & equipment).
- 3 low R&D intensity sectors significantly increased their R&D (mining, general retailers and other non-bank financial companies).

Table 2.3. R&D growth rates for the world's top 1391 *Scoreboard* companies, by sector, in the 2006/2007 financial year.

Sector name	No. comp	R&D investment 2006/7	R&D investment 1 year change	R&D investment CAGR 3yr
Mining	4	481	67.4%	44.9%
General retailers	4	1092	45.2%	40.1%
Other financials	5	323	34.3%	15.0%
Oil equipment, services & distribution	11	1350	29.7%	11.2%
Media	13	2107	20.8%	10.9%
Oil & gas producers	19	4924	20.5%	11.8%
Travel & leisure	11	810	18.5%	14.4%
Health care equipment & services	56	6419	17.4%	13.5%
Pharmaceuticals & Biotechnology	156	69137	15.7%	13.1%
Software & Computer Services	127	26240	13.1%	6.9%
Industrial metals	25	2398	13.0%	8.7%
Technology hardware & equipment	222	63459	13.0%	7.3%
Aerospace & defence	36	15517	12.8%	10.7%
Fixed line telecommunications	17	7192	12.5%	4.8%
Industrial Engineering	78	8993	11.2%	7.7%
Chemicals	93	16758	9.6%	3.6%
Gas, water & multiutilities	7	539	8.4%	-16.6%
General industrials	39	8761	8.3%	10.2%
Food producers	26	3687	7.2%	5.3%
Household goods	27	3659	6.9%	6.5%
Personal goods	15	2059	6.0%	5.1%
Support services	14	1258	5.1%	6.3%
Electronic & Electrical Equipment	113	26660	4.7%	5.5%

Sector name	No. comp	R&D investment 2006/7	R&D investment 1 year change	R&D investment CAGR 3yr
Construction & materials	24	1802	4.4%	3.7%
Mobile telecommunications	4	656	3.4%	6.4%
Tobacco	4	1189	3.3%	5.6%
Automobiles & parts	72	58573	1.5%	4.2%
Electricity	17	2233	-0.1%	3.0%
Leisure goods	25	13992	-1.0%	3.4%
Forestry & paper	8	434	-5.5%	-2.0%
Industrial transportation	5	267	-7.4%	1.3%
Grand total	1277	353645	9.8%	7.6%

Note: Sectors with less than 4 companies have been excluded from this ranking. Consequently, only 31 out of the 36 sectors are shown.

Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

Out of the 31 sectors listed in Table 2.3, only 4 did not report positive R&D growth: electricity (practically stagnant), leisure goods (affected by the restructuring of Philips¹⁹) and two low R&D-intensive sectors, forestry & paper and industrial transportation.

The favourable situation in 2006/2007 has confirmed the upward trend in worldwide R&D investment observed since 2002. Looking at the average compound annual growth rates, almost all sectors showed positive growth over the last four years. The only two exceptions were gas, water & multiutilities and forestry & paper.

Within the main R&D investing sectors, the highest aggregate growth rate was shown by the pharmaceuticals & biotechnology sector (15.7%), followed by software & computer services (13.1%) and technology hardware & equipment (13.0%).

The aerospace & defence sector continued the trend of strong R&D growth established in previous years (12.8%). The sector's most representative companies, EADS and Boeing, increased their R&D investment by 21.2% and 47.7% respectively. The number of *Scoreboard* companies listed in this sector rose by 6 compared with the previous year.

Overall, the highest R&D growth was shown by the oil & gas producers sector (20.5%) followed by Health-care equipment & services (17.4%).

The chemicals sector showed a strong recovery in R&D investment (9.6% growth), compared to the negative growth of the previous year. This is especially pronounced in the EU group (17% growth) where the large chemical companies showed impressive R&D growth rates due to recent acquisitions, e.g. Bayer (30.3%), Solvay (20.3%) and BASF (19.8%).

R&D investment by companies in "market" services sectors continued the upward trend visible since 2000:

¹⁹ In September 2006, Philips sold 80% of its Semiconductors business to a consortium of private equity partners. An independent new semiconductors company, called NXP, was created, which does not appear in this year's *Scoreboard*.

- This group of sectors includes software and computer services (including internet providers), support services²⁰, general retailers, media, travel and leisure, food & drug retailers, financial and insurance services²¹ and health-care equipment & services.
- The cumulative proportion of total R&D investment grew further from 10.4% in 2004/5 to 11.7% in 2006/7.
- If we exclude from this list the R&D-intensive sectors which also have big shares of overall R&D investment (software and health-care), the remaining group of *Scoreboard* companies in “market” services increased their share of total R&D investment from 2.1% to 2.7% in only two years and this sector now accounts for 6.2 % of the total number of *Scoreboard* companies (86 of the 1391 companies above the threshold).

When deepening the sector dis-aggregation at the 4-digit level of the ICB classification, the fastest average growth rates (above 10% in 2005) are seen among companies operating in the Internet, biotechnology, pharmaceuticals, semiconductors and telecommunications equipment sectors. In many of these R&D-intensive sectors, the main contribution to growth is from the non-EU companies, mainly by the US R&D investors.

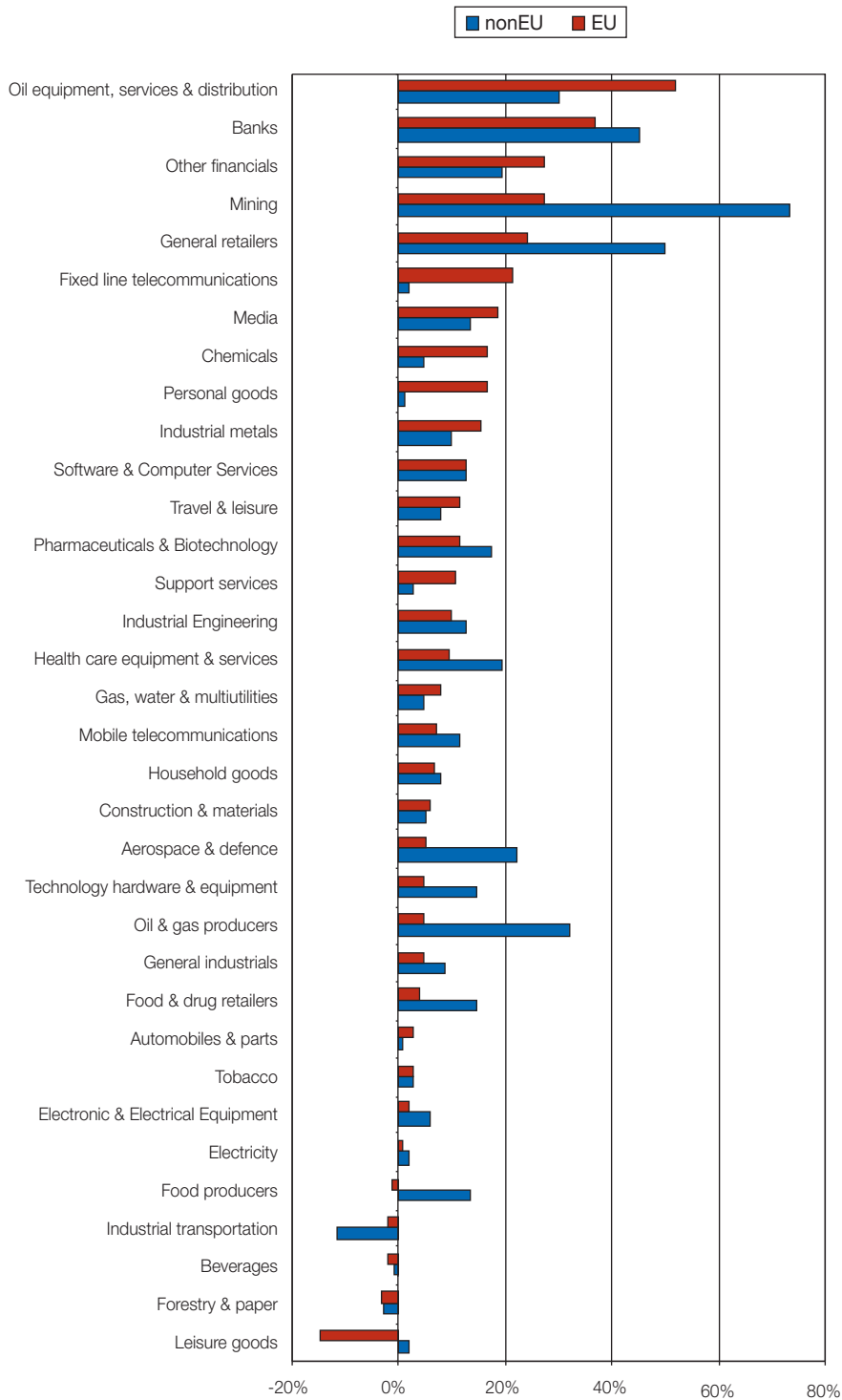
2.1.3. Sector average R&D growth rates in EU vs. non-EU

Figure 2.2 presents the comparative annual growth rates in the 2006/2007 financial year for the EU and non-EU companies grouped by sector. The EU companies showed generally lower rates of growth in 2006/7 than the non-EU companies.

²⁰ This group includes a variety of services such as: business support, delivery, education, training & employment agencies, transaction & payroll, environmental control and security & alarm services.

²¹ This category includes banks, life and non-life insurance and other financials.

Figure 2.2. Average annual growth rates of R&D investment by sector for Scoreboard companies in the EU and the non-EU, in 2006/7 (%).



Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

The average R&D investment growth rates of EU companies were negative in 2006/2007 in just 5 sectors, while for non-EU companies there were only 3 underperforming sectors.

- Growth rates were lower for EU companies in R&D-intensive sectors, such as pharmaceuticals & biotechnology, technology hardware & equipment, health-care equipment & services, aerospace & defence or leisure goods.
- On the other hand, EU companies seem to do better than the companies in the rest of the world in chemicals, fixed-line telecommunications, support services, travel & leisure, personal goods and oil equipment, which are sectors that account for much smaller proportions of total world R&D.

The currently high growth rates of R&D investment in sectors such as pharmaceuticals & biotechnology, health-care equipment & services, oil & gas producers, oil equipment, services & distribution can be partially explained by the increasing demand for better health and a better environment. This drives firms operating in those sectors to search for new technologies that would enable them to pollute less or to find specific niches in the health-care market.

2.1.4. R&D Investment vs. Fixed Capital Investment

Table 2.4 shows the total investment (R&D and fixed capital as percentage of sales) and the R&D/Capex ratios for the top 1391 *Scoreboard* companies grouped by sectors. The list is ordered by the sector's R&D/capex index, thus firms in sectors that are high in the ranking devoted most of their investments to generating innovation rather than acquiring it²².

Table 2.4. Sector total investment (R&D+Capex)/Sales and R&D/Capex ratios in 2006/2007 for top 1391 Scoreboard companies.

Sector name ICB	(R&D+Capex) /Net sales	Change in R&D 06/05	Change in Capex 06/05	R&D/ Capex
Pharmaceuticals & Biotechnology	21.1%	16%	8%	2.98
Software & Computer Services	14.6%	13%	38%	2.00
Aerospace & defence	7.9%	12%	12%	1.57
Leisure goods	11.1%	-1%	-1%	1.49
Technology hardware & equipment	14.7%	13%	14%	1.43
Health care equipment & services	12.4%	17%	21%	1.21
Other financials	6.3%	41%	38%	0.92
Support services	5.5%	7%	14%	0.78
Household goods	5.5%	8%	9%	0.66
Industrial Engineering	6.9%	11%	16%	0.63
Electronic & Electrical Equipment	11.9%	5%	-2%	0.63
Chemicals	8.6%	10%	27%	0.57
Personal goods	6.3%	7%	13%	0.50

²² For details on the split between creating innovation (research & development) and importing and accommodating innovation (purchasing equipment and technology from external sources) see the Analysis of the 2006 EU Industrial R&D *Scoreboard*.

Sector name ICB	(R&D+Capex) /Net sales	Change in R&D 06/05	Change in Capex 06/05	R&D/ Capex
Automobiles & parts	12.3%	2%	31%	0.49
Food producers	5.6%	7%	13%	0.41
Tobacco	4.3%	3%	12%	0.38
General industrials	8.0%	8%	15%	0.35
General retailers	4.7%	48%	15%	0.30
Media	9.0%	20%	16%	0.28
Beverages	4.3%	1%	-4%	0.28
Oil equipment, services & distribution	9.5%	30%	58%	0.25
Travel & leisure	13.2%	10%	5%	0.22
Construction & materials	5.9%	4%	21%	0.16
Food & drug retailers	2.6%	8%	1%	0.16
Banks	7.3%	33%	2%	0.14
Fixed line telecommunications	13.9%	13%	9%	0.13
Industrial metals	8.0%	14%	45%	0.10
Mobile telecommunications	13.0%	10%	0%	0.10
Forestry & paper	5.5%	-8%	-19%	0.08
Electricity	15.1%	1%	14%	0.07
Industrial transportation	4.9%	-3%	5%	0.06
Mining	17.3%	67%	26%	0.04
Gas, water & multiutilities	7.1%	8%	12%	0.04
Oil & gas producers	8.4%	20%	24%	0.04
Total	10.2%	9.9%	17.5%	0.50

Source: *The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

Companies in sectors such as pharmaceuticals & biotechnology, technology hardware & equipment, software & computer services, automobiles & parts, telecommunications, health care services, leisure goods and leisure services and mining have a total investment rate of over 10% (R&D plus capex as a proportion of net sales).

2006/2007 was an exceptionally good year for investments, as there were only a few sectors with negative average growth rates for either of the two types of investment.

Six out of the 31 sectors for which data were calculated²³ have above average R&D to capital expenditure ratios and appear to show a preference for R&D investment (whereas the other sectors show a propensity for fixed capital investment). These sectors are also the six most R&D-intensive sectors.

The average ratio for all 1391 Scoreboard companies is 0.5, a ratio that is similar to the average ratio for companies operating in personal goods.

²³ Only sectors including at least 4 companies with a full set of data available.

2.2. Sector R&D Intensity for EU vs. non-EU Scoreboard Companies

Worldwide, R&D intensities did not change much on average over the past year. However, by sector the R&D intensity in the EU's R&D-intensive sectors such as IT hardware or electronics & electrical has decreased.

The sectors with the highest average R&D intensity are pharmaceuticals, biotechnology, software, Internet-based companies, semiconductors and telecoms equipment. At the other end of the scale, companies operating in sectors such as oil & gas, telecoms services and mining showed R&D intensities of less than 1% (mainly, due to their large volumes of net sales). The lower overall average for the EU *Scoreboard* companies is due to the higher share of the low R&D-intensity sectors in total R&D investment.

Table 2.5 shows the proportion of total R&D investment accounted for and the average R&D intensity of the main *Scoreboard* sectors.

Table 2.5. R&D intensity for major R&D-investing sectors in 2006/7 - EU vs. non-EU Scoreboard companies.

Sectors (ranked by their proportion of world R&D investment by the top 1391 Scoreboard companies)	EU 1000		non-EU 1000	
	Sector share in R&D investment (%)	R&D intensity 2006/2007(%)	Sector share in R&D investment (%)	R&D intensity 2006/2007(%)
Pharmaceuticals & Biotechnology	16.5%	12.4	20.5%	16.2
Technology hardware & equipment	10.8%	12.0	20.7%	8.0
Automobiles & parts	22.4%	4.5	13.5%	3.8
Electronic & Electrical Equipment	6.6%	4.7	7.8%	4.2
Software & Computer Services	3.7%	8.1	9.1%	9.8
Chemicals	6.2%	3.3	4.0%	2.9
Aerospace & defence	7.6%	7.5	2.8%	3.2
Leisure goods	1.8%	6.2	4.8%	6.6
Industrial Engineering	4.0%	2.8	1.9%	2.4
General industrials	1.4%	2.3	2.9%	2
Fixed line telecommunications	3.6%	1.6	1.2%	1.6
Health care equipment & services	1.2%	4.5	2.1%	8
Oil & gas producers	1.6%	0.2	1.2%	0.3
Household goods	1.0%	1.9	1.1%	2.2
Food producers	1.6%	1.3	0.9%	1.6
Main 15 sectors	89.8%	3.4	94.6%	4.4
Other 21 sectors	10.2%	0.6	5.4%	1.3
Total 36 sectors	100%	2.3	100%	3.9

Source: *The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

The sectors with the highest R&D intensity in both EU and non-EU regions were *pharmaceuticals & biotechnology* and *IT sectors* (software & computer services and technology

hardware & equipment) while sectors such as telecommunications services, food producers or oil & gas producers showed relatively low R&D intensities.

The average R&D intensity across sectors did not differ significantly between the EU and the rest of the world, except for a few sectors, such as technology hardware & equipment and aerospace & defence²⁴, where the EU shows much higher average ratios than the non-EU aggregate, or pharmaceuticals & biotechnology and health-care equipment & services, where the non-EU companies (actually, mostly US-based) have a higher sector intensity, on average. Moreover, *the average R&D intensity of EU companies was higher in seven out of the top ten sectors.*

The non-EU 1000 group of *Scoreboard* companies continued to display a much larger proportion (50%) of total R&D investment in highly R&D-intensive sectors (pharmaceuticals & biotechnology, technology hardware & equipment and software & computer services) than the EU-1000 group of companies (31%).

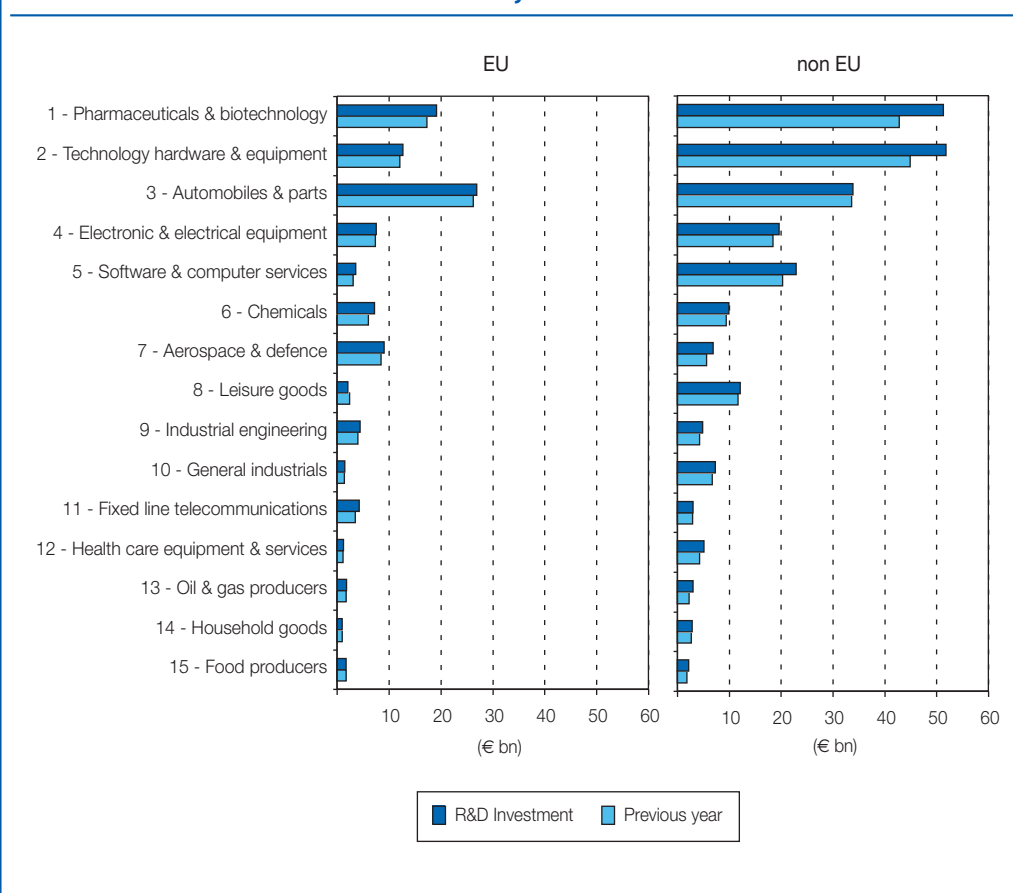
The difference in R&D growth and R&D intensity between the EU and non-EU groups can consequently be explained at the sector level. As can be seen in Figure 2.3, the non-EU group has indeed a much larger share of R&D in highly R&D-intensive sectors than does the EU group.

Moreover, in the non-EU group, some of these sectors showed very high R&D growth rates. For example, the technology hardware & equipment sector accounted for 20.7% of R&D in the non-EU group and grew by 15.3%. Whereas in the EU group, it accounted for 10.8% and increased its R&D by only 5.1%. This finding will be further discussed in chapter 4.

The lower average R&D intensity among EU companies is also due to the large share of low R&D-intensity sectors (with much higher sales) as compared to the similar group of non-EU companies.

²⁴ Data for the US companies in aerospace & defence likely under represent the sector profile due to the *Scoreboard* methodology that excludes other sources of funds, e.g. such as the important public procurement component in this sector (see Methodology in Annex 2).

Figure 2.3. Ranking of industrial sectors by aggregate R&D from the world top companies in the 2006/2007 financial year.



Source: *The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

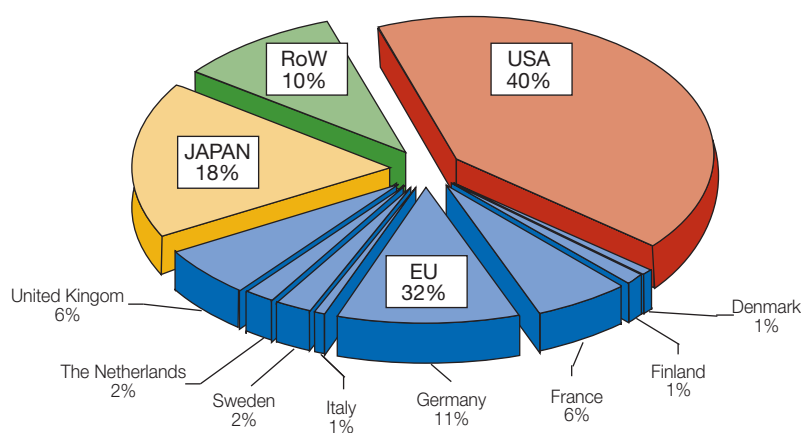
Chapter 3 – R&D Distribution by Region

This chapter presents the company data aggregated by the main world regions, using the sample of the world's top 1391 R&D investing companies. It also includes an analysis of the EU companies grouped by Member State. The following questions are addressed: Are there major differences in R&D investment and related indicators between groups of companies based in the EU vs. those in the US or Japan? Can clear trends in R&D investment, growth rates and R&D intensity be observed in each region? What underlies the difference between R&D related indicators of groups of Scoreboard companies in different EU Member States? Can sector differences be observed at the level of regional groups of firms?

3.1. R&D patterns by main world region

Figure 3.1 shows the breakdown of R&D investment in the EU (391 companies), the US (563 companies), Japan (237) and companies from the rest of the world (200).

Figure 3.1. The breakdown by main world region of R&D investment by the comparable 1391 companies in the 2006/2007 financial year (% of total).



Source: *The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

The share of US companies in the world's R&D investment reversed a positive trend observed in previous years and, by contrast, the EU increased its share, mainly because of the strong appreciation of the euro²⁵.

Table 3.1 provides a series of indicators for the groups of companies in different world regions. All *Scoreboard* regional groups of companies saw their total R&D and net sales grow in 2006/2007, although the sales growth of EU and Japanese firms was less than that of US firms.

²⁵ The euro appreciated significantly against the US dollar over the reporting period, rising from \$1.18 to \$1.32.

Table 3.1. Overall comparison of Scoreboard companies, by main world region, in 2006/2007.

FACTOR	EU	US	Japan
Number of companies	391	563	237
R&D Investment (€ bn)	115.2	147.7	64.6
Change of R&D over previous year (%)	7.4	13.3	5.7
R&D CAGR for Last 3 years (%)	4.5	9.6	4.2
R&D Intensity (%)	2.7	4.5	3.6
Change of Net Sales over previous year (%)	10.2	8.1	8.0
(R&D + Capex) / Net Sales (%)	9.7	9.4	10.5
R&D/Capex index	0.38	0.91	0.53
R&D / Employee (€)	7677	14021	10284
Change in No. Employees over previous year (%)	5.0	4.2	4.6
Profitability rate (%)	11.9	12.9	7.4
Market Cap / Net Sales (%)	127	177	100

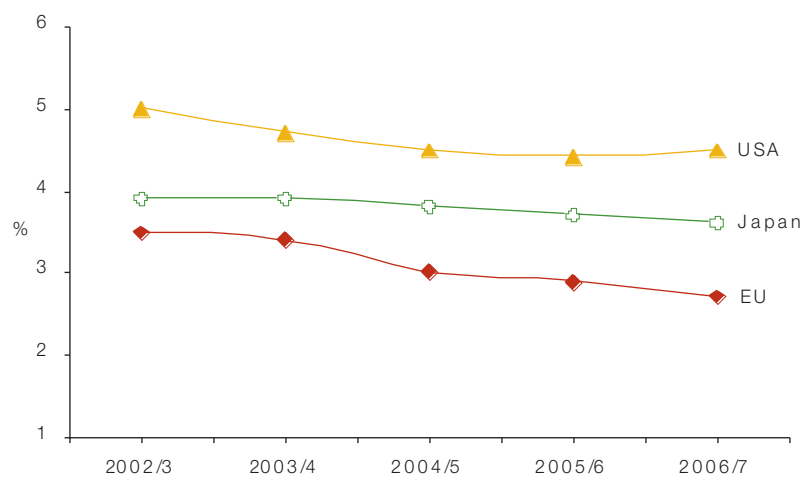
Note: Capex = capital expenditure; Market Cap = market capitalisation; CAGR = compound annual growth rate.

Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

The compound annual growth rates of R&D and net sales over the last four years were strongly positive in all regions.

Following the trend established in previous years, the R&D intensity of companies in the EU and Japan continued to decline slowly due to higher growth rates in sales than in R&D investments, together with the entry of companies with low R&D intensities. The US companies have reversed this trend, faster higher growth in sales than R&D (see Figure 3.2).

Figure 3.2. The R&D intensity for the top 1391 Scoreboard companies, by main world region, during 2002-2006 (%)



Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

Capital expenditure increased more rapidly than R&D, reducing the R&D/Capex index for all regions. The US had a value for this index of almost twice that of the EU because of a larger share of companies operating in R&D intensive sectors in the US *Scoreboard* list. For the same reason, R&D investment per employee in the US is almost twice the EU's figure.

The average total investment intensity (R&D investment plus capital expenditure as a proportion of net sales) is similar in all three main economies, being lowest in the US group and highest in Japan.

- In the case of EU *Scoreboard* companies, total investment intensity grew by 0.2 percentage points in the 2006/2007 financial year, reaching 9.7%, with a much higher growth in the rate of capital expenditure than the growth rates of R&D or net sales.
- Total investment intensity was also seen to rise in the case of US and Japanese firms, although the increase was smaller in Japan. This means that the innovation behaviour of the large R&D investors around the world is similar.
- Fixed capital intensity (the ratio of fixed capital expenditure to net sales) grew at a faster pace for EU and Japanese firms in 2006/2007. This growth offset the decrease in R&D intensity in all three main economies.

All three major economies showed a further improvement in profitability (operating profit to net sales ratio). The average profitability for EU *Scoreboard* companies increased to 11.9%, reducing the gap but still remaining below the figure of 12.9% in the US, which in turn is much higher than that in Japan and equal to the average for all 1000 non-EU firms.

Companies outside the three main economies (EU, US and Japan) were the most dynamic in terms of R&D growth:

- This is due to the presence in the world top 1391 R&D investors of some very large and highly profitable companies, such as Roche and Novartis from Switzerland, Samsung Electronics from Korea, Gazprom from Russia, PetroChina and ZTE from China or Tata Motors from India.
- Except for the South Korean firms, whose R&D investments grew by just 3.5%²⁶, most other countries showed high growth rates in their aggregate R&D. This is the case of Swiss firms, and of companies from Taiwan, Canada, China and India.

3.2. R&D and related indicators by main world region and sector

Figure 3.3 looks at the R&D of top *Scoreboard* companies in the three major economies, aggregated by sector. It shows significant differences in the proportions of the six largest sectors in total R&D investment. Regardless of region, between 65% and 80% of total R&D investment is accounted for by these six sectors.

R&D in the EU and in Japan is less concentrated and specialised by sector than in the US. The 391 EU and 237 Japanese companies have a considerably higher proportion of R&D

²⁶ The performance of the aggregate group of South Korean firms was negatively influenced by the reductions in R&D by LG Electronics and Hyundai Motor.

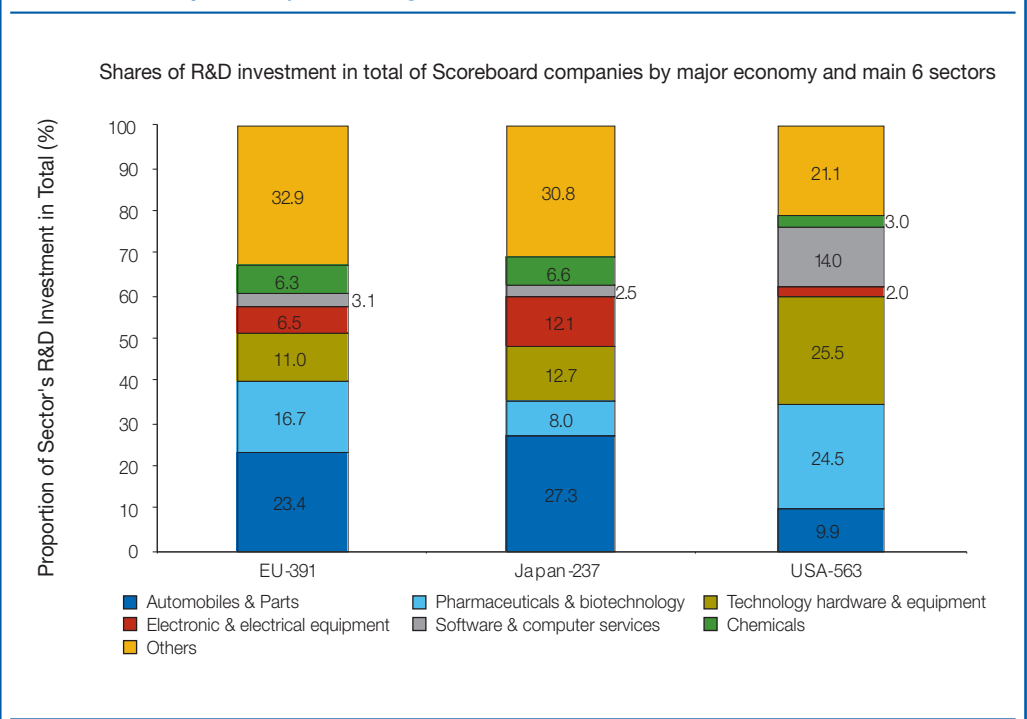
investment outside the six largest sectors (over 30%), compared to only 21% for the US companies.

The proportion of total R&D investment accounted for by the 3 most R&D-intensive sectors (pharmaceuticals & biotechnology, technology hardware & equipment and software & computer services) is 64% in the US group, but only 30% in the EU and 23% in Japan.

The share of US companies operating in software & computer services in total (14%) is almost five times higher than the equivalent share of EU firms (3.1%) and eight times the share in Japan (2.5%):

- This is partly explained by the US's having two giants operating in this market (Microsoft in software and IBM in computer services), unlike the situation in the EU and Japan, which each have only one big R&D investor (the software German company SAP and the Japanese computer services provider Fujitsu).
- However, the main difference is due to the large number of smaller US software companies and the boom in Internet services companies and developers, such as Google or Yahoo!.

Figure 3.3. Shares of main 6 sectors in total R&D investment by top 1391 Scoreboard companies by world region, in 2006/2007.



Source: *The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

Specialisation by sector in each of the regions changes slowly from one year to the next and gives a picture of the "strengths and weaknesses" of these economies.

Apart from the specialisations by sector already mentioned in the three main world economies, *Scoreboard* companies in the rest of the world also show specific areas of

strength. For example, not surprising Switzerland has a clear specialisation in pharmaceuticals & biotechnology, Asian companies (South Korea, Taiwan) specialise in electronics & electrical equipment, and also in technology hardware & equipment or software & computer services.

3.2.1. Analysis by group of sectors and main world region.

This section analyses the top 1391 *Scoreboard* companies by combining all the sectors into four broad groups of characteristic R&D intensity (like typical grouping from high to low tech):

- **Group 1:** High R&D intensity sectors (higher than 5%), pharmaceuticals & biotechnology, health-care equipment & services, technology hardware & equipment, software & computer services and leisure goods.
- **Group 2:** Medium-high R&D intensity (between 2% and 5%), automobiles & parts, aerospace & defence, electronics & electrical equipment, industrial engineering & machinery, chemicals, personal goods, household goods, general industrials, support services and travel & leisure.
- **Group 3:** Medium-low R&D intensity (between 1% and 2%), e.g. food producers, media, oil equipment, general retailers, tobacco, mobile and fixed line telecommunications.
- **Group 4:** Low R&D intensity (below 1%), e.g. oil & gas, industrial metals, banks, construction & materials, food & drug retailers, beverages, industrial transportation, mining, electricity and multi-utilities.

Table 3.5 shows the share of R&D and R&D intensity of the four groups for the three major economies. Some important observations can be made from this table:

- The EU *Scoreboard* companies have the lowest proportion of R&D investment in Group 1 but the highest proportion in Group 2. Despite having average R&D intensities higher than or comparable to the US companies in each set of firms grouped by average R&D intensity, the overall average R&D intensity of firms in the EU is lower, on aggregate. This is mainly due to the presence of big companies operating in non-R&D-intensive sectors (major oil & gas producers, such as Royal Dutch Shell, TOTAL, BP, or telecommunications operators, such as France Telecom, Deutsche Telekom, BT, Telefonica, Vodafone), which account for significantly higher shares of each region's aggregate net sales than their total R&D investment.
- The US *Scoreboard* firms invest over two thirds of their R&D in the highly R&D-intensive Group 1 and only 4% in the Medium-low and Low R&D-intensive Groups 3 and 4. The US has much lower proportion of R&D investment in Groups 3 and 4 than the EU and Japan. This is the main reason for the US *Scoreboard* companies to show, on aggregate, a much higher R&D intensity than the EU and Japan.
- Japanese *Scoreboard* companies concentrate their overall R&D investment in Group 1 and mainly in Group 2. They have a significantly higher R&D intensity than the US companies in Group 2, but this is more than offset by a much lower proportion of total R&D than the US companies in Group 1. The main weakness of the Japanese companies listed in the *Scoreboard* resides in the low proportion of companies operating in pharmaceuticals & biotechnology and software & computer services.

Table 3.5. Share of R&D and R&D intensity in four sector groups of top Scoreboard companies (2006/2007 financial year).

Main world region	Group 1	Group 2	Group 3	Group 4
	High R&D-intensity (> 5%)	Medium-high R&D-intensity (2%-5%)	Medium-low R&D-intensity (1%-2%)	Low R&D-intensity (< 1%)
EU-391				
Share, %	34	53	6	7
Intensity, % (2.7 [†])	11.6	4.1	1.3	0.4
Japan-237				
Share, %	39	52	4	5
Intensity, % (3.6 [†])	6.5	3.7	2	0.9
US-563				
Share, %	69	27	3	1
Intensity, % (4.5 [†])	11.7	2.9	1.7	0.3

Nota: [†] Overall R&D intensity of the group.

Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

3.2.2. Decomposition of the R&D intensity difference between world regions.

It is interesting to examine the reasons of the difference in R&D intensity between world regions or countries. This can be done by splitting the difference in R&D intensity into 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 applied²⁷.

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

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 sales) 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.

²⁷ See for example "Disentangling the R&D shortfall of the EU vis-à-vis the US" by Hugo Erken and Frank van Es; Jena Economic Research Papers, 2007. It is important to note that their calculations based on official statistics (BERD data) give different results. Further work comparing Scoreboard and BERD data is necessary to find out to what extent this can be attributed to methodological differences.

Table 3.6 shows the results of these calculations for the EU-US case. It indicates that most of the gap of R&D intensity between the EU and the US is due to differences in sectoral composition, more specifically, to the lower share of R&D-intensive sectors within the total EU set. This is in line with other findings discussed above.

Table 3.6. Breakdown of EU-US difference in R&D intensity into structural and intrinsic effects.

R&D intensity EU-US: Overall (%)	Structural effect (%)	Underinvestment effect (%)
-1.78	-1.57	-0.21

Source: *The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

3.3. The EU companies in the Scoreboard

This section looks at the groups of companies from different Member States, their shares of overall R&D investment in the EU and their distribution by sector of activity.

3.3.1. Shares of industrial R&D investment by EU countries

The number of Member States represented in this year's *Scoreboard* remains unchanged from the previous edition at 20. There are only 10 Member States which account for more than 1% of total *Scoreboard* EU R&D investment. 72% of the total in 2006/2007 is concentrated in a group of 3 countries (Germany, United Kingdom and France).

Table 3.7. Proportions of R&D and sales in total by EU Member State and number of companies, in 2006/2007.

EU Member State	Proportion of R&D in total	Proportion of sales in total	Average R&D intensity (%)	No of companies
Germany	33.6%	26.5%	2.98%	167
UK	19.4%	26.7%	1.71%	321
France	19.1%	19.4%	2.31%	114
Subtotal DE+UK+FR	72.1%	72.6%	2.33%	602
The Netherlands	7.5%	4.9%	3.62%	50
Sweden	6.0%	3.8%	3.75%	75
Finland	4.2%	3.1%	3.15%	67
Italy	4.1%	6.0%	1.60%	48
Denmark	2.0%	1.3%	3.73%	38
Belgium	1.8%	2.8%	1.51%	33
Spain	1.1%	3.3%	0.79%	23
Austria	0.5%	1.2%	0.84%	31
Ireland	0.38%	0.35%	2.55%	12
Luxembourg	0.18%	0.41%	1.04%	5
Hungary	0.08%	0.03%	7.12%	3
Slovenia	0.05%	0.02%	6.70%	2
Czech Republic	0.04%	0.16%	0.62%	4
Poland	0.02%	0.10%	0.54%	2
Greece	0.02%	0.02%	1.62%	3
Portugal	0.003%	0.002%	3.90%	1
Latvia	0.003%	0.001%	5.80%	1
TOTAL EU	100%	100%	2.35%	1,000

Source: *The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

There is also a concentration of net sales, with the *Scoreboard* companies from the three main R&D-investing countries accounting for a similar proportion of total net sales (72.6%).

As in last year's *Scoreboard*, the UK has the largest number of companies in the top 1000, although this has decreased slightly. German companies account for the largest proportion of total R&D investment, followed by UK and French firms, with similar shares.

Average R&D intensity for the country groups varies widely:

- Average R&D intensity ranges from 0.8% for Spain and Austria to 3.75% for Sweden and Denmark (only Member States accounting for more than 1% of the total have been analysed). Spain and Austria are represented in the *Scoreboard* by large firms operating in low R&D-intensity sectors, such as telecoms services (Telefonica) or oil & gas (Repsol, OMV), while Sweden and Denmark have quite a number of important players on world markets in R&D-intensive sectors (leisure goods, pharmaceuticals & biotechnology, technology hardware & equipment), such as Novo Nordisk, Novozymes, Eriksson, Biovitrum.

- The highest average R&D intensity is displayed by two new Member States, Hungary and Slovenia, due to the presence of firms operating in pharmaceuticals & biotechnology, although the number of firms is very small.

There are twelve companies from five new Member States (NMS) in the 2007 *Scoreboard*, the countries concerned are the Czech Republic (4), Slovenia (2), Poland (2), Latvia (1) and Hungary (3):

- These firms account for proportions of only 0.19% of total R&D investment and 0.3% of total net sales reported by the EU *Scoreboard* companies.
- However, the proportions of NMS in total R&D is higher than in the previous year, which means either a relative improvement in their performance or an improvement in disclosure and in company search procedures.
- The average R&D intensity is much lower for the NMS companies (1.48%) than for the companies in the EU-15.

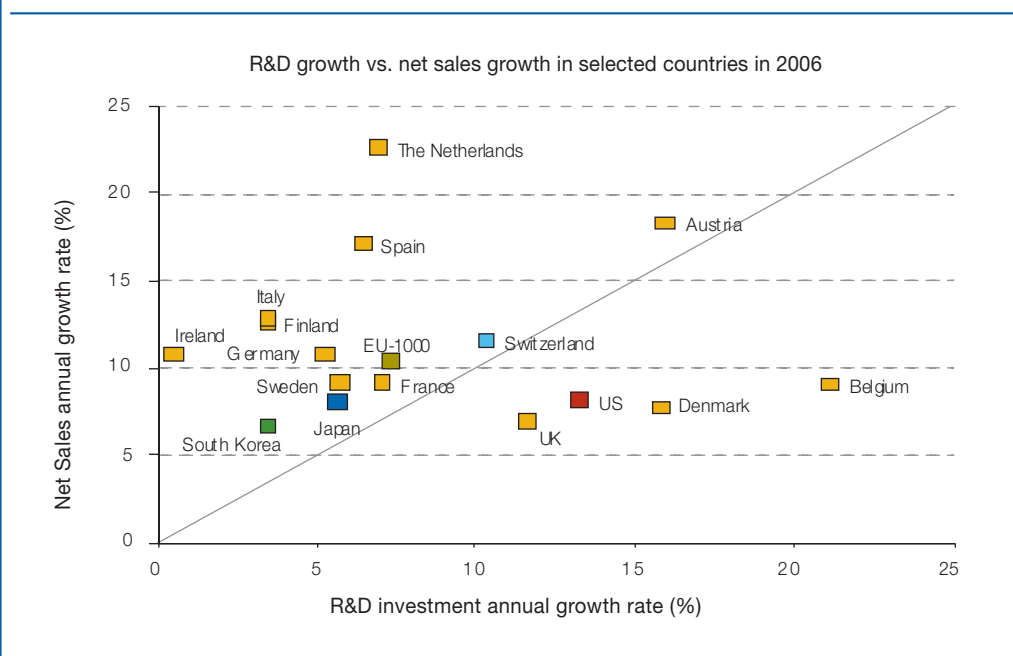
With only one exception (the Czech Republic), the average annual growth of both R&D and net sales by the country groups of EU *Scoreboard* firms was positive in 2006/2007.

3.3.2. Trends in R&D-related Indicators in EU member states

Once again, the performance of German firms shaped the overall results for EU *Scoreboard* companies. The number of German-based firms in the EU list remains unchanged from the previous year at 167.

Figure 3.4 plots the average annual growth rate of R&D investment against the average annual growth rate of net sales for the EU member states represented in the *Scoreboard*, as well as for the groups of companies from the US, Japan, Switzerland and South Korea (for comparison).

Figure 3.4. R&D growth vs. net sales growth in 2006/2007 for Scoreboard companies in EU member states and other countries.



*Note: Only EU Member States with more than 10 companies listed in the Scoreboard are shown.
Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

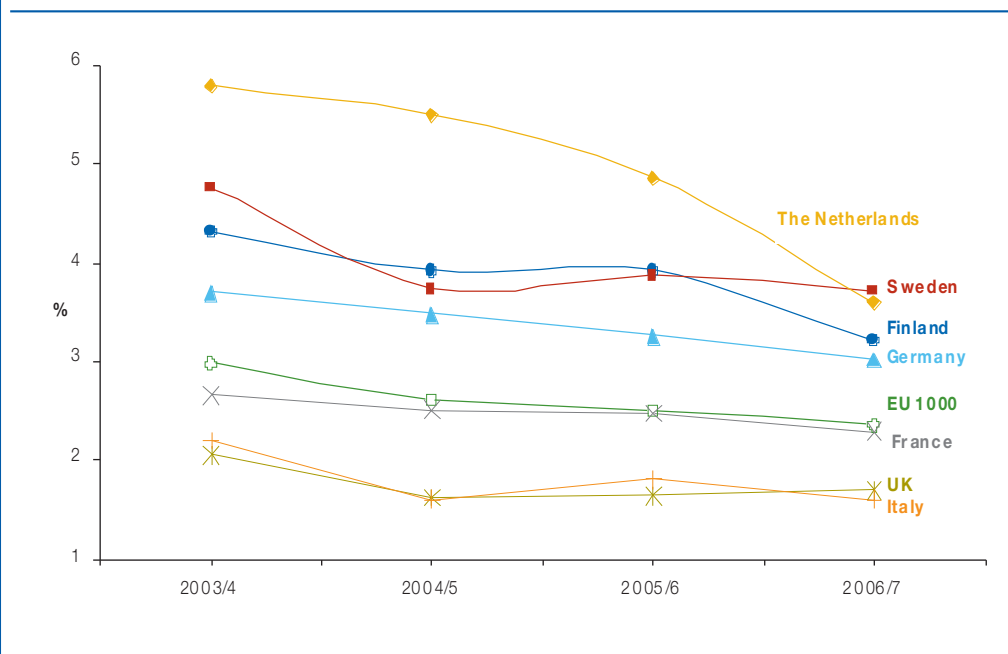
In Figure 3.4, R&D growth is higher than net sales growth only in the US, UK, Denmark and Belgium, all of them showing specialisation in pharmaceuticals & biotechnology and other R&D-intensive sectors (mainly IT).

