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Monitoring industrial
research:

**The 2008 EU Survey on
R&D Investment
Business Trends**

Joint Research Centre
Directorate General Research

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Key Findings

This document presents the findings of the fourth survey on trends in business R&D investment. While continuing along similar lines as previous editions, it contains further insights into (mainly larger) company expectations about their future R&D investments and the underlying motivations. The results are drawn from 130 responses from the 1000 EU-based companies listed in the 2007 EU Industrial R&D Investment Scoreboard. These 130 companies are responsible for R&D investment worth almost €40 billion, constituting 30% of the total R&D investment by the EU Scoreboard companies. The main findings of the survey are as follows:

The companies' R&D investment is expected to grow by 4%, a significant reduction compared to last year's survey.

On average, the companies surveyed expect their R&D investment to grow by 4% per year over the period 2009-11. This is much lower than in last year's survey, where the expectations were over 7% per year, and reflects the impact of the economic crisis as foreseen at the end of 2008. Expectations may not fully represent its ultimate impact, given that responses were collected from September to December 2008.

The responding companies carry out over 20% of their R&D outside the EU.

On average, the EU-based companies in the sample carry out just over 20% of their R&D outside the EU. The largest share of foreign R&D investment (almost 10%) goes to the US and Canada. The percentages of R&D investment carried out in China and India are 2.7% and 3.5%, respectively, remaining, as in our previous surveys, a relatively small share.

Their expectations for R&D investment growth within the EU, which were the lowest in the previous survey, are now the highest.

For the responding companies, R&D investment growth expectations within the EU at 4.6% are ahead of Japan (4.4%), the US and Canada (4.3%), other European countries (3.8%), India (3.2%), RoW (3.1%) and China (2.5%). This is the opposite compared to the previous survey, where R&D investment growth expectations were the lowest in the EU and higher in the US and Canada, Japan and India.

Those R&D locations outside the EU that in the past showed higher growth than the EU now seem to have to face the strongest cuts (mainly other European countries, the US and Canada, and India).

Within the generally reduced expectations compared to the previous survey, the smallest reductions are seen in the EU region. Thus, while in past surveys in a more favourable economic climate there seemed to be an increased outflow of R&D investment due to higher growth outside the EU, it seems that in the economic downturn, such outside locations may now face the strongest cuts (other European countries, the US and Canada, and India).

The companies surveyed generally gave their home country as the preferred location for R&D, and identified Germany, the US, and India as the most attractive locations outside the home country.

Two thirds of the companies considered their home country to be the most attractive location for R&D. This is much more than the corresponding figure of last year's survey (half), mainly due to a decreasing preference for China and India. Among those preferring a location outside their home country, Germany is most often cited as the most attractive country for expanding R&D investment, just ahead of the US and India and followed by China with a remarkably small number of mentions compared to previous surveys.

Availability of researchers and access to specialised R&D knowledge are the main drivers affecting decisions about R&D location.

The main drivers of R&D location decisions are, as in earlier surveys, access to specialised R&D knowledge and results, proximity to other company activities and high availability of researchers, which are considered very or crucially important when deciding where to locate R&D investment. The cost of employing researchers plays a small role overall, but is an important consideration for those companies preferring a location outside their home country.

The relative importance of public policies for R&D activities inside the EU differs among sectors: tax incentives seem more important for the high R&D intensity companies, and product market regulation and other legal frameworks for the low R&D intensity companies.

The respondents rated a number of public policies for supporting R&D activities inside the EU as more important than others (tax incentives, product market regulation and other legal frameworks, direct public aid from the EU and other sources and European Technology Platforms). However, the biggest difference is between sectors. Tax incentives are regarded as especially important for the high R&D intensity sectors and product market regulation and other legal frameworks for the low R&D intensity sectors.

1 Introduction

Increasing and improving Research and Development (R&D) investment in Europe is at the heart of the EU's Lisbon Strategy¹. In order to support policymakers in this field and monitor progress towards the accompanying (Barcelona) targets, the present survey has gathered information from across Europe on the factors and issues which influence R&D investment by companies. R&D investment in the survey refers to the total amount of R&D financed by the company, regardless of where or by whom that R&D is performed. This excludes R&D financed by governments or other companies as well as the companies' share of any associated company or joint venture R&D investment. The survey therefore reports what each responding company states as its particular financial commitment to R&D. This is different from the official statistical concept, Business Expenditure on R&D (BERD), which takes a geographic perspective and thus refers to all R&D performed by businesses within a particular territory, regardless of the home location of the business, and regardless of the sources of finance².

The survey is part of the Industrial Research Investment Monitoring (IRIM) initiative³ and accompanies the *EU Industrial R&D Investment Scoreboard*⁴. Following the first three editions⁵ since 2005, the present document describes the results of the survey activity in 2008. The questionnaire was sent to the 1000 European companies which appear in the *2007 EU Industrial R&D Investment Scoreboard* and to the respondents of the past surveys, and presented to European Technology Platform⁶ leaders. The 130 responses received from these companies yielded a response rate of 13%. These respondents are responsible for a total global R&D investment of almost €40 billion, which corresponds to 30% of the total R&D investment by the European Scoreboard companies and a similar share of the R&D spent and performed by the business sector in the EU. Scoreboard and BERD data address industrial R&D in the EU through different concepts and are therefore not directly comparable, but their latest figures were of similar magnitude⁷.

Responses were grouped⁸ by R&D intensity⁹. Table 1 shows the number of responses from each sector group.

Table 1: Number of responses, by sector group

Sector group	ICB Sector	Number of responses
High R&D intensity	Biotechnology, health care equipment & services, leisure goods, pharmaceuticals, software, and technology hardware & equipment	35
Medium R&D intensity	Aerospace & defence, automobiles & parts, chemicals, commercial vehicles & trucks, electrical components & equipment, electronic equipment, fixed line telecommunications, food producers, general industrials, industrial machinery, personal goods, and support services	68
Low R&D intensity	Banks, construction & materials, electricity, food & drug retailers, food producers, general retailers, industrial metals, industrial transportation, and oil & gas producers	27
	total	130

Source: European Commission JRC-IPTS (2009)

Whereas the largest number of responses came from the medium R&D intensity sector group (Table 1), the biggest share of R&D investment in the sample is from the high R&D intensity sectors (Figure 1).

¹ See: http://ec.europa.eu/growthandjobs/index_en.htm.

² BERD includes R&D financed by the company itself as well as R&D performed by a company but funded from other sources. Official BERD figures comprise R&D performed in a given country or region and carried out by the companies (including foreign-owned subsidiaries) that are physically located in the country, regardless of the source of funding.

³ See: <http://iri.jrc.ec.europa.eu/>. The activity is undertaken jointly by the Directorate General Research (DG RTD C, see: <http://ec.europa.eu/research>) and the Joint Research Centre, Institute of Prospective Technological Studies (JRC-IPTS, see: <http://ipts.jrc.ec.europa.eu/activities/research-and-innovation/iri.cfm>).

⁴ The Scoreboard is published annually and provides data and analysis on companies from the EU and abroad investing the largest sums in R&D (see: <http://iri.jrc.ec.europa.eu/research/scoreboard.htm>).

⁵ See: <http://iri.jrc.ec.europa.eu/research/survey.htm>

⁶ See: http://cordis.europa.eu/technology-platforms/home_en.html

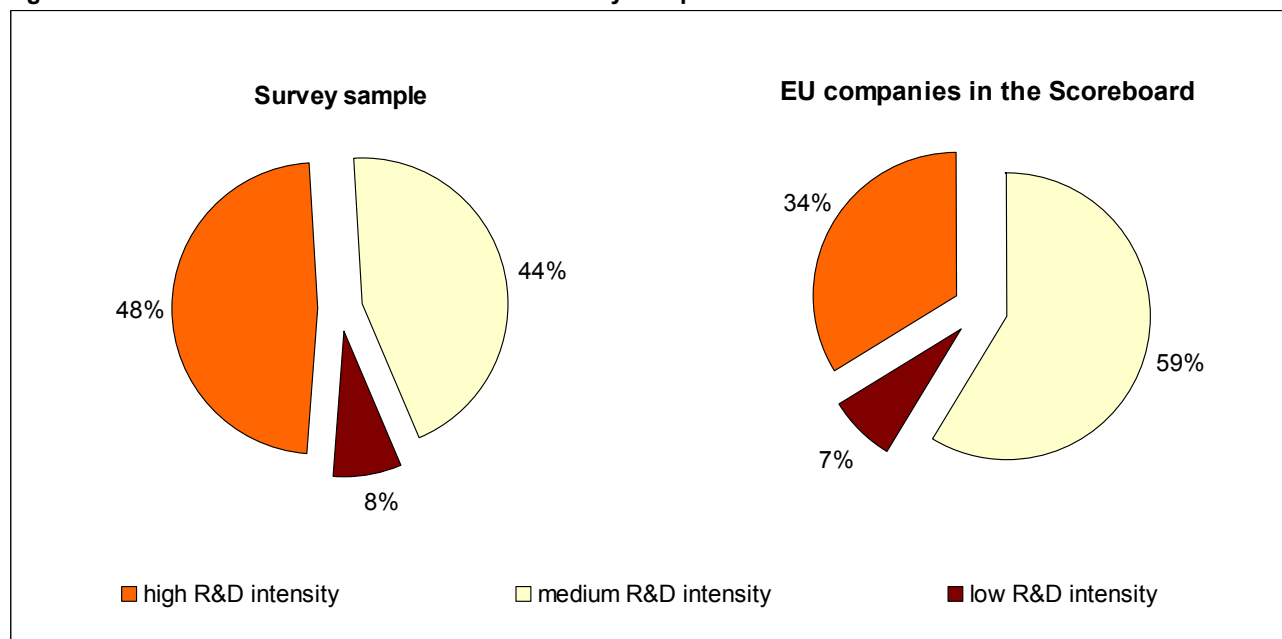
⁷ According to the latest available data for 2006: Scoreboard €121 bn and BERD (Eurostat) €116 bn.

⁸ See: Annex A: The Methodology of the 2008 Survey

⁹ R&D intensity is the ratio between R&D investment and net sales. An individual company may invest a large overall amount in R&D but have a low R&D intensity if net sales are high (as is the case of many oil & gas producers, for example).

Also compared to the Scoreboard, the sample contains a bigger share of companies with higher-than-average R&D investments¹⁰.

Figure 1: Distribution of R&D investment in the survey compared to the Scoreboard



Note: The figure refers to all 130 companies in the sample.

Source: European Commission JRC-IPTS (2009)

In terms of employees and turnover, the average size of the responding companies is very large. The average figures for the responding companies were a turnover of €9.3 billion, and a workforce of 28 000 employees, of whom 1 700 employees work in R&D. Among the 130 respondents there are eight medium-sized companies according to the European Commission's SME definition¹¹. In this regard, the present survey differs from other surveys in Europe such as the Community Innovation Survey (CIS), as the latter not only uses a different sampling technique but also includes Small and Medium-sized Enterprises (SMEs) with 10 employees or more¹².

Comparing the sample of the present survey to last year's edition, there is a higher share of R&D from the high R&D intensity sectors, especially ICT, and a lower share from low R&D intensity sectors. Out of the 130 responding companies, there were 40 which had participated in last year's survey. More information about the methodology and details of the sample composition can be found in Annex A.