Many EU Member States display very high R&D growth rates, some of them surpassing the US (13.3%), as is the case in Austria (15%), Denmark (16%) and Belgium (22%).

Net sales increased at even a higher rate in 2006/7 in many EU Member States. This growth was well above the US average in Germany, Spain, The Netherlands, Italy, Finland and Ireland and similar to the EU average (10.2%) in Denmark and the UK.

Figure 3.5 shows the trends in the R&D intensity of the EU and each member state accounting for more than 4% of total EU R&D investment. The EU average has declined steadily since 2002 as a result of higher growth rates in sales than in R&D at the aggregate EU level.

Figure 3.5. Trends of R&D intensity for EU Scoreboard companies over 2002-2006, in selected Member States (%).



Source: *The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

The Netherlands showed the most spectacular drop in R&D intensity. This is partly due to a group of companies, with registered office in this country, reporting big net sales and operations in non-R&D-intensive sectors, e.g. Mittal Steel – Arcelor. It is also due to the de-merger of NXP from Philips Electronics (not present in this year’s Scoreboard). Philips consequently saw a slight increase in sales but a sudden decline in R&D investment (a drop of 17%).

Another sharp decline in R&D intensity can be observed in the Finnish group. This is almost entirely due to the drop in Nokia’s R&D intensity, as the company had 20% growth in net sales in 2006/7, while its R&D grew by only 2.3%.

3.3.3. Specialisation of EU member states by Sector

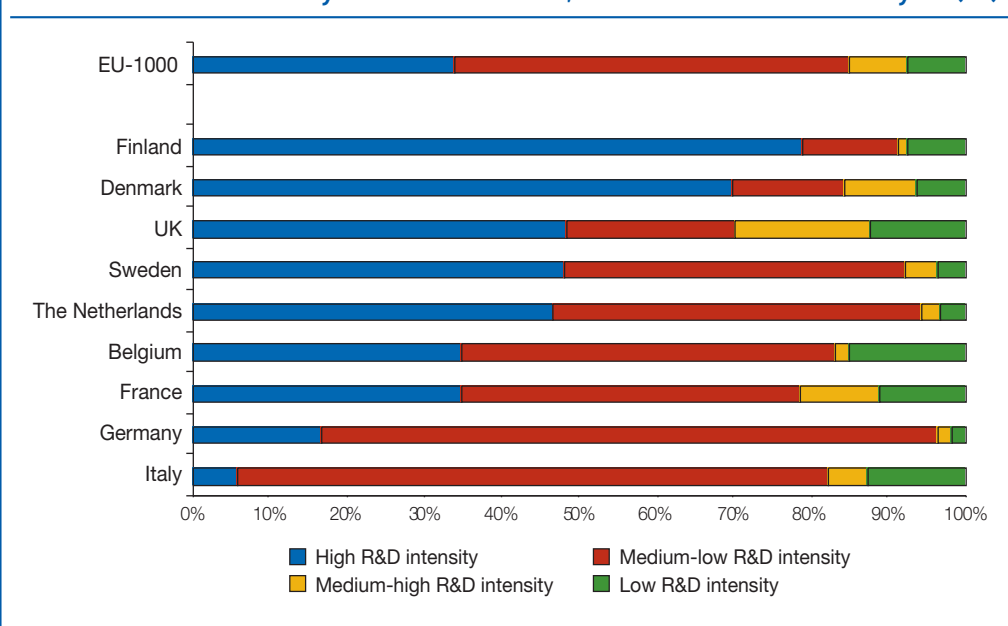
Many country groups of EU *Scoreboard* companies show at least one pronounced area of R&D investment specialisation²⁸ when compared to the overall EU pattern.

Figure 3.6 shows the distribution of R&D investment by sector groups as presented in section 3.2.1 in selected EU member states (those accounting for a larger share of the overall EU industrial R&D).

²⁸ For the purposes of the *Scoreboard*, a country is considered to have a pronounced specialisation in a sector when that sector’s share of total R&D investment by the group of companies based in the country concerned is much higher than the corresponding share calculated for the overall EU sample of 1,000 companies.

- France shows a sector mix very similar to the EU's average.
- Finland and Denmark show a sector mix closer to the US pattern. The R&D share of highly R&D-intensive sectors is 79% for Finnish companies and 70% for Danish firms. However, the Finnish case is an exception, as the sector mix is heavily influenced by Nokia, which accounts for 74% of R&D by Finnish-based firms.
- The UK shows a very low R&D intensity, despite having almost half of its R&D being in sector group 1 (high intensity). This is due to its large share in sector group 4 (very low intensity).

Figure 3.6. Proportion of total R&D investment of the EU Scoreboard companies accounted for by each Member State, in the 2006/2007 financial year (%).



Source: *The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.*

The latter finding is also valid in the case of French, Belgian and Italian companies, where the proportion of total R&D accounted for by companies operating in very low R&D-intensive sectors exceeds 10%. Often, there are large banks, telecoms operators and utilities providers in these countries that entered the *EU Scoreboard* list due to significant R&D expenditure. These firms add even larger volumes of net sales to the respective country's aggregate, thus lowering the average R&D intensity.

Looking at the sector level, several Member States show strong specialisation in one or two sectors of activity:

- German firms are specialised in automobiles & parts (this sector accounting for more than 40% of total German R&D);
- Finland has Nokia which contributes largely to its strength in technology hardware & equipment;
- UK and Denmark show specialisation in pharmaceuticals & biotechnology, as does Belgium, which is also strong in chemicals;
- Italian firms in automobiles & parts and aerospace & defence account for a big proportion of the country's total R&D.

Chapter 4 – R&D and firm performance

In the previous edition of the *Scoreboard* we outlined the link between R&D investment and corporate performance as one of the main future directions of our research agenda. This chapter addresses this fundamental issue. First, we propose a review of the literature on the economics of innovation at firm level. Second, we look for evidence of the benefits of R&D, in particular through an econometric analysis of the relationship between R&D and firms' productivity.

4.1. What we know about the role of R&D

The impact of R&D on business performance has been extensively addressed in the literature, although the findings presented are often controversial. Clearly, firms' success depends on many factors besides R&D investment, making it very difficult to disentangle the effects of R&D on firms' performance, whether measured as profits, sales, productivity or market shares.

Overall, most experts appear to back the view that R&D is beneficial for the functioning of firms and a considerable body of empirical evidence in this direction has accumulated (see Griliches, 1988, Romer, 1990, Geroski, Machin and Van Reenen, 1993, among many others). However, also other reports have questioned the role of R&D as a fundamental determinant for firm's economic performance (see Jaruzelski, Dehoff, and Bordia, 2005 and 2006). While the former argument prevails among mainstream economists, the latter has strong impact on the specialised media. It therefore remains relevant to review the state of the art in this field.

4.1.1. R&D and firm's performance

Although the most suitable measure with which to capture firms' performance is their productivity, the difficulty in obtaining complete datasets including information about value added has obliged us to use a proxy for firm productivity. Among others, sales and profitability have been used widely as an approximation to productivity in previous studies (see Griliches, 1985; Lööf and Heshmati, 2001, for the profitability case). All else being equal, in a given market, a company that has higher productivity will enjoy greater profitability. A more productive company can either produce the same output with fewer inputs and thus enjoy a cost advantage or produce more or better output with the same inputs and command a price premium. Over time, the higher profitability of more productive companies will attract competition, and profitability will tend to converge. Profitability is thus a transient reward for improvements in productivity.

Firms invest in R&D in order to enhance their competitiveness and their ability to make profits. The literature shows that the stochastic outcome of a firm's own investments in R&D, physical capital, human capital, marketing and the competitive pressure from other firms within or outside the industry determine its sales performance, profitability and growth (Ericson and Pakes, 1995). However, even in companies where R&D is a key competitive factor, it will be a necessary but not a sufficient condition, because success will also depend on excellence in other areas.

As many authors have pointed out, analysing the relationship between R&D and any measure of firm performance is not easy in practice since there are various complicating factors to be taken into account (Tubbs, 2007).

First, the relationship between R&D and company performance would be expected to vary substantially between sectors. Clear links with performance would be expected only in sectors where R&D is a major competitive factor (such as pharmaceuticals or software) and would not necessarily be expected in many sectors where R&D is much less significant than capital equipment (Capex), marketing or other input expenditures. Despite this, some of the literature reported that the R&D expenditure also appears to have a positive rate of return in less innovation intensive firms although, as might be expected, this is less than in innovating firms. For companies with a high R&D intensity, there will also be a point at which further increases in R&D yield diminishing returns, but this will depend on sector, size and other factors discussed below. Conversely, a company that under-invests in R&D relative to its main competitors in its sector will see a decline in the relative competitiveness of its products and services and this will soon be reflected in its business performance.

Second, firm performance differs between different size groups within and between sectors. Within a sector, R&D intensity is normally greater among smaller companies. The reason for this is that a smaller company is likely to have to invest a comparable amount in developing a new product but spread the investment over smaller total sales than would a much larger competitor with operations around the world. A growing small company may be also investing heavily in a completely new product family that is not yet contributing to sales. Cohen and Levin (1989), Cohen (1995) and Cohen and Klepper (1996) stressed the favourable position for innovation could have for large firms with a large market share. For example, market concentration allows the existence of monopolistic rents that enable firms within the industry to finance R&D projects. Moreover, the potential total impact of the results of an R&D project can be significantly greater in large firms, given larger sales volumes.

Third, the business cycle is a decisive factor in the relationship between firms' performance and R&D. The results of any comparison of R&D and business performance will depend on whether it is made during a recession, an upturn or averaged over both. For example, as Griliches (1989) argued, the decline in the mid 1970s and the subsequent rise of R&D productivity may reflect the variation of the rates of return over the business cycle. The cause of the slowing down of productivity growth was probably a downturn in aggregate demand following the oil shocks and the policy responses to them. In his work looking at Chilean firms, Benavente (2006) explained that almost two-thirds of the managers surveyed consider that demand-pull and technology-push factors have a strong to moderate effect on firms' propensity to innovate.

Fourth, changes in ownership and capital structure can influence business performance. Mergers and acquisitions can change business performance, for instance, by influencing sales growth unrelated to the acquiring company's R&D (or to the R&D intensity of the acquirer). Integration problems may also result in delays to new product launches. The majority of large acquisitions have been reported to be associated with reduced shareholder returns.

Finally, other factors can influence firm performance. Because R&D is only one factor determining business performance, it is important to check how other significant factors such as Capex or market breadth and marketing expenditure compare with the sector average and whether differences in business strategy, quality of management or operational effectiveness also contribute to observed differences in business performance.

4.1.2 R&D and Productivity

Firm productivity can be defined as the ratio of inputs to outputs – the value of what you put into a production process compared with what you get out. A production process has three main inputs: labour, capital (equipment and buildings), and purchased inputs (goods and services bought from other companies). The numerator of the productivity equation is value added (output minus the purchased inputs); the denominator, costs (capital costs plus labour). Labour productivity (value-added output per employee) and capital productivity (value added output per dollar of capital stock) can be examined separately. Labour productivity is highly relevant to high-tech sub-sectors, particularly software and services, because much of their productive capacity resides in people. One firm is more productive than another if it is able to produce the same outputs with fewer inputs or if it produces more outputs using the same inputs (labour, physical capital, knowledge). Similarly, a firm has experienced positive productivity growth if outputs have increased more than inputs or inputs have decreased more than outputs.

Analysing and quantifying the productivity effects of innovative activities has been one of the most challenging and controversial tasks in the economic literature as well as in policy analysis for several decades (see Griliches, 1967 and Mansfield, 1965 for some pioneer work). Lately, this research topic has been enforced by new theoretical underpinnings from endogenous growth theory showing that economic output is supposed to be positively correlated with the flow of new products including both radical and incremental innovations (see Nelson, 1982, Romer, 1990, Aghion and Howitt, 1992).

There is a well-established stream of literature analysing the impact of R&D activities on productivity (for surveys of the earlier literature, see Mohnen, 1990; Mairesse and Sassenou, 1991; Nadiri, 1993; Griliches 1991, 1995 and 2000; Mairesse and Mohnen, 2001). In spite of the wide variance in the measured elasticities²⁹ and rates of return³⁰, the results can be summarised in a preliminary way as follows: at firm level, the elasticities tend to lie around the 10% to 30% range whereas the rates of return are concentrated in the 20% to 40% range; at industry level, the elasticities are in the 8% to the 30% range whereas the rates of return are mostly in the 20% to 40% range (Nadiri, 1993).

Many of the studies examined the determinants of productivity at an aggregate country level, or by sector, although some research has found it more appropriate to take the firm as the unit of analysis (Wakelin, 2001). While there is a considerable body of literature on this topic, some authors point out that the studies are virtually impossible to compare because they differ in terms of the type of data used and some key dimensions such as the level of aggregation (firm, industry or country level), the econometric specification, the data source (time-series or cross-section), the measurement of R&D (stock or flows), and the measurement of productivity or the period of investigation (Griliches, 1991, Nadiri, 1993, van Pottelsberghe, 1998 and 2001). Despite the difficulties of comparing the findings of the various studies, some authors have highlighted that the structure of the processes underlying productivity growth could be better studied at lower levels of aggregation, with the firm level being the most appropriate (Griliches and Ringstad, 1971).

²⁹ The net elasticity of TFP with respect to the R&D is equal to the increase in TFP caused by an increase in R&D of 1%. Alternatively, it indicates the percentage increase in the TFP growth if the net rate of R&D increases by 1%.

³⁰ The rate of return is the ratio of money earned or lost on a past or current investment relative to the amount of money invested. The money invested may be referred to as the asset, capital, principal, or the cost basis of the investment.

A number of advantages in considering the relationship from the perspective of the firm are mentioned in the literature (Wakelin, 2001). First, by considering the firm, we can separate productivity improvements that occur as a result of individual firms' R&D efforts from technological improvements and advances that are general to the sector. Thus, we can attempt to pinpoint the contribution of the firm's own technological resources to its productivity growth. Second, a greater number of observations are generally available for firms than for sectors. One drawback of the firm approach, however, is the generally poor quality of the R&D data at firm level.

Most of these studies focus either on cross-country analyses³¹, one specific country³² or to one specific sector or industry, mainly dealing with high-tech sectors such as the pharmaceuticals or the ICTs sectors. In contrast, considerably less attention has been devoted to the aim of discerning whether the productivity returns from R&D vary between industrial sectors. Indeed, technological opportunities and appropriability conditions differ so much between sectors (see Freeman, 1982; Pavitt, 1984; Winter, 1984; Dosi, 1997; Malerba, 2004) that there may well be substantial differences in the specific sectoral R&D-productivity links.

For instance, Griliches and Mairesse (1982) and Cuneo and Mairesse (1983) performed two comparable studies using micro-level data and making a distinction between firms belonging to science-related sectors and firms belonging to other sectors. They found that the impact of R&D on productivity for scientific firms (elasticity equal to 0.20) was significantly larger compared to that on other firms (0.10).

In a more recent paper, Verspagen (1995) used OECD sectoral level data on value added, employment, capital expenditures and R&D investment in a standard production function framework. The author singled out three macro sectors: high-tech, medium-tech and low-tech, accordingly to the OECD classification (Hatzichronoglou, 1997). The major finding of the study was that the influence of R&D on firm output was significant and positive only in high-tech sectors, while for medium and low-tech sectors no significant effects could be found.

Wakelin (2001) applied a model in which firm productivity was explained by R&D expenditures, capital and labour using data on 170 UK quoted firms during the period 1988-1992. She found a positive and significant role of R&D expenditure in influencing firm productivity growth; moreover, manufacturing firms belonging to sectors defined as "net users of innovations" turned out to have a higher rate of return on R&D. The firms were grouped according to their innovative histories to reduce the considerable heterogeneity among firms. She only found a significant relationship between R&D and productivity among firms belonging to sectors that are net users of innovations.

Rincon and Vecchi (2003) found that R&D reporting firms had been more productive than their non-R&D reporting counterparts throughout the entire time period using micro data extracted from the Compustat database over the period 1991-2001. However, the positive impact of R&D expenditures turned out to be statistically significant both in manufacturing and services in the US, while only in manufacturing in the main three European countries (Germany, France and the UK). Their estimated significant elasticities ranged from 0.15 to 0.20.

³¹ See, for instance, the works by Mansfield, 1988; Griliches and Mairesse, 1990; Janz et al., 2004; van Leeuwen and Klomp, 2006; Griffith et al., 2006.

³² The works by Griliches 1980 or Los and Verspagen, 2000 for US; Nickell et al., 1992 or Wakelin, 2001, for UK; Hall and Mairesse, 1995 for France; are examples.

Finally, Tsai and Wang (2004) also applied a production function to a sample of 156 large firms quoted on the Taiwan Stock Exchange. Their estimates made use of a balanced panel over the seven-year period from 1994 to 2000. They found that R&D investment had a significant and positive impact on firm's productivity growth (with an elasticity of 0.18). When a distinction was made between high-tech and other firms, this impact was much greater among high-tech firms (0.3) than other firms (0.07).

4.2 Econometric analysis of R&D and firm productivity

Overall, the general and vast empirical evidence on the relationship between R&D and productivity underlines the positive and significant impact of R&D on productivity at the country, sector and firm level. In addition, the previous (rather scarce) studies including cross-section sectoral breakdowns seem to suggest a larger impact of R&D investments on firm productivity in the high-tech sectors than in the low-tech ones. We set out to test these hypotheses using a panel analysis applied to an unbalanced longitudinal database consisting of 532 top European R&D investors – with an average size of about 36,000 employees - over the six-year period 2000-2005. This unique database was built by merging the UK-DTI R&D Scoreboard data and the UK-DTI Value Added Scoreboard data. The UK Department of Trade and Industry (DTI) collects details and data on the larger European firms in terms of R&D investment and value added (VA); the two separate DTI datasets comprise information at the firm level broken down by country and sector³³. By merging the two databases, we obtained the necessary information to compute our dependent variable (labour productivity, defined as VA per employee), our main impact variable (R&D³⁴) and our additional variables (capital and labour).

As far as the sectoral classification is concerned, the original DTI datasets related firms to 39 industrial and service sectors, defined according to the Industry Classification Benchmark (ICB)³⁵. Being interested in singling out sectoral differences in the R&D/productivity relationship, we split our panel into three subgroups of comparable size: high-tech, medium-high-tech and other sectors (medium-low and low-tech sectors)³⁶. Ex ante, we endogenously grouped the sectors accordingly to their overall R&D intensity (R&D/VA), assuming thresholds of 5% and 15%³⁷. Ex post, we compared the outcome of our taxonomy with the OECD classification and we found a high degree of consistency at least as far as the comparable manufacturing sectors are concerned³⁸. The remaining service sectors were allocated accordingly.

³³ While comprising data from 14 European countries (Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Norway, Spain, Sweden, Switzerland, The Netherlands and UK), British firms are over-represented in the DTI databases.

³⁴ The measurement of R&D investment is subject to the accounting definitions for R&D. In particular, for UK companies, the applied definition is that contained in the Statement of Standard Accounting Practice (SSAP) 13: "Accounting for research and development". As far as non UK companies are concerned, the definition is that contained in the relevant International Accounting Standard (IAS) and corresponding to the R&D component of the accounting category 38: "Intangible assets". Both figures are based on the OECD "Frascati" manual definition of corporate R&D and therefore are fully comparable.

³⁵ The detailed ICB sectoral classification can be seen at: <http://www.icbenchmark.com>

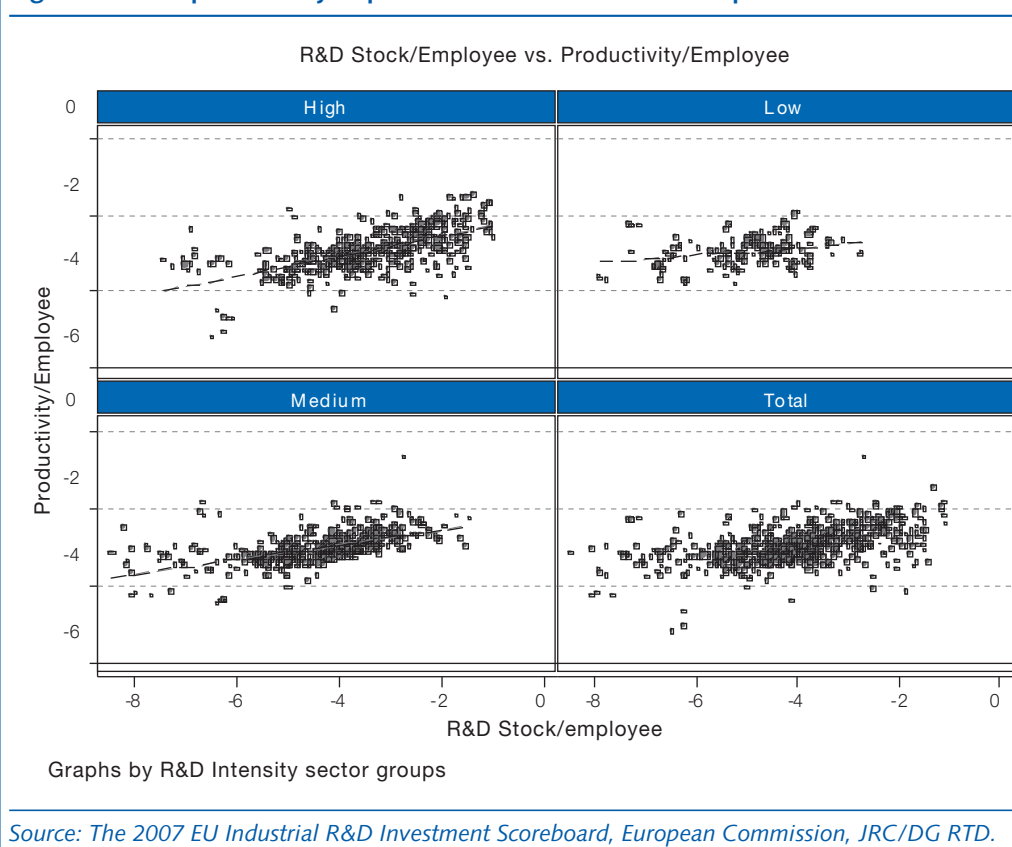
³⁶ Compared with the OECD classification, we grouped together low-tech and medium-low-tech sectors, in order to have enough observations in each of the sectoral groups.

³⁷ Note that these thresholds are significantly higher than those adopted by the OECD for the manufacturing sectors only (2% and 5%, see Hatzichronoglou 1997); this is the obvious consequence of dealing with the top European R&D investors.

³⁸ Only two sectors (automobiles and food) turned out to be up-graded; this is also a consequence of dealing with top R&D investors.

The econometric specification is described in detail in Annex 4.A. We obtained a productivity equation from a standard production function. The dependent variable is labour productivity (VA/E) and the regressors are the knowledge stock (cumulated R&D investments), the capital stock (C/E, cumulated investments in physical capital) and the controlling variables, namely an employment coefficient (E) controlling for scale effects, two-digit sectoral dummies and time dummies (see Figure 4.1).

Figure 4.1. The productivity impact of R&D investment: Descriptive evidence.



The empirical results are reported in detail in the Annex 4.A and summarised in Table 4.1.

As can be seen, in the whole sample the knowledge stock has a significant positive impact on firm's productivity with an overall elasticity of 0.12. This general result is consistent with the previous literature in terms of the sign, the significance and the estimated magnitude of the relevant coefficient. While this result does not fully dispel the concern about the absence of a link between R&D and the ultimate economic performance of a firm (since the latter is dependent on many other factors), it clearly suggests that R&D is a fundamental determinant of possible competitive advantages.

Table 4.1. Summary of the Econometric results; dependent variable: $\ln(VA/E)$

Model Specification	Whole Sample		High-tech		Medium-high		Low-tech	
	POLS	RE	POLS	RE	POLS	RE	POLS	RE
$\ln(K/E)$	0.12	0.12	0.18	0.16	0.14	0.15	0.05	0.07
$\ln(C/E)$	0.12	0.12	-0.01	0.01	0.13	0.14	0.23	0.21

Notes: POLS = Pooled Ordinary Least Squares; RE = Random Effects; all coefficients - rounded to two decimal places - are significant at the 99% level of confidence, apart from the ones underlined (not significant)

Source: The 2007 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG RTD.

Interestingly enough, the coefficient increases monotonically when we move from the low-tech to the medium-high and the high-tech sectors, ranging from a minimum of 0.05/0.07 to a maximum of 0.16/0.18. This outcome - highly significant and confirmed by both econometric methodologies adopted - is consistent with the previous empirical contributions discussed above and contrasts with the recent presumptions about a possible advantage of low-tech sectors in getting efficiency gains from R&D investments (see Marsili, 2001; Von Tunzelmann and Acha, 2005; Mairesse and Mohnen 2005).

Physical capital also increases firms' productivity, with an overall elasticity which turns out to be very similar to the R&D one; yet, this effect is concentrated in low-tech and medium-high-tech sectors, while not significant in the high-tech ones. This evidence seems to suggest that the "embodied technological change"³⁹ is crucial in all sectors but the high-tech ones, where technological progress is mainly introduced through R&D investments and new products rather than new processes.

Methodological Notes for Chapter 4

The econometric analysis discussed in Section 4.3 was based on the following specification, which may be obtained from a standard production function (see Griliches, 1986; Lichtenberg and Siegel, 1989; Hall and Mairesse, 1995; Verspagen, 1995).

$$\ln(VA/E) = \alpha + \beta \ln(K/E) + \gamma \ln(C/E) + \lambda \ln(E) + \eta_i + v_{i,t} \quad (1)$$

with: $i = 1 \dots 532$; $t = 2000 \dots 2005$

where η_i is the idiosyncratic individual effect and $v_{i,t}$ the usual error term. All the variables are taken in natural logarithms and have been deflated according to the different national GDP deflators provided by EUROSTAT. In the estimates, time and two-digit sector dummies have been implemented in order to take into account both common macroeconomic effects and sectoral peculiarities. Both time and sectoral dummies turned out to be significant both in the aggregate and in the three sectoral estimates.

Consistent with the available data, our proxy for firm's productivity is labour productivity, our impact variable of main interest is the knowledge capital (K) per employee, while our second impact variable is capital expenditure (C) per employee. Taking per capita values makes it

³⁹ The embodied nature of technological progress and the effects related to its spread in the economy were originally discussed by Salter (1960); in particular, vintage capital models describe an endogenous process of innovation in which the replacement of old equipment is the main way through which firms update their own technologies (see Freeman, Clark and Soete, 1982; Freeman and Soete, 1987).

possible both to standardise our data and to eliminate firms' size effects (see, for example, Crépon, Duguet and Mairesse, 1998, p.123). Total employment (E) is a control variable and is a measure of the scale elasticity (if larger than zero, it indicates increasing returns).

As is common in this type of analysis (see Hulten, 1991; Jorgenson, 1990; Hall and Mairesse, 1995; Bönte, 2003; Parisi, Schiantarelli and Sembenelli, 2006), stock indicators (rather than flows) have been inserted as impact variables; indeed, firms' productivity is affected by the cumulated stocks of capital and R&D expenditures and not only by their current or lagged flows. In this framework, knowledge and physical capital stocks have been computed using the *perpetual inventory method* based on the following formulas:

$$K_{t0} = \frac{R \& D_{t0}}{(g_{s,c} + \delta_g)} \quad \text{with: } s = 1, \dots, 28 \quad c = 1, \dots, 14 \quad g = 1, 2, 3 \quad t_0 = 2000 \quad (2)$$

$$K_t = K_{t-1} \cdot (1 - \delta_g) + R \& D_t \quad \text{with: } t = 2000, \dots, 2005 \quad (3)$$

where $R\&D$ = R&D expenditures and:

$$C_{t0} = \frac{I_{t0}}{(g_{s,c} + \delta_g)} \quad (4)$$

$$C_t = C_{t-1} \cdot (1 - \delta_g) + I_t \quad (5)$$

where: I = gross investment (capital expenditures)

As far as the growth rates (g) for K and C are concerned, we used the OECD ANBERD and the OECD STAN databases respectively. In particular, we computed the compounded average rates of change of real R&D expenditures and fixed capital expenditures in the relevant sectors (s) and countries (c) over the period 1990-1999 (the ten-year period preceding, the period investigated in this study).

As far as the depreciation rates (δ_g) for K and C are concerned, we made the choice to apply different δ_g to each of our three sectoral groups (g). In fact, more technologically advanced sectors are characterised (on average) by shorter product life cycles and by accelerated technological progress that makes the obsolescence of the current knowledge and physical capital more rapid. Accordingly, we applied sectoral depreciation rates of 20%, 15% and 12% to knowledge capital and 8%, 6% and 4% to physical capital (respectively for the high-tech, medium-high-tech and medium-low/low-tech sectors). The resulting weighted averages are 15.6% for the R&D stock and 6.0% for the capital stock respectively; indeed, these values are very close or identical to the 15% and the 6% commonly used in the literature (see Musgrave 1986; Bischoff and Kokkelenberg, 1987; and Nadiri and Prucha, 1996 for physical capital; Pakes and Schankerman, 1986; Hall and Mairesse, 1995 and Hall, 2007 for knowledge capital).

Specification (1) has been tested through pooled ordinary least squares (POLS) and random effects (RE) models. We chose a random rather than a fixed effects specification for various reasons. A number of reasons prevented us from using the fixed effect model. First, the nature of our unbalanced short panel (six years with a firm's average of 3.4 observations available) severely affects the within-firm variability component of our data. Second, consistent with the previous observation, the within-firm component of the variability of the dependent variable turns out to be overwhelmed by the between-firms component (the standard deviations being 0.15 and 0.58 respectively). Third, the Hausman test confronting the random and the fixed effects models for the whole sample clearly supports the former

($t=4.65$, p -value=0.79). Fourth, in the fixed effects model the estimation of the coefficient of any time-invariant regressor – such as an indicator of sectoral belonging – is not possible as it is absorbed into the individual-specific effect; this is particularly unfortunate in our case, where the two-digit sectoral dummies always come out to be both jointly significant (see the correspondent Wald tests in Table 5.A.1) and singularly significant in the vast majority of cases (for instance, in 25 cases out of 27 sectoral dummies for the whole sample).

As expected, all the estimated specifications have turned out to be affected by heteroskedasticity (White, 1980); hence, robust standard errors have been used. In particular, in the following regressions we have used the Eicker/Huber/White sandwich estimator (see Wooldridge, 2002 and Arellano, 2003 for a detailed analysis about the application of this robust estimator to the random effects methodology).

Diagnosis tests reveal the satisfactory fitness of the chosen models and the convenience of including both the time and sectoral sets of dummies. Further information about the data used, the econometric methodology and the robustness checks can be found in Potters, Ortega-Argilès and Vivarelli (2008).

Table 4.A.1. Econometric estimates; dependent variable: $\ln(\text{VA}/E)$

Model Specification	Whole Sample		High-tech		Medium-high		Low-tech	
	POLS	RE	POLS	RE	POLS	RE	POLS	RE
$\ln(K/E)$	0.123 (0.014)	0.125 (0.015)	0.18 (0.018)	0.16 (0.029)	0.138 -(0.012)	0.146 (0.026)	0.048 (0.014)	0.068 (0.021)
$\ln(C/E)$	0.122 (0.013)	0.117 (0.018)	-0.011 (0.019)	0.014 (0.025)	0.133 (0.018)	0.137 (0.029)	0.23 (0.02)	0.21 (0.031)
$\ln(E)$	-0.063 (0.007)	-0.092 (0.013)	-0.036 (0.01)	-0.074 (0.019)	-0.061 (0.012)	-0.072 (0.022)	-0.084 (0.014)	-0.113 (0.022)
Constant	-0.189 (0.183)	0.096 (0.22)	-1.863 (0.149)	-1.571 (0.221)	-1.412 (0.149)	-1.231 (0.309)	-0.598 (0.188)	-1.443 (0.252)
Wald time-dummies joint significance test (p-value)	8.8 (0.000)	95.28 (0.000)	3.3 (0.006)	29.53 (0.000)	3.66 (0.003)	32.22 (0.000)	7.17 (0.000)	58.15 (0.000)
Wald sector-dummies joint significance test (p-value)	46.62 (0.000)	368.21 (0.000)	38.07 (0.000)	54.76 (0.000)	14.89 (0.000)	19.49 (0.003)	45.51 (0.000)	186.66 (0.000)
White heterosk. test (p-value)	671.84 (0.000)		188.43 (0.000)		246.47 (0.000)		245.16 (0.000)	
R-squared (overall)	0.649	0.639	0.55	0.532	0.484	0.478	0.784	0.773
R-squared (within)		0.245		0.19		0.283		0.334
R-squared (between)		0.652		0.54		0.46		0.772
F(k-1, N-(k-1)) (p-value)	83.73 (0.000)		46.61 (0.000)		36.51 (0.000)		86.03 (0.000)	
Wald chi2(k-1) (p-value)		972.14 (0.000)		673.05 (0.000)		185.74 (0.000)		616.2 (0.000)
observations	1787		600		671		516	
firms	532		170		196		166	

Notes: robust standard errors in brackets; all coefficients are significant at the 99% level of confidence apart from the ones underlined (not significant).

References for Chapter 4

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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 Plan⁴⁰, 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 office⁴¹. This should be borne in mind when interpreting the *Scoreboard*'s country classifications and analyses. The *Scoreboard*'s approach is, therefore, fundamentally different⁴² 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 policy-makers), 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 2000 companies listed in this year's *Scoreboard* account for about 80%⁴³ 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.

⁴⁰ "Investing in research: an action plan for Europe", COM(2003)266, http://europa.eu.int/eur-lex/en/com/cnc/2003/com2003_0226en02.pdf.

⁴¹ The registered office is the company address notified to the official company registry. It is normally the place where a company's books are kept.

⁴² The *Scoreboard* refers to all R&D financed by a company from its own funds, regardless of where the R&D 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. The sources of data also differ: the *Scoreboard* collects data from audited financial accounts and reports whereas 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 R&D in value added, while the *Scoreboard* considers the R&D/Sales ratio) and the sectoral classification (BERD uses NACE (the European statistical classification of economic sectors), while the *Scoreboard* uses the ICB (the International Classification Benchmark)).

⁴³ According to latest Eurostat statistics. However BERD and *Scoreboard* figures are not directly comparable.

- **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 2007 EU Industrial R&D Investment Scoreboard (*Scoreboard*) has been prepared on the basis of information gathered according to the standards set out below.

A. SCOPE OF THE EU INDUSTRIAL R&D INVESTMENT SCOREBOARD

The *Scoreboard* has been prepared from companies' **annual reports and accounts** received by an independent data provider up to and including **1 August 2007**. To prepare the *Scoreboard*, a database of 5479 companies' accounts was screened.

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, such as Airbus (France), Ford (UK) or IBM (Germany) are not listed separately. Where consolidated group accounts of the ultimate parent company are not available, subsidiaries are included, e.g. Sorin (Italy) or Cognis Deutschland (Germany).

For some companies whose accounts are expected close to the cut-off date, **preliminary announcements** are used. Examples are Microsoft (USA), Renishaw (UK), or Misys (UK).

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, e.g. Freescale Semiconductor (USA) or TRW Automotive (USA).

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, e.g. Sanofi-Aventis during 2005.

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.

The **first time adoption of IFRS**⁴⁴, for example by many listed European companies, gives rise to an information discontinuity because R&D is treated differently than before. R&D capitalisation criteria under IFRS are stricter and, where the criteria are met, the amounts must be capitalised. In some pre-IFRS jurisdictions either one or both of these conditions did not apply. The following was implemented to minimise the impact of transition to IFRS:

- a) The previous year's figures disclosed in the new IFRS accounts have been used in place of the previous year's GAAP figures disclosed in the past annual report. The effect is that the discontinuity moves back by one year so that it impacts on the three year growth statistic but not the one year growth statistic.
- b) In most cases, comparative figures are not disclosed, so the previous years' GAAP figures disclosed in the past annual report were examined to assess whether or not there appears to be a material component not disclosed. If the non disclosure appeared to be not material it was assumed to be zero and the R&D spend was calculated. If the

⁴⁴ Since 2005, the European Union requires all listed companies in the EU to prepare their consolidated financial statements according to IFRS (International Financial Reporting Standards, see: <http://www.iasb.org/>).

non disclosure appeared to be material, the R&D spend was treated as unknown and the result is reported as “not available (n/a)”. Companies with “n/a” results are excluded from the aggregate growth statistics.

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. Examples are EADS (the Netherlands), AstraZeneca (UK) or Royal Dutch Shell (UK).

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 (BERD follows NACE (the European statistical classification of economic sectors), while the *Scoreboard* classifies companies’ economic activities according to the ICB classification).

Sources

The database from which the *Scoreboard* is drawn consists of information extracted from the audited annual reports and accounts of companies, using rigorous financial reporting practice verification processes.

The companies are those which are identified as having an R&D activity and which either have their accounts publicly available for free (e.g. on the internet or upon request) or at low cost (e.g. at the company registry).

The market capitalisation data have been extracted from both the Financial Times London Share Service and Reuters. These reflect the market capitalisation of each company at the close of trading on 24 August 2007.

The source documents, annual reports & accounts, are public domain documents and so the *Scoreboard* is capable of independent replication.

The database is supplemented by a feed service from Standard & Poor’s Compustat Global Vantage database to identify potential new entrants to the ranking. The Amadeus and the Experian databases have been used and recognised stock exchanges are monitored also.

The database contains many times more companies than are listed in the *Scoreboard* to ensure that the top companies by R&D investment can be identified in each case.

The industry sectors are based on the ICB Industry Classification System.

The scoreboard data have been compiled by Company Reporting Ltd and the following sub-contracting collaborating partners: Inno Group (Germany), SPI Sociedade Portuguesa de Inovacao (Portugal), Austrian Institute for SME Research (Austria), West Hungarian

Research Institute (Hungary), Slovakian National Agency for SME Development (Slovakia), Thomaz Puh (Slovenia), Entrepreneurship and Economic Development Research Institute EEDRI (Poland), Etlatiето (Research Institute of Finnish Economy, Finland), Stifterverband Wissenschaftsstatistik (Germany), PWC (Belgium).

In 2007 Company Reporting has continued a partnership with European organisations to expand the monitoring process in all EU economies. These external sources are used only to identify potential new entrants.

Limitations

The approach used in preparing the *Scoreboard* has the following limitations:

1. Disclosure

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*. There are few companies which disclose a significant R&D investment only as a percentage figure (often to only one significant figure), e.g. Rhoen-Klinikum, Germany. These companies 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.

Further, the facilities and possibility to acquire accounts differ considerably from country to country because the organisation of document registration varies between local and central registries as well as the information that can be obtained and the cost to acquire this data.

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.

For **highly diversified companies**, the R&D investment disclosed in their accounts relates only to part of their activities, whereas sales, profit before tax and market capitalisation 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 their 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.

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. Microsoft (USA), for example, is known to include translation expenses in its R&D expenditure.

But as these have not been disclosed separately they are part of the R&D investment shown in the *Scoreboard*.

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 practice 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.

As a result of these disclosure limitations, the *Scoreboard* **cannot set out to capture systematically all companies with R&D activity**. There is evidence to suggest that the distribution of R&D activity is highly skewed towards larger companies, with a “long tail” of smaller companies.

2. Measurement

In implementing the definition of R&D, companies exhibit **variability** arising from three principal sources:

- a) Natural variability arises from differing interpretations of the 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.
- b) Data capture variability arises from differing information systems. Some companies have better systems in place than others for measuring the costs associated with R&D processes. This problem of data capture systems appears challenging for companies in the EU Member States.
- c) Fiscal variability arises from fiscal incentives based on the treatment of costs.

Measurement variability therefore has an impact on the extent of R&D investment disclosure.

3. Timing

The accounts of the companies included in the current year set are their **latest published accounts** and are intended to be their fiscal year 2006 accounts. Companies from most countries have discretion in the choice of accounting period end.

As a result, the current year set of the 2007 *Scoreboard* can include accounts ending on a range of dates from mid 2006 to early 2007. Furthermore, the accounts of some companies are publicly available more promptly than others.

Therefore, the current year set represents a heterogeneous set of timed data.

4. Availability

The accounts of companies which are **not listed** on any recognised stock exchange are significantly more difficult to capture. There is considerable variability between countries

in relation to the existence of and, where they exist, the administrative procedures and costs associated with capturing accounts. This results in the smaller private companies from the “long tail” being under represented; and this is the case with a smaller number of significant private enterprises, such as Servier (France).

Interpretation

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

1. Funding vs. activity

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 information in the *Scoreboard* differs therefore from other information such as the Business Enterprise R&D (BERD) data generated by the OECD, Eurostat and by National Statistics Offices.

The BERD data focus on R&D activity within the countries, independent of the source of funding and, at the national level, exclude R&D carried out by companies in other countries. In brief, the distinction can be seen as “funding vs. activity”.

2. Growth

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).

These are therefore “successful efforts” aggregates rather than economic estimates of market aggregates.

3. Currency effects

All foreign currency amounts have been translated at the Euro exchange rates ruling at 31 December 2006 as shown in the following table:

Country	Euro exchange rate as of 31 Dec 2006
Australia	\$ 1.67
Canada	\$ 1.53
China	10.29 Renminbi
Czech Republic	27.53 Koruna
Denmark	7.45 Danish Kronor
Hungary	251.40 Forint
India	58.36 Indian Rupee
Israel	5.56 Shekel

Country	Euro exchange rate as of 31 Dec 2006
Japan	157.12 Yen
Norway	8.21 Norwegian Kronor
Russia	34.71 Rouble
South Korea	1226.35 Won
Sweden	9.02 Swedish Kronor
Switzerland	1.61 Swiss Franc
UK	£ 0.67
USA	\$ 1.32
Taiwan	\$ 42.97

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.

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. 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) and 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: $1 \text{ yr growth} = 100 * ((C/B) - 1)$; 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: $3 \text{ yr growth} = 100 * (((C/B)^{(1/t)} - 1)$; 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. **Fixed capital intensity** refers to the ratio of company's fixed capital investment to its net sales.
9. **Profitability** is calculated as the ratio of company's operating profits to net sales.
10. **CAGR** (compound annual growth rate) expressed as a percentage = $100 * (((C/B)^{(1/t)} - 1)$; where C is the current year amount, B the base year amount and t the number of time periods. The calculation of an aggregate CAGR includes only companies for which data exist for the current and base years.
11. Number of **employees** is the total consolidated average employees or year end employees if average not stated.
12. **R&D per employee** is the simple ratio of R&D investment over employees. At the aggregate level, R&D per employee and the other non-growth statistics are calculated only by aggregating those companies for which data exist for both the numerator and the denominator.
13. **R&D employees** is the number of employees engaged in R&D activities as stated in the annual report.
- 14 **Market capitalisation** is the share price multiplied by the number of shares issued at a given date. Market capitalisation data have been extracted from both the Financial Times London Share Service and Reuters. These reflect the market capitalisation of each company at the close of trading on 24 August 2007. The gross market capitalisation amount is used to take account of those companies for which not all the equity is avail-

able on the market. Companies not listed on a recognised stock exchange have been distinguished separately by the use of italics.

- 15. Market Spread** details sales by destination, distinguishing between Europe, North America (USA and Canada) and the Rest of the World. The definition of Europe is subject to the definitions adopted by the individual companies. In cases in which companies have defined a market spread area as EMEA (Europe, Middle East, Africa), this has been allocated to Europe. When a company has not clearly disclosed the turnover region North America but Americas, this has been allocated to North America.
- 16. Industry sectors** in are based on the ICB Industry Classification System. The level of dis-aggregation is generally the three-digit level unless indicated otherwise. Where NACE sectors are provided, this is meant as an indication between the ICB class and the most closely corresponding NACE class.

List of EU1000 and non-EU1000 companies

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

The full dataset of the 2007 EU industrial R&D investment Scoreboard is freely available in the JRC/IPTS website (<http://iri.jrc.es/>).

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
- Market capitalisation
- Total number of employees

Notes on individual companies

!! Company data "normalised" to reflect a 12 months period.

Company that did not publish consolidated accounts in 2006/7, e.g. Amadeus Global Travel (now Amadeus IT). In this case, according to the methodology, the latest accounts are included.

Tabla 3.1. R&D ranking of the top 1000 EU companies

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change	change	change	2006	change	change	change
				€m	06/05	05/04	04/03	€m	06/05	05/04	04/03
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
1	DaimlerChrysler	Automobiles & parts (335)	Germany	5 234.00	-7.3	-0.2	1.6	152 809	2.0	5.4	4.1
2	GlaxoSmithKline	Pharmaceuticals (4577)	UK	5 130.88	10.2	8.0	4.0	34 471	7.2	8.4	-6.8
3	Siemens	Electrical components & equipment (2733)	Germany	5 024.00	-2.5	1.8	-8.1	87 325	15.7	0.4	1.3
4	Sanofi-Aventis	Pharmaceuticals (4577)	France	4 404.00	8.9	69.3	81.5	28 373	3.9	83.7	84.8
5	Volkswagen	Automobiles & parts (335)	Germany	4 240.00	4.0	-2.1	0.6	105 466	10.7	7.1	0.6
6	Nokia	Telecommunications equipment (9578)	Finland	3 712.00	2.3	-5.3	-3.6	41 121	20.3	16.8	-0.6
7	Robert Bosch	Automobiles & parts (335)	Germany	3 398.00	15.9	12.6	-1.8	43 684	4.0	5.1	10.0
8	BMW	Automobiles & parts (335)	Germany	3 208.00	3.0	10.5	10.1	48 999	5.0	5.2	6.8
9	Ericsson	Telecommunications equipment (9578)	Sweden	2 976.09	4.8	4.3	-16.2	19 702	17.1	15.0	12.1
10	AstraZeneca	Pharmaceuticals (4577)	UK	2 959.00	15.5	-4.2	2.2	20 077	10.5	11.8	13.7
11	EADS	Aerospace & defence (271)	The Netherlands	2 869.00	21.2	3.1	4.7	39 434	15.3	7.7	5.4
12	Bayer	Chemicals (135)	Germany	2 457.00	30.3	-21.5	-0.4	31 801	16.1	-8.0	4.2
13	Renault	Automobiles & parts (335)	France	2 400.00	6.0	15.5	12.9	40 543	0.3	0.3	7.4
14	Peugeot (PSA)	Automobiles & parts (335)	France	2 175.00	1.1	-1.5	4.1	56 594	0.6	0.3	3.4
15	Alcatel-Lucent	Telecommunications equipment (9578)	France	1 988.00	10.9	34.1	-16.1	14 381	9.5	2.5	2.4
16	Philips Electronics	Leisure goods (374)	The Netherlands	1 948.00	-16.6	0.5	-11.1	30 851	1.5	0.3	4.4
17	Finmeccanica	Aerospace & defence (271)	Italy	1 869.00	7.0	28.4	10.8	11 624	4.1	20.8	23.3
18	BAE Systems	Aerospace & defence (271)	UK	1 852.28	-13.9	30.5	1.0	18 305	11.9	20.0	9.5
19	BT	Fixed line telecommunications (653)	UK	1 660.82	53.9	39.3	56.3	30 015	3.6	5.9	-0.5
20	Boehringer Ingelheim	Pharmaceuticals (4577)	Germany	1 574.00	15.7	10.4	4.8	10 574	10.9	16.9	10.5
21	BASF	Chemicals (135)	Germany	1 301.30	19.8	19.6	-17.8	52 610	23.1	13.9	12.5
22	SAP	Software (9537)	Germany	1 298.12	19.2	6.7	2.4	9 402	10.5	13.3	7.0
23	Volvo	Commercial vehicles & trucks (2753)	Sweden	1 249.06	6.7	38.7	-3.0	28 684	7.6	14.0	15.2
24	STMicroelectronics	Semiconductors (9576)	The Netherlands	1 223.18	3.8	7.3	24.6	7 460	10.8	1.4	21.0
25	Fiat	Automobiles & parts (335)	Italy	1 184.00	-10.2			50 935	11.2		
26	Infineon Technologies	Semiconductors (9576)	Germany	1 182.00	-4.9	8.6	5.7	7 929	17.3	-6.1	17.0
27	Unilever	Food producers (357)	UK	906.00	-4.9	-3.8	-6.9	40 675	2.5	1.4	-8.4
28	AKZO Nobel	Chemicals (135)	The Netherlands	886.00	5.9	3.0	-8.9	13 737	5.7	1.3	-1.7
29	France Telecom	Fixed line telecommunications (653)	France	856.00	19.6	19.9	24.9	52 524	7.1	6.2	0.1
30	Novo Nordisk	Pharmaceuticals (4577)	Denmark	847.26	24.2	16.8	3.8	5 197	14.7	16.3	9.4
31	Valeo	Automobiles & parts (335)	France	789.00	1.3	11.3	24.1	9 970	0.4	7.6	-0.1
32	Merck	Pharmaceuticals (4577)	Germany	731.50	2.6	19.0	-0.9	6 259	6.6	0.2	-18.6
33	Continental	Automobiles & parts (335)	Germany	677.80	14.8	13.1	4.8	14 887	7.6	9.8	9.2
34	Royal Dutch Shell	Oil & gas producers (53)	UK	671.12	50.5	6.3	-5.3	241 789	3.9	15.1	32.1
35	UCB	Pharmaceuticals (4577)	Belgium	615.00	20.4	41.6	33.7	2 523	-0.4	-22.5	10.2
36	Rolls-Royce	Aerospace & defence (271)	UK	610.01	16.8	13.5	10.3	10 621	8.4	11.0	5.4
37	ZF	Automobiles & parts (335)	Germany	610.00	9.1	6.7	0.0	11 659	7.6	7.9	12.4
38	Schneider	Electrical components & equipment (2733)	France	595.00	9.8	1.3	8.3	13 730	17.6	12.9	17.9
39	Michelin	Automobiles & parts (335)	France	591.00	4.6	-1.9	-18.9	16 384	5.1	3.6	-2.1
40	Telefonica	Fixed line telecommunications (653)	Spain	588.00	8.1	525.9	-80.2	53 171	40.4	24.8	6.9
41	Solvay	Chemicals (135)	Belgium	574.00	20.3	11.7	1.7	9 401	3.8	14.9	4.2
42	TOTAL	Oil & gas producers (53)	France	569.00	-15.8	6.5	-4.8	134 186	9.4	22.0	-4.0
43	Royal Bank of Scotland	Banks (835)	UK	566.96	16.1	8.6		41 561	8.1	10.7	21.6
44	L'Oreal	Personal goods (376)	France	532.50	7.3	6.3	-2.8	15 790	8.6	6.5	-2.8
45	Thales	Aerospace & defence (271)	France	517.00	2.7	45.4	-9.0	10 264	0.0	-0.2	-2.7
46	Lagardere	Media (555)	France	499.00	31.7	9.2	5.2	13 999	7.6	5.8	-1.3
47	ALTANA	Pharmaceuticals (4577)	Germany	494.68	6.4	4.5	8.1	3 867	18.2	10.4	8.3
48	Deutsche Telekom	Fixed line telecommunications (653)	Germany	487.00	12.5	-0.2	-51.8	61 347	2.9	3.9	2.7
49	AREVA	Electricity (753)	France	467.00	14.5	24.8	14.7	10 863	7.3	3.1	19.0
50	Porsche	Automobiles & parts (335)	Germany	448.50	26.9	644.3		7 273	10.6	6.9	10.1

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
51	HSBC	Banks (835)	UK	446.66	40.2	33.8		53 136	13.6	10.2	36.3
52	SAFRAN	Aerospace & defence (271)	France	445.00	-5.3	1 242.9	-94.4	10 841	24.7	143.7	-44.5
53	ALSTOM	Electrical components & equipment (2733)	France	440.00	26.1	32.7	-44.4	14 625	5.6	2.4	-18.9
54	Electricite de France	Electricity (753)	France	389.00	-3.2	-5.4	11.5	58 932	15.4	9.1	4.2
55	ASML	Semiconductors (9576)	The Netherlands	383.98	16.7	-1.4	16.4	3 597	42.2	2.6	59.8
56	Saint-Gobain	Construction & materials (235)	France	373.00	12.7	6.1	2.0	41 596	18.5	9.1	8.7
57	Vivendi	Media (555)	France	369.00	8.5	75.3	14.1	20 044	2.9	3.0	-25.8
58	MAN	Industrial machinery (2757)	Germany	362.00	-13.4	4.5	-1.7	15 313	4.4	-1.8	-0.5
59	Scania	Commercial vehicles & trucks (2753)	Sweden	355.62	15.6	30.0	-0.8	7 839	10.1	11.5	13.1
60	Henkel	Household goods (372)	Germany	340.00	4.9	19.1	5.8	12 740	6.4	13.0	12.3
61	Thomson	Media (555)	France	331.00	20.4	31.0	-28.8	6 709	-5.2	-11.7	-5.3
62	Vodafone	Mobile telecommunications (657)	UK	329.49	7.8	4.0	15.8	46 936	-13.6	7.5	1.5
63	DSM	Chemicals (135)	The Netherlands	327.00	12.8	1.4	6.7	8 380	2.3	4.6	29.5
64	RAG	General industrials (272)	Germany	309.10	0.8	794.2	-23.1	18 388	-17.7	41.4	22.8
65	Autoliv	Automobiles & parts (335)	Sweden	301.51	3.1	4.7	20.6	4 693	-0.3	1.0	15.9
66	BP	Oil & gas producers (53)	UK	299.54	-21.3	14.3	25.8	201 644	6.6	24.8	-14.1
67	Hella	Automobiles & parts (335)	Germany	285.60	8.1	53.8	2.3	3 395	10.6	-2.2	3.7
68	Dassault Aviation	Aerospace & defence (271)	France	282.43	-0.7	0.6		3 302	-3.7	-0.9	4.9
69	Dassault Systemes	Software (9537)	France	281.04	8.5	10.3	8.9	1 158	23.9	17.3	5.6
70	TeliaSonera	Fixed line telecommunications (653)	Sweden	276.05	-13.4	3.3	9.4	10 091	3.9	7.0	-0.6
71	Smiths	General industrials (272)	UK	266.12	37.4	-4.6	5.5	5 229	17.2	10.0	-10.6
72	Heidelberger Druckmaschinen	Industrial machinery (2757)	Germany	264.29	11.8	-3.0	-33.3	3 803	6.1	6.7	-8.2
73	Lundbeck	Pharmaceuticals (4577)	Denmark	262.62	12.9	34.9	-29.8	1 237	1.6	-6.8	-2.1
74	Reuters	Media (555)	UK	261.22	45.5	-5.5	-25.1	3 808	6.5	-16.6	-9.6
75	Linde	Chemicals (135)	Germany	254.00	11.9	20.7	5.0	12 439	30.9	0.8	4.8
76	Carl Zeiss	Health care equipment & services (453)	Germany	248.74	8.1	10.0	10.0	2 433	9.5	4.1	5.2
77	ThyssenKrupp	Industrial metals (175)	Germany	242.00	19.8	5.8	4.4	47 125	8.4	10.5	8.9
78	MAHLE	Automobiles & parts (335)	Germany	241.62	10.6			4 314	4.7	9.7	15.8
79	BSH Bosch und Siemens Hausgerate	Household goods (372)	Germany	235.00	25.0	11.2		8 308	13.2	7.2	
80	Shire	Pharmaceuticals (4577)	UK	229.17	5.2	36.1	-16.0	1 362	12.3	17.0	-8.2
81	Behr	Automobiles & parts (335)	Germany	229.00	6.5	10.3	6.0	3 188	4.5	0.0	1.5
82	ICI	Chemicals (135)	UK	227.08	4.1	0.7	-6.4	8 709	1.0	3.6	-4.1
83	Eni	Oil & gas producers (53)	Italy	222.00	9.9	-73.4	218.9	86 105	16.8	28.1	11.8
84	Oce	Electronic office equipment (9574)	The Netherlands	221.14	14.8	-6.7	-0.8	3 110	16.2	0.9	-4.2
85	Societe Generale	Banks (835)	France	214.00	1.9			22 417	16.9	17.0	4.8
86	Telent	Computer services (9533)	UK	206.30	-22.3	-9.1	-39.8	1 452	-26.8	-14.2	-22.2
87	Electrolux	Household goods (372)	Sweden	203.02	-16.2	6.6	23.2	13 391	-6.7	7.3	-2.8
88	Agfa-Gevaert	Electronic equipment (2737)	Belgium	202.00	0.0	5.8	-18.0	3 401	2.8	-12.1	-10.7
89	Sandvik	Industrial machinery (2757)	Sweden	201.47	18.1	3.6	-11.4	8 011	14.1	16.0	11.9
90	JM Voith	General industrials (272)	Germany	193.50	8.1	20.1	10.4	3 739	5.3	8.9	4.9
91	Tesco	Food & drug retailers (533)	UK	191.46	12.2	35.3		63 356	7.8	16.5	10.3
92	!! ## Amadeus Global Travel (now Amadeus IT Group)	Travel & leisure (575)	Spain	182.19	18.9	5.7	15.5	2 411	17.2	6.6	3.9
93	Rabobank	Banks (835)	The Netherlands	178.00	109.4	26.9		9 493	1.4	1.5	-0.2
94	Legrand	Electrical components & equipment (2733)	France	175.60	8.1	-30.6	-9.5	3 737	15.1	11.0	5.9
95	Freudenberg	General industrials (272)	Germany	175.10	5.8	11.5	6.2	5 053	4.5	9.5	14.2
96	Pirelli	Automobiles & parts (335)	Italy	171.00	-1.7	1.8	-16.2	4 841	-23.6	-13.7	10.1
97	Elan	Pharmaceuticals (4577)	Ireland	170.32	-3.9	26.4	-27.3	377	16.4	-8.0	-39.1

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
98	Rheinmetall	Automobiles & parts (335)	Germany	169.00	8.3	2.6	-19.6	3 629	5.1	1.2	-19.7
99	Arkema	Chemicals (135)	France	168.00				5 866			
100	Ipsen	Pharmaceuticals (4577)	France	167.80	16.2	17.4	-9.7	945	9.4	10.9	5.7
101	Fresenius	Health care equipment & services (453)	Germany	167.00	12.1	12.0	9.9	10 777	36.6	8.5	2.9
102	Reed Elsevier	Media (555)	UK	160.29	5.9	-7.3		8 012	4.5	7.4	-2.3
103	Atlas Copco	Industrial machinery (2757)	Sweden	159.14	13.9	50.3	-28.0	6 788	16.1	8.4	9.0
104	Diehl Stiftung	General industrials (272)	Germany	156.00	-2.5	-1.2	-3.2	2 127	29.1	3.3	2.8
105	L'Air Liquide	Chemicals (135)	France	154.30	9.4	-5.2	57.8	10 949	4.9	10.7	12.3
106	Wacker-Chemie	Chemicals (135)	Germany	152.30	3.7	-2.5	-0.7	3 337	21.1	8.4	3.0
107	Banca Intesa (now Intesa-Sanpaolo)	Banks (835)	Italy	150.00	6.4			9 714	5.0	12.5	-16.5
108	Business Objects	Software (9537)	France	147.91	20.0	8.0	57.8	951	16.4	16.4	65.2
109	Fujitsu Siemens Computers	Computer services (9533)	The Netherlands	145.10	9.6	-7.5	0.4	6 952	4.6	10.4	13.8
110	BAT	Tobacco (378)	UK	143.97	4.3	17.7	8.2	14 489	4.7	-13.4	1.9
111	Amdocs	Software (9537)	UK	141.63	29.3	14.3	6.0	1 881	21.7	14.9	19.6
112	Barclays	Banks (835)	UK	141.00	39.7	44.7		32 905	23.3	17.0	23.8
113	Sage	Software (9537)	UK	140.85	16.3	9.7	28.3	1 389	20.5	12.9	22.7
114	Knorr-Bremse	Industrial machinery (2757)	Germany	140.80	6.2	6.9	3.3	3 121	13.8	13.2	9.8
115	Royal & Sun Alliance	Nonlife insurance (853)	UK	139.52	-22.9	4.3		9 109	-2.6	-16.5	-34.4
116	Kerry	Food producers (357)	Ireland	139.02	11.4	12.5	25.5	4 646	4.9	7.3	11.8
117	Deutsche Post	Industrial transportation (277)	Germany	137.00	-21.7	-39.7	85.9	60 545	35.8	3.3	7.9
118	RWE	Gas, water & multiutilities (757)	Germany	135.00	6.3	-0.8	-70.6	45 149	11.4	-1.2	-4.2
119	Telecom Italia	Fixed line telecommunications (653)	Italy	133.00	-26.1	-0.6	30.2	31 396	0.3	0.3	1.2
120	Invensys	Electronic equipment (2737)	UK	132.09	-19.1	-11.3	-24.8	3 838	-4.7	-7.2	-24.9
121	Sanpaolo IMI (now part of Intesa-Sanpaolo)	Banks (835)	Italy	132.00	26.9			12 599	-0.4	118.4	-24.6
122	Misys	Software (9537)	UK	131.50	-14.9	19.9	-1.8	1 343	-8.1	10.8	-1.3
123	UBIsoft Entertainment	Software (9537)	France	130.66	26.8	28.5	9.5	547	1.7	5.9	13.1
124	BioMerieux	Health care equipment & services (453)	France	129.60	-0.8	3.1	-3.3	1 037	4.3	7.0	1.5
125	Rhodia	Chemicals (135)	France	129.00	-3.7	-4.3	-31.0	5 915	9.6	-1.1	0.1
126	Essilor International	Health care equipment & services (453)	France	127.63	12.5	7.0	2.0	2 690	11.0	10.0	4.1
127	Bouygues	Construction & materials (235)	France	126.00	-8.0	0.7	60.0	26 675	9.2	15.0	-2.7
128	Danone	Food producers (357)	France	126.00	0.8	-3.1	-0.8	14 073	6.3	5.3	-4.2
129	ARM	Semiconductors (9576)	UK	125.41	5.3	46.8	13.6	391	13.3	52.0	19.5
130	Reckitt Benckiser	Household goods (372)	UK	121.70	30.1	-4.5	15.8	7 305	17.8	8.0	4.2
131	Schwarz Pharma	Pharmaceuticals (4577)	Germany	120.81	-53.3	30.6	37.7	1 000	0.9	4.6	-36.7
132	Trumpf	General industrials (272)	Germany	119.80	12.0	9.3	10.4	1 645	17.8	14.3	2.3
133	Tchibo	Food & drug retailers (533)	Germany	119.00	9.2	7.9		9 038	2.8	5.5	151.4
134	Novozymes	Biotechnology (4573)	Denmark	118.32	11.2	-2.0	8.0	912	8.2	4.3	3.9
135	Drägerwerk	Health care equipment & services (453)	Germany	118.00	8.9	4.3	7.3	1 801	10.4	7.3	7.6
136	Danisco	Food producers (357)	Denmark	117.24	-7.3	69.3	10.1	2 731	-2.6	17.3	8.7
137	Serco	Support services (279)	UK	114.73	70.7	18.0		3 782	12.7	38.1	23.6
138	Corus (now part of Tata Iron & Steel, India)	Industrial metals (175)	UK	112.80	15.1	1.5	4.8	15 465	2.8	8.7	17.3
139	Metro	General retailers (537)	Germany	112.00	10.9			59 882	2.3	3.7	5.3
140	GKN	Automobiles & parts (335)	UK	111.32	-14.8	-3.3	12.3	5 394	-0.4	4.8	4.4
141	Zodiac	Aerospace & defence (271)	France	110.88				2 340	27.7	16.8	7.7
142	Meril	Biotechnology (4573)	UK	110.79	-3.6	7.0	6.0	1 547	3.1	5.9	8.3

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
143	SAAB	Aerospace & defence (271)	Sweden	108.72	33.1	-2.8	-6.2	2 334	9.1	8.2	3.5
144	Benteler	General industrials (272)	Germany	107.00	-7.8			5 598	5.3		
145	B Braun Melsungen	Health care equipment & services (453)	Germany	105.75	8.7	11.0	-16.8	3 321	9.7	8.3	5.5
146	Burelle	Automobiles & parts (335)	France	105.34	-0.1	152.5	1.9	2 564	11.9	12.4	4.5
147	Basell AF SCA	Chemicals (135)	Luxembourg	105.00	60.7			10 495	110.9		
148	Deutsche Borse	Other financials (877)	Germany	105.00	45.2	-13.8	-8.8	2 091	14.7	14.6	-0.2
149	Umicore	Chemicals (135)	Belgium	102.70	3.7	11.2	111.9	8 815	23.5	0.4	52.1
150	Cadbury Schweppes	Food producers (357)	UK	102.41	19.0	0.0	9.4	11 127	4.8	6.2	4.6
151	Metso	Industrial machinery (2757)	Finland	102.00	15.9	0.0	-30.2	4 955	16.7	6.2	-5.9
152	SKF	Industrial machinery (2757)	Sweden	100.07	6.4	6.7	6.1	5 885	7.7	9.9	8.4
153	Danfoss	Industrial machinery (2757)	Denmark	99.13	14.4	13.9	-2.1	2 670	21.3	0.4	5.9
154	Hexagon	Industrial machinery (2757)	Sweden	99.07	140.9	115.7	22.8	1 493	39.8	16.7	16.3
155	Krones	Industrial machinery (2757)	Germany	98.96	19.8			1 911	12.7	12.0	5.5
156	adidas	Personal goods (376)	Germany	98.00	55.6	-28.4	2.3	10 084	52.0	2.4	3.4
157	FastWeb	Fixed line telecommunications (653)	Italy	97.54	3.3			1 260	30.2	34.4	36.1
158	Vattenfall	Electricity (753)	Sweden	96.97	-18.8	32.8	69.7	16 159	12.9	13.9	1.3
159	Indra Sistemas	Computer services (9533)	Spain	96.44	12.3	11.6	5.9	1 407	17.1	11.4	10.0
160	Johnson Matthey	Chemicals (135)	UK	94.25	8.0	10.7	-2.6	9 368	32.7	2.5	3.2
161	ZF Lenksysteme	Automobiles & parts (335)	Germany	92.40	34.7	5.4		2 349	5.4	7.5	16.6
162	Grundfos	Industrial machinery (2757)	Denmark	91.19	15.3	3.2	23.2	2 063	14.6	10.4	9.0
163	TDC	Fixed line telecommunications (653)	Denmark	91.09	66.4	-15.0		6 362	-0.5	9.4	-13.3
164	Smith & Nephew	Health care equipment & services (453)	UK	91.00	-8.5	1.5	-1.2	2 107	0.9	-0.6	20.0
165	ASM International	Semiconductors (9576)	The Netherlands	90.61	-10.0	18.6	7.4	877	20.8	-3.7	29.6
166	Italtel	Telecommunications equipment (9578)	Italy	89.81	33.0	7.8	-22.5	546	0.0	3.0	-10.5
167	Gemalto	Electronic equipment (2737)	The Netherlands	89.36	70.7	5.3	1.4	1 319	75.2	3.4	-5.2
168	Vestas Wind Systems	Electrical components & equipment (2733)	Denmark	88.60	2.7	48.0	109.7	3 854	7.6	51.6	43.0
169	Wincor Nixdorf	Computer services (9533)	Germany	87.44	12.1	7.0	10.3	1 948	11.7	10.7	9.4
170	Lanxess	Chemicals (135)	Germany	87.00	-13.9	-17.9		6 944	-2.9	5.6	
171	Spirent Communications	Telecommunications equipment (9578)	UK	86.08	-7.6	-6.7	2.0	445	-35.5	-2.1	1.9
172	Suez	Gas, water & multiutilities (757)	France	86.00	1.4	-0.2	7.6	44 289	6.7	9.0	-3.9
173	SCI Entertainment	Software (9537)	UK	85.19	172.4	115.4	19.5	266	638.9	-21.7	9.5
174	Wartsila	Commercial vehicles & trucks (2753)	Finland	84.80	21.0			3 190	20.9	6.5	5.1
175	Gaz De France	Gas, water & multiutilities (757)	France	84.00	15.1	-18.9	1.1	27 642	23.4	26.3	6.5
176	Old Mutual	Life insurance (857)	UK	83.12	40.0	700.1		26 334	39.6	30.1	68.0
177	CSR	Semiconductors (9576)	UK	82.90	81.2	118.7	66.3	534	44.7	92.2	276.5
178	Bank of Ireland	Banks (835)	Ireland	82.00	-8.9			6 389	21.3	-4.8	85.8
179	Stora Enso	Forestry & paper (173)	Finland	81.70	-7.2	7.2	-7.5	14 594	10.7	6.4	1.8
180	Symbian	Software (9537)	UK	80.86	19.5	18.9	15.9	170	71.7	47.8	52.3
181	MTU Aero Engines	Aerospace & defence (271)	Germany	80.60	-3.8	-46.2		2 416	12.4	12.0	
182	Assa Abloy	Industrial machinery (2757)	Sweden	79.68	22.3	17.6	11.8	3 451	12.0	8.9	6.0
183	!! Orion	Food & drug retailers (533)	Finland	78.60				622			
184	Tomkins	General industrials (272)	UK	78.37	13.1	-9.0	-12.5	4 929	4.4	6.8	-5.4
185	KBC	Banks (835)	Belgium	78.00	178.6			12 556	9.2		
186	Giesecke & Devrient	Support services (279)	Germany	76.90	13.7	7.3	-14.6	1 297	5.0	7.0	10.2
187	EPCOS	Electronic equipment (2737)	Germany	76.68	9.1	-0.6	1.9	1 399	13.0	-9.1	7.1
188	IMMSI	Automobiles & parts (335)	Italy	75.72	-11.7	121.5	2.1	1 709	10.4	36.1	748.5
189	Barco	Electronic equipment (2737)	Belgium	75.42	2.9	6.3	-1.0	751	5.5	6.0	6.8
190	KWS SAAT	Food producers (357)	Germany	75.35	5.6			505	2.0	11.5	4.7
191	Veolia Environnement	Gas, water & multiutilities (757)	France	75.20	19.6	0.5	-34.3	28 729	13.8	1.5	-13.1

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
number of companies for calculation				1000	976	890	790	1000	975	950	917
192	Cobham	Aerospace & defence (271)	UK	73.17	14.9	13.2	-6.2	1 508	-6.8	11.4	17.6
193	Mittal Steel	Industrial metals (175)	The Netherlands	72.80	146.1			44 643	109.3	26.7	308.0
194	TietoEnator	Computer services (9533)	Finland	72.50	24.4	32.8		1 782	5.9	10.3	11.0
195	Repsol YPF	Oil & gas producers (53)	Spain	72.00	14.3			51 355	4.0	26.9	7.9
196	Dexia	Banks (835)	Belgium	71.00	47.9	585.7		7 012	17.3	6.3	9.0
197	Industria de Turbo Propulsores	Aerospace & defence (271)	Spain	69.88	37.8	-38.0	-24.3	439	16.4	-0.5	-6.4
198	Chiesi Farmaceutici	Pharmaceuticals (4577)	Italy	69.56	5.6	5.7	-4.7	565	8.0	10.3	14.2
199	Genmab	Biotechnology (4573)	Denmark	68.83	16.2	18.3	7.9	18	38.5	1 200.0	-88.9
200	Marks & Spencer	General retailers (537)	UK	68.57	331.8			12 766	7.2	1.1	-4.3
201	Crucell	Biotechnology (4573)	The Netherlands	67.61	143.7	73.5	-20.3	132	300.0	83.3	260.0
202	Trelleborg	General industrials (272)	Sweden	67.60	-7.4	6.5	27.6	3 024	12.9	5.5	27.6
203	Unicredito Italiano	Banks (835)	Italy	66.86	31 738.1			23 450	112.4	10.2	-6.1
204	Deutz	Industrial machinery (2757)	Germany	66.50	5.6	-9.4	26.6	1 490	12.6	6.5	5.9
205	SCA	Forestry & paper (173)	Sweden	66.49	-2.8	-5.9	4.1	11 242	5.3	7.1	5.4
206	Spectris	Electrical components & equipment (2733)	UK	66.34	-0.5	3.5	27.3	1 016	4.4	6.8	8.1
207	Voest-Alpine	Industrial metals (175)	Austria	66.00	7.3	2.5	16.3	7 291	11.9	12.7	24.4
208	SNCF	Industrial transportation (277)	France	66.00	20.0			21 874	4.2	-4.8	-2.1
209	Infogrames Entertainment	Software (9537)	France	65.50	-23.6	-22.4	19.6	391	-35.0	-14.1	-20.4
210	Fortis	Banks (835)	Belgium	65.00	3 150.0			29 559	3.4	27.3	-26.1
211	Claas	Commercial vehicles & trucks (2753)	Germany	64.93	8.3	10.3	-19.2	2 351	8.1	12.8	28.9
212	Avio	Aerospace & defence (271)	Italy	64.30	20.5	-2.7	-14.7	1 401	9.4	4.5	-12.0
213	Cognis Deutschland	Chemicals (135)	Germany	64.00	-30.4	39.4	1.5	3 372	6.2	3.4	4.2
214	Eberspaecher	Automobiles & parts (335)	Germany	63.50	-4.4	1.1	7.0	2 023	23.4	11.6	9.9
215	Koenig & Bauer	Industrial machinery (2757)	Germany	63.20	14.1	-4.6	0.9	1 742	7.5	13.9	15.5
216	William Demant	Health care equipment & services (453)	Denmark	61.68	20.2	18.0	9.9	682	7.7	9.7	11.2
217	Alliance & Leicester	Banks (835)	UK	61.00	236.8	121.9		2 189	6.4	0.4	0.5
218	Nycomed	Pharmaceuticals (4577)	Luxembourg	60.73	97.6	19.6	-22.1	870	71.3	-21.2	1.6
219	Danske Bank	Banks (835)	Denmark	60.37	8.4	52.6		8 255	-14.2	24.1	113.5
220	LogicaCMG	Computer services (9533)	UK	59.66	29.2	-17.5	-34.4	3 956	45.2	10.0	-2.2
221	Patria	Aerospace & defence (271)	Finland	59.00	23.9	20.8	46.5	448	41.3	-8.4	33.6
222	Amer Sports	Leisure goods (374)	Finland	58.50	48.5	25.9	2.0	1 793	31.5	28.8	-4.1
223	Alfa Laval	Industrial machinery (2757)	Sweden	58.30	17.5	12.6	8.1	2 194	21.2	9.0	7.8
224	Salzgitter	Industrial metals (175)	Germany	58.00	0.9	0.9	-0.9	8 447	18.1	20.4	22.7
225	Vernalis	Biotechnology (4573)	UK	57.72	46.8	23.6	-31.5	24	14.3	-8.7	21.1
226	GPC Biotech	Biotechnology (4573)	Germany	57.65	24.4	67.8	86.4	22	144.4	-30.8	-38.1
227	BHP Billiton	Mining (177)	UK	57.63	130.2	73.7	-52.5	24 383	20.3	16.8	46.6
228	Gedeon Richter	Pharmaceuticals (4577)	Hungary	57.62	14.8	19.0	12.3	830	21.5	15.4	2.6
229	Sick	Electronic equipment (2737)	Germany	57.14	6.2	14.8		646	8.8	10.4	
230	Sorin	Health care equipment & services (453)	Italy	57.06	14.9	-8.1	-11.3	792	5.2	4.7	-14.8
231	PUMA	Personal goods (376)	Germany	56.70	35.0	13.8	23.4	2 369	33.2	16.2	20.1
232	Valentino Fashion	Personal goods (376)	Italy	56.01	129.0			1 963	114.5		
233	Numico	Food producers (357)	The Netherlands	56.00	24.4	36.4	3.1	2 623	31.9	15.4	-45.4
234	Bang & Olufsen	Leisure goods (374)	Denmark	55.83	-17.1	10.0	28.2	567	12.9	3.5	-9.0
235	Meggitt	Aerospace & defence (271)	UK	55.66	21.9	11.3	38.3	995	8.7	29.4	18.4
236	Almirall	Food & drug retailers (533)	Spain	55.51	-33.7	23.2		770	4.6	5.1	
237	Nexans	Electrical components & equipment (2733)	France	55.00	5.8	10.6	0.0	7 489	33.9	14.2	21.1
238	Acambis	Biotechnology (4573)	UK	54.92	7.2	19.4	45.2	46	-24.6	-52.0	-49.4
239	GN Store Nord	Telecommunications equipment (9578)	Denmark	53.52	52.9	-24.1	16.2	908	1.9	19.8	17.0

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
number of companies for calculation				1000	976	890	790	1000	975	950	917
240	Getinge	Health care equipment & services (453)	Sweden	53.24	16.5	48.3	7.8	1 441	9.4	9.1	18.9
241	Dyson James	Household goods (372)	UK	52.76	83.0	31.4	25.3	698	10.3	54.0	17.8
242	Krka	Pharmaceuticals (4577)	Slovenia	52.65	31.3	14.8	14.3	668	20.6	17.1	17.1
243	Kemira	Chemicals (135)	Finland	51.30	19.0	-5.3	-4.6	2 523	26.5	-21.3	-7.5
244	Neopost	Electronic office equipment (9574)	France	50.80	3.9	25.1	19.2	919	11.1	9.4	0.7
245	IMI	Industrial machinery (2757)	UK	50.61	16.0	23.6	-15.0	2 234	-4.6	-2.0	2.4
246	Kone	Industrial machinery (2757)	Finland	50.30	18.8	-37.1	-23.9	3 601	0.0	-19.1	-16.7
247	Biovitrum	Biotechnology (4573)	Sweden	50.23	9.6	-22.7	65.6	133	27.9	19.5	-52.7
248	Zeltia	Pharmaceuticals (4577)	Spain	49.70	8.8	24.4	-28.3	76	5.6	-8.9	6.8
249	CGGVeritas	Oil equipment, services & distribution (57)	France	49.60	26.2	17.3	24.5	1 330	52.9	25.5	13.2
250	Bekaert	Industrial metals (175)	Belgium	49.56	10.2	-16.6	49.8	2 010	5.0	-11.9	20.9
251	!! ALK-Abello	Pharmaceuticals (4577)	Denmark	48.29	-18.6	-2.4	-9.6	227	-61.4	-2.0	3.1
252	Stork	Industrial machinery (2757)	The Netherlands	48.24	38.4	15.8	-59.3	2 009	10.5	5.1	-11.2
253	GEA	Industrial machinery (2757)	Germany	47.77	-19.0	3.6	-39.2	5 467	0.3	-6.6	-8.8
254	Leoni	Electrical components & equipment (2733)	Germany	47.20	5.9	1.0	21.0	2 108	36.2	24.1	15.5
255	SkyePharma	Pharmaceuticals (4577)	UK	46.90	21.5	-7.0	11.6	73	-19.8	-1.1	16.5
256	Grammer	Automobiles & parts (335)	Germany	46.66	3.4	38.1		881	2.6	4.1	5.0
257	Renishaw	Electronic equipment (2737)	UK	46.16	46.0	24.3	10.6	268	2.7	13.5	21.1
258	TTP Communications	Telecommunications equipment (9578)	UK	46.10	5.3	31.3	4.8	67	-27.2	24.3	1.4
259	Bull	Computer hardware (9572)	France	46.00	-9.8	-5.6	-10.0	1 147	-2.2	3.0	-10.0
260	Recordati	Pharmaceuticals (4577)	Italy	45.40	1.0	20.5	13.9	576	-1.2	19.5	0.0
261	HeidelbergCement	Construction & materials (235)	Germany	45.00	4.7	-2.3	2.3	9 234	18.3	12.6	8.7
262	Borealis	Support services (279)	Austria	45.00	9.8	0.0	-4.7	5 742	19.3	4.0	26.0
263	Software	Software (9537)	Germany	44.86	3.9	-11.9	-16.0	483	10.3	6.6	-2.6
264	Vilmorin Clause	Food producers (357)	France	44.60	17.4	9.5	18.0	498	1.6	-0.4	13.1
265	IWKA (now KUKA)	Industrial machinery (2757)	Germany	44.28	-13.3	-13.9	-0.7	1 781	-14.0	-4.6	-5.2
266	UPM-Kymmene	Forestry & paper (173)	Finland	44.00	-12.0	6.4	-2.1	10 022	7.2	-4.8	-1.3
267	La Poste	Industrial transportation (277)	France	44.00	57.1			20 100	4.0	3.5	3.7
268	Jungheinrich	Commercial vehicles & trucks (2753)	Germany	43.86	9.1	5.6	15.1	1 748	6.3	7.4	4.1
269	Elekta	Health care equipment & services (453)	Sweden	43.77	55.5	12.4	19.6	490	40.4	8.7	4.2
270	Telekom Austria	Fixed line telecommunications (653)	Austria	43.69	1.5	1.5	-0.9	4 760	8.8	7.9	2.2
271	Christian Dior	Personal goods (376)	France	43.00	13.2	0.0	-7.3	16 016	10.0	11.5	4.8
272	Ingenico	Electronic equipment (2737)	France	42.91	-11.8	50.0	-5.5	506	15.8	2.3	19.9
273	Kontron	Computer hardware (9572)	Germany	42.83	33.5	12.9	8.1	405	35.0	14.5	14.4
274	Fincantieri	Commercial vehicles & trucks (2753)	Italy	42.70	-9.5			1 734	-23.5	4.4	-5.3
275	Pace Micro Technology	Leisure goods (374)	UK	42.70	20.0	12.4	-21.2	264	-29.8	5.6	44.1
276	Jenoptik	Industrial machinery (2757)	Germany	42.45	23.2	8.4	1.3	1 002	-47.6	-24.1	27.3
277	Autonomy	Software (9537)	UK	41.60	150.2	53.8	-11.4	190	160.3	49.0	-2.0
278	JCB Service	Commercial vehicles & trucks (2753)	UK	41.45	4.2	18.5	31.4	2 001	22.6	21.9	10.5
279	Gameloft	Software (9537)	France	41.21	44.6			68	44.7	104.3	130.0
280	Filtronic	Telecommunications equipment (9578)	UK	41.03	-11.1	11.4	-1.5	348	-10.8	10.8	-1.7
281	Lafarge	Construction & materials (235)	France	41.00	-25.5	1.9	-3.6	18 533	16.1	10.6	5.7
282	Belgacom	Fixed line telecommunications (653)	Belgium	41.00	-6.8	-17.0	-15.9	6 100	13.3	-0.6	0.7
283	Groupe SEB	Household goods (372)	France	39.90	-3.9	-4.6	7.1	2 652	7.7	7.6	-2.5
284	Gildemeister	Industrial machinery (2757)	Germany	39.88	-1.8	6.4	-8.1	1 329	18.0	7.0	7.6
285	Sudzucker	Food producers (357)	Germany	39.50	31.7	8.7	6.2	5 765	7.8	10.8	5.5
286	Stada Arzneimittel	Pharmaceuticals (4577)	Germany	39.38	14.2	32.2	25.6	1 245	21.8	25.6	9.3
287	Avecia	Biotechnology (4573)	UK	39.03	-42.1	-21.3	-1.9	317	-47.5	-16.1	-15.7
288	ENDESA	Electricity (753)	Spain	39.00	-7.1	90.9	10.0	19 637	12.2	29.6	-16.8
289	Voca	Support services (279)	UK	38.90	-10.4	256.7	-66.8	132	0.0	14.8	3.6

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
290	Haldex	Automobiles & parts (335)	Sweden	38.57	-7.7	13.9	11.8	874	5.3	10.8	12.0
291	Sartorius	Biotechnology (4573)	Germany	37.74	5.5	20.6	8.1	521	7.6	3.4	5.9
292	Beru	Automobiles & parts (335)	Germany	37.73	4.6	15.3	5.9	439	7.6	5.7	9.0
293	Tomtom	Electronic equipment (2737)	The Netherlands	37.54	268.0	80.9	107.4	1 364	89.4	275.0	392.3
294	Sud-Chemie	Chemicals (135)	Germany	37.50	9.0	11.3	6.2	1 031	5.6	13.2	13.0
295	WCM	Other financials (877)	Germany	36.46	-1.4			931	2.4	0.8	2.5
296	Wendel Investissement	Other financials (877)	France	36.41	118.0	42.9		4 273	44.1	240.9	45.7
297	Mundipharma Research	Pharmaceuticals (4577)	UK	35.69	18.0	35.8		48	14.3	40.0	
298	Experian	Support services (279)	UK	35.64				6 786			
299	Tenaris	Oil equipment, services & distribution (57)	Luxembourg	35.57	35.2	31.9	330.7	6 242	22.2	62.9	30.1
300	NKT	Electrical components & equipment (2733)	Denmark	35.56	-9.1	-4.1	49.9	1 451	23.6	13.3	32.7
301	Andritz	Industrial machinery (2757)	Austria	35.42	30.5	28.6	-17.1	2 710	55.4	17.8	20.9
302	Cookson	General industrials (272)	UK	35.32	6.7	-8.2	-24.8	2 466	1.6	-1.1	0.7
303	IBS	Software (9537)	Sweden	35.16	9.6	-7.3	8.3	252	-4.2	0.4	-1.5
304	Eramet	Industrial metals (175)	France	35.00	9.4	-3.0	22.2	3 056	12.7	7.6	26.7
305	Technip	Oil equipment, services & distribution (57)	France	34.90	18.7	-2.6	-9.3	6 927	28.8	4.6	9.1
306	Anglo American	Mining (177)	UK	34.88	15.0	-11.1	15.4	25 079	12.4	12.1	40.9
307	Imagination Technologies	Semiconductors (9576)	UK	34.76	13.4	7.3	19.5	71	36.5	15.6	-2.2
308	ISOFT	Software (9537)	UK	34.55	27.3	44.1	60.7	299	8.3	24.3	63.2
309	Austriamicrosystems	Electrical components & equipment (2733)	Austria	34.38	21.9	0.2	-2.8	196	10.1	10.6	20.1
310	Ultra Electronics	Aerospace & defence (271)	UK	33.90	32.1	27.5	7.1	560	10.2	10.2	9.2
311	De La Rue	Support services (279)	UK	33.69	65.7	-19.9	-19.7	1 020	12.5	-5.0	-5.7
312	ComBOTS	Internet (9535)	Germany	33.66	156.0	-29.7	36.3	0	-100.0	-2.3	30.3
313	Evotec	Pharmaceuticals (4577)	Germany	33.44	118.3	11.1	-10.9	85	6.3	9.6	-5.2
314	Gamesa	Industrial machinery (2757)	Spain	33.12	-7.3	-28.5	22.4	2 391	5.4	30.6	10.4
315	Pilkington (now part of NSG UK Enterprises)	Construction & materials (235)	UK	32.65	-24.1	0.0	-3.3	3 832	6.4	-0.5	1.1
316	British Nuclear Fuels	Electricity (753)	UK	32.65	-60.0	-6.8	-11.9	2 103	-40.1	1.8	4.6
317	Tate & Lyle	Food producers (357)	UK	32.65	4.7	5.0	17.6	6 041	9.4	11.4	16.2
318	Medivir	Pharmaceuticals (4577)	Sweden	32.46	42.3	6.1	9.5	14	16.7	33.3	-47.1
319	Metsaliitto	Forestry & paper (173)	Finland	31.90	-14.5	0.8	2.8	9 271	7.3	0.5	3.4
320	Coloplast	Health care equipment & services (453)	Denmark	31.79	10.7	5.4	-1.4	993	13.4	7.6	7.1
321	Cargotec	Industrial machinery (2757)	Finland	31.50	3.8			2 597	6.8		
322	ADVA	Telecommunications equipment (9578)	Germany	31.39	91.1	32.1	0.8	193	47.3	28.4	13.3
323	Wavecom	Telecommunications equipment (9578)	France	31.12	29.3	-48.9	-24.2	189	46.5	-15.1	-44.9
324	Sopra	Computer services (9533)	France	31.10	16.5			898	18.6	20.2	20.0
325	Soitec	Semiconductors (9576)	France	31.04	89.4	44.4	0.8	372	41.4	89.2	58.0
326	Laird	Electrical components & equipment (2733)	UK	31.02	30.6	107.8	28.3	903	19.6	8.6	9.3
327	ELMOS Semiconductor	Semiconductors (9576)	Germany	30.95	4.2	15.3	7.7	161	9.5	2.8	18.2
328	Qiagen	Biotechnology (4573)	The Netherlands	30.91	4.2	14.5	15.5	353	16.9	4.5	8.6
329	Zumtobel	Electronic equipment (2737)	Austria	30.87	-2.0	-1.7	11.6	1 244	5.1	4.9	-1.1
330	Clarins	Personal goods (376)	France	29.55	31.1	10.1	1.8	967	-3.1	6.3	5.6
331	Bollere	Industrial transportation (277)	France	29.50	25.5	2.2	19.2	5 980	-5.6	9.7	7.2
332	CSM	Food producers (357)	The Netherlands	29.40	-15.3	0.3	-13.5	2 689	-1.9	-21.2	-1.2
333	Intercell	Biotechnology (4573)	Austria	29.05	10.3	68.0	17.6	23	187.5	60.0	400.0
334	Oxford Biomedica	Pharmaceuticals (4577)	UK	28.98	109.4	1.5	-14.7	1	0.0	0.0	0.0
335	Egis Pharmaceuticals	Pharmaceuticals (4577)	Hungary	28.85	24.6	20.1	-1.7	441	17.9	8.1	8.5
336	NicOx	Pharmaceuticals (4577)	France	28.57	76.4	55.2	-31.4	10	42.9	250.0	100.0
337	Option	Telecommunications equipment (9578)	Belgium	28.31	31.1	50.6	59.7	280	40.7	93.2	80.7