¹⁰ For more details see Table 4 in Annex A: The Methodology of the 2008 Survey

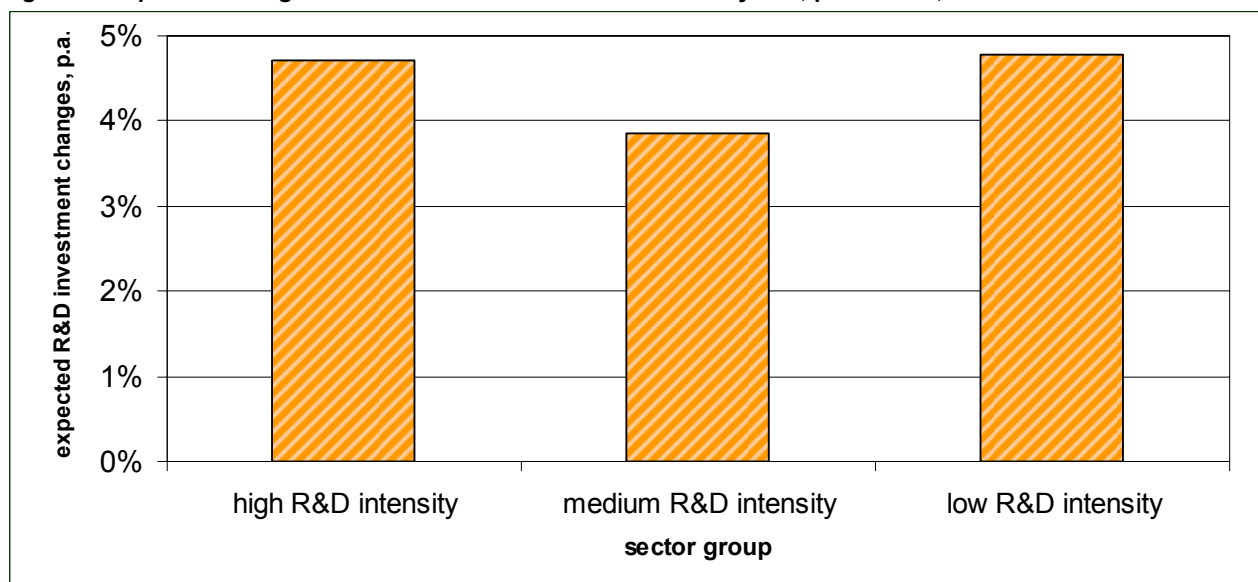
¹¹ See: http://ec.europa.eu/enterprise/enterprise_policy/sme_definition/index_en.htm

¹² The CIS uses a stratified sampling for at least 3 size classes (small, medium and large enterprises) across all EU Member States.

2 Expectations Regarding R&D Investment and Impact of the Economic Crisis

On average, the responding companies expect their global R&D investment to grow by just over 4% a year over the period 2009-11¹³. This is much lower than in last year's survey, where the expectations were over 7% per year, and probably reflects the impact of the economic crisis as perceived at the end of 2008. As shown in Figure 2 below, there are few differences between the sector groups.

Figure 2: Expected changes in R&D investment in the next three years, per annum, in real terms



Note: The figure refers to 91 out of the 130 companies in the sample after elimination of outliers, weighted by R&D investment.

Source: European Commission JRC-IPTS (2009)

The impact of the economic crisis becomes more obvious when comparing those expectations with the three year average growth rate of these companies' R&D investment in the past Scoreboard. This rate was 6.5 %, revealing a significant reduction of expectations well below these companies' average R&D investment growth rate of the past three years. Compared to these past data, the biggest reductions are found in the high R&D intensity sectors, followed by the medium R&D intensity sectors. However, the medium R&D intensity sectors, especially automobiles & parts, remain the biggest contributor to the overall growth expectations, just like in past year's survey. The expectations of the low R&D intensity sectors are similar to those reported in last year's survey, and, for these companies, even above the average growth rate of the past three years. This may however be due to a high number of companies from sectors which are more resistant to an economic downturn in the low R&D intensity group, e.g. electricity, oil & gas and utilities.

The expectations presented here may however not fully represent the true impact of the economic crisis given that responses were collected from September to December 2008. During the data collection period, the Dow Jones Euro Stoxx 50 ranged from 3250 to 2500 index points, while it was around 2000 at the time of elaboration of this report. Governments' stimulus packages substantially increased in the meantime given that the general economic outlook in the beginning of 2009 pointed to a deeper and longer impact of the crisis than seemed the case in the last quarter of 2008. Further, the medium R&D intensity sectors, which constitute the majority of R&D investment in the EU, have been highly affected by drastically dropping demand, leading to repeated announcements of capacity reductions. The consequences for company behaviour are still hugely uncertain in the beginning of 2009, and probably not fully reflected in this survey.

Despite different sample compositions, the difference in expectations between this and last year's survey is statistically significant¹⁴. The expectations of the 34 companies that responded to this question in both surveys almost halved¹⁵.

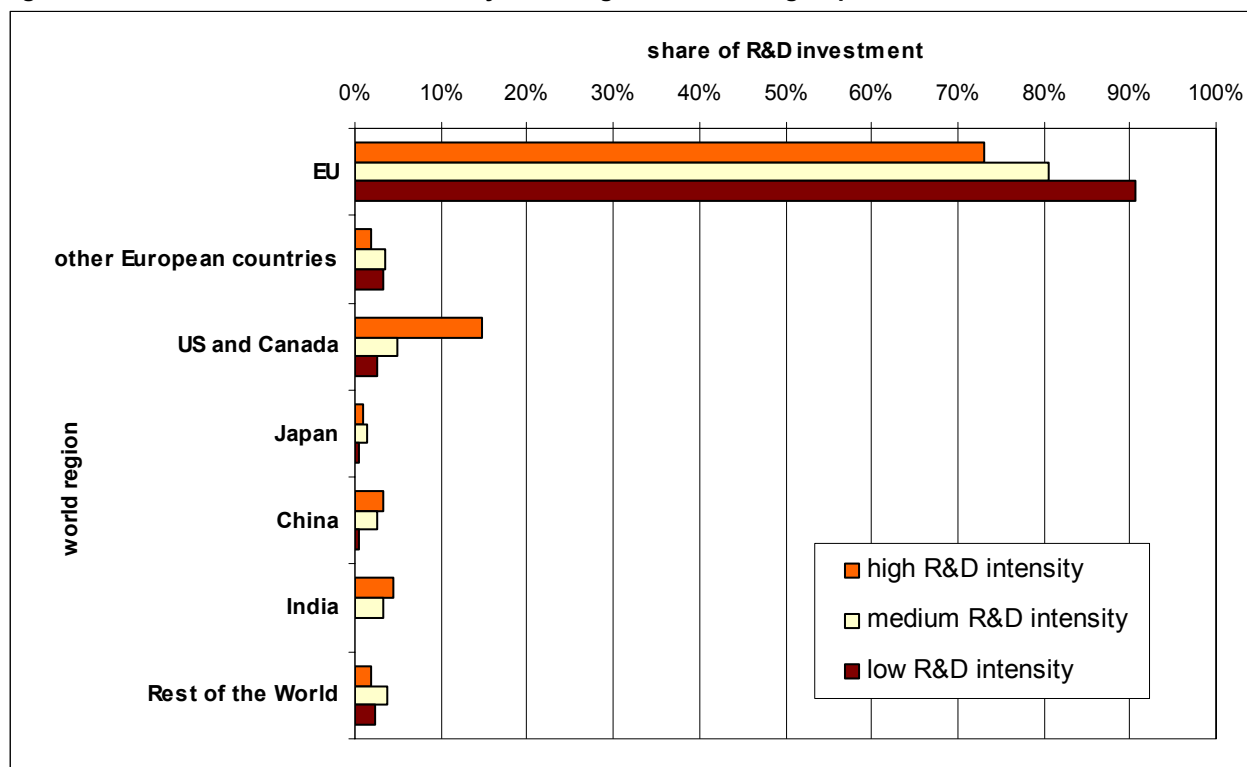
¹³ The expectations are per annum over the next three years, weighted by R&D investment.

¹⁴ A two-sample t-test with unequal variances between the expectations of this and last year's survey was performed with the European Scoreboard companies constituting the basic population. With $t = -3.54$ and $df = 167.42$, the difference of the two means is

3 R&D Investment Location

R&D investment location in the survey is addressed with respect to two dimensions: the actual distribution (stock) of R&D investment and the distribution of the expected changes in R&D investment (dynamics). Regarding the current distribution, respondents stated how much of their total R&D investment was made in each of seven world regions (see Figure 3 below).

Figure 3: Distribution of R&D investment by world region and sector group



Note: The figure refers to 114 out of the 128 EU companies in the sample, weighted by R&D investment. Other EU countries are for example Switzerland, Norway and others, and the Rest of the World includes a heterogeneous set of countries such as South Korea, Taiwan, Brazil, etc.

Source: European Commission JRC-IPTS (2009)

On average, the EU-based companies in the sample carry out just over 20% of their R&D outside the EU. The largest share of foreign R&D investment goes to the US and Canada, accounting for almost 10%. The percentages of R&D investment carried out in China and India are 2.7% and 3.5%, respectively, remaining, as in our previous surveys, a relatively small share.

In terms of sector groups, the distribution of R&D investment is very similar to that seen in the surveys of previous years. The medium and low R&D intensity sectors account for the largest shares of R&D investment in the EU. The high R&D intensity sectors, where Europe is already under-represented relative to the US¹⁵, make 15 % of their R&D investments in the US and Canada and also have the largest shares of R&D investment in China and India. This underlines the observation of previous surveys that, in the current distribution of R&D investment, the high R&D intensity sectors are the most heavily internationalised. The degree of internationalisation of these sectors in the present survey is determined by companies from the ICT sector, and is somewhat lower than in last year's one, where the biggest share of companies were from pharmaceuticals & biotechnology.

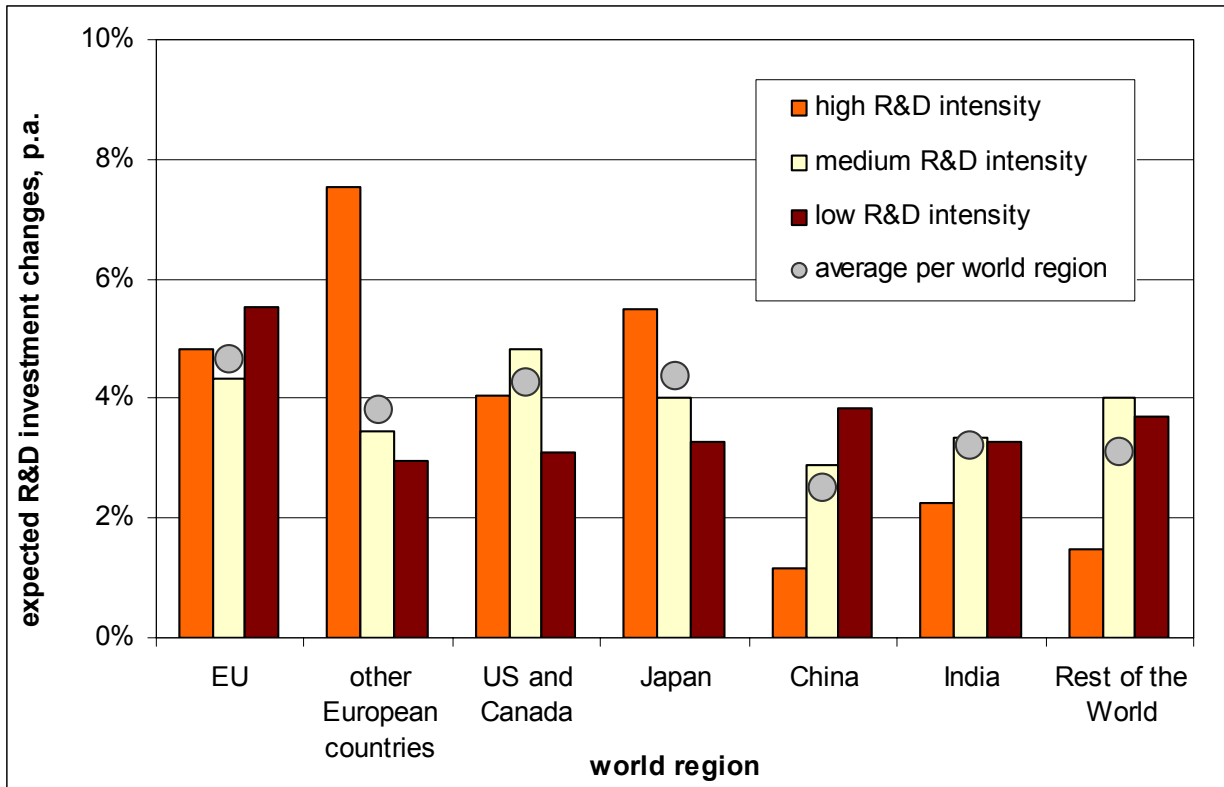
statistically significant ($p=0.0003$). The differences of the means of the present Survey and the ones before 2007 are however not statistically significant.