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
338	Cattles	Other financials (877)	UK	28.20	1 475.4	193.4		1 064	6.7	-0.7	11.7
339	DONG Energy	Oil & gas producers (53)	Denmark	28.17	218.3	-22.8	-54.5	4 784	92.8	29.4	0.3
340	Komerční banka	Banks (835)	Czech Republic	28.12	2.4		-100.0	956	7.3	5.7	2.9
341	Unit 4 Agresso	Software (9537)	The Netherlands	28.06	12.6	5.3	8.9	414	16.3	29.0	26.0
342	Tessenderlo	Chemicals (135)	Belgium	28.00	7.7			2 238	4.1	4.2	4.6
343	Rallye	Food & drug retailers (533)	France	28.00				25 691	9.2	7.8	-8.1
344	KSB	Industrial machinery (2757)	Germany	27.95	13.0	0.9	2.1	1 607	15.6	9.7	7.6
345	Somfy International	Electrical components & equipment (2733)	France	27.80	41.8			655	10.8	3.9	10.1
346	Finland Post	Industrial transportation (277)	Finland	27.60	-6.4	51.3	-12.9	1 551	15.1	9.1	7.8
347	Simcorp	Software (9537)	Denmark	27.32	27.6	35.9	24.3	134	31.4	24.4	22.4
348	Alizyme	Biotechnology (4573)	UK	27.20	16.3	151.1	-45.0	2		-100.0	0.0
349	SGL Carbon	Electrical components & equipment (2733)	Germany	27.20	51.1	-6.3	-8.1	1 191	11.4	15.4	-11.5
350	E.ON	Gas, water & multiutilities (757)	Germany	27.00	12.5	-56.4	-20.3	64 555	24.5	15.9	5.2
351	ElringKlinger	Automobiles & parts (335)	Germany	26.82	9.3	10.5	12.7	528	11.2	4.6	8.9
352	!! Fimalac	Support services (279)	France	26.82	27.9	67.8	3 025.0	610	-39.8	-10.7	-9.8
353	Diageo	Beverages (353)	UK	26.72	12.5	45.4	-26.6	10 775	8.7	-24.9	-5.8
354	Campina	Food producers (357)	The Netherlands	26.60	7.7	-5.7	-1.5	3 624	1.5	0.3	-2.6
355	Paul Hartmann	Health care equipment & services (453)	Germany	26.60	3.9	-18.2		1 217	0.2	-2.4	-5.0
356	Terna	Electricity (753)	Italy	26.50	679.4			1 308	27.7		
357	Singulus Technologies	Industrial machinery (2757)	Germany	26.38	36.3	-17.8	44.6	272	17.2	-47.3	21.2
358	AVEVA	Software (9537)	UK	26.13	26.2	24.2	63.7	141	43.9	15.3	49.1
359	Biotest	Pharmaceuticals (4577)	Germany	26.08	57.0	-10.3	0.9	282	18.5	9.2	-1.8
360	Duerr	Industrial machinery (2757)	Germany	25.96	1.8	-21.5	-1.7	1 363	-23.7	-16.3	-5.7
361	Same Deutz-Fahr	Commercial vehicles & trucks (2753)	Italy	25.88	34.6	-2.9		1 037	10.7	3.5	
362	Telelogic	Software (9537)	Sweden	25.56	43.4	-9.0	-16.8	169	18.2	24.3	10.6
363	Inogenetics	Biotechnology (4573)	Belgium	25.54	-2.9	-6.2	10.4	52	6.1	-31.0	9.2
364	Datalogic	Electronic equipment (2737)	Italy	25.51	64.3	49.0	8.9	382	85.4	41.1	12.3
365	Rockwool International	Construction & materials (235)	Denmark	25.25	11.4	5.0	1.5	1 548	15.1	9.6	11.3
366	Wolfson Microelectronics	Semiconductors (9576)	UK	25.24	55.0	30.6	75.4	155	23.0	40.0	57.9
367	Ahlstrom	Chemicals (135)	Finland	25.00	-7.7	-1.8	-16.1	1 599	3.0	-1.0	0.8
368	Buhrmann (now Corporate Express)	Support services (279)	The Netherlands	25.00	4.2			6 306	7.1	6.1	-31.0
369	Elektrobit	Electronic equipment (2737)	Finland	24.94	66.2	24.9	22.3	200	-5.7	4.4	36.2
370	Seton House	Support services (279)	UK	24.94	-37.1	38.3		568	-16.6	7.8	
371	Indesit	Household goods (372)	Italy	24.60	-13.7	19.7		3 249	6.0	-1.2	3.1
372	Micronic Laser Systems	Semiconductors (9576)	Sweden	24.56	11.5	-32.4	-1.3	133	-5.7	51.6	97.9
373	A-Tec Industries	Industrial machinery (2757)	Austria	24.45				1 637	51.0	49.9	
374	Gyrus	Health care equipment & services (453)	UK	24.37	38.6	78.5	2.6	317	42.2	72.9	11.2
375	Guerbet	Pharmaceuticals (4577)	France	24.29	-5.1	6.7	0.0	290	7.0	9.3	10.2
376	Northgate Information Solutions	Computer services (9533)	UK	24.26	28.2	67.2	10.7	494	62.0	50.2	61.1
377	Nutreco	Food producers (357)	The Netherlands	24.10	-4.0	0.0	4.1	3 103	3.4	-24.0	7.6
378	Royal Friesland Foods	Food producers (357)	The Netherlands	24.00	14.3	0.0	10.5	4 675	5.8	-0.7	-2.8
379	Nolato	Chemicals (135)	Sweden	23.94	-12.9	16.4	-13.4	299	19.6	-6.0	-10.1
380	Boots (now Alliance Boots)	General retailers (537)	UK	23.90	-28.7	6.1	-17.1	8 120	0.0	2.7	0.0
381	Britannia Building Society	Other financials (877)	UK	23.90	67.7	-45.1		554	14.2	-0.8	2.9

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
382	Boliden	Mining (177)	Sweden	23.83	8.1	17.7	90.0	3 902	72.3	14.0	87.8
383	Melexis	Semiconductors (9576)	Belgium	23.66	10.4	26.1	42.6	202	16.1	13.7	14.2
384	Saft	Electrical components & equipment (2733)	France	23.60	-8.5	18.3		560	-2.8	-1.7	
385	Auriga Industries	Chemicals (135)	Denmark	23.52	8.3	2.6	-7.6	695	-1.3	-1.1	18.7
386	BIC	Household goods (372)	France	23.50	-16.9	16.4	-19.4	1 448	4.9	9.2	-7.0
387	F-Secure	Computer services (9533)	Finland	23.38	50.9	42.2	24.5	81	30.6	31.9	20.5
388	ACS	Construction & materials (235)	Spain	23.36	1.3	319.1		14 067	16.1	12.0	22.6
389	Intec Telecom Systems	Software (9537)	UK	23.25	-5.1	43.7	14.1	167	-3.5	69.6	36.0
390	Abengoa	General industrials (272)	Spain	23.24	-58.3	139.4	49.6	2 677	32.3	15.9	6.8
391	Nationwide	Other financials (877)	UK	23.15	64.2	5.5		3 111	12.5	9.5	26.1
392	OMX	Other financials (877)	Sweden	23.05	-20.9	119.2	-45.7	400	14.9	8.1	8.1
393	Istituto Finanziario Industriale	Other financials (877)	Italy	23.00	-11.5	52.9	-99.0	5 534	1.9	-2.4	-89.6
394	Accor	Travel & leisure (575)	France	23.00	9.5	40.0		7 851	3.0	7.9	3.5
395	Halma	Electronic equipment (2737)	UK	22.73	7.8	26.7	-0.3	526	5.0	12.8	2.3
396	Danieli	Industrial machinery (2757)	Italy	22.70	152.2	-10.0	-16.7	1 224	1.9	19.1	2.1
397	FLSmidth	Construction & materials (235)	Denmark	22.67	18.2	-1.4	29.5	1 680	19.1	-28.6	-1.3
398	Acciona	Construction & materials (235)	Spain	22.60	452.6	-4.4	189.2	6 272	29.2	19.0	5.5
399	Thrane & Thrane	Telecommunications equipment (9578)	Denmark	22.50	40.8	-17.3	85.2	150	22.0	0.0	44.7
400	Q-Med	Biotechnology (4573)	Sweden	22.28	-0.2	10.3	19.6	144	33.3	18.7	35.8
401	Rexam	General industrials (272)	UK	22.26	-28.6	61.5	-18.7	5 548	15.5	5.1	-1.0
402	Antisoma	Biotechnology (4573)	UK	22.17	141.2		-100.0	2	-77.8	-66.7	50.0
403	Pharmexa	Biotechnology (4573)	Denmark	22.15	58.2	76.8	-35.7	0	0.0	-86.7	0.0
404	RM	Software (9537)	UK	22.14	-10.6	14.7	24.0	389	-0.3	-0.3	22.2
405	Fuchs Petrolub	Chemicals (135)	Germany	22.10	7.3	-3.7	-5.3	1 323	11.0	8.8	5.3
406	Rautaruukki	Industrial metals (175)	Finland	22.00	0.0	29.4	0.0	3 682	0.8	2.5	20.7
407	Ilog	Software (9537)	France	21.91	6.1	19.5	20.8	101	6.3	21.8	11.4
408	Autostrade (now Atlantia)	Industrial transportation (277)	Italy	21.90	0.0			2 885	-2.4	3.4	22.8
409	Industrial and Financial Systems	Software (9537)	Sweden	21.83	-36.0	20.3	-4.8	245	2.9	-1.2	-6.9
410	Astex Therapeutics	Biotechnology (4573)	UK	21.81	16.7	10.7	31.2	16	166.7	20.0	25.0
411	Energie Baden	Electricity (753)	Germany	21.80	-9.2	220.0	-29.9	13 266	22.6	9.9	-7.2
412	Glen Electric	Household goods (372)	UK	21.78	6.7	6.3	15.7	1 044	3.2	1.5	8.6
413	Benetton	Personal goods (376)	Italy	21.70	-9.8			1 911	8.3	3.6	-8.3
414	Croda International	Chemicals (135)	UK	21.67	64.0	21.9	7.4	776	70.9	3.9	-2.9
415	BBC	Media (555)	UK	21.67	-9.9	-13.8	-10.1	6 200	4.3	4.4	3.5
416	MGI Coutier	Automobiles & parts (335)	France	21.60	-4.8	-7.9	6.7	428	0.2	-7.4	-1.7
417	NeuroSearch	Biotechnology (4573)	Denmark	21.58	23 877.8	-98.3		9	-62.5	50.0	-27.3
418	Anite	Computer services (9533)	UK	21.48	37.5	-10.8	15.7	248	-11.7	-3.4	-9.3
419	Muhlbauer	Electronic equipment (2737)	Germany	21.42	17.0	30.7	23.0	161	8.8	15.6	34.7
420	YIT	Support services (279)	Finland	21.16	10.5	6.4	12.5	3 284	8.6	8.8	16.3
421	CEGID	Software (9537)	France	21.11	8.0	27.5	9.1	228	1.8	56.6	10.0
422	Wagon	Automobiles & parts (335)	UK	21.08	61.4	-7.4	-14.4	1 054	70.3	-8.4	-6.5
423	Systems Union	Software (9537)	UK	21.03	-4.8	36.3	3.6	168	8.4	33.6	4.5
424	Franz Haniel & Cie	Pharmaceuticals (4577)	Germany	21.00	0.0	162.5	300.0	28 356	9.5	6.5	5.6
425	Bohler-Uddeholm	Industrial metals (175)	Austria	20.92	10.1	18.8	4.2	3 090	18.5	34.8	28.9
426	Dialog Semiconductor	Semiconductors (9576)	UK	20.89	-25.7	-3.3	-5.0	71	-45.8	12.9	24.7
427	Transgene	Biotechnology (4573)	France	20.77	14.4	-0.5	2.7	4	33.3	0.0	0.0
428	Protherics	Biotechnology (4573)	UK	20.75	107.3	47.4	24.8	46	76.9	-7.1	-9.7
429	Wanderer-Werke	Industrial machinery (2757)	Germany	20.74	13.5	26.9	125.0	573	4.0	34.4	-7.9

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
430	Delhaize	Food & drug retailers (533)	Belgium	20.70	102.9	56.9	5 809.1	19 513	4.7	3.8	-4.6
431	Vaisala	Electronic equipment (2737)	Finland	20.60	4.0	-11.2	5.7	221	11.6	9.4	-4.2
432	Hunter Douglas	Household goods (372)	The Netherlands	20.48	13.8	5.9	0.0	1 994	3.9	11.6	3.9
433	Camelot	Travel & leisure (575)	UK	20.33				6 547	5.2	3.3	0.9
434	Lectra	Software (9537)	France	20.28	10.9	21.4	4.9	216	2.4	1.4	12.4
435	IMA Industria Macchine Automatiche	Industrial machinery (2757)	Italy	20.22	4.4	13.1	-5.9	425	6.5	9.9	4.9
436	Enel	Electricity (753)	Italy	20.00	0.0	1 900.0	-97.6	37 497	5.6	24.0	-1.0
437	Union Fenosa	Electricity (753)	Spain	20.00	11.1	61.7	-39.7	6 057	-0.7	36.6	-19.0
438	Psion	Computer hardware (9572)	UK	19.99	12.2	-3.5	-1.8	283	13.2	24.4	4.7
439	Aliaxis	Construction & materials (235)	Belgium	19.88	8.8	11.9	2.0	2 116	15.4	9.2	4.2
440	Seco Tools	Industrial machinery (2757)	Sweden	19.84	6.6	-10.6	-8.3	604	10.4	14.0	10.6
441	SNPE	Chemicals (135)	France	19.80	-10.8	-80.5	-0.9	720	-7.6	-1.8	1.1
442	RHI	Industrial machinery (2757)	Austria	19.70	-1.5	2.6	21.9	1 442	-0.9	12.2	5.2
443	James Hardie Industries	Construction & materials (235)	The Netherlands	19.64	-9.7	32.8	-4.4	1 170	3.6	23.0	23.2
444	Oxford Instruments	Electronic equipment (2737)	UK	19.59	0.8	4.8	-1.4	248	-8.1	-0.4	-2.5
445	GW Pharmaceuticals	Pharmaceuticals (4577)	UK	19.45	27.5	-26.3	9.9	3	-40.0		-100.0
446	Ark Therapeutics	Biotechnology (4573)	UK	19.32	-6.6	52.4	70.4	1	-66.7	650.0	0.0
447	British Energy	Electricity (753)	UK	19.30	0.0	224.9	-71.4	4 451	15.6	290.0	-56.1
448	Huhtamaki	General industrials (272)	Finland	19.30	3.2	4.5	27.9	2 276	1.4	7.3	-0.8
449	Aixtron	Semiconductors (9576)	Germany	19.26	-30.3	57.0	23.8	172	23.7	-0.7	53.8
450	Axis	Computer hardware (9572)	Sweden	19.21	18.2	15.4	2.3	133	34.3	28.6	11.6
451	Ineos	Chemicals (135)	UK	19.20	95.9	0.0	1.0	4 958	46.0	34.2	13.1
452	ICAP	Other financials (877)	UK	19.00	91.1			1 642	20.4	13.1	1.4
453	Aldata Solution	Software (9537)	Finland	18.84	15.1	7.7		89	17.1	15.2	-12.0
454	Flamel Technologies	Biotechnology (4573)	France	18.83	-22.2	120.5	100.2	17	-5.6	-57.1	121.1
455	Raymarine	Electronic equipment (2737)	UK	18.76	49.7	3.7	-5.1	203	12.2	14.6	13.7
456	Torex Retail	Computer services (9533)	UK	18.74	6.5			248	125.5		
457	DICOM	Software (9537)	UK	18.70	27.5	24.4	9.0	311	16.5	15.1	0.0
458	Osterreichische Bundesbahnen	Travel & leisure (575)	Austria	18.70				4 539	7.9	55.3	11.5
459	SBM Offshore	Oil equipment, services & distribution (57)	The Netherlands	18.66	153.2	-7.1	24.5	1 509	31.0	-1.9	-16.3
460	Eureko	Life insurance (857)	The Netherlands	18.60	-43.3			18 141	56.1	22.8	63.9
461	Channel Four Television	Media (555)	UK	18.55	3.3	32.9	21.4	1 391	4.8	6.2	9.4
462	Miba	Automobiles & parts (335)	Austria	18.50	5.7	54.9	8.7	367	5.8	5.8	11.6
463	Vetco	Oil equipment, services & distribution (57)	UK	18.43	332.6			1 870	285.6		
464	Recticel	Chemicals (135)	Belgium	18.40	12.1	-17.9	9.2	1 474	5.9	9.1	3.1
465	Oberthur Card Systems	Electronic equipment (2737)	France	18.32	-15.8	18.3	4.6	524	4.6	11.1	4.9
466	LKAB	Mining (177)	Sweden	18.29	3.8	-32.3	102.5	1 620	2.0	59.5	20.4
467	Royalblue (now Fidessa)	Software (9537)	UK	18.20	16.4	42.1	8.6	140	27.3	23.6	6.0
468	QinetiQ	Aerospace & defence (271)	UK	18.11	2.5	561.4		1 706	9.3	22.9	7.4
469	Exact	Software (9537)	The Netherlands	18.02	18.1	24.0	-22.9	242	7.6	6.1	2.9
470	Wittington Investments	Food producers (357)	UK	17.81	9.1	37.6	33.2	9 003	6.6	8.7	5.1
471	Standard Life	Life insurance (857)	UK	17.81	-50.0	64.7		22 781	-16.6	47.3	31.2
472	Sporting Exchange	Travel & leisure (575)	UK	17.73	216.0	36.8	84.7	215	35.2	60.6	106.3
473	Morphosys	Biotechnology (4573)	Germany	17.46	28.3	9.8	37.7	53	60.6	50.0	46.7

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
474	Enodis	Industrial machinery (2757)	UK	17.37	15.9	-29.4	8.3	1 140	15.0	1.7	-3.4
475	Anoto	Computer hardware (9572)	Sweden	17.19	16.4	-12.4	-12.6	12	-7.7	-18.8	-23.8
476	InBev	Beverages (353)	Belgium	17.00	-5.6	28.6	0.0	13 308	14.2	36.0	21.6
477	Fortum	Electricity (753)	Finland	17.00	21.4	-46.2	-25.7	4 491	-24.4	-49.4	3.1
478	KPN	Fixed line telecommunications (653)	The Netherlands	17.00	-15.0	-16.7	4.3	11 941	1.1	0.6	-1.0
479	Outokumpu	Industrial metals (175)	Finland	17.00	-48.5	-19.5	-14.6	7 332	13.3	-9.3	20.5
480	Cardo	Construction & materials (235)	Sweden	16.96	-7.8	3.1	20.1	948	8.6	2.5	0.0
481	e2v Technologies	Electronic equipment (2737)	UK	16.82	111.0	1.7	-2.5	258	54.5	12.1	2.8
482	Micro Focus International	Software (9537)	UK	16.82	-5.2			109	-4.4		
483	Renovo	Biotechnology (4573)	UK	16.80	46.6	26.2	45.5	0			
484	Delft Instruments	Health care equipment & services (453)	The Netherlands	16.80	-24.1	31.5	-1.8	243	-12.9	17.7	22.2
485	Axis-Shield	Biotechnology (4573)	UK	16.74	25.8	-10.5	-22.2	90	4.7	10.3	4.0
486	Pohjolan Voima	Electricity (753)	Finland	16.70	-22.3	8.6	59.7	888	47.8	-9.9	1.2
487	ACTIELEC Technologies	Electronic equipment (2737)	France	16.70	-17.5	-11.3	-24.5	222	1.8	-4.4	14.6
488	BE Semiconductor Industries	Semiconductors (9576)	The Netherlands	16.58	-3.4	41.9	-8.8	191	16.5	30.2	46.5
489	Uponor	Construction & materials (235)	Finland	16.50	-5.2	8.7	0.0	1 157	12.2	-3.9	5.1
490	Vossloh	Industrial transportation (277)	Germany	16.30	10.1	6.5	87.8	1 052	5.6	8.0	0.2
491	Domino Printing Sciences	Electronic equipment (2737)	UK	16.24	31.8	-13.1	12.5	309	8.4	7.5	8.6
492	Zentiva	Pharmaceuticals (4577)	The Netherlands	16.13	12.9	12.5	2.3	406	18.0	11.0	12.7
493	Servier	Biotechnology (4573)	UK	16.06	38.6	26.8	8.8	19	46.2	18.2	10.0
494	LCH Clearnet	Other financials (877)	UK	16.01	-60.0	97.0		444	26.9	10.8	8.2
495	Lottomatica	Travel & leisure (575)	Italy	15.90				939	65.0	-53.3	27.4
496	Bavarian Nordic	Biotechnology (4573)	Denmark	15.88	3.5	-6.7	92.7	24	-27.3	50.0	-67.6
497	BBA Aviation	Industrial transportation (277)	UK	15.88	-0.9	-9.2	26.6	2 218	-1.1	10.0	3.2
498	ProStrakan	Pharmaceuticals (4577)	UK	15.88	-52.3	118.6	100.1	57	21.3	46.9	146.2
499	Teollisuuden Voima	Electricity (753)	Finland	15.70	-23.4	17.1	44.6	242	15.8	-6.7	-3.4
500	EYBL International	Automobiles & parts (335)	Austria	15.69	8.7	-19.9	42.4	333	-3.5	3.9	-2.9
501	Parrot	Telecommunications equipment (9578)	France	15.69				159			
502	SAES Getters	Electronic equipment (2737)	Italy	15.61	6.7	8.9	5.0	166	19.4	-2.1	12.7
503	Evolutec	Biotechnology (4573)	UK	15.60	96.5	710.2	0.0	0	0.0	0.0	
504	Yule Catto	Chemicals (135)	UK	15.58	-0.3	-0.4	-6.3	819	-0.7	3.6	-0.6
505	Meda	Pharmaceuticals (4577)	Sweden	15.46	53.1	2 363.4	20.6	582	74.3	190.4	19.8
506	MessageLabs	Software (9537)	UK	15.44	101.8	40.9	69.7	135	21.6	30.6	34.9
507	Veikkaus	Travel & leisure (575)	Finland	15.30	45.7	20.7		1 298	3.4	-0.5	
508	Ktm Powersports	Automobiles & parts (335)	Austria	15.21	4.2	325.4	-44.0	504	31.9	146.5	-19.7
509	ESI	Software (9537)	France	15.15	-11.5	34.7	18.2	62	6.9	18.4	14.0
510	Bioinvent	Biotechnology (4573)	Sweden	15.00	-5.0	13.0	-3.8	6	100.0	-57.1	0.0
511	Wavin BV	Construction & materials (235)	The Netherlands	15.00	646.3	120.9		1 501	12.8	30.5	8.9
512	Carraro	Automobiles & parts (335)	Italy	14.99	0.9	55.8	15.1	667	8.1	20.0	31.8
513	Schaltbau	Commercial vehicles & trucks (2753)	Germany	14.90	4.7			213	4.4		
514	ICOS Vision Systems	Semiconductors (9576)	Belgium	14.86	31.6	27.0	36.6	106	30.9	-9.0	97.8
515	Alliance UniChem (now part of Alliance Boots)	Food & drug retailers (533)	UK	14.84	0.0			13 612	3.1	1.1	9.7
516	BG	Oil & gas producers (53)	UK	14.84	42.8	0.0	-12.5	10 591	27.2	38.5	13.0
517	SurfControl	Software (9537)	UK	14.82	50.8	33.9	28.5	77	4.1	12.1	17.9
518	Baxi	Construction & materials (235)	UK	14.70	-15.6	18.4	35.8	1 364	19.0	7.1	2.3
519	888	Travel & leisure (575)	UK	14.70	71.3	64.7		220	6.8	52.6	

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Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
520	Vitec	Industrial machinery (2757)	UK	14.69	26.9	-1.3	-10.2	330	14.2	5.1	-3.8
521	BRE Bank	Banks (835)	Poland	14.67				440	22.9	28.3	10.3
522	!! Genus	Biotechnology (4573)	UK	14.52	14.6	-4.7	11.3	341	25.4	-0.4	6.6
523	K+S	Chemicals (135)	Germany	14.51	10.8	7.2	-7.1	2 958	5.0	10.9	11.0
524	Unibel	Food producers (357)	France	14.43	8.6			1 777	2.8	-14.6	-2.5
525	Punch Graphix (now part of Punch International, Belgium)	Electronic equipment (2737)	UK	14.28	23.7	-2.8		164	7.2	45.7	
526	Allergy Therapeutics	Pharmaceuticals (4577)	UK	14.19	70.1	1 144.8	-53.1	35	12.9	14.8	3.8
527	Tarkett	Household goods (372)	Germany	14.10	14.6	12.8	-3.5	1 622	12.9	6.5	-6.1
528	Midland F1	Travel & leisure (575)	UK	14.10	-23.4	13.9	-33.9	38	-22.4	-33.8	-12.9
529	Carlsberg	Beverages (353)	Denmark	14.09	-9.4	6.4	142.1	5 511	8.0	4.9	4.8
530	Photo-Me	General retailers (537)	UK	14.02	33.4	-7.4	54.4	341	-3.1	8.0	17.3
531	Repower Systems	Industrial machinery (2757)	Germany	14.02	39.8		-100.0	459	39.9	2.2	12.6
532	Avon Rubber	General industrials (272)	UK	13.96	2.9	31.4	26.5	342	-3.9	0.3	-3.8
533	Hikma Pharmaceuticals	Pharmaceuticals (4577)	UK	13.87	10.8	70.6		240	20.6	23.6	
534	Telekomunikacja Polska	Fixed line telecommunications (653)	Poland	13.84	-3.6	-19.1	15.2	4 864	1.5	-1.2	1.5
535	Coda	Software (9537)	UK	13.79				79			
536	TF1	Media (555)	France	13.70	37.0		-100.0	2 889	0.5	0.8	2.9
537	Gewiss	Electrical components & equipment (2733)	Italy	13.63	-1.8	-5.0	4.9	327	-0.6	5.4	4.0
538	Charter	Industrial machinery (2757)	UK	13.51	21.4	4.1	-49.3	1 867	18.0	22.4	-0.1
539	Teligent	Software (9537)	Sweden	13.49	41.7	74.7	-12.1	45	-11.8	27.5	42.9
540	Eniro	Media (555)	Sweden	13.41	2.5	24.2	-5.0	742	35.2	0.7	0.4
541	Medigene	Biotechnology (4573)	Germany	13.40	-16.3	11.0	-28.8	31	55.0	53.8	550.0
542	Grupo Empresarial ENCE	Forestry & paper (173)	Spain	13.38	63.2	21.5	112.9	623	9.1	21.5	-2.7
543	BTG	Biotechnology (4573)	UK	13.36	11.1	-48.7	-17.3	68	-9.3	31.6	-20.8
544	Lucite International	Chemicals (135)	UK	13.36	0.0	0.0	-10.0	1 158	10.4	1.8	19.2
545	Napp Pharmaceutical	Pharmaceuticals (4577)	UK	13.36	63.9	2.3	-61.4	208	13.7	18.1	1.3
546	Endemol	Media (555)	The Netherlands	13.30	44.6	15.0		1 117	24.1	5.8	-6.9
547	OMV	Oil & gas producers (53)	Austria	13.24	8.6	-34.8	-17.7	19 014	21.9	58.8	28.6
548	Radiall	Telecommunications equipment (9578)	France	13.10	-10.9	12.2	4.8	211	18.5	9.2	12.4
549	SSL International	Personal goods (376)	UK	13.06	7.3	-4.6	-24.6	713	6.6	-1.8	-23.8
550	Skanditek	Other financials (877)	Sweden	12.99	8.4	9.6	1.3	87	11.5	14.7	19.3
551	Hoganas	Mining (177)	Sweden	12.97	-11.3	5.6	-8.8	568	11.6	10.4	10.8
552	Beta Systems Software	Software (9537)	Germany	12.86	-19.8	-12.5	60.7	97	-5.8	2.0	80.4
553	NPM/CNP	Other financials (877)	Belgium	12.85	5.0	20.5	22.4	13 461	16.4	25.3	21.7
554	Cerep	Pharmaceuticals (4577)	France	12.80	-15.1	26.6	1.0	53	0.0	3.9	50.0
555	Paion	Pharmaceuticals (4577)	Germany	12.78	-6.2	86.2	-14.0	10	-47.4	11.8	1 600.0
556	Bacou-Dalloz	General industrials (272)	France	12.77	5.5	-4.0	3.3	743	7.1	-1.7	-11.3
557	TT electronics	Electrical components & equipment (2733)	UK	12.76	-1.2	-19.5	25.6	891	2.9	-2.4	12.0
558	Intercytex	Biotechnology (4573)	UK	12.71	52.8	32.1	30.2	0			-100.0
559	Senior	Industrial machinery (2757)	UK	12.62	10.4	-2.6	108.0	576	14.5	3.9	-8.2
560	Vacon	Electrical components & equipment (2733)	Finland	12.57	16.1	7.4	12.2	186	24.0	16.3	15.2
561	Dynaction	Chemicals (135)	France	12.50	-16.7	0.0	0.0	178	-35.3	6.2	0.8
562	Ureco	Electricity (753)	UK	12.50	-19.5	-16.2	-9.6	894	22.5	3.3	2.8
563	KCI Konecranes (now Konecranes)	Industrial machinery (2757)	Finland	12.50	42.0	3.5	7.6	1 483	52.7	33.4	9.5
564	Amarin	Biotechnology (4573)	UK	12.48	97.8	139.0	-36.1	0	0.0	-60.0	-83.3

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
565	Valio	Food producers (357)	Finland	12.40	7.8	9.5	2.9	1 621	2.7	-0.2	1.0
566	Chroma Therapeutics	Biotechnology (4573)	UK	12.33	24.2	50.9	430.6	0			
567	LISI	Aerospace & defence (271)	France	12.30	21.8	-1.0	-10.5	740	19.7	14.2	6.9
568	Palfinger	Industrial machinery (2757)	Austria	12.30	14.3	6.5	34.7	585	12.5	28.7	21.0
569	Cez	Electricity (753)	Czech Republic	12.24	44.5	-49.0		5 798	27.6	24.9	18.1
570	Diamond Trading	General retailers (537)	UK	12.24	-21.4	-4.4		4 634	-4.5	14.7	90.1
571	JC Decaux	Media (555)	France	12.20	35.6	0.0	8.4	1 946	11.5	7.3	5.4
572	Tecnomen	Telecommunications equipment (9578)	Finland	12.19	-6.2	13.0	22.3	72	4.3	35.3	13.3
573	Morgan Crucible	Electrical components & equipment (2733)	UK	12.17	-34.4	6.8	-25.5	1 006	-9.1	-6.3	-6.3
574	AGRANA	Food producers (357)	Austria	12.16	22.1	122.8		1 916	27.7	52.9	13.3
575	Villeroy & Boch	Household goods (372)	Germany	12.15	-3.2	15.7	-13.3	964	8.0	-7.0	1.2
576	Funkwerk	Support services (279)	Germany	12.10	-34.6	6.0	43.3	242	0.0	-2.8	39.1
577	IONA Technologies	Computer services (9533)	Ireland	12.09	0.6	-7.9	-37.0	59	15.7	-1.9	-7.1
578	Nethawk	Telecommunications equipment (9578)	Finland	12.00	5.3	47.3	46.0	34	6.3	39.1	21.1
579	Plasmon	Computer hardware (9572)	UK	11.96	11.0	-14.0	-16.7	59	-11.9	-9.5	-16.9
580	Vectura	Pharmaceuticals (4577)	UK	11.91	40.1	-2.4	52.8	12	71.4	75.0	-20.0
581	SUESS MicroTec	Semiconductors (9576)	Germany	11.87	5.0	9.0	-1.2	155	31.4	1.7	20.8
582	Compagnie de Fives-Lille	General industrials (272)	France	11.84	48.4	-8.5	9.0	1 025	12.1	4.2	24.9
583	WMF	Household goods (372)	Germany	11.80	29.5			732	26.6	3.0	-3.6
584	TUI	Travel & leisure (575)	Germany	11.70	-5.6	-59.7	47.4	20 916	6.6	8.7	-6.1
585	Otto	General retailers (537)	Germany	11.57	-6.4	101.0	4.6	15 251	4.7	1.0	0.8
586	Teleca	Computer services (9533)	Sweden	11.51	-38.3	56.9	103.8	327	-2.7	11.3	11.0
587	Martin-Baker (Engineering)	Aerospace & defence (271)	UK	11.50	74.8	23.5	-33.8	172	0.6	0.6	2.4
588	Biocompatibles International	Health care equipment & services (453)	UK	11.49	0.8	42.0	19.0	9	80.0		
589	Topotarget	Biotechnology (4573)	Denmark	11.46	230.3	-38.9	-8.1	6	-45.5	450.0	
590	MBDA	Aerospace & defence (271)	UK	11.43	6.9	10.3	-3.3	1 547	13.7	40.6	117.5
591	Wavelight Laser Technologie	Health care equipment & services (453)	Germany	11.40	12.4	59.9	50.6	81	0.0	30.6	29.2
592	Rio Tinto	Mining (177)	UK	11.38	-25.0	25.1	-30.4	17 036	18.0	46.9	40.4
593	Brembo	Automobiles & parts (335)	Italy	11.34	-60.5	101.7	24.5	806	13.2	5.0	6.9
594	Nedap	Electronic equipment (2737)	The Netherlands	11.33	19.0	32.2	-21.7	139	14.9	-2.4	0.0
595	SanomaWSOY	Media (555)	Finland	11.30	-30.2			2 742	4.6	4.7	2.9
596	INDUS	General industrials (272)	Germany	11.29	4.7	31.9		849			-6.5
597	Sapura	Electronic equipment (2737)	UK	11.28	34.8	30.0	42.2	67	28.8	10.6	113.6
598	DSG International	General retailers (537)	UK	11.28	-37.2	-68.0		12 029	9.5	6.0	7.6
599	Nordex	Industrial machinery (2757)	Germany	11.25	25.7	56.2	16.7	514	66.3	39.2	13.3
600	Raisio	Food producers (357)	Finland	11.20	8.7	-27.5	-32.7	441	1.4	-30.6	-27.2
601	Karo Bio	Biotechnology (4573)	Sweden	11.19	-19.4	48.3	3.3	5	-16.7	50.0	-55.6
602	Gunnebo	General retailers (537)	Sweden	11.08	24.9	-19.9	0.0	745	-1.2	-7.1	5.3
603	OP Bank	Banks (835)	Finland	11.00	10.0			1 953	38.2	11.4	1.0
604	Deutsche Bahn	Travel & leisure (575)	Germany	11.00	-52.2	-8.0		30 053	19.9	4.6	-15.1
605	Comptel	Software (9537)	Finland	10.97	35.9	28.7	14.0	80	21.2	10.0	11.1
606	Enea	Software (9537)	Sweden	10.92	2 563.4	-72.7	167.9	83	5.1	8.2	19.7
607	Manitou BF	Commercial vehicles & trucks (2753)	France	10.84	46.9	269.0		1 128	14.5	19.8	20.5
608	Delcam	Software (9537)	UK	10.81	11.9	12.5	11.8	40	14.3	12.9	3.3
609	CeNeS Pharmaceuticals	Biotechnology (4573)	UK	10.80	48.8	40.7	18.1	0	0.0	0.0	-80.0
610	Galapagos	Biotechnology (4573)	Belgium	10.75	134.7	57.9		35	218.2	37.5	

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
611	NIBE Industrier	Household goods (372)	Sweden	10.74	14.0	35.5	27.5	549	29.8	20.9	28.7
612	Marzotto	Personal goods (376)	Italy	10.72	-23.2			300	-23.5	-78.8	5.6
613	PSI	Software (9537)	Germany	10.70	-0.9	0.0	20.5	117	0.0	1.7	-16.7
614	Conergy	Electricity (753)	Germany	10.61	1 394.4			752	41.9	86.0	
615	Karstadt Quelle (now Arcandor)	General retailers (537)	Germany	10.51	93.9	-35.2	-60.6	15 353	-9.2	25.7	-11.9
616	JCB Compact Products	Commercial vehicles & trucks (2753)	UK	10.50	6.2	3.5	28.7	289	24.6	38.9	2.5
617	Chargeurs International	Personal goods (376)	France	10.50	-7.9	-5.0		769	0.8	-10.1	-9.7
618	Orexo	Pharmaceuticals (4577)	Sweden	10.47	40.5	5.1		15	114.3	-30.0	
619	Basware	Software (9537)	Finland	10.46	68.7	34.8	11.9	60	39.5	30.3	26.9
620	IDS Scheer	Software (9537)	Germany	10.39	9.1	21.3	4.4	354	11.3	13.6	26.7
621	SciSys	Computer services (9533)	UK	10.38	-20.5	-0.2	-1.1	93	-13.9	6.9	0.0
622	Net Insight	Telecommunications equipment (9578)	Sweden	10.35	0.0	50.0	40.5	15	50.0	150.0	0.0
623	Orc Software	Software (9537)	Sweden	10.32	41.6	4.3	-16.9	46	48.4	14.8	3.8
624	Switchcore	Computer hardware (9572)	Sweden	10.28	-3.4			7	-41.7	-20.0	15.4
625	Ion Beam Applications	Health care equipment & services (453)	Belgium	10.25	2.6	6.1	-48.5	170	23.2	-21.1	-25.2
626	Rational	Household goods (372)	Germany	10.23	2.2	-3.7	-8.5	284	15.4	10.8	18.7
627	Oriflame Cosmetics	Personal goods (376)	Luxembourg	10.22	12.9	41.2	2.9	918	19.8	14.2	2.9
628	OFCOM	Media (555)	UK	10.17	-21.1	154.7	-0.4	213	-8.2	7.4	340.8
629	P&I Personal & Informatik	Software (9537)	Germany	10.13	3.6	-3.2	22.3	55	10.0	11.1	12.5
630	!! Empire Interactive	Software (9537)	UK	10.12	-19.0	-12.7	-11.2	32	-27.3	-2.2	21.6
631	Head	Leisure goods (374)	The Netherlands	10.10	-3.5	-10.9	14.0	367	8.3	-6.4	10.7
632	Hannover RE	Nonlife insurance (853)	Germany	10.10	60.3			9 331	5.2	-7.3	-15.7
633	Schouw	General industrials (272)	Denmark	10.03	91.8	-6.1	-41.0	989	97.4	10.6	9.7
634	ARC International	Semiconductors (9576)	UK	10.00	3.2	-20.4	-34.0	20	25.0	-11.1	12.5
635	Actix International	Software (9537)	UK	9.99	21.5	68.4	84.2	44	12.8	77.3	22.2
636	Socotherm	Oil equipment, services & distribution (57)	Italy	9.90	326.7			261	5.2	95.3	-19.6
637	Ortivirus	Health care equipment & services (453)	Sweden	9.89	62.9	65.8	4.9	22	15.8	18.8	-15.8
638	Cegedim	Computer services (9533)	France	9.87	23.1			541	8.0	17.1	10.0
639	Santaris Pharma	Biotechnology (4573)	Denmark	9.86	33.2	825.0		0			
640	Phytopharm	Biotechnology (4573)	UK	9.71	-4.6	8.1	-12.2	3	-72.7	450.0	-50.0
641	Sondex	Oil equipment, services & distribution (57)	UK	9.71	46.5	44.1	54.4	102	34.2	61.7	80.8
642	Newport Networks	Telecommunications equipment (9578)	UK	9.59	36.8	0.3	51.0	2	100.0	150.0	-60.0
643	Arla Foods	Food producers (357)	Denmark	9.52	-74.3	-20.0	-9.5	6 102	-1.9	-2.6	17.1
644	Trinity Biotech	Health care equipment & services (453)	Ireland	9.52	14.3	136.6	-10.9	90	20.0	23.0	22.0
645	CeWe Color	General retailers (537)	Germany	9.50	74.3	34.6	5.2	401	-7.0	0.7	2.9
646	Cramer Systems	Software (9537)	UK	9.47	10.9	39.1	18.8	58	5.5	66.7	73.7
647	Tele Atlas	Media (555)	The Netherlands	9.44	-67.3	-48.1	-5.6	264	32.0	56.3	48.8
648	Ardana	Pharmaceuticals (4577)	UK	9.44	58.7	-67.8		1	150.0	0.0	-60.0
649	Perstorp	Chemicals (135)	Sweden	9.42			-1.1	806			13.8
650	Natuzzi	Household goods (372)	Italy	9.40	-6.0	0.0	25.0	735	9.7	-11.0	-2.2
651	Ubiquity Software	Software (9537)	UK	9.36	98.3	30.4	-13.4	11	37.5	100.0	33.3
652	Scottish and Southern Energy	Electricity (753)	UK	9.35	349.5	133.7	-39.9	17 613	17.0	36.6	44.9
653	Biotage	Biotechnology (4573)	Sweden	9.34	6.4	-10.0	-3.5	58	20.8	17.1	115.8
654	Arup	Support services (279)	UK	9.34	17.9	-29.3	-18.2	705	10.3	5.3	3.6
655	Gamma	Personal goods (376)	The Netherlands	9.30	-7.9	-24.6	-16.4	893	2.6	1.0	-4.8

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
656	Teleste	Telecommunications equipment (9578)	Finland	9.29	-10.5	50.4	19.0	102	22.9	25.8	22.2
657	Intelligent Energy	Electrical components & equipment (2733)	UK	9.27	-7.9	10.9	47.0	3	-25.0	-20.0	400.0
658	Vislink	Telecommunications equipment (9578)	UK	9.22	3.5	46.5	12.2	149	18.3	24.8	-1.9
659	Intralot	Travel & leisure (575)	Greece	9.19	128.6	18.2	14.9	791	51.2	60.4	1.9
660	Txt E-Solutions	Software (9537)	Italy	9.15	14.9	39.2	11.5	53	-3.6	31.0	20.0
661	Microgen	Computer services (9533)	UK	9.14	-0.1	45.7	76.9	56	-8.2	-3.2	61.5
662	Observer (now Cision)	Support services (279)	Sweden	9.11	-2.1	-3.2	10.6	212	7.6	10.1	4.7
663	Weir	Industrial machinery (2757)	UK	9.05	16.2	-4.8	11.1	1 396	14.1	11.6	6.9
664	Randox Laboratories	Biotechnology (4573)	UK	9.03	-20.4	-23.2	1.9	60	25.0	4.3	17.9
665	ClearSpeed Technology	Semiconductors (9576)	UK	9.03	30.9	86.0	41.1	3	200.0	150.0	0.0
666	Nokian Tyres	Automobiles & parts (335)	Finland	9.00	-3.2	-3.1	15.7	836	21.7	14.1	13.8
667	Cap Gemini	Computer services (9533)	France	9.00	350.0	0.0		7 700	10.7	11.5	8.4
668	Chemring	Aerospace & defence (271)	UK	8.98	61.2	-37.8	27.1	295	49.7	5.9	3.9
669	Spyker Cars	Automobiles & parts (335)	The Netherlands	8.95	699.1	-82.1	32.9	36	300.0	125.0	100.0
670	National Grid	Gas, water & multiutilities (757)	UK	8.91	-14.2	-22.2	-10.0	13 474	-3.0	10.3	-6.1
671	EL EN	Electronic equipment (2737)	Italy	8.83	11.6	10.6	16.6	154	30.5	24.2	39.7
672	Sanochemia Pharmazeutika	Pharmaceuticals (4577)	Austria	8.67	27.5	7.8	52.0	30	3.4	11.5	36.8
673	Spirax-Sarco Engineering	Industrial machinery (2757)	UK	8.63	8.4	43.9	-23.6	570	10.0	10.4	0.6
674	Avery Weigh-Tronix	Household goods (372)	UK	8.56	71.2	8.5	23.6	232	0.0	33.3	4.8
675	HK Ruokatalo	Food producers (357)	Finland	8.50	6.3	26.0	4.3	934	5.8	29.9	5.1
676	SolarWorld	Electrical components & equipment (2733)	Germany	8.46	1.6	36.6	22.0	515	44.7	78.0	104.1
677	Swedish Match	Tobacco (378)	Sweden	8.42	-20.0	-15.9	13.0	1 431	-3.0	2.4	-0.3
678	Glanbia	Food producers (357)	Ireland	8.34	6.6	80.6	-7.9	1 853	1.3	-0.9	-9.6
679	VKR	Construction & materials (235)	Denmark	8.32	19.2	73.6	123.3	2 237	17.2	10.6	16.6
680	Osmetech	Biotechnology (4573)	UK	8.31	40.1	87.7	22.0	16	33.3	33.3	0.0
681	Sodra	Forestry & paper (173)	Sweden	8.31	21.0	0.0	14.9	2 680	77.1	3.6	9.4
682	John Lewis	General retailers (537)	UK	8.31	3.6	-6.9		8 458	10.7	8.2	5.7
683	Pharming	Biotechnology (4573)	The Netherlands	8.26	-7.4	61.3	4.7	0	0.0	-60.0	150.0
684	Ohb Technology	Aerospace & defence (271)	Germany	8.22	-10.6	59.3	-20.0	163	43.0	-17.4	43.8
685	Umbro	Personal goods (376)	UK	8.21	40.6	9.6	31.0	222	21.3	-12.0	10.1
686	Investment AB Kinnevik	Forestry & paper (173)	Sweden	8.20	131.0	-8.5	0.0	753	-2.7	5.0	17.5
687	Huntleigh Technology (now part of Getinge Extended Care)	Health care equipment & services (453)	UK	8.17	-13.1	16.2	2.5	334	12.8	0.3	6.1
688	MTL Instruments	Electronic equipment (2737)	UK	8.15	16.1	16.8	9.5	127	15.5	17.0	5.6
689	Telit Communications	Telecommunications equipment (9578)	UK	8.15	108.4	-6.9		87	1.2	14.7	
690	Royal Ten Cate	General industrials (272)	The Netherlands	8.10				771	12.2	7.2	12.5
691	Thomas Swan	Chemicals (135)	UK	8.07	2.3	41.4	-11.0	42	5.0	-4.8	10.5
692	Karolin Machine Tool	Industrial machinery (2757)	Sweden	8.06	-0.7	51.5	14.3	176			38.8
693	Expro	Oil equipment, services & distribution (57)	UK	8.04	125.2	56.6	125.7	770	72.6	42.0	7.9
694	Ducati Motor	Automobiles & parts (335)	Italy	8.02	31.0	8.1	-42.2	333	-4.3	-9.1	-1.3
695	Plethora Solutions	Pharmaceuticals (4577)	UK	8.02	18.6	152.2		8	1 900.0		
696	Neste Oil	Oil & gas producers (53)	Finland	8.00				12 734	27.7		
697	Skanska	Construction & materials (235)	Sweden	7.98	53.2	-4.1		13 919	0.7	2.8	-8.7
698	Avanquest Software	Software (9537)	France	7.96	69.4	11.9	35.5	71	24.6	16.3	32.4
699	Xaar	Electrical components & equipment (2733)	UK	7.88	-3.1	42.6	-16.8	63	0.0	21.2	20.9
700	Svenska Handelsbanken	Banks (835)	Sweden	7.87	208.6			3 276	12.2	9.9	9.9