¹⁵ However, this is not statistically significant.

¹⁶ The 2008 Scoreboard shows that the R&D investment share of high R&D intensity sectors is almost twice that of the EU for US companies. Most of the difference comes from pharmaceuticals & biotechnology and ICT-related sectors (see: The 2008 EU R&D Investment Scoreboard, p.8).

The second aspect, R&D investment dynamics, is shown in Figure 4.

Figure 4: Expected changes in R&D investment by world region and sector group



Note: The figure refers to 99 out of the 128 EU companies in the sample, weighted by R&D investment. Other EU countries are for example Switzerland, Norway and others, and the Rest of the World includes a heterogeneous set of countries such as South Korea, Taiwan, Brazil, etc.
Source: European Commission JRC-IPTS (2009)

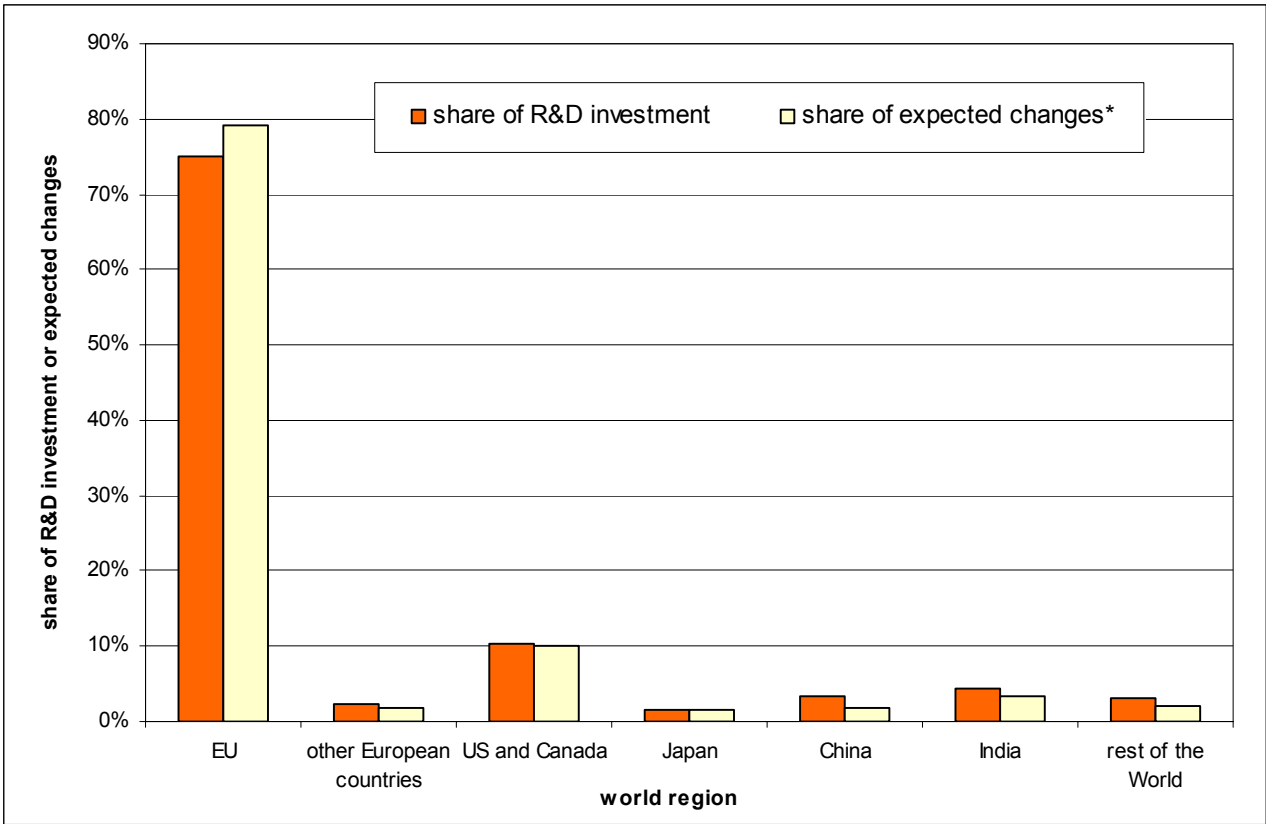
Expectations of R&D growth per world region are between 2.5% and 4.6%, a much smaller range than in the past survey. By contrast with the past year's survey, expectations for the EU are the highest (4.6%), before Japan (4.4%), the US and Canada (4.3%), other European countries (3.8%), India (3.2%), RoW (3.1%) and China (2.5%). In the previous survey, R&D investment growth expectations were the lowest in the EU (6%) and higher in the US and Canada (10%), Japan (15%), and India (17%). Within the generally reduced R&D investment expectations compared to the previous survey, the cut in expectations is the lowest for the EU region. Thus, while past surveys carried out in a more favourable economic climate suggested an increased outflow of R&D investment due to higher growth outside the EU, it seems that in the economic downturn, these outside locations also have to face the strongest cuts. While the information provided by this sample does not allow the ruling out of other factors, the economic downturn seems a reasonable explanation for the change in behaviour. This survey's stronger reduction of R&D outside than inside the EU may also be due to other factors, but the economic climate certainly plays an important role because the opposite trend observed in the past two surveys went along with a different economic climate. Focussing resources and concentrating on core competencies and locations are common business strategies in the face of an economic downturn¹⁷.

It should be noted that the sample composition changes from year to year and, except for the EU and the US and Canada, expectations apply to a relatively small base, none of them exceeding 5% of the total R&D investment by the companies in the sample.

¹⁷ See for example: Lin, B., Lee, Z.H. and Gibbs, L.G.: "Operational Restructuring: Reviving an Ailing Business", Management Decision, 46 (4), 2008, pp. 539-552

The R&D investment dynamics are further addressed in Figure 5, which compares the shares of R&D investment with the share of expected R&D investment changes in each world region.

Figure 5: Shares of R&D investment and expected changes by world region



Note: * The share of expected changes in R&D investment is the amount accounted for by the world region as a share of the total expected changes for all world regions.

The figure refers to 99 out of the 128 EU companies in the sample, weighted by R&D investment. Other EU countries are for example Switzerland, Norway and others, and the Rest of the World includes a heterogeneous set of countries such as South Korea, Taiwan, Brazil, etc.

Source: European Commission JRC-IPTS (2009)

The figure confirms a tendency towards higher stability of R&D investment within the responding companies' home region. The share of R&D investment is the largest in the EU and expected changes only exceed current shares of investment in the EU, not in the other world regions¹⁸.

Compared to a baseline situation in which R&D investment continues to develop in line with its present distribution, the emerging growth differential therefore changes compared to previous surveys. The past two surveys suggested an outflow of R&D investment from the EU to the other world regions, whereas this year's survey suggests a small relative inflow. For the 99 EU companies which responded to this question, the inflow comes to around €32 million, or 0.2% of these companies' annual R&D investment. Around one third each of that amount comes from a relative reduction of expectations in China and India. However, the inflow is smaller than the outflows reported in previous surveys¹⁹.

The relative stability of R&D investment expectations for the EU is also reflected in the changes of the expected shares of R&D investment. They are compared for the last three surveys in Table 2.

¹⁸ This is consistent with the observation in Figure 4 that R&D investment growth is higher inside than outside the EU.

¹⁹ For the different sample of 99 companies in the 2007 survey, the outflow was €110 million corresponding to 0.7% of these companies' R&D investment. For the 89 companies in the 2006 survey, the outflow came to almost €60 million, or 0.4% of these companies' R&D investment.

Table 2: Nominal changes in expected vs. present R&D investment distribution in the past three surveys

	EU	other European countries	US and Canada	Japan	China	India	Rest of the World
2008 Survey	0.17%	-0.01%	-0.01%	0.00%	-0.06%	-0.05%	-0.04%
2007 Survey	-2.03%	0.71%	0.61%	0.24%	-0.06%	0.42%	0.12%
2006 Survey	-0.39%	0.03%	0.24%	0.02%	0.04%	0.04%	0.03%

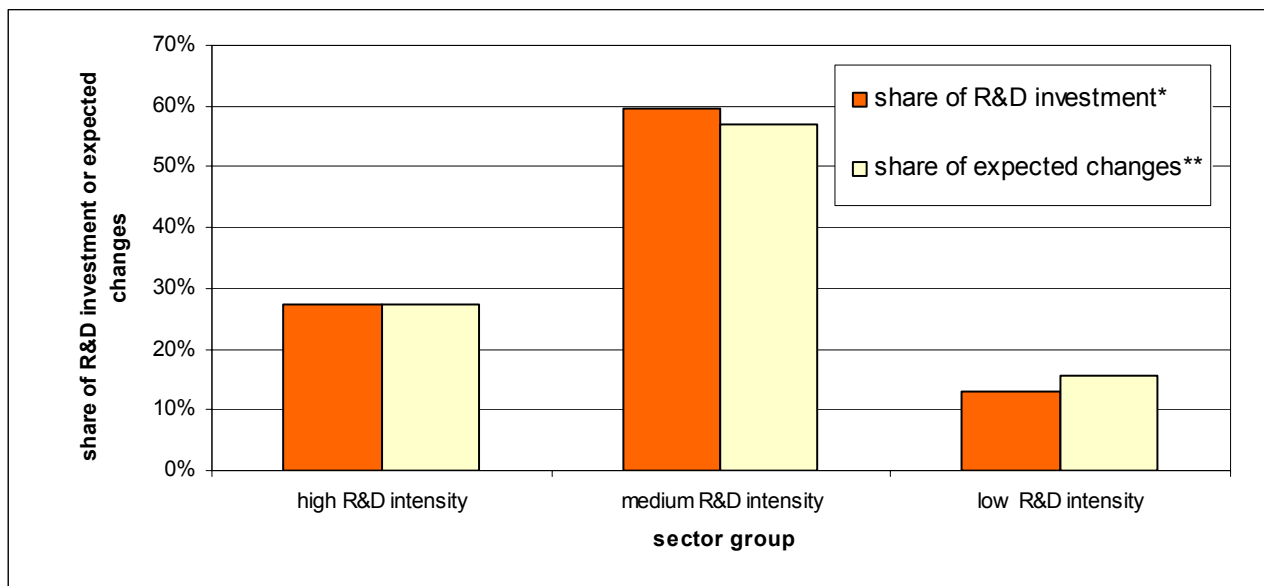
Note: The colours show the sign of the changes (red for decrease and green for increase).
 For the 2008 survey, the table refers to 99 out of the 128 EU companies in the sample, for the 2007 survey to 99 out of 118 companies in the sample, and for the 2006 survey to 89 out of 100 cases in the sample, weighted by R&D investment. Other EU countries are for example Switzerland, Norway and others, and the Rest of the World includes a heterogeneous set of countries such as South Korea, Taiwan, Brazil, etc.

Source: European Commission JRC-IPTS (2009)

Compared to the previous survey, there has been a change of signs. The EU had experienced reductions in the past and shifted to a slight increase, while decreases or stagnation are expected for all the other regions. Between the 2007 and 2008 survey, the main decreases by volume and growth were found in other European countries, the US and Canada, and India.

Figure 6 breaks down the information presented in Figure 5 by sector group rather than world region. Unlike our previous surveys, the comparison of R&D investment and expected changes by sector group reveals little variation within the sector groups. This further underlines the relative stability of expectations at the lower level found in the present survey.

Figure 6: Shares of R&D investment and expected changes by sector group



Note: * The shares of R&D investment are different from those in the sample as a whole (in Figure 1) because only the shares of those companies which made a statement about the distribution of their R&D investment and its expected changes are taken into account here.
 ** The share of expected R&D investment changes is the amount the sector accounts for in the total amount of expected R&D investment changes for all sectors.
 The figure refers to 99 out of the 128 EU companies in the sample.

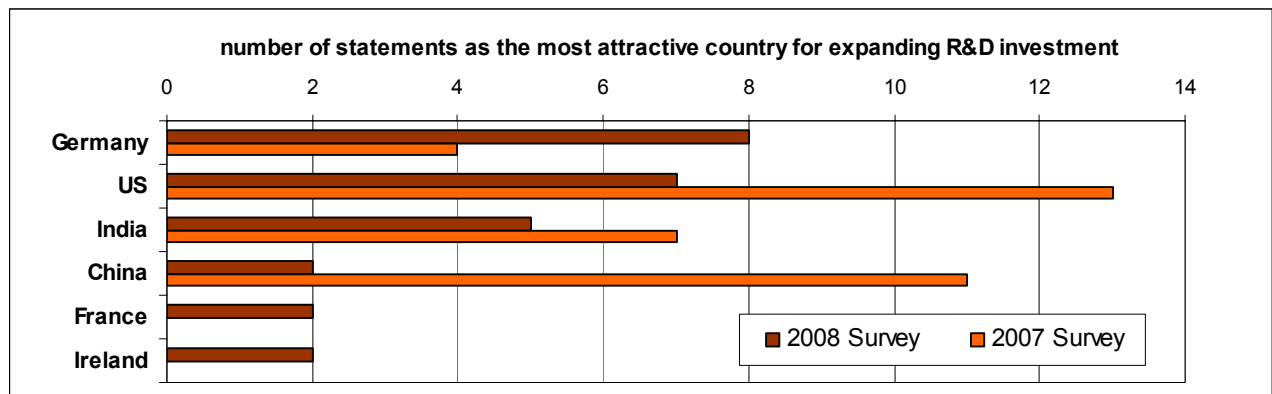
Source: European Commission JRC-IPTS (2009)

This survey addresses R&D investment decisions according to the choice of country. The respondents stated the most attractive country for R&D investment. Two thirds of the 101 respondents from companies considered their home country to be the most attractive location²⁰. Again, this is much higher than the corresponding figure of the previous survey (almost half), mainly due to a decreasing preference for China and India.

²⁰ Similar figures about country preferences were found in a study of US companies, where 57% of respondents chose the US as the preferred country. The preferred countries outside the US were China followed by Europe and India (see: "The 2008 R&D Funding Forecast", R&D Magazine, Batelle, February 2008, p.14).

Relatively few respondents mentioned countries outside their home base, as shown in Figure 7 below.

Figure 7: Most attractive countries for expanding R&D investment outside the home country



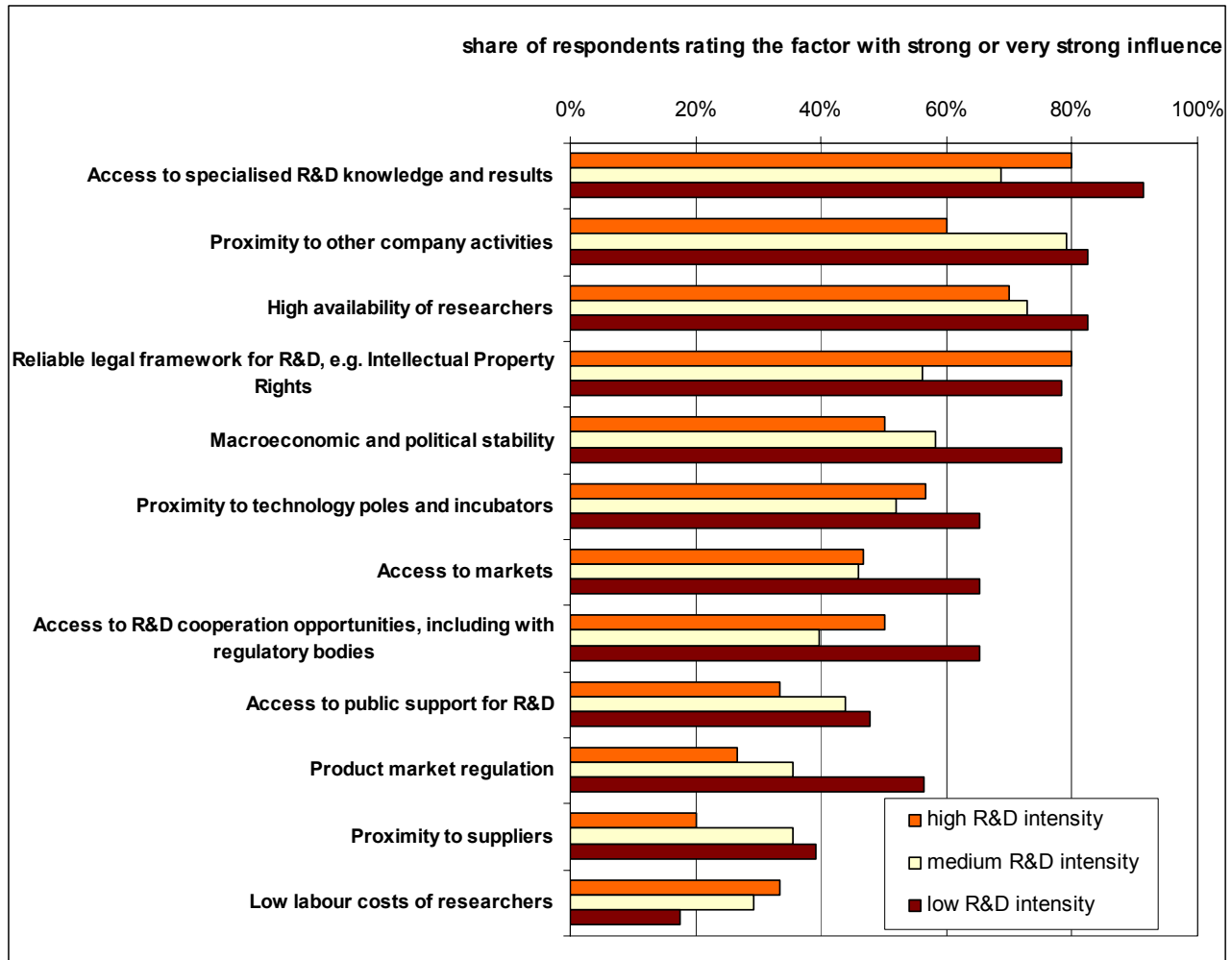
Note: Data for 35 cases of the 2008 and 45 cases of the 2007 survey. Only countries mentioned at least twice in the 2008 survey are shown.

Source: European Commission JRC-IPTS (2009)

Among these responses, Germany is the most often-cited country for expanding R&D investment, just ahead of the US and India and followed by China with a remarkably small number of mentions compared to the previous survey. Last year, the US ranked ahead of China and India, while China and India were ahead of the US in the year before. Despite the different sample compositions in different years, there is a certain loss in preference for China and India as locations for R&D investment. This seems consistent with the reductions of R&D investment expectations for these countries reported above.

In the survey, respondents rated the factors for R&D location in the country they considered to be most attractive. As shown in Figure 8, the three most important drivers are the same as in previous surveys, although their order has changed. In last year's survey, high availability of researchers ranked before access to specialised R&D knowledge and results and proximity to other company activities. More than two thirds of respondents considered access to specialised R&D knowledge and results, proximity to other company activities and high availability of researchers to be very or crucially important when deciding where to locate R&D investments.

Figure 8: Factors for R&D location in the country considered the most attractive



Note: The factors are sorted by average importance. The figure refers to 101 out of the 130 companies in the sample.
Source: European Commission JRC-IPTS (2009)

Compared to last year's survey, access to markets has decreased substantially in importance, especially for the high and medium R&D intensity sectors. This is probably due to sample composition, with a much bigger share of high R&D intensity sectors in this year's survey²¹. Factors of some importance²² for R&D location decisions include a reliable legal framework for R&D, macroeconomic and political stability, proximity to technology poles and incubators, access to markets, access to R&D cooperation opportunities, access to public support for R&D and regulation of the company's product markets.

Just as in the previous survey, the factors which were of less importance²³ include proximity to suppliers and low labour costs of researchers. Again, the cost of employing researchers is ranked among the least important factors in deciding where to locate R&D.

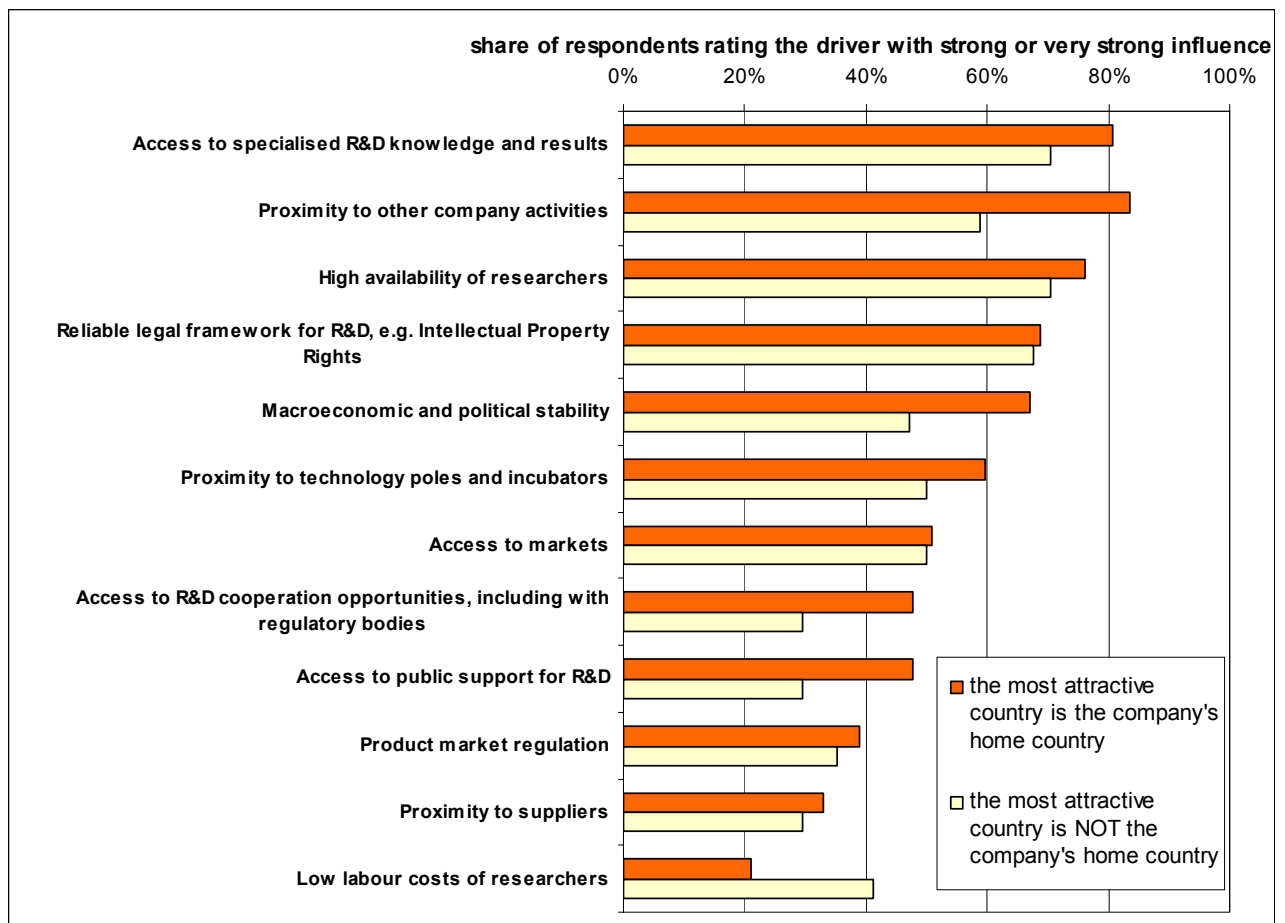
Comparing location factors for companies which chose their home country as the most attractive place in which to expand R&D to those which stated a location outside their home country reveals some of the reasons for the preference for the home country as a location for R&D (see Figure 9).