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
701	Elica	Electronic equipment (2737)	Italy	7.79				407			
702	FAES Farma	Biotechnology (4573)	Spain	7.78	60.4	-75.2	204.2	185	11.4	1.8	-5.8
703	Kingspan	Construction & materials (235)	Ireland	7.75	21.1	28.8	0.2	1 461	17.5	29.7	22.2
704	Stratec Biomedical System	Health care equipment & services (453)	Germany	7.74	51.2	14.0	83.3	68	44.7	17.5	25.0
705	Foseco	Industrial machinery (2757)	UK	7.72	6.2	0.0	172.3	607	8.6	10.7	-5.1
706	Wolford	Personal goods (376)	Austria	7.72	2.1	-3.9	-2.8	142	17.4	4.3	-2.5
707	Detica	Computer services (9533)	UK	7.70	42.1	25.5	56.0	232	53.6	43.8	32.9
708	Dyson	Chemicals (135)	UK	7.66	30.1	7.7	41.7	88	0.0	0.0	-3.3
709	Isra Vision Systems	Industrial machinery (2757)	Germany	7.65	16.8	12.3	-15.0	48	6.7	12.5	48.1
710	Infovista	Software (9537)	France	7.62	14.6	9.4	-2.9	41	20.6	17.2	11.5
711	Biotie Therapies	Biotechnology (4573)	Finland	7.58	6.0	-13.5	-21.6	1	0.0	-75.0	100.0
712	Redac	Software (9537)	UK	7.58	21.5	84.1	-48.1	78	-18.8	-18.6	-13.9
713	Body Shop International (now part of L'Oreal)	General retailers (537)	UK	7.57	10.8	-13.2	8.3	721	15.9	9.9	0.2
714	Zetex	Semiconductors (9576)	UK	7.57	-6.4	-22.1	-20.0	100	17.6	-20.6	-21.3
715	Tkh	Electrical components & equipment (2733)	The Netherlands	7.51	12.6	3.1		654	19.8	30.9	10.3
716	Vanco	Fixed line telecommunications (653)	UK	7.50	36.9	74.5		272	24.8	41.6	35.1
717	Royal Cosun	Food producers (357)	The Netherlands	7.50	-32.4	-4.3	26.1	1 469	9.7	1.7	-0.3
718	Epigenomics	Biotechnology (4573)	Germany	7.45	0.4	6.9	-18.0	4	-60.0	25.0	-27.3
719	PerkinElmer	Electronic equipment (2737)	UK	7.45	-2.2	-16.0	9.9	53	-8.6	-18.3	-27.6
720	Atria	Food producers (357)	Finland	7.44	10.9	-4.1	4.5	1 103	12.9	17.1	9.0
721	British Sky Broadcasting	Media (555)	UK	7.42	-16.7			6 156	8.0	5.1	14.7
722	Boss Media	Travel & leisure (575)	Sweden	7.41	-32.5	264.8	66.3	35	29.6	12.5	60.0
723	Rosenbauer International	Commercial vehicles & trucks (2753)	Austria	7.40	27.6	-7.9	0.0	372	15.9	7.4	-7.4
724	Basler	Electrical components & equipment (2733)	Germany	7.40	-5.9	1.8	50.5	52	15.6	-13.5	44.4
725	Elexis	Electrical components & equipment (2733)	Germany	7.40	-5.1	50.0	-1.9	138	-9.2	21.6	17.9
726	Fabasoft	Software (9537)	Austria	7.40	-6.3	54.9	88.9	21	-16.0	13.6	29.4
727	Tekla	Software (9537)	Finland	7.40	-2.5	-17.0	-25.6	50	31.6	0.0	-5.0
728	R Stahl	Electrical components & equipment (2733)	Germany	7.39	-13.5			171	-36.4	6.3	10.5
729	Pfeiffer Vacuum Technology	Household goods (372)	Germany	7.32	13.8	-37.3	14.8	179			8.3
730	Omega Pharma	Pharmaceuticals (4577)	Belgium	7.27	-3.1	-45.5	102.8	1 006	4.8	15.2	14.9
731	Isagro	Chemicals (135)	Italy	7.26	-0.4	-4.7	-23.0	161	-19.9	9.8	19.6
732	Mania Technologie	Electronic equipment (2737)	Germany	7.25	76.4	7.3	5.5	77	4.1	-15.9	25.7
733	Prima Industrie	Industrial machinery (2757)	Italy	7.24	15.5	-9.1	16.4	148	33.3	11.0	5.3
734	Macro 4	Software (9537)	UK	7.22	-5.9	2.7	-13.9	47	-4.1	6.5	-4.2
735	Verbund	Electricity (753)	Austria	7.20	60.0			3 218	28.4	-18.6	24.2
736	Devro	Food producers (357)	UK	7.19	16.7	2.7	-0.7	228	0.9	2.3	1.8
737	Hampson Industries	Aerospace & defence (271)	UK	7.17	134.3			155	34.8	12.7	-7.3
738	Trevi Finanziaria Industrial	Construction & materials (235)	Italy	7.12	29.0	17.7	9.1	607	28.1	34.3	-2.5
739	Intrum Justitia	Other financials (877)	Sweden	7.12	3.3	45.7	-23.5	326	4.2	-0.9	-0.3
740	Affibody	Biotechnology (4573)	Sweden	7.11	16.7	-13.1	-8.1	2	100.0	0.0	0.0
741	Techem	Support services (279)	Germany	7.11	-48.5	102.9	94.3	523	12.0	8.1	5.9
742	Lombard Medical Technologies	Health care equipment & services (453)	UK	7.10	51.4	75.7	74.5	1	150.0	0.0	0.0
743	Genesys	Fixed line telecommunications (653)	France	7.09	116.8	-12.8	-10.3	142	0.0	2.2	-13.1
744	CML Microsystems	Semiconductors (9576)	UK	7.04	-7.4			26	-33.3	11.4	45.8

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
745	Apertio	Telecommunications equipment (9578)	UK	7.03	52.2	90.9	108.6	20	53.8	160.0	400.0
746	Greencore	Food producers (357)	Ireland	7.02	-7.9	22.1	-15.7	1 352	-4.5	-2.1	-1.8
747	Sioen Industries	Personal goods (376)	Belgium	7.02	66.0	148.8		339	7.3	1.3	14.3
748	Bioalliance Pharma	Health care equipment & services (453)	France	7.01	53.7	-47.2		0	0.0	0.0	
749	SDL	Software (9537)	UK	7.01	21.9	52.5	-3.8	141	21.6	24.7	-3.1
750	GfK	Support services (279)	Germany	7.00	0.0			1 112	18.7	40.1	12.4
751	FKI	Industrial machinery (2757)	UK	6.98	-37.3	-9.7	-25.9	1 980	-0.4	3.8	-4.1
752	Bauer	Construction & materials (235)	Germany	6.94	12.7	12.2		835	16.1	19.4	-2.9
753	Clearswift Systems	Software (9537)	UK	6.93	6.0	-1.1	-2.4	36	0.0	5.9	0.0
754	NETeller	Other financials (877)	UK	6.91	12.2	1 300.0		195	50.0	106.3	
755	Chloride	Electrical components & equipment (2733)	UK	6.90	2.7	-11.6	0.9	303	12.6	9.8	7.9
756	Superscape	Software (9537)	UK	6.88	-21.7	71.0	13.0	12	100.0	0.0	200.0
757	Fugro	Oil equipment, services & distribution (57)	The Netherlands	6.87	41.9	9.0		1 434	23.5	15.2	21.4
758	Larox	Support services (279)	Finland	6.81	-1.4	15.2	71.4	123	18.3	7.2	70.2
759	SoftM Software und Beratung	Computer services (9533)	Germany	6.80	-10.5	26.7	-6.3	83	2.5	-8.0	27.5
760	Elcoteq	Electronic equipment (2737)	Finland	6.80	-4.2	-10.1	5 976.9	4 284	2.8	41.1	32.1
761	StatPro	Software (9537)	UK	6.79	23.5	33.8	137.6	22	37.5	23.1	0.0
762	Apoteket	Food & drug retailers (533)	Sweden	6.76	64.9	164.5	-44.0	4 130	5.1	4.0	3.0
763	Kaessbohrer Gelaendefahrzeug	Industrial machinery (2757)	Germany	6.70	17.5	14.0	-2.0	191	15.8	7.1	18.5
764	Aga Foodservice	Household goods (372)	UK	6.68	7.2	10.5	15.1	843	13.2	15.7	10.7
765	Ricardo	Support services (279)	UK	6.68	15.4	-11.7	-13.7	257	9.4	8.3	6.9
766	Torotrak	Automobiles & parts (335)	UK	6.61	-14.6	2.4	-11.6	4	33.3	200.0	150.0
767	Hochtief	Construction & materials (235)	Germany	6.59	0.5	56.2	-31.8	15 508	13.6	14.3	13.4
768	Elementis	Chemicals (135)	UK	6.53	-29.0	8.7		588	-0.8	2.6	5.9
768	Technotrans	Electrical components & equipment (2733)	Germany	6.53	10.5	87.6	-12.7	151	16.2	11.1	9.3
770	ReNeuron	Biotechnology (4573)	UK	6.48	1.6	79.2	13.4	0	0.0	0.0	0.0
771	Compagnia Fianaziaria de Benedetti	General industrials (272)	Italy	6.47	-6.0	46.1		4 137	22.3	10.5	
772	Meridio	Software (9537)	UK	6.43	10.3	80.5	19.6	17	70.0	-9.1	120.0
773	Alphameric	Software (9537)	UK	6.42	50.4	-14.9	-17.7	98	-10.1	4.8	11.8
774	Cie Automotive	Automobiles & parts (335)	Spain	6.40	183.2	88.3	-35.5	959	22.6	16.7	17.3
775	Sword	Computer services (9533)	France	6.40	-23.8			142	40.6		
776	CEAG	Telecommunications equipment (9578)	Germany	6.40	8.5	9.3	0.0	352	53.0	43.8	-4.2
777	Graphisoft	Software (9537)	Hungary	6.36	26.2	10.8	12.9	33	17.9	3.7	0.0
778	XRT	Software (9537)	France	6.36	-40.7	-8.6	2.4	42	-4.5	10.0	2.6
779	TELES	Internet (9535)	Germany	6.34	16.1	-8.5	33.3	28	-6.7	-62.0	3.9
780	Constantia Packaging	General industrials (272)	Austria	6.33	4.8	-3.7	31.7	1 056	6.5	5.0	-3.2
781	Jetter	Industrial machinery (2757)	Germany	6.33	30.0	35.7	11.8	37	48.0	8.7	64.3
782	Games Workshop	Leisure goods (374)	UK	6.32	-0.5	-35.5	6.0	171	-15.8	-9.8	17.2
783	Varta	Electronic equipment (2737)	Germany	6.27	-11.9			134	3.1	-17.7	
784	Leifheit	Household goods (372)	Germany	6.26	5.6	-11.4	-1.0	277	-6.4	-6.6	-5.4
785	Haulotte	Commercial vehicles & trucks (2753)	France	6.24	88.5	-7.5	-10.5	519	33.8	36.1	29.0
786	Severn Trent	Gas, water & multiutilities (757)	UK	6.23	7.6	44.4	-15.6	2 932	-16.1	13.1	3.3
787	IPTE	Industrial machinery (2757)	Belgium	6.23	7.4	2.7	-5.5	138	8.7	-1.6	
788	Dunelm	General retailers (537)	UK	6.20				468	11.7	47.5	
789	BioDiesel International	Industrial machinery (2757)	Austria	6.13				88			
790	Norbrook Laboratories	Pharmaceuticals (4577)	UK	6.12	3.7	9.3	3.6	134	8.9	20.6	9.7

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
791	Transitive	Software (9537)	UK	6.12	24.6	13.1	18.9	4	100.0	0.0	-50.0
792	Ercros	Chemicals (135)	Spain	6.10	183.7			721	66.5	104.2	-2.8
793	GFI Informatique	Computer services (9533)	France	6.10	29.5	-16.5	24.5	633	16.4	5.0	3.6
794	Fiskars	Household goods (372)	Finland	6.10	8.9	12.0	25.0	535	-2.9	-7.7	-3.7
795	Kensington	Other financials (877)	UK	6.09	86.2	-18.5		300	29.9	23.5	42.7
796	Global Graphics	Software (9537)	France	6.09	-6.0	-1.1	5.1	17	-15.0	5.3	5.6
797	Pilat Media Global	Software (9537)	UK	6.09	54.6	629.6	-37.9	29	52.6	5.6	28.6
798	Artwork Systems	Software (9537)	Belgium	6.08	9.9	14.3	11.0	46	0.0	-2.1	6.8
799	Boiron	Pharmaceuticals (4577)	France	6.07	22.1	47.0	10.8	399	10.2	15.7	2.6
800	Rocla	Commercial vehicles & trucks (2753)	Finland	6.04	1.2	38.8	30.3	104	7.2	5.4	13.6
801	Perlos	Electronic equipment (2737)	Finland	6.00	-7.7	62.5		716	7.3	18.7	24.3
802	Elisa	Fixed line telecommunications (653)	Finland	6.00	-18.9	-56.7	-28.8	1 518	13.5	-1.4	-11.8
803	Stef-TFE	Industrial transportation (277)	France	6.00	-14.3	-8.6		1 718	12.5	4.9	8.0
804	nCipher	Software (9537)	UK	6.00	42.5	0.2	-2.6	31	19.2	23.8	10.5
805	Mensch und Maschine Software	Computer services (9533)	Germany	5.99	-5.2	-16.8	-6.4	170	15.6	8.9	3.1
805	Fagor Electrodomesticos	Household goods (372)	Spain	5.99	-11.5	137.5	143.6	747	-47.1	49.9	3.3
807	Balfour Beatty	Construction & materials (235)	UK	5.94	0.0	-50.0	-20.0	6 660	16.9	8.4	12.0
808	MicroEmissive Displays	Electrical components & equipment (2733)	UK	5.94	327.3	-35.9		0	0.0	0.0	
809	McBride	Household goods (372)	UK	5.94	-11.1	-4.3		802	0.6	7.1	-0.8
810	Cast	Software (9537)	France	5.92	12.5	37.7	34.0	23	4.5	10.0	-4.8
811	Surrey Satellite Technology	Telecommunications equipment (9578)	UK	5.91	-52.6	129.0	-16.9	31	-16.2	37.0	22.7
812	IAWS	Food producers (357)	Ireland	5.90	23.4	177.9	-16.5	1 557	10.6	10.3	3.7
813	Ebro Puleva	Food producers (357)	Spain	5.89	-24.5	72.9		2 505	6.1	11.1	6.0
814	BWT	Gas, water & multiutilities (757)	Austria	5.89	-25.5	-35.4	23.5	362	-22.0	-4.9	17.3
815	Espirito Santo Financial	Banks (835)	Luxembourg	5.82	-34.1			2 427	-7.3	-8.0	15.1
816	Ambu	Health care equipment & services (453)	Denmark	5.81	18.6	17.2	27.1	96	9.1	7.3	7.9
817	PZ Cussons	Personal goods (376)	UK	5.79	14.7	-15.3	7.4	801	12.3	-1.7	4.9
818	Linn Products	Leisure goods (374)	UK	5.78	15.4	-7.2	33.0	48	0.0	-7.7	-1.9
819	Microsulis	Health care equipment & services (453)	UK	5.77	-1.4	184.0	198.6	7	16.7	100.0	50.0
820	Munters	Industrial machinery (2757)	Sweden	5.76	12.9	16.4	-3.9	633	11.2	12.9	5.7
821	Nipson Digital Printing Systems	Media (555)	UK	5.76	42.6	10.7	-36.1	47	6.8	4.8	-4.5
822	Beijer Electronics	Electronic equipment (2737)	Sweden	5.73	8.1	213.6	302.4	81	19.1	33.3	4.1
823	Biolipox	Pharmaceuticals (4577)	Sweden	5.68	-36.0	16.9	25.2	4	-75.0		
824	Glunz & Jensen	Computer hardware (9572)	Denmark	5.67	21.2	-41.0	-7.3	65	-8.5	-14.5	-9.8
825	Amper	Telecommunications equipment (9578)	Spain	5.66	-24.4	59.7	-12.5	248	18.1	14.1	-11.5
826	Kyro	Industrial machinery (2757)	Finland	5.63	-36.2	-6.2	-4.1	269	0.7	15.1	2.2
827	Bespak	Health care equipment & services (453)	UK	5.60	18.6	-10.6	-43.9	138	16.9	-4.1	-6.1
828	Datalex	Computer services (9533)	Ireland	5.59	185.2	-9.3	-14.3	20	-9.1	-4.3	4.5
829	PlasmaSelect	Health care equipment & services (453)	Germany	5.56	29.0	24.9	85.5	69	0.0	15.0	93.5
830	Lafuma	Personal goods (376)	France	5.51	61.6	162.3		243	20.3	12.2	2.3
831	Devgen	Biotechnology (4573)	Belgium	5.50	177.8	46.7		9	0.0	0.0	
832	EVS Broadcast Equipment	Electronic equipment (2737)	Belgium	5.50	0.0	-9.8	3.4	86	59.3	8.0	28.2
833	Benefon	Telecommunications equipment (9578)	Finland	5.50	101.5	105.3	-71.2	7	-12.5	14.3	0.0
834	Luxfer	Industrial machinery (2757)	UK	5.49	-9.9	2.5	-2.5	358			2.7
835	Beazley	Nonlife insurance (853)	UK	5.49	2.8			839	1.3	38.7	20.6

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
836	Azkoyen	Industrial machinery (2757)	Spain	5.47	-2.3	-17.6	11.5	137	16.1	-5.6	14.7
837	Biolitec	Pharmaceuticals (4577)	Germany	5.46	-7.3	51.0	-31.7	29	16.0	0.0	38.9
836	Kewill Systems	Software (9537)	UK	5.46	27.9	17.0	15.5	62	31.9	17.5	21.2
839	Salcomp	Electronic equipment (2737)	Finland	5.42	33.8	12.2	-25.4	259	66.0	10.6	33.0
840	Provimi	Food producers (357)	France	5.40	-46.5	-32.7	0.0	1 823	15.0	0.3	2.3
841	Systar	Software (9537)	France	5.39	-7.7	2.8	-4.4	16	33.3	9.1	10.0
842	Wustenrot & Wurttemberg	Nonlife insurance (853)	Germany	5.36	-3.9			5 786	205.7	11.6	-57.3
843	Premier Foods	Food producers (357)	UK	5.34	139.5	66.4	0.0	1 424	10.6	-3.3	3.0
844	Clipper Windpower	Electricity (753)	UK	5.33	38.1	-4.5		6	200.0	-75.0	
845	Tilgin	Electronic equipment (2737)	Sweden	5.33	115.8			50	127.3	266.7	20.0
846	Lavipharm	Pharmaceuticals (4577)	Greece	5.31	-30.3	138.1	25.5	230	-1.3	-5.3	-24.1
847	Ensto	Electrical components & equipment (2733)	Finland	5.30	17.8	15.4	-11.4	209	16.8	9.8	0.0
848	Marazzi	Household goods (372)	Italy	5.30	-2.6	-3.2		964	6.8	19.8	
849	Agrolinz Melamine International (now part of Borealis)	Chemicals (135)	Austria	5.28	-0.6	-13.8		471	19.5	-3.0	
850	NSB	Software (9537)	UK	5.26	-72.1	10.0	-21.6	66	-8.3	7.5	-30.2
851	ALTEC	Computer services (9533)	Greece	5.25	-25.3	29.2	58.1	195	8.9	-38.1	12.9
852	Airborne Systems	Aerospace & defence (271)	UK	5.23	-15.6	-28.4	18.5	67	-38.5	-47.3	2.0
853	Wienerberger	Construction & materials (235)	Austria	5.23	45.3	-40.5	-8.2	2 225	13.8	11.1	-3.7
854	AERO Vodochody	Aerospace & defence (271)	Czech Republic	5.20	-56.0	34.5	-44.2	107	21.6	-35.8	-34.8
855	Dantherm	Industrial machinery (2757)	Denmark	5.20	15.0	118.4	508.8	397	2.3	98.0	5.9
856	Rentokil Initial	Support services (279)	UK	5.20	-5.3	27.7		3 355	-5.9	3.5	-1.9
857	JoWood Productions Software	Software (9537)	Austria	5.16			91.8	15	150.0	-64.7	-26.1
858	Amino Technologies	Telecommunications equipment (9578)	UK	5.14	23.3	66.1	34.2	38	8.6	66.7	950.0
859	ExonHit Therapeutics	Biotechnology (4573)	France	5.11	-22.2			5	25.0		
860	Deceuninck	Construction & materials (235)	Belgium	5.11	-12.3	-3.8	-4.6	663	3.0	10.7	23.8
861	Scapa	Chemicals (135)	UK	5.05	0.0	3.1	-5.8	274	-3.5	1.8	0.0
862	RHM (now part of Premier Foods)	Food producers (357)	UK	5.05	3.1	-3.0	6.3	2 314	-5.1	-2.0	-4.6
863	Yorkshire Building Society	Other financials (877)	UK	5.05	276.9	-72.7		313	9.8	5.9	3.1
864	Inion	Health care equipment & services (453)	Finland	5.04	21.4	89.5	48.0	6	-25.0	14.3	133.3
865	Lufthansa	Travel & leisure (575)	Germany	5.00	-72.2	200.0	-25.0	19 849	9.9	6.5	6.3
866	Inter Link Foods	Food producers (357)	UK	4.97	32.5	162.2	113.4	193	32.2	41.7	35.5
867	Ferraris (now Bionostics)	Health care equipment & services (453)	UK	4.97	37.7	13.2	2.2	73	-9.9	-25.0	11.3
868	IRIS	Software (9537)	Belgium	4.97	11.4	13.8		82	10.8	57.4	11.9
869	Sabca	Aerospace & defence (271)	Belgium	4.94	-37.5			128	14.3	4.7	
870	PKC	Electronic equipment (2737)	Finland	4.91	29.2	-5.7	24.8	229	15.1	11.8	21.9
871	Prosodie	Computer services (9533)	France	4.89	47.3	-4.9		165	12.2	-13.5	3.0
872	Klin	Nonlife insurance (853)	UK	4.89	-12.5	302.2	-31.2	476	19.9	22.5	-18.4
873	Maconomy	Software (9537)	Denmark	4.88	23.2	5.0	-1.8	24	26.3	-5.0	0.0
874	Efore	Electronic equipment (2737)	Finland	4.86	-25.7	15.8	48.7	90	9.8	12.3	14.1
875	Grifols	Pharmaceuticals (4577)	Spain	4.85	-4.9	-26.0	11.0	648	23.7	15.2	6.8
876	Codan (now part of Royal & Sun Alliance, UK)	Nonlife insurance (853)	Denmark	4.83	-59.1			2 072	6.4	-14.7	-5.7
877	Stonesoft	Computer services (9533)	Finland	4.80	4.1	-9.4	-22.2	22	0.0	0.0	-4.3
878	D'leteren	General retailers (537)	Belgium	4.80	-20.0	-71.6	5 175.0	5 335	12.2	6.7	47.2

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
879	Norddeutsche Affinerie	Industrial metals (175)	Germany	4.80	-12.7	10.0	-16.7	5 753	90.4	21.8	36.6
880	QXL ricardo	General retailers (537)	UK	4.78	282.4	34.4	9.4	54	217.6	54.5	83.3
881	Lindab International	Industrial metals (175)	Sweden	4.77	5.1	20.4	-14.9	843	22.4	13.5	3.2
882	AudioDev	Computer hardware (9572)	Sweden	4.75	3.7	-21.7	15.8	12	-50.0	-20.0	0.0
883	SR Pharma (now Silence Therapeutics)	Biotechnology (4573)	UK	4.73	92.3	-2.4	-43.6	3	200.0	150.0	-80.0
884	Sectra	Computer services (9533)	Sweden	4.72	66.8	5.6		75	19.0	23.5	-7.3
885	Randstad	Support services (279)	The Netherlands	4.70	-52.5	1.0		8 186	23.3	15.2	9.6
886	Augusta Technologie	Electrical components & equipment (2733)	Germany	4.66	-50.7	-32.9	9.8	111	-44.8	-14.1	-0.8
887	Phoqus	Pharmaceuticals (4577)	UK	4.65	25.3	-2.9		0	0.0	0.0	0.0
888	Portrait Software	Software (9537)	UK	4.65	-13.2	-17.2	-31.2	17	-19.0	-27.6	11.5
889	Ceres Power	Electrical components & equipment (2733)	UK	4.61	33.6	46.2	39.6	0	0.0		
890	Realtech	Computer services (9533)	Germany	4.59	-9.6	9.5	1.5	54	8.0	6.4	-14.5
891	Trinecke Zelezarny	Industrial metals (175)	Czech Republic	4.57	4.6	258.2	15.1	1 275	6.0	7.0	39.8
892	Trafficmaster	Telecommunications equipment (9578)	UK	4.57	103.1	-15.1	66.7	78	23.8	16.7	20.0
893	SABMiller	Beverages (353)	UK	4.55	-25.0	14.3		14 120	21.6	18.7	13.5
894	SGL	Support services (279)	UK	4.52	-20.0	118.1	-3.0	130	-16.1	181.8	-11.3
895	Dialight	Electrical components & equipment (2733)	UK	4.51	-43.1	-22.1	-14.7	92	-34.8	-19.9	-13.3
896	Christie	Support services (279)	UK	4.50	3.9	38.8	2.6	129	12.2	10.6	11.8
897	Vapo	Electricity (753)	Finland	4.49				601	14.7	-0.8	
898	York Pharma	Pharmaceuticals (4577)	UK	4.49	112.8			0			
899	Rotork	Industrial machinery (2757)	UK	4.48	2.1	21.6	17.6	307	18.5	18.8	7.9
900	International Power	Electricity (753)	UK	4.45	0.0	0.0	-78.6	3 835	33.7	151.7	-9.9
901	SHL	Support services (279)	UK	4.45	3.5	11.4	41.4	101	3.1	0.0	-8.4
902	Innovia Films	Chemicals (135)	UK	4.44	231.3			354	261.2		
903	Emak	Household goods (372)	Italy	4.43	3.7	36.9	22.4	208	13.7	12.3	6.5
904	Studsvik	Support services (279)	Sweden	4.41	12.2	-0.3	-15.6	135	8.9	2.5	-1.6
905	Amstrad	Leisure goods (374)	UK	4.40	18.0	3.3	11.4	136	-10.5	78.8	30.8
906	Flomerics	Software (9537)	UK	4.39	33.4	-2.4	-4.0	21	23.5	13.3	0.0
907	Tamfelt	Personal goods (376)	Finland	4.38	33.1	-8.4	2.0	155	10.7	4.5	6.3
908	Vastox (now Summit)	Pharmaceuticals (4577)	UK	4.36	186.8	280.0		2	100.0	150.0	0.0
909	HL Display	Household goods (372)	Sweden	4.33	-3.3	-4.1	13.9	160	10.3	0.0	16.0
910	LPKF Laser & Electronics	Electronic equipment (2737)	Germany	4.31	37.7	11.0	-3.1	40	14.3	40.0	8.7
911	Whatman	Health care equipment & services (453)	UK	4.30	-9.5	99.6	-26.3	179	3.5	40.7	-0.8
912	CNP Assurances	Life insurance (857)	France	4.30	79.2	41.2		44 302	13.6	30.0	54.2
913	Porvair	Chemicals (135)	UK	4.29	-12.3	3.6	-45.5	69	3.0	1.5	-30.5
914	Quantel	Health care equipment & services (453)	France	4.27	-15.4	29.8	20.8	41	10.8	2.8	-10.0
915	Proteome Sciences	Pharmaceuticals (4577)	UK	4.26	-8.4	-9.9	-2.1	0	0.0	0.0	0.0
916	GFT Technologies	Computer services (9533)	Germany	4.22	-22.4	-6.2	25.8	174	43.8	-4.0	-8.7
917	i-mate	Telecommunications equipment (9578)	UK	4.21	214.2	219.0		148	-5.1	51.5	
918	Analytik Jena	Biotechnology (4573)	Germany	4.20	19.7	-19.9	-9.7	67	4.7	-28.1	6.0
919	Laundry Systems (now Jensen)	Industrial machinery (2757)	Belgium	4.20	-30.0	33.3	-6.3	226	0.9	1.4	6.8
920	Otor	General industrials (272)	France	4.18	3.0			406	-3.1	-0.7	3.9
921	PartyGaming	Travel & leisure (575)	UK	4.17	149.7	-40.6		838	13.1	62.5	
922	XP Power	Electronic equipment (2737)	UK	4.16	7.8	13.2	20.9	117	13.6	4.0	12.5
923	Molins	Industrial machinery (2757)	UK	4.16	3.7	-3.6	-17.6	150	-16.7	-1.1	0.6
924	Surface Technology Systems	Semiconductors (9576)	UK	4.12	-3.7	0.0	-24.4	39	39.3	33.3	-22.2
925	Schuler	Industrial machinery (2757)	Germany	4.10				563	-0.2	1.1	16.0

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales					
				2006	change	change	change	2006	change	change	change		
				€m	06/05	05/04	04/03	€m	06/05	05/04	04/03		
Top 1000 Companies				121	131.31	7.4	9.3	-1.9	5 156	134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>		
926	BioMar	Food producers (357)	Denmark	4.09	11.7	6.1		439	19.9	4.9			
927	Sociedade Interbancaria de Servicos	Support services (279)	Portugal	4.06				104					
928	Update Software	Software (9537)	Austria	4.05	24.6	12.5	7.0	23	21.1	26.7	7.1		
929	Bright Things	Leisure goods (374)	UK	4.02	119.7	4 475.0		5					
930	BETandWIN.com Interactive	Travel & leisure (575)	Austria	4.01	271.3	42.1	31.0	292	178.1	218.2	-91.8		
931	ClinPhone	Health care equipment & services (453)	UK	3.99	38.5	19.5		64	28.0	614.3			
932	NeuTec Pharma	Biotechnology (4573)	UK	3.98	-47.8	56.1	10.7	0					
933	Proha	Software (9537)	Finland	3.97	-45.8	7.8	-13.9	58	-10.8	-1.5	-14.3		
934	Aspocomp	Electronic equipment (2737)	Finland	3.95	-18.2			158	-3.7	-16.8	8.2		
935	Atoss Software	Software (9537)	Germany	3.94	-0.5	-7.3	4.7	22	10.0	-9.1	-4.3		
936	Adcapital	Other financials (877)	Germany	3.93	7.4			75	-53.7				
937	Pricer	Electronic equipment (2737)	Sweden	3.90	-6.0	34.7	12.8	45	25.0	44.0	257.1		
938	Pescanova	Food producers (357)	Spain	3.90	21.9			1 133	13.4	7.1	3.3		
939	Centrotec Sustainable	Chemicals (135)	Germany	3.89	30.1	23.0	52.8	396	158.8	13.3	16.4		
940	Christ Water Technology	Industrial machinery (2757)	Austria	3.86	67.8	-7.6		210	14.8	2.8			
941	Bond International Software	Software (9537)	UK	3.86	29.1	22.0	35.4	26	23.8	50.0	40.0		
942	SQS Software Quality Systems	Software (9537)	Germany	3.83	-25.0	33.1		79	43.6	12.2			
943	HITT	Electronic equipment (2737)	The Netherlands	3.79	31.1	-41.0	31.4	28	16.7	41.2	-19.0		
944	Raute	Industrial machinery (2757)	Finland	3.77	4.1	13.1	18.5	106	-2.8	34.6	-17.3		
945	Nottingham Building Society	Other financials (877)	UK	3.77	12 466.7			49	14.0				
946	Eckoh Technologies	Support services (279)	UK	3.77	17.1	62.6	-2.0	189	60.2	26.9	13.4		
947	Digital Multimedia Technologies	Telecommunications equipment (9578)	Italy	3.77	45.6			98	21.0				
948	Trintech	Software (9537)	Ireland	3.75	-46.0	-0.1	10.7	20	-45.9	-11.9	27.3		
949	Corin	Health care equipment & services (453)	UK	3.71	21.6	37.4	26.1	42	10.5	0.0	5.6		
950	Carmelite Capital	Other financials (877)	UK	3.71	-19.3	106.3	-34.6	488	-2.0	2.0	-6.7		
951	Alterian	Software (9537)	UK	3.70	14.6	-9.5	-1.4	21	31.3	33.3	50.0		
952	Victrex	Chemicals (135)	UK	3.68	-40.5	20.0	33.8	182	20.5	18.0	20.8		
953	Doncasters (now Doncasters 456)	Industrial machinery (2757)	UK	3.68	-25.8	11.0	28.1	695	19.4	16.6	-13.7		
954	Blue Fox Enterprises	Software (9537)	The Netherlands	3.67	23.2	-25.5	2.0	49	-5.8	15.6	-21.1		
955	Planit	Software (9537)	UK	3.67	26.6	12.8	928.0	48	14.3	5.0	33.3		
956	BioProgress	Pharmaceuticals (4577)	UK	3.65	29.4	587.8	57.7	14	100.0	75.0	100.0		
957	Jeeves Information Systems	Computer services (9533)	Sweden	3.62	18.3	27.0	12.6	13	30.0				
958	Workplace Systems International	Software (9537)	UK	3.62	1.4	6.3	-11.6	13	8.3	9.1	-31.3		
959	KBC Advanced Technologies	Oil equipment, services & distribution (57)	UK	3.61	-6.5	33.6	55.4	53	26.2	-2.3	-10.4		
960	Evalis	Food producers (357)	France	3.60	18.4	1.3	0.0	637	-1.5	-3.9	-0.3		
961	Seagull	Software (9537)	The Netherlands	3.60	5.6	-15.8	11.9	21	16.7	5.9	-19.0		
962	Chicago Bridge & Iron Company	Industrial machinery (2757)	The Netherlands	3.59	9.5	4.5	-6.0	2 370	38.4	19.0	17.7		
963	Rightmove	Media (555)	UK	3.59	51.5			50	85.2				
964	SPI Lasers	Electronic equipment (2737)	UK	3.57	-18.9	1.1		10	100.0	66.7			

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 06/05	change 05/04	change 04/03
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				121 131.31	7.4	9.3	-1.9	5 156 134	10.3	10.6	3.8
<i>number of companies for calculation</i>				<i>1000</i>	<i>976</i>	<i>890</i>	<i>790</i>	<i>1000</i>	<i>975</i>	<i>950</i>	<i>917</i>
965	United Utilities	Gas, water & multiutilities (757)	UK	3.56	26.2	137.0	0.0	3 898	2.5	10.3	12.8
966	Christian Salvesen	Industrial transportation (277)	UK	3.56	19.9	301.4		1 334	9.5	1.8	1.4
967	!! HLG	Nonlife insurance (853)	UK	3.56				144	-22.6	-22.8	9.0
968	CENIT AG Systemhaus	Computer services (9533)	Germany	3.55	15.3	14.5		82	10.8	-1.3	7.1
969	Axfood	Food & drug retailers (533)	Sweden	3.55	33.5			3 193	-12.7	-2.4	0.6
970	Silicon Sensor International	Electrical components & equipment (2733)	Germany	3.53	263.9	94.0	-19.4	33	106.3	14.3	16.7
971	AGI Therapeutics	Pharmaceuticals (4577)	Ireland	3.52	-19.5	86.8		0			
972	Jeyes	Household goods (372)	UK	3.50	22.8	-12.3	-0.9	256	-1.5	0.4	-7.2
973	Surteco	Household goods (372)	Germany	3.50	9.4	-40.7	2.5	403	1.8	4.2	7.0
974	Grindeks	Pharmaceuticals (4577)	Latvia	3.48	80.3	192.4	73.7	60	30.4	31.4	29.6
975	Sava	Chemicals (135)	Slovenia	3.47	7.4	16 050.0		169	-30.7	3.8	4.0
976	OMG	Software (9537)	UK	3.47	45.2	14.9	1.5	24	14.3	31.3	14.3
977	GeneMedix	Biotechnology (4573)	UK	3.46	5.5	-31.7	61.1	0		-100.0	0.0
978	Fininfo	Media (555)	France	3.45	12.7	-7.3	-9.1	138	-2.1	3.7	-0.7
979	Volantis Systems	Software (9537)	UK	3.45	59.7	5.9	1.5	12	100.0	200.0	-66.7
980	PA	Support services (279)	UK	3.43	58.1		-100.0	556	15.6	-0.4	-3.2
981	Chanel	General retailers (537)	UK	3.41	-6.6	43.1	-15.6	224	5.2	8.1	11.9
982	Sondagsavisen	Media (555)	Denmark	3.41	-34.2	9.1	39.3	224	17.9	15.9	-2.4
983	IBS (now part of Siemens)	Software (9537)	Germany	3.41	9.3	-10.6	-11.2	20	11.1	0.0	-10.0
984	Gevelot	Automobiles & parts (335)	France	3.40	4.0	-11.6	-5.4	197	-1.5	5.8	10.5
985	Kemira Growhow	Chemicals (135)	Finland	3.40	-40.4			1 166	-4.5		
986	Biotica Technology	Biotechnology (4573)	UK	3.39	33.5	37.3	37.0	0		-100.0	0.0
987	Softing	Computer hardware (9572)	Germany	3.38	-18.2	45.9	18.4	24	9.1	10.0	0.0
988	De'Longhi	Household goods (372)	Italy	3.38	-14.4			1 363	8.3	-0.6	1.0
989	Innovation	Software (9537)	UK	3.38	-16.3	-29.7	-40.5	118	31.1	4.7	-1.1
990	Tissue Science Laboratories	Health care equipment & services (453)	UK	3.37	74.6	-7.7	12.4	16	6.7	15.4	85.7
991	Snia	Health care equipment & services (453)	Italy	3.36	40.0			124	1.6		
992	SSH Communications Security	Software (9537)	Finland	3.36	-3.4	-8.2	-13.9	9	0.0	12.5	-42.9
993	BETonSports	Travel & leisure (575)	UK	3.34	221.2			958	2.0		
994	Vistec Lithography	Electronic equipment (2737)	UK	3.33	20.7	59.5	-21.4	9	-25.0	-64.7	3.0
995	Funda	Internet (9535)	The Netherlands	3.33				11			
996	IPGL	Other financials (877)	UK	3.32	222.3	368.2		54	42.1	0.0	-86.1
997	Nexus	Software (9537)	Germany	3.32	-2.1	0.0	-18.1	26	23.8	31.3	14.3
998	Nordkalk	Chemicals (135)	Finland	3.30	3.1	-8.6	-22.2	304	12.6	-0.4	4.2
999	TTP	Computer services (9533)	UK	3.29	-33.9	-17.7	1.2	41	24.2	-10.8	19.4
999	Bernard Matthews	Food producers (357)	UK	3.29	-14.5	18.1	3.5	712	4.6	5.3	8.7

Tabla 3.2. R&D ranking of the top 1000 non-EU companies

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change	change	change	2006	change	change	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
1	Pfizer	Pharmaceuticals (4577)	USA	5 762.54	2.1	-3.1	7.8	39 748	2.1	-2.2	16.2
2	Ford Motor	Automobiles & parts (335)	USA	5 459.96	-10.0	8.1	-1.3	121 428	-9.6	3.2	4.5
3	Johnson & Johnson	Pharmaceuticals (4577)	USA	5 403.09	12.9	21.3	11.1	40 437	5.6	6.7	13.1
4	Microsoft	Software (9537)	USA	5 400.06	8.2	6.5	-20.5	38 767	15.4	11.3	8.0
5	Toyota Motor	Automobiles & parts (335)	Japan	5 172.00	7.6	10.7	2.1	133 887	13.4	7.3	11.6
6	General Motors	Automobiles & parts (335)	USA	5 004.97	-1.5	3.1	14.0	157 239	7.7	-0.5	4.3
7	Samsung Electronics	Electronic equipment (2737)	South Korea	4 659.97	3.9	12.2	37.0	69 658	5.9	-1.6	26.5
8	Intel	Semiconductors (9576)	USA	4 453.66	14.1	7.7	9.6	26 831	-8.9	13.5	13.5
9	IBM	Computer services (9533)	USA	4 303.51	5.5	4.1	12.3	69 329	0.3	-5.4	8.0
10	Roche	Pharmaceuticals (4577)	Switzerland	4 093.34	15.5	12.0	6.9	26 117	18.4	13.6	0.2
11	Novartis	Pharmaceuticals (4577)	Switzerland	4 067.67	10.7	15.2	12.0	28 073	14.9	14.0	13.6
12	Merck	Pharmaceuticals (4577)	USA	3 627.01	24.3	-4.0	26.2	17 166	2.8	-4.0	2.0
13	Matsushita Electric	Leisure goods (374)	Japan	3 594.48	-8.2	6.3	5.1	56 607	2.1	16.5	1.1
14	Sony	Leisure goods (374)	Japan	3 384.55	5.9	-2.4	16.1	44 192	4.0	-10.9	0.3
15	Honda Motor	Automobiles & parts (335)	Japan	3 248.29	9.1	4.2	2.8	63 058	14.5	6.0	2.4
16	Motorola	Telecommunications equipment (9578)	USA	3 113.70	11.6	20.3	-18.9	33 169	18.7	17.6	15.8
17	Cisco Systems	Telecommunications equipment (9578)	USA	3 084.12	22.4	4.1	1.8	21 600	14.9	12.5	16.8
18	Nissan Motor	Automobiles & parts (335)	Japan	2 848.58	12.4	12.4	18.0	60 005	9.9	15.4	8.8
19	Hewlett-Packard	Computer hardware (9572)	USA	2 723.16	2.9	-0.5	-4.0	69 507	5.7	8.5	9.4
20	Hitachi	Computer hardware (9572)	Japan	2 578.08	4.2	4.5	-1.4	60 238	4.8	4.6	5.4
21	Amgen	Biotechnology (4573)	USA	2 552.53	45.5	14.1	22.5	10 820	14.8	17.8	26.2
22	Boeing	Aerospace & defence (271)	USA	2 469.88	47.7	17.3	13.8	46 660	12.2	4.6	3.9
23	Eli Lilly	Pharmaceuticals (4577)	USA	2 373.04	3.4	12.4	14.5	11 899	7.1	5.7	10.1
24	Toshiba	Computer hardware (9572)	Japan	2 370.40	7.0	3.4	1.6	40 373	8.7	4.6	-1.4
25	Wyeth	Pharmaceuticals (4577)	USA	2 357.69	13.1	11.7	17.5	15 432	8.5	8.1	9.5
26	Bristol-Myers Squibb	Pharmaceuticals (4577)	USA	2 325.79	11.7	9.8	9.7	13 585	-6.7	-0.9	-7.3
27	General Electric	General industrials (272)	USA	2 251.48	8.3	12.2	16.2	127 632	2.0	8.7	14.3
28	Sun Microsystems	Computer hardware (9572)	USA	1 970.14	45.5	-7.3	4.8	9 910	18.0	-1.0	-2.2
29	NTT	Fixed line telecommunications (653)	Japan	1 963.07	-3.0	-10.4	-10.4	68 361	-0.6	-2.6	1.6
30	Canon	Electronic equipment (2737)	Japan	1 962.18	7.6	4.1	6.2	26 455	10.7	8.3	8.4
31	Abbott Laboratories	Pharmaceuticals (4577)	USA	1 710.24	23.8	7.3	-2.1	17 044	0.6	13.5	0.0
32	Texas Instruments	Semiconductors (9576)	USA	1 664.53	8.9	1.9	13.2	11 094	9.2	6.5	27.9
32	Oracle	Software (9537)	USA	1 664.53	17.3	25.6	16.7	13 647	25.1	21.9	16.2
34	Schering-Plough	Pharmaceuticals (4577)	USA	1 659.22	17.3	16.1	9.4	8 034	11.4	14.9	-0.7
35	Denso	Automobiles & parts (335)	Japan	1 631.44	7.6	10.9	17.5	20 292	13.9	9.3	9.8
36	Delphi	Automobiles & parts (335)	USA	1 592.49	-4.5	4.8	5.0	20 014	-2.1	-5.9	1.9
37	Procter & Gamble	Household goods (372)	USA	1 573.53	7.0	7.7	8.2	51 735	20.2	10.4	18.5
38	Fujitsu	Computer services (9533)	Japan	1 537.42	0.6	-4.3	-12.2	30 494	0.6	-0.1	3.2
39	Nortel Networks	Telecommunications equipment (9578)	Canada	1 470.40	4.5	-5.3	-0.1	8 659	8.5	24.6	-17.2
40	LG Electronics	Electronic equipment (2737)	South Korea	1 361.41	-5.9	14.9	40.8	37 787	4.3	2.8	21.5
41	Hyundai Motor	Automobiles & parts (335)	South Korea	1 181.97	-10.7	23.7	36.7	51 900	8.2	10.8	14.0
42	Qualcomm	Telecommunications equipment (9578)	USA	1 166.31	52.1	40.4	37.6	5 707	32.7	16.2	22.9
43	United Technologies	Aerospace & defence (271)	USA	1 159.48	11.8	8.8	22.3	36 270	11.9	14.1	20.7
44	Fuji Photo Film	Leisure goods (374)	Japan	1 159.30	8.4	-3.1	8.9	16 977	5.5	-1.3	2.2
45	EMC	Computer hardware (9572)	USA	1 114.59	25.4	15.6	21.9	8 459	15.4	17.4	31.9
46	Takeda Pharmaceutical	Pharmaceuticals (4577)	Japan	1 079.69	19.9	9.1	4.4	7 715	7.9	3.4	3.8
47	Nestle	Food producers (357)	Switzerland	1 077.23	15.7	6.1	17.3	62 208	9.9	5.0	-1.4
48	Honeywell	General industrials (272)	USA	1 070.00	31.6	16.9	22.1	23 786	13.4	8.0	10.8
49	Caterpillar	Commercial vehicles & trucks (2753)	USA	1 021.47	24.3	16.8	38.7	31 484	16.7	17.6	32.9