²¹ As seen in the previous section, the high R&D intensity sectors are the most internationalised ones.

²² "Some importance" means that the factor is very or crucially important for more than one third but less than two thirds of the respondents.

²³ "Less importance" means that the factor is very or crucially important for less than one third of the respondents.

Figure 9: Location factors for companies according to whether or not they choose their home country as the most attractive place for R&D



Note: The factors are sorted by average importance. The figure refers to 101 out of the 130 companies in the sample.
Source: European Commission JRC-IPTS (2009)

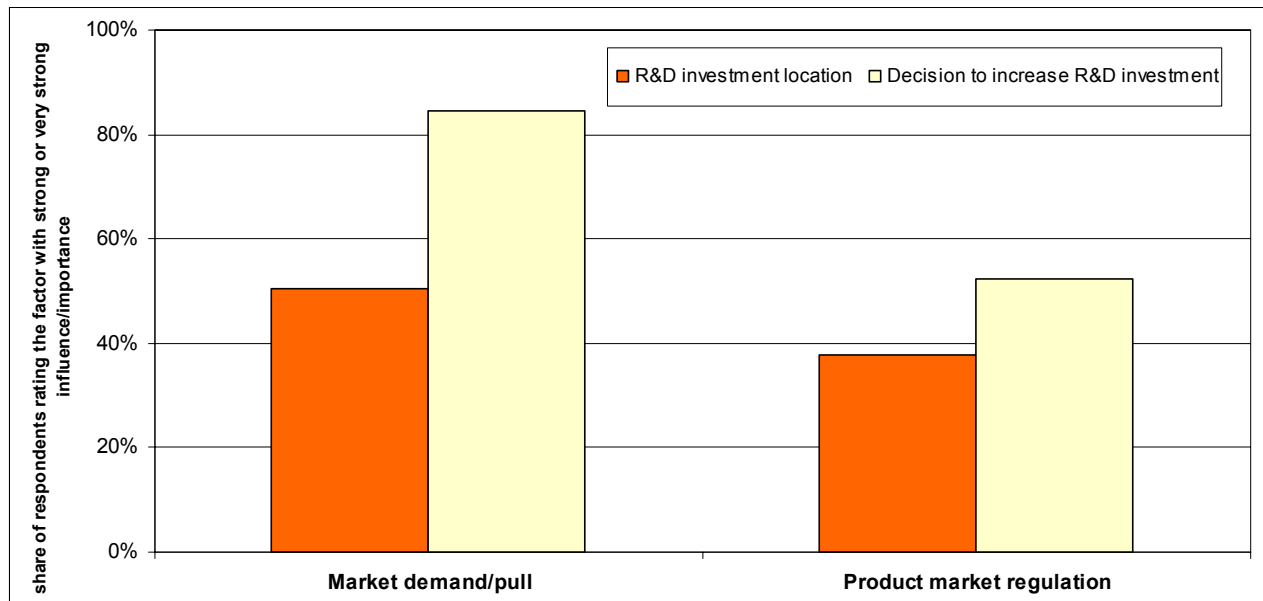
For companies choosing their home country as the preferred R&D investment location, access to specialised knowledge and results, proximity to other company activities, macroeconomic and political stability, access to R&D cooperation opportunities and access to public support for R&D were seen as more important factors driving location decisions²⁴. For those that preferred a location outside their home country, labour costs were much more important than for the companies that preferred their home country.

Two location factors were also analysed with respect to their impact on the company's decision to increase R&D investment²⁵. As shown in Figure 10, market demand and product market regulation are more important in the decision whether to increase R&D investment than in choosing an R&D investment location.

²⁴ Only differences of at least 10 % between the two values are considered as an indication of a difference.

²⁵ See Section 4 Reasons for increasing R&D Investment

Figure 10: Factors for location vs. their impact on increasing R&D investment



Note: The factors were addressed in two different questions and the wording was therefore not always identical (see Annex B: The 2008 Questionnaire on R&D investment, question 7 for the decision to increase R&D investment and question 10 for the R&D investment location). The figure refers to 101 (location) and 129 (decision to increase R&D) out of the 130 companies in the sample.

Source: European Commission JRC-IPTS (2009)

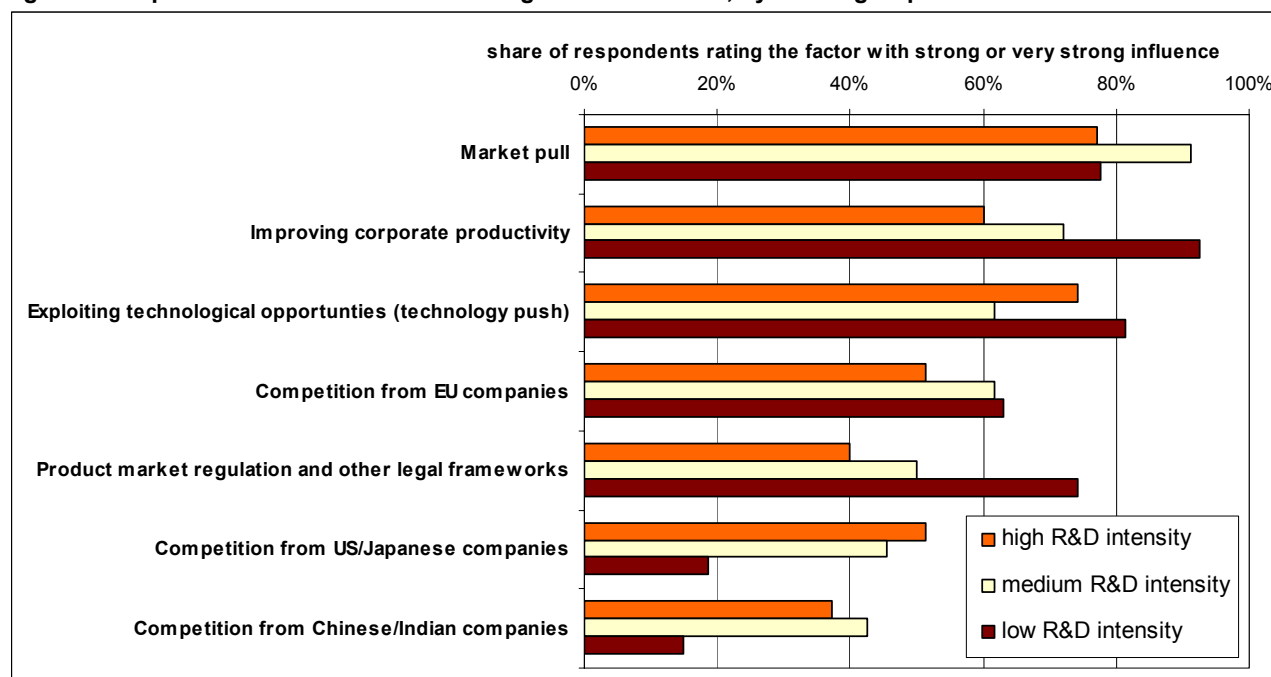
This is very similar to last year's survey, underlining that these factors may be an incentive to invest more in R&D in general, but currently do not tend to attract R&D investment to a specific location.

In the comments section, the importance of the relation between R&D and other company functions in the location decision was stressed. Many companies already operate (globally-) integrated R&D programs with engineers, technicians and support staff involved over different sites, so the choice of R&D location is influenced by the required connections between R&D, its internal customers and its external partners. Further, market access was mentioned as an important factor for the location of development activities, but not for research activities.

4 Reasons for increasing R&D Investment

This survey examined the factors for companies to increase their overall R&D investment. As shown in Figure 11 below, the main incentives for increasing R&D investments were market pull, improving corporate productivity and the possibility of exploiting technological opportunities (technology push). More than two thirds of respondents considered these factors to have a strong or very strong influence. This is consistent with the findings of previous editions of this survey, suggesting that the classical motivations for technological development remain the most important. Improving corporate productivity is a factor that increased significantly in importance compared to last year's survey²⁶, presumably as a reaction to falling demand in the current economic situation.

Figure 11: Importance of factors for increasing R&D investment, by sector group



Note: The factors are sorted by average importance. The figure refers to the 130 companies in the sample.
Source: European Commission JRC-IPTS (2009)

The other four factors were reported to have some influence²⁷ on a company's decision to increase R&D investment. However, for the companies in the low R&D intensity sectors, product market regulation and other legal frameworks is seen as important, whereas competition from US/Japanese and Chinese/Indian companies is less so. A reason for this may be the sample composition, with a considerable number of companies drawn from electricity, utilities, and oil & gas producers among the low R&D intensity group. These companies are highly infrastructure-intensive and sometimes provide semi-public services, for which regulation may have a more direct impact than for others.

Apart from this, the factors are in similar ranges as those of past year's survey. Other potential reactions to falling demand in the current economic situation than those above, e.g. a stronger influence of market pull or a bigger role of competition, cannot be observed comparing this and past year's survey.

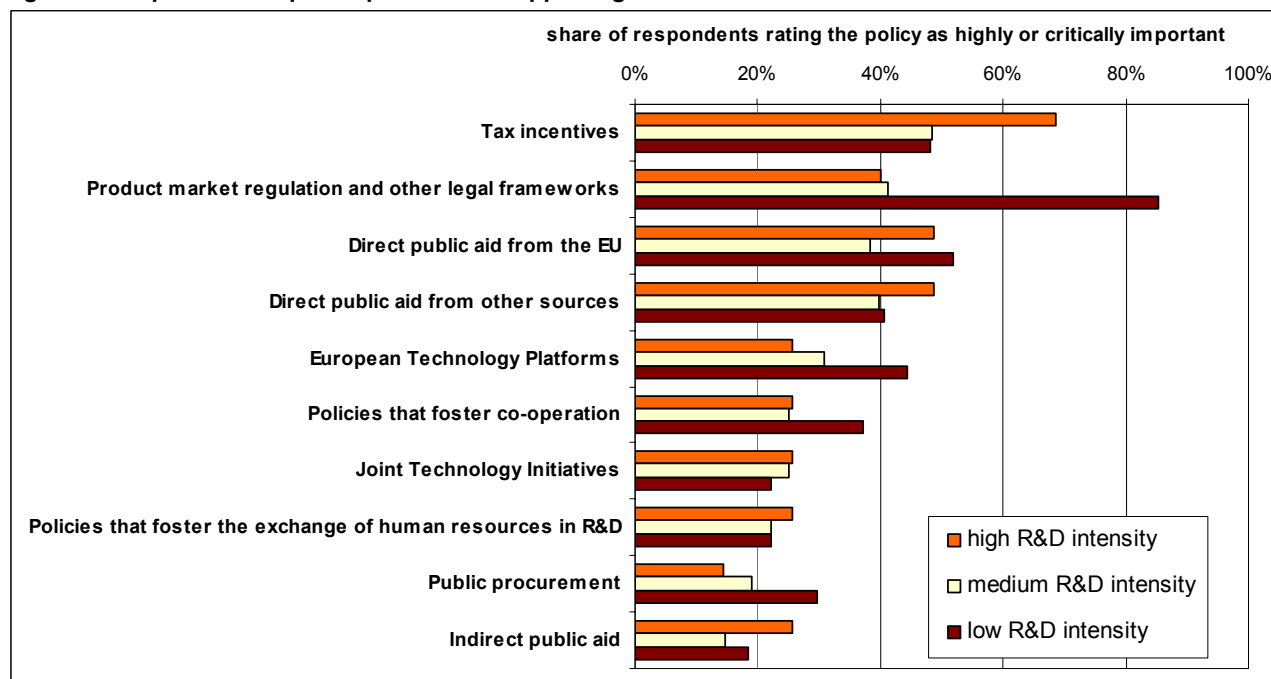
²⁶ In the previous edition of the survey, market pull was before technology push, competition from EU companies and improving corporate productivity.

²⁷ "Some influence" means that the factor has a strong or very strong influence for more than one third but less than two thirds of the respondents.

5 Public Policies supporting R&D Activities

The responding companies rated the importance of public policies for supporting their R&D activities inside the EU. Policies of some importance²⁸ are tax incentives, product market regulation and other legal frameworks, direct public aid from the EU and other sources and European Technology Platforms²⁹. Other policies, such as policies that foster co-operation, Joint Technology Initiatives³⁰, policies that foster the exchange of human resources in R&D, public procurement and indirect public aid, are considered less important³¹. An overview is given in Figure 12 below.

Figure 12: Importance of public policies for supporting R&D activities inside the EU



Note: The factors are sorted by average importance. The figure refers to 124 out of the 130 companies in the sample.
Source: European Commission JRC-IPTS (2009)

With respect to the sector groups, two policies merit special attention: tax incentives are regarded as important for the high R&D intensity sectors and product market regulation and other legal frameworks for the low R&D intensity sectors. For the latter, European Technology Platforms, policies that foster co-operation and public procurement were more important than for the other sector groups³². A reason for this may again be the sample composition with two thirds of the companies in the low R&D intensity group coming from electricity, industrial metals, utilities, and oil & gas producers. These companies are infrastructure-intensive and sometimes provide semi-public services and may therefore have special interest in participating in priority setting for policies. European Technology Platforms for this sector group exist in areas as water supply and sanitation, steel technology or wind energy³³.

In the comments to this section, mention was made of the role of EUREKA for European R&D policies, policies that foster R&D and innovation (e.g. IPR or market access) and education and immigration policies for increasing the availability of researchers. The need to reduce the administrative burden for national and EU supported R&D programs, to avoid over-regulation and to achieve a more trust-based, risk-tolerant approach to research funding were also mentioned.

²⁸ "Some importance" means that the factor is very or crucially important for more than one third but less than two thirds of the respondents.

²⁹ European Technology Platforms are led by industry and provide a forum to define R&D priorities, timeframes and action plans on a number of strategically important issues where achieving Europe's future growth, competitiveness and sustainability objectives is dependent upon major R&D advances in the medium to long term (see http://cordis.europa.eu/technology-platforms/home_en.html).

³⁰ Joint Technology Initiatives are a major new element of the EU's 7th Research Framework Programme. They provide a way of creating new partnerships between publicly and privately-funded organisations involved in research, focussing on areas where R&D can contribute to European competitiveness and quality of life (see <http://cordis.europa.eu/fp7/jtis/>). The relatively low importance given to Joint Technology Initiatives by respondents may reflect that they are relatively recent and that relatively few companies and sectors are so far involved.

³¹ "Less importance" means that the factor is described as very or crucially important by less than one third of the respondents.

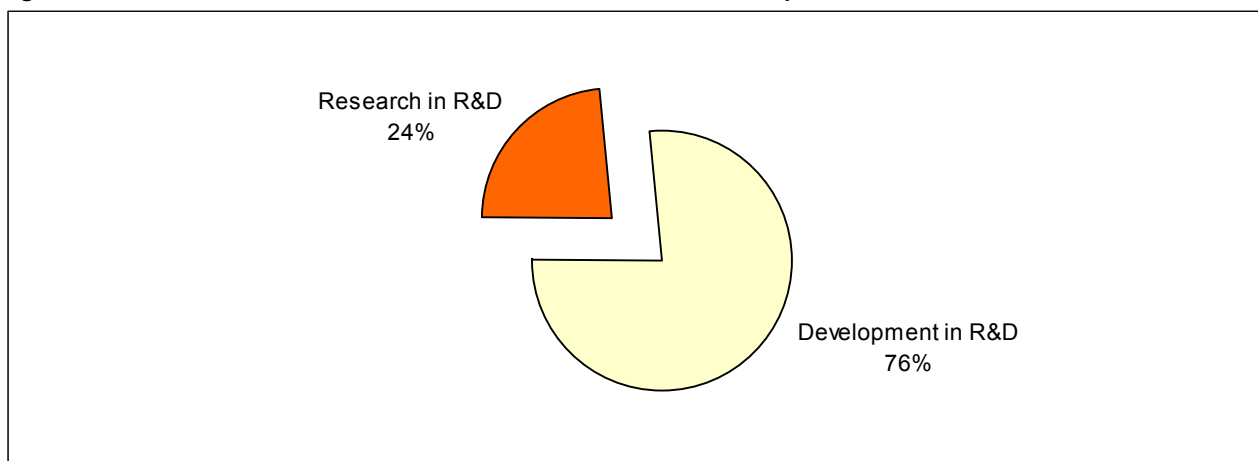
³² Only differences of at least 10 % between the two values are considered as an indication of a difference.

³³ See also: ftp://ftp.cordis.europa.eu/pub/technology-platforms/docs/tp_leaflet_en.pdf

6 “R” vs. “D”

Respondents were asked about the share of their R&D investment they considered to be either “Research” or “Development” both inside and outside the EU. On average, the responding companies from the EU described three fourths of their R&D investment as Development and one fourth as Research (see Figure 13). This corresponds to previous surveys³⁴.

Figure 13: R&D broken down into the shares of Research and Development

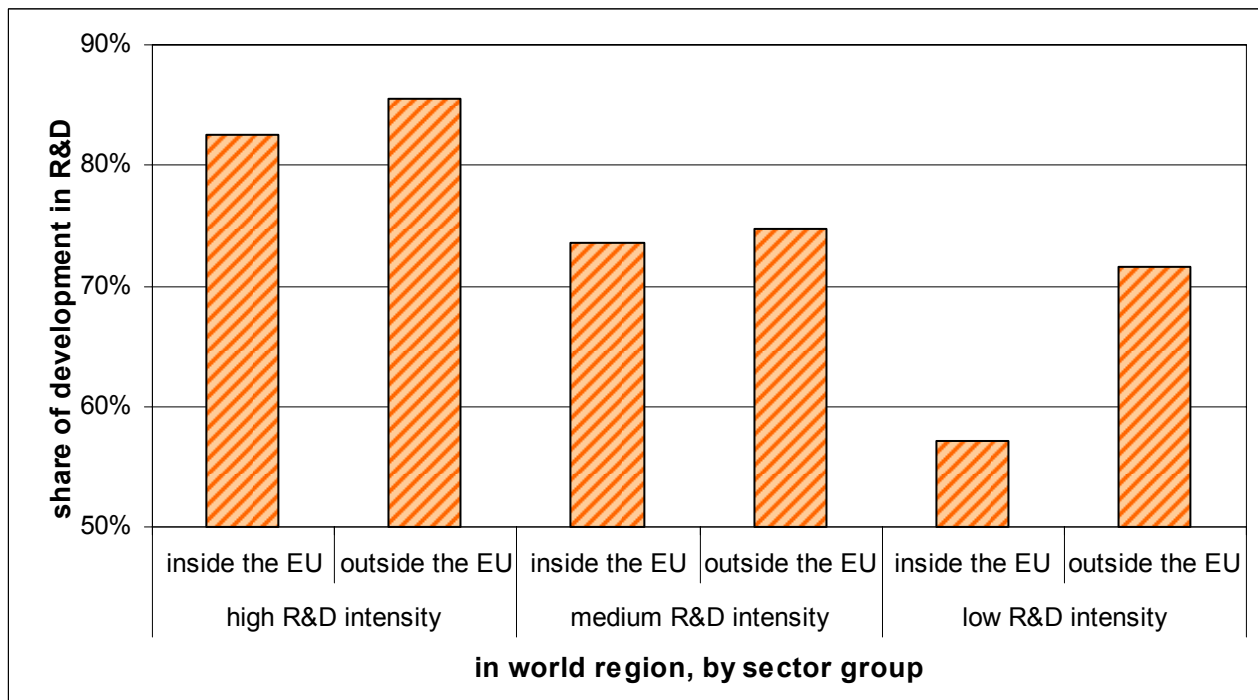


Note: The figure is based on 106 out of the 128 EU companies in the sample.

Source: European Commission JRC-IPTS (2009)

The share of Research in R&D is 25 % for activities undertaken inside the EU and 19 % outside. In Figure 14 below, the distribution of Research vs. Development per sector group and world region is examined, showing that the share of development in R&D is around 6 % higher for work executed outside the EU.

Figure 14: Shares of Development in R&D by world region and sector group



Note: The figure refers to 106 out of the 128 EU companies in the sample.

Source: European Commission JRC-IPTS (2009)

³⁴ In the 2007 survey, the share of Research in R&D was 32 % compared to 22% in the 2006 Survey.

The figure shows little differences in the content of R&D in- and outside the EU in the high and medium R&D intensity sectors (less than 3%). The only remarkable difference is for the companies in the low R&D intensity sectors, where the share of Development in R&D is almost 15 % higher outside than inside the EU. A reason for this is the weight of companies from electricity, industrial metals, utilities, and oil & gas producers within the low R&D intensity sectors. The sample composition is also responsible for differences with the past survey, where low R&D intensity sectors had the highest shares of development in R&D. Compared to the 2007 survey, the weight of the ICT sector in the present survey is higher and that of pharmaceuticals & biotechnology lower.

In the comments, the time-lag between Research and Development was underlined. While Development is a current business imperative, Research is a risky venture with uncertain outcome requiring different justification. Research is therefore a suitable target for policies targeting R&D funding, partnerships and collaboration.

7 The way forward

The 2008 survey showed interesting insights into company expectations about future R&D investment and companies' motivations for investing in research. While there has been a drop of R&D investment expectations, the qualitative analysis of underlying factors shows continuity with the past surveys, although the sample composition changes from year to year.

However, the sample sizes of 100+ responses per year limit the validity of quantitative methods to detect trends and relationships in the data. An analysis of a combined sample of the 453 responses from EU Scoreboard companies received over the past four editions of this survey is envisaged over the course of 2009. This may lead to a better insight of the relation between the factors addressed in the questionnaire with the sector groups, the level of expected increase, or the choice of location.

Data collection for the 2009 survey is planned with a very similar questionnaire together with the mailing of the 2008 IRMA Policy Analysis Report, addressing the 1000 European companies of the 2008 Scoreboard. In parallel, data collection for a quantitative time-series of EU Scoreboard companies is running in order to detect R&D fluctuations for a consistent set of the same companies since 2003. Further topics are intended to be addressed through interviews with selected companies in 2009/10.