Rank	Company	ICB Sector	Country	R&D Investment			Net Sales				
				2006	change 06/05	change 05/04	change 04/03	2006 06/05	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
50	Daiichi Sankyo	Pharmaceuticals (4577)	Japan	1 010.38				5 893			
51	DuPont	Chemicals (135)	USA	987.34	-2.5	0.2	-1.2	20 794	2.9	-2.6	1.3
52	Sharp	Electronic equipment (2737)	Japan	982.42	4.2	6.7	-8.8	17 802	10.1	12.5	12.7
53	Medtronic	Health care equipment & services (453)	USA	939.57	11.3	17.0	11.7	9 327	8.9	12.3	10.7
54	Google	Internet (9535)	USA	931.67	104.9	51.7	72.1	8 042	72.8	92.5	117.4
55	Advanced Micro Devices	Semiconductors (9576)	USA	913.79	5.3	22.4	9.7	4 284	-3.4	16.9	62.9
56	Freescale Semiconductor	Semiconductors (9576)	USA	906.20	23.8			4 431	2.2		
57	Astellas Pharma	Pharmaceuticals (4577)	Japan	904.23	141.5	-16.0	4.8	5 597	96.7	-12.6	0.9
58	Dow Chemical	Chemicals (135)	USA	882.69	8.5	5.0	4.2	37 252	6.1	15.3	23.1
59	Applied Materials	Semiconductors (9576)	USA	873.84	22.5	-5.2	7.7	6 952	31.1	-12.8	79.0
60	Lockheed Martin	Aerospace & defence (271)	USA	863.74	9.3	8.3	6.5	25 679	-9.0	4.8	11.6
61	Broadcom	Semiconductors (9576)	USA	847.06	71.7	17.5	-15.3	2 781	37.3	11.3	49.1
62	Sanyo Electric	Electronic equipment (2737)	Japan	806.79	-3.8	5.3	3.6	15 605	-1.3	-0.9	10.3
63	Allergan	Pharmaceuticals (4577)	USA	800.42	169.9	13.1	13.7	2 323	32.1	13.4	16.5
64	Electronic Arts	Leisure goods (374)	USA	789.42	37.3	19.7	23.9	2 344	4.7	-5.7	5.8
65	Mitsubishi Electric	Electrical components & equipment (2733)	Japan	770.37	2.5	-5.7	-22.5	22 938	5.7	3.1	-9.1
66	Boston Scientific	Health care equipment & services (453)	USA	764.40	48.2	19.5	25.9	5 931	24.5	11.7	61.8
67	Altria	Tobacco (378)	USA	762.12	6.6	16.6	6.2	53 329	2.0	7.7	6.3
68	Forest Laboratories	Pharmaceuticals (4577)	USA	713.59	129.3	39.8	19.1	2 414	13.9	-8.5	15.2
69	Ricoh	Electronic office equipment (9574)	Japan	702.53	-0.1	19.4	10.7	12 188	5.6	1.9	2.4
70	Tyco International	General industrials (272)	Bermuda	693.11	9.3	6.6	16.9	31 967	0.9	4.1	9.1
71	Symantec	Software (9537)	USA	657.38	27.1	104.2	32.4	3 943	25.5	60.4	38.2
72	Yahoo!	Internet (9535)	USA	646.21	45.0	51.5	87.1	4 873	22.2	47.1	120.0
73	3M	General industrials (272)	USA	643.06	6.3	5.1	1.3	17 383	8.3	5.8	9.8
74	Mitsubishi Heavy	General industrials (272)	Japan	641.52	-18.7	24.6	-9.1	17 770	7.8	9.2	-8.5
75	Mazda Motor	Automobiles & parts (335)	Japan	609.26	5.4	3.5	0.0	18 583	8.3	-7.6	23.3
76	Aisin Seiki	Automobiles & parts (335)	Japan	605.56	-0.4	7.3	11.2	13 496	15.9	13.9	14.0
77	CA	Software (9537)	USA	604.39	2.0	2.8	7.6	2 990	3.6	7.8	7.8
78	Syngenta	Chemicals (135)	Switzerland	603.63	-3.2	1.6	11.3	6 102	-0.7	11.5	10.5
79	Amazon.com	General retailers (537)	USA	595.29	45.1	65.5	13.8	8 122	26.2	22.7	31.5
80	Eisai	Pharmaceuticals (4577)	Japan	593.47	19.1	13.5	15.6	3 827	12.8	6.6	7.2
81	Seiko Epson	Electronic office equipment (9574)	Japan	591.50	4.4	-1.6	5.5	9 862	4.7	4.7	6.9
82	ABB	Electrical components & equipment (2733)	Switzerland	585.43	5.2	6.4	12.6	18 869	9.9	9.3	10.2
83	Sumitomo Chemical	Chemicals (135)	Japan	584.67	17.5	4.0	3.3	9 907	20.1	11.9	4.3
84	Xerox	Electronic office equipment (9574)	USA	577.09	0.8	-0.7	-12.4	11 822	1.4	0.0	0.2
85	Suzuki Motor	Automobiles & parts (335)	Japan	572.27	3.5	14.6	25.4	17 479	16.1	7.6	9.1
86	Mitsubishi Chemical	Chemicals (135)	Japan	570.21	0.4	0.8	-2.8	15 331	10.0	13.7	2.0
87	Exxon Mobil	Oil & gas producers (53)	USA	555.86	3.0	9.7	5.0	254 105	2.1	24.3	23.8
88	Bridgestone	Automobiles & parts (335)	Japan	551.71	9.2	8.9	2.7	19 038	11.1	11.4	4.9
89	Petroleo Brasileiro	Oil & gas producers (53)	Brazil	551.31	82.2	60.9	23.4	54 863	28.4	50.4	21.6
90	Deere	Commercial vehicles & trucks (2753)	USA	550.40	7.2	10.7	5.9	15 079	-6.5	20.4	32.4
91	Monsanto	Chemicals (135)	USA	549.79	23.3	15.1	-3.0	5 569	16.7	15.3	16.8
92	Biogen Idec	Biotechnology (4573)	USA	544.78	-3.9	10.4	190.2	2 035	10.8	9.5	225.6
93	Apple Computer	Computer hardware (9572)	USA	539.93	33.3	9.2	3.8	14 647	38.7	68.3	33.4
94	Eastman Kodak	Leisure goods (374)	USA	538.41	-20.4	4.5	9.3	10 066	-7.0	5.6	1.5
95	Marvell Technology	Semiconductors (9576)	Bermuda	499.14	110.4	17.7	22.9	1 697	33.9	36.4	49.4
96	Micron Technology	Semiconductors (9576)	USA	497.46	8.7	-20.0	15.0	3 998	8.0	10.8	42.5
97	Agilent Technologies	Electronic equipment (2737)	USA	496.71	-11.2	-20.9	-11.2	3 878	-26.3	-3.4	18.6
98	Yamaha Motor	Automobiles & parts (335)	Japan	490.49	7.6	4.6	9.1	10 069	15.0	1.9	32.3

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
99	Genzyme	Biotechnology (4573)	USA	479.62	31.1	27.2	20.0	2 417	16.5	24.3	28.4
100	Schlumberger	Oil equipment, services & distribution (57)	USA	469.65	22.5	8.2	-16.0	14 583	34.4	24.6	-17.4
101	Baxter International	Health care equipment & services (453)	USA	465.61	15.2	3.1	-6.5	7 870	5.4	3.6	6.7
102	Visteon	Automobiles & parts (335)	USA	450.45	-26.1	-10.3	-0.8	8 659	-32.7	-9.0	5.6
103	Automatic Data Processing	Support services (279)	USA	447.26	-5.5	7.4	16.4	7 025	9.0	9.6	8.5
104	eBay	General retailers (537)	USA	435.50	57.2	29.6	61.3	4 527	31.1	39.1	51.1
105	Northrop Grumman	Aerospace & defence (271)	USA	435.28	6.7	6.7	26.0	22 980	-1.4	2.9	13.9
106	Serono (now Merck Serono) (now part of Merck, Germany)	Biotechnology (4573)	Switzerland	434.66	-5.7	-0.8	25.7	2 127	8.5	5.2	32.3
107	Konica Minolta	Leisure goods (374)	Japan	427.55	1.8	34.4	62.0	6 800	0.1	24.1	53.9
108	Nvidia	Semiconductors (9576)	USA	419.71	57.2	5.1	24.1	2 327	29.1	18.2	10.3
109	PetroChina	Oil & gas producers (53)	China	413.90	33.3	8.8	21.8	66 941	24.8	42.1	27.9
110	Sumitomo Electric	Electrical components & equipment (2733)	Japan	410.04	14.1	2.2	13.6	12 774	15.3	12.8	3.6
111	Adobe Systems	Software (9537)	USA	409.26	47.7	17.4	12.4	1 953	31.0	18.0	28.7
112	Analog Devices	Semiconductors (9576)	USA	407.03	8.0	-2.9	13.7	1 951	7.7	-9.3	28.6
113	Pioneer	Electronic equipment (2737)	Japan	403.77	13.5	8.6	13.4	4 998	7.0	4.7	-1.6
114	Corning	Telecommunications equipment (9578)	USA	392.06	16.7	24.8	3.2	3 924	13.0	18.8	24.8
115	Mitsubishi Motors	Automobiles & parts (335)	Japan	384.06	-12.3	-0.1	-11.6	13 493	-0.1	-15.8	-35.1
116	Avaya	Telecommunications equipment (9578)	USA	378.41	10.2	17.4	6.3	3 904	5.0	20.4	-6.2
117	Gazprom	Oil & gas producers (53)	Russia	378.03	100.5	12.0	178.3	61 995	55.6	41.6	15.7
118	Hynix Semiconductor	Semiconductors (9576)	South Korea	376.42	39.3	-17.2	11.7	6 305	29.8	-11.1	39.5
119	Teva Pharmaceutical Industries	Pharmaceuticals (4577)	Israel	375.37	34.2	9.0	58.5	6 376	60.1	9.4	46.4
120	Taiwan Semiconductor Manufacturing	Semiconductors (9576)	Taiwan	374.15	14.7	12.0	-1.5	7 514	18.8	3.8	26.4
121	Telstra	Fixed line telecommunications (653)	Australia	373.58	13.2	19.7	-22.7	13 611	0.5	6.5	3.8
122	Cadence Design Systems	Software (9537)	USA	367.31	14.4	8.6	8.0	1 125	11.6	11.0	6.9
123	Kyocera	Telecommunications equipment (9578)	Japan	365.55	5.6	16.7	-1.3	7 519	0.1	3.5	6.7
124	Vale Do Rio Doce	Mining (177)	Brazil	364.76	73.6	34.4	76.7	14 902	53.6	-0.8	41.7
125	Juniper Networks	Telecommunications equipment (9578)	USA	364.19	35.1	49.1	35.4	1 747	11.6	54.5	90.4
126	Korea Electric Power	Electricity (753)	South Korea	362.95	13.9	8.3	21.7	22 350	7.7	6.2	9.7
127	LG Philips LCD	Electrical components & equipment (2733)	South Korea	357.86	20.1	-12.3	49.2	8 663	5.4	21.0	36.5
128	Chevron	Oil & gas producers (53)	USA	354.90	48.1	30.6	1.7	155 375	18.5	31.9	28.3
129	Omron	Electronic equipment (2737)	Japan	352.05	11.9	6.3	15.6	3 989	3.0	4.1	9.3
130	Raytheon	Aerospace & defence (271)	USA	351.86	-7.8	2.4	0.8	17 649	6.3	8.1	11.8
131	Dell	Computer hardware (9572)	USA	351.11	0.0	40.3	3.4	42 397	13.6	18.7	17.1
132	Benq	Computer hardware (9572)	Taiwan	349.55	94.9	70.4	30.4	5 289	28.6	1.2	36.3
133	MedImmune	Biotechnology (4573)	USA	340.41	16.7	17.5	109.4	968	2.7	9.0	8.1
134	Danaher	Electronic equipment (2737)	USA	338.21	17.7	28.9	42.0	7 277	20.2	15.9	30.1
135	Agere Systems (now part of LSI Logic)	Semiconductors (9576)	USA	337.46	-3.7	-6.9	6.2	1 191	-6.3	-12.3	3.9
136	Intuit	Software (9537)	USA	331.04	29.7	-3.0	35.6	1 799	15.8	9.1	13.1
137	Asahi Kasei	Chemicals (135)	Japan	327.56	1.5	4.7	-1.8	9 538	8.8	9.9	5.0
138	St Jude Medical	Health care equipment & services (453)	USA	326.92	16.8	31.0	16.9	2 504	13.3	27.1	18.8
139	Whirlpool	Household goods (372)	USA	324.56	26.3	7.6	-3.1	14 047	29.4	8.3	8.6
140	Komatsu	Commercial vehicles & trucks (2753)	Japan	319.56	8.1	9.0	9.2	10 832	18.6	19.9	9.8
141	Johnson Controls	Automobiles & parts (335)	USA	318.50	1.2	-19.4	6.4	24 580	18.0	3.5	17.3
142	LSI Logic	Semiconductors (9576)	USA	313.52	4.1	-5.7	-2.6	1 503	3.3	12.9	0.4

Rank	Company	ICB Sector	Country	R&D Investment			Net Sales				
				2006	change 06/05	change 05/04	change 04/03	2006	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
143	Tokyo Electron	Semiconductors (9576)	Japan	313.01	12.1	-0.6	-11.9	4 288	6.0	20.0	15.0
144	Autodesk	Software (9537)	USA	308.11	34.7	26.0	14.4	1 395	20.8	23.4	29.6
145	Cephalon	Pharmaceuticals (4577)	USA	305.89	13.7	29.5	60.9	1 338	45.6	19.4	42.1
146	Xilinx	Semiconductors (9576)	USA	294.31	19.0	6.1	24.2	1 397	6.7	9.7	12.5
147	Olympus	Leisure goods (374)	Japan	292.35	-3.7	23.4	11.3	6 225	20.2	28.4	12.3
148	Network Appliance	Computer hardware (9572)	USA	292.23	58.6	42.1	29.7	2 127	35.7	29.3	36.6
149	Fuji Heavy Industries	Automobiles & parts (335)	Japan	291.55	-12.0	-9.6	-4.3	9 396	2.1	0.5	4.9
150	Kia-Tencor	Semiconductors (9576)	USA	290.44	12.6	21.2	4.6	1 570	-0.7	39.3	13.2
151	TDK	Electronic equipment (2737)	Japan	289.76	25.3	5.4	8.3	5 061	20.9	-0.1	8.2
152	General Dynamics	Aerospace & defence (271)	USA	285.89	9.6	4.6	16.7	18 361	14.0	10.8	15.4
153	Synopsys	Software (9537)	USA	283.71	16.9	11.1	-0.2	831	10.5	-9.2	-7.3
154	KT	Fixed line telecommunications (653)	South Korea	282.22	-6.0	-0.1	28.9	14 479	3.5	0.5	47.5
155	China Petroleum & Chemical	Oil & gas producers (53)	China	281.96	29.4	47.8	-28.1	101 315	26.7	36.4	40.5
156	Lexmark	Computer hardware (9572)	USA	280.96	10.1	7.6	17.7	3 874	-2.2	-1.7	11.8
157	National Semiconductor	Semiconductors (9576)	USA	275.80	11.4	-1.9	-5.6	1 463	-10.6	12.8	-3.5
158	ZTE	Telecommunications equipment (9578)	China	275.23	44.6	-13.5	47.5	2 238	6.8	1.6	24.6
159	Gilead Sciences	Biotechnology (4573)	USA	274.85	41.9	24.9	29.0	2 295	49.2	53.2	52.6
160	Becton Dickinson	Health care equipment & services (453)	USA	273.01	32.5	15.3	0.3	4 425	7.8	9.7	9.0
161	Goodrich	Aerospace & defence (271)	USA	273.00	34.9	7.3	11.5	4 458	8.8	14.4	7.8
161	Liebherr	Commercial vehicles & trucks (2753)	Switzerland	273.00	13.8	4.3	15.0	6 473	22.0	15.6	12.3
161	McKesson	Food & drug retailers (533)	USA	273.00	26.8	22.7	0.5	70 507	5.6	9.4	15.8
164	Goodyear	Automobiles & parts (335)	USA	272.24	-1.6	-3.5	7.9	15 362	2.7	7.4	21.5
165	Tellabs	Telecommunications equipment (9578)	USA	270.65	3.7	37.4	-12.5	1 548	8.4	52.9	25.7
166	Emerson Electric	Electrical components & equipment (2733)	USA	269.97	17.5	-37.7	-5.4	15 267	16.3	10.8	11.9
167	POSCO	Industrial metals (175)	South Korea	267.92	45.6	-18.6	8.4	21 073	-1.7	9.7	34.8
168	Textron	General industrials (272)	USA	266.17	7.7	6.2	20.4	9 548	25.4	-1.9	3.9
169	Onex	General industrials (272)	Canada	258.05	169.4	219.5	27.8	12 499	10.0	7.4	-5.1
170	Baker Hughes	Oil equipment, services & distribution (57)	USA	257.00	80.1	6.5	2.0	6 851	25.7	17.7	15.3
171	Kao	Personal goods (376)	Japan	256.24	1.3	3.3	2.1	6 181	3.7	3.8	4.3
172	Unisys	Computer services (9533)	USA	255.63	-13.5	-5.9	-2.4	4 366	0.0	-1.1	-1.5
173	PPG Industries	Chemicals (135)	USA	253.28	8.1	2.0	4.5	8 370	8.2	7.2	8.6
174	Maxim Integrated Products	Semiconductors (9576)	USA	248.86	7.1	12.5	-1.2	1 268	16.2	24.7	12.6
175	NCR	Computer hardware (9572)	USA	248.73	2.8	-2.4	7.9	4 658	1.9	0.7	6.9
176	Hon Hai Precision Industry	Electronic equipment (2737)	Taiwan	248.00	22.0	23.6	47.4	30 729	44.8	68.3	45.8
177	Stryker	Health care equipment & services (453)	USA	246.15	16.0	32.6	17.1	4 099	11.0	14.3	17.6
178	Cummins	Automobiles & parts (335)	USA	243.42	15.5	15.4	20.5	8 616	14.6	17.5	34.0
178	Eaton	General industrials (272)	USA	243.42	11.8	10.0	17.0	9 381	11.3	13.2	21.8
180	Toray Industries	Chemicals (135)	Japan	243.08	3.8	2.9	0.2	9 085	9.9	19.3	5.4
180	JFE	Industrial metals (175)	Japan	243.08	2.7	1.8	10.3	19 719	10.5	13.3	1.9
182	Millennium Pharmaceuticals	Biotechnology (4573)	USA	241.28	-0.2	19.6	-15.9	369	-12.8	24.4	3.3
183	Nippon Steel	Industrial metals (175)	Japan	241.09	4.2	2.8	-1.4	24 861	15.3	15.8	6.4
184	Japan Tobacco	Tobacco (378)	Japan	238.70	-7.5	-4.0	-5.1	29 516	-0.6	0.9	3.0
185	Mitsui Chemicals	Chemicals (135)	Japan	236.41	6.5	6.0	-11.4	9 371	19.9	12.7	3.4
186	Nikon	Leisure goods (374)	Japan	236.37	10.7	11.3	9.7	4 652	14.5	26.1	8.0
187	Cerner	Software (9537)	USA	233.50	12.6	18.6	28.1	1 045	18.8	25.4	10.2
188	SanDisk	Semiconductors (9576)	USA	232.71	57.5	55.8	48.5	2 470	41.2	29.7	64.6

Rank	Company	ICB Sector	Country	R&D Investment			Net Sales				
				2006	change	change	change	2006	change	change	change
				€m	06/05	05/04	04/03	€m	05/04	04/03	
				%	%	%	%	%	%	%	
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
189	Sega Sammy	Travel & leisure (575)	Japan	231.27	-12.6			3 521	7.3		
190	Harman International Industries	Leisure goods (374)	USA	229.02	35.7	2.6	51.6	2 463	7.2	11.8	21.7
191	Tokyo Electric Power	Electricity (753)	Japan	228.70	2.1	-4.8	-8.4	33 448	4.1	4.0	-1.3
192	Kimberly-Clark	Personal goods (376)	USA	228.41	-5.7	14.2	-0.3	12 700	5.3	5.4	5.1
193	Accenture	Support services (279)	Bermuda	226.25	22.6	-10.5	8.6	13 823	6.6	13.1	12.8
194	Samsung Electro-Mechanics	Electrical components & equipment (2733)	South Korea	225.89	23.1			1 819	-17.0		
195	Western Digital	Computer hardware (9572)	USA	225.38	24.6	18.7	49.2	3 292	19.3	19.4	12.0
196	Rohm & Haas	Chemicals (135)	USA	221.43	7.0	3.0	11.3	6 300	3.9	9.5	13.7
197	Murata Manufacturing	Semiconductors (9576)	Japan	220.82	5.6	-3.9	8.7	3 124	15.7	2.5	4.9
198	Atmel	Semiconductors (9576)	USA	219.24	4.5	11.8	-0.1	1 328	4.5	1.6	24.0
199	United Microelectronics	Semiconductors (9576)	Taiwan	219.20	-2.2	30.8	25.7	2 607	11.6	-22.3	35.0
200	Ono Pharmaceutical	Pharmaceuticals (4577)	Japan	216.82	11.2	-0.8	1.6	946	2.3	4.3	3.3
201	Rohm	Semiconductors (9576)	Japan	215.08	4.5	3.1	-1.4	2 468	5.1	3.8	1.5
202	Take-Two Interactive Software	Software (9537)	USA	212.52	27.2	50.3	257.3	787	-13.7	6.7	9.1
203	Rockwell Collins	Aerospace & defence (271)	USA	211.57	14.8	11.5	0.9	2 929	12.1	17.6	15.2
204	Halliburton	Oil equipment, services & distribution (57)	USA	210.06	14.9	-3.6	5.0	17 120	7.5	2.6	25.8
205	SunGard Data Systems	Computer services (9533)	USA	209.30	12.7	-3.6	22.3	3 278	10.4	13.1	20.6
206	Kyowa Hakko Kogyo	Biotechnology (4573)	Japan	209.24	14.3	-1.5	-5.6	2 249	-1.6	2.9	-2.9
207	Applera	Biotechnology (4573)	USA	205.78	-18.0	-12.3	16.6	1 478	5.6	1.1	2.7
208	Shionogi	Pharmaceuticals (4577)	Japan	205.30	9.7	-1.3	-4.7	1 250	-1.5	-0.5	-30.0
209	Conexant Systems	Semiconductors (9576)	USA	204.55	0.6	11.7	50.6	736	34.3	-19.9	50.3
210	Shin-Etsu Chemical	Chemicals (135)	Japan	203.68	14.6	6.1	-3.5	7 178	16.6	16.2	4.4
211	PDL Biopharma	Biotechnology (4573)	USA	202.44	55.2	40.4	48.1	315	48.6	190.4	43.1
212	Asahi Glass	Construction & materials (235)	Japan	201.79	-1.7	-11.5	18.1	9 716	3.4	-11.0	28.0
213	Beckman Coulter	Health care equipment & services (453)	USA	200.88	26.8	4.5	2.9	1 917	3.5	1.5	9.8
214	BMC Software	Software (9537)	USA	200.35	-1.9	-5.2	-51.5	1 198	5.5	2.4	3.1
215	Teijin	Chemicals (135)	Japan	198.54	3.9	-8.5	9.9	5 970	3.3	3.9	-1.8
216	Toyota Industries	Automobiles & parts (335)	Japan	198.35	3.7	1.7	-0.5	9 584	21.3	6.6	8.9
217	Yokogawa Electric	Electronic equipment (2737)	Japan	196.77	6.6	7.4	7.0	2 475	0.5	4.1	13.1
218	Nintendo	Leisure goods (374)	Japan	194.73	49.2	29.6	8.4	3 238	-1.2	0.1	2.1
219	Ajinomoto	Food producers (357)	Japan	194.34	7.4	0.9	6.2	7 044	3.1	3.2	5.2
220	Tanabe Seiyaku	Pharmaceuticals (4577)	Japan	194.33	9.9	12.9	5.0	1 092	-0.3	-0.9	-4.7
221	UTStarcom	Telecommunications equipment (9578)	USA	191.96	12.8	40.7	85.0	2 221	8.3	37.6	100.0
222	Dainippon Sumitomo Pharmaceutical	Pharmaceuticals (4577)	Japan	188.62	69.9	9.5	4.7	1 564	41.3	1.8	-0.8
223	Altera	Semiconductors (9576)	USA	188.61	18.6	16.2	1.1	975	14.4	10.5	23.0
224	Nidec	Computer hardware (9572)	Japan	186.04	12.8	196.1	28.3	3 417	10.5	75.1	19.7
225	Novellus Systems	Semiconductors (9576)	USA	185.19	-1.3	-1.9	10.8	1 258	23.7	-1.2	46.6
226	Cypress Semiconductor	Semiconductors (9576)	USA	185.11	7.6	-13.3	4.1	828	23.2	-6.5	13.2
227	Fuji Electric	Electrical components & equipment (2733)	Japan	184.70	6.6	-4.7	6.7	5 711	6.3	-1.4	2.9
228	Colgate-Palmolive	Personal goods (376)	USA	183.14	-1.9	7.5	11.9	9 280	7.4	7.7	6.9
229	Dai Nippon Printing	Media (555)	Japan	182.61	8.7	1.3	8.1	9 594	5.8	5.2	3.4
230	Celgene	Biotechnology (4573)	USA	182.33	60.8	6.2	31.0	682	67.6	42.3	38.8
231	Calsonic Kansei	Automobiles & parts (335)	Japan	181.84	9.9	1.7	14.2	4 554	3.0	12.2	13.6
232	Kirin Brewery	Beverages (353)	Japan	180.06	-1.5	1.9	6.4	8 042	2.3	0.9	5.0

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
233	Asustek Computer	Computer hardware (9572)	Taiwan	179.60	26.8	82.9	44.3	13 038	56.6	43.1	27.6
234	Research In Motion	Telecommunications equipment (9578)	Canada	179.10	49.8	55.8	61.5	2 303	47.0	53.0	127.1
235	Toppan Printing	Media (555)	Japan	175.61	24.0	4.5	5.2	9 853	9.5	9.0	3.7
236	SK Telecom	Mobile telecommunications (657)	South Korea	174.43	-15.6	-7.3	15.9	8 993	2.9	1.4	2.9
237	Lam Research	Semiconductors (9576)	USA	173.58	17.9	13.9	6.2	1 245	9.3	60.4	23.9
238	Lenovo	Computer hardware (9572)	Hong Kong	172.42	18.7	293.1	-24.1	11 064	9.6	359.2	-2.7
239	Mentor Graphics	Software (9537)	USA	172.26	6.8	5.1	9.5	600	12.1	-0.7	5.3
240	Kawasaki Heavy Industries	Industrial machinery (2757)	Japan	172.09	105.1	-10.6	-4.9	8 417	6.5	7.0	-6.4
241	Advantest	Semiconductors (9576)	Japan	171.37	2.5	21.5	-8.4	1 616	6.0	37.4	78.3
242	LG Chem	Chemicals (135)	South Korea	170.76	-2.6	25.1	119.5	9 340	6.2	22.3	27.8
243	Daikin Industries	Electrical components & equipment (2733)	Japan	169.60	8.4	3.2	-0.4	5 046	8.8	16.5	9.2
244	AT&T	Fixed line telecommunications (653)	USA	169.11	71.5	51.1	10.3	47 816	43.8	7.5	0.7
245	Ciba Specialty Chemicals	Chemicals (135)	Switzerland	167.73	-10.3	4.5	2.5	4 359	-5.4	5.6	5.7
246	Dana	Automobiles & parts (335)	USA	167.59	-19.6	2.2	6.7	7 374	-1.2	8.5	14.0
247	Alcan	Industrial metals (175)	Canada	166.83	-3.1	-5.0	70.7	17 969	16.6	-18.3	82.4
248	Harley-Davidson	Automobiles & parts (335)	USA	163.65	10.4	5.3	11.3	4 559	8.7	4.0	8.5
249	3Com	Telecommunications equipment (9578)	USA	163.52	111.7	7.7	-0.6	961	59.4	22.1	-6.8
250	!! Barr Pharmaceuticals	Pharmaceuticals (4577)	USA	163.02	53.4	9.2	-24.0	1 390	56.9	11.6	-20.0
251	AlCoA	Industrial metals (175)	USA	161.52	9.8	6.6	-6.2	23 429	18.1	11.4	9.2
252	Toyoda Gosei	Automobiles & parts (335)	Japan	161.10	3.3	7.9		3 172	14.4	9.7	15.1
253	Brother Industries	Electronic equipment (2737)	Japan	160.69	14.8	2.8	1.7	3 686	32.1	3.2	4.0
254	Teradyne	Semiconductors (9576)	USA	158.27	-6.4	-14.9	2.9	1 044	28.1	-40.0	32.5
255	Kobe Steel	Industrial metals (175)	Japan	153.52	22.4	16.4	-4.9	10 611	15.5	18.4	1.2
256	Yamaha	Leisure goods (374)	Japan	153.10	4.8	2.0	0.3	3 399	0.0	-1.0	2.8
257	Givaudan	Personal goods (376)	Switzerland	152.83	11.8	5.8	-4.1	1 807	4.7	3.7	-1.3
258	Tektronix	Electronic equipment (2737)	USA	151.58	9.0	12.2	25.4	838	6.2	0.5	12.5
259	Statoil	Oil & gas producers (53)	Norway	149.20	14.9	3.8	2.3	52 364	10.1	28.6	22.2
260	Vertex Pharmaceuticals	Biotechnology (4573)	USA	149.06	81.6	1.4	-23.5	164	34.4	56.4	50.0
261	Nanya Technology	Semiconductors (9576)	Taiwan	147.44	20.9	21.6	23.8	1 739	49.1	23.5	41.1
262	Sekisui Chemical	Household goods (372)	Japan	146.87	0.4	-3.1	1.3	5 633	3.3	5.2	1.9
263	Taisho Pharmaceutical	Pharmaceuticals (4577)	Japan	146.84	-0.6	-3.9	-18.1	1 727	-2.9	-2.5	4.5
264	General Mills	Food producers (357)	USA	144.84	10.4	3.0	6.3	9 435	6.9	3.5	1.6
265	Palm	Computer hardware (9572)	USA	144.80	40.4	51.4	29.5	1 183	-1.2	24.3	33.8
266	Kubota	General industrials (272)	Japan	144.67	3.5	-5.6	-11.9	6 689	6.9	5.7	0.4
267	Kellogg	Food producers (357)	USA	144.54	5.3	21.6	17.5	8 271	7.2	5.9	9.1
268	International Game Technology	Travel & leisure (575)	USA	142.95	36.2	7.1	36.2	1 905	5.6	-4.2	16.7
269	Zimmer	Health care equipment & services (453)	USA	142.79	7.3	5.3	57.6	2 651	6.4	10.2	56.8
270	Harris	Telecommunications equipment (9578)	USA	142.41	36.8	23.4	11.7	2 635	15.8	19.1	20.4
271	BorgWarner	Automobiles & parts (335)	USA	142.34	16.6	30.8	4.2	3 477	6.8	21.8	14.9
272	Sybase	Software (9537)	USA	141.82	8.2	10.6	7.9	664	6.9	3.8	1.4
273	International Flavors & Fragrances	Personal goods (376)	USA	140.82	3.3	2.6	10.0	1 589	5.1	-1.9	6.9
274	Exelixis	Pharmaceuticals (4577)	USA	140.66	31.4	2.5	7.9	75	29.3	45.0	2.6
275	Amylin Pharmaceuticals	Biotechnology (4573)	USA	140.46	136.3	-8.1	33.7	387	261.7	311.5	-60.0
276	RF Micro Devices	Semiconductors (9576)	USA	140.28	9.6	7.9	22.1	776	32.9	21.4	-2.6

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
277	Human Genome Sciences	Biotechnology (4573)	USA	139.14	-12.5	-2.8	17.7	20	42.9	366.7	-50.0
278	BEA Systems	Software (9537)	USA	138.21	24.4	4.0	6.1	910	11.1	6.6	8.5
279	IHI	Industrial machinery (2757)	Japan	137.49	1.9	-5.6	1.8	7 173	3.5	4.0	2.8
280	MediaTek	Computer hardware (9572)	Taiwan	137.42	-18.3	98.3	-7.7	1 313	6.8	30.2	6.5
281	Novell	Software (9537)	USA	136.79	-10.1	1.0	8.1	797	-12.2	2.7	5.5
282	Pitney Bowes	Electronic office equipment (9574)	USA	136.63	4.9	6.2	9.9	4 407	5.8	10.8	8.3
283	Tata Motors	Automobiles & parts (335)	India	136.53	67.4	15.4	171.6	5 556	35.3	21.8	40.7
284	Bausch & Lomb	Health care equipment & services (453)	USA	134.60	9.2	8.4	16.7	1 785	5.4	10.6	11.1
285	Hilti	Construction & materials (235)	Liechtenstein	134.37	11.1	6.4	33.3	2 558	13.2	10.3	9.5
286	ArvinMeritor	Automobiles & parts (335)	USA	134.22	1.1	12.2	-6.6	7 439	-0.1	22.2	3.1
287	OSI Pharmaceuticals	Biotechnology (4573)	USA	133.96	40.3	14.1	18.6	285	115.9	312.5	28.0
288	McAfee	Software (9537)	USA	133.73	2.1	-6.4	24.1	749	8.6	-2.8	-10.2
289	Kansai Electric Power	Electricity (753)	Japan	133.27	-9.0	-0.9	-14.8	16 414	-1.3	2.9	-2.9
290	Ingersoll-Rand	Industrial machinery (2757)	Bermuda	133.09	8.1	8.8	-26.8	8 652	8.2	12.3	-4.9
291	Medarex	Biotechnology (4573)	USA	132.07	28.2	11.3	27.8	37	-5.1	333.3	12.5
292	Actelion	Biotechnology (4573)	Switzerland	131.59	23.5	25.8	72.1	587	42.5	40.6	53.4
293	Mattel	Leisure goods (374)	USA	131.57	-4.7	6.4	2.2	4 285	9.1	1.5	2.9
294	Bombardier	Aerospace & defence (271)	Canada	131.19	-1.1	37.6	-21.3	11 284	-0.2	9.5	-25.7
295	Nitto Denko	Chemicals (135)	Japan	130.40	22.4	5.8	14.2	3 986	21.6	13.7	19.5
296	Hasbro	Leisure goods (374)	USA	129.95	13.8	-4.2	9.8	2 390	2.1	3.0	-4.5
297	Koito Manufacturing	Automobiles & parts (335)	Japan	129.83	6.2			2 530	10.0	8.2	7.4
298	Tatung	Electrical components & equipment (2733)	Taiwan	129.51	2.9	266.5	4.3	4 425	-7.2	85.5	9.7
299	Thermo Fisher Scientific	Electronic equipment (2737)	USA	129.06	11.4	13.4	-8.0	2 875	44.0	19.4	5.2
300	Namco Bandai	Leisure goods (374)	Japan	128.82				2 869			
301	Lear	Automobiles & parts (335)	USA	128.76	-2.4	-11.9	15.5	13 528	4.4	0.8	7.7
302	Clariant	Chemicals (135)	Switzerland	128.60	-5.0	-20.4	-11.0	5 234	3.0	-4.1	0.2
303	TRW Automotive	Automobiles & parts (335)	USA	127.40	-17.2	16.7	5.8	9 967	4.0	5.3	6.1
303	Telenor	Mobile telecommunications (657)	Norway	127.40	47.5	52.5	0.9	10 051	19.7	13.8	14.6
305	Chi Mei Optoelectronic	Electrical components & equipment (2733)	Taiwan	126.93	26.9	55.9	35.2	4 441	18.0	33.1	45.7
306	Eastman Chemical	Chemicals (135)	USA	126.64	3.1	-3.6	-10.6	5 650	5.5	7.3	13.5
307	Integrated Device Technology	Semiconductors (9576)	USA	126.21	30.4	23.0	5.3	609	52.3	35.1	13.0
308	Parker Hannifin	Industrial machinery (2757)	USA	126.01	27.3	37.9	1.6	7 134	13.7	16.4	10.9
309	Brocade Communications	Computer hardware (9572)	USA	125.01	25.9	-12.4	3.0	569	30.8	-3.8	13.6
310	OKI Electric	Telecommunications equipment (9578)	Japan	124.83	-10.8	36.4	5.9	4 331	-1.2	5.2	11.8
311	Skyworks Solutions	Semiconductors (9576)	USA	124.45	7.8	-0.3	0.6	587	-2.3	1.0	27.1
312	Showa Denko	Chemicals (135)	Japan	124.25	12.3	-1.1	3.5	5 820	12.6	9.6	7.5
313	Sepracor	Pharmaceuticals (4577)	USA	123.98	13.1	-9.7	-27.4	907	45.6	115.6	10.7
314	Federal-Mogul	Automobiles & parts (335)	USA	122.85	22.1	-3.2	11.4	4 797	0.6	1.8	11.3
315	Medicis Pharmaceutical	Pharmaceuticals (4577)	USA	122.73	146.4	298.1	-44.2	265	-7.3	24.3	22.3
316	Hospira	Pharmaceuticals (4577)	USA	122.56	16.4	16.1		2 039	9.4	-7.1	
317	ITT	General industrials (272)	USA	122.02	-9.4	13.9	28.5	5 921	5.1	9.8	20.2
318	Linear Technology	Semiconductors (9576)	USA	121.98	22.4	25.6	14.5	829	4.1	30.1	33.0
319	Dade Behring	Pharmaceuticals (4577)	USA	121.86	13.6	5.6	14.1	1 319	4.9	6.3	8.6
320	Rockwell Automation	Electronic equipment (2737)	USA	121.64	15.7	13.9	-6.4	4 217	11.1	13.4	7.5
321	Kudelski	Electronic equipment (2737)	Switzerland	121.32	18.0	17.0	574.5	431	0.9	15.1	52.7
322	PMC-Sierra	Semiconductors (9576)	USA	120.32	33.6	-1.5	0.8	322	45.7	-2.2	19.6

Rank	Company	ICB Sector	Country	R&D Investment			Net Sales				
				2006	change 06/05	change 05/04	change 04/03	2006	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
323	DST Systems	Computer services (9533)	USA	119.51	-7.7	-26.4	26.2	1 695	-11.1	3.5	0.5
324	JDS Uniphase	Telecommunications equipment (9578)	USA	117.92	65.9	-5.8	-35.3	913	69.1	12.0	-6.0
325	Dover	General industrials (272)	USA	117.54	-19.4	2.1	18.6	5 444	18.1	10.7	24.4
326	Theravance	Biotechnology (4573)	USA	116.78	22.0	52.7	31.2	15	66.7	28.6	133.3
327	Quanta Computer	Electronic equipment (2737)	Taiwan	116.27	-5.9	80.8	15.8	12 513	12.2	45.2	10.8
328	Casio Computer	Leisure goods (374)	Japan	115.86	9.6	17.1	0.5	3 693	3.8	6.8	18.8
329	Pantech & Curitel	Mobile telecommunications (657)	South Korea	115.10	18.9			1 388	-15.9		
330	Air Products and Chemicals	Chemicals (135)	USA	114.81	14.1	4.7	4.6	6 945	12.5	9.9	17.7
331	Terumo	Health care equipment & services (453)	Japan	114.72	31.2	-6.5	29.1	1 572	7.4	6.9	7.3
332	Furukawa Electric	General industrials (272)	Japan	114.67	4.8	-9.8	-23.4	5 553	12.5	4.9	4.1
333	Paccar	Commercial vehicles & trucks (2753)	USA	114.20	27.8	14.1	27.3	11 757	13.8	19.5	39.1
334	Compal Electronics	Electronic equipment (2737)	Taiwan	113.53	34.8	22.8	12.0	8 900	44.1	15.5	29.8
335	Weatherford International	Oil equipment, services & distribution (57)	USA	113.32	39.2	28.5	0.7	4 989	51.1	39.0	20.9
336	Tekelec	Telecommunications equipment (9578)	USA	112.57	18.1	28.0	33.9	447	9.8	35.2	50.5
337	Parametric Technology	Software (9537)	USA	111.73	24.6	9.5	-18.5	648	18.5	9.2	-1.8
338	AU Optronics	Electronic equipment (2737)	Taiwan	110.84	-2.5	-2.6	48.0	6 821	34.8	29.3	60.3
339	CR Bard	Health care equipment & services (453)	USA	110.49	27.1	2.7	27.7	1 506	12.1	6.9	15.5
340	Sumitomo Rubber Industries	Automobiles & parts (335)	Japan	110.05	6.3	3.4	11.9	3 399	4.1	9.0	4.5
341	Illinois Tool Works	Industrial machinery (2757)	USA	109.89	13.3	3.6	15.6	10 658	8.8	10.2	16.9
342	Micronas Semiconductor	Semiconductors (9576)	Switzerland	109.57	15.5	19.2	30.7	505	-3.8	-12.2	25.6
342	Winbond Electronic	Semiconductors (9576)	Taiwan	109.57	-19.4	22.8	-1.8	826	24.0	-9.5	5.1
344	King Pharmaceuticals	Pharmaceuticals (4577)	USA	108.89	94.0	8.9	54.1	1 508	12.0	36.1	-14.3
345	Delta Electronics	Electronic equipment (2737)	Taiwan	108.40	21.2	19.3	2.6	2 449	30.2	43.2	15.1
346	East Japan Railway	Travel & leisure (575)	Japan	107.47	8.4	-1.6	3.4	16 499	2.2	-0.2	-0.9
347	Kaneka	Chemicals (135)	Japan	107.32	7.1	8.9	3.5	2 955	6.0	9.5	7.5
348	Avid Technology	Computer hardware (9572)	USA	107.20	27.0	17.3	11.0	691	17.5	31.5	24.9
349	Molex	Electronic equipment (2737)	USA	106.85	5.5	12.2	1.7	2 170	12.3	13.4	21.9
350	Expedia	Travel & leisure (575)	USA	106.45	25.0	32.1	42.3	1 697	5.6	14.9	-21.2
351	Chubu Electric Power	Electricity (753)	Japan	105.89	3.9	-9.0	-4.3	13 687	0.8	1.5	-3.4
352	Black & Decker	Household goods (372)	USA	105.71	4.2	12.8	18.1	4 889	-1.2	20.8	20.4
353	Meiji Seika Kaisha	Food producers (357)	Japan	105.51	-1.6	1.0	-5.9	2 434	5.0	-1.3	4.4
354	SEI Investments	Other financials (877)	USA	105.48	9.8	33.4	67.8	892	52.2	11.6	8.9
355	Nissan Diesel Motor	Commercial vehicles & trucks (2753)	Japan	105.45	2.5	5.0	13.0	3 073	4.7	1.8	18.8
356	Hyundai Heavy Industries	Commercial vehicles & trucks (2753)	South Korea	105.04	-2.4	13.1	15.9	13 467	18.8	16.8	24.6
357	Shiseido	Personal goods (376)	Japan	104.71	-1.8	-4.7	1.7	4 270	4.9	2.5	0.5
358	Sumitomo Metal Industries	Industrial metals (175)	Japan	104.55	11.5	8.4	0.3	9 882	25.5	10.3	-8.5
359	Pou Chen	Personal goods (376)	Taiwan	103.01	7.0	1.9	243.5	4 374	24.6	20.2	316.5
360	JS	Construction & materials (235)	Japan	102.98	16.2	-3.7	6.8	6 732	7.2	1.9	2.6
361	Compuware	Software (9537)	USA	102.77	-14.7	-8.0	-1.3	920	0.7	-2.1	-2.6
362	Qlogic	Semiconductors (9576)	USA	102.61	50.8	-6.4	9.2	445	-0.2	2.8	9.3
363	Lubrizol	Chemicals (135)	USA	102.60	1.1	23.5	15.3	3 064	-1.4	29.7	54.2
364	Fanuc	Electronic equipment (2737)	Japan	102.28	6.2	5.9	11.5	2 425	15.4	24.7	23.5
365	Activision	Leisure goods (374)	USA	100.91	1.0	52.3	-11.6	1 147	3.1	4.4	48.3
366	JSR	Chemicals (135)	Japan	100.74	-1.3	6.2	7.6	2 152	10.8	11.0	11.3

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006 06/05	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
367	OC Oerlikon	General industrials (272)	Switzerland	100.64	9.5	-17.8	16.9	1 423	42.7	-13.2	14.9
368	Brunswick	Leisure goods (374)	USA	100.25	-8.6	10.4	10.9	4 528	0.8	13.3	26.7
369	Watson Pharmaceuticals	Pharmaceuticals (4577)	USA	99.36	4.6	-2.3	29.1	1 501	20.3	0.3	12.6
370	Verisign	Software (9537)	USA	98.08	35.7	41.6	20.7	1 195	-5.2	42.4	10.6
371	KDDI	Fixed line telecommunications (653)	Japan	97.61	39.9	-17.8	27.5	19 480	4.8	2.6	2.2
372	Zymogenetics	Biotechnology (4573)	USA	97.41	29.0	5.7	38.9	19	-42.4	22.2	35.0
373	SMC	Industrial machinery (2757)	Japan	97.21	2.2	3.1	10.1	1 959	9.9	13.4	19.5
374	AGCO	Commercial vehicles & trucks (2753)	USA	96.99	5.1	17.4	45.2	4 122	-0.3	3.4	50.8
375	CSL	Biotechnology (4573)	Australia	96.25	10.5	44.0	10.5	1 703	3.6	61.3	31.1
376	Intersil	Semiconductors (9576)	USA	95.90	6.9	5.2	23.1	562	23.5	12.1	5.5
377	American Standard Companies	Construction & materials (235)	USA	95.55	10.5	-18.6	9.4	8 499	9.2	7.9	11.0
378	Synthes	Health care equipment & services (453)	Switzerland	95.25	9.4	4.9	70.1	1 814	15.1	16.8	44.9
379	Dainippon Ink & Chemicals	Chemicals (135)	Japan	94.72	-6.5	6.2	16.1	6 395	0.2	2.9	1.3
380	NTN	Industrial machinery (2757)	Japan	94.01	-1.2	10.4	10.5	2 767	11.9	8.7	4.3
381	Bio-Rad Laboratories	Health care equipment & services (453)	USA	93.56	7.2	6.2	14.9	966	7.8	8.3	8.7
382	NGK Spark Plug	Automobiles & parts (335)	Japan	93.51	2.3	3.5	2.1	1 813	18.1	5.4	-0.1
383	Yokohama Rubber	Automobiles & parts (335)	Japan	92.65	2.0	3.2	10.4	2 876	7.6	4.5	0.3
384	Silicon Laboratories	Semiconductors (9576)	USA	92.29	20.2	35.1	55.1	352	9.0	-6.6	40.1
385	Swatch	Household goods (372)	Switzerland	91.94	-0.7	-5.7	-3.7	2 994	12.3	7.8	0.0
386	Chunghwa Picture Tubes	Electronic equipment (2737)	Taiwan	91.88	11.6	11.1	5.3	2 946	22.5	-11.7	31.6
387	National Instruments	Electronic equipment (2737)	USA	91.38	19.0	12.6	11.5	501	15.4	11.3	20.7
388	Hoya	Electronic equipment (2737)	Japan	89.96	29.0	11.3	43.9	2 191	11.7	13.5	10.2
388	Rieter	Industrial machinery (2757)	Switzerland	89.96	0.1	6.9	5.1	2 224	13.3	-0.4	1.8
390	Funai Electric	Electronic equipment (2737)	Japan	89.76	16.7	3.6	26.7	2 297	-5.8	12.0	3.2
391	CV Therapeutics	Biotechnology (4573)	USA	89.73	8.1	5.4	49.6	28	100.0	-6.7	66.7
392	Kuraray	Chemicals (135)	Japan	89.54	1.4	1.4	9.3	2 387	5.7	6.9	3.0
393	Pantech	Mobile telecommunications (657)	South Korea	89.41	73.4			534	0.4		
394	Santen Pharmaceutical	Pharmaceuticals (4577)	Japan	88.92	10.7	6.5	-6.8	626	6.1	3.1	-0.3
395	ConocoPhillips	Oil & gas producers (53)	USA	88.72	-6.4	-0.8	-7.3	139 267	13.8	35.5	31.7
396	Norsk Hydro	Oil & gas producers (53)	Norway	88.55	1.5	-5.8	-10.6	24 374	14.9	12.1	-9.5
397	Cognos	Software (9537)	Canada	88.42	1.6	8.3	16.2	638	-4.1	6.2	20.8
398	Huntsman	Chemicals (135)	USA	87.51	20.8	15.1	26.5	9 971	1.2	13.1	62.2
399	Lite-On Technology	Computer hardware (9572)	Taiwan	87.46	2.0	26.6	24.0	5 167	-2.3	6.0	48.2
400	Quantum	Computer hardware (9572)	USA	87.38	7.3	11.1	-6.6	771	21.8	5.1	-1.8
401	Polycom	Telecommunications equipment (9578)	USA	86.70	25.0	-0.6	26.8	517	17.5	7.3	28.5
402	Edwards Lifesciences	Health care equipment & services (453)	USA	86.60	15.4	13.8	19.5	786	3.8	7.2	8.1
403	Time Warner	Media (555)	USA	86.45	-7.3	-8.2	-3.6	33 536	1.3	3.7	6.4
404	Microchip Technology	Semiconductors (9576)	USA	86.22	19.8	2.0	9.0	788	11.9	9.7	21.1
405	Sunplus Technology	Semiconductors (9576)	Taiwan	86.06	30.7	38.3	35.0	639	1.4	42.9	70.9
406	Garmin	Leisure goods (374)	Cayman Islands	85.93	51.3	21.6	40.9	1 345	72.7	34.8	32.9
407	McData (now part of Brocade Communications)	Computer hardware (9572)	USA	85.72	23.6	3.0	49.7	466	53.8	-4.7	27.7
408	Andrew	Telecommunications equipment (9578)	USA	85.68	4.8	-2.2	31.0	1 627	9.4	6.7	81.3
409	EMBRAER	Aerospace & defence (271)	Brazil	85.50	21.0	109.3	-74.3	2 887	-0.6	11.3	60.6
410	International Rectifier	Semiconductors (9576)	USA	84.49	6.2	13.8	16.8	888	-0.3	10.8	22.6

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
411	Dainippon Screen Mfg	Semiconductors (9576)	Japan	84.45	5.1	13.4	3.4	1 569	-8.5	40.3	14.3
412	Ciena	Telecommunications equipment (9578)	USA	84.23	-19.1	-33.2	-3.4	428	32.1	42.7	5.6
413	Saurer	Industrial machinery (2757)	Switzerland	84.05	17.5	-4.9	0.7	1 894	20.6	-2.7	-7.6
414	Japan Radio	Electronic equipment (2737)	Japan	83.42	-30.2	-6.2	-1.3	1 138	-22.0	-17.7	7.4
415	Valeant Pharmaceuticals	Pharmaceuticals (4577)	USA	83.13	-3.6	23.0	104.3	688	9.0	21.8	-0.4
416	Electronics For Imaging	Computer hardware (9572)	USA	83.06	-1.4	14.9	7.5	355	18.7	3.8	8.3
417	ECI Telecom	Telecommunications equipment (9578)	Israel	82.66	14.4	25.4	-8.9	498	4.2	26.8	17.8
418	Pliva	Pharmaceuticals (4577)	Croatia	82.60	-9.9	-6.6	19.7	777	-11.6	2.6	4.9
419	Citrix Systems	Software (9537)	USA	82.42	25.9	34.0	-6.5	689	22.6	26.0	11.5
420	Logitech International	Computer hardware (9572)	Switzerland	82.09	23.1	19.0	20.6	1 567	15.0	21.3	16.8
421	Invitrogen	Biotechnology (4573)	USA	81.59	8.4	35.8	33.9	958	5.4	17.1	31.5
422	Fairchild Semiconductor	Semiconductors (9576)	USA	81.52	38.5	-5.4	9.6	1 252	15.8	-11.1	14.9
423	Georg Fischer	Industrial machinery (2757)	Switzerland	81.38	5.6	8.8	1.8	2 515	9.6	4.3	7.4
424	Midway Games	Software (9537)	USA	80.66	-2.2	46.4	12.7	126	10.5	-7.3	75.7
425	Fidelity National Information	Support services (279)	USA	80.06	-7.0	52.9	93.5	3 134	251.7	13.1	2.3
426	Inventec	Computer hardware (9572)	Taiwan	80.04	27.7	90.7	5.3	5 983	29.4	51.3	61.0
427	USEC	Industrial metals (175)	USA	80.00	11.6	61.5	30.6	1 402	18.6	10.0	-2.9
428	Symbol Technologies (now part of Motorola)	Electronic equipment (2737)	USA	79.85	-15.8	15.0	49.4	1 339	1.9	13.3	9.1
429	Anritsu	Electronic equipment (2737)	Japan	79.61	19.0	6.3	-25.2	581	8.6	7.2	-0.2
430	UBE Industries	Chemicals (135)	Japan	79.48	8.6	-4.6	6.1	3 789	5.8	10.0	-0.4
431	AMIS	Semiconductors (9576)	USA	79.32	19.7	13.2	9.9	459	20.2	-2.6	14.0
432	InterMune	Biotechnology (4573)	USA	79.16	26.2	1.7	-32.1	69	-37.8	-2.6	-2.6
433	Endress & Hauser	Electronic equipment (2737)	Switzerland	79.02	6.5	5.8	15.2	985	11.3	12.7	6.8
434	Trimble Navigation	Electronic equipment (2737)	USA	78.75	23.2	8.7	14.7	713	21.3	16.0	23.7
435	Mylan Laboratories	Pharmaceuticals (4577)	USA	78.63	1.6	16.1	-12.8	1 222	28.2	0.3	-8.8
436	Oji Paper	Forestry & paper (173)	Japan	78.28	7.0	-4.2	-6.2	7 726	2.4	0.4	-2.7
437	Fujikura	Electrical components & equipment (2733)	Japan	77.98	1.0	10.2	-3.0	3 202	39.5	8.9	4.6
438	SSA Global Technologies (now part of Infor Global Solutions)	Software (9537)	USA	77.96	8.0	127.2		540	11.8	114.7	
439	CheckFree	Software (9537)	USA	77.90	24.4	24.5	16.3	667	16.0	25.0	10.0
440	Newell Rubbermaid	Household goods (372)	USA	77.35	-1.0	-2.9	-14.8	5 088	5.8	-6.0	-12.9
441	Vitesse Semiconductor	Semiconductors (9576)	USA	76.93	-6.5	-1.5	-35.3	145	-12.7	39.5	-3.3
442	ON Semiconductor	Semiconductors (9576)	USA	76.74	8.0	-0.7	10.4	1 162	21.5	-0.5	18.5
443	Varian Medical Systems	Health care equipment & services (453)	USA	76.14	22.4	13.8	21.8	1 212	15.6	11.8	18.6
444	MGI PHARMA	Pharmaceuticals (4577)	USA	75.92	41.2	13.2	24.9	260	22.6	43.2	300.0
445	PerkinElmer	Electronic equipment (2737)	USA	75.62	14.1	0.4	4.7	1 179	-8.5	0.7	9.9
446	Zoran	Semiconductors (9576)	USA	75.15	11.3	12.4	96.0	376	25.3	4.5	75.0
447	Campbell Soup	Food producers (357)	USA	75.07	4.2	2.1	5.7	5 898	3.0	6.2	6.5
447	Clorox	Household goods (372)	USA	75.07	12.5	4.8	10.5	3 534	4.1	3.5	4.3
449	Cardinal Health	Food & drug retailers (533)	USA	74.62	-16.0	107.4	-0.7	62 103	9.3	15.2	28.9
450	Toto	Construction & materials (235)	Japan	74.60	-0.5	3.7	0.6	3 149	2.2	3.5	6.4
451	Thq	Leisure goods (374)	USA	73.64	15.3	15.5	98.0	779	27.3	6.6	18.1
452	FMC	Chemicals (135)	USA	73.48	2.6	1.1	6.9	1 780	9.1	4.9	6.7

Rank	Company	ICB Sector	Country	R&D Investment			Net Sales				
				2006	change 06/05	change 05/04	change 04/03	2006 06/05	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
453	Applied Micro Circuits	Semiconductors (9576)	USA	73.12	5.9	-25.4	-4.7	222	11.6	3.6	93.9
454	Cell Genesys	Biotechnology (4573)	USA	73.06	4.3	0.3	8.0	1	-66.7	-66.7	-35.7
455	Reynolds and Reynolds	Software (9537)	USA	72.80	3.2	5.4	-0.1	735	-1.3	-2.6	1.6
456	Idenix Pharmaceuticals	Biotechnology (4573)	USA	72.69	11.1	8.4	55.8	51	4.1	-31.9	227.3
457	Sumitomo Bakelite	Chemicals (135)	Japan	72.61	3.3	8.9	-0.9	1 534	7.9	31.2	6.2
458	Osaka Gas	Gas, water & multiutilities (757)	Japan	72.07	-0.7	-7.9	-9.8	6 784	9.3	2.5	0.4
459	Sanken Electric	Semiconductors (9576)	Japan	71.61	4.8	10.0	8.8	1 104	11.1	6.1	0.8
460	Biomet	Health care equipment & services (453)	USA	71.60	11.2	6.5	22.8	1 598	4.0	7.7	16.4
461	Daicel Chemical Industries	Chemicals (135)	Japan	71.42	0.0	1.2	-5.6	2 135	9.5	8.8	3.8
462	Semiconductor Manufacturing	Semiconductors (9576)	China	71.41	19.4	0.9	143.8	1 111	25.1	20.2	166.8
463	Lyondell Chemical	Chemicals (135)	USA	71.28	3.3	122.0	10.8	16 856	19.5	211.7	57.0
464	Tosoh	Chemicals (135)	Japan	70.65	8.8	-1.0	-1.0	4 129	10.3	21.4	2.7
465	Nektar Therapeutics	Health care equipment & services (453)	USA	70.58	32.8	58.0	-15.7	165	71.9	10.3	7.4
466	Citizen Watch (now Citizen)	Electronic equipment (2737)	Japan	70.46	8.3	8.0	12.6	2 138	-6.0	-4.9	12.5
467	Elbit Systems	Aerospace & defence (271)	Israel	69.94	28.3	7.6	21.7	1 155	42.4	13.7	4.7
468	Mitsubishi Rayon	Chemicals (135)	Japan	69.81	5.6	-6.1	2.7	2 221	5.7	6.6	3.0
469	Wistron	Computer hardware (9572)	Taiwan	69.61	12.0	18.4	14.2	5 145	34.2	41.1	45.8
470	Macronix International	Semiconductors (9576)	Taiwan	69.58	2.8	15.4	-6.9	530	22.7	-19.1	31.9
471	Credence Systems	Semiconductors (9576)	USA	69.29	-1.3	14.9	9.5	360	10.4	-2.4	142.0
472	Ebara	Industrial machinery (2757)	Japan	69.26	8.9	-8.9	-22.3	3 277	7.6	-5.8	-2.0
473	High Tech Computer	Electronic equipment (2737)	Taiwan	69.21	23.9	20.3	90.3	2 430	44.6	102.4	68.4
474	Mitsubishi Materials	Industrial metals (175)	Japan	69.11	3.9	-7.0	-3.2	7 279	16.1	3.9	-1.7
475	Neurocrine Biosciences	Biotechnology (4573)	USA	68.98	-6.6	11.3	8.6	30	-68.1	46.9	-39.0
476	Schindler	Industrial machinery (2757)	Switzerland	68.96	0.9	-3.5	-18.0	6 899	25.2	7.2	8.4
477	Abraxis Bioscience	Pharmaceuticals (4577)	USA	68.78	41.1	149.2	14.6	580	46.8	28.7	15.4
478	Sigmatel	Semiconductors (9576)	USA	68.74	19.4	125.8	70.6	121	-50.8	66.2	94.7
479	Varian Semiconductor Equipment	Semiconductors (9576)	USA	68.71	16.7	14.7	11.9	554	21.8	13.2	46.2
480	American Power Conversion (now part of Schneider, France)	Computer hardware (9572)	USA	68.64	5.7	26.6	12.6	1 501	16.4	16.0	12.7
481	Mitsubishi Gas Chemical	Chemicals (135)	Japan	68.11	-0.2	2.0	-8.9	2 799	13.2	14.1	9.2
482	Ranbaxy Laboratories	Pharmaceuticals (4577)	India	68.01	-19.4	21.3	67.6	1 053	15.0	-3.4	14.8
483	Emulex	Computer hardware (9572)	USA	68.00	12.1	9.2	19.5	305	7.0	3.3	17.9
484	Nuvelo	Biotechnology (4573)	USA	67.77	54.7	44.6	20.8	3	650.0	0.0	-80.0
485	Kissei Pharmaceutical	Pharmaceuticals (4577)	Japan	67.30	6.9	0.7	-24.8	407	4.9	4.6	-2.1
486	BE Aerospace	Aerospace & defence (271)	USA	67.19	35.1	19.1	23.2	856	33.8	15.1	17.3
487	Lonza	Chemicals (135)	Switzerland	67.09	21.3	3.5	4.9	1 810	15.6	15.5	-2.7
488	Smith International	Oil equipment, services & distribution (57)	USA	66.96	20.0	9.5	20.9	5 561	31.4	26.3	22.9
489	Openwave Systems	Software (9537)	USA	66.80	-7.3	1.9	-19.0	312	7.2	31.7	8.9
490	Avery Dennison	Chemicals (135)	USA	66.66	2.9	3.8	10.0	4 234	2.0	2.5	12.1
491	Quest Software	Software (9537)	USA	66.64	12.2	16.1	13.5	361	22.4	27.7	17.9
492	Incyte	Biotechnology (4573)	USA	66.43	-8.4	8.3	-24.1	21	250.0	-45.5	-69.4

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
493	Nippon Kayaku	Chemicals (135)	Japan	66.31	9.7	11.0	0.0	891	4.3	4.8	3.7
494	Orkla	General industrials (272)	Norway	66.01	0.2		-100.0	7 029	7.2	71.0	-29.4
495	Praxair	Chemicals (135)	USA	65.98	13.0	2.7	8.7	6 312	26.2	17.5	9.4
496	Chunghwa Telecom	Fixed line telecommunications (653)	Taiwan	65.72	9.4	4.3	-4.1	4 337	0.9	-0.3	1.5
497	Millipore	Health care equipment & services (453)	USA	65.68	31.1	5.7	7.0	952	26.6	12.2	10.6
498	L-3 Communications	Aerospace & defence (271)	USA	65.44	31.4	-7.7	34.9	9 462	32.1	36.9	36.3
498	Affymetrix	Health care equipment & services (453)	USA	65.44	10.8	5.1	12.5	269	-3.6	6.5	14.9
500	Regeneron Pharmaceuticals	Biotechnology (4573)	USA	65.16	-16.7			48	-4.0	-62.1	200.0
500	Tibco Software	Software (9537)	USA	65.16	17.5	19.7	-5.4	392	16.0	15.0	47.0
502	Fair Isaac	Software (9537)	USA	64.43	4.5	14.4	5.2	626	3.3	13.1	12.4
503	Nippon Shokubai	Chemicals (135)	Japan	64.41	6.2	1.1	2.1	1 479	17.8	16.2	3.3
504	Convergys	Support services (279)	USA	64.38	10.4	-0.8	-17.8	2 116	8.1	3.8	8.6
505	Kyorin	Pharmaceuticals (4577)	Japan	64.33	-20.4	54.5		471	11.6	1.9	
506	Nippon Oil	Oil & gas producers (53)	Japan	64.30	-11.7	18.1	-3.5	38 937	24.2	15.1	35.8
507	Toyobo	Chemicals (135)	Japan	64.15	9.5	1.8	3.2	2 558	2.1	5.6	-0.9
508	Nippon Shinyaku	Pharmaceuticals (4577)	Japan	64.10	18.8	2.6	4.8	343	-0.6	5.5	-3.0
509	Toyo Tire	Automobiles & parts (335)	Japan	63.97	2.7	2.5	4.8	1 911	11.2	5.4	0.4
510	SK	Oil & gas producers (53)	South Korea	63.96	22.1	24.4	51.3	19 286	7.9	25.9	26.2
511	Hydro-Quebec	Electricity (753)	Canada	63.86	2.1			7 440	1.6	-2.5	0.8
512	Pentax	Leisure goods (374)	Japan	63.66	2.1	9.3	12.5	905	6.5	-0.7	24.2
513	Silicon Graphics	Computer hardware (9572)	USA	63.46	-9.7	-14.8	-36.4	393	-29.1	-13.3	-12.3
514	Cooper Industries	Electrical components & equipment (2733)	USA	63.32	16.8	1.3	11.4	3 932	9.6	6.0	9.9
515	Alexion Pharmaceuticals	Pharmaceuticals (4577)	USA	63.11	-7.9	63.6	-21.3	1	150.0	-86.7	200.0
516	American Axle & Manufacturing	Automobiles & parts (335)	USA	63.09	13.0	7.3	13.0	2 420	-5.8	-5.9	-2.3
517	Endo Pharmaceuticals	Pharmaceuticals (4577)	USA	62.80	-6.2	74.7	-0.9	690	10.9	33.5	3.1
518	Mettler-Toledo International	Industrial machinery (2757)	Switzerland	62.79	1.1	-1.6	6.7	1 209	7.6	5.5	7.7
519	Valspar	Chemicals (135)	USA	62.64	4.2	4.5	8.9	2 258	9.7	11.2	8.6
520	Modine Manufacturing	Automobiles & parts (335)	USA	62.56	70.0	51.7	1.9	1 333	2.7	10.8	28.7
521	Koc	General industrials (272)	Turkey	62.51	15.9	4.5	57.6	26 441	102.8	9.4	43.6
522	Kyushu Electric Power	Electricity (753)	Japan	62.30	-0.7	-7.7	-2.5	8 921	-0.5	1.2	-2.1
523	Lattice Semiconductor	Semiconductors (9576)	USA	62.16	-14.1	4.9	4.5	186	16.3	-6.4	7.5
524	NSK	Support services (279)	Japan	61.91	-0.8	12.4	5.0	4 000	8.2	11.3	-0.1
525	Advanced Semiconductor Engineering	Semiconductors (9576)	Taiwan	61.26	-5.5	7.8	9.8	2 337	16.6	5.4	42.6
526	NGK Insulators	General industrials (272)	Japan	61.00	-10.0	-15.5	-3.1	1 806	6.6	5.9	-16.7
527	Hankook Tire	Automobiles & parts (335)	South Korea	60.57	3.0	19.5	11.5	1 683	2.3	8.7	10.7
527	Techtronic Industries	Electrical components & equipment (2733)	Hong Kong	60.57	-1.4	61.7	45.1	2 128	-2.4	37.1	23.7
529	Kajima	Construction & materials (235)	Japan	60.56	-5.1	-9.7	-2.9	11 299	5.2	4.0	-13.5
530	Glory	Industrial machinery (2757)	Japan	60.30	-27.4	10.0	17.3	899	-25.2	6.8	50.8
531	Tohoku Electric Power	Electricity (753)	Japan	60.14	-8.6	8.4	-10.9	10 565	3.0	3.1	-2.0
532	Red Hat	Software (9537)	USA	59.94	93.4	25.9	22.6	304	44.1	41.6	55.2
533	Tokyo Gas	Gas, water & multiutilities (757)	Japan	59.82	12.8	-25.2	-4.7	8 061	6.4	3.4	2.1

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
534	Tokuyama	Chemicals (135)	Japan	59.81	6.0	1.3	12.5	1 676	10.8	8.3	-2.7
535	Taisei	Construction & materials (235)	Japan	59.74	4.4	-4.7	-4.8	11 099	2.1	6.8	-2.8
536	Powerchip Semiconductor	Semiconductors (9576)	Taiwan	59.33	48.1	64.1	-5.4	2 146	71.0	-6.1	149.9
537	Sealed Air	General industrials (272)	USA	59.30	3.2	3.5	6.1	3 282	5.9	7.6	7.5
538	Realnetworks	Software (9537)	USA	58.68	9.4	35.9	9.1	300	21.5	22.3	32.0
539	Waters	Health care equipment & services (453)	USA	58.62	15.5	2.6	7.1	971	10.6	4.8	15.3
540	Progress Software	Software (9537)	USA	58.60	22.5	4.0	19.8	339	10.4	11.6	17.5
541	Creative Technology	Computer hardware (9572)	Singapore	58.53	-6.2	18.4	18.3	855	-8.0	50.3	16.2
542	Nissan Chemical Industries	Chemicals (135)	Japan	58.44	6.4	-0.5	15.8	1 077	4.9	3.5	2.6
543	Hamamatsu Photonics	Electronic equipment (2737)	Japan	58.43	3.8	0.9	0.4	554	17.9	4.9	15.5
544	Proton Holdings Berhad	Automobiles & parts (335)	Malaysia	58.39	-21.8	-36.0	31.5	1 676	-8.1	31.1	-30.2
545	Zeon	Chemicals (135)	Japan	58.22	2.1	5.6	19.2	1 674	13.7	8.4	1.2
546	Minebea	Industrial machinery (2757)	Japan	57.59	-9.6	3.9	-1.0	2 027	8.2	9.7	-1.3
547	Aeroflex	Electronic equipment (2737)	USA	57.56	23.6	22.8	60.7	418	15.2	15.6	42.1
548	SIG	General industrials (272)	Switzerland	57.00	11.8	-26.1	-9.2	1 349	-7.0	-14.3	-10.7
549	ProMOS Technologies	Semiconductors (9576)	Taiwan	56.93	-11.4	16.0	109.0	1 398	101.4	-30.6	70.9
550	Biovail	Pharmaceuticals (4577)	Canada	56.92	24.1	20.9	-30.8	811	14.4	5.5	7.5
551	Aristocrat Leisure	Travel & leisure (575)	Australia	56.91	44.7	11.5	-6.9	642	-17.2	14.1	15.7
552	Bobst	Industrial machinery (2757)	Switzerland	56.84	0.4	2.9		996	0.8	-0.7	13.6
553	Energizer	Electrical components & equipment (2733)	USA	56.27	6.1	-5.5	43.7	2 333	2.9	6.3	26.0
554	Denki Kagaku Kogyo	Chemicals (135)	Japan	56.06	4.3	-0.4	-2.4	1 960	10.0	11.5	3.0
555	Cytec Industries	Chemicals (135)	USA	56.04	7.9	71.3	13.6	2 525	13.8	70.0	16.9
556	Polaris Industries	Automobiles & parts (335)	USA	56.03	8.4	12.3	17.3	1 256	-11.4	5.4	10.4
557	Cymer	Semiconductors (9576)	USA	56.02	15.4	9.5	0.4	412	41.6	-8.2	56.2
558	Wind River Systems	Software (9537)	USA	55.70	12.0	7.9	7.1	216	6.9	12.8	15.5
559	Ecolab	Chemicals (135)	USA	55.59	7.2	11.2	15.6	3 713	8.0	8.3	11.3
560	Fortune Brands	Construction & materials (235)	USA	55.13	10.3	-4.1	18.2	6 650	12.1	6.9	17.8
561	Intermec	Computer hardware (9572)	USA	54.90	8.9	7.1	9.5	645	-22.6	35.4	-27.7
561	ADC Telecommunications	Telecommunications equipment (9578)	USA	54.90	1.1	21.2	-45.6	1 000	12.0	50.1	1.5
563	Axcelis Technologies	Semiconductors (9576)	USA	54.89	2.1	12.2	-0.1	350	23.7	-26.5	57.8
564	Estee Lauder	Personal goods (376)	USA	54.83	7.6	10.5	-0.8	4 805	9.4	13.1	7.9
565	Eclipsys	Software (9537)	USA	54.66	0.2	-1.9	-4.2	324	11.3	24.4	21.2
566	Plantronics	Telecommunications equipment (9578)	USA	54.52	14.5	38.9	27.5	607	6.7	33.9	34.5
567	Realtek Semiconductor	Semiconductors (9576)	Taiwan	54.01	18.3	44.2	-4.1	294	15.3	17.5	0.5
568	Asahi Breweries	Beverages (353)	Japan	54.00	2.3	-0.3	12.2	9 205	1.1	60.6	4.2
569	Powerwave Technologies	Electrical components & equipment (2733)	USA	53.99	16.7	29.3	21.2	571	-8.8	74.4	98.3
570	Kronos	Software (9537)	USA	53.95	38.5	29.2	22.9	438	11.5	14.9	13.6
571	Atheros Communications	Semiconductors (9576)	USA	53.91	48.8	11.9	39.2	229	64.7	7.8	95.5
572	Diebold	Computer hardware (9572)	USA	53.84	17.5	0.7	-0.7	2 204	12.3	8.6	12.9
573	ADTRAN	Telecommunications equipment (9578)	USA	53.61	12.8	-7.0	15.9	358	-8.0	12.8	14.6
574	Brooks Automation	Semiconductors (9576)	USA	53.59	12.6	-6.5	-7.9	525	49.1	-13.9	56.7
575	Foundry Networks	Telecommunications equipment (9578)	USA	53.58	37.8	16.8	8.5	359	17.3	-1.3	2.3
576	Newmarket	Chemicals (135)	USA	53.28	7.4	0.1	14.7	958	17.4	20.4	18.1
577	Borland Software	Software (9537)	USA	53.22	21.6	-15.3	6.0	231	10.0	-10.6	4.9

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
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				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
578	Yamatake	Electronic equipment (2737)	Japan	53.21	2.3	0.9	-8.8	1 199	4.3	6.3	1.2
579	Pharmion	Pharmaceuticals (4577)	USA	53.19	63.3	51.3	15.3	181	7.7	69.7	421.1
580	MITAC International	Electronic equipment (2737)	Taiwan	53.18	18.9	44.0	12.0	2 125	8.9	41.1	30.6
581	Myriad Genetics	Pharmaceuticals (4577)	USA	53.16	45.6	29.0	108.1	87	40.3	44.2	-12.2
582	Intergraph	Software (9537)	USA	53.13	1.4	0.1	9.3	437	4.5	4.5	5.3
583	Celanese	Chemicals (135)	USA	53.08	-23.1	-22.7	13.1	5 047	9.6	-9.8	25.2
584	Fonterra Co-operative	Food producers (357)	New Zealand	52.94	125.0	37.5	-52.9	6 830	6.9	1.6	-2.5
585	MKS Instruments	Semiconductors (9576)	USA	52.86	24.7	-1.9	19.6	594	53.9	-8.3	64.5
586	Hexion Specialty Chemicals	Chemicals (135)	USA	52.33	11.3	214.1	9.7	3 968	17.1	165.1	17.6
586	Weyerhaeuser	Forestry & paper (173)	USA	52.33	13.1	10.9	7.8	16 873	-3.3	1.5	14.1
588	Moog	Aerospace & defence (271)	USA	52.24	58.2	46.5	-2.6	991	24.3	11.9	24.3
589	Systemex	Biotechnology (4573)	Japan	52.09	25.7	17.3	11.7	559	14.1	16.7	15.4
590	Gen-Probe	Biotechnology (4573)	USA	52.03	49.1	11.3	-17.1	269	15.9	13.2	30.6
591	Aspen Technology	Software (9537)	USA	51.84	22.6	-16.0	-8.7	252	23.5	-17.4	0.8
592	JohnsonDiversey	Chemicals (135)	USA	51.81	-23.9	-19.5	0.1	2 377	-5.3	4.5	7.5
593	ConAgra Foods	Food producers (357)	USA	51.79	26.2			9 673	-10.0	-8.7	6.8
594	Basilea Pharmaceuticals	Biotechnology (4573)	Switzerland	51.44	14.4	5.0	37.8	5	-73.7	4 650.0	0.0
595	Yaskawa Electric	Electronic equipment (2737)	Japan	51.38	4.3	2.2	9.0	2 055	4.3	17.7	16.3
596	OmniVision Technologies	Semiconductors (9576)	USA	51.24	66.5	59.2	63.7	401	7.5	26.9	22.0
597	Japan Aviation Electronics Industry	Aerospace & defence (271)	Japan	51.13	1.4	5.0	10.2	804	9.1	1.9	7.6
598	Shimadzu	Electronic equipment (2737)	Japan	51.09	1.4	10.3	9.6	1 544	3.9	7.1	6.7
599	China Motor	Automobiles & parts (335)	Taiwan	50.93	-6.0	-15.4	15.5	858	-29.8	-26.6	30.8
600	Standard Microsystems	Semiconductors (9576)	USA	50.49	14.3	35.6	10.8	281	16.1	53.2	-3.7
601	Tokyo Seimitsu	Semiconductors (9576)	Japan	50.40	25.7	13.9	68.0	591	9.6	35.8	32.3
602	Advanced Medical Optics	Health care equipment & services (453)	USA	50.13	7.2	35.2	21.9	756	8.3	24.0	23.5
603	Arris	Telecommunications equipment (9578)	USA	50.08	9.8	-5.1	0.8	676	31.0	38.7	13.1
604	Avon Products	Personal goods (376)	USA	49.90	2.5	0.6	28.6	6 646	7.5	5.2	13.9
605	Isis Pharmaceuticals	Pharmaceuticals (4577)	USA	49.65	21.6	-37.3	27.2	19	-36.7	-6.3	-15.8
606	Chemtura	Chemicals (135)	USA	49.64	26.3	4.5	-3.7	2 823	19.2	22.4	16.7
606	Shimizu	Construction & materials (235)	Japan	49.64	7.2	-5.6	3.0	9 542	1.0	-4.3	0.1
608	Interdigital	Semiconductors (9576)	USA	49.62	3.7	23.2	11.5	364	193.5	57.0	-9.2
609	Kpit Cummins Infosystems	Computer services (9533)	India	49.41	39.9	23.8	110.3	79	43.6	27.9	95.5
610	ICOS (now part of Eli Lilly)	Biotechnology (4573)	USA	49.37	17.5	-35.4	41.3	54	-5.3	0.0	-18.6
611	Emdeon (now HLTH)	Support services (279)	USA	49.31	11.2	8.0	26.0	994	2.7	10.0	20.4
612	MeadWestvaco	General industrials (272)	USA	49.29	30.0	-32.4	4.2	4 952	-5.1	-16.3	8.9
613	Taiwan Power	Electricity (753)	Taiwan	49.14	5.7	-3.3	-5.8	8 894	4.2	6.7	2.4
614	NC Soft	Internet (9535)	South Korea	49.11	32.3	43.4		276	0.0	16.9	
615	Genesis Microchip	Semiconductors (9576)	USA	48.91	40.5	37.6	-1.6	163	-20.1	31.6	-4.3
616	SPSS	Software (9537)	USA	48.80	18.2	-4.4	25.8	198	10.6	5.3	7.6
617	Komag	Computer hardware (9572)	USA	48.67	31.3	19.8	-3.1	711	36.7	49.4	4.8
618	Mindspeed Technologies	Semiconductors (9576)	USA	48.61	-10.2	-10.3		103	21.2	-6.6	
619	Daifuku	Industrial machinery (2757)	Japan	48.55	53.5	17.5	-0.5	1 265	19.6	20.0	-3.8

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006 06/05	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
620	Nippon Sheet Glass	Construction & materials (235)	Japan	48.52	-4.1	3.0	-13.6	1 692	0.4	-1.6	-3.9
621	BJ Services	Oil equipment, services & distribution (57)	USA	48.44	17.9	14.6	15.9	3 312	34.7	24.7	21.4
622	Avocent	Computer hardware (9572)	USA	48.43	12.3	25.4	52.2	394	40.7	1.1	19.9
623	WR Grace	Chemicals (135)	USA	48.38	7.8	15.8	-1.7	2 143	10.0	13.7	14.1
624	Magma Design Automation	Software (9537)	USA	48.25	38.5	10.1	59.8	135	8.9	11.7	29.1
625	Silicon Image	Semiconductors (9576)	USA	48.23	41.8	-42.5	79.7	224	39.1	22.9	65.8
626	Medicines	Pharmaceuticals (4577)	USA	48.18	-1.3	30.6	37.3	162	42.1	4.6	67.7
627	Encysive Pharmaceuticals	Pharmaceuticals (4577)	USA	47.89	-0.5	12.1	120.1	14	27.3	10.0	11.1
628	Par Pharmaceutical Companies	Pharmaceuticals (4577)	USA	47.75	24.6	105.5	37.3	329	-37.1	4.2	73.7
629	DRS Technologies	Aerospace & defence (271)	USA	47.55	31.7	22.4	37.0	2 139	62.5	29.3	34.1
630	SPX	Electrical components & equipment (2733)	USA	47.47	6.5	1.2	-39.5	3 582	-1.3	9.5	-14.0
631	Sumitomo Heavy Industries	Industrial machinery (2757)	Japan	47.36	17.8	0.9	8.0	3 509	5.8	8.0	0.3
632	Showa	Automobiles & parts (335)	Japan	47.31	12.6	-15.6	11.3	1 594	7.3	6.4	11.6
633	Check Point Software Technologies	Internet (9535)	Israel	47.18	20.1	29.3	36.6	436	-0.7	12.3	19.2
634	Kureha	Chemicals (135)	Japan	47.13	14.7	1.4	1.1	863	4.0	-3.4	-1.9
635	Meiji Dairies	Food producers (357)	Japan	47.08	-2.1	1.8	7.4	4 524	-2.0	0.4	-1.4
636	Cell Therapeutics	Biotechnology (4573)	USA	47.01	-9.9	-32.0	12.9	0	-96.7	-45.5	15.8
637	Extreme Networks	Telecommunications equipment (9578)	USA	46.99	1.1	5.4	0.2	272	-6.5	9.0	-2.9
638	Veeco Instruments	Electronic equipment (2737)	USA	46.96	2.6	3.5	19.4	334	7.4	5.1	39.6
639	Sauer-Danfoss	Commercial vehicles & trucks (2753)	USA	46.93	5.5	13.0	19.5	1 319	12.4	10.2	24.7
640	Nalco	Gas, water & multiutilities (757)	USA	46.71	5.1	3.7		2 732	8.8	9.2	
641	Alliant Techsystems	Aerospace & defence (271)	USA	46.66	19.5	35.8	31.1	2 703	10.8	14.8	18.4
642	Cheil Industries	Chemicals (135)	South Korea	46.43	41.6	18.8	14.4	2 319	8.2	6.1	18.8
643	Mercury Computer Systems	Computer hardware (9572)	USA	46.38	22.1	29.5	0.7	179	-5.8	34.8	2.9
644	Crane	Industrial machinery (2757)	USA	46.18	32.1	-12.0	12.0	1 711	9.5	9.1	15.5
645	Lawson Software	Software (9537)	USA	46.04	-2.3	-4.2	9.8	296	16.5	-8.0	5.7
646	Fiserv	Support services (279)	USA	46.03	21.4	4.6	-8.8	3 446	12.0	8.8	22.9
647	FLIR Systems	Aerospace & defence (271)	USA	45.94	17.6	12.5	49.4	436	13.0	5.5	54.4
648	Obayashi	Construction & materials (235)	Japan	45.86	-8.6			9 397	5.1	4.3	0.4
648	Orbotech	Electronic equipment (2737)	Israel	45.86	6.6	18.2	21.7	316	9.7	20.5	38.2
650	Retalix	Software (9537)	Israel	45.78	35.1	31.0	85.9	155	9.2	51.1	34.3
651	Tokai Rubber Industries	Chemicals (135)	Japan	45.54	6.5	0.9	4.3	1 607	14.7	10.8	8.9
652	!! Owens Corning	Construction & materials (235)	USA	45.50	3.5	23.4	9.3	5 052	5.4	11.4	13.6
653	Timken	Industrial machinery (2757)	USA	45.42	13.2	5.6	-5.5	3 771	-3.8	14.5	19.1
654	Woodward Governor	Electrical components & equipment (2733)	USA	45.39	19.7	24.8	-3.7	648	3.2	16.7	20.9
655	NACCO Industries	General industrials (272)	USA	45.35	5.1	-1.7	3.4	2 540	6.1	13.5	12.5
656	Varian	Health care equipment & services (453)	USA	45.30	10.7	10.7	6.7	633	-2.2	-6.9	8.1
657	Nuance Communications	Software (9537)	USA	45.05	51.6	48.5	72.4	295	67.6	77.8	135.7
658	Ulvac	Electronic equipment (2737)	Japan	44.98	10.7	31.8	10.6	1 352	7.9	24.7	23.9
659	Nippon Paper	Forestry & paper (173)	Japan	44.96	-6.6	6.2	5.9	7 333	-2.3	-1.1	2.3
660	deCODE genetics	Biotechnology (4573)	Iceland	44.94	59.9	-21.3	-25.8	18	-35.7	-12.5	-8.6
661	CGI	Computer services (9533)	Canada	44.90	-11.9	40.7	152.2	2 266	-5.7	13.6	17.1
662	Open Text	Software (9537)	Canada	44.88	-9.1	49.3	48.7	311	-1.3	42.5	63.7
663	Shimano	Leisure goods (374)	Japan	44.77	-16.7	39.2	-3.5	1 084	1.5	-0.8	17.8