Any results and analyses of these activities will be made publicly available at <http://iri.jrc.ec.europa.eu/>.

8 Annex A: The Methodology of the 2008 Survey

Background and Approach

The 2004 mapping of industrial R&D data showed that the official statistics on R&D and innovation, and some occasional country-specific statistics, were the main sources of these data³⁵. Private sources existed but were rarely published, and there was a shortage of qualitative and prospective information on industrial R&D. Another mapping and analysis of available trans-national data sources on industrial R&D³⁶, from the European Commission, OECD and European industry associations, showed that data on business enterprise R&D essentially drew upon retrospective surveys, based on differing approaches. Statistical offices generally collect R&D data in the form of Business Expenditure on R&D (BERD), which defines R&D from a top-down perspective. Surveys by industrial associations were undertaken sporadically, their scope was limited and the results were not often fully disclosed. The industrial R&D perspective taken in most of these surveys did not permit cross-sector comparisons at the European level.

In order to help improve research and innovation policies, while taking better account of sectoral needs and specificities, and to increase competitiveness and provide a consolidated overview and analysis of developments relevant to industrial research and innovation, together with a conduit for stakeholder views, the European Commission committed itself in October 2005 to establishing a European Industrial Research and Innovation Monitoring System "EIRIMS"³⁷. Part of EIRIMS are the Industrial Research Monitoring and Analysis (IRMA) activities, jointly carried out by the European Commission's Joint Research Centre (JRC) – Institute for Prospective Technological Studies (IPTS) and the Directorate General Research - Directorate C, European Research Area: Knowledge-based economy. IRMA activities aim to improve the understanding of industrial R&D and Innovation in the EU and to identify medium and long-term policy implications³⁸.

The present survey tackles the information gap identified above through an approach at the European level to gathering qualitative information on factors and issues surrounding and influencing companies' current and prospective R&D investment strategies.

Following the recommendations of the EIRIMS expert group³⁹, the survey explicitly avoids duplication with other R&D investment related surveys and data collection exercises (e.g. Innobarometer, the Trend Chart on Innovation, the results from the Knowledge Economy Indicators project⁴⁰, EUROSTAT's data collection of structural indicators or other ongoing surveys).

³⁵ See the results of the European Science and Technology Observatory (ESTO) study: "Mapping Surveys and other Data Sources on Industrial R&D in the EU-25 countries", Seville, June 2004

³⁶ See the results of the JRC-IPTS study: "Description of Information Sources on Industrial R&D data : European Commission, OECD and European Industry Associations", Seville, July 2004

³⁷ See: "More Research and Innovation - Investing for Growth and Employment - a common approach", COM (2005) 488 and "Implementing the Community Lisbon Programme. A policy framework to strengthen EU manufacturing - towards a more integrated approach for industrial policy", COM (2005) 474

³⁸ More information, including activities and publications, is available at: <http://iri.jrc.es/> and <http://ec.europa.eu/invest-in-research/>.

³⁹ See the "Report of the Expert Group investigating the Establishment of EIRIMS (European Industrial Research and Innovation Monitoring System)", European Commission, June, 2007

⁴⁰ See <http://kei.publicstatistics.net/index.html>

The 2005-2008 Surveys

The 2005 edition was the pilot for the survey testing different approaches of many subsamples in order to examine the responsiveness of companies. Table 3 provides an overview of the basic populations and response rates to the pilot survey and the subsequent regular editions.

Table 3: Overview of the basic populations and response rates of the 2005-2008 surveys

	Pilot Survey 2005	Survey 2006	Survey 2007	Survey 2008
Basic populations addressed				
Scoreboard	500 EU companies of the 2004 Scoreboard	700 EU companies of the 2005 Scoreboard	1000 EU companies of the 2006 Scoreboard	1000 EU companies of the 2007 Scoreboard
Industrial associations / Technology Platforms	<ul style="list-style-type: none"> • European Industrial Research Management Association (EIRMA) • European Council for Automotive R&D (EUCAR) • European Association of Automotive Suppliers (CLEPA) • European Association for Bioindustries (EuropaBio) • European Federation of Pharmaceutical Industries and Associations (EFPIA) 	not addressed	not addressed	Presentation of the survey activity to the Technology Platform leaders
From other sources	<ul style="list-style-type: none"> • 3092 companies in pharmaceuticals & biotechnology • 1499 companies in chemicals • 1509 companies in engineering & machinery 	not addressed	not addressed	not addressed
Response rates				
Total responses	593 in total (95 from Scoreboard companies)	110	118	130
Response rate in terms of number	9.4% overall (19% Scoreboard)	15.7%	11.8%	13.0%
Response rate in terms of R&D investment	n.a. overall (27% Scoreboard)	24.3%	23.1%	30.4%
Sample composition in terms of shares of R&D investment (only Scoreboard companies)				
High R&D intensity	47%	34%	41%	48%
Medium R&D intensity	37%	50%	46%	44%
Low R&D intensity	16%	16%	13%	8%

Note: n.a. = not available

Source: European Commission JRC-IPTS (2009)

Following the experience with the 2005 pilot phase of the survey and the analysis of the different subsamples, for subsequent editions it was decided to focus on the European companies in the Scoreboard. These companies received the questionnaire together with a printed Scoreboard and the printed analysis of the previous survey. Where possible, the survey is addressed to the respondents of previous surveys, otherwise to the company CEO or equivalent. This is followed-up by two rounds of printed reminders and email and phone contacts.

The responses were not filtered by the job title of the respondent as different company cultures have different policies regarding who is considered the right person to provide the information asked for. Some may be more inclined to give the true position while in others the answer may be given on behalf of the person to whom the letter was addressed.

For the 2008 survey, due to the presentation of the survey activity to the Technology Platforms, there were two non-EU companies among the respondents, while the remaining ones were from the EU. Given the characteristics of these non-EU companies, their location, size and nature of business, it was decided to include them in the analysis. The sample remains mainly one of EU companies.

The results of the surveys can be downloaded here: <http://iri.jrc.ec.europa.eu/research/survey.htm>.

R&D Investment Definition

The objective of the survey is to address R&D investment, and not R&D expenditure, due to its direct link to the Barcelona targets. In order to make the questionnaire as easy to complete as possible and so maximise the response rate, only a short definition of R&D investment, which is as close as possible to accounting standards, is provided in the questionnaire⁴¹. The definition refers mainly to the R&D as reported in the

⁴¹ See Annex B

company's most recent accounts. The definition used in the questionnaire is thus closely related to International Accounting Standard (IAS) 38 "Intangible Assets"⁴², based on the OECD "Frascati" manual⁴³, and the definition used in the EU Industrial R&D Investment Scoreboard.

Composition of the Responses

The 130 responses were classified according to the ICB sector⁴⁴ stated in the questionnaire. Sector classifications of individual companies were cross-checked with the Scoreboards. The sectors were combined into three groups according to their average R&D intensities in the 2007 Scoreboard:

- ⇒ **High (more than 5%) R&D intensity:** biotechnology, health care equipment & services, leisure goods, pharmaceuticals, software, support services, technology hardware & equipment.
- ⇒ **Medium (between 2 and 5%) R&D intensity:** aerospace & defence, automobiles & parts, chemicals, commercial vehicles & trucks, computer services, electrical components & equipment, electronic equipment, food producers, general industrials, industrial machinery, personal goods.
- ⇒ **Low (less than 2%) R&D intensity:** banks, construction & materials, electricity, fixed-line telecommunications, food & drug retailers, food producers, forestry & paper, gas, water & multiutilities, general retailers, industrial metals, industrial transportation, oil & gas producers, oil equipment, services & distribution.

Table 4 shows the distribution of the responses among the sectors with their respective R&D investment shares.

Table 4: Distribution of the responses by sectors

ICB Sector	Number of responses	Number of Scoreboard companies	Response rate by sector	Total R&D investment share compared to the 2007 Scoreboard*	R&D intensity sector group**
Biotechnology	3	58	5.2%	below 20 %	High
Computer hardware	2	10	20.0%	between 20 and 40 %	High
Health care equipment & services	2	36	5.6%	below 20 %	High
Pharmaceuticals	7	59	11.9%	below 20 %	High
Semiconductors	3	22	13.6%	below 20 %	High
Software	11	95	11.6%	above 40 %	High
Telecommunications equipment	5	30	16.7%	above 40 %	High
Other high R&D intensity sectors	2	46	4.3%		High
Subtotal high R&D intensity sectors	35	356	9.8%	37.5%	
Aerospace & defence	5	26	19.2%	between 20 and 40 %	Medium
Automobiles & parts	8	40	20.0%	between 20 and 40 %	Medium
Chemicals	9	46	19.6%	below 20 %	Medium
Commercial vehicles & trucks	5	14	35.7%	above 40 %	Medium
Electrical components & equipment	2	33	6.1%	below 20 %	Medium
Electronic equipment	7	46	15.2%	between 20 and 40 %	Medium
Fixed line telecommunications	2	15	13.3%	below 20 %	Medium
Food producers	8	36	22.2%	above 40 %	Medium
General industrials	4	22	18.2%	between 20 and 40 %	Medium
Household goods	3	29	10.3%	below 20 %	Medium
Industrial machinery	7	66	10.6%	between 20 and 40 %	Medium
Personal goods	2	18	11.1%	above 40 %	Medium
Support services	2	26	7.7%	below 20 %	Medium
Other medium R&D intensity sectors	4	92	4.3%		Medium
Subtotal medium R&D intensity sectors	68	509	13.4%	23.8%	
Banks	2	19	10.5%	between 20 and 40 %	Low
Construction & materials	2	24	8.3%	below 20 %	Low
Electricity	7	21	33.3%	between 20 and 40 %	Low
Gas, water & multiutilities	3	9	33.3%	above 40 %	Low
Industrial metals	6	13	46.2%	above 40 %	Low
Industrial transportation	3	10	30.0%	below 20 %	Low
Oil & gas producers	2	9	22.2%	between 20 and 40 %	Low
Other low R&D intensity sectors	2	30	6.7%		Low
Subtotal low R&D intensity sectors	27	135	20.0%	33.4%	
Total	130	1000	13.0%	32.3%	

Note: * For confidentiality, R&D investment shares of individual sectors are shown in ranges.