Rank	Company	ICB Sector	Country	R&D Investment			Net Sales				
				2006	change 06/05	change 05/04	change 04/03	2006 06/05	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
664	Hannstar Display	Leisure goods (374)	Taiwan	44.76	20.4			1 519	4.7		
665	McCormick	Food producers (357)	USA	44.74	40.1	7.1	18.3	2 060	4.8	2.6	11.3
666	Respironics	Health care equipment & services (453)	USA	44.72	29.2	54.8	-10.3	793	14.8	20.0	20.5
667	Itron	Electronic equipment (2737)	USA	44.57	26.3	4.8	3.2	488	16.5	38.3	26.3
668	Roper Industries	Electronic equipment (2737)	USA	44.44	9.5	38.2	18.7	1 290	17.1	49.9	46.4
669	Yakult Honsha	Food producers (357)	Japan	44.33	2.8	4.9	11.3	1 704	8.2	3.6	-1.6
670	Redback Networks (now part of Ericsson, Sweden)	Telecommunications equipment (9578)	USA	44.24	3.1	-14.5	-26.9	116	31.8	7.3	-13.7
671	Pentair	Household goods (372)	USA	44.03	26.1	46.4	-28.4	2 392	7.1	29.3	-16.4
672	Sumco	Semiconductors (9576)	Japan	44.02	52.0	6.7		2 033	44.8	14.2	
673	Tenneco	Automobiles & parts (335)	USA	43.98	0.0	23.4	6.8	3 553	5.5	5.4	11.9
673	Cabot	Chemicals (135)	USA	43.98	-1.7	11.3	-17.2	1 928	19.7	9.8	7.8
673	Reynolds American	Tobacco (378)	USA	43.98	9.4	10.4	-11.1	4 843	5.0	32.6	24.1
676	United Therapeutics	Biotechnology (4573)	USA	43.66	59.7	17.8	-13.6	121	37.5	57.1	40.0
677	Coherent	Semiconductors (9576)	USA	43.64	-7.9	23.1	-3.5	391	4.3	21.8	2.3
678	Cubist Pharmaceuticals	Biotechnology (4573)	USA	43.53	17.2	-12.5	3.6	148	62.6	75.0	1 633.3
679	Pall	Industrial machinery (2757)	USA	43.51	2.1	-1.9	9.7	1 529	6.0	7.4	9.7
680	Nippon Paint	Chemicals (135)	Japan	43.44	-2.9	-5.2	9.4	1 324	2.6	2.1	0.4
681	Hyundai Engineering & Construction	Construction & materials (235)	South Korea	43.41	60.8	13.5	2.1	4 146	18.7	-7.8	-9.8
682	Electric Power Development	Electricity (753)	Japan	43.30	6.6	-5.5	6.6	3 958	4.6	4.3	-2.4
682	Investment Technology	Other financials (877)	USA	43.30	53.1	18.4	8.2	455	46.8	22.0	0.4
684	Ibiden	Electrical components & equipment (2733)	Japan	43.28	13.7	20.6	-3.1	2 030	28.8	12.3	4.9
685	Pixelworks	Semiconductors (9576)	USA	43.24	10.1	70.4	28.5	101	-22.3	-3.0	25.2
686	Rinnai	Household goods (372)	Japan	43.14	0.0	6.8	9.8	1 355	0.0	5.4	1.0
687	West Japan Railway	Travel & leisure (575)	Japan	43.09	9.7	2.4	-1.0	7 892	1.6	0.4	4.3
688	EchoStar Communications	Media (555)	USA	43.00	23.0	15.3	23.4	7 446	16.5	17.8	24.6
689	Adaptec	Computer hardware (9572)	USA	42.90	-7.1	-46.5	10.7	195	-35.0	-16.7	5.0
690	Inventec Appliances	Leisure goods (374)	Taiwan	42.83	-11.7	21.2		2 448	-12.4	52.0	
691	JDA Software	Software (9537)	USA	42.67	26.9	-16.0	8.8	210	28.0	0.0	4.5
692	Parexel International	Biotechnology (4573)	USA	42.62	29.5	15.1	30.4	576	13.2	2.0	28.6
693	Chugoku Electric Power	Electricity (753)	Japan	42.31	-20.0	-5.4	1.8	6 621	2.8	4.6	-4.2
694	Sonus Networks	Telecommunications equipment (9578)	USA	42.05	19.5	27.4	9.1	212	43.2	14.7	81.7
695	Phonak	Health care equipment & services (453)	Switzerland	41.99	7.2	29.4	7.8	666	23.8	27.5	6.6
696	Dr Reddy's Laboratories	Pharmaceuticals (4577)	India	41.91	40.8	-24.4	25.8	1 103	174.4	27.6	-4.8
697	Horiba	Electronic equipment (2737)	Japan	41.71	16.3	9.9	26.8	672	14.1	8.9	8.2
697	Informatica	Software (9537)	USA	41.71	29.2	-17.0	8.6	246	21.2	21.6	7.1
699	Cree	Semiconductors (9576)	USA	41.61	28.3	15.9	18.2	321	8.8	26.6	33.9
700	Leapfrog Enterprises	Leisure goods (374)	USA	41.31	4.1	-14.2	5.9	381	-22.7	1.4	-5.8
701	Aruze	Travel & leisure (575)	Japan	41.22	10.4	20.4	2.9	309	-33.0	-28.3	-26.8
702	Micro-Star International	Computer hardware (9572)	Taiwan	40.97	11.6	-2.2	20.4	1 879	8.7	8.2	4.0
703	LTX	Semiconductors (9576)	USA	40.80	-18.9	-2.0	2.4	164	60.8	-47.4	113.2
703	Webex Communications (now part of Cisco Systems)	Software (9537)	USA	40.80	17.7	33.1	37.3	288	23.1	23.8	31.3
705	Amphenol	Electrical components & equipment (2733)	USA	40.75	43.2	15.6	23.2	1 874	36.7	18.1	23.5

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change	change	change	2006	change	change	change
				€m	06/05	05/04	04/03	€m	05/04	04/03	
				%	%	%	%	%	%	%	
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
706	Inverness Medical Innovations	Pharmaceuticals (4577)	USA	40.70	73.2	-3.0	31.1	432	35.0	11.9	27.1
707	Wm Wrigley Jr	Food producers (357)	USA	40.69	26.1	23.0	22.4	3 554	12.7	14.0	18.9
708	FEI	Semiconductors (9576)	USA	40.67	-10.4	7.2	20.6	368	13.6	-8.2	28.8
709	IDEXX Laboratories	Health care equipment & services (453)	USA	40.66	31.0	15.6	9.5	560	15.7	16.3	15.2
710	Bucher Industries	Commercial vehicles & trucks (2753)	Switzerland	40.57	3.0	17.2	7.1	1 297	7.2	18.7	6.8
711	Nissin Kogyo	Automobiles & parts (335)	Japan	40.52	4.6	9.7	21.1	1 062	18.4	12.8	9.5
712	Tanox	Biotechnology (4573)	USA	40.50	11.5	76.1	29.3	43	26.5	112.5	14.3
713	Disco	Semiconductors (9576)	Japan	40.43	1.5	135.8	22.8	438	14.1	25.1	30.1
714	Biosite (now part of Inverness Medical Innovations)	Health care equipment & services (453)	USA	40.22	25.6	18.2	45.9	234	7.3	17.2	42.0
715	Toyama Chemical	Pharmaceuticals (4577)	Japan	40.20	9.6	11.7	1.5	147	44.1	-4.7	-49.0
716	Hutchinson Technology	Computer hardware (9572)	USA	40.15	43.8	30.3	89.1	547	14.2	34.6	-5.8
717	United Online	Internet (9535)	USA	40.14	32.3	45.7	19.1	396	-0.5	17.1	61.9
718	Sigma-Aldrich	Chemicals (135)	USA	40.12	6.2	16.9	0.0	1 363	7.8	18.2	8.6
718	Analogic	Electronic equipment (2737)	USA	40.12	-16.2	7.6	0.0	275	-0.4	2.2	-24.6
720	Macrovision	Software (9537)	USA	40.06	53.7	20.0	66.4	188	22.1	11.6	42.3
721	Esterline Technologies	Aerospace & defence (271)	USA	39.90	24.6	52.4	41.9	737	15.7	33.8	11.5
722	Terex	Commercial vehicles & trucks (2753)	USA	39.89	3.1	10.2	20.0	5 799	19.9	27.1	28.8
723	Teledyne Technologies	Aerospace & defence (271)	USA	39.81	16.9	37.7	16.8	1 087	18.8	18.7	20.8
724	Perrigo	Pharmaceuticals (4577)	USA	39.66	36.1	38.6	18.9	1 036	33.3	14.1	8.8
725	Suzuken	Food & drug retailers (533)	Japan	39.65	20.8	12.1	-8.5	8 838	4.3	11.5	12.6
726	Ballard Power Systems	Automobiles & parts (335)	Canada	39.64	-30.8	-17.7	-11.7	47	14.6	-33.9	-31.9
727	Vanda Pharmaceuticals	Biotechnology (4573)	USA	39.49	208.3	127.1		0		-100.0	
727	Vishay Intertechnology	Electrical components & equipment (2733)	USA	39.49	7.1	-4.7	12.4	1 958	12.4	-4.8	11.2
727	Micrel	Semiconductors (9576)	USA	39.49	15.5	8.0	-11.1	210	10.5	-2.6	21.1
730	Daiwa House Industry	Household goods (372)	Japan	39.40	8.4	0.8	1.0	9 731	11.9	11.5	3.4
731	Finisar	Telecommunications equipment (9578)	USA	39.36	-17.3	1.0	3.1	276	29.6	51.1	11.9
732	Sanden	Automobiles & parts (335)	Japan	39.26	24.8	11.5	6.4	1 473	-0.7	3.3	2.4
733	Kongsberg Gruppen	Aerospace & defence (271)	Norway	38.98	61.6	-37.5	5.0	818	9.1	-4.3	-3.2
733	Central Glass	Construction & materials (235)	Japan	38.98	3.4	8.6	-2.6	1 252	1.3	6.7	1.3
735	Trizetto	Software (9537)	USA	38.97	27.6	3.2	3.3	264	18.9	6.7	-5.5
736	TPV Technology	Electronic equipment (2737)	Bermuda	38.96	76.0	47.8	32.0	5 442	42.0	35.2	75.1
737	Sekisui House	Household goods (372)	Japan	38.91	-1.2	6.9	10.2	10 159	6.3	9.4	3.5
738	Nihon Unisys	Computer services (9533)	Japan	38.89	3.8	-14.9	4.6	2 021	2.8	-0.2	0.2
739	Aastra Technologies	Telecommunications equipment (9578)	Canada	38.86	17.1	115.8	14.6	397	16.4	104.2	33.6
740	DnB NOR	Banks (835)	Norway	38.85	45.7	366.3		3 470	12.5	7.0	7.2
741	Innolux Display	Electronic equipment (2737)	Taiwan	38.81	71.5	19.7		2 459	103.7	1 119.2	
742	NOVA Chemicals	Chemicals (135)	Canada	38.68	2.0	4.2	6.7	4 944	16.1	6.6	33.4
743	Accton Technology	Computer hardware (9572)	Taiwan	38.53	43.6	-14.4	27.0	448	5.2	-12.7	17.9
744	Kaken Pharmaceutical	Pharmaceuticals (4577)	Japan	38.48	-3.6	-1.4	11.7	481	0.8	3.0	-1.7
745	TiVo	Media (555)	USA	38.47	23.5	9.2	69.8	196	31.5	14.6	21.5
746	NetIQ (now part of Attachmate)	Software (9537)	USA	38.35	-25.7	-4.3	16.5	162	-18.2	-15.7	11.4

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006 06/05	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
747	Mitsui Mining & Smelting	Industrial metals (175)	Japan	38.31	2.4	98.8	25.5	3 204	14.9	11.2	4.0
748	Neurogen	Biotechnology (4573)	USA	38.30	46.1	55.6	-21.8	7	16.7	-60.0	200.0
749	ANSYS	Software (9537)	USA	38.14	63.9	14.4	12.7	200	66.7	17.6	18.6
750	TriQuint Semiconductor	Semiconductors (9576)	USA	38.13	7.7	-23.2	-6.5	305	32.0	-12.2	11.0
751	Ariba	Computer services (9533)	USA	37.98	6.1	-12.7	0.5	224	-8.6	31.7	3.9
752	Imation	Computer hardware (9572)	USA	37.92	-2.5	-9.8	-0.2	1 202	26.0	3.1	4.9
753	Keyence	Electronic equipment (2737)	Japan	37.91	24.1	13.2	6.5	1 007	13.5	18.9	25.2
754	FMC Technologies	Oil equipment, services & distribution (57)	USA	37.84	-3.1	2.2	11.3	2 971	21.4	16.6	19.9
755	Neurochem	Biotechnology (4573)	Canada	37.63	25.3	57.0	-5.2	2	-33.3	650.0	
756	Ishihara Sangyo Kaisha	Chemicals (135)	Japan	37.55	-4.5	4.0	4.7	664	8.1	3.0	-2.3
757	TCL Multimedia Technology	Electronic equipment (2737)	Cayman Islands	37.53	-24.0	91.5	364.5	2 999	-11.0	35.0	69.0
758	Verifone	Computer hardware (9572)	USA	37.43	15.6	17.7	20.3	441	19.8	24.3	15.2
759	F5 Networks	Internet (9535)	USA	37.29	56.9	28.7	26.5	299	40.4	63.8	47.7
760	Silicon Storage Technology	Semiconductors (9576)	USA	37.18	4.5	8.7	-8.3	327	-4.1	52.2	7.7
761	Noritz	Household goods (372)	Japan	37.17	13.9	20.9	-4.6	1 159	3.5	2.6	0.9
762	WMS Industries	Travel & leisure (575)	USA	37.16	-2.6	12.3	11.2	342	15.9	68.6	28.7
763	Zebra Technologies	Computer hardware (9572)	USA	37.13	6.5	24.0	16.8	576	8.1	6.0	23.6
764	Richemont	General retailers (537)	Switzerland	37.00	19.4	416.7	-25.0	4 840	12.3	17.4	8.8
765	Bruker Biosciences	Health care equipment & services (453)	USA	36.98	24.2	-4.3	7.9	331	46.5	4.6	9.1
766	Armstrong (now Armstrong World Industries)	Household goods (372)	USA	36.78	4.1	5.0	-20.6	2 698	1.7	7.3	2.7
767	CNOOC	Oil & gas producers (53)	China	36.64	-6.1	49.6	61.9	8 320	28.1	21.1	34.8
768	AptarGroup	General industrials (272)	USA	36.54	5.4	9.2	20.7	1 214	16.0	6.5	16.3
769	Actel	Semiconductors (9576)	USA	36.53	6.2	14.6	0.6	136	7.9	10.5	11.8
770	Cabot Microelectronics	Semiconductors (9576)	USA	36.45	11.7	-2.2	6.0	243	18.5	-12.8	23.0
771	Biomarin Pharmaceutical	Biotechnology (4573)	USA	36.40	9.7	-12.1	16.5	64	236.8	35.7	55.6
772	Ashland	Chemicals (135)	USA	36.40	6.7	4.7	19.5	7 589	1.5	12.3	16.8
773	Aspreva Pharmaceuticals	Pharmaceuticals (4577)	Canada	36.36	58.7	246.6		163	181.0		
774	Jack Henry & Associates	Software (9537)	USA	36.36	35.0	26.4	33.4	449	10.6	14.7	15.3
775	Salix Pharmaceuticals	Biotechnology (4573)	USA	36.34	38.7	69.7	-13.9	158	35.0	46.3	90.5
776	Taiheiyō Cement	Construction & materials (235)	Japan	36.22	-3.3	-2.3	-19.4	5 770	3.9	-0.8	-5.2
777	Tokyo Ohka Kogyo	Chemicals (135)	Japan	36.17	-2.0	-14.0	11.9	627	10.8	7.0	15.0
778	DSP	Semiconductors (9576)	USA	36.04	18.0	25.3	25.6	165	16.2	19.3	2.6
779	QLT	Pharmaceuticals (4577)	Canada	36.02	-12.7	38.8	13.3	124	-21.5	30.6	26.0
780	Nippon Soda	Chemicals (135)	Japan	35.53	4.6	5.7		916	-0.3	6.7	-0.7
781	Mindtree Consulting	Software (9537)	India	35.38	28.4			101	31.2		
782	SEZ	Semiconductors (9576)	Switzerland	35.37	20.1	6.5	19.8	244	26.4	2.1	78.3
783	Acxiom	Support services (279)	USA	35.30	24.1	5.1	-25.6	1 058	4.6	9.1	20.9
784	Sirius Satellite Radio	Media (555)	USA	35.23	45.8	50.6	-13.8	483	162.5	260.8	410.0
785	Altiris (now part of Symantec)	Software (9537)	USA	35.15	12.9	30.4	29.0	174	22.5	12.7	68.0
786	Infospace	Internet (9535)	USA	35.14	48.5	34.8	-2.2	282	9.3	36.5	56.2

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006 06/05	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
787	Albemarle	Chemicals (135)	USA	35.11	11.1	33.2	69.9	1 796	12.4	39.2	36.3
788	Ichikoh Industries	Automobiles & parts (335)	Japan	35.07	1.4	7.9	-3.8	771	2.5	-0.4	1.2
789	CSG Systems International	Software (9537)	USA	35.03	36.1	-42.5	-6.2	291	-30.2	3.7	-2.9
790	Meidensha	General industrials (272)	Japan	34.97	-11.2	-9.0	-3.1	1 169	-0.9	2.1	-1.7
791	Juki	Household goods (372)	Japan	34.97	13.3	4.0	-7.3	794	-2.5	6.0	1.7
792	SeaChange International	Software (9537)	USA	34.97	34.1	16.9	13.0	122	27.1	-19.3	6.3
793	Nice Systems	Software (9537)	Israel	34.96	45.4	21.1	13.5	311	31.8	22.9	9.7
794	NOF	Chemicals (135)	Japan	34.88	-2.2	-2.8	0.9	911	7.1	-2.7	0.8
795	Snap-On	Household goods (372)	USA	34.66	-8.6	-17.8	1.7	1 876	4.7	1.4	4.3
796	Nexen	Oil & gas producers (53)	Canada	34.54	-1.8	54.3	75.1	3 418	5.3	25.1	11.0
797	Sun Pharmaceutical Industries	Pharmaceuticals (4577)	India	34.51	39.9	13.6	31.2	280	32.7	9.3	14.9
798	CJ	Food producers (357)	South Korea	34.45	-1.6	-10.9		2 161	7.7	-3.3	
799	Angiotech Pharmaceuticals	Pharmaceuticals (4577)	Canada	34.42	65.1	17.9	61.3	247	84.3	57.6	507.1
800	VTech	Telecommunications equipment (9578)	Hong Kong	34.28	12.2	4.7	16.0	1 110	21.6	17.8	11.7
801	Bally Technologies	Travel & leisure (575)	USA	34.19	4.0	18.4	83.5	415	12.2	-0.3	-28.7
802	International Paper	Forestry & paper (173)	USA	34.13	-28.6	-7.3	-6.8	18 341	0.4	-5.7	1.5
803	Advanced Energy Industries	Semiconductors (9576)	USA	34.01	12.9	-22.9	-0.2	311	21.5	-14.7	50.8
804	Church & Dwight	Household goods (372)	USA	33.90	15.5	17.3	22.6	1 475	12.0	18.8	38.5
805	Cochlear	Health care equipment & services (453)	Australia	33.89	29.5	-1.5	20.1	270	29.8	21.6	-1.2
806	Amada	Industrial machinery (2757)	Japan	33.74	-16.9	-10.9	12.9	1 411	10.2	22.1	13.2
807	Sumitomo Metal Mining	Industrial metals (175)	Japan	33.71	10.1	12.3	13.9	3 981	29.1	20.5	13.2
808	Nisshin Seifun	Food producers (357)	Japan	33.69				2 682	1.2	-4.1	7.9
808	Alpharma	Pharmaceuticals (4577)	USA	33.69	64.9	-66.9	28.8	509	-52.9	6.3	3.3
810	Dentsply International	Health care equipment & services (453)	USA	33.67	-5.5	5.4	3.0	1 373	5.5	1.2	7.9
811	Kansai Paint	Chemicals (135)	Japan	33.57	-4.7	-7.0	2.7	1 343	7.3	5.9	3.1
812	Toagosei	Chemicals (135)	Japan	33.57	4.8	-4.3	-1.3	964	5.0	8.9	1.1
813	Arbitron	Media (555)	USA	33.55	14.7	15.8	28.8	250	6.4	4.4	8.7
814	Steelcase	Household goods (372)	USA	33.52	-6.8	15.3	-4.4	2 349	8.0	9.8	11.4
815	Cytoc	Health care equipment & services (453)	USA	33.47	36.5	55.3	41.4	461	19.7	29.2	29.6
816	Heiwa	Travel & leisure (575)	Japan	33.39	15.6	-0.4	0.5	494	-39.4	8.1	20.4
817	Cirrus Logic	Semiconductors (9576)	USA	33.34	-2.5	-32.5	-12.3	138	-6.1	-0.7	-0.7
818	ImClone Systems	Biotechnology (4573)	USA	33.10	-39.3	23.7	-34.5	514	76.6	-1.4	383.6
819	Shikoku Electric Power	Electricity (753)	Japan	33.10	-6.9	-5.7	-5.3	3 611	-1.6	2.6	-3.9
820	Ixia	Computer services (9533)	USA	32.95	34.1	28.4	8.3	137	13.2	36.0	41.3
821	Ariad Pharmaceuticals	Pharmaceuticals (4577)	USA	32.85	-5.7	65.7	86.1	1	0.0	0.0	0.0
822	Msc Software	Software (9537)	USA	32.80	-8.5	12.2	3.4	198	-14.3	10.0	9.4
823	OneSteel	Industrial metals (175)	Australia	32.76	30.5	56.7	201.1	2 394	1.7	20.5	6.8
824	Mitsui	General industrials (272)	Japan	32.69	-9.0	-6.2	76.3	26 266	17.1	18.3	6.9
825	Nippon Light Metal	Industrial metals (175)	Japan	32.67	-7.3	15.3	8.5	3 673	3.0	5.3	3.5
826	Alkermes	Pharmaceuticals (4577)	USA	32.48	-0.8	-33.6	-20.2	182	44.4	117.2	93.3
827	Hirose Electric	Electronic equipment (2737)	Japan	32.43	16.4	23.3	20.0	664	16.5	13.3	16.4
828	Computershare	Other financials (877)	Australia	32.40	20.7	9.2	-55.4	959	43.6	18.0	33.5
829	Ferro	Chemicals (135)	USA	32.31	11.0	-9.4	15.5	1 548	8.5	2.1	11.6
830	Sika	Chemicals (135)	Switzerland	32.30				2 420	33.6	14.0	12.8

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
830	Bookham	Telecommunications equipment (9578)	USA	32.30	-5.0	-22.4	-17.5	176	15.8	16.9	-1.5
832	Mahindra & Mahindra	Automobiles & parts (335)	India	32.27	49.5			2 213	31.7		
833	Universal Scientific Industrial	Electronic equipment (2737)	Taiwan	32.14	26.8	10.0	22.4	1 238	1.8	-1.9	30.0
834	Nichias	General industrials (272)	Japan	32.13	7.1	1.9	0.2	888	15.9	13.3	-1.9
835	AO Smith	Electronic equipment (2737)	USA	32.08	17.5	0.3	3.7	1 639	27.9	2.2	8.0
836	Lennox International	Construction & materials (235)	USA	32.00	4.7	7.2	-1.1	2 784	9.0	12.9	-3.3
837	Hillenbrand Industries	Health care equipment & services (453)	USA	31.93	-16.6	-9.8	0.0	1 489	1.3	6.0	-10.5
838	Oshkosh Truck	Commercial vehicles & trucks (2753)	USA	31.91	26.0	21.1	22.7	2 599	15.8	30.8	17.5
839	Ametek	Electronic equipment (2737)	USA	31.85	20.7	36.5	9.0	1 380	26.8	16.4	12.9
839	Crown	General industrials (272)	USA	31.85	-10.6	0.0	6.8	5 295	1.1	-4.0	8.6
841	Newport	Electronic equipment (2737)	USA	31.84	16.8	37.7	43.8	345	10.2	44.2	112.7
842	Gentex	Automobiles & parts (335)	USA	31.68	19.1	13.7	15.9	434	6.6	6.3	7.6
843	Novatek Microelectronics	Electronic equipment (2737)	Taiwan	31.68	13.5			732	21.2		
844	Radisys	Computer hardware (9572)	USA	31.47	39.3	5.6	23.6	222	12.7	5.9	20.8
845	Manhattan Associates	Software (9537)	USA	31.45	21.5	18.4	5.3	219	17.1	14.7	9.4
846	Inspire Pharmaceuticals	Biotechnology (4573)	USA	31.31	75.2	-8.3	14.6	28	55.6	125.0	100.0
847	Semtech	Semiconductors (9576)	USA	31.29	9.9	12.0	10.3	192	5.5	-5.2	31.5
848	Xoma	Biotechnology (4573)	Bermuda	31.23	19.8	-32.0	-2.9	22	57.1	366.7	-84.2
849	EMS-Chemie	Chemicals (135)	Switzerland	31.07	8.4	4.2	6.8	867	8.4	1.7	3.8
849	Rambus	Semiconductors (9576)	USA	31.07	25.6	34.2	8.9	119	8.2	52.8	-1.4
851	Stoneridge	Automobiles & parts (335)	USA	30.97	4.2	8.4	25.8	537	5.5	-1.5	12.4
852	Transaction Systems Architects (now ACI Worldwide)	Software (9537)	USA	30.92	2.7	4.4	7.5	264	10.9	7.2	5.7
853	Tsumura	Pharmaceuticals (4577)	Japan	30.91	-9.6	-0.9	2.0	575	6.5	3.3	1.0
854	Geron	Biotechnology (4573)	USA	30.80	15.8	16.6	18.1	2	-60.0	400.0	0.0
855	Sonic Solutions	Software (9537)	USA	30.76	28.3	60.3	85.6	113	63.8	60.5	72.0
856	Komori	Industrial machinery (2757)	Japan	30.74	21.1	2.5	9.3	807	13.3	8.2	6.6
857	Makita	Household goods (372)	Japan	30.72	18.2	0.0	6.0	1 458	17.7	5.7	4.8
858	Nihon Kohden	Health care equipment & services (453)	Japan	30.63	0.4	2.5	5.9	575	7.9	0.8	9.8
859	webMethods (now part of Software, Germany)	Software (9537)	USA	30.48	-9.7	-1.2	-5.2	158	3.9	2.7	-0.7
860	Sanmina-SCI	Semiconductors (9576)	USA	30.47	35.1	1.1	96.6	8 308	-6.6	-3.8	17.8
861	QAD	Software (9537)	USA	30.36	22.6	-1.7	-13.7	179	4.7	-2.3	0.0
862	Novelis (now part of Hindalco Industries, India)	Industrial metals (175)	Canada	30.33	-2.4	-29.3	-6.5	7 469	17.8	7.8	24.7
863	Coles Myer (now Coles)	General retailers (537)	Australia	30.30	193.0			21 961	1.4	12.2	19.4
864	Blue Coat Systems	Software (9537)	USA	30.24	48.9	61.8	43.8	135	26.2	46.6	46.0
865	Hummingbird (now part of Open Text)	Software (9537)	Canada	30.23	5.0	0.5	37.4	154	-7.8	14.4	6.6
866	Gigabyte Technology	Electrical components & equipment (2733)	Taiwan	30.22	19.5	21.8	26.8	1 087	0.8	16.7	13.4
866	Aloka	Health care equipment & services (453)	Japan	30.22	3.4	-13.6	7.4	308	4.8	2.1	-4.0
868	Thoratec	Health care equipment & services (453)	USA	30.21	23.2	12.8	10.0	162	5.9	16.8	14.9
869	Axcan Pharma	Pharmaceuticals (4577)	Canada	30.17	24.9	70.9	86.5	222	16.2	3.2	58.1

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change	change	change	2006	change	change	change
				€m	06/05	05/04	04/03	€m	05/04	04/03	
				%	%	%	%	%	%	%	
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
870	Technitrol	Electrical components & equipment (2733)	USA	30.03	55.3	12.8	22.2	724	52.7	7.2	14.5
871	Harmonic	Telecommunications equipment (9578)	USA	29.92	3.4	7.2	1.4	188	-3.6	3.7	36.2
872	Ezaki Glico	Food producers (357)	Japan	29.89	-0.4			1 661	-0.2		
873	China Steel	Industrial metals (175)	Taiwan	29.84	5.5	14.2	9.2	6 482	-2.0	68.8	29.7
874	Mori Seiki	Industrial machinery (2757)	Japan	29.66	30.5	9.7	0.5	925	18.9	39.7	37.2
875	COHU	Semiconductors (9576)	USA	29.62	31.1	6.8	12.8	207	14.4	35.1	27.6
876	Ushio	Electronic equipment (2737)	Japan	29.56	11.3	24.3	0.1	823	8.6	20.1	7.9
877	S1	Software (9537)	USA	29.53	-14.7	-8.1	10.1	155	-14.4	-1.1	-4.7
878	Curtiss-Wright	Aerospace & defence (271)	USA	29.45	-2.1	17.3	53.0	972	13.3	18.5	27.9
878	Entegris	Semiconductors (9576)	USA	29.45	90.4	1.4	13.0	517	86.0	5.7	39.2
880	Hercules	Chemicals (135)	USA	29.42	-5.2	-4.9	10.2	1 545	-1.5	3.6	8.1
881	Amkor Technology	Semiconductors (9576)	USA	29.37	3.7	1.7	42.4	2 069	30.0	10.4	18.6
882	Swisscom	Fixed line telecommunications (653)	Switzerland	29.20	-16.1	-15.1	-27.5	5 997	-0.8	-3.2	-31.0
883	CuraGen	Biotechnology (4573)	USA	29.10	-36.4	-9.2	15.2	28	55.6	260.0	0.0
884	Lexicon Genetics (now Lexicon Pharmaceuticals)	Biotechnology (4573)	USA	29.06	59.3	-41.1	-33.0	55	-3.5	21.3	46.9
885	Macdonald Dettwiler & Associates	Computer services (9533)	Canada	29.00	-9.3	13.3	49.5	686	26.3	10.8	20.1
886	C-Cor	Telecommunications equipment (9578)	USA	28.97	1.0	75.9	-20.4	199	10.6	-1.6	20.4
887	Galenica	Pharmaceuticals (4577)	Switzerland	28.92	-12.8	29.2		1 337	2.5	-28.1	8.2
888	Tencent	Internet (9535)	China	28.89	83.0	194.6	111.9	272	95.7	25.2	56.3
889	Singapore Technologies Engineering	Aerospace & defence (271)	Singapore	28.88	55.9	-25.0	-19.5	2 217	34.4	13.2	4.6
890	Solutia	Chemicals (135)	USA	28.82	-7.3	2.5	-13.0	2 235	4.3	4.7	11.0
890	Move	Internet (9535)	USA	28.82	72.3	43.6	-29.1	220	11.1	20.7	-1.2
892	Ford Otomotiv Sanayi AS	Automobiles & parts (335)	Turkey	28.81	-8.5	14.2	30.3	3 491	7.6	9.0	65.9
893	Daewoo Shipbuilding & Marine	Industrial transportation (277)	South Korea	28.78	-10.8	35.8	-48.2	4 404	14.6	-1.0	9.9
894	Kulicke & Soffa	Semiconductors (9576)	USA	28.56	-8.2	18.5	-11.2	560	31.5	-21.7	45.1
895	Nabi Biopharmaceuticals	Biotechnology (4573)	USA	28.49	-43.8	10.1	109.0	68	-17.1	-39.7	1.5
896	Tandberg	Telecommunications equipment (9578)	Norway	28.44	33.0	46.9	27.2	318	21.4	13.4	20.3
897	XM Satellite Radio	Media (555)	USA	28.38	19.9	32.8	91.3	708	67.4	128.6	164.3
898	China Telecom	Fixed line telecommunications (653)	China	28.37	11.9	51.8	36.5	17 012	3.4	5.0	36.1
899	Datascope	Health care equipment & services (453)	USA	28.29	3.0	11.5	11.8	283	6.0	2.7	4.4
900	Riso Kagaku	Electronic office equipment (9574)	Japan	28.28	2.6	3.7	-7.7	558	3.0	1.9	1.3
901	ResMed	Health care equipment & services (453)	USA	28.22	24.0	14.7	27.5	460	42.4	25.7	24.2
902	Israel	General industrials (272)	Israel	28.06	14.7	-5.6	12.5	5 011	5.5	12.4	130.0
903	Sherwin-Williams	Construction & materials (235)	USA	27.97	14.1	-5.8	-0.2	5 922	8.6	17.6	13.0
904	Cae	Software (9537)	Canada	27.96	-39.6	-14.1	3.8	815	12.9	12.3	-9.7
905	Tecumseh Products	Industrial machinery (2757)	USA	27.83	19.9	-10.0	7.9	1 367	-2.4	-3.4	5.1
906	Siliconware Precision Industries	Semiconductors (9576)	Taiwan	27.79	39.2	14.0	34.6	1 329	31.3	23.4	28.5
907	GS Yuasa	Electrical components & equipment (2733)	Japan	27.71	-13.0			1 549	1.5		
908	Dot Hill Systems	Computer hardware (9572)	USA	27.70	54.6	31.3	50.7	181	2.3	-2.7	28.2
909	Plug Power	Electrical components & equipment (2733)	USA	27.60	-8.5	5.1	-10.1	6	-40.0	-16.7	33.3
910	Advent Software	Software (9537)	USA	27.57	9.0	2.1	-8.2	140	9.4	12.3	9.6
911	Geberit	Construction & materials (235)	Switzerland	27.52	1.9	0.2	21.6	1 148	12.7	-0.8	17.8

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
912	Sanyo Chemical Industries	Chemicals (135)	Japan	27.48	5.9	4.9	-6.2	690	16.0	10.0	3.4
913	Zhone Technologies	Telecommunications equipment (9578)	USA	27.38	33.4	13.7	2.8	147	27.8	55.4	17.5
914	Avichina Ind & Tech	Automobiles & parts (335)	China	27.34	6.7	-12.9		1 662	19.9	10.8	
915	Ess Technology	Semiconductors (9576)	USA	27.33	6.1	-9.3	12.9	76	-44.9	-29.2	31.8
916	D-Link	Computer services (9533)	Taiwan	27.32	0.4	-6.6	33.6	970	14.5	12.3	29.6
917	Viasys Healthcare (now part of Cardinal Health)	Health care equipment & services (453)	USA	27.18	11.0	37.7	-11.4	463	18.4	31.2	-0.3
918	MEMC Electronic Materials	Semiconductors (9576)	USA	27.16	7.9	-12.6		1 168	39.0	7.7	
919	Anadigics	Semiconductors (9576)	USA	27.02	19.1	-10.2	3.9	129	57.3	18.8	21.1
920	Synaptics	Electronic equipment (2737)	USA	26.81	41.4	16.2	7.6	140	-11.4	56.4	32.9
921	Kurita Water Industries	Industrial machinery (2757)	Japan	26.81	-0.4	-1.4	-4.3	1 105	7.9	9.6	3.7
922	ISEKI	Commercial vehicles & trucks (2753)	Japan	26.79	6.9	3.0	-1.0	1 029	2.7	2.5	-1.7
923	Phelps Dodge (now part of Freeport-McMoRan)	Copper & Gold	USA	26.77	-27.4	49.5	7.6	9 168	33.9	27.4	71.1
924	I2 Technologies	Software (9537)	USA	26.69	-5.7	-47.2	-12.5	212	-21.2	-8.8	-21.3
925	Shindengen Electric Manufacturing	Semiconductors (9576)	Japan	26.68	-0.6	-15.0	-17.6	629	11.1	5.6	-4.1
926	Grant Prideco	Oil equipment, services & distribution (57)	USA	26.64	36.8	25.4	15.6	1 392	35.9	40.9	14.3
927	Cipla	Pharmaceuticals (4577)	India	26.63	25.2			496	32.6		
928	Scotts Miracle-Gro	Household goods (372)	USA	26.62	15.1	-11.3	13.2	2 045	13.8	16.3	6.7
929	Mentor	Health care equipment & services (453)	USA	26.56	20.6	-11.6	9.3	258	-32.5	4.1	14.7
930	Jabil Circuit	Electrical components & equipment (2733)	USA	26.52	55.4	62.9	39.5	7 785	36.4	20.3	32.2
931	Infosys Technologies	Software (9537)	India	26.39	51.0	37.1	67.1	2 380	45.9	33.5	46.9
932	Samsung Heavy Industries	Construction & materials (235)	South Korea	26.33	8.2			5 178	14.4		
933	RPM International	Chemicals (135)	USA	26.31	7.4	11.7	10.3	2 532	11.0	17.7	9.1
934	Agile Software (now part of Oracle)	Software (9537)	USA	26.27	44.7	2.5	-12.2	100	12.4	21.9	37.7
935	Cooper Companies	Health care equipment & services (453)	USA	26.20	-19.4	561.0	16.3	651	6.4	64.5	19.2
936	Nisshin Steel	Industrial metals (175)	Japan	26.15	7.3	11.3	3.9	3 539	3.8	18.7	9.4
937	Microstrategy	Software (9537)	USA	26.11	6.3	11.0	1.1	238	16.7	16.6	31.6
938	Herman Miller	Household goods (372)	USA	26.01	4.9	-5.5	3.9	1 317	14.6	13.2	0.1
939	Bharat Heavy Electricals	Industrial machinery (2757)	India	25.99	21.2	20.2	27.4	2 291	40.4	18.8	15.8
940	Mabuchi Motor	Electrical components & equipment (2733)	Japan	25.94	-2.9	4.0	8.6	640	7.0	-5.4	-6.1
941	Weg	Electrical components & equipment (2733)	Brazil	25.93	16.6	86.9	58.5	1 253	18.4	14.5	86.3
942	Secom	Support services (279)	Japan	25.85	-9.1	9.3	-18.3	3 695	5.1	5.1	2.5
943	Sierra Wireless	Telecommunications equipment (9578)	Canada	25.85	12.2	23.8	73.3	168	107.4	-49.4	142.4
944	Secure Computing	Software (9537)	USA	25.84	101.7	4.9	6.1	134	61.4	16.9	22.4
945	Epicor Software	Software (9537)	USA	25.83	19.7	15.0	23.3	291	32.9	27.3	45.8
946	Vignette	Software (9537)	USA	25.79	2.4	-35.8	26.4	150	3.4	22.9	-1.7
947	Donaldson	Industrial machinery (2757)	USA	25.70	5.2	-8.9	16.1	1 285	6.2	12.8	16.1
948	Electro Scientific Industries	Electronic equipment (2737)	USA	25.66	20.8	17.6	-14.2	157	-11.3	12.7	51.0
949	Unicharm	Personal goods (376)	Japan	25.57	7.2	-20.1	3.5	1 721	9.9	2.5	7.6
950	Inter-Tel	Telecommunications equipment (9578)	USA	25.54	1.3	15.4	31.1	348	3.6	6.3	11.7
951	Silicon Integrated Systems	Semiconductors (9576)	Taiwan	25.53	-4.0	3.2	-32.6	180	-31.8	8.6	-36.2
952	SonicWALL	Telecommunications equipment (9578)	USA	25.53	47.8	-2.7	17.4	133	29.1	8.4	31.9

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change 06/05	change 05/04	change 04/03	2006 06/05	change 05/04	change 04/03	change
				€m	%	%	%	€m	%	%	%
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
953	Steris	Health care equipment & services (453)	USA	25.50	0.1	-5.5	24.9	908	1.3	5.5	3.0
954	Kemet	Electrical components & equipment (2733)	USA	25.32	28.5	-2.5	9.0	500	34.4	15.2	-1.8
955	Witness Systems (now part of Verint Systems)	Software (9537)	USA	25.26	24.7	28.0	15.6	168	19.1	31.8	30.5
956	Pactiv	General industrials (272)	USA	25.03	0.0	0.0	3.1	2 212	-15.5	2.0	7.8
956	Yum! Brands	Travel & leisure (575)	USA	25.03	0.0	26.9	0.0	7 250	2.3	3.8	7.5
958	CommScope	Electrical components & equipment (2733)	USA	24.95	5.0	6.8	376.4	1 231	21.4	12.0	108.0
959	Gardner Denver	Industrial machinery (2757)	USA	24.87	47.1	260.6	120.2	1 266	37.5	64.2	68.5
960	Sulzer	Industrial machinery (2757)	Switzerland	24.85	-7.4	5.4	2.5	1 741	12.2	20.9	13.2
961	Input/Output	Electronic equipment (2737)	USA	24.84	61.6	3.4	4.9	382	38.9	46.3	64.9
962	Westinghouse Air Brake Technologies	Commercial vehicles & trucks (2753)	USA	24.80	-0.3	-3.0	2.7	827	4.4	27.1	13.5
963	Zarlink Semiconductor	Semiconductors (9576)	Canada	24.80	-12.8	-42.5	-13.2	108	-20.6	-16.0	7.3
964	Cognex	Electronic equipment (2737)	USA	24.73	18.0	2.1	9.4	181	10.4	7.2	34.2
965	Alltel	Mobile telecommunications (657)	USA	24.72	-30.9	46.1	-43.0	7 373	-2.2	20.6	3.3
966	Photon Dynamics	Electronic equipment (2737)	USA	24.59	-10.6	22.2	30.3	131	37.9	-12.8	101.9
967	Formula Systems (1985)	Computer services (9533)	Israel	24.48	-19.6	60.2	44.2	374	-2.6	11.0	24.5
968	Owens-Illinois	General industrials (272)	USA	24.42	8.1	17.3	-46.6	5 628	4.8	15.5	1.1
969	Illumina	Biotechnology (4573)	USA	24.33	23.8	35.6	-1.2	140	150.0	47.4	81.0
970	Acuity Brands	Construction & materials (235)	USA	24.27	10.7	-3.6	9.5	1 815	10.1	3.3	2.7
971	Eizo Nanao	Computer hardware (9572)	Japan	24.22	4.4	9.8		541	-6.7	-0.5	
972	Cheng Uei Precision Industry	Industrial machinery (2757)	Taiwan	24.20	75.5	46.7	97.1	1 009	52.2	43.2	54.3
973	Connetics (now part of Stiefel Laboratories)	Pharmaceuticals (4577)	USA	24.19	48.1	-28.5	16.6	140	28.4	91.2	42.5
974	Barry Callebaut	Food producers (357)	Switzerland	24.17	95.7	109.7	68.3	2 648	5.0	0.3	13.3
974	Ventana Medical Systems	Health care equipment & services (453)	USA	24.17	24.2	20.8	8.4	181	19.9	19.8	26.0
976	PalmSource (now part of Access, Japan)	Software (9537)	USA	24.04	-6.5			55	0.0		
977	Albany International	Industrial machinery (2757)	USA	24.01	12.8	2.3	4.2	767	3.4	6.3	5.9
978	Westaim	Health care equipment & services (453)	Canada	24.00	4.2	3.3	33.4	18	-5.3	-9.5	90.9
979	Cardiome Pharma	Pharmaceuticals (4577)	Canada	23.99	22.5	21.0	119.8	13	18.2	-35.3	325.0
980	Nipro	General industrials (272)	Japan	23.93	9.9	11.3	32.0	1 316	7.5	1.9	4.6
981	Land O'Lakes	Food producers (357)	USA	23.81	3.6	2.4	2.1	5 386	-6.2	-1.4	21.4
982	Vicor	Electrical components & equipment (2733)	USA	23.80	6.5	12.4	11.8	146	7.4	4.6	13.0
982	Hokkaido Electric Power	Electricity (753)	Japan	23.80	-5.4	-3.9	-8.7	3 416	2.7	1.0	-0.2
982	Dowa Mining	Industrial metals (175)	Japan	23.80	24.9	11.3	22.5	2 014	24.5	8.3	6.2
985	Sycamore Networks	Telecommunications equipment (9578)	USA	23.79	-27.8	-10.2	-12.7	66	32.0	47.1	17.2
986	Yulon Nissan Motor	Automobiles & parts (335)	Taiwan	23.72	26.4	5.3	506.1	695	-38.9	-1.3	793.8
987	Interwoven	Software (9537)	USA	23.71	1.4	25.2	-7.2	133	9.0	43.5	-11.5
988	Manitowoc	Commercial vehicles & trucks (2753)	USA	23.66	20.0	22.6	21.8	2 224	24.5	18.9	24.4
989	Safenet	Software (9537)	USA	23.65	22.2	56.1	85.1	199	30.1	206.0	100.0
990	Softbank	Internet (9535)	Japan	23.54	-9.8	223.3		7 056	45.5	59.7	17.2
991	Gennum	Semiconductors (9576)	Canada	23.48	-0.4	4.5	23.5	96	3.2	4.5	8.5
992	MacDermid	Chemicals (135)	USA	23.34	13.1	24.1	113.4	620	10.7	11.8	-5.5
993	Gemstar-TV Guide International	Media (555)	USA	23.28	-2.8	22.9	-4.8	433	-5.5	-19.2	-14.9
994	Micros Systems	Computer hardware (9572)	USA	23.24	-7.5	21.8	45.1	515	13.7	22.4	22.1

Rank	Company	ICB Sector	Country	R&D Investment				Net Sales			
				2006	change	change	change	2006	change	change	change
				€m	06/05	05/04	04/03	€m	05/04	04/03	04/03
Top 1000 Companies				250 455.28	11.1	7.8	7.3	6 474 246	9.7	10.8	11.5
<i>number of companies for calculation</i>				<i>1000</i>	<i>996</i>	<i>974</i>	<i>953</i>	<i>1000</i>	<i>997</i>	<i>982</i>	<i>966</i>
995	Packeteer	Telecommunications equipment (9578)	USA	23.24	40.7	45.6	22.7	110	27.9	22.9	27.3
996	Spectrum Brands	Household goods (372)	USA	23.18	4.2	26.5	61.5	1 947	8.8	66.4	53.8
997	Nabtesco	Industrial machinery (2757)	Japan	23.14	-1.9	-14.9		938	6.8	9.9	
998	Kinpo Electronics	Computer hardware (9572)	Taiwan	23.13	-32.9	12.6	5.2	1 058	-29.6	10.2	70.1
999	Iwatsu Electric	Electrical components & equipment (2733)	Japan	23.12	19.8			252	-8.7		
1000	Straumann	Health care equipment & services (453)	Switzerland	23.09	17.3	4.2	-15.9	372	17.4	21.5	22.0

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Title: Analysis of the 2007 EU Industrial R&D Investment Scoreboard

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Abstract

This report offers an analysis of the European Commission's 2007 Industrial R&D Investment Scoreboard (the Scoreboard). It contains information on the 1000 EU companies and 1000 non-EU companies which made the biggest investments in Research and Development (R&D) in the period. Together, these 2000 companies invested €372 billion in R&D in the year of reporting (i.e. 2006/7). This corresponds to approximately 80% of global business expenditure on R&D.

The analysis describes the main trends in recent years and investigates the differences between EU companies and their competitors in terms of R&D intensity and R&D growth. It also includes results of further research on related topics: i) To what extent is the EU-US gap in R&D intensity due to differences in the sectoral composition of sales? and ii) What is the role of R&D in company performance?