** Sector group according to the average Scoreboard R&D intensity of each sector.

Source: European Commission JRC-IPTS (2009)

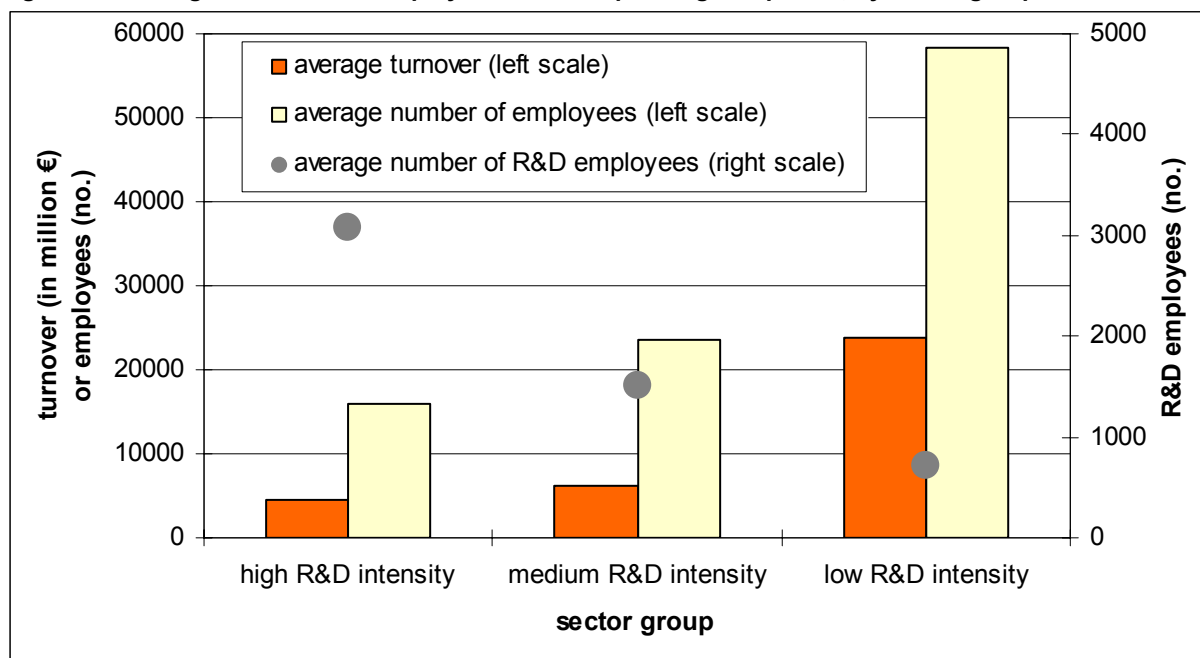
⁴² See <http://www.iasplus.com/standard/ias38.htm>

⁴³ See "Proposed Standard Practice for Surveys on Research and Experimental Development: Frascati Manual", OECD, Paris, 2002, <http://www1.oecd.org/publications/e-book/9202081E.PDF>

⁴⁴ ICB Industry Classification Benchmark (see: http://www.icbenchmark.com/docs/ICB_StructureSheet_120104.pdf)

Whereas the largest number of responses came from the medium R&D intensity sectors, the biggest shares of R&D investment in the sample is from the high R&D intensity sectors (see also Figure 1 of the section on Expectations Regarding R&D Investment). As shown in Figure 15, the average respondent to the present survey is a very large company⁴⁵. However, there are differences of company size among the sector groups.

Figure 15: Average turnover and employees of the responding companies, by sector group



Note: The figure refers to all 130 companies in the sample.
Source: European Commission JRC-IPTS (2009)

The figure above shows how average turnover and employee numbers are inversely proportional to the R&D intensity of the sector group. In addition, the average number of R&D employees is considerably bigger in the high R&D intensity sectors than in the others. This reflects the high share in overall R&D employees of large companies responding from technology hardware & equipment and pharmaceuticals & biotechnology.

Statistical remarks

Outliers were detected by analysing the distribution of the dataset in scatter- and boxplots and defining upper and lower ranges of quartiles around the median, according to the variable(s) analysed. In order to maintain the maximum information in the data, outliers were eliminated only in extreme cases and after assessing the impact on the result⁴⁶.

One-year growth is simple growth over the previous year, expressed as a percentage: $1 \text{ yr growth} = 100 \cdot ((C/B) - 1)$; 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.

Three-year growth is the compound annual growth over the previous three years, expressed as a percentage: $3 \text{ yr growth} = 100 \cdot (((C/B)^{(1/t)} - 1))$; 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.

Unless otherwise stated, the **weighted figures** presented in this report are weighted by R&D investment.

⁴⁵ The average figures for the responding companies were a turnover of €9 billion, and a workforce of 28 000 employees, of whom 1 700 employees work in R&D. Among the 130 respondents there are eight medium-sized companies according to the European Commission's SME definition (see: http://ec.europa.eu/enterprise/enterprise_policy/sme_definition/index_en.htm).

⁴⁶ For the systematic detection of outliers, an adjusted methodology from the NIST/SEMATECH e-Handbook of Statistical Methods was applied, see: <http://www.itl.nist.gov/div898/handbook/prc/section1/prc16.htm>

9 Annex B: The 2008 Questionnaire on R&D Investment

We would appreciate your response by **deadline**, preferably by using the questionnaire on our website at: <http://iri-survey.jrc.es/2008/>. Alternatively, you may return this completed form by e-mail (Alexander.Tuebke@ec.europa.eu), fax (+34.95.448.83.26), or post¹.

Your response will be treated as **confidential**. The information will only be used within this study and aggregated for analysis. The European Commission is committed to data protection and privacy².

It will take about **20 minutes** to complete the questionnaire.

We will automatically inform you of the results of the survey when they are available (please ensure that you have provided your e-mail address below).

Thank you very much for your contribution!

Name of the company you are responding for: _____
Its primary sectors of activity: _____
Your name: _____
Job title: _____
E-mail: _____
Phone number: _____

The European Commission plans to clarify trends revealed in the analysis, which may involve short follow-up interviews. Please **tick here** if you *do not* wish to be approached for this purpose.

Definition of R&D investment

For the purposes of this questionnaire, **'R&D investment' is the total amount of R&D financed by your company** (as typically reported in its accounts, exclusive of R&D from public sources).

¹ European Commission, Institute for Prospective Technological Studies (IPTS), Attn.: Alexander Tübke, Edificio Expo, Calle Inca Garcilaso s/n, E-41092 Seville, Spain, Tel : +34.95.448.83.80

² see the Disclaimer on page 6

A. Corporate background

1. How many employees in total work in your company?
About _____.
2. How many employees work on R&D in the company?
About _____.
3. What was its turnover in the last financial year?
About € _____ million for the financial year ending _____.

B. R&D investment levels and trends

4. What was your company's R&D investment in the last financial year?
About € _____ million.
5. At what rate do you expect the company to increase its overall R&D investment over the next three years, in real terms?
About _____ % per annum.
6. How much of your R&D investment is in research³ and how much is in development⁴?

	research		development	
(a) R&D carried out <i>inside the EU</i>	_____ %		_____ %	
(b) R&D carried out <i>outside the EU</i>	_____ %		_____ %	
7. How relevant are the following drivers for *increasing* the company's overall R&D investment?
Please rate on a scale from 1 (irrelevant) to 5 (highly relevant).

	Irrelevant					Highly relevant
	1	2	3	4	5	
(a) Market pull	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Exploiting technological opportunities (technology push)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Competition from companies located in:						
(c1) the European Union	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c2) other developed countries, e.g. the US or Japan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c3) emerging countries, e.g. China or India	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) Improving the company's productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) Meeting product market regulation and other legal frameworks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

³ Research is undertaken primarily to acquire new knowledge of the underlying foundation of phenomena and facts, with or without any particular application or use in view.

⁴ Development draws on existing knowledge to produce new, or to improve substantially, products, processes and services.

C. R&D location strategy and management

8. Please estimate the distribution of your company's in-house R&D activity among the following world regions at present and in three years?

Present distribution	R&D carried out:	Expected distribution in three years
%	in the European Union	%
%	in other European countries	%
%	in the US and Canada	%
%	in Japan	%
%	in China	%
%	in India	%
%	in the Rest of the World	%

9. For supporting your R&D activities *inside the European Union*, how important are the following public policies? *Please rate on a scale from 1 (unimportant) to 5 (critically important).*

	Un- important 1	2	3	4	Critically important 5
(a) Direct public aid from the EU.e.g. the Framework Programme or the Structural Funds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Direct public aid from other sources, e.g. R&D grants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Indirect public aid, e.g. publicly supported loan and guarantee schemes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) Tax incentives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) Public procurement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) European Technology Platforms ⁵	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g) Joint Technology Initiatives ⁶	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h) Meeting product market regulation and other legal frameworks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i) Policies that foster cooperation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(j) Policies that support the exchange of human resources in R&D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(k) Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

⁵ European Technology Platforms are led by industry and provide a platform to define R&D priorities, timeframes and action plans on a number of strategically important issues where achieving Europe's future growth, competitiveness and sustainability objectives is dependent upon major research and technological advances in the medium to long term (see http://cordis.europa.eu/technology-platforms/home_en.html).

⁶ Joint Technology Initiatives are a major new element of the EU's 7th Research Framework Programme. They provide a way of creating new partnerships between publicly and privately-funded organisations involved in research, focussing on areas where research and technological development can contribute to European competitiveness and quality of life (see <http://cordis.europa.eu/fp7/jtis/>).

10. Which country do you consider the *most attractive* location for the company's R&D?

⇒ _____

How important are the following factors for this consideration? *Please rate on a scale from 1 (unimportant) to 5 (highly important).*

	Un- important 1	2	3	4	Highly important 5
(a) Access to markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) High availability of researchers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Low labour costs of researchers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) Access to specialised R&D knowledge and results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) Reliable legal framework for R&D, e.g. Intellectual Property Rights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) Macroeconomic and political stability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g) Proximity to technology poles ⁷ and incubators ⁸	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h) Proximity to other activities of your company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i) Proximity to suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(j) Access to R&D cooperation opportunities, including with regulatory bodies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(k) Access to public support for R&D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(l) Regulation of your product markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(m) Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D. Comments or suggestions

⇒ _____

Thank you very much for your contribution!

⁷ "Technology poles" are areas where R&D active companies, institutions and universities are concentrated.

⁸ "Incubators" are structures that support innovative startup companies in order to increase their survival rates.

Privacy Statement

The 2008 EU Survey on R&D Investment Business Trends is carried out by the Industrial Research and Innovation (IRI) action of the European Commission's Joint Research Centre (JRC), Institute for Prospective Technological Studies (IPTS). The survey is directed at the 1000 European companies in the 2007 EU Industrial R&D Investment Scoreboard.

The European Union is committed to data protection and privacy as defined in Regulation (EC) n° 45/2001. This survey is under the responsibility of the IRI action leader, Andries Brandsma, acting as the Controller as defined in the above regulation. The Controller commits himself dealing with the data collected with the necessary confidentiality and security as defined in the regulation on data protection and processes it only for the explicit and legitimate purposes declared and will not further process it in a way incompatible with these purposes. These processing operations are subject to a Notification to the Data Protection Officer (DPO) in accordance with Regulation (EC) 45/2001.

Purpose and data treatment

The purpose of data collection is to establish the analysis of the *2008 EU Survey of R&D Investment Business Trends*. This survey has a direct mandate from the Commission's 2003 Action Plan "Investing in Research" (COM 2003 (226) final, see http://ec.europa.eu/invest-in-research/action/2003_actionplan_en.htm). The personal data collected and further processed are:

- Company: name, primary sectors of activity, home country, company size
- Contact Person: name, job title, phone number, e-mail address

The collected personal data and all information related to the above mentioned survey is stored on servers of the JRC-IPTS, the operations of which underlie the Commission's security decisions and provisions established by the Directorate of Security for these kind of servers and services. **The information you provide will be treated as confidential and aggregated for analysis.**

Data verification and modification

In case you want to verify the personal data or to have it modified respectively corrected, or deleted, please write an e-mail message to the address mentioned under "Contact information", by specifying your request. Special attention is drawn to the consequences of a delete request, in which case any trace to be able to contact you will be lost. Your personal data is stored as long as follow-up actions to the above mentioned survey are necessary with regard to the processing of personal data.

Contact information

In case you have questions related to this survey, or concerning any information processed in this context, or on your rights, feel free to contact the IRI Team, operating under the responsibility of the Controller at the following email address: jrc-ipts-iri@ec.europa.eu.

Recourse

Complaints, in case of conflict, can be addressed to the European Data Protection Supervisor (EDPS) at www.edps.europa.eu.

European Commission

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Abstract

This document presents the findings of the fourth survey on trends in business R&D investment. While continuing along similar lines as previous editions, it contains further insights into (mainly larger) company expectations about their future R&D investments and the underlying motivations. The results are drawn from 130 responses from the 1000 EU-based companies listed in the 2007 EU Industrial R&D Investment Scoreboard. These 130 companies are responsible for R&D investment worth almost €40 billion, constituting 30% of the total R&D investment by the EU Scoreboard companies.